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NOTE: Existing Town accepted roads [roads previously formally accepted by the Board of Selectmen] are not required to meet the requirements contained herein when they are refurbished by the placement of a bituminous overlay or other surface treatment; or are reclaimed/regraded/paved without significantly altering the roadway geometry.

SECTION 10 - PREAMBLE

10A - AUTHORITY AND PURPOSE

For the purpose of promoting the public health, safety and welfare, to assure protection of the public against the dangers of unsafe roads, to assure protection of the use, value and enjoyment of premises adjoining roads and to assure the protection of the Town against costs and expenses in the repair and maintenance of roads after acceptance which are avoidable through careful planning, appropriate design and competent construction, these Regulations are and have been adopted pursuant to Sections 8-25 and 13a-71 of the Connecticut General Statutes.

10B - SEPARABILITY

If a court of competent jurisdiction finds any provision of these Regulations to be invalid or ineffective in whole or in part, the effect of such decision shall be limited to the particular provision which is expressly held to be invalid or ineffective and all other provisions of these Regulations shall continue to be separately and fully effective.

10C - APPLICABILITY

To the extent that these regulations conflict with the provisions of the Canton Subdivision Regulations, these regulations shall apply, unless a waiver or waivers have been granted by the Commission pursuant to the Subdivision Regulations.

If a court of competent jurisdiction finds the application of any provision of these Regulations to any use, land or improvement to be invalid or ineffective in whole or in part, the effect of such decision shall be limited to the person, property or situation immediately involved in the controversy and the application of any such provision to other persons, property or situations shall not be affected.

10D - EFFECTIVE DATE

The effective date of these regulations shall be January 1, 2020.
SECTION 20 - DEFINITIONS

20A - DEFINITIONS

20A.1  General

For the purpose of these regulations, the terms and words listed below shall have the following meanings assigned to them.

**ADA Standards for Accessible Design** – “2010 ADA Standards for Accessible Design” as published in the Federal Register, September 15, 2010, including any revisions.

**Applicant** - Any person, partnership, or corporation who shall make an application for approval under the provisions of these regulations either for himself or as an agent for others.

**Authority Having Jurisdiction (AHJ)** – The Canton Fire Department, including the Fire Chief and the Fire Marshal.

**Collector Road** - Streets used or intended primarily for access to and from individual business or industrial lots, parcels, or areas and roads of considerable existing or potential continuity on which traffic passing abutting lots is dominant and needing two way traffic flow at all times.

**Commission** - The Canton Planning and Zoning Commission or its designated agent.

**Connecticut Department of Transportation Standard Sheets** - The most current detail drawings, including all revisions thereto, as issued by the Connecticut Department of Transportation.


**Cul-De-Sac** - A dead end road with a circular turnaround.

**Dead End Road** - A proposed road, or any extension of an existing road, or any combination or pattern of roads or extension thereof, having only one outlet to a through state or town road.

**Dead End Road, Temporary** - A dead end road with a temporary turnaround and designed and intended for extension on the same parcel or adjacent parcels.
Dead End Road, Permanent - A dead end road with a permanent turnaround and designed and intended to permanently terminate at the turnaround, rather than for future expansions.

Department of Public Works (DPW) - The Canton Department of Public Works.

Developer - The applicant, or any heir, successor, or assign of the applicant, who shall perform the public improvements within the scope of these regulations.

Director of Public Works (DPW Director) - The Canton Director of Public Works or his/her designated agent.

Driveway - A private vehicular accessway serving no more than three lots that has not been accepted as a public road by the Town or approved as a private road by the Commission.

Inland Wetlands and Watercourses Agency (IWWA) - The Canton Inland Wetlands and Watercourses Agency or the designated agent.

Local Road - Streets used or intended primarily for access to and from individual residential lots or parcels.

Local Traffic Authority (LTA) – The Canton Chief of Police.


Private Property - Property owned by persons, partnerships or corporations other than the Town of Canton.

Private Road - A road permitted in accordance with the Canton Subdivision Regulations that is subject to a restriction specifying that the road shall be privately maintained, and is not offered to, accepted or maintained by the Town of Canton.

Private Travel or Private Use (of Roads) - Any vehicular use of a road that is not defined as public travel or public use.

Public Road - Any road lawfully accepted by the Town or the State of Connecticut for public vehicular travel.

Public Travel, or Public Use (of Roads) - The vehicular, pedestrian, and/or bicycle use of (1) any public road or (2) any public road approved by the Commission.

Right-of-Way, Road - A strip of land conveyed in fee simple and intended for, or
dedicated and accepted for, the purpose of vehicular, pedestrian and/or bicycle traffic, which includes use for the roadway, sidewalks, drainage facilities, shoulders and other improvements.

**Right-of-Way, Drainage** - An easement in favor of the Town for a Town road, or the entity that will own and maintain a private road; such easement being for the purpose of stormwater management structures and measures.

**Road/Roadway** - All surfaces, either paved or unpaved, constructed, designated and used to carry or guide vehicular, pedestrian, and/or bicycle traffic, between different lots or parcels within or outside of Town. The term does not include driveways or parking lots.

**Standards** - All road and appurtenant construction shall be in accordance with the latest edition/form of the State of Connecticut; Department of Transportation; Standard Specifications for Roads, Bridges and Incidental Construction.

**Standard Detail Drawings** - The Standard Detail Drawings appended to the Canton Public Improvement Regulations as figures, as may be amended from time to time, the contents of which shall be considered as criteria and standards.

**State** - The State of Connecticut.

**State Department of Transportation (CTDOT)** - The State of Connecticut Department of Transportation.

**State Standard Specifications** - The most current document entitled "Standard Specifications for Road, Bridges and Incidental Construction", and all additions, revisions, and supplements thereto, as published by the CTDOT at the time of the work or installation of improvements.

**State Statutes (CSS)** - The most current document entitled "General Statutes of Connecticut", including all volumes and revisions thereto.

**Street** - Same as Road/Roadway.

**Stormwater** - Excess precipitation, after accounting for all losses, which becomes surface runoff.

**Through Traffic** - When used in reference to a particular street or category of streets, "through traffic" means traffic that is using the street only to gain access to another street.

**Town** - The Town of Canton.

**Town Attorney** - The attorney or law firm retained by the Canton Board of Selectman to represent the Town of Canton.
**Town Engineer** - The engineer or engineering firm appointed by the Canton Board of Selectman to represent the Town of Canton.

**Town Planner** - The Canton Director of Planning and Community Development or his/her authorized agent.

**Town Road** - Any public road lawfully accepted by the Town for public vehicular travel.

**Towns Construction Inspector** - A person assigned by the Director of Public Works to provide periodic observations of the construction of public improvements.

**Turnaround** - The paved area at the terminus of a dead end road [cul-de-sac, hammerhead, etc.] designed and intended to allow vehicles to safely reverse direction.

**Watercourse/Wetlands** - Areas designated and defined as "Watercourses" and "Inland Wetlands" by the Canton Inland Wetlands and Watercourses Agency, pursuant to its Regulations, as the same may be amended from time to time.
SECTION 30 - GENERAL PROHIBITIONS

30A - USE OF LAND AS A PUBLIC ROAD

No person shall open any public road for vehicular public travel without the approval of the Commission and/or acceptance of the road as a public highway by the Town Board of Selectmen. The Commission’s approval of a road shall not prevent any other legal requirement for creating or establishing a public road, including the requirement in the Town Charter for formal acceptance by the Town Meeting, upon the recommendation of the Board of Selectmen.

30B - USE OF UNAPPROVED PRIVATE ROADS

A private road that has not been approved by the Commission may not be used for public travel. Such a road may be used for private travel, provided a conspicuous sign is posted, facing the public road, and clearly stating in bold letters that the private road is a private way and is not open for public vehicular travel.

30C - CONSTRUCTION OF A PUBLIC ROAD

No person shall commence construction of any road which is then intended to be opened, at any future time, to public travel unless approval of the location, layout, design and construction plans therefore have been approved by the Commission.
SECTION 40 - DESIGN APPROVAL PROCESS

40A - PROCEDURE

40A.1 Design Approval Required for Public Use of Roads

The Commission may not approve the proposed establishment, construction, reconstruction or use of any road for public travel unless an application for such approval is submitted to the Commission and the Commission grants such approval in accordance with these regulations.

40A.2 Roads Located Within an Area Proposed for Subdivision

If an application for subdivision or resubdivision involves the establishment, construction, reconstruction or use of a road or roads within or adjoining the area to be subdivided, and such road or roads are proposed to be used for public vehicular travel, the application for subdivision shall also be deemed to be an application for design approval of the road or roads, and no separate application for design approval shall be required. However, all supporting documentation and materials required by these regulations must be submitted in order for the Commission to consider or to grant design approval for the road or roads.

40A.3 Roads Not Located Within an Area Proposed for Subdivision

If a proposal to establish, construct or use a road or roads for public vehicular travel is not made in connection with an application for subdivision or resubdivision, an application for design approval of the road or roads must be submitted to the Commission, together with all supporting documentation and materials required by these regulations.

40A.4 Staff Review Prior to Application

All prospective applicants for design approval of a road or roads for public travel are encouraged to meet with the Town Planner prior to submission of a formal application. The Town Planner shall coordinate the review of all the materials submitted by the prospective applicant with other Town staff, officials and consultants, and may set up informal meetings among the prospective applicant and others.

40A.5 Procedure for Decisions on Formal Applications

(A) Applications Made as Part of a Subdivision Application

When a request for design approval is made as part of a subdivision application, the Commission shall follow the same procedures in making its decision on the design approval application as it does in deciding upon the subdivision application. The Commission may approve, modify and approve, or deny design approval. A decision to deny a subdivision application shall also be deemed to be a decision to deny design approval.

(B) Applications for a Private or Public Road Not Made As Part of a Subdivision Application
All applications for a private or public road not made as part of a subdivision application will be reviewed pursuant to the Canton Zoning Regulations.

