Town of Bartlett Street Regulations Revised September 12, 2022

Section I: Authority

This regulation is issued pursuant to NH RSA 231:8.

Section II: Purpose

It is the purpose of this regulation to provide reasonable and uniform procedures and standards governing the construction of streets in the town of Bartlett.

Section III: Access

A. Lots shall front upon and be served by the same street.

B. Street: means any avenue, boulevard, road, lane, or other traveled way which affords public service to more than two dwelling units, whether or not the traveled way is intended to be publicly or privately owned.

C. Dwelling units will be considered to be served by a Class V road when the Class V road provides reasonable access to a dwelling unit by emergency vehicles. Reasonable access will be determined by the Board of Selectmen in coordination with the appropriate department heads.

D. Driveways:
   1. A maximum of three dwelling units may be served by a driveway.
   2. Where warranted, the town may require that a driveway be shared by two (2) lots. Rights of passage over and across such driveways shall be established by easement for each of the lots so served and recorded with the plat plan."

Section IV: Procedure

A. Before proceeding with the construction of any street, drainage work, utility installation, or other improvements associated with the construction and use of streets, a plan showing the proposed street construction and/or improvements and a proposed construction schedule shall be submitted to the Board of Selectmen for review and approval.

B. The submission shall show:
   1. Design parameters including average daily traffic (ADT) , design speed, and required stopping sight distance.
   2. Plan view(s), scaled at 1"=40' to 1"=20,' including the following existing and proposed elements:
      a. Contours (1 or 2-foot interval).
      b. Special flood hazard areas (100-year floodplain and floodway).
      c. Jurisdictional wetlands.
      d. Soil types including classifications, depth to seasonal highwater table, and depth to bedrock based on test pits or borings spaced no less than 200 feet along the road

(within 25 feet of its centerline) and to a depth of at least 5 feet below the finished road surface or existing grade, whichever is deeper.

e. Benchmarks.
f. Right-of-way lines and markers with dimensions.
g. Street names.
h. Horizontal alignment with centerline tangent data (length and bearing) and curve data (radius, length, delta, chord length, and stopping sight distance).
i. Edge of traveled way, shoulder lines, and curbing (if allowed).
j. Intersections including deflection angle to main road, pavement edge radii, and sight distance.
k. Cul-de-sac layouts.
l. Driveways within the right-of-way lines, including spot elevations at the edge of the travel way, 10 ft and 30 ft away from edge of the travel way. Alignment and grading shall extend to the potential home site(s) where necessary to demonstrate that a driveway is feasible.
m. Road and driveway culvert locations, sizes, materials, invert elevations, and end-treatments.
n. Drainage ditches/swales.
o. Underdrain locations and outlets
p. Construction sequence.
q. Erosion and sediment control measures.
r. Utilities including: power and communications lines, poles, conduits, vaults; water lines, valves and hydrants; sewer lines, manholes, and pumping stations; gas lines, vaults; etc.
s. Drainage, slope, and utility easements.
t. Signage including street name and traffic signs (e.g., “STOP”, speed limit, dead end,
u. Other items such as bridges, sidewalks, etc.

3. Profile(s), scaled 1”=40’ to 1”=20 horizontally and 1”=10’ to 1”=2’ vertically, including the following existing and proposed elements:
   a. Vertical alignment including centerline vertical curve data (VC length, PVI station, PVI elevation, K value, and stopping sight distance) and tangent grades.
   b. Centerline elevations at 50-foot stations.
   c. Culvert crossings.
   d. Underdrains.
   e. Water lines, sewer lines, and manholes.
   f. Other items such as bridges, etc.
4. Typical road cross-section, scaled at 1”=10’ to 1”=5’, including the following elements:
   a. Right-of-way, travel-way, shoulder, and fill extension widths.
   b. Cross-slopes and side slopes.
   c. Ditch dimensions.
   d. Pavement, aggregate base courses, and fill specifications and depths.
   e. Geotextile specifications and depths.
   f. Underdrain depth and location.
   g. Typical locations/offsets and depths of waterlines, sewer lines, pump stations,

hydrants, utility lines, pads, pedestals, etc.
h. Groundcover treatment.
i. Other items such as sidewalks where appropriate.

