

Chapter 290. Subdivision of Land

[HISTORY: Adopted by the Planning Board of the City of Northampton 12-11-2014, as amended 1-8-2015. Subsequent amendments noted where applicable.]

GENERAL REFERENCES

Buildings, numbering of — See Ch. **149**.

Earth removal — See Ch. **168**.

Stormwater management — See Ch. **281**.

Wetlands protection — See Ch. **337**.

Zoning — See Ch. **350**.

Article I. Title and Purpose; Authority

§ 290-1. Title.

These rules and regulations of the Northampton Planning Board shall be known and may be cited as the “Rules and Regulations Governing the Subdivision of Land, City of Northampton, Massachusetts,” which herein are called “rules and regulations.”

§ 290-2. Purpose.

- A. The Rules and Regulations Governing the Subdivision of Land, City of Northampton, Massachusetts, have been enacted for the purpose of protecting the safety, convenience and welfare of the inhabitants of Northampton 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 the Board of Appeals under these rules and 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 on 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 Northampton Zoning Ordinance;^[1] for securing adequate provision for water, sewerage, drainage, underground utility services, fire, police, streetlighting, and other similar municipal equipment, and other requirements where necessary in a subdivision; and for coordinating the ways in a subdivision with each other and with the public ways in the City and with the ways in neighboring subdivisions.

[1] *Editor's Note: See Ch. 350, Zoning.*

- B. It is the intent of these rules and regulations that any subdivision plan filed with the Planning Board shall receive the approval of such Board if said plan conforms to the recommendation of the Board of Health and to these rules and regulations; provided, however, that the Planning Board may, when appropriate, waive, as provided for in § 290-5, such portions of these rules and regulations as is deemed advisable.
- C. These rules also provide the technical standards for compliance with certain infrastructure where specified within Chapter 350, Zoning.

§ 290-3. Authority.

Under the authority vested in the Planning Board of the City of Northampton by MGL c. 41, § 81Q, said Board hereby adopts these amended Rules and Regulations Governing the Subdivision of Land in the City of Northampton.

Article II. Definitions

§ 290-4. Terms defined.

For the purpose of these rules and regulations, unless a contrary intention clearly appears, the terms and words defined in the Subdivision Control Law^[1] shall have the meanings given therein. The following terms and words shall have the following meanings:

APPLICANT

Either the owner of the land stated in the application for subdivision or all the owners where title is held jointly, in common, or in tenancy by the entirety, including corporations. An agent, representative, or assignee may act for an owner, provided that written evidence of such fact is submitted. Evidence in the form of a list of its officers and designated authority to sign legal documents shall be required for a corporation.

BOARD

The Planning Board of the City of Northampton.

CERTIFIED BY (OR ENDORSED BY) A PLANNING BOARD

As applied to a plan or other instrument required or authorized by the Subdivision Control Law to be recorded shall mean bearing a certification or

endorsement signed by a majority of the members of the Planning Board or any other person authorized by the Planning Board to certify or endorse its approval or other action and named in a written statement to the Register of Deeds and Recorder of the Land Court, signed by a majority of the Planning Board.

CITY ENGINEER

The Director of Public Works of Northampton or his/her designee.

CRITICAL ROOT ZONE (CRZ)

Also known as the "essential root zone"; the portion of a tree's root system that is the minimum necessary to maintain the stability and vitality of the tree. It can be calculated by using the following formula: tree trunk diameter at 4.5 feet above the ground multiplied by two, then converted to feet. For example, for a tree with a trunk diameter of 10 inches, the critical root zone would have a diameter of 20 feet.

DIGITAL CAD FILE STANDARDS

When these are required, the following format is required:

- A. In an electronic format acceptable to Planning and Sustainability.
- B. All horizontal and vertical control data must be listed in metric and U.S. Survey feet.
- C. Horizontal and vertical control datum shall be noted. Current datum is Massachusetts State Plane Mainland NAD 83 and NAVD 88.
- D. The plans must document which control points or base stations were used as references.
- E. "Model space" must be the source of any DXF or ESRI Shapefiles.
- F. Line symbols must be continuous.
- G. Point features must be represented by point primitives.
- H. Linear features should be represented by polylines.
- I. Linear features should not be broken by text.
- J. All polygons should "close."
- K. Details, insets, title blocks, and other non-GIS features should be isolated on layers separate from spatial features.
- L. A data dictionary enumerating and describing the contents of each layer contained in the drawing. The descriptive terms shall not be abbreviated.
- M. For all submissions except ANR plans, files must be georeferenced to their correct state plane coordinates.

DIGITAL GRAPHIC FILE STANDARDS

When these are required, the following format is required:

- A. All files must be in compressed PDF and include the entire submittal (plans, including signatures and stamps, forms and all supporting material).
- B. For definitive plan submittals, those sections consisting of a majority of text shall be optical character recognition (OCR) ready.

DRIP LINE

A circle that can be drawn on the soil around a tree directly under the tips of its outermost branches. Rainwater tends to drip from the tree at this point.

ENGINEER

Any person who is registered or otherwise legally authorized by the Commonwealth of Massachusetts to perform professional civil engineering services.

GREEN INFRASTRUCTURE

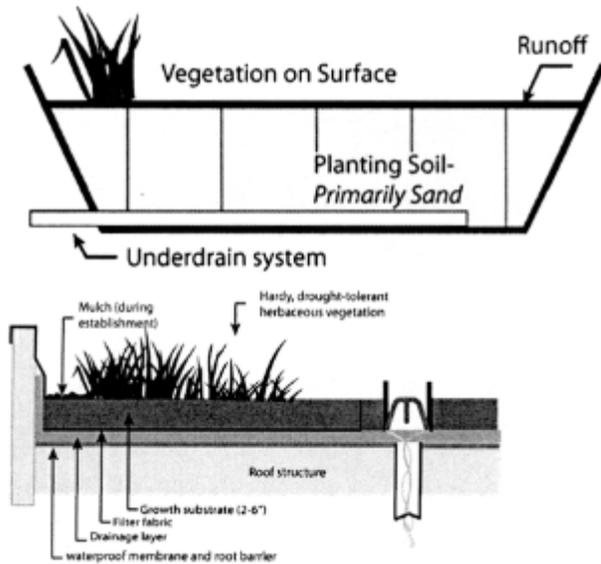
Any series of applications to manage stormwater runoff that include open natural systems to filter and slow runoff, including wet ponds, rain gardens, tree filters, bioretention swales.

LIMITED-ACCESS ROAD

A road with the sole purpose of carrying through traffic and providing no direct access to abutting properties.

LOW-IMPACT DEVELOPMENT (LID)

- A. A suite of landscaping and design techniques that attempt to maintain the natural, pre-developed ability of a site to manage rainfall. LID techniques capture water on site and filter it through vegetation so that it soaks into the ground on site. This results in utilizing rainwater as a resource. LID protects the natural ability of the site to capture precipitation, keep it clean and allow it to recharge the local water table. LID further minimizes post-development stormwater runoff rates and volumes, soil erosion and sedimentation, stream channel erosion, and non-point source pollution associated with stormwater runoff.
- B. Examples include, but are not limited to, site design, open channels, rain barrels and cisterns, vegetated buffers and swales, rain gardens, and green roofs. Green roof systems (or roof gardens) are an LID technique where the building's roof is planted with vegetation on a specialized drainage infrastructure. Green roofs capture, filter, and temporarily store rainwater. These formally designed and constructed measures must follow standard principles as specified in various resources cited in § 290-18C.



OWNER

The owner of record as shown by the records in the Hampshire County Registry of Deeds or Land Court.

PLAN, DEFINITIVE

A proposed, detailed plan of a subdivision submitted by the applicant to be recorded in the Registry of Deeds or Land Court when approved by the Planning Board.

PLAN, PRELIMINARY

A plan of a subdivision submitted by the applicant showing sufficient information to form a clear basis for discussion and clarification of its general contents and for the preparation of a definitive plan.

RAIN GARDEN/RETENTION

See “low-impact development.”

SUBDIVISION

Generally means the division of a tract of land into two or more lots and shall include resubdivision, and, when appropriate to the context, shall relate to the process of subdivision of the land or territory subdivided. Subdivision and divisions of land that do not constitute a subdivision are further defined in the Massachusetts Subdivision Control Law, MGL c. 41, §§ 81K to 81GG, inclusive, and applicable case law.

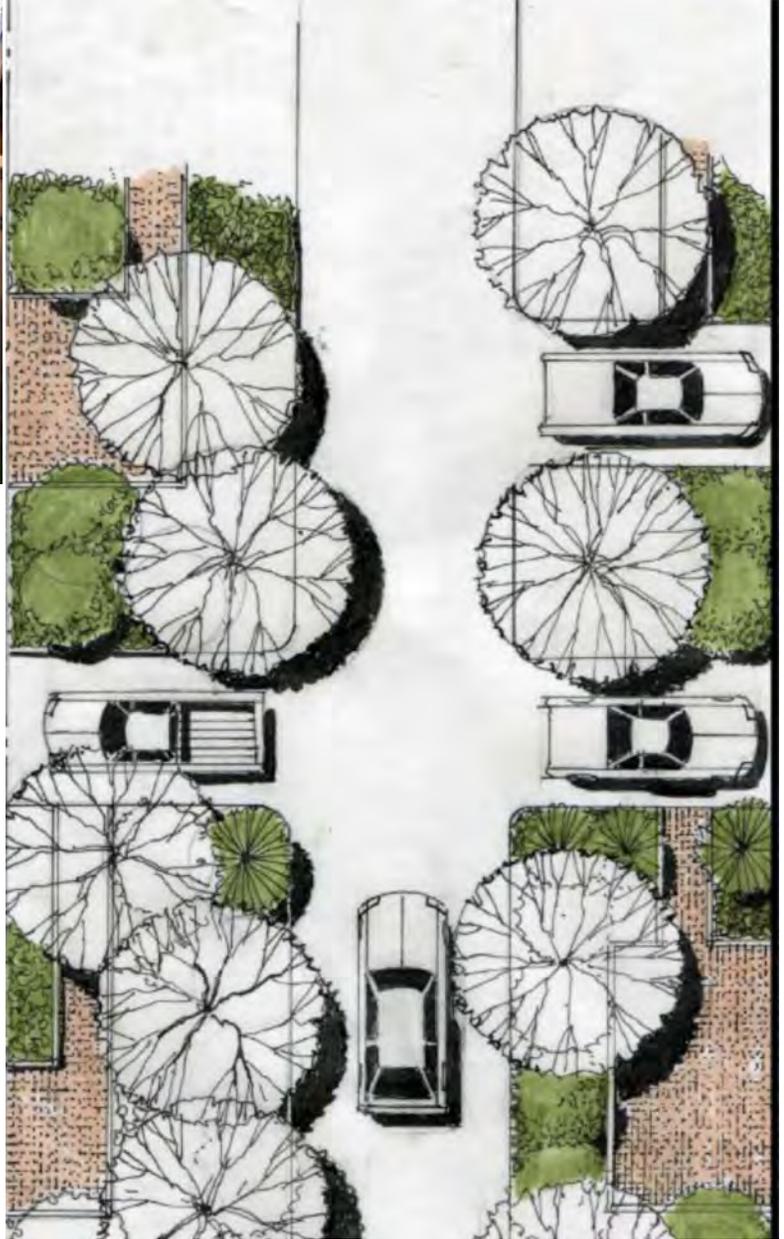
SUBDIVISION CONTROL LAW

MGL c. 41, §§ 81K to 81GG, inclusive, entitled "Subdivision Control," as last amended.

SUBDIVISION STREET TYPES

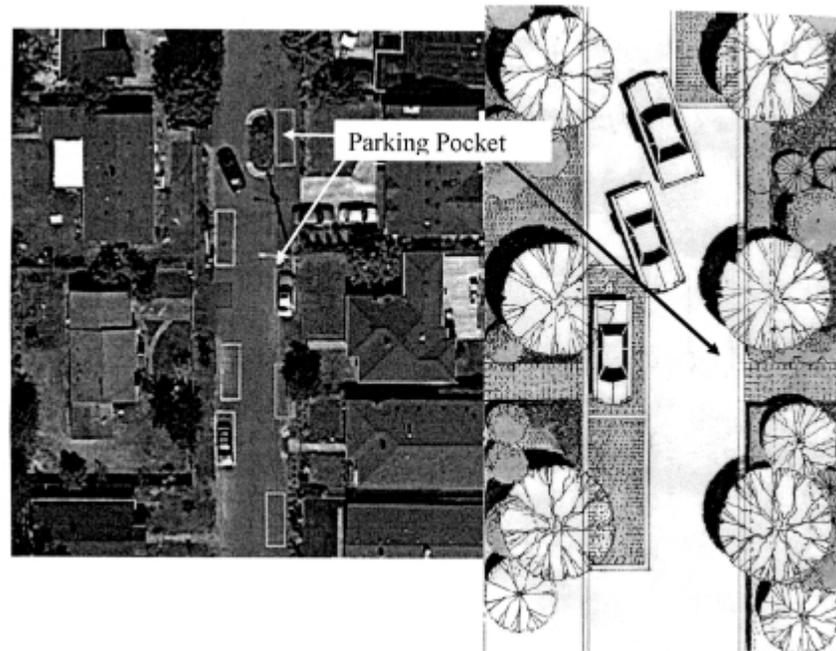
A. PRIVATE ALLEY

A narrow, one-way vehicular and pedestrian route that is interspersed with "green infrastructure" to manage stormwater runoff. Alleys may not be accepted as City streets and do not create legal street frontage. Curbing is limited to sections of alleys where they intersect with streets that are not alleys. Contrasting materials are used to regulate speeds and to address stormwater.



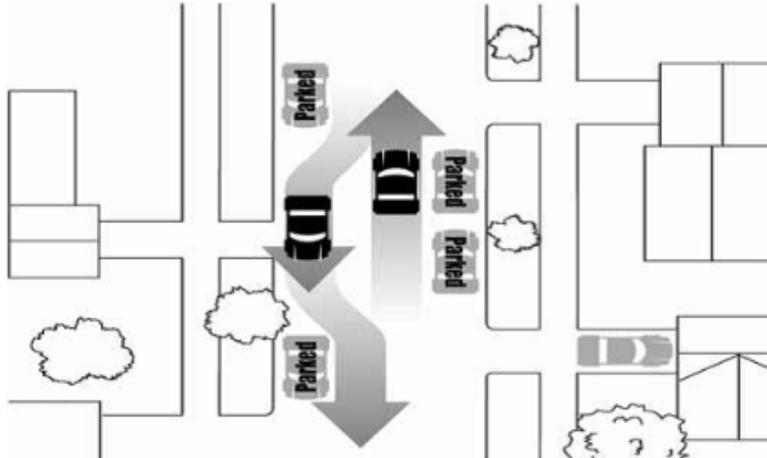
B. **RESIDENTIAL SHARED STREET**

A private, narrow two-way street designed for pedestrians and vehicles traveling at slow enough speeds so as to share the same space. Typically parking blocks, street furniture such as benches, trash bins, planter boxes, bollards placed on alternating sides of the street force slower vehicular speeds to enhance pedestrian safety. No sidewalk or curbing is required, and rain gardens, bioretention swales or other on-site infiltration mechanisms are used to manage stormwater. Such streets are appropriate as neighborhood connecting streets between two through streets, but not for main through streets. Shared streets may be used to create legal street frontage but may not become public ways.



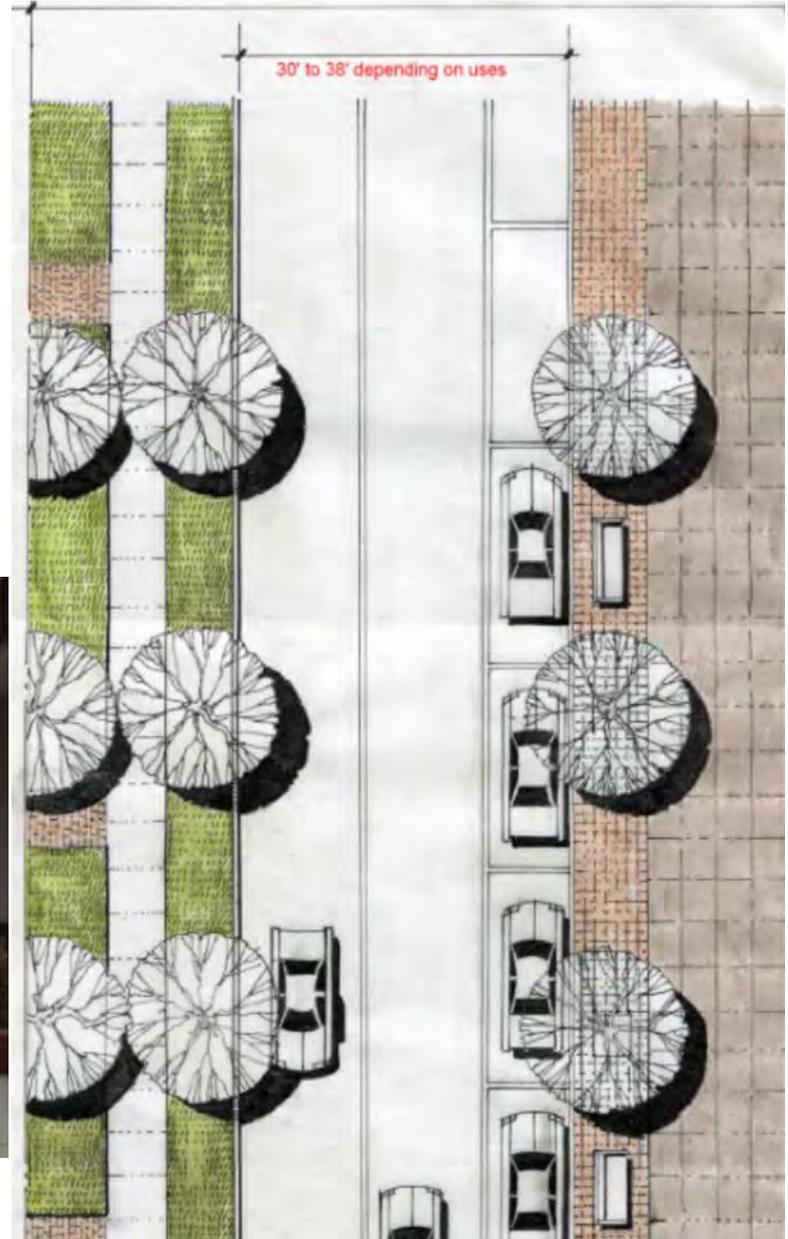
C. **RESIDENTIAL YIELD STREET**

A low-speed two-way street where sidewalk infrastructure is separated from vehicular traffic. Low traffic speeds are designed into the street through creation of alternating on-street parking "pockets." Bi-directional traffic flow yields to oncoming traffic as the travel lane is shared space for each direction. Intersections have crosswalks with curb extensions to narrow pedestrian crossing widths.



D. MIXED USE/COMMERCIAL STREET

A low-speed two-way street where sidewalk infrastructure is separated from vehicular traffic. Slower vehicular speeds are designed into the street through creation of on-street parking with curb extensions at intersections which are created to shorten pedestrian crossing distances and slow speed for turning vehicles. The tree belt also serves as a street furnishing zone.



SURVEYOR

Any person who is registered or otherwise legally authorized by the Commonwealth of Massachusetts to perform land surveying services.

WAY

A right-of-way or means of access to a lot. A public way is a way which has been accepted by, and the land owned by, the City of Northampton or by other means created as a public street. Any other way (private way) is a way over land which is owned by a private party (alleys and shared streets are always private), but which is set forth by deed covenant, deed description, or other means as a private way.

[1] *Editor's Note: See MGL c. 41, § 81K et seq.*

Article III. General Regulations

§ 290-5. Waiver of requirements; limited waivers.