(C) Referral to Planning Commission Under Conn. Gen. Stats. Section 8-24

The approval of an application for a public road in accordance with this regulation shall constitute a recommendation for acceptance thereof in accordance with Conn. Gen. Stats. Section 8-24 and no further referral shall be required at the time of acceptance.

40B - SUPPORTING INFORMATION

40B.1 General

In addition to any information required to be submitted in the subdivision regulations, an application for design approval to construct, reconstruct or complete construction of a road intended to be opened to the public, shall include the supporting information required in this section.

40B.2 Maps, Drawings and Plans

All information pertaining to topographic maps and delineation of road rights-of-way and property boundaries required under this Section shall be shown on plans, maps or drawings which are prepared by and certified by a registered land surveyor to the A-2 standard of accuracy as defined in the Regulations of State Agencies adopted pursuant to Conn. Gen. Stats. Section 20-00b, or as the same may be amended from time to time. All information pertaining to design of roads and drainage systems and appurtenant facilities required under this Section shall be shown on plans, maps or drawings which are prepared by and certified by a registered professional engineer. All information shown in construction drawings shall be based on accurate field survey data referenced to The North American Vertical Datum 1988 (NAVD 1988) and the Connecticut Coordinate Grid System (NAD 83). Aerial survey data, based on accurate ground control surveys, may be utilized provided it is supplemented by field surveys at locations where elevations and dimensions are critical.

40B.3 General Plan

The general plan shall be a map or maps, drawn to a scale of 1" = 100' or less to the inch, include but not limited to, the following:

(A) The proposed road layout.

(B) Existing topography, including the identification of slopes > 20%.

(C) Ledge outcrops, stone walls, rare/specimen trees and trees greater than eight (8) inches in diameter within any existing road right-of-way.

(D) Wetlands, watercourses and all proposed alterations thereof, flood hazard zones, floodways, stream channel encroachment lines, existing bridges, culverts and storm
drainage systems.

(E) National Resource Conservation Service soil types and boundaries.

(F) All existing buildings and structures, properly identified, located upon, and within two hundred (200) feet outside of each boundary line of the land to which the application relates.

(G) All existing roads, driveways and other vehicular access ways entering upon, or which will enter upon, the road to be laid out and constructed.

(H) All existing parking facilities, playgrounds, recreational facilities, and open space areas, access to which may be obtained from such proposed road.

(I) The location of all structures and improvements, including subsurface utilities and improvements proposed in connection with the construction of such road.

(J) All areas to be conveyed to the Town for open space, drainage, etc.

(K) Numbered survey control points, wetland flags and test pits.

40B.4 Plan & Profile Drawings

Plan & Profile drawings shall be prepared on a 24" x 36" sheet size with scales of 1" = 40' horizontal and 1" = 4' vertical, include but not limited to, the following:

(A) The location and dimensions of existing and proposed street rights-of-way, edges of pavement, curbs, sidewalks, piping, catch basins, manholes, endwalls, bridges, utilities and utility easements, drainage easements, open channels, monuments, tops and toes of all slopes, all data required for accurate layout of roadway center lines and rights-of-way, including stationing, bearings, tangent lengths, arc lengths, radii and central angles of all curves; location of property lines intersecting the street right-of-way lines and the names of owners of such adjacent property; typical cross-sections of each street, showing proposed dimensions, materials of construction, and locations of drainage piping and other underground facilities and utilities; location and description of survey bench mark; and, street signs and traffic control signs.

(B) Profiles of existing ground surface on the center line and at each right-of-way line shall be based on an accurate field survey.

(C) Profile of the proposed center line, showing proposed grades, vertical curve data and stations at grade changes, intersections, high points and low points.

(D) Profiles of all existing and proposed drainage facilities, bridges and other proposed
improvements showing locations, sizes, grades and invert elevations.

40B.5 Detail Drawings

For proposed improvements that cannot be readily shown on the Plan & Profile drawings, or that are not included in the Standard Detail Drawings in Appendix A, additional drawings shall be submitted showing in further detail all information required for construction. Detail drawings shall be prepared at appropriate scales, and shall substantially conform in both form and manner to the Standard Detail Drawings in Appendix A. In addition to any necessary detail drawings, the following statement shall be included on all construction drawings: "All construction shall conform to the criteria and standards included in the ‘Canton Public Improvement Regulations’.

40B.6 Drainage Report

A drainage report, conforming with the design criteria in Section 90 of these Regulations and the Town of Canton’s latest Storm Water Management Plan, shall be submitted which includes the basis of design, detailed design computations, and a drainage analysis map for sizing all proposed storm drainage facilities; the analysis of any required existing off-site facilities; and, for any proposed stormwater runoff control measures. Detailed design computations shall include the design criteria, parameters and methods used in selecting the location, configuration, type and size of all proposed drainage facilities. Such computations shall include tabulated summaries of pertinent design computations. Wherever feasible, such tabulations shall follow the most current format utilized by the Connecticut Department of Transportation, the Federal Highway Administration, the Natural Resource Conservation Service or such format as may be adopted and amended from time to time by the Town.

40B.7 Soils Report

A soils report shall be submitted showing the type, nature and extent of the various soils existing within the proposed road right-of-way and in the area where the roadway slopes extend beyond the proposed road right-of-way. All soils types shall be identified on the basis of test pits, which shall also indicate seasonal high ground water and bedrock depths. Such report shall also include a description of the means and methods proposed to be utilized to overcome any potential soils problems. Deep soil borings may be required by the Town.

40B.8 Earthwork Analysis

An earthwork analysis shall be submitted which quantifies the volumes of cut and fill required to construct the proposed road and associated public improvements. Cuts totaling 2000+ cubic yards and/or fills totaling 2000+ cubic yards may require a Special Permit (PZC).

40B.9 Soil Erosion and Sediment Control Plan

A detailed plan for soil erosion and sediment control, conforming to the requirements of Section 110 in these Regulations, shall be submitted. The plan shall include all measures to be taken to control erosion and sedimentation resulting from proposed road and drainage
facility construction. All such measures shall be consistent with the requirements and standards outlined in the "Connecticut Guidelines for Soil Erosion and Sediment Control". When a project is of a size that requires a "General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities", it shall be the applicant's responsibility to file the required registration form with the Connecticut Department of Environmental Protection and to provide copies to the Town.

40B.10 Landscape Plan

A landscape plan shall be submitted for any median strips or other proposed landscaped areas to be located within the right-of-way lines of a road. All proposed landscaping shall be consistent with the Canton Zoning Regulations and the criteria included in Section 120 of these Regulations.

40B.11 Water Distribution System Report

If a public water distribution system is proposed, written evidence shall be provided from the Connecticut Water Company or other water company serving the development stating that they have agreed to provide water service, including the identification of any system improvements that may be required to accommodate such service. If Connecticut Water Company distribution lines are within three hundred (300’) feet of the proposed roadway construction and/or reconstruction limits; the extension of the distribution lines through the proposed roadway construction and/or reconstruction limits may be required by the Town.

40B.12 Traffic Report

A traffic report may be required pursuant to the Canton Zoning Regulations Section 7.8.B.

40B.13 Connecticut Department of Transportation Approval

Where any road, drainage facility or other associated work is proposed to join with a state highway, or is to be located within a state highway right-of-way, the applicant shall obtain a letter and/or encroachment permit, as may be required, from from the CTDOT which shall approve of such work. Such letter may be conditional upon prior approval of the project by the Commission, and/or submission of a permit application to the CTDOT.

40C - SUPPLEMENTAL INFORMATION

40C.1 General

Whenever the staff or Commission shall deem it reasonably necessary or appropriate to request additional information for consideration of an application, it may require the applicant to submit, at or prior to the hearing, any other information in such form as it may prescribe. Furthermore, whenever the Commission shall deem required information unnecessary for the consideration of an application, it may, upon request of the applicant, waive in writing the requirement of any information specified in Section 40B above.
40C.2 Layout

Within one (1) week of submission of an application and supporting information, or such longer period of time as the Commission may authorize, the approximate location of all drainage outlets, and the proposed road centerline at maximum intervals of one hundred (100) feet, shall be flagged in the field by the applicant. The requirement for field flagging shall not permit the applicant to initiate any type of site clearing. If such flagging is not completed as requested, the Commission may deem that there is insufficient information on which to make a decision and deny the application.
SECTION 50 - CONSTRUCTION INSPECTION PROCESS

50A – PROCEDURE

50A.1 General

Any project for which design approval has been granted by the Commission to construct, reconstruct or complete construction of town owned infrastructure intended for public travel or public use may require full time or periodic inspections to be conducted by the Town to monitor compliance with the approved drawings and plans, the requirements outlined in these regulations, and good construction practices. However, it is the applicant's sole responsibility to ensure that all construction shall conform to such requirements regardless of whether the Town has inspected the work or not.

50A.2 Consultations

On any project, the Commission or DPW may retain a professional engineer, architect, or landscape architect, inspector, or other consultant to oversee, inspect, test, comment, and guide in the project construction process for any application or approval. When this is required, the applicant shall deposit funds with the Commission for the estimated costs of any consulting review fees pursuant to Chapter 248 of the Town of Canton Town Code, as amended.

No project shall receive final acceptance from the Town nor any roads accepted by the Town if there are any outstanding fees, bills, invoices, or costs relative to overseeing the construction of the project.

50A.3 Preconstruction Meeting

Prior to the start of any construction, it is the applicant’s responsibility to schedule a preconstruction meeting with the Town, as well as representatives from all applicable utility companies where relocations or extensions are required. No such meeting shall be scheduled until such time as any consultation or inspection fees have been paid, and the Erosion and Sediment Control Bond and the Restoration Bond or Performance Bond are posted as required in Sections 50A.4, 50A.5, 50A.6 and 50A.7 of these regulations. Scheduling of the preconstruction meeting shall be made with the Director of Public Works, who shall be responsible for notification of the Public Works Department and other appropriate Town Staff. The applicant shall be responsible for ensuring that the contractor and Construction Coordinator are in attendance. The general purpose of the preconstruction meeting is to introduce all parties, identify the Town's Construction Inspector and Contractor's Construction Coordinator, exchange telephone numbers, review the construction schedule, and discuss any additional requirements or concerns specific to the proposed project.

