

1 - GENERAL PROVISIONS

1.1 Preamble

- A. The Design and Construction Standards and Details are hereby adopted by Durham Public Works (DPW). Their purpose is to provide consistent policy under which construction of the physical aspects of infrastructure system improvements within the Town limits will be implemented. The infrastructure system includes, but is not limited to roadways, stormwater management systems and erosion control measures.
- B. These Design and Construction Standards and Details are herein after referred to as the Standards. They are provided as specifications in the materials and methods for performing work within the Town of Durham. The Standard Details provided graphically depict and illustrate key elements outlined within the written portion of these Standards.
- C. These Standards also establish Durham Public Works' minimum criteria for plan submittal and design requirements relative to DPW's technical peer review. It is the responsibility of the property owner/applicant/contractor to verify and obtain all applicable permits and meet all applicable submittal requirements.
- D. The requirements of these Standards are in addition to the requirements of any other policy, rule, regulation, or other provision of law. Where any provision of these Standards imposes restrictions different from those imposed by any other policy, rule, regulation or other provision of law, whichever provision is more restrictive or imposes higher protective standards for human health or the environment shall control.
- E. These Standards govern projects conducted by or for the Town and any activity that is required by Town ordinance or regulation to be conducted in compliance with these Standards. For private work that does not fall within the regulatory jurisdiction of Town Ordinance or regulations, DPW strongly recommends that these Standards be used as a basis for construction and design. These Standards address the more typical infrastructure components. Accordingly, these Standards are intended to assist but not to substitute for competent work by design professionals by providing basic information. It is expected that the design professionals (e.g. engineers, architects, landscape architects, etc.) will bring to each project the best of skills from their respective disciplines, and shall contact DPW-Engineering Division for clarification and direction regarding design aspects not covered by these Standards.
- F. The Standards are also not intended to unreasonably limit any innovative or creative effort which could result in a project of better quality, greater cost savings or meeting Town objectives. However, any proposed departure from the Standards will be evaluated on the basis that such exception will produce a

long-term compensating or comparable result, in every way adequate for the user and Town resident. Any exception from these Standards must be approved in writing by the Director of Public Works, Town Engineer or their designee. Further, these Standards are not intended to restrict DPW in its efforts to obtain the maximum benefits for the Town in any construction project.

- G. These Standards are intended to replace all prior versions of standard construction details of roadway and utility construction for the Town of Durham. The Public Works Director or the Town Engineer may make minor revisions to these Standards. Major revisions will be adopted by the UNH/Durham Water, Wastewater, Stormwater, Roads Committee. Notice of any revisions to the Standards shall be posted on the DPW website and sent to the relevant Town Departments, Boards and Commissions.
- H. The invalidity of any section or provision of these Standards shall not invalidate any other section or provision thereof nor shall it invalidate any approval or determination that has been previously issued. If any provision is held unenforceable, then such provision will be modified to reflect the intention of the standard or construction specification. All remaining provisions of these Standards shall remain in full force and effect.

1.2 General Requirements

1.2.1 Plan Review/Content

- A. Proposed work requiring technical review by Durham Public Works under a Town Regulation or as part of a Utility Connection or Excavation Permit Application, Building Permit Application or Town Board/Commission permit application shall be submitted as an engineering plan stamped by a Professional Engineer registered in the State of New Hampshire.
- B. The Director of Public Works, Town Engineer or their designee will provide the Applicant or appropriate Town Board/Commission written correspondence indicating acceptability of the plan, deficiencies within the plan/design and/or required additional information.
- C. Plan content and design/report submittal requirements are included within the applicable sections of these Standards. At a minimum all plans submitted to DPW shall be prepared in monochrome format utilizing gray scale and line types to differentiate features (grey scale for existing features and bold for proposed features) and shall include:
 - 1. *General Data:*
 - a. Name of record owner(s) of land shown on plan
 - b. Identification of parcel by Assessor's Map Number and Parcel Number
 - c. Property lines, easements, and/or legal rights within the property lines
 - 2. *Roadway Data (including elevations):*

- a. Roadway limits including edge of pavement and centerline at a maximum 50' cross section interval.
- b. Location and material of drives, sidewalks and walkways. Walkway and drive survey information shall extend at least 10' beyond the back of right-of-way.
- c. Curb location and type, with top and bottom elevations at appropriate intervals.
- d. Location of right-of-way and control points.