- A. The Planning Board may, in special and appropriate cases, waive strict compliance with such portions of these rules and regulations, as provided for in MGL c. 41, § 81R, where such action is in the public interest and not inconsistent with the purpose and intent of the Subdivision Control Law.
- B. Limited waivers may be granted when appropriate to encourage:
 - (1) Development which is in keeping with the character of traditional neighborhood development design, similar to that of Northampton pre-World War II development in Downtown, Florence, Baystate, and Leeds.
 - (2) A permanent pool of affordable housing.
 - (3) Green development practices such as green roofs, permeable pavement, additional permanently protected public parks, community gardens, recreation areas, and open space over and above that required by zoning.
- C. A request for a waiver of a requirement, rule, or regulation shall be made in writing by the applicant, and submitted, whenever feasible, with the submission of the preliminary plan.
- D. If the Planning Board approves the request for a waiver, it shall endorse conditions of such waiver (if any) on the plan or set them forth in a separate instrument attached to and referenced to the plan, which shall be deemed a part of the plan. The Planning Board shall notify the applicant in writing of its approval, disapproval, or approval with conditions.

§ 290-6. Amendments.

These rules and regulations or any portion thereof may be amended from time to time in accordance with MGL c. 41, § 81Q.

§ 290-7. Validity.

The invalidity of any section, paragraph, clause or provision of these rules and regulations shall not invalidate any other section, paragraph, clause or provision therein.

§ 290-8. Coordination with municipal departments and other agencies.

In the City of Northampton, certain services are provided to subdivisions under the jurisdiction of various City departments and other quasi-public agencies. Compliance with the applicable regulations and requirements of these agencies and departments shall be required before a plan is approved by the Planning Board, and certification of performance relative to the proper construction and installation of respective utilities shall be required before the performance guarantee can be reduced or released.

§ 290-9. Forming subdivisions.

No person shall make a subdivision, within the meaning of the Subdivision Control Law, of any land within the City, 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, approved and endorsed by the Planning Board as hereinafter provided, and recorded at the Hampshire County Registry of Deeds.

§ 290-10. Effect of prior recording of subdivision of land.

The recording of a plan of land within the City in the Registry of Deeds of Hampshire County prior to the effective date of the Subdivision Control Law in the City of Northampton, showing the division thereof into existing or proposed lots, sites or other divisions and ways furnishing access thereto, shall not exempt such land from the application and operation of these rules and regulations, except as specifically exempt by MGL c. 41, § 81FF.

§ 290-11. Compliance with zoning.

No plan of a subdivision shall be approved unless all of the building lots shown on the plan comply with Chapter **350**, Zoning, of the City of Northampton, Massachusetts. (See also § **290-20**.)

§ 290-12. Requirements for more stringent standards.

The Planning Board may, in special and appropriate cases, require the developer to follow more stringent standards than the ones mentioned in these rules and regulations. In doing so, the Planning Board shall notify the developer in writing of said standards and the reason they are required.

Article IV. Plans Believed Not to Require Approval

§ 290-13. Submission to Planning Board for determination.

Any person who wishes a plan of land in the City of Northampton to be recorded in the Registry of Deeds or to be filed with the Land Court, who believes that his plan does not require approval under the Subdivision Control Law, may submit his plan as hereinafter provided, to the Planning Board for such determination.

§ 290-14. Required document submissions.

- A. The applicant shall submit to the Planning Board a Mylar and seven prints of the plans accompanied by seven copies of a completed application form (see § 290-66) and the appropriate fee (§ 290-63), together with any necessary evidence to show that the plan does not require approval. Each copy of the plan must be folded to no larger than 12 inches by 12 inches and attached to the application.
- B. The applicant may submit a non-subdivision plan to the Planning Board, either by hand delivery or by registered mail, postage prepaid, first to the City Clerk (for date stamping) and then (minus one copy held by the City Clerk) to the Office of Planning and Sustainability, stating the date of submission for such determination.
- C. Receipt by the City Clerk and the Office of Planning and Sustainability of such notice, plans and necessary documentation as may be required in these rules and regulations shall constitute the effective date of submission.

§ 290-15. Massachusetts State Plane Coordinate System control.

- A. If any portion of a plan falls within 150 meters of a published control point shown on the most recent version of a plan available in the Office of Planning and Sustainability entitled "City of Northampton, Control Points," or current documentation provided by the Northampton Department of Public Works, the plan must have at least four survey-quality (centimeter, or its English equivalent, accuracy) points on each sheet tied into the Massachusetts State Plane Coordinate System (NAD 1983 datum and NAVD 1988 data), using said published control points or the global positioning

system. The plan must note the metric and U.S. survey feet coordinates of the four tie-in points, the datum, and the source and location of monument(s) used for data.

- B. All plans must be accompanied by a digital CAD file. (See definitions in § **290-4**.) Plans shall show all buildings owned by the subject landowner(s) within 100 feet of any newly created property lines.

Article V. Preliminary Plans

§ 290-16. Submission to Board of Health and Planning Board; staking of property lines on site.

- A. A preliminary plan of a residential subdivision may be submitted by the applicant to the Board of Health and to the Planning Board for discussion and approval by the Planning Board. Preliminary plans are required for nonresidential subdivisions and must be submitted by the applicant to the Board of Health and to the Planning Board for discussion and approval by the Planning Board. The submission of such a preliminary plan will enable the subdivider, the Planning Board, and other municipal agencies to discuss and clarify the problems of such subdivision before a definitive plan is prepared. The degree of review and effectiveness of the Planning Board's comments shall be in direct proportion to the accuracy and amount of information provided by the applicant on the preliminary plan.
- B. The center line of the proposed roadway and all property lot lines shall be adequately and accurately staked or flagged on the site sufficient for identification by the Planning Board members and City officials when site visits are made.

§ 290-17. Submission of plan and forms.

- A. The plan, accompanying forms, documentation, and the applicable fee shall be submitted by hand delivery or registered mail first to the City Clerk (for date stamping) and then (minus one held by the City Clerk) to the Office of Planning and Sustainability.
- B. The applicant shall submit 14 prints (three may be reduced sets), dark line on white background, of the preliminary plan, seven additional copies of the preliminary plan page showing wetlands (These additional copies may be 11 inches by 17 inches reduced-scale copies.), 14 copies (three may be reduced) of a locus plan overlaid on the most recent MassGIS orthophotos or other high-quality low-elevation air photos, and 14 copies of the required forms (see § **290-66**) to the City Clerk and the Office of Planning and Sustainability, together with all other information and documentation as required in these rules and regulations. Each copy of the plan must be folded to no larger than 12 inches by 12 inches and attached to a copy of the application and associated supporting material. The Planning Board shall file prints with the Board of Health, the Fire Department, the Conservation Commission, and Department of Public Works. The Planning Board may decide to forward plans to other City agencies and/or departments for their review. A digital graphic file must accompany all plans. (See definitions in § **290-4**.)

- C. Electronic presentation of plan in PowerPoint PPT format or in a format acceptable to Office of Planning and Sustainability staff. The first slide in any presentation shall be a locus plan on the most recent MassGIS orthophotos or other high-quality low-elevation air photos. The applicant's entire presentation must be shown on these slides. Applicants may bring prints for backup, but it is expected that all presentations will be made on the City's LCD projector to make viewing easier for the Board and the public.

§ 290-18. Contents of plan.

- A. Developers are encouraged to propose an open space residential development (cluster).
- B. Developers are encouraged to lay out streets along east-west or north-south axes in order to allow building siting to take advantage of passive solar heat gain and accommodate future solar electric installations on south-facing roofs.
- C. Developers are encouraged to incorporate low-impact development (LID) techniques in order to minimize the effects of post-development stormwater runoff, specifically increases in stormwater runoff rates and volumes, post-construction soil erosion and sedimentation, stream channel erosion, and non-point source pollution associated with post-development stormwater runoff.
 - (1) Developers must show that LID techniques are not feasible from a design perspective based on issues of soils, topography, scale/size of project prior to designing traditional pipe and hard containment infrastructure. If incorporating these techniques, a preliminary LID plan is required and should refer to practices outlined in the:
 - (a) LID Design Standards of the Pioneer Valley Planning Commission's Valley Vision II Toolbox; and/or
 - (b) Massachusetts Office of Coastal Zone Management's The Practice of Low Impact Development.
 - (2) The Massachusetts DEP stormwater standards as incorporated into the state's Wetlands Protection Act regulations have also established a "LID site design credit" whereby in exchange for directing runoff from roads and driveways to vegetated open areas, preserving open space with a conservation restriction, or directing rooftop runoff to landscaped or undisturbed areas, developers can reduce or eliminate the traditional best management practices (BMPs) used to treat and infiltrate stormwater. (More information is available in Volume 3 of the Massachusetts Stormwater Handbook.)
- D. Developers should consider "green alley" and "shared streets" options with LID.
- E. The preliminary plan shall be drawn at a scale of one inch equals 100 feet or greater on twenty-four-inch by thirty-six-inch sheets. Said plans shall show sufficient information about the subdivision to form a clear basis for discussion and for the preparation of the definitive plan. In addition, the plan shall show at least the following information:
 - (1) The subdivision name, boundaries, true North arrow, date of submission, scale, legend and title "Preliminary Plan."

- (2) The names and addresses of the owners of record, the applicant and the names, addresses and professional seals of the Massachusetts registered civil engineer and land surveyor.
- (3) The names and addresses of all abutters within 200 feet, as determined from the most recent tax list.
- (4) Existing and proposed lines of streets, proposed names of the latter, rights-of-way, easements, and any public or common areas within the subdivision. Purpose of easements shall be indicated.
- (5) Location, names and present widths of streets bounding, approaching, or within reasonable proximity of the subdivision.
- (6) Location of natural waterways and water bodies on the subdivision parcel(s) and within 200 feet of the subdivision. A notation as to whether the streams are shown on the USGS as perennial or intermittent unless the Conservation Commission has already made a determination.
- (7) Boundary lines of all proposed lots with approximate dimensions and lot areas in square feet.
- (8) Location of all structures on and within 100 feet of the proposed subdivision.
- (9) The existing and proposed topography at a five-foot contour interval or better. Datum must be USGS mean sea level; major site features, such as existing stone walls, fences, buildings, large trees, rock ridges and ledge, swamps, historic features and wooded areas.
- (10) Whenever applicable and in a general manner, the proposed and existing storm drainage, sanitary sewer and water systems.
- (11) A sketch of the applicant's and other owners' parcels of contiguous unsubdivided land, showing possible or contemplated development and street layout, if applicable.
- (12) When multiple sheets are necessary, match lines shall be used and referenced. An index plan graphically indicating the arrangement of said standard (24 inches by 36 inches) sheets at a suitable scale shall be provided.
- (13) A locus or location plan(s) at one inch equals 500 feet or greater showing the subdivision on an orthophoto base and its location to the surrounding roadways and physical features and drainage boundaries for watersheds and streams. The plan shall show the ownership and house number of all surrounding parcels of land.
- (14) The applicant shall request, in writing, to the Planning Board, any proposed waivers of a requirement, rule or regulation it may require.
- (15) Location of all future/potential roads.

§ 290-19. Action by Planning Board.

After submission, the preliminary plan will be reviewed by the Planning Board, Board of Health, Chief of the Fire Department, Conservation Commission, the

DPW Director and other municipal agencies and departments to determine whether it is in compliance with the design standards as set forth in these rules and regulations and with any additional requirements of the above-mentioned boards, municipal agencies and departments.

- A. Within 21 days after the date of submission, the Board of Health, the Chief of the Fire Department, Conservation Commission, DPW Director and other municipal agencies and departments shall notify the Planning Board of their respective approval or disapproval of the preliminary plan. If the plan is disapproved, the Planning Board shall list its reasons in writing.
- B. Within 45 days after submission of the preliminary plan, the Planning Board shall approve, or approve with modifications, or disapprove said preliminary plan, and in the case of disapproval, the Board shall state in detail the reasons for its disapproval.
- C. The Planning Board shall file its decision with the City Clerk, and shall send a copy of the decision to the applicant.
- D. Approval of the preliminary plan by the Planning Board does not constitute approval of a subdivision and does not authorize the owner to proceed with construction of roadways and/or other work in the subdivision.
- E. The Planning Board will not approve plans until issues relating to road layout, road alignment, intersections with existing streets, vehicular and nonvehicular connections to adjoining properties, and general project issues have been satisfactorily addressed. Other strictly engineering issues, such as detailed drainage, water and sewer engineering, may be addressed at the definitive stage. If the applicant does not provide engineering analysis at the preliminary stage, however, the Planning Board will not be able to provide feedback and any approval is based on the applicant being able to satisfactorily address these issues at the definitive plan stage.

Article VI. Definitive Plans

§ 290-20. Submission to Planning Board; applicability of subdivision and zoning regulations in effect at submission.

- A. A definitive plan of a subdivision must be submitted to the Planning Board. Said plan shall be governed by the subdivision regulations and zoning in effect at the time of submission of such plan, or in effect at the time of submission of a preliminary plan, provided that a definitive plan is submitted in accordance within the times set forth in zoning and subdivision control law, MGL Chapter 40A.
- B. A definitive plan shall also be governed by the zoning in effect at the time of submission of such plan or at the time of submission of a preliminary plan from which a definitive plan is evolved, in accordance with the appropriate provisions of Chapter 40A of the General Laws, as amended.

§ 290-21. Submission of plan and forms.

- A. The plan, application, documentation and the applicable fee shall be submitted by hand delivery or registered mail first to the City Clerk (for date stamping) and then (minus one copy held by the City Clerk) to the Office of Planning and Sustainability.
- B. The full submission shall consist of:
 - (1) Sixteen copies of the properly executed application. (See § 290-66.)
 - (2) Sixteen prints (dark line on white background) of the definitive plan (including all plans, maps and cross-sections, and documents required in §§ 290-22 and 290-23), together with all other information and documentation as required in these rules and regulations, seven additional copies of the preliminary plan page showing wetlands, and 16 copies of a locus plan overlaid on the most recent MassGIS or other high-quality orthophotos. Fold each copy of the plan to no larger than 12 inches by 12 inches and attach the application and associated material to each copy. The Planning Board shall file prints with the Board of Health, the Fire Department, the Conservation Commission, and the Department of Public Works.
 - (3) The appropriate fee (§ 290-63).
 - (4) A sketch plan showing a possible prospective street layout for any adjacent unsubdivided land owned or controlled by the owner or applicant of the subdivision and also showing topography, unless such a plan has already been submitted to the Planning Board.
 - (5) A digital CAD file and a digital graphic file must accompany all plans. (See definitions in § 290-4.) After final approval by the Planning Board, a digital CAD file in both model and paper space versions must be submitted to the DPW and Office of Planning and Sustainability.
 - (6) Electronic presentation of plans in PowerPoint PPT format or in a format acceptable to Office of Planning and Sustainability staff. The first slide in any presentation shall be a locus plan on the most recent City or MassGIS orthophotos. The applicant's entire presentation must be shown on these slides. Applicants may bring prints for backup, but it is expected that all presentations will be made on the City's LCD projector or monitor to make viewing easier for the Board and the public.

§ 290-22. Contents of plan.

The definitive plan shall bear the seal of a Massachusetts registered land surveyor and a Massachusetts registered professional engineer. The plan shall be at a scale of one inch equals 40 feet, unless otherwise specified by the Planning Board, and of a sheet size 24 inches by 36 inches outside dimensions with an index sheet showing the entire subdivision, layouts, profiles, cross sections, and details. The definitive plan shall contain the following:

- A. A single location plan of the subdivision, showing the proposed lot lines, the right-of-way lines of all proposed streets in the subdivision and their location in relation to one or more existing streets or portions thereof. An inset at a scale of one inch equals 1,200 feet shall be included on the location plan showing the location of the subdivision within the City.
- B. The subdivision name, boundaries, the coordinate North arrow, date, scale, legend and title "Definitive Plan."

- C. The names of owners of record, the applicant and the registered land surveyor and registered professional engineer, and official seals. Certification by the surveyor that all surveying conforms to the technical standards for property surveyors of the American Congress on Surveying and Mapping shall appear on the plan.
- D. Names, addresses and plan location of all abutters, indicating limits of contiguous boundaries (within 200 feet of the boundary of the subdivision) and those owners of land separated from the subdivision only by a street.
- E. Existing and proposed lines of streets, lots, rights-of-way, easements, and any public or common areas within the subdivision. Street naming is subject to Planning Board approval.
- F. Location, names and present widths of streets bounding, approaching, or within reasonable proximity of the subdivision.
- G. Location of wetlands, perennial and intermittent streams, vernal pools, vernal pool upland habitat areas, waterways and water bodies within and adjacent to the subdivision, as well as the boundaries of aquifer areas and water supply reservoir watershed areas for public drinking water supplies.
- H. Major existing and proposed site features, such as stone walls, buffers, screening, fences, buildings, rock ridges and ledge, swamps, floodplains, historic features, and wooded areas on and within 100 feet of the proposed subdivision. The plan shall identify which of the above shall remain undisturbed.
- I. A tree inventory that identifies significant groups of trees or any tree over 12 inches in diameter at breast height (dbh) (potentially specimen trees), including species, size, and health, prepared by an arborist or landscape architect. The inventory shall indicate trees recommended for preservation, transplant, or removal, provisions for the protection, maintenance, and management of trees to be preserved, including the location of protective fencing.
 - (1) Plans must show the drip line of all trees to be planted in the public way or otherwise saved that will become street trees in the right-of-way.
 - (2) Plans must show details of tree protection measures for trees to be preserved as well as the drip line of trees that fall over the property line from abutting parcels.
- J. Include sufficient data, including lengths, bearings, and curve data, to determine the exact location, direction, and length of every street and way line, lot line and boundary line, and to establish these lines on the ground. All surveys must tie to the Massachusetts State Plane Coordinate System (NAD 1983 datum), using said published control points or the global positioning system.
- K. Location of all permanent monuments and control points identified as to whether existing or proposed, and identified according to the Massachusetts State Plane Coordinate System (NAD 1983 datum). At least two permanent concrete or granite monuments must be placed on site and shown in the plans prior to construction. Bounds are required at all intersections of street lines, angle points and changes of curvature of street lines. All control points shall be tied to and employ NAVD 1988 and the Massachusetts State Plane Coordinate System (NAD 1983 horizontal datum), with horizontal control using said published control points or the global positioning system (with horizontal coordinates provided in metric). Vertical benchmarks separate from horizontal control points may be provided, provided these points are also tied to permanent concrete or granite monuments.

- L. Boundary lines, areas in square feet, and dimensions of all proposed lots, with all lots designated numerically and in sequence.
- M. Suitable space to record the action of the Planning Board and the signatures of the members of the Planning Board on each sheet of the definitive plan and reference to separate certificate by the City Clerk. The remaining items shall be submitted on separate sheets.
- N. Existing and proposed topography (sufficiently differentiated) with two-foot contour intervals for the entire parcel, unless the Planning Board agrees that the natural surface of the ground may be adequately represented by contours with larger intervals or by figures of elevation. (The existing and proposed topographical information presented shall be sufficient to define the grading of each proposed lot and street.) Datum shall be NAVD 1988 or later.
- O. Where a storm drainage line, or any type of drainage structure, discharges within 200 feet of a brook, stream, or drainage area, a profile will be shown of the brook, stream, or drainage area to determine condition, and proposed method of stabilization.
- P. A street layout plan on a separate sheet 24 inches by 36 inches, horizontal scale of one inch equals 20 feet, for each street in the subdivision showing exterior lines, roadway lines, partial lot lines, curblines, intersection angles, points of tangency, and radii of curves. Also included on the street layout plan shall be the location, size, type of construction, elevations and invert, whenever applicable, of all pipes and conduits of the:
 - (1) Water supply system, including pumps, valves, stubs, gates, hydrants, and similar equipment;
 - (2) Storm drainage system, including manholes, pipes, culverts, catch basins, detention ponds, and appurtenant structures;
 - (3) Sanitary sewerage system, including piping, manholes, pumps, community septic tanks, and appurtenant equipment.
- Q. A profile plan on the same sheet located directly below and coordinated with the street layout plan, indicating existing profiles on the exterior and center lines (using lightweight lines) and proposed profile on the center line (using heavyweight lines) of each proposed street, at a horizontal scale of one inch equals 20 feet and a vertical scale of one inch equals four feet. All elevations shall refer to U.S.G.S. mean sea level datum. Profiles shall show existing and proposed street grades, rates of gradient on percentages, ground and proposed elevations at the center line of each fifty-foot station, and grades of intersection of streets and ways shall be clearly indicated.
- R. The profile plan shall show location of existing and proposed water, drainage and sanitary sewer lines, slopes and types (material and class) of all storm and sanitary sewer lines, invert, rim elevations and stations of each manhole or catch basin.
- S. A low-impact development (LID) plan, if using LID techniques, showing the location of all existing and proposed stormwater management practices.
- T. A typical cross section for the full width of the proposed right-of-way shall be shown in accordance with the street cross section illustrated in § 290-29C, showing foundation material, wearing surface, crown and width of traveled way, curbing, grass strips, sidewalks, utility locations, etc. For a non-typical cross section, see § 290-29C.
- U. Construction details for catch basins, manholes, end-walls, head-walls, rip-rap, and energy dissipators, detention ponds, access roads, level lip spreaders, LID measures, etc.