50A.3 Construction Coordinator

In respect of all matters pertaining to inspection hereunder, the applicant shall designate one Construction Coordinator who shall be fully authorized to communicate with the
Town. Such designation shall be made in writing which shall state such individual’s mailing address, and telephone/cell phone and fax numbers, and shall be delivered to the Director of Public Works prior to commencement of any work. All notices, orders or other communications delivered to or served upon such individual shall be deemed to have been delivered or served upon the applicant. All notices or other communications received from him shall be deemed to have been received from the applicant.

50A.4 Inspection Fees

Prior to the start of any activity, the applicant shall pay an inspection fee to the Town, equal to three percent (3%) of the total cost of all public improvements based on the recommended bond amounts prepared by the applicant and approved by the Director of Public Works. If a consultant is required for the project, the applicant shall pay the estimated consultant fee, plus 10%.

50A.5 Erosion and Sediment Control Bond

Prior to the start of any activity, the applicant shall post a performance bond or other assurance acceptable to the Commission for sediment and erosion control and site stabilization measures in accordance with the Canton Subdivision Regulations.

50A.6 Restoration Bond

Prior to the start of any activity for which conditional approval is granted, the applicant shall post a performance bond or other assurance acceptable to the Commission for site restoration in accordance with the procedures established in the Canton Subdivision Regulations. This bond shall be in addition to the Erosion and Sediment Control Bond required in Section 50A.5 above.

50A.7 Performance Bond

Prior to the start of any activity, the applicant shall post a performance bond or other assurance acceptable to the Commission in accordance with the procedures established in the Canton Subdivision Regulations. This bond shall be in addition to the Erosion and Sediment Control Bond required in Section 50A.5 above.

50A.8 Bond Reductions

During the course of construction, periodic reductions in the amount of the performance bond may be requested by the applicant, and considered by the Commission, to reflect the cost of remaining improvements. Any such bond reductions shall be subject to review by the Director of Public Works, as well as the limitations specified in Section 50E.5 of these Regulations. In no event shall a performance bond be reduced to an amount less than ten percent (10%) of the total value of all required improvements prior to acceptance of the road.
50B - REQUIRED INSPECTIONS

50B.1 General

Scheduled inspections may be conducted by the Town at key construction stages specified in Section 50B.3 in order to provide a reasonable level of confidence that a road, which is to be used for public travel, and/or improvements to public infrastructure, have been constructed in general conformance with the approved drawings and plans; the requirements outlined in these regulations; and, good construction practice. At the discretion of the Town, the Construction Coordinator may be notified of additional inspections that may be required. It is the Construction Coordinator's sole responsibility to schedule and coordinate all required inspections with the Town’s Construction Inspector. The applicant shall provide a minimum advance notification of forty-eight (48) hours for all inspections, which shall only be made during the Public Works Department normal working hours. Unannounced spot inspections may also be made by the Town at any time.

50B.2 Right-of-Entry

Filing an application under this regulation shall constitute the property owners consent for all Town Staff, and the Commission's duly authorized agents, to enter upon the premises and to inspect, or cause to be inspected, construction work authorized by Design Approval hereunder at any time with or without notice during, before or after regular business hours.

50B.3 Scheduled Inspections and Surveys

The following inspections shall be required and no further work shall be performed until each inspection shall have been made and the Construction Coordinator has been notified by the Town's Construction Inspector that further work may proceed:

(A) The approved limits of clearing, conservation easements, public access, open space areas, and inland wetland and watercourses shall be flagged prior to the start of any work.

(B) After cutting of trees and brush, and the installation of sediment and erosion control measures, but prior to any stumping and/or grading.

(C) After stumping and stripping of topsoil and organic material from earth cut and fill areas, but prior to rough earth cuts or the placement of any fill material.

(D) After rough earth cuts and fills and the formation of the road subgrade, this includes rough grading of any stormwater treatment basins or swales.

(E) After the installation of sewage collection system improvements, but prior to backfilling.

(F) After the installation of water distribution system improvements, but prior to backfilling.
(G) After the installation of storm drainage pipe, catch basins, and stormwater treatment systems, but prior to backfilling.

(H) After the installation of underdrains, but prior to backfilling.

(I) After formation of the finished road subgrade, following the construction of all underground utilities located within the roadway (water distribution, sewage collection, storm drainage, underdrains, gas, etc.) and prior to the placement of any rolled granular base materials. In addition, proof rolling of the road subgrade shall be observed by the Town Construction Inspector and one density test shall be provided for every 200 feet of roadway.

(J) Provide an interim as-built survey, after formation of finished road subgrade, showing the edges of road, centerline profile and catch basin locations with invert and top of grate elevations.

(K) After the placement of rolled granular base. In addition, the applicant shall perform in place density tests at this time based on site specific conditions. One test for every 200 feet of roadway.

(L) After the placement and fine grading of processed aggregate base. In addition, the applicant shall perform in place density tests at this time at a maximum interval of one hundred (100) feet and/or at locations designated by the Town.

(M) Prior to the placement of bituminous concrete paving, the applicant shall be responsible for the excavation of shallow test holes for the purpose of confirming that the actual compacted depth of rolled granular base and processed aggregate base materials conform to Town Standards. Test holes may be required at a maximum interval of one hundred (100) feet and/or at random locations designated by the Town. In addition, proof rolling of the road base shall be observed by the Town's Construction Inspector.

(N) During the placement of each asphalt layer, the applicant will perform in-place density testing based on site specific conditions at a maximum interval of one hundred (100) feet and/or at random locations designated by the Town.

(O) During the placement of bituminous concrete paving. A copy of all weight slips for bituminous concrete material delivered to the site shall be provided to the Town.

(P) After placement of project required curbing, but prior to any backfilling of curbs.

(Q) After placement of the granular sidewalk base.

(R) During the placement of Portland Cement Concrete Sidewalks. A copy of all batch plant tickets for Portland Cement Concrete delivered to the site shall be provided to the Town.
(S) After backfilling of curbs and final grading of shoulder areas.

(T) After restoration of all disturbed areas, placement of road monuments, traffic control/street name signs and street trees.

50B.4 Construction Materials

The applicant shall be required to submit material certifications, samples and/or certified laboratory reports to the Town documenting the conformance of certain construction materials with the specifications included in these regulations. The applicant shall not be permitted to place, or to have delivered to the project site, any materials for which approvals have not been granted by the Town. Any approvals granted by the Town on the basis of certified laboratory reports shall be conditional upon the tested sample being representative of all such materials utilized for construction. The Town shall reserve the right at any time during the course of construction, for whatever reason, to have additional materials testing conducted. Should the results of such testing find that the materials do not conform to specifications, then such materials shall be removed and replaced with conforming materials at the applicant's expense. The applicant shall be required to reimburse the Town for the cost of any such testing only if the results prove that the materials tested do not conform to required specifications.

Material certifications, samples and/or certified laboratory reports shall be submitted for the following materials:

(A) Storm Drainage Pipe, Catch Basin, and other Storm Drainage Structures

(B) Bedding Material for High Density Polyethylene Pipe

(C) Rolled Granular Base

(D) Process Aggregate Base

(E) Bituminous Concrete

(F) Portland Cement Concrete

Materials and testing shall be in accordance with the latest edition of the “State of Connecticut, Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction” Form 817.

50C - FAILURE TO PROPERLY EXECUTE REQUIRED IMPROVEMENTS

Failure to follow the procedures set forth in these Regulations may result in a rejection of that portion of the work completed without required submissions and inspections, which may result in delays and added costs to the applicant in demonstrating compliance with applicable regulations and standards. Failure to construct road, drainage and other
public improvements in accordance with approved construction plans, Town Regulations and Standards, and good construction practice, may result in the Town's refusal to accept any such improvements. If the applicant fails to execute the approved or required improvements in accordance with these regulations or the terms of the permit or approval, and such failure causes unreasonable sedimentation, erosion, pollution or other nuisance conditions, the Town or the Commission may take whatever actions it deems necessary or appropriate to correct and/or abate the nuisance conditions. In such circumstances, the Commission may recommend that the Town not accept such improvements, unless and until the applicant reimburses the Town for all costs and expenses of such correction and abatement.

50D - CHANGES DURING CONSTRUCTION

50D.1 Modifications

If at any time during the construction of the required improvements, unforeseen field conditions make it necessary or preferable to modify the location or design of such required improvements, the Construction Coordinator shall notify the Town's Construction Inspector in writing, who shall determine whether the change is minor in nature or whether the Commission itself must act on the proposed change. If the change is minor, the Town Construction Inspector, following consultation with the Director of Public Works, shall either approve or disapprove the applicant's request. If it is determined that the change is not minor, the applicant shall submit an application for a modification of the Commission's approval. Such application shall meet all the informational requirements required by the Commission.

50D.2 Additional Work

If during the course of construction of any new road, or any other improvements required by the Commission in connection with the approval of a subdivision, it appears that additional work is required owing to unforeseen conditions such as, but not limited to springs, old drains, wet conditions, side hill drainage from cuts, bedrock, or other conditions which were not apparent at the time of the approval by the Commission, the Town, acting by its Director of Public Works, may require such additional work to be done by the applicant as part of the improvement plans, and the Commission may require an increase in the amount of the performance bond. The cost of the additional work required shall be borne by the applicant.

50E - MAINTENANCE OF UNACCEPTED ROADS

50E.1 General

Prior to acceptance of a completed road by the Town of Canton, where a performance bond has been posted to ensure construction of all required improvements, there may be instances where certificates of occupancy have been issued for individual dwellings that front on and derive access from the unaccepted road. In order to protect public health, safety and welfare, and to provide safe access to any such dwellings, it shall be the developer's sole responsibility to provide normal maintenance, including but not limited to snow and ice removal. Such maintenance shall be provided by the developer, at his
cost, during the entire course of construction until the road is accepted by the Town of Canton.