5. If the road is superelevated, road cross-sections every 50 feet, scaled at 1"=10' to 1"=5', showing the superelevation transition points, and cut/fill slopes, ditches, and match points.
6. Typical construction/installation details.

Section V: Standards

A. General Requirements:
1. All proposed or new streets and driveways in the town of Bartlett shall comply with these minimum standards. These minimum standards do not relieve the applicant from complying with other industry standards such as those issued by the American Association of State Highway and Transportation Officials (AASHTO), the New Hampshire Department of Transportation (NHDOT), etc.
2. When a proposed change to the traffic characteristics (e.g, increased traffic, increase in truck traffic, etc.) of an existing substandard street is proposed, the Board may require the upgrading of said street to these standards.
3. It is the applicant's responsibility to identify (in writing) discrepancies between proposed design plans and the town's standards. Where discrepancies are discovered after the street design is approved, and not identified in writing, it is the applicant's full responsibility to implement corrective measures as directed by the town.
4. These standards apply to streets:
   a. Serving residential subdivisions or neighborhoods with less than 250 residential units, and;
   b. With an average daily traffic (ADT) of less than 2000, and;
   c. With a design speed of 40 miles per hour (mph) or less, and;
   d. Normally free of truck traffic.
5. For streets not of the applicable characteristics (indicated above), refer to the "General References" provided in the "Geometric, Material, and Construction Standards" herein, or other industry-recognized standards approved by the town or their representatives.
6. Where other references are proposed, they shall be subject to the Town's review for acceptance.

B. Traffic:
1. All dead-end streets or looped streets without through-traffic shall be designed for the estimated traffic volume generated from the maximum number of buildable residential units that the street could serve. All other streets shall be designed for the anticipated traffic volume 20 years from the time of the start of the street construction.
2. Where traffic will adversely impact nearby streets or intersections, provisions shall be made for the mitigation of said impacts.

C. Geometric Standards:

1. General References: Except where modified herein, the geometric standards shall conform with the latest edition of the following references:
   a. For design of streets with an ADT of less than 400: "Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT< 400)" by AASHTO.
      (i) For existing roads predating the enactment of the town's Subdivision Regulations and Street Regulations where no additional traffic is proposed, use the guidelines for "Existing Roads".
      (ii) For new roads and existing roads where additional traffic is proposed, the guidelines for "New Construction" shall generally be applied.
   b. For design of streets with an ADT of greater than 400: "Geometric Design of Highway and Streets" by AASHTO.
2. General Design:
   a. Streets shall be continuous (both ends connected to an existing street) and in alignment with existing streets as far as possible. Where continuity is not provided, streets shall be looped unless it is not feasible. The first priority shall be to loop back to the feeder road or connect to another existing road such that the street has two outlets. The second priority shall be to loop it back on itself to avoid a cul-de-sac. As a last option, a cul-de-sac (turn-around) shall be provided at the terminus of all dead-end streets.
   b. Proposed streets shall be designed and constructed to accommodate proposed traffic and afford satisfactory access for police, fire-fighting and other emergency equipment, snow removal, sanitation, and road maintenance equipment.
   c. The arrangement and character of the streets shall conform with the town's Master Plan, Subdivision Regulations, and all other town regulations, and shall compose a safe and convenient system in relation to other existing and planned streets, to topographic conditions, and to the proposed uses of land to be served by the street.
   d. Streets shall be designed to minimize environmental impacts.
   e. The traveled way of any street shall not be bisected by islands of any shape or size.
   f. Waterlines, sewer lines, and other utilities shall be positioned such that their repair will not require excavation in the road (including shoulder) unless it is a line that must cross the road.
   g. Curbing shall not be allowed.
   h. Retaining walls shall not be allowed in street rights-of-way.
   i. Existing stonewalls shall be retained where possible or relocated and restored as required by the Board.
3. Right-of-Way: The minimum road right-of-way width shall be 66 feet except at cul-de-sacs where it shall be at least 15 ft from the edge of the travel way.
4. Design Speed: The minimum design speed shall be 25 mph.
5. Stopping Site Distance (SSD):
   a. The following minimum stopping site distances shall be provided along all streets as well as at all intersections:

	Stopping Site Distance (feet)			
Design Speed (mph)	25	30	35	40
ADT<400	125	165	205	250

ADT>400	155	200	250	305

b. For vehicles traveling down grades of 3 percent or more, the stopping sight distance shall be increased by multiplying it by the following factor:

Longitudinal Grade (%)	3%	6%	9%	12%
SSD adjustment factor	1.03	1.05	1.16	1.27

c. For horizontal and vertical curves, the height of the driver's eye shall be 3.5 feet and the height of object 2.0 feet.

d. For intersection design, the driver's eye approaching from the minor road shall be located 15 feet from the edge of the traveled way of the major road. Both driver's eye and the object (on the major road) shall be 3.5 feet high measured at the centerline.

6. Horizontal Alignment:
   a. The centerline of the traveled way shall coincide with the centerline of the right-of-way.
   b. All curves on streets with an ADT of 400 or greater shall be superelevated at 4%. Streets with an ADT less than 400 may or may not be superelevated.
   c. Sudden changes in alignment, such as adjacent curves with widely different (+/- 50%) radii or between long tangents and sharp curves, shall be avoided.
   d. The minimum centerline radius for streets shall be as follows.

	Minimum Centerline Radius (feet)			
Design Speed (mph)	25	30	35	40
ADT<400, no superelevation	125	225	375	600
ADT<400, superelevated @ 4%	125	225	300	425
ADT>400, superelevated @4%	175	250	375	550

   e. The minimum length of tangent between horizontal curves shall be 100 feet.
7. Vertical Alignment:
   a. The minimum longitudinal grade of streets, including cul-de-sacs, shall be 0.5%.
   b. The maximum longitudinal grade of streets, not in proximity to intersections or cul-de-sacs, shall be 12%. Refer to the "Intersections" paragraph for maximum grades in proximity to intersections.
   c. The maximum longitudinal length of grades in excess of 6% shall be 1000 feet and in excess of 10% shall be 500 feet. However, such sections of road shall be separated by a minimum of 400 feet at a grade of 6% or less.
   d. Parabolic vertical curves shall be provided where the algebraic difference in grades of the profile tangents is greater than 1%. The minimum length of a vertical curve shall be 50 feet.
8. Intersections:
   a. All intersections shall be controlled with stop signs, yields signs, or traffic signals.
   b. The centerline of adjacent intersections shall be separated at least 125 feet.
   c. Streets shall intersect at an angle as close as practical to 90 degrees but not more or less than 15 degrees off 90, except where it is right turn only.
   d. The minimum tangent length between intersections and horizontal curves shall be 50 feet, measured from the centerline intersection.
   e. Grades in proximity to intersections:

(i) The maximum centerline grade of proposed streets (both cross-streets and through-streets) shall be 3% within 75 feet of the centerline intersection of the streets.
(ii) Proposed streets shall intersect existing streets only where the centerline grade of the existing street is 6% or less within 150 feet of the intersection.

f. The edge of traveled way radius shall be a minimum of 30 feet where the angle of intersection is greater than 90 degrees, and 35 feet where the angle is less than 90 degrees. Where vehicles with a wheel-base greater than 20 feet are anticipated, the intersection shall be designed to accommodate such vehicles.
g. Intersections shall be at least 50 ft from any part of a cul-de-sac

9. Cul-de-sacs:
   a. Cul-de-sacs shall be laid out complying with Exhibit A "CUL-DE-SAC CONFIGURATION".
   b. The maximum longitudinal grade of cul-de-sacs shall be 3%. The maximum cross-slope of cul-de-sacs shall be 3% where paved and 4% where unpaved.
10. Driveways:
   a. Unless a driveway is shared, it must be located a minimum of fifteen (15) feet from any and all property lines. Parking and turn-arounds are considered part of the driveway.
   b. Driveways shall be located complying with the same sight distance requirements as for intersections except that the driver's eye approaching from the driveway may be located 10 feet from the edge of the traveled way of the major road.
   c. The width of residential driveways shall be between 10 feet and 18 feet, whereas commercial driveways shall be between 20 feet and 40 feet wide. Width to be measured at the throat.
   d. Driveways shall intersect streets at an angle as close as practical to 90 degrees but not more or less than 15 degrees off 90, except where it is right turn only.
   e. The centerline of residential driveways shall be offset at least 100 feet from adjacent intersections, whereas commercial driveways shall be offset at least 125 feet
   f. Grades: The centerline grade of driveways shall extend downward from the street's edge of pavement at a grade of 3% for a distance of at least 10 feet. From this point,
      (i) Residential driveways shall be constructed downward or upward at a grade of not more than 6 percent, for at least 20 feet. Beyond this approach area, the driveway grade shall not exceed 15 percent.
      (ii) Commercial driveways shall be constructed downward or upward at a grade of not more than 3 percent, for at least 50 feet. Beyond this approach area, the driveway grade shall not exceed 12 percent.