- V. Proposed layout and design of any and all parks, pools, or similar community improvements, including all water, drainage and electrical layouts, if any, designed to service such community improvements.
- W. Locations of borings and test pits shall be shown on the plan, with a numbering system corresponding to boring and test pit logs that will be submitted as part of the application (see § 290-23A).
- X. Any other pertinent information that the Planning Board may request.
- Y. Every plan shall have at least four survey-quality (centimeter, or its English equivalent, accuracy) points on each sheet tied into the Massachusetts State Plane Coordinate System (NAD 1983 datum), using said published control points or the global positioning system. The plan must note the coordinates, in metric and English units, of the four tie-in points, the datum, and the source and location of monuments used for data.
- Z. A table listing lot numbers with the corresponding lot size and street frontage for every lot.

§ 290-23. Additional subdivision submittal requirements.

In addition to the above plans, submission of definitive plans must include the following:

- A. Boring logs. The purpose of borings is to assist the developer and the project's engineer in designing an appropriate roadway and related utilities based on existing water table and subsurface soil conditions (i.e., a clay subsurface might necessitate extra excavation and extra depth for gravel base; a water table near ground surface might necessitate the installation of subdrains along the edge of the road, etc.). In case of a development located within the limits of the aquifer recharging the City's wells, borings should provide enough information to facilitate the City's determining the development's impact on subsurface water quality. The actual location at which each boring is made shall be shown on the plans. A Massachusetts professional engineer shall certify the borings. All boring or test pits must include estimates of high groundwater based on mottles and hydromorphic features, which generally requires test pits witnessed by a qualified soil scientist. Test pits for the design of detention facilities may be used instead of borings except when borings are required for any geotechnical (structural) reasons.
- B. Hydrology study and drainage calculation. The applicant shall submit drainage calculations, including rational method and TR-55 or TR-20, showing:
 - (1) Any proposed drainage system has been designed according to the standards set forth in these rules; and
 - (2) Any impact said drainage system would have on existing drainage systems downstream from the proposed point of discharge.
- C. Sanitary sewer study. The applicant shall submit calculations showing:
 - (1) Any proposed sanitary sewer system has been designed according to the standards set forth in these rules; and
 - (2) Any impact said sanitary system would have on existing sanitary systems downstream from the proposed point of discharge.

- D. Water study. The applicant shall submit a study certified by a Massachusetts professional engineer with demonstrated qualifications as a water consultant, showing that the proposed water system would provide the development with adequate fire flows and demonstrate that each service connection shall have a minimum residual water pressure at street level of 20 psi under all design conditions of flow. The standard for fire flows will be determined by these regulations and the recommendations of the Insurance Services Office (ISO), the National Fire Protection Association (NFPA) Fire Protection Handbook, and the National Fire Code, Vol. 8, § 1231, as amended. The standards for residual water pressure and potential impact on the area within 2,000 feet of the proposed subdivision are set forth in these regulations. Conclusions of the study shall demonstrate how to mitigate the impacts of the development on the water pressures in the surrounding area.
- E. Traffic study; traffic analysis and mitigation. The applicant shall submit a traffic analysis using the most current edition of the Trip Generation Manual published by trip generation standards by the Institute of Transportation Engineers. Explain traffic impacts, types of streets, opportunity for public transit access, impacts on vehicle, pedestrian, and bicycle circulation.
- (1) Estimated daily and peak-hour vehicle trips generated by the proposed use, traffic patterns for vehicles and pedestrians showing adequate access to and from the site, and adequate vehicular and pedestrian circulation within the site. Previously generated data may be used; however, it cannot be more than two years old.
 - (2) Traffic flow patterns at the site, including entrances and egresses and curb cuts on site and within 200 feet of the site.
 - (3) A plan to minimize traffic safety impacts of the proposed project through such means as physical design and layout concepts, promoting use of public transit or van- or car-pooling, or other appropriate means. This plan shall evaluate alternative mitigation methods to reduce traffic by 35%, including:
 - (a) Public transit, van- and car-pool incentive programs, including parking facilities and weather-protected transit shelters.
 - (b) Encouraging pedestrian and bicycle access to the site.
 - (c) Provision of integrated land uses, including on-site services, retail, and housing.
 - (4) A detailed assessment of the traffic safety impacts of the proposed project or use on the carrying capacity of any adjacent highway or road, including the projected number of motor vehicle trips to enter or depart from the site for daily-hour and peak-hour traffic levels, road capacities, and impacts on intersections. Said assessment may be based on the proposed mitigation [in the plan required by Subsection **E(3)** above]. Such analysis shall include incremental impacts at all significant or constrained intersections where such impacts may be measurable. Such analysis shall also include a mitigation plan, as necessary, to mitigate such impacts, including construction of improvements, payment in-lieu of the project's proportional share of such improvements, or other "soft" solutions.
 - (5) An overall network analysis showing how the project distributes traffic and enhances the flow of the existing network.
 - (6) An interior traffic and pedestrian circulation plan designed to minimize conflicts and safety problems.

- (7) Adequate pedestrian access, including provisions for sidewalks to provide access to adjacent properties and between individual businesses within a development.
 - (8) Safe provision for school bus stops and, when appropriate, public transit stops.
 - (9) Demonstrate that the project, including any concurrent road improvements, will not decrease the level of service (LOS) of all area roads or intersections affected by the project below the existing conditions when the project is proposed and shall consider the incremental nature of development and cumulative impacts on the LOS. The project proponent must demonstrate that it has mitigated all cumulative and incremental traffic impacts. If requested by the applicant, the Planning Board may accept in-lieu-of payments to fund a project's proportional share of necessary improvements to mitigate off-site traffic impacts, including provision of public transit and pedestrian or bicycle paths, in lieu of requiring off-site improvements, when it finds that such payments, in conjunction with funds from other projects or sources, will be used to fund improvements to mitigate traffic impacts. The Board may, in its discretion, allow minor drops in LOS when roads have surplus capacity (for example an A LOS might drop to a B without mitigation), but shall still consider incremental and cumulative impacts of traffic impacts. The Board may exempt residential projects that would have equal traffic impacts if they were developed as an as-of-right development without site plan approval and subdivision approval. Provision shall be made for mitigation of all incremental traffic impacts to ensure that facilities are adequate to accommodate such traffic on area roads.
- F. Easements. Prior to the final plan endorsement, all easements to be granted by the developer to the City of Northampton shall be shown on the subdivision plans with bearings and distances, and their purpose shall be clearly stated. In addition, the applicant shall submit easement documents, suitable for recording, deeding said easements to the City. The easements shall be submitted by the Planning Board to the Department of Public Works and the City Solicitor, and their response shall be given in writing within 30 days of the date of submittal.
- G. Restrictive covenants. The applicant shall submit all documents, including, but not limited to, master deeds, restrictive covenants, deed restrictions, shared land, detention pond, open space, and recreation areas. A homeowners' association must be established to maintain streets and infrastructure until and unless the streets are accepted by the City. Covenants must include the requirement that the homeowners'/landowners' association or other entity accept all responsibility under City ordinances to keep all sidewalks in front of open space associated with the project free of snow. This requirement shall apply even if omitted from a covenant.
- H. On-lot sewage disposal system. Where sewage disposal is to be by an individual on-lot sewage disposal system, the definitive plan shall be accompanied by a report which includes the following:
- (1) The results of percolation and deep hole soil tests performed on each lot, in accordance with Title 5 of the State Environmental Code and the Northampton health regulations.
 - (2) A map which locates the soil test sites on each lot.
 - (3) Other data, including topographic conditions, natural drainage patterns, soil characteristics, maximum groundwater elevations.
 - (4) When on-site water supplies are to be used, the location of those supplies must be shown on a map along with proposed on-site sewage disposal

systems and any existing off-site sewage disposal systems within 100 feet of the property line.

- (5) A statement by a registered professional engineer or registered sanitarian as to the suitability of the area for the installation of subsurface sewage disposal systems of the general type and size as indicated in the Massachusetts Environmental Code.
- I. Review by Board of Health as to suitability of the land. The Board of Health shall, within 45 days after filing of the plan, report to the Planning Board in writing its approval or disapproval of said plan. A copy of such report shall be sent to the applicant. If the Board of Health disapproves said plan, it shall make specific findings as to which, if any, of the lots shown on such plan cannot be used for building sites without injury to the public health, and include such specific findings and reasons therefor in such report, and, where possible, shall make recommendations for the adjustment thereof. Any approval of the plan by the Planning Board shall then only be given on condition that the designated lots or land shall not be built upon or served with any utilities (including cesspools, septic tanks and drainage) without prior consent of the Board of Health. The Planning Board shall endorse on the plan such condition, specifying the lots or land to which such condition applies. Failure of the Board of Health to report shall be deemed approval by the Board of Health.
- J. Wetlands protection. In accordance with MGL c. 131, § 40, and Chapter **337**, Wetlands Protection, of the City Code, no person shall remove, fill, dredge, or alter any bank, beach, dune, flat, marsh or swamp bordering on any existing creek, river, stream, pond, lake or any land under said waters or subject to flooding without receiving a negative determination of applicability or an order of conditions from the local Conservation Commission and/or Department of Environmental Protection. Failure of the Conservation Commission to report to the Planning Board within 30 days after receipt of a definitive plan shall not exempt the proposed plan from wetland regulations established pursuant to the MGL c. 131, § 40, and local ordinances.
- K. Special Conservancy/Watershed Protection (Floodplain) Districts.
 - (1) All subdivision proposals and other proposed new development shall be reviewed to determine whether such proposals will be reasonably safe from flooding. If any part of a subdivision proposal or other new development is located within the City's Special Conservancy District and Watershed Protection Overlay District established under Chapter **350**, Zoning, it shall be reviewed to assure that:
 - (a) The proposal is designed consistent with the need to minimize flood damage;
 - (b) All public utilities and facilities, such as sewer, gas, electrical, and water systems, shall be located and constructed to minimize or eliminate flood damage;
 - (c) Adequate drainage systems shall be provided to reduce exposure to flood hazards; and
 - (d) Base flood elevation (the level of the one-hundred-year flood) data shall be provided for proposals greater than five acres for that portion within the Special Conservancy or Watershed Protection Overlay Districts.
 - (2) See applicable section of Chapter **350**, Zoning.^[1]
 - [1] *Editor's Note: See Special Conservancy District provisions in §§ 350-13.1 through 350-13.7; and Floodplain District provisions in §§ 350-14.1 through 350-14.9.*

- L. Water Supply Protection District. Any portion of a proposed subdivision which lies within the limits of the City's Water Supply Protection District shall conform to the requirements of said district as stated in the appropriate sections of the Northampton Code of Ordinances.^[2]
[2] Editor's Note: See the Water Supply Protection District provisions in Ch. 350, Zoning, §§ 350-15.1 through 350-15.9.
- M. Construction quantities. The applicant shall submit a detailed estimate for all construction within the proposed roadway layout and/or public utility easements, certified by the project's registered professional engineer. Said estimate shall be based on the Standard Specifications for Highways and Bridges, 1988 Edition, as amended, of the Commonwealth of Massachusetts, and shall include:
- (1) Quantity, item number, unit price and total amount for each construction item.
 - (2) Total amount for cost of completion of project.
 - (3) Costs adjusted to account for municipal prevailing wage rates.
 - (4) Costs adjusted to add an inflation/safety factor of 20%.
 - (5) Engineering inspection, materials testing, legal and other soft costs.
- N. Lighting system. The applicant shall include a complete streetlighting system for the proposed street in the definitive plans. Said system shall include fifty-watt high-pressure sodium streetlights installed at intervals of approximately 200 feet, beginning at the entrance to the proposed street. Said system shall be in conformance with existing systems in the City, as well as with the local electric company streetlighting specifications. The applicant is responsible for purchasing and installing all equipment for said system, as well as ensuring that the system is the most advantageous utility rate. The streetlighting system will not be accepted by the City unless City Council accepts the street. The applicant shall include a complete streetlighting system for the proposed street in the definitive plans prior to endorsement of those plans. Said system shall be in conformance with existing systems in the City, as supplied by the local electric company.
- O. Erosion/Sedimentation control plan. In order to ensure, mitigate and prevent erosion/sedimentation of disturbed areas during and after construction activities, the developer shall submit a plan showing, in detail, what and when such measures will be implemented, on both a temporary and permanent basis, including land disturbances for house construction. Any site disturbing more than one acre must have a detailed stormwater pollution prevention plan (SWPPP) and an erosion control plan submitted to and approved by the EPA or its designee in accordance with EPA's NPDES Phase II regulations and the City of Northampton's ordinances governing such.^[3]
[3] Editor's Note: See Ch. 280, Stormwater Management.
- P. In all of the areas likely to be developed on the site, a detailed ecological assessment of wetland resources and wildlife habitat, with a strong emphasis on amphibians and reptiles. An environmental scientist(s) and/or wildlife biologist(s) and other qualified consultants, as necessary, shall determine the extent and nature of all wetlands and vernal pools, an analysis of whether there are any certifiable vernal pools on the property, an assessment of rare and endangered plant and animal habitat following the format required for applications for the Massachusetts Endangered Species Act,^[4] an assessment of wildlife habitat and movement patterns and wildlife corridors based on sighting, scat, trails, and other signs, an analysis of likely

movement of amphibians and reptiles and identification of the most appropriate locations for amphibian and turtle crossings.

[4] *Editors' Note: See MGL c. 131A.*

§ 290-24. Review fees required.

- A. If, after receiving a subdivision application, the Planning Board determines that it requires technical advice unavailable from municipal employees and departments to review the application, it may employ outside consultants. The Planning Board may, by majority vote, require that the applicant pay a reasonable review fee for the employment of outside consultants chosen by the Planning Board alone.
- B. A review fee may be imposed only if:
 - (1) The work of the consultant consists of review of studies prepared on behalf of the applicant, and not of independent studies on behalf of the Planning Board;
 - (2) The Board finds that an adequate review cannot be performed by City forces;
 - (3) The work is in connection with the applicant's specific project; and
 - (4) All written results and reports are made part of the record before the Planning Board.
- C. Before a fee is imposed:
 - (1) The applicant shall be given five business days' notice and opportunity to submit written comments relative to the invitation for bids or request for proposals.
 - (2) The applicant shall be given five business days' notice and opportunity to comment on all bids or proposals prior to the selection of the consultant and the award of a contract.
 - (3) The applicant shall be given five business days' notice and the opportunity to file an appeal of the selection of the outside consultant with the City Council. Grounds for said appeal are limited to written claims, with written documentation, that the consultant selected has a conflict of interest or does not possess the minimum required qualification in accordance with MGL c. 44, § 53G. If the City Council does not act within 30 days, the Planning Board's decision shall stand.
 - (4) All time limits for action shall be extended during administrative appeals and processes detailed in Subsection **C(1), (2) and (3)** above.
- D. Any invitation for bids or request for proposals shall indicate that award of the contract is contingent upon payment of a review fee. If the applicant fails to pay the review fee within 10 days of receiving written notification of the execution of a contract with a consultant, the Board may deny the subdivision approval.

- E. Each review fee shall be deposited in a special account established by the municipal treasurer pursuant to MGL c. 44, § 53G.
 - (1) Funds from the special account may be expended only for the purposes described above and in compliance with municipal procurement requirements.
 - (2) Within 60 days of the completion of the project or of such time as the applicant formally withdraws the proposal, the applicant shall receive a final report of funds in the special account and shall be paid any unspent excess in the account, including accrued interest (if any).

§ 290-25. Approval of definitive plan.

- A. Public hearing. Before approval, modification and approval or disapproval of a definitive plan is given, a public hearing shall be held by the Planning Board. Notice of the time and place of the hearing and of the subject matter, sufficient for identification, shall be given by the Planning Board at the expense of the applicant by advertisement in a newspaper of general circulation in the City of Northampton once in each of two successive weeks, the first publication being not less than 14 days before the day of such hearing. A copy of said notice shall be mailed to the applicant and to all owners of land abutting upon the subdivision. The applicant or representative shall be present at the hearing.
- B. Approval, modification or disapproval. After the required hearing, but within the period specified in the Subdivision Control Law for the submission of the definitive plan, the Planning Board shall take action thereon. It may approve, modify and approve, or disapprove said plan, as provided by statute. Any approval of the plan by the Planning Board shall only be given on condition that the designated lots or land shall not be built upon or served with any utilities, such as septic tanks or cesspools, and drainage without prior consent of the Board of Health. The Planning Board shall endorse on the plan such conditions as set forth by the Board of Health and the lots and land affected by such conditions. The action of the Planning Board in respect to such plan shall be certified and filed with the City Clerk and sent by mail, postage prepaid, to the applicant at his address as stated on the application. (See § **290-66**.)
 - (1) In the event of disapproval, the Planning Board shall state in detail wherein the plan does not conform to these rules and regulations of the Planning Board or the recommendations of the Health Board or Officer and shall revoke its disapproval and approve of a plan which, as amended, conforms to these rules and regulations or recommendations. Any amended plans which are resubmitted for approval shall follow the same procedures as the original submission (filing fee, public hearing, etc.). Any amended plans submitted later than three months following the date of the expiration of the appeal period or appeal(s) on the disapproval of the originally submitted plan must conform to the Subdivision Rules and Regulations and procedures (filing fee, public hearing, etc.) that are in effect at the time of the amended plan's filing.
 - (2) Final approval, if granted, shall be endorsed on the reproducible drawings of the definitive plan by the signatures of the majority of the Planning Board, but not until the statutory twenty-day appeal period has elapsed following the filing of the certificate of the action of the Planning Board with the City Clerk and said Clerk has notified the Planning Board that no appeal has been filed, or if appeal has been taken, not until the entry of a final decree of the court sustaining the approval of such plan.
 - (3) Final approval of the definitive plan does not constitute the laying out or acceptance by the City of streets within a subdivision. Such laying out or

acceptance shall be by action of the City Council upon recommendation of the Planning Board and the Public Works Commission.

C. Endorsement.

- (1) An approved, or approved with modifications, plan shall not be endorsed until after the mandatory twenty-day appeal period has elapsed and not until the applicant has:
 - (a) Posted the necessary performance guarantee. The monetary value of said guarantee, using any method other than a covenant, shall be based on a revised construction quantity estimate (See § **290-23M**.) if conditional approval of the subdivision was given and if said approval changed the original quantities. In addition, the monetary value of the performance guarantee shall be adequate to cover all costs the City would incur to complete the project at the end of the expiration of said guarantee, including but not limited to construction costs at state (or, if required, federal) prevailing wages, record plans, street acceptance plans, and legal costs.
 - (b) Made the necessary corrections, whenever applicable, on the plan, easements, master deeds, restrictive covenants, etc., if conditional approval was given to the satisfaction of the Planning Board.
 - (c) Presented to the Planning Board, and the Planning Board has subsequently approved, any additional information requested as part of a conditional approval.
 - (d) Paid the necessary inspection fee (if § **290-63** is applicable).
 - (e) Presented to the Planning Board for its approval two sets of plans showing the complete natural gas, electrical, telephone and cable TV supply systems (including pipes, pumps, valves, gates, hand-holes, transformer pad mounts and similar equipment). Said plans will be accompanied by endorsements from the respective utilities that the plans have received their approval. In addition, the electrical utility shall place a statement on the plans that the proposed underground electrical distribution system is capable of accommodating a future streetlighting system (if request for waiver from streetlights is approved) with provisions for streetlights (including hand-holes) included in the electrical system with approval from DPW that the placement will not interfere with other utilities.
 - (f) Presented to the Planning Board for its approval two sets of a complete streetlighting system for the proposed subdivision with approval from DPW that the placement will not interfere with other utilities. Said system shall be in conformance with existing systems in the City, as supplied by the local electric company, and shall utilize LED lights 3000K or lower. In addition, the applicant shall petition the City Council to accept said system.
 - (g) Delivered to the Planning Board two sets of reproducible drawings of the definitive plan with the necessary corrections. After endorsement by the Planning Board, the applicant shall deliver to the Planning Board six sets of copies (unless OPD staff specifies fewer copies) of the endorsed definitive plan. All plans must be accompanied by digital CAD file and digital graphic file (See definitions in § **290-4**.), which shall be submitted to both DPW and the Office of Planning and Sustainability. The digital graphic file must include all final signatures.
 - (h) Delivered an irrevocable offer of dedication of all facilities to be dedicated to the public. Said offer must be accompanied by a lawyer's title

opinion that the offer is free of any liens and encumbrances, and all mortgages must be subordinated to the offer. The offer shall be irrevocable, except the offer can be withdrawn if the project proponent does not proceed with the project and requests that the subdivision approval be rescinded or otherwise amended such that the dedication is no longer necessary.