50E.2 Preparation for Winter

Whenever a roadway has only been paved with the bituminous concrete binder course, and the bituminous concrete top course will not be placed until after the winter season, the developer shall place bituminous concrete wedges adjacent to all structures protruding above the surface of the bituminous concrete Class I binder course including but not limited to catch basin tops, manhole frames and valve boxes, so as to assure proper drainage and to provide safe conditions for snow plows. The cost of placing bituminous concrete wedges shall be borne by the developer. Manhole frames can be placed flush with the binder course with the understanding that the developer must supply and place a manhole ring prior to the placement of the surface course of bituminous concrete. Any damage done to structures protruding above the surface of the bituminous concrete binder course shall require their removal and replacement with new structures prior to the placement of the bituminous concrete top course.

50E.3 Snow and Ice Removal

In the event that a developer fails to plow or sand a road within four (4) hours following cessation of a snowfall, or when icing conditions or ice buildup occurs, the Canton Public Works Department shall have the right to plow or sand the road in question or arrange for a private contractor to do so. Any plowing or sanding that is necessary to be completed, or arranged for, by the Town of Canton shall neither be considered an assumption of responsibility nor shall it in any way relieve the developer of his continued responsibility to provide such maintenance. See Section 50E.5 for reimbursement of funds for plowing or sanding.

50E.4 Normal Maintenance

In the event that an applicant fails to maintain a road or make necessary repairs through the 1-year maintenance period after road acceptance, within seven days of receiving notice from the Canton Public Works Department that maintenance or repairs are necessary; the Canton Public Works Department may make whatever repairs are necessary, or arrange for a private contractor to do so. Any maintenance or repairs necessary to be completed or arranged for by the Town of Canton shall neither be considered an assumption of responsibility nor shall it in any way relieve the developer of his continued responsibility to provide such maintenance. See Section 50E.5 for reimbursement of funds for maintenance or repairs.

50E.5 Reimbursement of Town Expenses

Whenever the Canton Public Works Director provides or arranges for maintenance of unaccepted roads, the developer shall be responsible for promptly reimbursing the Town for all costs. During any such time when the developer has outstanding bills owed to the Town, the Town shall neither consider any requests for a reduction in, or release of, any bonds held, nor shall it consider any request for acceptance of the road. In the event that any bills owed by the developer become past due for a period of more than forty-five
(45) days, then the Town shall have the right to deduct such past due amounts from any bonds held by the Town of Canton.

Whenever funds are deducted from a bond, the developer shall, upon written notice from the Commission, replenish the bond to the original amount required. In the event that the bond is not replenished, the Town shall neither consider any requests for a reduction in, or release of, any bonds held, nor shall it consider any request for acceptance of the road. In addition, the Town acting by and through its Commission may seek relief at law or equity in any court having jurisdiction. By signing any application under this regulation, the developer shall have agreed to the payment of attorney’s fees and costs in the event that legal action is required to enforce the provision of this regulation.
SECTION 60 - TOWN ACCEPTANCE OF A COMPLETED PROJECT

60A - PROCEDURE

60A.1 General

Whenever a completed project is intended to be offered for acceptance by the Town, a written request for acceptance, including supporting and supplemental information required in this section, shall be submitted to the Commission, who shall forward such information to the Director of Public Works and Town Attorney for review. The Commission shall notify the person(s) making the request of any comments requiring revisions to the supporting and supplemental information and any outstanding maintenance bills due to the Town. Upon receipt and confirmation that all required revisions have been made, and outstanding bills paid, the Commission shall file a report with the Board of Selectmen and may recommend acceptance of the public improvements. The procedure for formal acceptance shall be as required by CGS Chapter 126, Section 8-24, Municipal Improvements and the Charter of the Town.

60A.2 Who May Request Acceptance

A written request for acceptance of a completed project may be made by any person who is:

(A) The owner, or all the joint owners, of the land underlying the proposed project.

(B) The purchaser, or all the purchasers, under a written contract to purchase the land underlying the proposed project, provided that written consent of the owner, or all joint owners, of the land accompanies the written request.

60B - SUPPORTING AND SUPPLEMENTAL INFORMATION

60B.1 General

A written request for Town acceptance of a completed road shall include six (6) copies of all required supporting information and supplemental information as may be requested.

60B.2 Supporting Information

Supporting information shall include the following items:

(A) A written description by metes and bounds or courses and distances, of all land and additional easements as necessary to be conveyed to the Town.

(B) Fixed line mylars of Record Plan-Profile Drawings, prepared at the scale and, showing the information specified in Section 40 on an "As-Built" basis. All record drawings shall be prepared by a Land Surveyor licensed in the State of Connecticut. An electronic file of the Drawings must also be provided to the Department of Public Works.
(C) Fixed line mylars of Record Detail Drawings, where any previously approved details have been modified, showing all information on an "As-Built" basis. An electronic file of the Drawings must also be provided to the Department of Public Works.

(D) If any work took place within a State Highway Right-of-Way; a copy of a completed Work Permit or letter, issued by the State Department of Transportation, will be required confirming the satisfactory completion of all work conducted within the State Highway Right-of-Way.

(E) Completed copies of all conveyances or other legal instruments, properly executed in form and manner suitable for recording in the Town Land Records, effectively transferring or creating the rights in each instance required under Sections 70I.5, 90A.8, and 150A.4.

(F) A Warranty Deed properly executed by the owner or owners of the land to which the written request relates, in form and manner suitable for recording, effectively conveying good and marketable title to said land to the Town, together with a Certificate of Title from an attorney admitted to practice in Connecticut certifying that said owner or owners hold good and marketable title to said land at the date of such written request free and clear of all title defects and encumbrances. The Commission may accept Owner's Title Insurance in an amount determined by the Town Attorney in lieu of a Certificate of Title. By delivery of such deed, said owner or owners shall be deemed to authorize delivery to and recording thereof by the Town upon acceptance of such project by the Town.

(G) A Certificate of Accurate Monument Location prepared by a Land Surveyor licensed in the State of Connecticut.

60B.3 Supplemental Information

Whenever the Commission and/or the Board of Selectmen deem it reasonably necessary or appropriate to a proper disposition of any written request for acceptance of a completed project, it may require submission of any other information in such form as it may prescribe. Until such supplemental information has been received by the Commission and/or Board of Selectmen, it shall decline to make any recommendation regarding acceptance.

60C - ACCEPTANCE

60C.1 Conformance

Prior to considering acceptance of a public improvement project or road, the Commission shall determine whether or not the road and all associated improvements, including but not limited to stormwater management practices, dry hydrants, underground water tanks for fire protection and any required off-site improvements, conform to the approved location, layout, design and construction plans and to the criteria and standards hereinafter specified or prescribed for such project and all associated improvements in or
pursuant to these Regulations.

60C.2 Release of Performance Bond

The obligation of the performance bond prescribed in Section 50A.7 shall not expire, be released or otherwise terminate with respect to any public improvement prior to determination by the Commission that all required supporting and supplemental information specified in Section 60B above is satisfactory; that the improvements meet the conformance requirements outlined in Section 60C.1 above; and, the Maintenance Bond is posted.

60C.3 Maintenance Bond

Prior to the acceptance of any public improvement project or road by Town Meeting, the applicant shall post with the Town a Maintenance Bond or other assurance acceptable to the Commission, in an amount satisfactory to the Town indemnifying the Town for a one (1) year period against costs and expenses of labor and materials necessary or appropriate to correct or replace improper or defective materials or faulty workmanship, including any damage to any property of the Town resulting therefrom, or to complete construction in conformity with the standards, criteria and specifications prescribed in these Regulations. Such Maintenance Bond shall be in an amount equal to not less than ten percent (10%) of the total value of the Performance Bond specified in Section 50A.7 of these Regulations for all required improvements, or as otherwise approved by the Commission. The Maintenance Bond shall be delivered to the Commission, who shall deliver the Maintenance Bond to the Town Treasurer for review and safe keeping.

60C.4 Recording of Documents

The owner shall provide all supporting information set forth in Section 60B.2, including the required Maintenance Bond, prior to acceptance of the completed project by the Town Board of Selectmen. Final acceptance of a completed project shall not be deemed effective until all required documents have been filed on the Town Land Records.
SECTION 70 - ROAD CRITERIA

70A - GENERAL

The following criterion applies to roadway design with proposed or new right-of-way. Roadways to be reconstructed within existing right-of-way shall meet this design criterion to the maximum extent practicable as approved by the Director of Public Works.

70B – FUNCTIONAL CLASSIFICATION

The basis for determining the applicable standards for any road in the Town of Canton will be the road’s Functional Classification as defined below:

1. Collector – A collector road collects traffic from local access roads and channels traffic to principal arterials such as Routes 44, 177, 179, 202, 309, and 565. It provides for traffic movement between areas of town, arterials, and local access roads. A collector customarily receives traffic from more than two local access roads or provides circulation within commercial or industrial areas. Roads designed to accommodate presently or at any future time traffic other than that generated in the area shall be classified as collectors. All roads within commercial or industrial areas will be classified as collectors.

2. Local Access – A local access road provides direct access to abutting property and neighborhoods and access to collector roads.

3. Local Access (Permanent Dead End) – A local access (permanent dead end) road provides direct access to abutting property, and there is no possibility of extension of the road at a future time.

70C – DESIGN SPEED

These standards have been developed based on the concept of providing safe travel at the design speed specified for the functional classification of the road. When no standard exists for a given feature of the roadway, this concept shall prevail, and the roadway feature shall be designed based upon the specified design speed.