      The algebraic difference between any two adjacent grades in a driveway shall not exceed 9 percent.
   g. Where residential driveways intersect streets, the edge of driveway shall have 10-foot minimum radii, whereas commercial driveways shall comply with the regulations for intersections.
   h. Where residential driveways intersect paved streets, driveway shall be paved to a distance of 10 feet from the edge of street's traveled way, whereas commercial

driveways shall be paved to a distance of 20 feet.

i. For residential driveways in excess of 500 feet long, 20-foot wide by 100-foot long sections shall be provided and spaced no more than 500 feet apart to allow emergency vehicles to pass.
j. For all driveways in excess of 500 feet long, a turn-around shall be provided at the dead-end that will accommodate fire-trucks and other emergency vehicles.
k. Driveways shall include on-lot turn-arounds such that vehicles do not back into streets. Such turn-arounds shall be considered part of the driveway.

D. Typical Road Cross-section: Comply with Exhibit B1 "STANDARD STREET CROSS-SECTION" or Exhibit B2 "STEEP TERRAIN CROSS-SECTION" where permission is granted by the Town.

E. Drainage: Storm water systems shall be designed by a professional engineer licensed in the state of New Hampshire and shall comply with the following:
   1. General:
      a. Maintain natural flow paths and avoid concentrating the flow at the property lines.
      b. Drainage calculations shall be provided and reflect the potential development on abutting land, as well as the road construction.
      c. All storm water systems shall be designed to accommodate the proposed runoff from at least the 25-year design event, except for culvert's under residential driveways, which may be designed for at least the 10-year design event. Calculations shall be performed using the USDA Natural Resource Conservation Service's TR-55 or TR-20 methodology, except for driveway culverts, for which the Rational Method may also be used.
      d. Where runoff is being calculated for compacted gravel surfaces such as unpaved roads and driveways, the calculations shall reflect paved surfaces to so that the storm drainage system will accommodate the site if these surfaces are paved in the future.
      e. All driveway culverts shall be designed, including sizing calculations, locations, and invert elevations.
   2. Culverts:
      a. Maximum spacing: Culverts shall be spaced such that maximum flow to each is less than 10 cubic feet per second (cfs), except where natural channels exist making this impossible.
      b. Diameter: As determined by drainage calculations, but 15-inch minimum for pipes crossing streets and 12-inch minimum for driveway culverts.
      c. Slope/Velocity: The minimum slope shall be 0.4% and minimum velocity 2 feet per second (fps) when flowing one-third full. The maximum velocity shall be 10 fps.
      d. Inlet Treatments: A flared end-section, concrete or masonry headwall, or other anti-seep device shall be used at the inlet to all culverts crossing streets and all other culverts greater than 18 inches in diameter. The inlet treatment shall extend at least 6 inches below and 12 inches each side of the pipe bedding.
      e. Outlets: A suitably designed stone-apron, plunge-pool, or other erosion protection measures shall be provided at the outlet of all culverts with outflow velocities

exceeding 3 fps. In addition, measures to dissipate concentrated runoff, such as a level spreader, shall be provided. Refer to EXHIBIT D: CULVERT OUTLET and EXHIBIT E: LEVEL SPREADER.

f. Culverts shall cross streets perpendicular to the street centerline or deflected no more than 20º downgrade.