- (2) Failure of the applicant to meet the above requirements shall be full and sufficient reason to withhold endorsement.
- (3) If the applicant fails to submit the required performance guarantees, easements and other documentation and the endorsement of the plan by the Planning Board is delayed more than six months after the expiration of the twenty-day appeal period, the Planning Board, on its own motion, shall exercise its power to modify, amend, or rescind its approval of the subdivision plan or to require a change in the plan as a condition of said plan retaining the status of an approved plan.

D. Performance guarantee. Before endorsement of the Planning Board's approval of a definitive plan of a subdivision, the applicant shall agree to complete the required improvements specified in Articles **VII** and **VIII** for all lots in the subdivision, such construction and installation to be secured in accordance with MGL c. 41, § 81U, by one, or in part by the other, of the following methods, which may, from time to time, be varied with the applicant:

- (1) Approval with financial performance guarantees (surety bonds, money, three-party lender agreement, or letters of credit). The applicant shall either file a surety company performance bond or provide a deposit of money or negotiable securities, including letters of credit, in an amount determined by the Planning Board [See Subsection **C(1)(a)** above.] in consultation with the appropriate City departments, to be sufficient to cover the cost of all or any part of the improvements specified in these regulations at state (or, if applicable, federal) prevailing wage rates not covered by a covenant under Subsection **D(2)** below, the costs of inspections, record plans, street acceptance plans, and legal work, and a contingency/inflation factor of 20%. Warranty principal shall be not less than 15% of the estimated cost of those components of the entire project that shall be dedicated for public use and shall cover workmanship and materials.
 - (a) If financial performance guarantees are used, at least two lots in a subdivision that can be built on must be covered by a covenant [under Subsection **D(2)** below] to ensure that all work, including legal work, is completed.
 - (b) Letters of credit, three-party agreement for lender retention of funds, surety bonds and other financial performance guarantees must be drafted so that the only requirement that must be met for the Planning Board to draw on the letter is to notify the financial institution (grantor) that: "We have incurred liability by reason of the failure of the applicant/developer/owner, within 90 days of the expiration of this letter, to complete the construction of his/her project (insert name of subdivision and plans) in accordance with the definitive subdivision plans and submittal, the subdivision approval, the Northampton Zoning Ordinance, and the Rules and Regulations Governing the Subdivision of Land in Northampton. The amount drawn, which may be more than required to complete the project, will be held in a segregated bank account until the work can be bid competitively and the bid awarded and paid for or until the contract for the work is otherwise let and the work paid for. Any excess over the cost of completing the work will be returned to the grantor."
 - (c) The Planning Board shall approve such bond, deposit of money or negotiable securities, as to form, the surety or financial institution, and manner of execution.
 - (d) For any surety bond:

- [1] The surety must agree that any litigation stemming out of the bond will take place in Massachusetts.
- [2] The bond must include the name and address of the person to be served for any legal action.
- [3] The bond must specifically include the terms above.
- [4] No expiration date may be allowed in the bond, and it must ensure that the bond is valid until the work is complete, the streets are accepted, and the warranty performance period has been completed.

(2) Approval with covenant.

- (a) Instead of filing a bond or depositing money, the applicant may fulfill a covenant (see § 290-66), executed and duly recorded concurrent with recording the subdivision approval by the owner of record, running with the land, that no lot in the subdivision shall be sold and no building erected thereon until such ways, services and, whenever applicable, temporary turnarounds are constructed and installed, and until record plans, street acceptance plans, and other required work are accepted by the Planning Board in accordance with these rules and regulations so as to adequately serve the lots.
- (b) Such covenant shall be on a separate document referred to on the plan and delivered to the Planning Board. The Planning Board shall turn over the covenant agreement to the City Solicitor, who shall review its contents and forward his comments in writing to the Planning Board. Upon approval of the covenant by the Planning Board, the applicant shall note the Planning Board's action on the definitive plan and the applicant shall record the covenant, endorsed definitive plan and other appropriate documents at the Hampshire County Registry of Deeds and subsequently provide documentation of recording location to the Office of Planning and Sustainability. (See Subsection **F** below.)

E. Completion time schedule. All required improvements and legal documents shall be completed within a maximum period of three years from the date of such bond, deposit of money, or covenant. There shall be at least a three-month period between the completion date of all improvements as determined by Office of Planning and Development and one-year warranty period and the expiration date of any bond, deposit of money, letter of credit or covenant. Said three-month period shall give the City the opportunity to collect the financial performance guarantee so that it will be able to complete the necessary improvements in case the developer is unable to do so and/or the Planning Board denies any requests for an extension of time. "Warranty" shall include all workmanship and materials.

- (1) Upon written request from the applicant, the Planning Board may, at its discretion, grant an extension of time, and such agreement shall be executed and affixed to the financial performance guarantee or covenant.
- (2) In the case of a surety company bond, such an agreement for an extension shall not be effective until the surety delivers to the Planning Board a written statement that the surety agrees to the proposed alteration of the completion schedule and that such alteration shall not relieve or affect the liability of the surety company.
- (3) Failure to complete all improvements as required by these rules and regulations within the time allotted shall cause the Planning Board to draw upon the performance guarantee (surety bond, deposit of money, letter of credit) in order to complete said improvements and/or schedule a

public hearing in order to rescind approval of the subdivision in accordance with appropriate sections of MGL c. 41, § 81.^[1]

[1] *Editor's Note: See MGL c. 41, § 81W.*

- F. Recording of plan. The developer, with a representative of the Planning Board present, shall, within 10 days after the definitive plan has been endorsed, record said plan, required forms (see website for application submission process/forms) and, whenever applicable, the Planning Board's order of conditions, public easements (plans and documents), restrictive covenants, master deeds, etc., at the Hampshire County Registry of Deeds, and in the case of registered land, with the recorder of the Land Court. The cost of said recording shall be borne by the developer.
- G. Preconstruction conference prior to construction. The developer and the contractor must meet with the DPW Director or designee and the Office of Planning and Sustainability to review the subdivision permit and conditions. The applicant must provide evidence that all required documents have been recorded. Subsequent to said recording and prior to any building permit being issued, the project applicant shall file within seven calendar days one print of the definitive plan with the Building Inspector. Further, in accordance with the statute, where approval with covenant is noted thereon, the Inspector shall issue no permit for the construction of a building on any lot within the subdivision, except upon receipt from the Planning Board of a copy of the certificate of performance releasing the lot in question.

§ 290-26. Release of performance guarantee.

- A. Procedures for partial release. Upon partial completion and installation of required improvements in a subdivision, the subdivider may make formal written request to the Planning Board for partial release if the performance guarantee was given by bond, deposit of money, letter of credit, or covenant in accordance with the procedures set forth herein:
 - (1) Financial performance guarantee. The amount of such a bond, or deposit of money, or letter of credit or three-party agreement for lender fund retention held may, from time to time, be reduced by the Planning Board. The applicant shall present to the Planning Board a list of all construction items performed and/or completed, said list to be based on § 290-23M, the subdivision approval, and the subdivision regulations in their entirety. The amount to be reduced by the Planning Board, after consultation with the Department of Public Works, shall be based upon federal or state prevailing wage construction costs at the time the application for reduction is made. The Planning Board shall withhold adequate funds to complete the project, as described in § 290-25C(1)(a) and D(1), but shall withhold no less than 20% of the original approved cost estimate or \$50,000, whichever is greater. At the completion of the project (based on a written acceptance from the Planning Board that the project has been completed) and a one-year warranty period, the amount withheld shall be released under Subsection B of this section.
 - (2) Covenant. The subdivider may request a release of conditions or lots where the required improvements have been completed for that section of roadway beginning at any intersection with a City road and abutting lots up through the last lot to be released. Lots may only be released if they abut the completed portion of the road. No partial release from the covenants will be approved if the total length of roadway, including a temporary turnaround, abutting said designated lots, exceeds the City's maximum allowable length for dead-end streets, as mentioned in the table in § 290-29, unless the Planning Board has already approved within the limits of the development a dead-end street exceeding said limits. In the absence of financial performance guarantees, adequate covenants will be held to insure completion of the project, including record plans, street

acceptance plans, site inspections, and legal work. In addition, a covenant on two lots that can be built on will be held until all work in the subdivision, including the signing of all necessary legal documents, has been completed.

- B. Procedures for full release. The subdivider may, upon completion and installation of required improvements in a subdivision, the completion of record plans and street acceptance plans, as specified in these rules and regulations, and the completion of a one-year labor and materials warranty period, make formal application, in writing, to the Planning Board for full release of any outstanding performance guarantee. Before the Planning Board releases the full interest of the City in said performance guarantee:
- (1) The Planning Board shall obtain in writing from the DPW Director, or from a registered professional engineer chosen by the Planning Board, a certificate of statement (see website for application/forms) that all work required by these rules and regulations has been constructed in conformance with the approved construction plans. In the case where roadways will remain under private ownership, the project's registered professional engineer shall supply the above-mentioned certificate or statement.
 - (2) The applicant shall present the Planning Board with letters from the electric, telephone, gas and cable TV companies stating that their respective underground systems have been installed to their satisfaction.
 - (3) The Planning Board shall obtain from the applicant a set of record construction plans. Said plans shall include, but not be limited to, all the information requested in § **290-64**, Record plans. Approval of said plans by the Planning Board shall take place after review of the former by the DPW Director or designee.
 - (4) The Planning Board shall receive from the applicant a street acceptance plan or plans and necessary documents, as stated in § **290-65**, Street acceptance plans. The Planning Board shall present said plans and documents, after approval by the Planning Board and the Public Works Commission, to the City Council for a formal street acceptance.
 - (5) The applicant may be required to execute an instrument, in a form approved by the Planning Board, transferring to the City or to an approved public utility company, without cost, valid unencumbered title to all sanitary sewers, water mains, and drain lines and appurtenances thereto, and other utilities constructed and installed in the subdivision or approved portion thereof, and conveying to the City or to an approved public utility company, without cost and free of all liens and encumbrances, perpetual rights and easements to construct, inspect, repair, renew, replace, operate and forever maintain such sanitary sewers, water mains, drain lines and other utilities, with any manholes, conduits, and other appurtenances, and to do all acts incidental thereto, in, through, and under the whole of all streets in the subdivision or approved portion thereof, and if any such sewers or water mains have been constructed and installed in land not within such streets, then in, through, and under a strip of land extending 15 feet in width on each side of the center line of all such sewer, drain and water mains. The Planning Board may require greater than 15 feet in width on each side of the center line where it deems necessary.
 - (6) If the Planning Board determines that all improvements as shown on the endorsed definitive plan and all required plans and legal documents have been completed satisfactorily, it shall release all the interest of the City in such performance guarantee and return the bond to the person who furnished the same, or release the covenant, by appropriate instrument, duly acknowledged, which may be recorded.
 - (7) If the Planning Board determines after inspection that said construction or installation has not been completed, or wherein said construction or

installation fails to comply with these rules and regulations, the Planning Board shall send by registered mail to the applicant and to the City Clerk the details wherein said construction or installation fails to comply with its rules.

- (8) The applicant shall have 30 days after receipt of such notice to correct all problems mentioned above. Failure of the applicant to finish all the necessary work within said 30 days shall cause the Planning Board to draw upon the bond or deposit of money as mentioned below.
 - (9) Any such bond may be enforced and any such deposit may be applied by the Planning Board for the benefit of the City of Northampton, as provided in MGL c. 41, § 81, upon failure of the performance for which any bond or deposit was given to cover the reasonable cost to the City of completing such construction and installation.
 - (10) The Planning Board shall review and sign-off from the Northampton Tree Committee/Tree Warden that the landscaping has been installed in accordance with the approved subdivision; additionally, a statement from an arborist or certified nurseryman indicating that the plantings and post-planting care has been performed in conformance with § **290-38H** and ANSI. Alternatively, a three-year warranty period from the time of the installation of plantings or replacement of original plantings may be offered.
- C. Release of lots from covenant in exchange for bond or deposit of money. The subdivider may request a release of lots from covenant in exchange for a financial guarantee, provided that:
- (1) The lots run consecutively and are released on both sides of the road simultaneously, beginning with the lots nearest any intersection of the subdivision road and a City road.
 - (2) The Planning Board, as described above, shall determine the amount of the financial guarantee and the financial guarantee process.

§ 290-27. Submission of revised plans and additional materials.

- A. Any revised plans and other additional materials submitted by the developer after the original submission, or after approval, must be accompanied by a form (see website for application and forms) and the appropriate fee, and the developer must provide the number of copies and the format required for the original submittal.
- B. The Planning Board may elect not to consider such revised plans or other additional materials if such plans/materials are not filed with the Planning Office at least 14 days prior to the date of the public hearing or meeting at which the developer wishes them to be considered. This is to ensure that the City departments and the public have adequate time to review and comment on said materials.
 - (1) After approval of any definitive plan, the location and width of ways shown thereon, or any street or way subject to the Subdivision Control Law, shall not be changed unless the plan is amended in accordance with the provisions set forth in MGL c. 41 § 81W, as amended, and approved by the Planning Board.
 - (2) In the event the applicant desires to alter or change the grade of a street or the size, location or layout of a storm, sanitary or water line or

appurtenant structure:

- (a) The applicant shall provide the Planning Board with a written statement requesting such alteration or change.
- (b) The applicant shall provide the Planning Board with 16 prints of the original definitive plan, with the proposed changes drawn on said prints in red.
- (c) No change or alteration shall be permitted unless the Planning Board has approved such change or alteration.
- (d) After approval of a change or alteration, the applicant shall cause such approved changes to be shown on the record plans. (See § **290-64**.)
- (e) Deviations from material and construction specifications shall not be allowed, except as specifically authorized by the Planning Board, upon consultation with the City Engineer.
- (f) The Planning Board shall have 30 days to respond to the applicant's request for said change or alteration.

Article VII. Design Standards

§ 290-28. Controlling standards.

- A. Streets, sidewalks, water systems, sanitary sewers, storm drain systems, public and private utilities and other infrastructure shall be constructed in accordance with this chapter and:
 - (1) The Massachusetts Department of Transportation (MassDOT) Standard Specifications for Highways and Bridges and its supplements (to be referred hereto as the "Standard Specifications");
 - (2) Construction standards (§ **290-29** through § **290-58** below) on the date of the subdivision application (to be referred to hereto as the "construction standards"); and
 - (3) The Department of Environmental Protection (DEP) Massachusetts Erosion and Sedimentation Control Guidelines for Urban and Suburban Areas in effect on the date of submission of the subdivision application.
- B. Developers who choose to pursue a low-impact development (LID) plan must comply with the Massachusetts DEP Stormwater Management Handbook as well as the following:
 - (1) Open space must be preserved to the maximum extent possible through the use of site planning that identifies important natural resource areas, such as critical recharge areas and species habitat, and seeks to prevent disturbance of these areas by development.

- (2) Post-development peak discharge rates for stormwater management systems shall not exceed pre-development peak discharge rates.
- (3) Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent possible. The annual recharge from the post-development site should approximate the annual recharge from the pre-development to the extent practical.
- (4) Stormwater must be managed to prevent flooding of neighboring and other down-gradient properties.
- (5) Existing vegetation should be preserved to the maximum extent possible and native and noninvasive plant communities must be replicated in post-construction landscaping.
- (6) Appropriate best management practices to meet the intent of this regulation include, but are not limited to, rain gardens, green roofs, rain barrels, porous pavement, vegetated swales, and constructed wetlands, detention/retention basins, dry wells and other infiltration devices, catch basins equipped with oil/grease pretreatment systems.

§ 290-29. Streets and ways.

Streets and ways must comply with the following table. The vision is to create streets with as little impervious area as necessary while creating safe environments for all users of the system infrastructure. Street blocks generally should be 250 feet to 500 feet maximum with curbing only where necessary to maintain integrity of the system and safety for its users. Greater widths may be required by the Planning Board when deemed necessary for present and future vehicular traffic.

	Table of Street Requirements			
	Private Alley (residential or mixed use). *does not create legal frontage	Private Residential Shared Street *only appropriate for connecting street segments and not through streets	Residential Yield Street	Mixed Use, Commercial and Industrial
Right-of-way	NA	NA	60'	70'
Pavement width	14'	20'	20' within 30' of each intersection; 24' elsewhere	22' within 30' of intersection; otherwise 30' when street serves < 25% retail, service or industrial by ft ² ; 38' all other
Limit of dead-end streets, measured along the center line, from the nearest public (non-alley) street that is not itself a dead-end street	500'	500'	500'	500'

Table of Street Requirements

	Private Alley (residential or mixed use). *does not create legal frontage	Private Residential Shared Street *only appropriate for connecting street segments and not through streets	Residential Yield Street	Mixed Use, Commercial and Industrial
Length of block between 3+ way intersections	400'	500'	500'	500'
Length of block if broken up at least every 500' by a walking or bicycle trail and connects permanently to protected open space	400'	1,000'	1,000'	1,000'
Pavement type	Hot mix asphalt with textural changes if intended as primary pedestrian access	Hot mix asphalt with textural changes	Hot mix asphalt	Hot mix asphalt
Pavement depth binder course	Geotextile fabric plus 2.5" asphalt; see Note below for pervious	Geotextile fabric plus 2.5" asphalt; see Note below for pervious	Geotextile fabric plus 2.5" asphalt	Geotextile fabric plus 3" asphalt
Pavement depth surface course	1.5"; See Note below for pervious	1.5"; See Note below for pervious	1.5"	2"
Pavement subbase				
Poor to fair soils	24"	24"	24"	24"
Good to excellent soils	12"	12"	12"	12"
Vehicle flow	One- or two-way	Two-way	Two-way	Two-way
Sidewalk (cement concrete only, including where it crosses driveway)	No	No	5' wide, on both sides of the road; if LID, see Note	6' wide on both sides of the road
Sidewalk depth	NA	NA	4"; 6" at driveway crossings	4"; 6" at driveway
Crosswalks (to be located at all street and trail intersections and no other locations)	Raised to elevation of sidewalk or pedestrian path	Raised to elevation of sidewalk or pedestrian path	Raised to elevation of sidewalk	Raised to elevation of sidewalk
Crosswalk construction	Thermoplastic ladder pattern unless epoxy approved by Department of	Thermoplastic ladder pattern unless epoxy approved by Department of	Thermoplastic ladder pattern unless epoxy approved by Department of	Thermoplastic ladder pattern unless epoxy approved by Department of
*The Planning Board may allow flush granite and mix of materials such as				

Table of Street Requirements

	Private Alley (residential or mixed use). *does not create legal frontage	Private Residential Shared Street *only appropriate for connecting street segments and not through streets	Residential Yield Street	Mixed Use, Commercial and Industrial
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stamped concrete with flush granite to create visual queues and create a specified character.