70D – ROAD DESIGN STANDARDS TABLE

The following table presents a summary of the major design criteria to be considered in the design of roadways in the Town of Canton.
## ROAD DESIGN STANDARDS TABLE

<table>
<thead>
<tr>
<th>DESIGN CRITERIA</th>
<th>COLLECTOR</th>
<th>LOCAL ACCESS</th>
<th>CUL-DE-SAC</th>
<th>DRIVEWAY</th>
<th>COLLECTOR</th>
<th>LOCAL ACCESS</th>
<th>CUL-DE-SAC, DEAD-END</th>
<th>DRIVEWAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Speed</td>
<td>35</td>
<td>30</td>
<td>25</td>
<td>N/A</td>
<td>35</td>
<td>30</td>
<td>25</td>
<td>N/A</td>
</tr>
<tr>
<td>Min. Right-of-Way Width</td>
<td>60</td>
<td>50</td>
<td>60° radius</td>
<td>N/A</td>
<td>50</td>
<td>50</td>
<td>50° radius</td>
<td>N/A</td>
</tr>
<tr>
<td>Min. Pavement Width</td>
<td>10-feet Residential; 12-feet Other</td>
<td>22</td>
<td>20</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERTICAL ALIGNMENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Grade</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.35%</td>
<td>N/A</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.35%</td>
<td>N/A</td>
</tr>
<tr>
<td>Max. Grade</td>
<td>8.00%</td>
<td>10.00%</td>
<td>3.00%</td>
<td>3% within 15' from the back of the curb, ROW</td>
<td>8.00%</td>
<td>10.00%</td>
<td>3.00%</td>
<td>3% within 20-feet of edge of curb</td>
</tr>
<tr>
<td>Min. Length of Crest Vertical Curves</td>
<td>29° x (g1-g2) * (but not less than 100')</td>
<td>15% remainder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Length of Sag Vertical Curves</td>
<td>36° x (g1-g2) * (but not less than 100')</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* g1 and g2 refer to the % grade on each side of the curve
### ROAD DESIGN STANDARDS TABLE

<table>
<thead>
<tr>
<th>DESIGN CRITERIA</th>
<th>COLLECTOR</th>
<th>LOCAL ACCESS</th>
<th>CUL-DE-SAC</th>
<th>DRIVEWAY</th>
<th>COLLECTOR</th>
<th>LOCAL ACCESS</th>
<th>CUL-DE-SAC, DEAD-END</th>
<th>DRIVEWAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Stopping Sight Distance (SSD)</td>
<td>250</td>
<td>200</td>
<td>200</td>
<td>N/A</td>
<td>250</td>
<td>200</td>
<td>200</td>
<td>N/A</td>
</tr>
<tr>
<td>Height of Eye for SSD</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
<td>N/A</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
<td>N/A</td>
</tr>
<tr>
<td>Height of Objet for SSD</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>N/A</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>N/A</td>
</tr>
<tr>
<td>HORIZONTAL ALIGNMENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Radius of Curvature</td>
<td>470</td>
<td>340</td>
<td>225</td>
<td>75-feet</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>75-feet</td>
</tr>
<tr>
<td>Min. Tangent Length Between Curves</td>
<td>180</td>
<td>150</td>
<td>100</td>
<td>N/A</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### PAVEMENT STRUCTURE

| Bank Run Gravel Subbase Thickness      | 8-inches* | 8-inches* | 8-inches* | 8-inches | 8-inches | 8-inches | 8-inches | 6-inches |
| Bank Run Gravel Subbase Thickness in Rock | 12-inches* | 12-inches* | 12-inches* | 12-inches | 12-inches | 12-inches | 12-inches | 12-inches |
| Processed Aggregate Base Thickness     | 6-inches* | 4-inches* | 4-inches* | N/A      | 6-inches | 4-inches | 4-inches | N/A      |
| Class I Bituminous Concrete Base Course or Superpave | 2.0-inches* | 1.5-inches* | 1.5-inches* | N/A      | 2.0-inches | 1.5-inches | 1.5-inches | N/A      |
| Compacted Thickness                    |           |            |            |          |          |          |          |          |
| Class I Bituminous Concrete Top Course or Superpave | 2.0-inches* | 1.5-inches* | 1.5-inches* | 2-inches | 2.0-inches | 1.5-inches | 1.5-inches | 2-inches |
| Compacted Thickness                    |           |            |            |          |          |          |          |          |

* Require geotechnical engineer to design pavement structure to meet local conditions

### ROADWAY FEATURES

<table>
<thead>
<tr>
<th>Shoulder Min. Width</th>
<th>5</th>
<th>5</th>
<th>5</th>
<th>2-feet</th>
<th>5</th>
<th>5</th>
<th>5</th>
<th>2-feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoulder Grade</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
</tr>
<tr>
<td>Max. Grade Beyond Shoulder</td>
<td>2H:1V</td>
<td>2H:1V</td>
<td>2H:1V</td>
<td>2H:1V</td>
<td>2H:1V</td>
<td>2H:1V</td>
<td>2H:1V</td>
<td>2H:1V</td>
</tr>
<tr>
<td>Max. Grading Beyond Shoulder (Rock Cut)</td>
<td>1H:4V</td>
<td>1H:4V</td>
<td>1H:4V</td>
<td>1H:4V</td>
<td>1H:4V</td>
<td>1H:4V</td>
<td>1H:4V</td>
<td>1H:4V</td>
</tr>
<tr>
<td>Object Markers (CT DOT Type 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# ROAD DESIGN STANDARDS TABLE

<table>
<thead>
<tr>
<th>DESIGN CRITERIA</th>
<th>MAJOR ROUTE</th>
<th>COLLECTOR</th>
<th>LOCAL ACCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERSECTION SIGHT DISTANCE</strong></td>
<td><strong>Height of Eye for ISD</strong></td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td><strong>Height of Object for ISD</strong></td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td><strong>Intersection Curb Radius</strong></td>
<td>35</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td><strong>ROW Radius at Intersection</strong></td>
<td>25</td>
<td>20</td>
</tr>
</tbody>
</table>

*The classification of the road intersected must be considered in determining the required intersection sight distance.*
70E - INTERSECTIONS

The following standards shall apply to all intersections:

(A) No more than two (2) roads shall intersect at any one (1) location, i.e. an intersection shall have no more than four (4) intersecting legs.

(B) Intersection shall be designed with roadways directly across from one another. Cross (four-cornered) intersections shall require approval by the Director of Public Works.

(C) Spacing of intersections (on the same or opposite side of the street), as measured between centerlines, shall be at least four hundred (400) feet.

(D) Driveways shall not be located any closer than seventy-five (75) feet from the right of way line [extension] of a road intersection.

(E) Wherever possible, roads shall intersect at a ninety (90) degree angle, or as close thereto as is practical. In no event however, shall an intersection be allowed where the angle of intersection is less than seventy-five (75) degrees within one hundred (100) feet of the intersection.

(F) Permanent sight line easements shall be provided on all private property so as to maintain the sight line requirements established in this subsection. In addition, no objects of any kind, that are located on private property outside the limits of a permanent sight line easement, shall be permitted to extend or protrude within the plane of such easement. In the case of trees, all foliage shall be trimmed up to a minimum height of seven (7) feet as measured from the top of curb or edge of pavement adjacent to the nearest road.

(G) Utility and service boxes shall not be located within the sight line triangles to allow for snow plowing activities.

(H) Intersections shall also meet the requirements of the Canton Zoning Regulations, Section 7.8, Traffic and Visibility at Intersections and Driveways.

70F - DEAD END ROADS

70F.1 General

Dead end roads that do not double back upon themselves shall terminate in a turnaround cul-de-sac either centered along the alignment of the road or offset to one side. Cul-de-sacs may be circular or elliptical in shape so long as the pavement radii permit the continuous turning movements for the largest fire fighting vehicle used by the Town of Canton. An island may be placed in the center of the cul-de-sac to permit the creation of a storm water treatment system, such as a bioretention facility. The minimum pavement width and related design standards shall conform to the
appropriate Road Design Standards Table. The design of all cul-de-sacs must be approved by the Director of Public Works, the Fire and Police Departments.

70F.2 Layout

The layout of turnarounds shall be in accordance with the most current Standard Detail Drawings.

70F.3 Snow Storage Reserve Area

Unless otherwise approved, an open unrestricted area, with corresponding easement, shall be reserved at the end of all turnarounds for the storage of snow. Such area shall be located at the end of the turnaround between the edge of pavement and the right-of-way line for a distance of twenty-five (25) feet on each side of the extended road center line in accordance with the most current Standard Detail Drawings. This area, which shall be delineated on the Record Subdivision Map, shall be free from all obstructions including, but not limited to, driveways, mailboxes, landscaping and fences.

70G - CURBING

Curbless roads are encouraged to promote LID practices; however, where curbs are required, they shall be constructed along the edge of street pavement in accordance with the Road Design Standards Table and as shown in the most current Standard Detail Drawings, unless otherwise approved by the Director of Public Works.

70H - UTILITIES

For new road construction, all utilities within the right-of-way of a road shall be located underground and installed as shown in the most current Standard Detail Drawings for underground utility assignments. Individual services shall be extended to the right-of-way line prior to the placement of any pavement. Installation of utilities within existing road right-of-ways shall be as approved by the Director of Public Works. To the extent possible, separation distances shall be maximized from existing municipal utilities.

70I - PROTECTIVE BARRIERS

70I.1 Guide Rails

Guide rails shall be installed wherever necessary to minimize the risk of personal injury or property damage resulting from vehicle departure from the right-of-way. In general, guide rails shall be installed at the following locations:

(A) Embankments - Such protective barriers shall be required on any roadway section constructed on an embankment which places the roadway surface five (5) feet or more above the existing ground surface at the toe of the
embankment slope. This requirement may be waived by the Department of Public Works where the embankment slopes are not steeper than four (4) feet horizontal to one (1) foot vertical.

(B) **Culvert Endwalls** - Such protective barriers may be required at culvert endwalls, depending on the height of the endwall and its proximity to the edge of the road.

(C) **Roadside Obstacles** - Such protective barriers may be required to shield natural or man-made fixed object hazards including, but not limited to, trees, rock outcrops, ditches, retaining walls, bridge abutments and permanent bodies of water.

Where marginal situations occur with respect to the placement or omission of a guide rail, or where it is determined that a vehicle striking a guide rail could potentially be more severely damaged than an accident resulting from hitting an unshielded roadside obstacle, the Director of Public Works may approve the use of an object marker in accordance with Section 70P.4 in lieu of installing a guide rail.

70I.2 **Fencing**

A securely anchored PVC coated chain link fence four (4) feet in height shall be installed wherever necessary to minimize the risk of personal injury.