3. *Utility Data:*

- a. Sewer and drainage structures (including rims and inverts) and mains (including size and material type).
- b. Drainage culverts with inverts, material type and size.
- c. Stormwater management systems and structural best management practices.
- d. Utility poles with pole numbers, associated guy wires.
- e. Electric, telephone, cable television conduits, transformers, vaults, handholes, and associated structures.
- f. Water main (including material and size), valves, curb stops and hydrants
- g. Gas main including shut offs and vaults.

4. *Topographic Features:*

- a. Trees (greater than 4" caliper within ROW)
- b. Fence lines (within 10' of ROW)
- c. Guardrails
- d. Walls
- e. Stairways
- f. Mailboxes
- g. Signs

5. *Natural Features:*

- a. Vegetative cover (wooded areas/tree line, grass areas, etc.)
 - b. Wetland areas (including wetland flags)
 - c. Rivers/streams (including bank flags)
 - d. Ponds
 - e. Buffer Zones
- 6. All coordinate data shall be provided in the NH State Plane Coordinate System
 - 7. All elevation data shall reference NAVD88.
 - 8. Any additional information required by DPW.

- D. To ensure timely review it is the responsibility of the property owner/applicant/ contractor to verify that all plan content and submittal requirements are met. Incomplete submittals will delay the review process.
- E. DPW generally requires a minimum of a two week turnaround for technical review. Larger projects may require additional review time. A third party review funded by the applicant may be required at the discretion of the Town Engineer and/or Public Works Director.
- F. In addition to obtaining plan approval, it is the responsibility of the property owner/applicant/contractor to verify and obtain all written permits from appropriate Town departments and state and federal agencies and pay all

permit fees prior to commencing construction.

1.2.2 Construction

- A. All construction materials and methods shall conform to the requirements contained in the latest version of the New Hampshire Department of Transportation – (NHDOT), *Standard Specifications for Road and Bridge Construction* as amended. These two documents are collectively referred to as the NHDOT Standards within these Standards.
- B. These Standards also draw on and refer to the latest version of the NH Stormwater Manual.
- C. All work shall be completed in accordance with the lines and grades shown on the approved plans.
- D. Durham Public Works field inspectors may approve field changes that differ from approved plans or standards referenced herein when determined to promote a public interest. Any such field changes shall require written approval from the DPW field inspector.

1.2.3 As Built/Record Documents

- A. When required, the Contractor/Applicant shall be responsible for the preparation and submittal of record drawings to DPW when construction is complete. The as-built plan of project improvements (roadway, site work, and utilities), shall be submitted in hardcopy and electronic formats, for review and approval. A stamped paper hardcopy of the as-built plan shall be submitted for review. Once approved, electronic copies of the as-built plan shall be submitted for archival. All drawing sheets shall not exceed ARCH Size D (24" x 36") and shall be prepared at readable plan scale, preferably consistent with the design plan scale. Plans shall be prepared in monochrome format utilizing gray scale and line types to differentiate features (color as-built plans will not be accepted). The record as-built submittal shall also include any reports required to be submitted upon the completion of the project.

Electronic as-built information shall be in both AutoCAD Civil 3D and Acrobat PDF formats.