Public Works

Public Works

Public Works

Public Works



Shoulders	Not allowed	Not allowed	Bike facilities as necessary for classified arterials	Bicycle facilities as necessary depending upon functional type
Curbs (VB granite only, except on the interior of a cul-de-sac, for LID, or presence of amphibians dictates sloped curb)	30' from each intersection and on sides whenever there are no rain gardens, bioretention areas, or curb cuts	30' from each intersection and on sides whenever there are no rain gardens, bioretention areas, or curb cuts	30' from each intersection and on sides whenever there are no rain gardens, bioretention areas, or curb cuts	30' from each intersection and on sides whenever there are no rain gardens, bioretention areas, or curb cuts
Rain gardens and bioretention	Always	Always	Encouraged	Encouraged

Table of Street Requirements

	Private Alley (residential or mixed use). *does not create legal frontage	Private Residential Shared Street *only appropriate for connecting street segments and not through streets	Residential Yield Street	Mixed Use, Commercial and Industrial
Horizontal alignment (minimum radius of center line)	50'	50'	100'	185'
Stopping sight distance (considering vertical alignment, slopes, and obstructions)	80'	80'	115'	155'
Grade, maximum	8%	8%	8%	7%
Grade, minimum	0.8%	0.8%	0.8%	0.8%
Intersection angle	90°	90°	90°	90°
Minimum straight center line distance at intersecting streets	30'	30'	30'	40'
Maximum intersection approach grade	6% for 20'	5% for 40'	5% for 40'	4% for 40'
Maximum intersection grade	5%	5%	5%	5%
Required curb return radius (minimum to maximum)	15'	15' to 20'	15' to 25' (30' for primary emergency and PVTA routes)	25' to 30'
Design speed	15 mph	15 mph	20 mph	25 mph
Tree belt/rain garden width, both sides	7' minimum	7' minimum	7' minimum	NA
Tree filters/street furnishings, etc.	NA	NA	NA	7' minimum
Streetlighting (must be LED)	Intersections and crosswalks	Intersections and crosswalks	Intersections and crosswalks	Intersections and crosswalks

NOTES:

If using pervious pavement, construction should be planned and implemented in consultation with the DPW and an engineer with experience in this field. Pervious asphalt should be based on specifications such as those found in the University of New Hampshire Stormwater Center Design Specifications for Porous Asphalt Pavements and Infiltration Beds.

*If incorporating LID with no curbs on one side, sidewalks on the curbside may be eliminated if an ADA-compliant trap rock gravel path is included and there are additional crosswalks to the sidewalk side of the street at least every 200 feet. This street must be designed so that the path is maintained by the

homeowners' association. Maintenance is snow clearing and upkeep to original specifications.

A. Location.

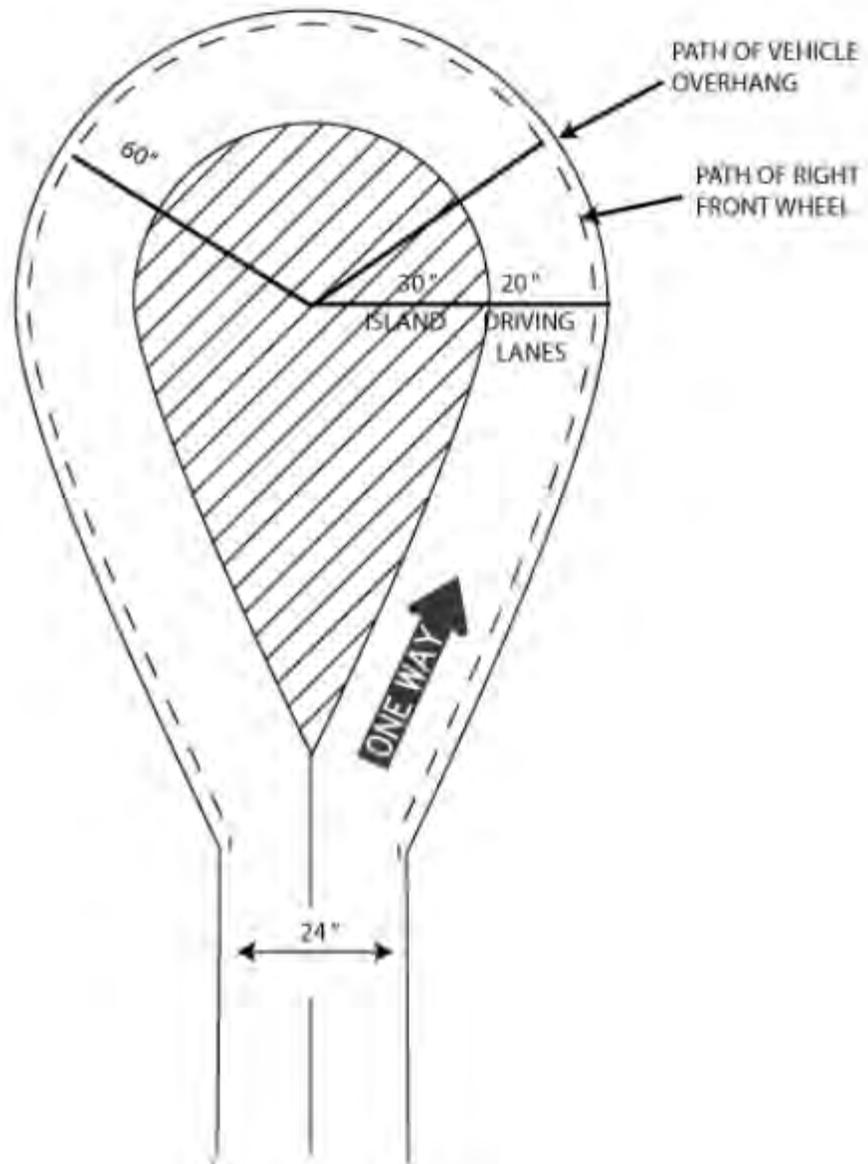
- (1) All streets and ways shall be designed so that, in the opinion of the Planning Board, they will provide safe vehicular travel and be located in order to protect important natural features keeping with § **290-33**.
- (2) The proposed streets shall be consistent with the goals of Sustainable Northampton and be urban in character in the more urban areas and be designed for clustering units while providing maximum protection of natural undisturbed areas in the outlying districts. Provision shall be made, to the satisfaction of the Planning Board, for the proper projection of streets, or for access to adjoining property that is not yet subdivided or developed. A right-of-way from the end of all culs-de-sac and dead-end roads to adjoining property must be part of the street layout and must be shown on street acceptance plans and deeds unless there is compelling evidence that the adjoining property will never be developed. If the adjoining property shall never be developed, there shall be a pedestrian and bicycle trail up to the property line, unless wetlands and grade make that impossible.
- (3) Streets entering opposite sides of another street shall be laid out either directly opposite each other or with a minimum offset of 150 feet between their center lines. This minimum offset shall also be observed whenever one or more streets entering opposite sides of another street exist, whether located within or outside the boundary of the proposed development.
- (4) Streets entering the same side of another street shall be laid out with a minimum offset of 150 feet between their center lines. This minimum offset shall also be observed whenever one or more streets entering the same side of another street exist, whether located within or outside the boundary of the proposed subdivision.
- (5) Temporary dead-end or cul-de-sac streets shall conform to the provisions of alignment, width, and grade that would be applicable to such streets if extended.

B. Cul-de-sac or dead-end streets.

- (1) It is the Board's policy not to approve streets that do not connect to existing neighborhoods or do not provide for connections in the future. The applicant must show a scenario of how a street connection can be made. Further, the developer shall make every effort to avoid the creation of dead-end streets and must connect its subdivision to existing dead-end streets whenever reasonably possible. Dead-end streets are more expensive to maintain, limit emergency access, and reduce the sense of connection and equality that comes from interconnecting street grids.
- (2) Dead-end streets are only appropriate when the surrounding property will never need a street connection, because of extremely sensitive and permanently protected natural resources, and the project provides a viable alternative pedestrian and bicycle connection to the surrounding property, and the street connection will not aid the transportation network that serves the subdivision, and the dead-end street will not serve more than 20 housing units.
 - (a) Every street in the proposed subdivision shall be laid out in such a manner that every portion of every street is less than 500 feet, as

measured along the center line of construction of the street from the nearest connected existing public street which is not itself a dead-end street. Culs-de-sac or dead-end streets shall be allowed only on residential streets.

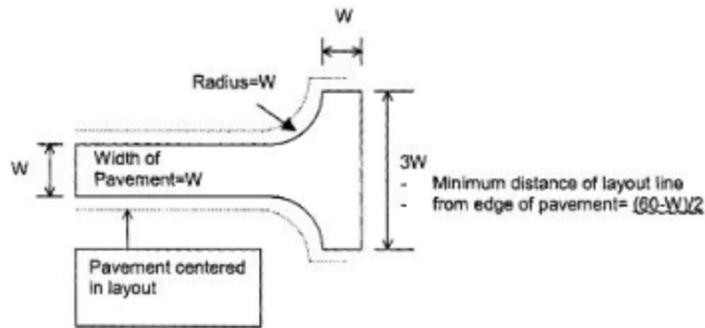
- (b) All cul-de-sac streets shall use a permanent teardrop-shaped cul-de-sac with a turnaround at the end of the street having a minimum island radius of 30 feet and a property line radius of at least 60 feet. (See below.) In all cases, twenty-foot drive lanes are required to accommodate emergency vehicles. The center of the cul-de-sac shall be on the center line of construction.



- (c) All cul-de-sac streets shall have turnaround islands that are planted with trees and/or other vegetation or left with natural tree growth in lieu of paving the entire area of the cul-de-sac. (See below.) The maintenance of said inner circle shall be the responsibility of the developer, his successors and assigns, or a homeowners' association. The inside radius of the cul-de-sac pavement shall be constructed with granite-edging (Type SB). If pursuing a LID plan, the developer should either eliminate curbs or use interrupted or "invisible" curbs (curbs that are buried along the edge of the street) to allow for a bioretention area on the landscaped island. See § 290-44G. If the cul-de-sac is part of a shared streets development, curbs should also be eliminated. (See below.)



- (d) A temporary cul-de-sac or temporary turnaround shall be allowed only where, in the opinion of the Planning Board, it is essential to the reasonable development of the subdivision and where it is a part of a street or way that eventually will be extended into adjoining property. The design of a temporary turnaround shall be satisfactory to the Planning Board and the Department of Public Works and clearly shown on the plan as temporary in nature, and such property lines shall be those which would normally have been required or used without the turnaround. Regardless of the above, no temporary cul-de-sac shall be allowed if the street length exceeds the limit set in these rules and regulations. Unless performance guarantees and legal permissions are provided adequate to ensure that the street shall be connected with a time period approved by the Planning Board. Layout of the turnaround beyond the normal street right-of-way lines shall be in the form of an easement to the City of Northampton covering said premises included in the turnaround. When the street is extended into adjoining property, the developer shall take all steps to remove the easement and replace it with the planned street.
- (e) The road going around a teardrop-shaped cul-de-sac turnaround island shall be a one-way road 20 feet wide around the cul-de-sac.
- (f) A hammerhead shall be allowed instead of a cul-de-sac. Said hammerhead shall be designed a "T," in accordance with the attached sketch, to allow fire trucks and snow plows to turn around with only one backing-up movement. It shall be at the same width as the street it abuts and shall be at least 75 feet long (3W below). Lots may only gain frontage from one edge of the hammerhead.

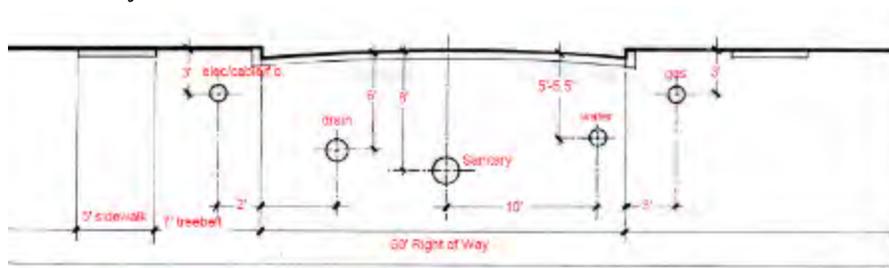


C. Street cross sections.

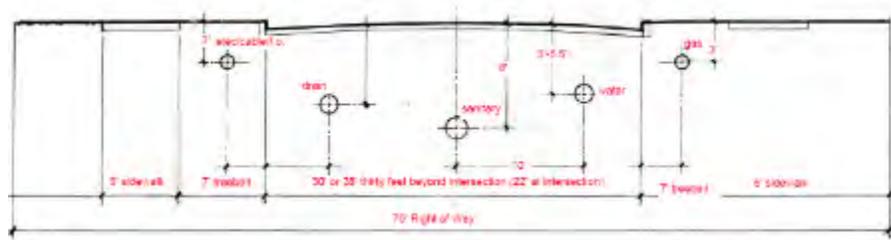
- (1) Cross sections shall be in accordance with the standards as shown below.
- (2) Only one typical cross section need be shown on the definitive plan if it conforms to the standard shown below. Any variation from the typical standard should be shown on the construction plans at fifty-foot intervals. Shared streets developments will deviate from this standard, as sidewalks will be at grade with the street marked by texture and color changes within the road. Removable bollards may also be used to demarcate shared space areas.
- (3) If pursuing a LID plan, especially as part of a shared streets approach, all electric, telephone, cable TV, fiber optic, and other conduits shall be either installed under the edge of the paved section of the right-of-way or a utility easement shall be extended past the right-of-way in order to allow for the use of roadside swales for stormwater management.

(4) Diagrams.

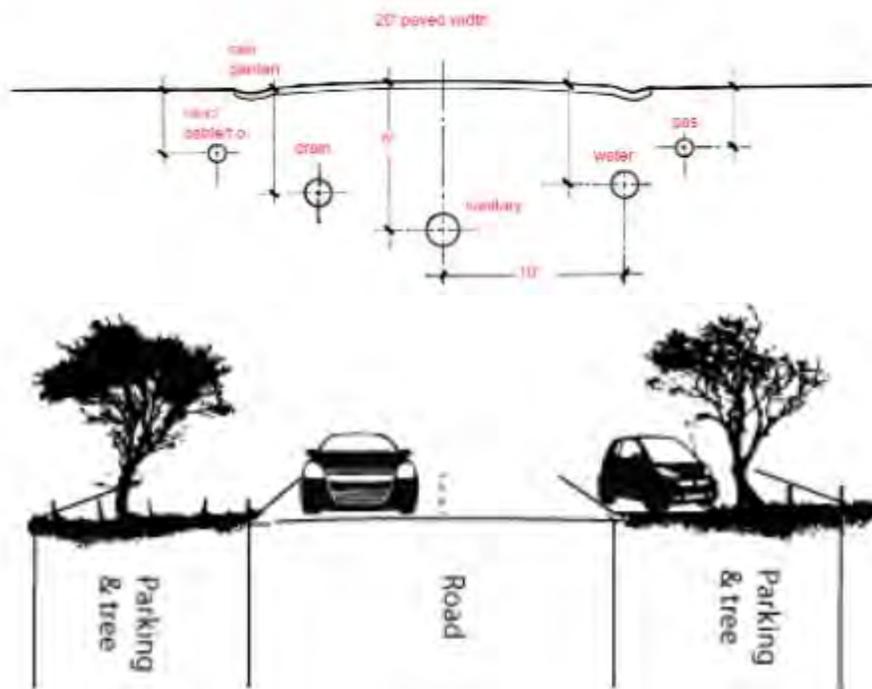
(a) Residential yield street section.



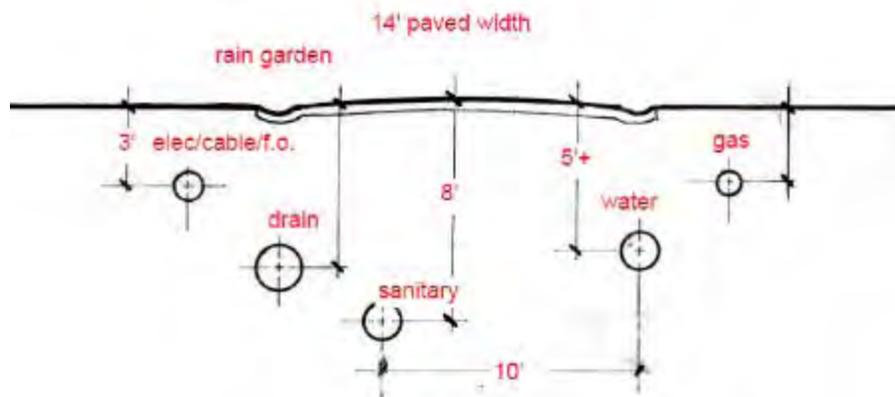
(b) Mixed use street section.



(c) Shared street section.



(d) Green alley section.



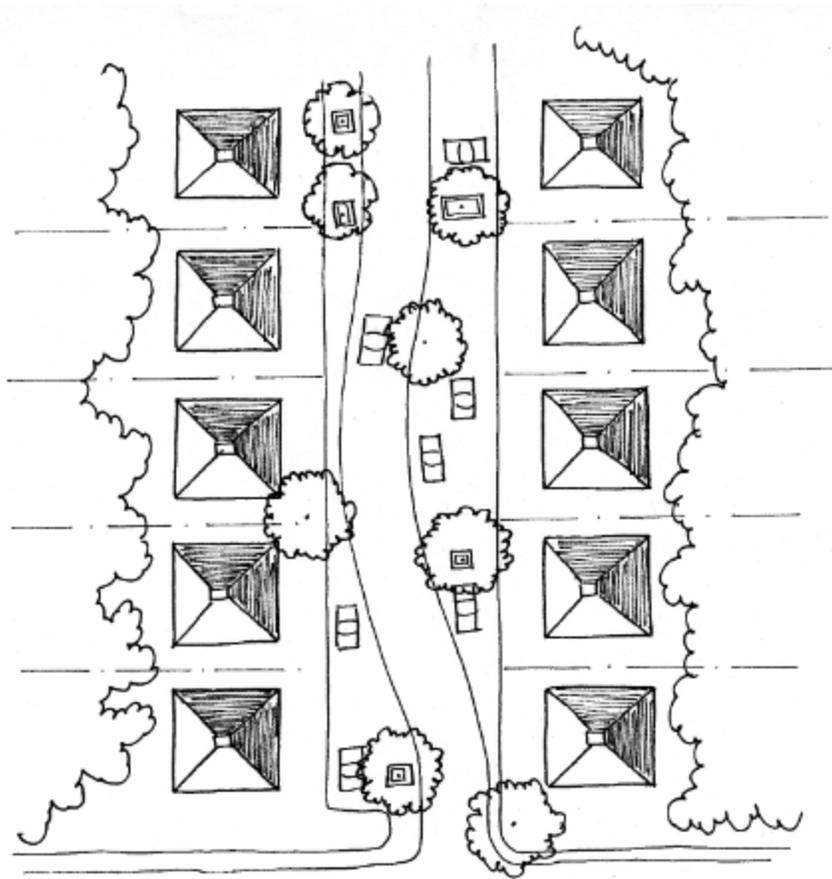
D. Street design standards.

- (1) The center line of the roadway shall coincide with the center line of the right-of-way, unless otherwise approved by the Planning Board.
- (2) In accordance with Chapter **350**, Zoning, on-street parking can potentially be allocated to a commercial project that doesn't require nighttime parking by right or by special permit, for zoning parking count purposes, prior to a street being dedicated for public use.

E. Traffic calming and pedestrian and bicycle access. Consistent with the above standards, the design shall make every effort to reasonably calm the traffic within the subdivision and on surrounding streets to ensure pedestrian- and bicycle-friendly design and to prevent a decrease in traffic safety as a result of the additional traffic the project will generate. Bicycle and pedestrian pathways are encouraged within large developments and should be linked to adjacent properties, pathways, sidewalks, and transit stops wherever feasible. Traffic calming may utilize methods detailed in ITE's Traditional Neighborhood Development or Traffic Calming: State of the Practice, and "complete streets" principles from the National Complete Streets Coalition, but must utilize methods that will not make snow plowing or road maintenance especially burdensome for the City.

F. Shared streets should be constructed with a traffic-calming goal of reducing all vehicular speeds to 15 miles per hour.

- (1) Shared streets should utilize chicanes that cue motorists to reduce speeds. This can be accomplished by utilizing different pavement textures separated by flush granite. Widened areas should be present every 130 feet to allow cars to pass each other and for parking.
- (2) Entryways to shared streets developments and intersections of shared streets should be narrowed to one travel lane with excess paved space for at-grade sidewalks.