In general, fencing shall be installed at the following locations:

(A) **Rock Cuts** - such protective barriers shall be required along the top of slope where a rock cut exceeds eight (8) feet in height.

(B) **Culvert Endwalls** - Such protective barriers shall be required at the top of any endwall that exceeds eight (8) feet in height.

70J - **ROAD LIGHTING**

Road lighting shall be provided if required by the Commission at any location where illumination in darkness is necessary to minimize the risk of accident involving vehicles or pedestrians or to assure safe and convenient vehicle and pedestrian passage. In general, the placement of lighting should be limited to intersections and when required at Cul-de-sac ends.

Road lighting shall meet the requirements of the Canton Zoning Regulations, Section 7.4, Outdoor Lighting.
70K - MONUMENTS

70K.1 General

All new roads and new right-of-ways shall be accurately monumented to allow the ready determination of points along all rights-of-way lines. Monuments shall be placed at all points of tangency and points of curvature and elsewhere as required to permit seeing from one monument on a line to another on the same line. (See Standard Detail Drawings.)

70L - ROAD NAMES AND SIGNS

70L.1 General

Road and other location names shall conform to Section 6, of the Canton Subdivision Regulations. Road name signs shall be installed at all intersections. Such signs shall be erected in such places as to assure clear legibility by vehicle operators and shall conform to the most current edition of the Manual of Uniform Traffic Control Devices.

70M - TRAFFIC CONTROL DEVICES

70M.1 General

Traffic control devices, including signs, pavement markings, object markers, and other regulatory devices, shall be provided in such places as may be necessary to minimize the risk of accidents involving vehicles or pedestrians and to assure safe and convenient vehicle and pedestrian passage.

70M.2 Signs

The design and placement of regulatory, warning and guide signs (Stop, Speed Limit, No Outlet, etc.) shall conform to the most current edition of the Manual of Uniform Traffic Control Devices.

70M.3 Pavement Markings

The location, type, color, width and patterns of pavement markings and object markers, shall conform to the most current edition of the Manual of Uniform Traffic Control Devices. In general, pavement markings shall include stop lines and crosswalks. Longitudinal pavement markings (center lines), to delineate the separation of traffic flows in opposing directions, shall only be required on business/industrial roads or other roads as required by the Director of Public Works.

70M.4 Object Markers

The design and placement of Type 2 Object Markers shall conform to the most current edition of the Manual of Uniform Traffic Control Devices.
70O - SIDEWALKS AND PEDESTRIAN EASEMENTS

70O.1 General

In general, the installation of sidewalks and pedestrian easements shall be required as depicted in Section B of Chapter 9 of the Canton Plan of Conservation and Development; however, The Commission may require the installation where the expected or probable volume of pedestrian traffic makes sidewalks necessary or appropriate in the interest of public safety and convenience.

Sidewalks and pedestrian easements shall meet the requirements of the Canton Zoning Regulations, Section 7.9, Bicycle, Pedestrian, and Emergency Accommodations.

70O.2 Location and Dimensions

Sidewalks shall be a minimum of four (4) feet in width and shall be located within the street right-of-way line, as shown on the Standard Detail Drawings. Sidewalks shall be carried across all driveway crossings with driveway grades adjusted to maintain a uniform sidewalk height above the edge of roadway pavement as well as ADA Standards.

70O.3 Handicap Ramps

Curb cuts shall be provided at all pedestrian cross walks to provide access for the safe and convenient movement of physically handicapped persons. Such curb cuts shall conform to the most current State Statutes and the ADA Standards for Accessible Design as published in the code of Federal Regulations.

70O.4 Pedestrian Easements

In areas where the proposed road system does not conform to a convenient pattern of pedestrian circulation, particularly in the vicinity of parks, schools, playgrounds or other public or semi-public places, the Commission may require the establishment of easements for pedestrian ways, which will be a minimum of ten (10) feet in width. The surfacing, grade, and other specifications for such pedestrian easements shall take into consideration the topography, anticipated volume of use, erosion control, access for disabled persons, and pedestrian safety.

70O.5 Bikeways and Multi-Use Trails

The Commission may require bikeways or multi-use trails to be constructed as depicted in Section B of Chapter 9 of the Canton Plan of Conservation and Development and the Standard Detail Drawings. A bikeway may be either a separate trail or path for the exclusive use of bicycles or a portion of the roadway which has been designated for preferential or exclusive use of bicycles, separated from the roadway by a paint stripe or curb or other similar device. The surfacing, grade, and other specifications for such bikeways and multi-use trails shall take into consideration the topography, anticipated volume of use, erosion control, access for disabled persons, and public safety.
SECTION 80 - ROAD CONSTRUCTION STANDARDS

80A - CONSTRUCTION SURVEY PROCEDURE

80A.1 General

The centerline of the traveled portion of the road shall be placed in the center of the right-of-way, and shall be located in the field by a Land Surveyor licensed in the State of Connecticut. Suitable construction ties shall be established at all control points, which shall be protected during construction so that the centerline may be re-established at any time.

80A.2 Stations

Stations shall be established every fifty (50) feet and at all radius points (P.C. and P.T.’s). The beginning of this line shall be located in the gutterline of the intersected street and shall be designated as Station 10+0. A construction stake shall be placed at right angles to each station, clear of construction and grading. This stake will show the station on the side facing toward Station 10+0 the measured distance to centerline (offset) on the side facing away from Station 10+0 and on the face nearest to center line the cut or fill which will establish the center line grade. A grade list showing the Stations, stake elevations, offset from centerline grade, cuts and fills shall be provided to the Town’s Construction Inspector by the Applicant, or his designee who is to have charge of the construction layout, before construction begins.

80A.3 Bench Marks

A permanent Bench Mark shall be established at the beginning and end of each road and at intervals not exceeding five hundred (500) feet along the length of the road. These Bench Marks shall be referenced to the same datum shown and identified on the construction drawings for the road. Sketches showing at least three ties to each Bench Mark, the Bench Mark elevation and a description of each Bench Mark shall be provided to the Town’s Construction Inspector and the Director of Public Works.

80A.4 Protection of Stakes and Bench Marks

Grade stakes and permanent Bench Marks shall be protected and preserved until the road construction has been approved by the Town’s Construction Inspector. If such stakes or Bench Marks are disturbed, they shall be replaced immediately.

80B - CLEARING AND GRUBBING

80B.1 Clearing

All trees, brush, boulders, structures, walls, fences, perishable matter and debris of whatever nature shall be cleared from the full width of proposed limits of cuts and fills, including areas necessary for construction of storm drainage systems, and
required sight lines.

80B.2 Grubbing

All roots and stumps within the clearing limits specified in Section 80B.1 above shall be grubbed and excavated. All stumps shall be chopped or disposed of off-site in a lawful manner. No stumps shall be buried on site.

80B.3 Trees

Valuable shade trees shall remain whenever possible in shoulder area, but not within three (3) feet of any curbl ine, provided that a written opinion is submitted from the Canton Tree Warden stating that the long term health of the tree will not be adversely impacted by proposed construction or proximity to proposed road improvements. Any such tree shall be effectively protected and preserved so as to insure that it will suffer no damage during construction operations. All tree branches overhanging the roadway pavement or shoulder areas shall be trimmed by a qualified arborist to a clearance of sixteen (16) feet above the finished grade of the road.

80B.4 Topsoil

Topsoil shall be stripped from all surfaces of the roadway section which will be disturbed by cut or fill operations. Topsoil so stripped shall be stockpiled on the site of the work and shall be reserved for roadway landscaping.

80C - ROADWAY EXCAVATION, FORMATION OF EMBANKMENT AND DISPOSAL OF SURPLUS MATERIAL

80C.1 General

The excavation, filling, compaction, and the disposal of all surplus or unsuitable materials required to construct the roadbed, subgrade, shoulders, slopes and other associated improvements shall be accomplished in accordance with all applicable requirements of the State Standard Specifications for "Roadway Excavation, Formation of Embankment and Disposal of Surplus Material" except as modified herein.

80C.2 Unsuitable Material

All unsuitable material, including material removed during clearing and grubbing and preparation of subgrade, shall be removed from within the limits of the right-of-way and disposed of in a lawful manner.

80C.3 Surplus Material

When approved by the Director of Public Works, surplus suitable material should be used to flatten fill slopes within the limits of the right-of-way and any slope easements so as to preclude the need for guide rails. Surplus suitable materials that cannot be so utilized shall be disposed of in a lawful manner.
80C.4 Blasting

Blasting shall be performed only by licensed competent personnel and shall be done in accordance with all applicable State and Federal laws, local ordinances, rules and regulations pertaining thereto, and only after obtaining all necessary permits.

80D - PREPARATION OF SUBGRADE

All topsoil, peat, other organic matter and all soft and yielding material shall be stripped and removed to their full depth, and boulders and ledge rock removed to a depth of at least twelve (12) inches below finished subgrade. The surface shall then be backfilled up to subgrade elevation with bank or crushed gravel conforming to the requirements of the State Standard Specification Sections M.02.1 and M.02.06 (Grading B). All construction methods shall conform to the requirements of the State Standard Specifications for "Subgrade".

80E - ROLLED GRANULAR BASE

80E.1 General

After the subgrade has been compacted, proof rolled and approved by the Town’s Construction Inspector, a rolled granular base shall be applied for the full required width of pavement plus fifteen (15) inches beyond the gutter line wherever curbs are to be placed and twenty-four (24) inches beyond the edge of pavement where there will be no curbing. The rolled granular base shall not be less than eight (8) inches thick after compaction and shall have the cross-slope shown on the Standard Detail Drawings.

80E.2 Materials and Methods

Construction methods shall conform to the requirements of the State Standard Specifications for "Rolled Granular Base", and materials shall conform to the requirements of the State Standard Specification Sections M.02.03 and M.02.06 (Grading A).