3. Closed Storm Drainage: Catch basins, drainage manholes, and other closed storm drainage components shall not be allowed in street rights-of-way.
4. Ditches/Swales:
   a. Ditches shall be designed along all roads where the aggregate subbase course would not otherwise drain to daylight.
   b. Roadside ditches/swales and their linings shall be designed to resist erosion, demonstrated by calculations.
5. Underdrains: Underdrains shall be constructed under all ditches where the seasonal high groundwater table is less than 1.5 feet below the ditch invert.

F. Erosion Control: Roads and associated construction shall include erosion control and sediment control measures, prepared by a professional engineer licensed in New Hampshire or a Certified Professional in Erosion and Sediment Control (CPESC), complying with the following:
   1. Design to minimize erosion first and capture potential sediment second.
   2. Limit the total area of disturbance to the least required to complete the project.
   3. Limit the exposed and unstabilized area to the least practical at any one time.
   4. Stabilized flow channels and ponds prior to diverting runoff to them.
   5. Stabilize all slopes steeper than 2.5 horizontal to 1 vertical with suitable jute erosion control fabric or riprap.
   6. Provide a construction sequence on the plans.

G. Utilities (Water, Sewer, Power, Communications, etc.):
   1. Buried utilities (including water and sewer lines) shall be located outside of the travel lanes and shoulders such that any repairs will not require disturbance of the road or shoulder, except where is it necessary for the buried utility to cross the road. However, in no case shall they be closer than 8 feet from the shoulder. Utilities shall cross perpendicular to roads or at a deflection angle no more than 20º.
   2. Above-grade utilities, such as utility poles, guy-wires, anchors, pedestals, pads, shall be located at least eight feet outside of the travel lane and shoulder.

H. Easements: All easements shall include the right to construct, repair, and maintain the system and shall be recorded at the Carroll County Registry of Deeds.
   1. Drainage easements shall be required where concentrated runoff will flow off-site, where the proposed flow is greater than the existing flow, and where off-site drainage measures are required. Drainage easement shall extend to jurisdictional wetlands or waterbodies, or the where the existing flow conditions have been restored.
   2. Slope easement shall be required where the cut/fill slopes extend outside of the road right-of-way.
   3. Utility easements shall be required where utility mains/collectors extend outside of the

road right-of-way.

I. Guardrail: Except in proximity to bridges, guardrail shall not be permitted within street rights-of-way. Alternate measures, such as providing roadside fill extensions and removing obstacles, shall be employed to comply with AASHTO's "Roadside Design Guide".

J. Construction/Observation phase:
   1. Layout: After the road is cleared, but before earthwork commences, all proposed road centerlines shall be laid out by a land surveyor licensed in New Hampshire and a letter certifying this shall be provided to the Board of Selectmen from said surveyor. Layout shall include centerline stakes and centerline offset-stake pairs at 50-foot intervals and at points of curvature and tangency, and benchmarks within 50 feet of the centerline spaced such that the maximum point between them and any point on the road centerline is less than 250 feet. Should any offset stakes or benchmarks be removed or damaged during construction, road work within 100 feet of them shall stop until they are reset by a licensed land survey.
   2. Observation and testing: All proposed and existing streets that may be petitioned to become a town road, shall be inspected and/or tested by the town or the town's designated representatives as described below. The results of the inspections will be used to appraise the applicant of the work required to bring the road into compliance with these regulations. The cost of all testing and inspection/observation shall be paid by the applicant.
      a. Proposed new roads: Meetings and/or construction observations will be required at the following stages of construction. In addition, the town may require soil gradation analysis, compaction testing, pavement temperature monitoring, and other material testing or quality documentation.
         (i) Pre-construction meeting to be held after the road is cleared, laid out, and temporary erosion control measures installed, but prior to the start of earthwork.
         (ii) Observation of stripped and grubbed roadway.
         (iii) Observation of the existing soil removed to at least 3 feet below finish grade, and the screened or imported soil to be used to refill to subgrade.
         (iv) Observation of the road brought to subgrade including cuts and fills.
         (v) Observation of drainage, waterline, sewer line, and utility installations.
         (vi) Observation of placed aggregate subbase course.
         (vii) Observation of placed aggregate base course.
         (viii) Observation of placed pavement.
         (ix) Observation of completed landscaping and site stabilization.
         (x) Post-construction meeting.
      b. Existing Roads: If the road was satisfactorily inspected at the time of construction and conditions have not changed significantly, only a surface inspection plus as-builts (as described in these regulations) will be required. If the existing road was not satisfactorily inspected, then the following shall be provided by the applicant:
         (i) Borings or test pits (witnessed by the town), extending to a depth of at least 5 feet below the road surface and spaced no greater than every 200 feet along the

road centerline, with a report indicating the depth and condition of pavement, depth and gradation of aggregate base and subbase courses, classification of material below subgrade, depth to seasonal high groundwater and bedrock (if any), and presence of organics or other deleterious material (if any).