Birds-eye view of a shared street with chicanes, removable bollards (to be taken out during winter months) different paving material for the travel lane versus the pedestrian area.

§ 290-30. Easements.

For municipal utilities, easements shall be 30 feet in width, except that the Planning Board, in consultation with the Department of Public Works, may require wider easements where necessary. Utilities shall be located as close as possible to the center line of the easement.

§ 290-31. Open space.

Before approval of a plan, the Planning Board may also require the plan to show a park or parks suitably located for playground or recreation purposes or for providing light and air. The park or parks shall not be unreasonable in area in relation to the land being subdivided and to the prospective uses of such land. The Planning Board may, by appropriate endorsement of the plan, require that no building be erected upon such park or parks for a period of not more than three years without its approval. Where the subdivision constitutes an approved cluster development under Chapter **350**, Zoning, of the City Code, the disposition of the open space under such approval shall be designated as part of the subdivision plan.

§ 290-32. Fencing.

Fencing shall be required in subdivisions abutting limited- or controlled-access highways or expressways, or other limited- or controlled-access roads. Fencing may be required in other areas where physical features require such safety. All fencing shall conform to the requirements of Chapter **350**, Zoning.

§ 290-33. Protection of wildlife habitat; amphibian/reptile crossing tunnels.

- A. Sites shall be designed to avoid impacts to rare and endangered species and wildlife habitat on a site, including biomap core habitat and priority habitat areas, and to maintain contiguous forested areas.
- B. In areas where a tunnel would aid amphibians/reptiles crossing a road (see Scott Jackson, 2003, Proposed Design and Considerations for Use of Amphibian and Reptile Tunnels in New England), the road design shall incorporate the following amphibian/reptile crossing tunnels:
 - (1) Tunnels shall be concrete box culverts, open at the bottom at least two feet by two feet square with a proper base to prevent frost heaves.
 - (2) For privately owned roads, the top of the tunnel shall be fitted with an iron grate flush with the road surface to allow ample rain, light and air circulation into the culvert. For publicly owned roads, the top shall be enclosed to allow a traditional road treatment unless DPW approves a design with an iron grate, in which case this alternative shall be required.
 - (3) The bottom of the tunnel shall be covered with sandy loam designed in accordance with current best practices to provide a more natural substrate for travel.
 - (4) Tunnels shall use wing walls to angle out from each end of the tunnel at 45°.
 - (5) Vertical retaining walls at least 18 inches high shall angle out away from the wing walls at a broad angle for a length of 100 feet to 200 feet. The tops of these retaining walls should be flush with the ground surface on the side closest to the road, and present a vertical surface to migrating animals at least 18 inches high.

- (6) Tunnels shall be placed no more than 200 feet apart, unless there is clear documentation that fewer tunnels are necessary.
- (7) A homeowners' or equivalent organization shall be responsible for maintaining any amphibian and reptile tunnels and providing an annual report to the Office of Planning and Sustainability documenting that the tunnels are being maintained properly. The subdivision shall propose adequate institutional controls to ensure that this work will be done properly.

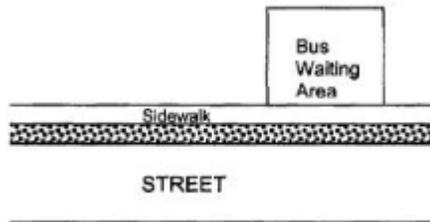
§ 290-34. Guardrails.

Guardrails shall be provided at points of hazard along the roadway, such as fixed objects and the pavement edge, high fills, fills on sharp curvature, along watercourses, steep cliffs, along deep ditches in cuts and similar locations as required by the MA Highway and Bridge Standards (3:1 slopes). The DPW Director shall approve type and installation of guardrails. In shared streets developments, the conditions under which guardrails are necessary (side slopes 3:1 or greater) should be avoided.

§ 290-35. Sidewalk standards and school bus stops.

- A. Sidewalks, where required in accordance with the table in § 290-29, may require a design with some utilities under the sidewalks to accommodate layout width. Homeowners' association covenants shall include the requirement that all sidewalks (for public use built within the right-of way or throughout the developed area) shall be cleared of snow by the association. Under an alternative pedestrian circulation layout, sidewalks may be built in common areas rather than the right-of-way, but only if approved by the Planning Board and if there is a guarantee that sidewalks will be cleared of snow in the winter. In a shared streets development, streets should have paved pedestrian areas on both sides, though the width of these areas may vary between three feet and 12 feet. In some cases, when approved by the Planning Board, shared streets developers may include a paved pedestrian area on only one side of the street.
- B. Sidewalks shall be constructed as indicated in the table in § 290-29. In shared streets developments, a textured, pervious paving material should be used for pedestrian areas and separated by flush granite curbing. Such paving should contrast in color enough to differentiate the pedestrian area from the travel lane. The material should also be textured enough to signal to visually impaired people the difference between the pedestrian area and the smoother travel lane. The Planning Board may also require bollards to be used to distinguish between pedestrian areas and travel lanes or to protect bioretention areas or around sharp curves.
- C. All sidewalks shall conform to the material and construction methods as specified in Section 701 of the Standard Specifications. In addition, all cement concrete sidewalks shall be reinforced with 10/10 six-by-six wire fabric. Different material and construction methods may be required for shared streets pedestrian areas.
- D. Where driveway aprons cross cement concrete sidewalks, aprons shall also be constructed with cement concrete to create continuity with sidewalk areas.

- E. If pursuing an LID plan and the site permits infiltration, sidewalks may be constructed of permeable paving materials. If using permeable paving materials, whether in an LID and/or shared streets development, the developer must work in consultation with the Department of Public Works and materials must be evaluated at regular intervals as they age. Sidewalks or pedestrian areas may also be constructed to direct stormwater runoff to a swale or other BMP.
- F. All subdivisions with 10 or more lots located in an area where school busing is provided or is likely to be provided in the future must provide at least one bus waiting area for school children. This area must be between 30 square feet and 100 square feet, depending on the size of the subdivision (number of students generated). The waiting area shall not include the width necessary to meet the sidewalk standards. It must be constructed of cement concrete; it shall be located at the entrance(s) to the subdivision, abut the outside edge of the sidewalk, and shall contain a bench. If pursuing an LID and/or shared streets plan and the site permits infiltration, the bus waiting area may be constructed of permeable paving materials. All subdivisions consisting of 15 or more lots must incorporate a bus shelter in addition to a bench. Any portion of the waiting area that is outside of the public right-of-way must be owned and maintained by a private homeowners' association.



§ 290-36. Wheelchair ramps.

All sidewalks shall be handicapped-accessible from the roadway at all intersections. Wheelchair ramps to accomplish the above shall be designed in accordance with MassDOT's Standard Construction Details and constructed according to the Standard Specifications.

§ 290-37. Adequate access from public way.

- A. Where the street system within a subdivision does not connect with or have, in the opinion of the Planning Board, adequate vehicular, pedestrian, and/or bicycle access from a City, county or state public way or private way, the Planning Board shall require, as a condition of approval of a plan, that such adequate access be provided by the subdivider, and/or that the subdivider make physical improvement(s) of access to and within such a way, in accordance with the provisions for these subdivision regulations, either from the boundary of the subdivision to a City, county or state public way or private way, or along such public way for a distance which, in the opinion of the Planning Board, is sufficient to provide adequate access to the subdivision.

- B. Where the physical condition or width of a public way from which a subdivision has its access is considered by the Planning Board to be inadequate to either provide for emergency services or carry the traffic which is expected, in the opinion of the Board, to be generated by such subdivision, the Planning Board shall require the subdivider to dedicate a strip of land for the purpose of widening the abutting public way to a width commensurate with that required within the subdivision and to make physical improvements to and within such public way to the same standards required within the subdivision or by these subdivision regulations. Any such dedication of land for the purpose of the 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 subdivider.
- C. The Planning Board shall disapprove of a subdivision plan where, in the opinion of the Planning Board, the existing surrounding municipal infrastructure (e.g., street width and construction, sanitary sewer, public water, storm sewer, etc.) is insufficient and/or incapable of handling the additional volumes (e.g., traffic, sewage, stormwater, etc.) anticipated, by the Planning Board, to be generated by the project. The Planning Board may accept or require off-site improvements to mitigate any of these impacts.

§ 290-38. Tree preservation, landscaping, street trees and tree belts.

- A. Unless approved by the Planning Board, deciduous trees with a diameter of 20 inches at a height of 4.5 feet above the ground shall be preserved. The entire area within the drip line and critical root zone of preserved trees, including understory vegetation, shall be retained in an undisturbed state.
 - (1) Any trees recommended for preservation that are lost as a result of and/or during construction shall be replaced.
 - (2) Transplanting methods that maximize plant survival shall be used.
 - (3) Prior to clearing, excavation, grading or other construction activities, all vegetation to be retained shall be surrounded by temporary protective fencing (i.e., orange construction fencing) or other measures. All trees on adjacent properties whose drip lines extend into the project site shall also be protected. Barriers shall be constructed outside the drip line and critical root zone of all vegetation to be protected.
 - (4) Materials shall not be stored within the drip line of trees to be protected.
 - (5) Additional best management practices shall be used to protect trees during construction (i.e., pruning, soil aeration, trunk wrapping, root pruning, watering, etc.).
 - (6) All protective measures shall be maintained until all construction work is completed, the site is stabilized and restored to a growing state and City staff gives final approval.
- B. When sidewalks are required, the tree belt shall be between the curb and the sidewalk, with the trees planted along the center line of the tree belt. The finished grade of such tree belts shall have a slope of 1/2 inch per foot toward the roadway. Where unusual physical land characteristics or topographic conditions exist, and where no sidewalk is to be constructed, the Planning Board may approve the construction of a tree belt of a greater slope with

the finished slope not projecting above a plane sloped four horizontal to one vertical from the back of the curb. In shared streets developments, tree belts should be located to the outside of the paved pedestrian areas.

- (1) The top six inches of tree belt shall consist of good quality loam extending to the right-of-way, screened, raked, and either rolled with lawn grass seed applied in sufficient quantity to assure adequate coverage, rolled when the loam is moist or planted with low-growing no-mow type decorative grass/plants. Spreading of loam and seed shall be in accordance with Sections 751 and 765 of the Standard Specifications.
- (2) There shall be no small trees or shrubs, and no herbaceous plants taller than one foot, within the tree belt. In LID and/or shared or yield streets developments, smaller trees or shrubs may be incorporated as part of bioretention areas or swales that exist within the tree belt (see below).



Source: Green Space Stormwater Management by Green Design, <http://209.205.95.211/joomla/green/index.php/business-trends/153-storm-water-management-by-naturesdesign>.

- C. If pursuing a LID plan, tree belts may also include bioretention areas or other vegetated stormwater BMPs. Bioretention areas should utilize noninvasive species and species that can tolerate cycles of drought and inundation. Bioretention areas should also utilize Massachusetts stormwater management standards as well as vegetation that is not on any Massachusetts invasive plant list.

- D. Tree filters/boxes shall be used in all cases where there is less than seven feet by seven feet unobstructed area for growth.
- E. Street shade trees shall be on both sides of subdivision streets in the tree belt when possible and otherwise within the right-of-way or within five feet of the right-of-way. There shall be one tree planted an average of every 30 feet of street frontage along each lot and not less than two trees per lot. Any mature deciduous shade trees preserved may be applied toward this average.
- F. Street trees shall not be permitted within 25 feet of the curblines of the intersection of two streets.
- G. Trees shall be mature deciduous trees or newly planted trees no less than three-inch caliper at time of installation. Clumping is permitted, using both sides of the sidewalk for tree planting, in order to frame or enhance a view. The center of the tree should be four feet from pavement or curbs. In shared streets developments, the trees may be planted at the edge of the roadway or pedestrian area if designed to work as part of a bioretention area.
- H. Street trees shall be deciduous shade trees, including, but not limited to, those listed in the table below. No more than 35% of any one species shall be used throughout the subdivision.
- I. Street trees shall have a minimum caliper of three inches measured six inches above the soil root ball. They shall be single-stemmed with a single, straight leader. All tree species must meet American Association of Nurserymen Standards for the types and sizes specified. These standards shall be included on the detail sheets.
- J. The developer shall install on each lot the street trees specified on the approved plans prior to the issuance of the final certificate of occupancy. Trees must survive one year after planting prior to the release of warranty performance guarantees.
- K. Planting operations and requirements for street trees and after-planting tree care shall be in accordance with the American Association of Nurserymen Standards for Planting and shall have a two-year growth warranty. These standards shall be indicated on detail sheets. This warranty period also pertains to trees that have been slated for protection and specified to count toward the public street tree requirement as shown on plans.
- L. Specifications for tree protection for all trees slated for protection shall be included in the plans and shall conform to ANSI standards.
- M. The developer shall not use potable water for landscape irrigation. Other mechanisms, including high-efficiency irrigation systems, using mulch to prevent water evaporation, irrigating with captured rainwater, and reusing building grey water, may be used.

Approved Street Tree Species

Botanical Name	Common Name	Notes
Acer rubrum	Red Maple	Low salt areas
Acer saccharum	Sugar Maple	In special circumstances, low salt, wide root zone areas
Cercidiphyllum japonicum	Katsura tree	Prune to single stem, moist soils
Fraxinus pennsylvanica	Green Ash	Urbanite only

Approved Street Tree Species		
Botanical Name	Common Name	Notes
Ginkgo biloba	Ginkgo	Male only
Gleditsia triacanthos var. inermis	Thornless Common Honeylocust	
Nyssa sylvatica	Black Gum, Tupelo	Moist soils
Quercus coccinea	Scarlet Oak	Nursery stock
Quercus robur	English Oak	
Quercus phellos	Willow Oak	Will tolerate poor, sandy soils
Ulmus americana "Valley Forge"	Valley Forge Elm	
Ulmus parvifolia "Allee"	"Allee" Lacebark Elm	
Zelkova serrata	Japanese Zelkova	
Species for planting under power lines or to ensure adequate solar access for structures		
Malus	Crabapple	Not "Snowdrift," Centurion" or Spring Snow"
Cornus Kousa	Dogwood, Kousa	
Crataegus punctata	Hawthorn Ohio	
* Must show solar orientation of proposed housing units		
Species allowed for the purposes of providing edible streetscape when approved by Board and when maintained by homeowners' associations		

§ 290-39. Soil test borings and test pits.

The work shall consist of making soil test borings, obtaining and preserving acceptable samples, preparing a report of the results obtained and delivery of the report and samples in conformance with appropriate provisions of Section 190 of the Standard Specifications and these rules and regulations.

§ 290-40. Construction (stakes) staking.

Developers shall employ, at their own expense, a registered land surveyor to set all lines and grades in a manner satisfactory to the City Engineer and in accordance with the provisions of Section 5.07 of the Standard Specifications. The developer, in consultation with the DPW, shall be responsible for establishing all survey work described in Section 5.07.

§ 290-41. Site and earthwork.

- A. All materials and construction methods used for roadway excavation and embankments shall conform to Section 100 of the Standard Specifications.
- B. All natural features, such as large trees, watercourses, scenic points, historic plots, and similar community assets shall be preserved. It is the opinion of the Planning Board that this protection and preservation will add to the attractiveness and value of the subdivision.
 - (1) Applicants shall demonstrate that they will, to the extent feasible, minimize land clearing, alteration of natural topography and features, destruction of vegetation, soil compaction, prevent pollution of water resources, damage to root systems, and associated environmental impacts, in order to preserve open space and undisturbed land.
 - (2) The site design shall preserve natural topography outside of the development footprint to reduce unnecessary land disturbance and to preserve natural drainage channels on the site.
 - (3) The site design shall attempt to minimize and balance cut and fill, to reduce total land disturbance and minimize the importing or exporting of earth materials from the site.
 - (4) The site design shall protect hilltops and scenic views. Placement of buildings, structures, or parking facilities shall not detract from the site's scenic qualities and shall blend with the natural landscape. Building sites shall be directed away from the crest of hills, and foundations shall be constructed to reflect the natural terrain.
 - (5) Sites shall be designed to prevent impact to aquifer recharge areas and water supply reservoir watershed areas for public drinking water supplies.
 - (6) Clearing for utility trenching shall be limited to the minimum area necessary to maneuver a backhoe or other construction equipment.
 - (7) Limit-of-work controls (also known as perimeter controls or development envelopes) for structures, driveways, parking, wastewater disposal, lawn areas, utility work, and any grading associated with the development shall be installed and maintained to establish the disturbance limits of clearing and grading activities.
 - (8) Efforts to minimize the clearing and grading on a site associated with construction activities shall be employed, such as parking of construction vehicles, offices/trailers, and stockpiling of equipment/materials in areas already planned for permanent structures, and not in areas of protected trees, wetlands, and/or their vegetated buffers.
 - (9) The extent of a site exposed at any one time shall be limited through phasing of construction operations. Timely revegetation of disturbed areas shall occur immediately after grading is complete. In no case shall land be left unstabilized over the winter season.
- C. Applicants shall demonstrate that the development will, to the extent feasible, minimize construction waste and loss of topsoil resulting from demolition, construction and land disturbance activities.
 - (1) To the greatest extent feasible, recycle or salvage at least 50% of nonhazardous construction and demolition debris, including waste cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation. Applicants shall enumerate and quantify the items and note where they will be taken for recycling.

- (2) Provide details on construction waste management and topsoil recovery, including identification of all materials that will be diverted from final disposal for reuse on site, charitable donation, and recycling.
- (3) All topsoil shall remain on site and be reapplied.
- D. The entire area within the right-of-way lines, except for trees and other vegetation intended to be preserved, shall be cleared and grubbed of all stumps, brush, roots, and like material. All rock or masonry with a maximum dimension over three inches and within six inches of the top of subgrade shall be removed. Suitable boxes, fenders, or wells, as appropriate, shall protect trees intended to be preserved.
- E. If pursuing LID, developers are encouraged to limit clearing within the right-of-way to the minimum necessary to construct the roadway, drainage, sidewalk, and utilities, and to maintain site lines. Under this approach, it is not required to clear and grub the entire right-of-way. Upon completion, developers shall ensure that soils intended to percolate groundwater are permeable and have not been compacted by construction vehicles.
- F. In a cut area within the right-of-way, all material shall be removed to subgrade. All unsuitable material, such as peat, highly organic silt or clay, or any other material that, in the opinion of the City Engineer, is considered to be detrimental to the subgrade, shall be removed and shall be replaced by bank-run gravel, and be brought to proper compaction with a ten-ton roller.
- G. Topsoil, defined as fertile, friable, natural material that has demonstrated vegetative growth, and found on the site, can be used within the right-of-way, provided it conforms to the relevant provisions of Section 751 of the Standard Specifications.
- H. In fill areas within the right-of-way, the embankment shall be ordinary borrow specified and placed in accordance with the relevant provisions of Section 150 of the Standard Specifications.
- I. Before the ground base course is spread, the subgrade shall be shaped to a true surface conforming to the proposed cross section of the road. Where fill is required, it shall be placed in layers not deeper than 12 inches loose, except the last layer shall not exceed four inches in depth. The fill shall be ordinary borrow specified and placed as in the relevant provisions of Section 150 of the Standard Specifications. A tolerance of 1/2 inch above or below finished subgrade will be permitted, provided that this difference is not maintained over 50 feet and the required cross section is maintained.
- J. The subgrade shall be classified as follows:

**AASHTO Soil Classification System
(from AASHTO M145 or ASTM D3282)**

General Classification	Granular Materials (35% or less passing the 0.075 mm sieve)						Silt-Clay Materials (greater than 35% passing the 0.075 mm sieve)			
Group Classification	A-1		A-3	A-2			A-4	A-5	A-6	A-7
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7			
										A-7-5, A-7-6

**AASHTO Soil Classification System
(from AASHTO M145 or ASTM D3282)**

General Classification	Granular Materials (35% or less passing the 0.075 mm sieve)						Silt-Clay Materials (greater than 35% passing the 0.075 mm sieve)					
	Sieve Analysis, % passing											
2.00 mm (No. 10)	50 max.	—	—	—	—	—	—	—	—	—	—	—
0.425 (No. 40)	30 max.	50 max.	51 min.	—	—	—	—	—	—	—	—	—
0.075 (No. 200)	15 max.	25 max.	10 max.	35 max.	35 max.	35 max.	35 max.	36 min.	36 min.	36 min.	36 min.	36 min.
Character-istics of fraction passing 0.425 mm (No. 40)												
Liquid Limit	—	—	40 max.	41 min.	40 max.	41 min.	40 max.	41 min.	40 max.	41 min.	40 max.	41 min.
Plasticity Index	6 max.	N.P.	10 max.	10 max.	11 min.	11 min.	10 max.	10 max.	11 min.	11 min.	11 min.	11 min. ¹
Usual types of significant constituent materials	Stone fragments, gravel and sand						Fine sand			Silty or clayey gravel and sand		
General rating as a subgrade	Excellent to good						Fair to poor					

Note (1): Plasticity index of A-7-5 subgroup is equal to or less than the LL-30. Plasticity index of A-7-6 subgroup is greater than LL-30

K. Inspections shall be required upon completion of the subgrade by the City Engineer.

§ 290-42. Pavement structure.