Record drawings shall at a minimum include the following:

- 1. *General Data:*
 - a. Name of record owner(s) of land shown on plan
 - b. Identification of parcel by Assessor's Map Number and Parcel Number
 - c. Property lines, easements, and/or legal rights within the property lines
- 2. *Roadway Data (including elevations):*
 - e. Roadway limits including edge of pavement and centerline at a

- maximum 50' cross section interval.
 - f. Location and material of drives, sidewalks and walkways.
Walkway and drive information shall extend 10' beyond the back of right-of-way.
 - g. Curb location and type, with top and bottom elevations at appropriate intervals.
 - h. Location of right-of-way and control points.
 - 3. *Utility Data:*
 - h. Sewer and drainage structures (including rims and inverts) and mains (including size and material type).
 - i. Drainage culverts with inverts, material type and size.
 - j. Stormwater management systems and structural best management practices.
 - k. Utility poles with pole numbers, associated guy wires.
 - l. Electric, telephone, cable television conduits, transformers, vaults, handholes, and associated structures.
 - m. Water main (including material and size), valves, curb stops and hydrants
 - n. Gas main including shut offs and vaults.
 - 4. *Topographic Features:*
 - h. Trees (greater than 4" caliper within ROW)
 - i. Fence lines (within 10' of ROW)
 - j. Guardrails
 - k. Walls
 - l. Stairways
 - m. Mailboxes
 - n. Signs
 - 5. *Natural Features:*
 - a. Vegetative cover (wooded areas/tree line, grass areas, etc.)
 - b. Wetland areas (including wetland flags)
 - c. Rivers/streams (including bank flags)
 - d. Ponds
 - e. Buffer Zones
 - 6. All coordinate data shall be provided in the Mass State Plane Coordinate System
 - 7. All elevation data shall reference NAVD88.
 - 8. Any additional information required by DPW.
- B. Unless specifically provided elsewhere recommendations for Certificates of Occupancy will not be signed until a final site inspection is concluded to validate completeness and accuracy of the submitted as-built plan documents. DPW requires a minimum of two weeks following the delivery of as-built documents package to provide sign-off. Turnaround time is subject to document package completeness.

1.3 General Construction Requirements

1.3.1 Brand Name or Equal

- A. If an item in these Standards is identified as "brand name or an approved equal," the product will reflect the characteristics and level of quality that will satisfy

the Town's needs. The Town will evaluate "equal" products based on information furnished by the Applicant or Contractor. All "or Equal" submissions must be approved during the Plan review process. All technical information submitted must be as provided by the manufacturer. The Town is not responsible for locating or obtaining any information not identified.

1.3.2 Protection of Existing Trees

- A. Public shade trees near the proposed construction that have not been approved to be cut, removed, destroyed, or trimmed shall be saved from harm and injury. Measures to prevent any harm and injury caused during construction operations shall be provided as required by the Town Tree Warden.

Additional information is provided in the Durham Public Works Construction and Tree Protection Standard Operating Procedures and within the Town Zoning Ordinance Section 3.6 and Appendix A.

1.3.3 Protection of the Public

- A. No work shall be performed within the Town right-of-way unless a Utility Connection Permit or Excavation permit is first approved by the Director of Public Works, Town Engineer, or their designee.

Trenches shall not be excavated in traveled ways until all materials and equipment required for such work are at the site and available for immediate use. When work is not in progress, trenches in areas subject to public travel shall be covered with steel plates capable of safely sustaining a 36.5-ton truckload with impact. The work in each trench shall be practically continuous, with the placing of pipe, backfilling, and paving of the roadway surfaces closely following each preceding operation.

At the end of each working day where trenches in areas of public travel are covered with steel plates, each edge of such plates shall be either beveled or protected by a slope of 2-feet horizontally to 1-inch vertically. Temporary bituminous concrete patching material shall be used to construct the ramps.

- B. The Contractor shall take every measure necessary for the protection of personnel and property. The Contractor shall, at all times, until written acceptance of the physical work by the Town, be responsible for the protection of the work and shall take all precautions for preventing injuries to persons or damage to property on or about the project.
- C. All construction equipment, material and debris shall be removed from the traveled way at the end of each working day and shall be stored in such manner as not to interfere with the flow of driveway traffic or pedestrians.
- D. All personnel who are working in areas open to traffic shall wear NHDOT

approved safety vests.