(ii) Surface inspection with report indicating the condition of the storm drainage system(s), slopes, vegetation, and general roadside features.

(iii) As-builts as described in these regulations.

3. As-Builts (record drawings): The applicant shall provide as-built drawings of all newly constructed or reconstructed roads. As-built drawings shall be prepared and stamped by a land surveyor or professional engineer licensed in New Hampshire and shall include:
   a. Pavement and aggregate base depths and material specifications.
   b. Right-of-way monumentation.
   c. Road centerline alignment and profile.
   d. Edge of traveled way radii.
   e. Storm water pipes, ditches, and pond locations, invert elevations, and materials.
   f. Power, communication, water, and gas utility locations, depths, and materials.
   g. Sanitary sewer locations, invert elevations, and materials.
   h. Other road construction elements if deemed necessary by the town.
4. Submittals (shop drawings): Allowing 14 days for the town's review of each, the following shall be submitted for review and approval by the Town:
   a. Product data (cut sheets) shall be provided for all drainage and road construction products used in the project.
   b. Identification of the materials testing company.
   c. Soil and aggregate gradations and proctors.
   d. Asphalt mix design certificate of compliance.
   e. Other materials that the Town considers critical to road construction.
   f. Construction schedule.
5. Field testing: The following materials shall be tested, for compliance with the compaction requirements, by an independent testing company paid for by the applicant. The compaction testing shall be repeated until the compaction percentage complies. The testing interval shall be every 100 feet along the road centerline, and two tests in each drainage pipe, waterline, sewerline, and utility line crossing the road. Every lift shall be tested.
   a. Proof-rolled soils.
   b. Fill material.
   c. Road aggregates (gravels).

K. Material Standards:
   1. General References: Except where modified herein, comply with the latest edition of: "Standard Specifications for Road and Bridge Construction" and "Standard Plans for Road and Bridge Construction", both by the NHDOT.
   2. Geotextiles: Geotextiles shall be selected based on the site-specific conditions (e.g., soil gradation, expected water flow, etc.). However, the geotextiles shall have the following

properties unless it is demonstrated that the properties will be detrimental to their function.

a. Woven Geotextile:
   (i) Puncture strength (ASTM D4833): 145 lbs minimum.
   (ii) Grab tensile strength (ASTM D4632): 315 lbs minimum.
   (iii) Flow rate (ASTM D4491): 4 gal/min/sf minimum.
   (iv) Weight (ASTM D5261): 6 oz/sy minimum
b. Non-Woven Geotextile:
   (i) Puncture strength (ASTM D4833): 65 lbs minimum.
   (ii) Grab tensile strength (ASTM D4632): 120 lbs minimum.
   (iii) Flow rate (ASTM D4491): 135 gal/min/sf minimum.
   (iv) Weight (ASTM D5261): 4 oz/sy minimum