80F - PROCESSED AGGREGATE BASE

80F.1 General

After the rolled granular base has been placed and compacted, processed aggregate base shall be applied for the full required width of pavement plus fifteen (15) inches beyond the gutter line wherever curbs are to be placed and twenty-four (24) inches beyond the edge of pavement where there will be no curbing. The process aggregate base shall not be less than four (4) inches thick after compaction and shall have the cross slope shown on the Standard Detail Drawings.

80F.2 Materials and Methods
Construction methods shall conform to the requirements of the State Standard Specifications for "Processed Aggregate Base", and materials shall conform to the requirements of the State Standard Specification Section M.05.01.

**80G - BITUMINOUS CONCRETE PAVEMENT**

**80G.1 General**

After the processed aggregate base has been brought to the required grade and cross slope, rolled, and compacted, the roadway shall be surfaced with bituminous concrete Class I (or Superpave) binder course for the full required width of pavement plus eighteen (18) inches beyond each curb line to a compacted depth as indicated in the Road Design Standards Table. After placement of bituminous concrete curbing on the binder course, a bituminous concrete Class II (or Superpave) top or surface course shall be placed to a compacted depth as indicated in the Road Design Standards Table. Prior to the pavement of the Class II surface course, the surface of the binder course shall be broomed clean and a tack coat applied. No paving shall be permitted between October 31 and April 1 unless the Public Works Department specifically permits an exception due to unusually mild weather conditions. No paving shall be permitted on any day where the base temperature is less than thirty-five (35) degrees Fahrenheit or when weather conditions of fog or rain prevail or when the pavement surface shows any signs of moisture. Pavement shall be placed so that each course shall have the cross-slope shown on the Standard Detail Drawings.

**80G.2 Materials and Methods**

All materials and construction methods shall conform to the requirements of the State Standard Specifications for "Bituminous Concrete" except as modified herein. "Bituminous Concrete" shall conform to the requirements of the State Standard Specifications Sections M.04.01 and M.04.03 (Class I for the binder course and Class II for the top or surface course, or Superpave).

**80G.3 Source**

All bituminous concrete pavement material shall be obtained from a plant certified by the State Department of Transportation for provision of such materials for use in State highway construction. Original signed copies of certification by the supplier that each load of bituminous concrete pavement materials incorporated in the work conforms to the requirements specified in Section 80.G.1 shall be submitted to the Town’s Construction Inspector.

**80H - CURBING**

**80H.1 General**

Where required, granite curb, bituminous concrete curb (including cape cod berm), cast-in-place concrete curb, and cement concrete precast curb shall be placed at the
offset from centerline of road shown on the Standard Detail Drawings. Curbing shall not be required on existing Town roads where it is determined by the Director of Public Works that the installation of enclosed storm drainage systems is not warranted. Wavy or damaged curbing shall not be accepted, and the Town’s Construction Inspector shall require that improperly placed curbing be removed and replaced.

80H.2 Materials and Methods

Construction methods shall conform to the requirements of the State Standard Specifications for the following types:

8.11 Concrete Curbing
8.13 Stone (Granite) Curbing
8.15 Bituminous Concrete Curbing (including cape cod berm)

Construction materials shall conform to the requirements of the State Standard Specifications for the following types:

M.03 Concrete Curbing – The concrete for cast-in-place curbing shall be Class “C” Concrete. The concrete for precast concrete curbing shall have a minimum 28-day compressive strength of 4,000 psi and shall contain 5 to 7% entrained air unless otherwise approved by the Director of Public Works.

M.12.06 Stone (Granite) Curbing
M.04 Bituminous Concrete Curbing (including cape cod berm) – Bituminous Class 3

80I - GUIDE RAIL

80I.1 General

Guide railing shall be installed as shown in the Connecticut Department of Transportation Standard Sheets. The type of guide rail to be utilized shall be as follows:

(A) Type R-B 350 Metal Beam Rail shall be used on all roadways.

(B) Steel backed timber guide rail may be permitted in areas of aesthetic or historical significance as determined by the Commission.

Under no circumstances shall ornamental wood rails be permitted within a Town road right-of-way unless authorized by the Director of Public Works.

80I.2 End Anchorage

All leading and trailing ends of guide rail shall be secured with concrete end anchors. Unless otherwise approved by the Director of Public Works, blunt or flared ends shall not be permitted.
80I.3 Materials and Methods

For R-B 350 Metal Beam Rail, construction methods shall conform to the requirements of the State Standard Specifications for "Metal Beam Rail", and materials shall conform to the requirements of the State Standard Specifications Section M.10.02 for Steel Posts, Welded-Soil Plates, Brackets, Back-Up Rails, Channel Rubrails, Rail Elements and Terminal Sections. Materials used for metal beam rail delineators shall conform to the requirements of the State Standard Specifications Sections M.18.09-02 for Bright Wide Angle Retroreflective Sheeting and M.18.13 for Sign Face Sheet Aluminum. For end anchorages, construction methods shall conform to the requirements of the State Standard Specifications for "Metal Beam Rail Anchorages", and materials shall conform to the State Standard Specifications Section M.10.02-7 for End Anchorages, and M.03.01-12 for Non-Shrink, Non-Staining Grout.

80J - FENCING

80J.1 General

Fencing shall be a minimum of four (4) feet in height and shall be installed as shown in the Standard Detail Drawings.

80J.2 Materials and Methods

Steel fabric, posts, and all hardware shall be coated with a black colored polyvinyl chloride, with all materials conforming to the requirements of the State Standard Specifications Section M.10.05. All construction methods shall conform to the requirements of the State Standard Specifications for "Chain Link Fence" with the exception that top tension wires shall be provided in lieu of top rails.

80K - MONUMENTS

80K.1 General

Monuments shall be of reinforced concrete, not less than four (4) inches square at the top and not less than thirty (30) inches long, shall have a cross mark indented in the top to indicate the exact point of reference, and shall be set so as to project not more than two (2) inches above finished grade. Under no circumstances shall monuments be buried beneath the ground surface or covered with landscape or other materials such that they are not visible. Monuments shall conform with the dimensions and details shown in the most current Standard Detail Drawings.

80K.2 Exposed Ledge Areas

In exposed ledge areas, a drill hole three-eights (3/8) inch in diameter (minimum) and one (1) inch deep (minimum) shall be installed in the ledge and a brass disc shall be cemented in place with Portland cement mortar.

80L – TRAFFIC CONTROL DEVICES
80L.1 General

The design and placement of signs, pavement markings, and object markers shall conform to the most current edition of the Manual of Uniform Traffic Control Devices.

80L.2 Materials and Methods - Signs

Construction methods for street signs shall conform to the requirements of the State Standard Specifications for "Sign Face-Extruded Aluminum (Type III Reflective Sheeting)", with all other signs conforming to the requirements for "Sign Face - Sheet Aluminum". Materials for street signs shall conform to the State Standard Specifications Sections M.18.09 and M.18.10 for Type III Reflective Sheeting. Street signs shall have a six (6) inch white legend on green background as shown in the Standard Detail Drawings. Materials for all other signs shall conform to the State Standard Specifications Sections M.18.09.01 for Type III Reflective Sheeting and M.18.13 for Sign Face Sheet Aluminum. Materials for metal sign posts and sign mounting bolts shall conform to the requirements of the State Standard Specification Sections M.18.14 and M.18.15 respectively. Posts shall be one and three-quarter (1¾) inch square with two (2) inch square breakaway base posts. All posts shall be galvanized after fabrication. Posts shall be made of twelve (12) gauge steel with seven-sixteenth (7/16) inch diameter holes on one (1) inch centers.

80L.3 Materials and Methods - Pavement Markings

Construction methods shall conform to the requirements of the State Standard Specifications for "Painted Pavement Markings", and materials shall conform to the requirements of the State Standard Specification Section M.07.22 for epoxy resin pavement markings.

80L.4 Materials and Methods - Object Markers

Construction methods shall conform to the requirements of the State Standard Specifications for "Object Marker". Materials shall conform to the Requirements of the State Standard Specification Sections 18.13 for Sheet Aluminum, 18.09 for Reflective Sheeting, 18.14 for Metal Sign Posts, and 18.15 for Sign Mounting Bolts. Posts shall be galvanized U-Channel with a weight of two (2) pounds per foot.

80M - SIDEWALKS

80M.1 General

Sidewalks shall be constructed as shown on the Standard Detail Drawings, using 4000 PSI Portland Cement Concrete, with an air entraining admixture and a welded wire fabric reinforcement. Sidewalks shall be a minimum of fifty-nine and three quarter (59¾) inches in width and five (5) inches thick, and shall be constructed on a granular fill base having a minimum compacted thickness of eight (8) inches as shown in the Standard Detail Drawings.
80M.2 Materials and Methods

All materials and construction methods shall conform to the requirements of the State Standard Specifications for "Concrete Sidewalks", except as follows:

Materials:

1. Portland Cement Concrete shall conform to the requirements of the State Standard Specifications Section M.03.01 Class "F".

2. Granular fill shall conform to the requirements of the State Standard Specifications Section M.02.06 Grading C.

3. Welded wire fabric reinforcement shall conform to the requirements of the State Standard Specifications Section M.06.01 WWF 4x4 – W4.0xW4.0.

4. Preformed expansion joint filler shall be one quarter (.25) inch in thickness and conform to the requirements of AASHTO 213.

5. Concrete sealers and curing compounds shall be CreteDefender, by CreteDefender, Inc., Greeneville, TN or approved equal.

80N – HANDICAP RAMPS

80N.1 General

Handicap ramps shall be constructed to the dimensions shown on the Standard Detail Drawings, modified as required to conform with the most current State Statutes and ADA Standards for Accessible Design as published in the Code of Federal Regulations; shall be located as shown on the Approved Design Drawings; and shall be constructed of 4,000 PSI Portland Cement Concrete, with an air entraining admixture. Handicap Ramps shall be five (5) inches thick, and shall be constructed on a granular fill base having a minimum compacted thickness of eight (8) inches. Detectable warnings consisting of truncated cones that visually contrast with adjoining surfaces shall be provided for the full width and depth of ramps.