- E. To the extent feasible, the Contractor shall maintain access for all abutters so that they may use the driveways and approaches adjacent to their properties. Pedestrian access to abutting property and access for emergency vehicles shall be provided at all times.

1.3.4 Traffic Management Plan

- A. The Contractor shall prepare and submit a traffic management plan to DPW and the Durham Police Department (DPD) for review and approval by the Director of Public Works, Town Engineer or their designee and Chief of Police, or their designee respectively. The Traffic Management Plan shall be prepared for all streets affected by construction operations, unless specifically directed otherwise by the DPD or DPW. The Traffic Management Plan shall contain information on lane closures and proposed detour routes if requested, location and type of detour and warning signs, barricades and other safety and traffic control means and devices to ensure a safe, orderly flow of vehicular and pedestrian traffic.
- B. All temporary and permanent signs, traffic control devices, and pavement markings shall conform to the latest relevant sections of the Manual on Uniform Traffic Control Devices (MUTCD), and the New Hampshire Standard Specifications for Highways and Bridges.
- C. The Traffic Management plan shall be submitted for review at least fourteen (14) days prior to any work being performed on the public roadways. No work would be allowed until the Traffic Management Plan is approved by the Town and implemented by the Contractor.
- D. Temporary pavement markings and other traffic control devices shall be provided in accordance with the Traffic Management Plan and as directed by the Town Engineer.
- E. Traffic Police Details shall be provided as outlined within the Traffic Management Plan or as may be required by the Durham Police Department.
- F. The Traffic Management Plan shall demonstrate that detoured pedestrian routes are in full compliance with the latest version of the MUTCD, the PROWAG, the ADA, and the standards herein.

1.3.5 Work Schedule

- A. Work on public ways is restricted to a normal eight (8) hour day between the hours of 7:00am and 3:30pm, five (5) day week Monday through Friday, with the prime contractor and all subcontractors working on the same shift. No work shall be done during nights, on Saturday's, Sunday's, or holidays without the prior written approval by the Director of Public Works. Lane closures on public

ways may be further restricted if deemed appropriate by the Public Works Director, Town Engineer, Chief of Police, or their designee due to traffic volumes.

1.3.6 Sampling and Testing Materials

- A. All materials used in the construction of the project shall be subject to inspection, examination, or testing, by a certified materials testing laboratory as determined necessary by the Town Engineer. All sampling and testing shall be done by an approved commercial testing laboratory at the Contractor's expense. Before tests are made, a certificate shall be furnished to the Town Engineer from the laboratory stating that it is fully equipped and qualified to make the required tests, is fully acquainted with specification requirements and the intended use of materials represented by the tests and is an independent establishment in no way connected with the organization of the Contractor, Developer, or Manufacturer of the materials to be tested. Upon approval of the certificates, the laboratory will make the required tests and submit, through the Contractor to the Town Engineer for approval, detailed results of tests. No materials shall be used in the work until laboratory test reports have been submitted and approved, and laboratory certificates fully identifying materials have been furnished. All sampling and materials for all tests shall be taken by the testing laboratory, under the direction of the Town Engineer.
- B. Unless otherwise approved in writing by the Town Engineer, only new materials and equipment shall be incorporated in the work.
- C. As soon as possible after the formal execution of the Contract Agreement, permit approval, or approval of final definitive plans the project Contractor shall submit to the Town Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the work.

1.3.7 Defective Work

- A. The inspection of the work shall not relieve the Contractor of any of their obligations to fulfill their contract or permit obligations as herein prescribed and defective work shall be made good and unsuitable materials shall be rejected, notwithstanding that such work and materials have been previously overlooked by the Town Engineer. If the work or any part thereof shall be found defective at any time before the final acceptance of the whole work, the Contractor shall make good such defect in a manner satisfactory to the Town Engineer. If any material brought on site for use in the work, or selected for the same, is deemed by the Town Engineer as unsuitable or not in conformity with the specifications, the Contractor shall remove such materials from the vicinity of the work. If any material furnished by the Town of Durham shall be damaged or rendered defective by the handling or improper installation by the Contractor, their agents, or employees, it shall be made good or replaced at the Contractor's

own expense.