3. Fill material and Aggregate Base and Subbase Courses:
   a. Fill material: Fill material below the aggregate subbase course and used for construction of road embankments shall be soil free of frost, stumps/roots, organic matter, foreign debris, clay pockets, trash, or other deleterious materials. Fill generated from on-site cut sections (common borrow) shall contain less than 40 percent fines (#200 sieve). Imported fill shall contain less than 30% fines. In fill sections, within 4 feet of the road surface, the fill material shall be free of rocks greater than 8 inches in any dimension. In cut sections, the native soil shall be made free of rocks greater than 8 inches to a depth of at least 3 feet below finished grade. Rocks greater than 8 inches may be used outside of the road shoulder or greater than 4 feet below the road surface provided that they are spaced to allow compaction around them.
   b. Aggregate Subbase Coarse: Shall be gravel complying with NHDOT Standard Spec. Item 304.2.
   c. Aggregate Base Coarse: Shall be crushed gravel complying with NHDOT Standard Spec. Item 304.3.
4. Wearing Surface:
   a. Hot bituminous pavement: Comply with NHDOT Standard Spec. Section 401 and use the following mixtures:
      (i) Single-Course: Type D.
      (ii) Base Course: Type B.
      (iii) Wearing Course; Type E.
5. Culverts:
   a. Material: Any of the following shall be used:
      (i) Corrugated steel pipe complying with AASHTO M 36M/M 36, Type III.
      (ii) Corrugated exterior, smooth-wall interior HDPE pipe complying with AASHTO M294, Type S.
      (iii) Reinforced concrete pipe, Class III or higher, complying with NHDOT Standard Spec. Section 603.
   b. Blanket material: NHDOT Standard Spec. Item 304.1 (Sand) modified such that 100% passes a 1-inch sieve.
   c. Bedding material: Either of the following

(i) ¾-inch bedding stone complying with NHDOT Standard Spec. Section 703 Course-graded aggregate, standard size #67. Wrap stone with non-woven geotextile if the seasonal high groundwater table is above the bottom of the bedding.
(ii) 1 ½-inch crushed gravel complying with NHDOT Standard Spec. Item 304.33.

6. Underdrains:
   a. Pipe: Perforated pipe/tube, either corrugated steel pipe (AASHTO M 36M/M 36, Type III), smooth-wall SDR-35 PVC (ASTM 3034), or corrugated HDPE (AASHTO M252 or M294, Type S). Minimum 6-inch diameter.
   b. Aggregate: ¾-inch bedding stone (NHDOT Standard Spec. Section 703 course-graded aggregate, standard size #67).
   c. Geotextile: Non-woven geotextile specified in these regulations.
   d. Outlet: Last 20 feet of pipe to be non-perforated and to be provided with permanent rodent guard.
7. Guardrail: In the limited locations where guardrail is allow, comply with ASSHTO "Roadside Design Guide" and NHDOT standards.

L. Construction Standards:
   1. General References: Except where modified herein, comply with the latest edition of: "Standard Specifications for Road and Bridge Construction" and "Standard Plans for Road and Bridge Construction" (NHDOT Standard Specs), both by the NHDOT.
   2. Clearing and Grubbing: The entire area of each roadway, from the toe of the fill/fore-slope to the top of the cut/back-slope, shall be cleared and grubbed of all stumps, brush, roots, boulders, like materials, and all trees not intended for preservation. The clearing and grubbing materials shall not be used for fill or buried within the road right-of-way.
   3. Below Subgrade Preparation:
      a. All loam, humus, clay, and other yielding material shall be removed from within the limits of the roadway. Ledge or rocks greater than 8 inches must be removed within 3 feet of finished grade by excavating, screening, and replacing the screened material.
      b. Proof roll the existing ground prior to placing fill or soil removed to screened-out the rocks, compacting it to the same limits specified for the material to be placed above it.
      c. The subgrade surface (bottom lowest road aggregate layer) shall be pre-graded such that its cross-slope is parallel to the proposed road surface's cross-slope.
      d. Proof roll the pre-graded surface, compacting it to the same limits specified for the material to be placed above it.
   4. Placement of Woven-Geotextile: Where geotextile is specified, it shall be placed the full width of the roadway, overlapping each sheet at least 12 inches, and complying with the geotextile manufacturer's installation instructions.
   5. Underdrains: Where underdrains are specified, they shall be installed prior to placing aggregate base/subbase courses.
   6. Placement of Fill (Including Aggregate Base/Subbase Course):
      a. All fill materials shall be unfrozen and shall be placed on unfrozen materials.

b. Place fill in nearly horizontal lifts not exceeding 12 inches thick.
c. Compact each lift to 95-percent of its maximum density, as determined by AASHTO T-180, before placing the next lift.
d. The bottom of each aggregate base/subbase course shall be graded such that its cross-slope is parallel to the surface cross-slope.
e. The aggregate base/subbase courses shall extended to the ditch line and surface of fill embankment (less the loam or stone-surfacing thickness) to facilitate drainage of the road section.