A. The pavement structure shall be constructed in accordance with applicable provisions of Section 400 of the Standard Specifications and the following:^[1]

(1) Subbase. The subbase shall be gravel borrow meeting M1.03.0 Type A specifications, except that the top four inches shall be gravel borrow

meeting M1.03.1 specifications. A tolerance of 1/2 inch above or below finished subgrade will be permitted, provided that this difference is not maintained over 50 feet and the required cross section is maintained. The gravel borrow shall be laid to a depth indicated in the Table of Street Requirements.

- (2) Binder course. The binder course shall be asphalt concrete, in accordance with Section 420, Class I Bituminous Concrete Pavement Type I-1 (Binder Course Mix). It shall be laid to a depth indicated in the Table of Street Requirements.
- (3) Surface course. The surface course shall be asphalt concrete, in accordance with Section 460, Class I Bituminous Concrete Pavement Type I-1 (Top Course Mix). It shall be laid to a depth indicated in the Table of Street Requirements.

[1] *Editor's Note: See the Table of Street Requirements in § 290-29.*

- B. Inspections shall be required by the City Engineer upon completion of each layer of subbase and the binder and surface courses.

§ 290-43. (Reserved)

§ 290-44. Curbs.

- A. All roads shall use curbing and edging, except as otherwise allowed in a low-impact development (LID) or shared streets design. All curbing and edging shall be granite and consistent with the requirements below. For existing streets and in exceptional circumstances, the Planning Board will consider waivers to allow concrete curbs but never to allow bituminous curbs.
- B. Granite curb corners shall be installed at all driveways. (See § 290-29.)
- C. Granite curb inlets (Type VB) shall be built against all catch basin frames and shall be installed true to the horizontal and vertical alignment as shown on the plans.
- D. Those portions of roads where amphibians/reptiles are likely to be present and the inside radius of the island in all culs-de-sac shall be constructed with granite edging Type SB having a minimum thickness of four inches. [See § 290-29B(2)(c).]
- E. On those portions of roads where amphibians/reptiles are not likely to be present, all street intersection radii, and the outside radius of culs-de-sac, shall be constructed with granite curb Type VB.
- F. The type and method of installation of granite curb, granite edging and granite curb corners shall conform to the relevant provisions of Section 500 of the Standard Specifications.
- G. If pursuing a LID plan, curbs should either be eliminated or, when deemed necessary to protect the roadway edge, they should be perforated or invisible. Interrupted curbs are curbs with gaps that allow stormwater to move from the street through to a stormwater management facility, such as

planters, swales, rain gardens, or tree filter boxes. Invisible curbs are buried along the street edge so as to allow stormwater to flow over into a stormwater management facility (see images below). All LID curb options should be implemented in connection with stormwater management facilities. In shared streets developments, curbs should either be eliminated or be invisible.



Interrupted curbing allows runoff to enter planters along sidewalk.



Invisible curbs along the street edge allow runoff to move into bioretention swales.



§ 290-45. Driveway approach areas and aprons.

- A. Driveway approach areas from the edge of the public roadway to the edge of the public right-of-way shall be constructed in accordance with standards and permits set by the City's Department of Public Works.
- B. The nearest line of any driveway shall not be closer than 50 feet to the intersection of any two streets.

- C. The Planning Board may require the developer to construct certain driveway approach areas during the construction of the subdivision, in order to ensure that certain physical characteristics, such as swales, steep side slopes, etc., do not get disturbed after the end of construction. In addition, the developer shall make provisions for driveway openings in all cases where granite curb has been used, i.e., around all culs-de-sac. Granite curb corners Type A shall be used at all driveway openings other than those for shared streets. The developer shall follow the regulations as stated in Subsections **A** and **B** above in constructing said driveways.
- D. Driveways shall be shown on the definitive plan.
- E. The plans must demonstrate that driveways with grades of 10% or less can be developed to serve all newly created lots.
- F. Driveways must be paved for the first 100 feet if the proposed grade exceeds 3%.
- G. Driveways shall be paved concrete to the edge of the right-of-way.

§ 290-46. Side slopes.

- A. The area in back of the required grass strip, or behind the sidewalk when one is required, shall be graded to a point where it coincides with the finished grade of abutting lots in such a manner that no portion thereof within the right-of-way lines of the street will project above or below a plane sloped four horizontal to one vertical.
- B. The top six inches of side slopes shall consist of good quality loam extending to the right-of-way, screened, raked, and rolled with at least a one-hundred-pound roller to grade. The loam shall be seeded with lawn grass seed applied in sufficient quantity to assure adequate coverage, rolled when the loam is moist. Loam and seed shall be spread in accordance with Sections 761 and 765 of the Standard Specifications.

§ 290-47. Street name signs.

Street name signs shall be provided to the applicant by the Department of Public Works. The applicant shall pay a fee per sign to the Department of Public Works (§ 290-63). The applicant shall provide the posts and erect those at each intersection near the inside curb edge, at locations to be approved by the DPW. The installations shall be done in accordance with the typical street sign installation sketch on file in the City offices.

§ 290-48. Monuments and markers.

- A. Granite or reinforced concrete monuments six feet in length, dressed to six inches at the top with a three-eighths-inch drill hole in the center, and not less than six inches square at the bottom shall be set to finish grade as shown on plans.

- B. Permanent monuments shall be installed prior to construction of sidewalks.
- C. Monuments shall be installed at all street intersections, at all points of change in direction, or curvature of streets, and at other points as shown in the definitive plan and where, in the opinion of the Planning Board, permanent monuments are necessary, with documentation of the horizontal metric coordinates of the center point of the monument provided on as-built plans (using Massachusetts State Plane Coordinates, NAD 1983). All monuments shall be installed under the direction of a Massachusetts registered land surveyor.
- D. All monuments shall be installed prior to any release of the performance guarantee and will be inspected by the DPW Director.

§ 290-49. Bridges.

Bridges shall be designed in accordance with the Standard Specifications.

§ 290-50. Underground utility systems.

All utility distribution systems, public or private, shall be placed underground.

§ 290-51. Utility installation.

The installation of public utilities shall conform to the standards in the following sections:

- A. The applicant shall employ, at his own expense, an engineer to set all lines and grades in a manner satisfactory to the Planning Board.
- B. All utility lines shall be installed with the minimum cover as shown in § 290-29C.
- C. Sewers shall be laid to true line and grade.
- D. Electric, telephone, cable TV, fiber optic, and all other conduits shall be installed underground beneath the grass strip with a minimum cover of three feet or under the roadside edge if pursuing a LID plan, as shown in § 290-29C.
- E. Width of trench at the pipe or conduit shall be equal to the diameter of the pipe or conduit, plus 36 inches.
- F. Sheeting shall be used, whenever necessary, upon the direction of Director of Public Works or his/her designee and in conformance with relevant provisions of Section 950 of the Standard Specifications.
- G. Pipe and conduits shall be surrounded by six inches of compacted screened gravel if set in earth, and 12 inches if set in rock. In rock, clay, or peat

excavation, trenches shall be excavated to a depth of 12 inches or more below the bottom of any water pipe, storm drain, or sewer and filled with bank run or select gravel, whichever is approved by the City Engineer.

- H. Backfill shall be compacted to 90% of the maximum dry density of the material as determined by the American Association of State Highway Officials, Designation T-180D.
- I. The water and sanitary sewer systems shall be tested and approved prior to installation of base course(s) and pavement.
- J. All lot connections shall be installed to the right-of-way line with a curb box for water and a clean out for sewer, and marked or surveyed so as to be easily located in the future.

§ 290-52. Drainage.

- A. The construction of the drainage system, including methods of construction and quality of materials used, shall be in conformance with the definitive plan, Section 200 of the Standard Specifications and in conformance with Chapter **281**, Stormwater Management, adopted to implement the National Pollution Discharge Elimination System Stormwater Phase II requirements. For projects disturbing over one acre of land, a notice of intent (NOI) must be submitted to United States EPA for coverage under the NPDES construction general permit, or to the City of Northampton if EPA grants local approval for these permits, seven days prior to start of construction, and a stormwater pollution prevention plan (SWPPP) must be prepared and implemented. Copies of the NOI and SWPPP must be submitted to the DPW prior to the start of construction and should be in accordance with an operation and management plan approved by the DPW. Approval of a stormwater management permit as described under Chapter **281** is required for all projects disturbing more than one acre and shall be obtained prior to the issuance of any building, grading, or other land development permits.
- B. The Rational Method shall determine the design capacity of the drains (closed drainage systems and pipes), unless the project engineer exhibits satisfactory evidence that another approach is more appropriate for the specific case. The project engineer shall design the drainage system in accordance with natural drainage boundaries of the total contributing drainage area, using a minimum of a twenty-five-year design frequency storm, based on current data collected from the year 2000 to present. A one-hundred-year design frequency storm shall be used for all bridge openings and major culverts. Drainage calculations and a list of all assumptions used for calculating the information shall be submitted with the definitive plan. A hydrology study should include:
 - (1) Plan of watershed drainage basin.
 - (2) Location of any and/or all detention basin structures within the watershed, especially if located on a stream if it will be used to take drainage away.
 - (3) Generally (through the use of GIS), an estimate of amount of impervious surface in watershed.
 - (4) Identification of possible downstream restrictions/obstructions (including sizes of culverts under roadways).
 - (5) Name and locus of receiving waters at end.

- C. Drainage systems, including detention, retention, and infiltration, must be designed to prevent any increase in peak flows for the one- or two-, ten-, and one-hundred-year Natural Resource Conservation Service (NRCS) design storms. TR-55 (or TR-20 with all inputs and outputs shown) should be used for calculating drainage systems. In addition, drainage systems should include water quality/settling basins that detain the stormwater draining off the site in a four-tenths-inch rainstorm for an average of at least six hours. Need to mimic existing drainage patterns and flows, not release peak prior to normal peak flow, unless there is a documented problem and this will not cause a direct downstream impact.
- D. Pipe drains, where used, shall have a minimum diameter of 12 inches in residential subdivisions, and 15 inches in commercial subdivisions, and shall be laid in true line. All drainage pipe shall be Class IV reinforced concrete pipe or other approved equal of appropriate strength. Rubber gaskets (O-rings) shall be used for all pipe joints of the reinforced concrete pipe mentioned above. The rubber gaskets (O-rings) shall be of approved composition, size and shape to provide for a proper joint per the manufacturer's specifications.
- E. Where feasible, stormwater should be directed to enter an artificial wetland or stormwater treatment facility before entering an open stream channel. Stormwater shall not be permitted to cross any roadway upon the surface but must be piped underground. Stormwater runoff shall not be permitted to flow upon the road surface for a longer distance than 300 feet before it enters the underground system. Catch basins shall be located on both sides of the roadway on continuous grades at intervals of not more than 300 feet, at all sags in the roadway, and near the corners of the roadway at intersecting streets. In LID and shared streets developments that use alternative stormwater BMPs, complete underground piping is not necessary.
- F. Where adjacent property is not subdivided and no public drain is within 400 feet, adequate provisions shall be made for the detention of surface drainage within the boundaries of the subdivision. When that is not feasible, proper connections shall be made with any existing public drainage system within 400 feet of the subdivision, if that system has the capacity to absorb the flows from the project area. Where adjacent property is not subdivided and no public drain is within 400 feet, adequate provisions shall be made for the detention of surface drainage within the boundaries of the subdivision.
- G. No open water body or pond or wet or swampy area shall be filled in unless it can be shown to the Planning Board that provision has been made in the lower drainage system to account for the removal of the storage area represented by the former wet or swampy area. In addition, permits and approval must be secured from the appropriate City, state, and/or federal authorities.
- H. Where open stream channels exist within a subdivision, adequate provision shall be made for properly maintaining them or for properly enclosing them, if absolutely necessary. It is the City's intent to preserve and maintain the natural features of such streams and any development should be planned accordingly.
- I. Manholes and catch basins shall be precast, cast-in-place or block, and a typical detail of such, noting materials, dimensions and construction details, shall be part of the definitive plan.
- J. Iron casting for manhole frames and covers and catch basin frames and grates shall be in accordance with Massachusetts Department of Public Works standards.
 - (1) Manhole covers shall have three-inch lettering to read "DRAIN." In addition, manhole covers shall be 26 inches in diameter.

- (2) Catch basin grates shall be square, Type F, as manufactured by LeBaron Foundry Company, Box 746, Brockton, MA 02403, or other approved equal.
- K. Drain manholes shall be located at every change in grade or direction, of the drainage line, at catch basin connections, and shall not exceed 300 feet apart in a continuous system.
- L. All catch basins shall connect directly to drain manholes.
- M. All catch basins shall have four-foot sumps. All catch basins shall have gas traps with removable hoods.
- N. If roadway subdrainage is required, rigid SDR 35, slot-perforated corrugated plastic (ADS) surrounded by stone-perforated PVC pipe of appropriate size shall be used. Installation and materials shall conform to the provisions of Section 260 of the Standard Specifications and the sketch shown in **§ 290-29C**.
- O. If lot subdrainage (i.e., foundation drains) is required, rigid six-inch PVC or other approved equal pipe shall be used within the public layout. The method of connecting said subdrainage to the public drainage system shall be approved by the DPW Director prior to construction. Drainage connections to the sewer system are not allowed.
- P. Foundation drain connections shall be designed for house lots and planned to tie into the stormwater system in lieu of incorporating interior sump pump connections.
- Q. The maximum allowable slope on a drainage system shall be 7%. The minimum allowable slope shall be 0.75%. The maximum allowable difference in elevation between inlet and outlet pipes in a drain manhole shall be one foot.
- R. The maximum depth of any portion of the storm system shall be 10 feet.
- S. All perennial and intermittent streams shall utilize open-bottom culverts.

§ 290-53. Sanitary.

- A. Projects must receive a Massachusetts Department of Environmental Protection (DEP) Bureau of Resource Protection (BRP) approval and provide copies of said approval to the Northampton Department of Public Works. Any work performed prior to DEP BRP approval may be subject to DEP fines and enforcement and is at the applicant's own risk and peril. In addition, an application to DPW for sewer connections must be submitted concurrent with the definitive subdivision plans.
- B. Provision shall be made, to the satisfaction of the Planning Board, for future connection of sewer lines to property boundaries to accommodate future development, including design, layout, and sizing.

- C. The construction of the sanitary system, including methods of construction and quality of materials used, shall be in conformity with the definitive plan, Section 230 of the Standard Specifications and the specifications of the Department of Public Works. The City will only accept gravity sewerage systems unless DPW approval is specifically granted.
- D. If a public sewerage system is located within 1,000 feet of the subdivision, the applicant shall connect all lots to the public sewerage system and make provisions for a privately owned and maintained pump station if required and only if previously approved by Department of Public Works.
- E. If a planned public sewerage system has not yet been installed to within 1,000 feet of the proposed subdivision, the applicant shall install private on-lot sewerage systems. The latter shall be installed in conformity with applicable codes, rules and regulations of the Commonwealth of Massachusetts and the Northampton Board of Health. The Planning Board may require the installation of dry sewers in conformance with these regulations in any street where, in the Planning Board's estimation, sanitary sewers will become accessible within a period of five years. This is dependent upon the capacity of the treatment plant and the state permit.
- F. Any system privately owned and maintained by a homeowners' association must have provisions established in the association bylaws requiring maintenance to be contracted out to appropriate professional entities.
- G. Sanitary sewer mains shall have minimum diameter of eight inches and shall be SDR 35 PVC or other approved equal, bedded in three-fourths-inch stone to the spring line of the pipe.
- H. Sanitary sewer services shall be six-inch PVC, encased with six inches of three-fourths-inch stone, or other approved equal, and shall be extended to the edge of the right-of-way with a clean-out riser and service stub.
- I. The minimum slope for sanitary sewer pipes shall be such that a minimum design flow velocity of 2 1/2 feet per second is achieved.
- J. The maximum slope for sanitary sewer pipes shall be 7%. Drop sanitary sewer manholes shall be allowed only with outside chimneys and shall be required for drops of two feet or greater.
- K. Manhole covers shall have three-inch lettering to read "SEWER" and shall be 26 inches in diameter.
- L. The following requirements shall be met for the design and construction of sewerage systems in relation to water systems:
 - (1) Horizontal separation. Whenever possible, sewers shall be constructed in the center of the street. A lateral separation of 10 feet between the sewer and water mains shall be maintained, and the elevation of the top (crown) of the sewer shall be at least 18 inches below the bottom (invert) of the water main. Laterals to houses should also maintain this.
 - (2) Vertical separation. Whenever sewers must cross under water mains, the sewer shall be laid at such an elevation that the top of the sewer is at least 18 inches below the bottom of the water main. When the elevation of the sewer cannot be varied to meet the above requirement, the water main shall be relocated to provide this separation or reconstructed with a mechanical joint pipe for a distance of 10 feet on each side of the sewer. One full length of water main should be centered over the sewer so that both joints will be as far from the sewer as possible.

- (3) When it is impossible to obtain proper horizontal and vertical separation as stipulated above, both the water main and sewer shall be constructed of mechanical-joint ductile-iron pipe and shall be pressure tested to assure that they are watertight.
- M. In the Water Supply Protection Zoning Overlay District, all sanitary sewers shall be built with ductile iron pipe or equal, with leak test standards the same as those for water systems, and watertight sanitary manholes.
- N. Leakage test for a gravity system.
 - (1) The sewer shall be made as nearly watertight as practicable and leakage measurements shall be made as directed and under the supervision of the project engineer with a minimum of 48 hours' notice to DPW for oversight.
 - (2) Whenever possible, the leakage tests shall be made at a time when the groundwater is at least one foot above the top of the pipe of the highest section of work being tested.
 - (3) Leakage into the sewer shall not exceed 500 gallons per inch diameter in 24 hours per mile of sewer.
 - (4) Where the groundwater level is less than one foot above the top of the pipe, the sewer shall be subjected to an internal pressure by plugging the pipe at the lower end and then filling the sewers and the higher manhole with clean water to a height of two feet above the top of the pipe. The volume of water necessary to maintain the water level in the higher manhole will measure leakage out of the sewer. Leakage out of the sewer shall not exceed 500 gallons per inch diameter per 24 hours per mile of pipeline.
 - (5) Alternatively, air testing for leakage may be used in accordance with Department of Public Works standards.
 - (6) Should the sections under test fail to meet the requirements, the contractor shall do all the work of locating and repairing leaks and retesting as the DPW Director may require.
 - (7) The contractor shall furnish suitable test plugs, water, pumps, and appurtenances, and all labor required to conduct the tests properly on the sewer.
 - (8) The maximum depth of any portion of the sanitary system shall be 10 feet.
- O. A mandrel (Go-No-Go) test must be performed on all sewer pipes.
- P. Leakage test for a forced main must meet the approval of the DPW Director.

§ 290-54. Water.

- A. Provision shall be made, to the satisfaction of the Planning Board, for future connection of water lines to property boundaries to accommodate future development, including design, layout, and sizing. Every individually owned residential unit shall have its own dedicated water service, with no shared

water services off the City water main.