1.3.8 Field Location of Existing Utilities

- A. The contractor shall be responsible for properly locating all utilities on site prior to the beginning of construction. The contractor shall verify the location of the existing utilities shown on any plan submitted to DPW or provided by DPW.
- B. The contractor shall be responsible for locating any additional utilities not shown on plans submitted to DPW or provided by DPW. If necessary, the contractor shall hire a private marking company to locate additional utilities.
- C. The contractor is required to contact “DIG-SAFE” by dialing “811” 72 hours prior to beginning construction. A valid DIG SAFE number shall be provided to the Engineering Division prior to construction commencement.
- D. The contractor shall excavate test pits to verify utility line locations as necessary and as required by the Director of Public Works, Town Engineer or their designee.
- E. Utility markings shall be properly maintained throughout the construction process. The contractor shall refresh all utility markings when required by the Director of Public Works, Town Engineer or their designee.

1.3.9 Cold Weather Construction

- A. Any work being done outside the normal permitted construction time period of April 1st through November 15th is considered cold weather construction with respect to these Standards.
- B. Projects within the public way or to be accepted by the Town shall not be constructed during cold weather conditions unless a hardship, emergency or compelling need is demonstrated and the work is approved in writing by the Director of Public Works, Town Engineer or their designee. An approved Excavation Permit containing cold weather conditions will satisfy these requirements.
- C. Planned cold weather construction shall commence only when there is no indication of subsurface frost conditions within work area. Should subsurface frost conditions exist, it is the responsibility of the contractor/owner to remove subsurface materials and replace it with compacted well drained gravel materials. These activities must be witnessed by a member of DPW-Engineering staff. The Engineering Division reserves the right to require Control Density Fill (CDF) if acceptable compaction of trench cannot be obtained.
- D. Cold weather construction shall commence only when a favorable extended 5-

day weather forecast, based on DPW's in house weather forecasting, indicating no less than freezing evening conditions (i.e. 32 degrees Fahrenheit) and 40 degrees Fahrenheit and rising conditions during daylight hours (i.e. 7 a.m. to 5 p.m.). In addition, there is no indication of precipitation during the time period.

- E. When construction is permitted to commence within cold weather conditions the sub grade beneath work area shall be protected from frost penetration when freezing temperatures are expected.
- F. In emergency conditions, no fill shall be placed over frozen soils. The frozen soils shall be removed to the satisfaction of the Town Engineer or his designee prior to fill placement.
- G. The Public Works Director, Town Engineer, or their designee reserves the right to cease construction activities for the winter at any point.
- H. All work installed after November 15th shall be considered temporary and shall be inspected in the Spring following the work by the DPW-Engineering Division prior to acceptance. If required by the Public Works Director, Town Engineer, or their designee, the temporary work shall be removed and reinstalled.

1.4 Easements

- A. Easements for drainage, access, etc. to be placed on or across lots or centered on rear lot lines or side lines shall be provided where necessary and shall be at least twenty feet (20 feet) wide. Signed copies of easements and/or agreements affecting land not within a subdivision's right of way or public way, but necessary for provision of utilities shall be submitted to the Durham Public Works – Engineering Division before a plan can be approved. Where a parcel is traversed by a water course, drainage way, channel, or stream, the Durham Public Works may require a storm water easement or drainage right of way be provided of adequate width to conform substantially to the lines of such water course, drainage way, channel, or stream.

1.5 Street Acceptance Process:

- A. Per the Town of Durham Road Regulations and Subdivision Regulations, no road shall be accepted by the Town until it has been inspected by the appropriate Town official or agent and found to be constructed in accordance with the specifications prescribed herein or additionally prescribed or agreed to by the Planning Board and approved by the Town Council. RSA 674:40, RSA 229:1