7. Placement of Paved Wearing Surfaces: Hot bituminous pavement shall be applied as specified in Section 403 of the NHDOT Standard Specs.
8. Culvert and Utility Pipe Installation:
   a. All loam, humus, clay, and other yielding material shall be removed from below the culvert trench.
   b. Ledge or rock occurring in pipe trenches must be removed to a clearance of at least 6 inches below the pipe and 12 inches both sides of it.
   c. The pipe envelope (6 inch below, 12 inches both side, and 12" above the pipe) shall be compacted 95-percent of its maximum density, as determined by AASHTO T-180, before placing the next lift.
   d. When the pipe is bedded in free-draining material such as crushed stone, the stone shall be enclosed in a non-woven geotextile, trench dams shall be installed, and provisions made for preventing excessive build-up of groundwater behind the dams.

M. Phased Construction:
1. Each phase of construction shall independently comply with these standards, without relying on future phases.
2. An interim cul-de-sac (as specified in these regulations) shall be constructed at the terminus of each phase. The interim cul-de-sac shall be removed upon completion of the subsequent phase.

N. Road Monumentation:
1. Stone bounds shall be installed at each point of curvature (PC), point of tangent (PT), and all other changes in direction of the road right-of-way lines. Stone bounds shall consist of concrete or cut stone, not less than 36 inches long, not less than four inches square or five inches in diameter, and marked on top with a cross, brass plug, iron rod, or other durable material that is securely embedded.
2. Iron pipe, rebar, or stone bounds shall be installed where all property lines intersect the right-of-way lines. Iron pipes shall be at least 36 inches long and 7/8 inches in diameter. Rebar shall be 5/8" with an aluminum survey cap.

O. Signage:
1. Street signs as approved by the Selectmen and matching those used by the town, shall be installed at each end of each street bearing the approved names of the street on each face of the sign. Street construction will be inspected while it is in progress by the town.
2. Traffic signs shall conform with the Manual of Uniform Traffic Control Devices, latest

edition as amended. Signs and post shall be type C according to NHDOT Standard Specification Section 615.

Section VI: Acceptance

A. Final acceptance of the finished street by the Selectmen is contingent not only upon the satisfactory construction of the street in accordance with the approved plans and established standards, but also upon granting of authority to accept a deed to the right-of-way by vote of the town pursuant to an article in the town warrant at a town meeting.

B. Acceptance of title to the right-of-way shall be contingent upon construction of the street and improvements as required by these regulations. Evidence that the title is clear and the grantor, if a corporation, has authority to grant, shall be provided.

C. Upon acceptance of the road, a maintenance bond shall be provided to reserve funds to repair or reconstruct streets, which have become damaged due to latent defects in the street construction. The maintenance bond shall remain in effect until two (2) years after acceptance and the bond value shall generally be twenty dollars ($20) per linear foot of roadway accepted. The bond value is intended to approximately equal 10 percent of the cost to fully reconstruct the road.

Section VII: Performance Guarantee

A. No lot, land, or dwelling unit for which the street provides frontage or to which the street provides access, may be sold unless and until the street is completed in accordance with the approved plans and established standards or sufficient security is posted with the Selectmen to guarantee completion of the street in accordance with the approved plans and established standards.

B. The amount of security to be posted shall be the estimated cost to complete the approved construction, including utilities, as of the time such security is posted plus 10%. An engineer's estimate shall be submitted for review by the Town.

C. The posted security may be in the form of a performance bond furnished by a company acceptable to the Selectmen, a certified check to be deposited in a town account, or by written agreement between the town and the owner of the land, providing for specific amounts to be deposited at specific times in an escrow account to be held by a bank mutually satisfactory to both parties.

D. Release of the security posted will be at the sole discretion of the Selectmen. The Board of Selectmen may make any other administrative arrangements, which equally guarantee the satisfactory construction of streets.

Exhibits

The following exhibits are integral to the regulations:

EXHIBIT A – CUL-DE-SAC CONFIGURATION
EXHIBIT B1 – STANDARD STREET CROSS-SECTION
EXHIIT B2 – STEEP TERRAIN STREET CROSS-SECTION
EXHIBIT C – CULVERT TRENCH
EXHIBIT D – CULVERT OUTLET
EXHIBIT E – LEVEL SPREADER