- B. Water mains, appurtenances and service connections shall be installed in conformity with the relevant provisions of Section 300 of the Standard Specifications and the specifications of the Northampton Water Department.
- C. Water mains shall have a minimum cover of five feet and a maximum cover of 5.5 feet.
- D. Water mains shall have a minimum diameter of eight inches in residential subdivisions and 12 inches in commercial subdivisions.
- E. Water mains shall be ductile iron, Class 52, push-on or mechanical-joint type with wedges at connections for conduction.
- F. All fittings shall be ductile iron (mechanical joints). Tapping sleeve and valves (TSV) shall have iron bodies and mechanical joints or shall be stainless steel meeting AWWA Standard C-223.
- G. All water mains shall be looped. Whenever technically feasible, this loop shall be between two separate water mains on separate City streets.
- H. Provisions of § **290-53L** shall become part of this section.
- I. Hydrants shall be located at each street intersection and not more than 500 feet apart in residential subdivisions, and not more than 350 feet apart in commercial subdivisions, regardless of whether a project uses municipal water or on-site water.
- J. At water main intersections, all lines will be valved and the maximum spacing between valves on any one main shall be 750 feet.
- K. Whenever possible, a hydrant should be located on any section of a water main which can be isolated by valves.
- L. Hydrants shall be Kennedy - Guardian, Mueller - Super Centurion, US Pipe - Metropolitan 250 or M-94, or American Darling B-62-B, minimum diameter of 5 1/4 inches, open left valve, 5 1/2 feet buried. Extensions shall not be allowed on hydrants.
- M. A hydrant shall be placed five feet from the edge of the pavement. A valve shall be installed between the hydrant and the main.
- N. Corporation shall be one-inch Red Hed Mfg Co., Mueller, Ford, Cambridge Brass, McDonald Mfg. Co. or approved equal. Brass goods shall meet AWWA C800, including lead content. Inlet connection is to have AWWA (reinforced CC, CS, Mueller) thread.
- O. Curb stops shall be one-inch "Red Hed" brass, compression ball valve, without waste. Curb boxes shall be Buffalo Style 95E with sliding type, arch pattern base with inlaid covers.
- P. Thrust blocks shall be installed according to relevant provisions of Section 300 of the Standard Specifications and in accordance with Northampton Water Department specifications. All thrust blocks shall be inspected and approved by the Northampton Water Department.
- Q. Water services for any proposed structure shall be at least one-inch Type K copper from the curb box to at least four feet beyond the right-of-way limit.

- R. All valves shall open right. Ensure that all curb stops open left.
- S. All pipelines shall be pressure tested and chlorinated in conformance with Sections 301.60L and M of the Standard Specifications, the most current versions of AWWA Standards C600 and C651, respectively, and under the supervision of the Northampton Water Department. The test shall be done after all the services have been installed to the edge of the right-of-way. In addition, the developer shall conduct, at his own expense, flow tests on the completed water system to ensure that the fire flow requirements (See § 290-23D.) have been met. Said flow tests shall be conducted under the supervision of the DPW Director or designee.
- T. Fire flow requirements must be met in accordance with the Insurance Services Office (ISO) recommendations, the requirements of the Fire Department and the Public Works Commission, and in no case less stringent than the standards included below:
 - (1) The water system must be capable of delivering the required fire flows shown below, in gallons per minute (gpm), at 20 pounds per square inch (psi) during periods of average maximum daily demand for two hours, regardless of whether the project is on municipal water or uses on-site water. If the water system is not on municipal water, the system shall utilize cisterns and dry hydrants with sufficient volume to provide the entire required fire flow for two hours, if the system is otherwise designed, inspected, monitored, and certified in accordance with NFPA standards and if all buildings are sprinklered in accordance with the standards below.

Zoning Frontage Requirement (feet)	Fire Flow for Unsprinklered Buildings (gpm at 20 psi)	Fire Flow for Sprinklered Buildings (gpm at 20 psi)
Over 99	500	500+
70 to 99	750	500+
11 to 69	1,000	500+
10 or less	1,500	500+

- (2) The required fire flows may be reduced to the standards for fire flow for sprinklered buildings (table above) if each dwelling structure is constructed with a sprinkler system that meets the design and other requirements of the applicable sections of NFPA 13. If the proposed sprinkler systems are proposed to be connected to the public water supply, the minimum fire flows listed in the above table shall be increased to account for the increased water demand that would be caused by the sprinkler system during a fire. The preferred means of providing water for a sprinkler system is the use of a standalone five-hundred-fifty-gallon storage tank in each dwelling up to 2,500 square feet and not a direct connection to the public water supply. The water tank for larger dwellings shall be increased in direct proportion to the size of the dwelling.
- (3) The water system must be designed to prevent the possibility of backflow and potential infiltration into the system during periods of fire demand. Backflow prevention must meet Department of Environmental Protection requirements and shall be permitted by DPW.
- U. Where a public water system is located within 2,000 feet of the subdivision, the subdivider shall connect to the public water system. Where the public water system is not located within 2,000 feet of the subdivision, all fire flow requirements must be met to ensure that those projects, typically in areas with slower fire response time, have adequate fire protection. The subdivider must:
 - (1) Install a private on-lot water system (a well) for each lot.

- (2) Provide a system to ensure that the above fire flow volume requirements are met in accordance with NFPA 1142 Standard for Water Supply in Suburban and Rural Areas and the above fire flow volume and pressure and fire hydrant requirements, with hydrants fed from on-site water supplies and pressurized as necessary to meet these standards. If a private system is used, there must be adequate means provided for ensuring the system is maintained, operated and funded without taxing City resources. Such means shall include backup pumps and equipment, escrow accounts, long-term maintenance contracts, and authority to place liens on properties not contributing to the fund.
- (3) The Planning Board may require the installation of dry water mains in conformity with these regulations in any streets where, in the Planning Board's estimation, municipal water service will become accessible within a period of five years.

§ 290-55. Other utilities.

Materials and construction methods shall be in accordance with the requirements of the involved utility company after the City Engineer and appropriate City departments have approved said requirements.

§ 290-56. Retaining walls.

Retaining walls shall be designed in accordance with the Commonwealth of Massachusetts Department of Public Works Bridge Manual, including all amendments, and shall conform to the applicable subsections of the Standard Specifications.

§ 290-57. Cleaning up.

The entire area must be cleaned up within 30 days of completed construction and prior to the completion of the subdivision so as to leave a neat and orderly appearance free from debris and other objectionable materials. All catch basins shall be properly cleaned out.

§ 290-58. Project construction.

All streets, underground utilities, shoulders, curbing, sidewalks, planting strips, side slopes, street name signs, monuments and markers, drainage systems, water systems, sewerage systems, and easements shall be obtained and installed by the subdivider. Record plans and street acceptance plans are a part of required improvements to document their location and type. The obtaining and installing of these improvements shall be in accordance with these regulations.

Article VIII. Administration

§ 290-59. Inspection and control.

- A. Privatized project inspection. Project inspections and certifications shall be made by a Massachusetts registered professional engineer chosen by the applicant and approved by the Office of Planning and Sustainability or the Planning Board. Said project professional engineer shall certify that all work was done in accordance with the approved subdivision plans, except as noted, and shall provide a detailed list and plan of changes between the approved plan and what was built. The engineer or engineer's agent shall be on site during the entire construction process to ensure compliance with the design. Daily construction inspection reports shall be submitted by the engineer to DPW throughout the course of construction. The Planning Board or its staff must approve all changes to the plans prior to implementation. Changes made without approval may need to be corrected before the subdivision is approved and performance guarantees are released. The applicant shall pay for the cost for project inspections.
- B. The Planning Board shall notify the City Engineer and the developer in writing that the subdivision has been approved and all the necessary approved plans and documents have been recorded at the Hampshire County Registry of Deeds; therefore, construction can commence. Prior to commencement of construction, the developer, the projects' engineer/surveyor, and the designated contractor shall attend a preconstruction conference that shall be arranged in consultation with the City Engineer and Planning Board staff. Construction shall not commence on any portion of the subdivision until this condition has been met. Any project that does commence before this preconstruction conference shall be shut down for a minimum of one week to allow this coordination.
- C. The developer shall notify in writing the Department of Public Works and the Planning Board two days in advance of the date of commencement of construction and subsequent phases of construction so that the City is aware of construction start.
- D. In addition to the privatized project engineer, the City Engineer shall be notified at the appropriate time to make the following inspections, and the project shall not proceed until these inspections take place or the City provides a written notice that it will not undertake these inspections.
 - (1) The installation of underground utilities and services before the backfilling of trenches or other covering of structures.
 - (2) The curbing prior to the placement of the top course of bituminous concrete surface.
 - (3) The roadway upon completion of the subgrade gravel base course, binder and surface course prior to each required construction step.
 - (4) The sidewalk upon completion of the subgrade gravel base course, binder and surface course prior to each required construction step.
- E. Unless each phase of the work, including the materials used on the project, has been inspected by the City Engineer, no further work shall be done on any other phase of construction.
- F. The applicant shall request inspections two working days in advance by notice to the City Engineer.
- G. Inspections by the City Engineer will in no way relieve the developer, contractor or project professional engineer of responsibility in ensuring that all materials and all construction meet all standards as stated in these rules and regulations.

- H. After the installation of the complete water and sanitary systems and prior to the placement of any gravel on the proposed roadway, the developer shall present ties to fixed and easily identifiable objects and elevations (whenever applicable) on four-inch-by-six-inch cards of all appropriate components of said systems (such as bends, tees, gates, corporations, service boxes for water systems and wyes and of sanitary services for sanitary sewer systems), so that the Department of Public Works will be able to physically locate said components in the future. Said cards are to be prepared by the project's engineer. (See also § 290-64.) Upon approval of the above by the Department of Public Works, the Planning Board shall instruct the developer in writing to proceed with the construction.
- I. The developer shall present proof, at his own expense, by a qualified person/firm, to be approved by the City Engineer, that the gravel to be used on the project meets state specifications.
- J. The developers or their designee, at their own expense, shall test the water main for adequate fire flow. The fire flow test shall be conducted by a Massachusetts registered professional engineer under the supervision of the Department of Public Works and at a time to be chosen by the latter.

§ 290-60. Interpretation.

Whenever these rules and regulations made under the authority hereof differ from those prescribed by any local ordinance or other local regulations, the provision that imposes the greater restriction or the higher standard shall govern.

§ 290-61. Enforcement by denial of building permits.

- A. The Building Commissioner of the City of Northampton shall issue no building permits for any of the lots of any subdivision unless notified in writing by the Planning Board that the approved subdivision plans and documents have been recorded at the Hampshire County Registry of Deeds. Said notice shall be sent to the Building Inspector within seven calendar days after the date of said recording.
- B. The Building Commissioner of the City of Northampton shall not issue an occupancy permit for any of the lots of the subdivisions unless notified in writing by the Planning Board that the subdivision meets the City's fire flow requirements. It is strongly suggested that the water main and related services be constructed as soon as possible, to ensure compliance with these regulations.

§ 290-62. Material testing.

The developer shall test, upon the request of the City Engineer and at the developer's own expense, all materials to be used in the construction of the public ways. The tests shall be conducted by qualified firms/individuals that have been approved by the City Engineer.

§ 290-63. Fees.

A. Fees enumerated.

- (1) Preliminary subdivision plan: \$1,000 for commercial and \$600 for residential plus \$75 per unit. The Office of Planning and Sustainability may reduce this fee for projects or parts of projects designed to provide affordable housing.
- (2) Definitive subdivision plan: the greater of \$3,000 or \$10 per linear foot of proposed roadway center line of construction. For residential subdivisions with at least 10% affordable housing (as defined in Chapter **350**, Zoning), the fee shall be half that calculated herein. The Office of Planning and Sustainability may further reduce this fee for projects or parts of projects designed to provide additional affordable housing.
- (3) Definitive plan if no preliminary plan is filed: the greater of \$4,600 or \$14 per linear foot of proposed roadway center line of construction. For residential subdivisions with at least 5% affordable housing (as defined in Chapter **350**, Zoning), the fee shall be half that calculated herein. The Office of Planning and Sustainability may further reduce this fee for projects or parts of projects designed to provide additional affordable housing.
- (4) Minor subdivisions: \$400 plus \$10 per linear foot of proposed roadway. (Minor subdivisions consist of only one lot.)
- (5) Amendment to definitive plan: \$500; fee waived when material requested by Planning Board is not included in § **290-21**, **290-22** or **290-23**.
- (6) Record plans: no fee.
- (7) Street acceptance: \$3 per linear foot of street.
- (8) ANR plan (see § **290-66**): \$250 per plan sheet.
- (9) Street signs: \$75 per street sign, payable to DPW.
- (10) Request for a reduction or release of a performance guarantee: \$500.

B. Note: A separate fee may apply for review of stormwater/drainage analysis for projects with over one acre of disturbance.

§ 290-64. Record plans.

The function of the record plan is to facilitate the City in locating all components of the underground utilities within a street and/or public easement, so that the municipal utilities can be maintained, repaired and reconstructed in the future. The developer shall submit one set of originals and two sets of prints of the record plan, which shall include the following:

- A. Stamped by project's registered professional engineer.
- B. Same scale and size as originals.
- C. Plans to show:
 - (1) Edge of road, type of curbing, driveways in existence at date of preparation of plan.
 - (2) Right-of-way side lines and lot property lines, shown at least 100 feet from frontage (metes and bounds not necessary).
 - (3) Sanitary sewer.
 - (a) Certification that sanitary sewer was installed prior to installation of a base coat or within 30 days of the raising of the structures.
 - (b) Verification by DPW that installation has been accepted by DPW.
 - (c) Each component of sanitary sewer system shall be clearly identified and marked "Stationing of manholes bases" on center-to-center distances between successive ones with lowest/beginning manholes being a 0+00 station.
 - (d) Type, size and class of pipe between each manhole.
 - (e) Location of sanitary sewer wyes with distances from center of downstream manhole.
 - (f) Location of end of sanitary sewer service stubs and cleanouts at property lines [each location, ties to fixed and easily identifiable objects and invert elevations of end of service pipe (City datum) to be placed on a four-inch-by-six-inch card and submitted to the Department of Public Works prior to placement of gravel on roadway].
 - (g) Type, size and class of sanitary sewer service pipe.
 - (h) Location, if any, of pumping stations, siphons, etc.
 - (4) Drainage system.
 - (a) Certification that drainage system was installed prior to installation of a base coat or within 30 days of the raising of the structures.
 - (b) Verification by DPW that installation has been accepted by DPW.
 - (c) Each component of drainage system to be clearly identified and marked.
 - (d) Stationing of manholes based on center-to-center distances between successive ones with lowest/beginning manhole having a 0+00 station.
 - (e) Type, size and class of pipe between each successive manhole and between manholes and catch basins.

- (f) Location of individual house/lot subdrains, if any, within the proposed road layout; location of connections of said subdrains to storm system (i.e., distance from center of downstream manhole to connection, etc.); location, ties to easily identifiable objects and elevation (City datum) of end of subdrains at property line (each location, ties and elevation to be placed on a four-inch-by-six-inch card and submitted to the Department of Public Works prior to placement of gravel on roadway); type, size and class of subdrains.
 - (g) Location, size and class of roadway curtain drains, if any, within proposed layout.
 - (h) Detention ponds, including elevations of inlet and outlet structures and pond bottom.
- (5) Water system.
- (a) Certification that water system was installed prior to installation of a base coat or within 30 days of the raising of the structures.
 - (b) Verification by DPW that installation has been accepted by DPW.
 - (c) Each component of water system to be clearly identifiable and marked.
 - (d) Location, ties to fixed and easily identifiable objects, of all water gates, water service boxes, corporations, ends reducers, T.S.&V., etc. (each location and ties for each of the above to be placed on a four-inch-by-six-inch card and submitted to the Department of Public Works prior to placement of gravel on roadway).
 - (e) Location, type and class of water main, hydrant branches, water services, etc.
- (6) Public/Private utilities. It shall be the responsibility of the developer to ensure that each public utility (gas, electric, telephone, cable TV) provides all the necessary information to the person preparing the record plan, so that all the components of each system can be accurately plotted on the record plan. The project's professional engineer shall verify components of said systems, which can be identified on the ground, such as gates, hand-holes, transformers, etc.
- (7) Profile showing center line of roadway and complete profile of sanitary, drain and water systems.
- (8) Every plan shall have at least four survey-quality (centimeter, or its English equivalent, accuracy) points on each sheet tied into the Massachusetts State Plane Coordinate System (NAD 1983 datum), using said published control points or the global positioning system. The plan must note the metric and U.S. Survey feet coordinates of the four tie-in points, the datum, and the source and location of monuments used for data.
- (9) All plans must be accompanied by a CD-ROM or thumb drive containing DXF or ESRI Shape files including all property lines, buildings and geographic features shown on the plans, and with all features stored in the Massachusetts State Plane Coordinate System (NAD 83 datum) and a multipage compressed PDF electronic copy of all plans and documents.
- (10) Elevations to be NAVD 88 datum.

§ 290-65. Street acceptance plans.

The developer shall submit to the Planning Board the following:

- A. A petition to the Northampton City Council requesting that a particular street be accepted as a City street. Each street shall have its own petition, and each petition shall be signed by at least six residents of the City of Northampton.
- B. A title search showing that the property is free of all liens and encumbrances.
- C. Payment of a fee based upon \$3 per linear foot of street to be accepted.
- D. Plans and documents which shall include the following:
 - (1) Two sets of originals and three sets of prints.
 - (2) Plan(s) to be prepared by a registered land surveyor.
 - (3) Size 24 inches by 36 inches.
 - (4) Rules of Registry of Deeds to be followed (borders, size lettering, scale, reserved boxes, etc.).
 - (5) Only one proposed street to be shown per sheet.
 - (6) Match lines to be used if a street is to be shown on more than one sheet.
 - (7) Title block to be: THE COMMONWEALTH OF MASSACHUSETTS STREET ACCEPTANCE PLAN OF _____ PREPARED FOR THE CITY OF NORTHAMPTON HAMPSHIRE COUNTY.
 - (8) Scale of one inch equals 40 feet.
 - (9) Date plan was prepared.
 - (10) Reserved spaces for:
 - (a) Clerk to City Council's endorsements: (Name of Street) accepted by vote of City of Northampton Council; passed (date), attest: _____,
Clerk to City Council.
 - (b) Statement that: (Name of Street) is part of the (name) Subdivision approved by the Northampton Planning Board, filed with the City Clerk (date) and recorded at the Hampshire County Registry of Deeds (book and page).

- (c) Planning Board's endorsement that "Subdivision Approval is not Required."
- (d) Signature of DPW Director: (Signature), DPW Director.
- (11) Street line to be shown in metes and bounds. Tie courses so that street can be mathematically closed. Chord bearings and distances for all curves to be shown.
- (12) Street to be tied to Massachusetts State Plane Coordinate System. Every plan shall have at least four survey-quality (centimeter, or its English equivalent accuracy) points on each sheet tied into the Massachusetts State Plane Coordinate System (NAD 1983 datum), using said published control points or the global positioning system. The plan shall note the metric and U.S. Survey feet coordinates of the four tie-in points, the datum, and the source and location of monuments used for data.
- (13) All street line monuments to be shown and identified and its exact metric and U.S. survey feet coordinates shown, in accordance with the requirements in the above subsection.
- (14) At least 100 feet of lot property lines shown with metes and bounds.
- (15) Ownership of lots (including registry book and page) at the time subdivision was approved by the Planning Board.
- (16) Land Court case numbers, whenever appropriate, must appear on plans.
- (17) Full legal document (Land Court description) suitable for recording at the Registry of Deeds, deeding each proposed street to the City.
- (18) Necessary prints, forms - approval-not-required endorsement.
- (19) All plans must be accompanied by a CD-ROM or thumb drive containing DXF or Shape files including all property lines, buildings and geographic features shown on the plans, and with all features stored in the Massachusetts State Plane Coordinate System (NAD 83 datum) and a multipage compressed PDF electronic copy of all plans and documents.

§ 290-66. Forms.

All filings under the subdivision regulations shall be done on the most recent copy of forms available at the Northampton Office of Planning and Sustainability website, www.NorthamptonMA.gov/PLAN, under the "Permits and Regulations" link.