80N.2 Materials and Methods

All materials and construction methods shall conform to the requirements of the State Standard Specifications for "Concrete Ramps". "Granular Fill" shall conform to the requirements of the State Standard Specifications Sections M.02.01 and M.02.06 (Grading C). Portland Cement Concrete shall conform to the requirements of the State Standard Specifications Section M.03.01 (Class "F"). Welded wire fabric reinforcement shall be WWF 4x4 – W4.0xW4.0.
80O – DETECTABLE WARNING STRIPS

800.1 General

Detectable warning strip tiles shall be color-fast, UV stable, homogeneous glass and carbon reinforced composite material, colored throughout. The surface geometry shall comply with ADA Regulations and shall consist of raised truncated domes with a nominal diameter of 0.9-inches, a nominal height of 0.2-inches, and a center to center minimal spacing of 2.35-inches. The color of the tile shall comply with the current version of the Standard Color Tolerance Charts issued by the Federal Highway Administration. Composite products relying on paint coatings or "UV coatings" for color stability are not acceptable.

800.2 Materials and Methods

Detectable warning strip tiles shall be solidly set in the wet concrete. Beware that an overly wet mix may cause tiles to float. Concrete shall be poured and finished to line and grade, true and smooth to the required dimensions, prior to the placement of the tiles. Tiles shall be tamped and vibrated into the fresh concrete to ensure that the field level (base of truncated dome) of the tile is flush to the adjacent walking surface. Tolerance for elevation difference between the field and adjacent surface is 1/4-inch. Following the tile placement, tile elevation should be checked to the adjacent surface with a straight edge. Elevations shall be as shown on the plans. Any adjustment must be made prior to setting of the concrete. During and after tile installation and concrete curing, no walking or other external forces will be permitted on the tiles. Protect the area from traffic while concrete cures. Clean any excess concrete or other material from the exposed face of the tile prior to curing of those materials. Conform to manufacturer's installation recommendations.
SECTION 90 - DRAINAGE DESIGN CRITERIA

90A - DESIGN CRITERIA

90A.1 General

Proposed drainage facilities shall be designed to accommodate surface runoff from proposed land development as well as the entire upstream drainage area and to protect wetlands, watercourses and water bodies from the adverse impacts of post construction stormwater runoff. It is the policy of the Town of Canton to minimize the use of drainage structures and piping, to the extent that is reasonably possible, by using appropriate low impact development techniques. Point discharges from stormwater systems shall be avoided or minimized to mimic predevelopment hydrology.

90A.2 Stormwater Management Plan

Computations, conforming to the requirements outlined in this section, shall be submitted for sizing all proposed storm drainage facilities as well as the analysis of any existing off-site facilities required by the Commission. A Stormwater Management Plan and associated calculations shall be provided pursuant to Zoning Regulation 7.13, Stormwater Management.

The following requirements shall be added to the Stormwater Management Plan in the Canton Zoning Regulations 7.13:

1. Provide Endangered and Threatened Species Map that includes the site location. Obtain mapping from http://www.depdata.ct.gov/naturalresources/endangeredspecies/nddbpdfs.asp.
2. Aquifer Protection Areas Map that includes the site location. Obtain mapping from http://www.cteco.uconn.edu/advanced_viewer.htm.
3. Determination if the project creates a new or increased discharge to Impaired Waters. Provide Impaired Waters Map that includes the site location and location of the discharge point(s). http://www.cteco.uconn.edu/advanced_viewer.htm
4. Provide a certification by a Professional Engineer that no Illicit Discharges occur or will occur on the project property. Illicit Discharges observed as part of this certification shall be reported to the Director of Public Works and eliminated as part of the proposed project.
5. Determine if project site is within an area of Directly Connected Impervious Area (DCIA) from mapping on file with the Canton Land Use Office. If project site is within a DCIA:
   a. for redevelopment of sites that are currently developed with Directly Connected Impervious Area (DCIA) of forty percent (40%) or more, retain on-site half the water quality volume for the site, or
   b. for new development and redevelopment of sites with less than forty percent (40%) DCIA, retain the water quality volume for the site, or
   c. provide an alternate retention/treatment standard as follows: In cases where the required water quality volume cannot be retained from a. or b. above, the permittee shall require the responsible party to retain runoff volume to the
maximum extent achievable using control measures that are technologically available and economically practicable and achievable in light of best industry practice. In such cases, additional stormwater treatment, to the maximum extent achievable using control measures that are technologically available and economically practicable and achievable in light of best industry practice, shall be required for sediment, floatables and nutrients for the volume above that which can be retained up to the water quality volume. In cases where the runoff reduction requirement cannot be met, the developer/contractor shall submit, for the permittee’s review, a report detailing factors limiting the capability of achieving this goal. In such cases, the permittee shall approve a stormwater mitigation project on another site proposed by the developer/contractor or approve a fee to be deposited into a dedicated account of the permittee for use by the permittee to fund in whole or in part the retrofit of one or more existing DCIA. Unless such fee is established by DEEP, the fee proposed by the developer/contractor should be set in amount approved by the permittee as calculated based on an estimate of the cost necessary to implement the retrofit to achieve a similar amount of runoff reduction to the amount by which the actual amount of runoff reduced fails to achieve the requirement to retain the water quality volume for the site. The report shall include: the measures taken to maximize runoff reduction practices on the site; the reasons why those practices constitute the maximum extent achievable; the alternative retention volume; and a description of the measures used to provide additional stormwater treatment above the alternate volume up to the water quality volume. In the case of linear redevelopment projects (e.g. roadway reconstruction or widening) for the developed portion of the right of way: (1) for projects that may be unable to comply with the full retention standard, the alternate retention and treatment provisions may also be applied as specified above, or (2) for projects that will not increase the DCIA within a given watershed, the developer/contractor shall implement the additional stormwater treatment measures referenced above, but will not be required to retain half of the water quality volume.

90A.3 Stormwater Detention Facilities

1. When stormwater detention facilities are required, they shall be sized such that the peak discharge after development shall not exceed the peak discharge prior to development; for all sections/borders/discharges of the development; and for each of the storm frequencies identified in the Stormwater Management Plan.

2. Design and construction of surface stormwater detention facilities shall conform to the requirements for "Detention Basin" as outlined in the most current document entitled "Connecticut Guidelines for Soil Erosion and Sediment Control", with the following exceptions:
   a. Basin side slopes shall not exceed 4H:1V
   b. The maximum basin depth (as measured from the bottom of basin to the top of berm) shall not exceed six (6) feet
   c. Basins shall be located no closer than one hundred fifty (150) feet from an existing or proposed residential dwelling, or active recreation area
   d. All basins shall have a minimum bottom width of 4-feet
e. Systems which require under drains must be provided with a minimum of one cleanout to grade for every 50 linear feet of under drain per the Standard Detail Drawings
f. Linear systems must be provided with Check Dams at a maximum interval of 50-feet horizontal or 2-feet vertical per the Standard Detail Drawings
g. Systems must be designed to drain completely within 72 hours of a rain event
h. Infiltration practices shall be provided with a minimum of one observation well for every 50 linear feet of basin/trench with a minimum of two wells for each basin per the Standard Detail Drawings
i. Areas of proposed infiltration practices shall be protected from construction equipment at all times during construction, and shall be designed such that all maintenance requiring machinery (mowing, sediment removal, etc.) can be completed from outside of the basin
j. Infiltration practices shall NOT be used for temporary settling basins during construction
k. Erosion and sediment control practices shall be designed and installed to prevent runoff from entering the basin prior to it being vegetated and/or otherwise completely stable
l. Wherever possible, basins shall be installed after the site is stabilized

3. To the maximum extent possible, detention basins shall be designed as extended detention ponds or wet ponds, or used in conjunction with other stormwater treatment practices to provide water quality benefits; shall be irregular in shape and landscaped with native non-invasive species so as to enhance the appearance of the surrounding environment; shall be screened; and, shall be designed to minimize future maintenance.

4. All detention basins shall be readily accessible for maintenance purposes via an improved access drive (See Standard Detail Drawings). The improved access drive shall extend from the nearest travel way to the basin and around the entire basin such that maintenance equipment can adequately mow and maintain the basin. If infiltration is incorporated into the basin design, the improved access road must be located to allow for mowing without entering the basin.

5. The Commission may require fencing (refer to Section 80J) around the perimeter of a detention basin. In requesting this requirement, the Commission shall consider the proximity of the basin to adjacent residential dwellings; future population density in the general vicinity; and, the size and depth of the proposed basin.

90A.4 Stormwater Basin Pretreatment

1. All detention basins shall include a forebay or a hydrodynamic separator for pretreatment.

2. Forebays shall be designed to treat a minimum of 25% of the Required Water Quality Volume. Forebays shall be separated from the adjacent basin by a spillway, constructed of impervious berm material with a minimum top width of 2-feet (See Standard Detail Drawings). In order to facilitate maintenance, an improved access drive must be provided from the traveled way to the bottom of the Forebay. (See Standard Detail Drawings). The Forebay bottom shall be a minimum of 4-feet wide and constructed with a reinforced concrete bottom (See Standard Detail Drawings).
3. Hydrodynamic separators shall be designed to treat 100% of the calculated Required Water Quality Flow Rate (See Appendix B of the Connecticut Stormwater Quality Manual for Calculation). All proposed Hydrodynamic Separators must have a rating of 1 or 2 from the Massachusetts Stormwater Evaluation Project (MaSTEP www.mastep.net) and must provide a minimum of 50% Total Suspended Solids (TSS) removal as verified by Third Party Testing (This information is available from MaSTEP). In order to facilitate maintenance, an improved access drive must be provided from the traveled way to the hydrodynamic separator. (See Standard Detail Drawing). The hydrodynamic separator shall be provided with 24-inch, minimum, diameter cast iron covers to grade at all access points. All structures within traveled ways shall meet H-20 loading specifications, all other structures shall meet H-10 loading specifications.

90A.5 Stormwater Basin Ownership and Covenants

Detention basins and/or stormwater treatment practices that treat stormwater runoff from a residential subdivision shall be located on land to be conveyed to a Homeowners' Association, which shall be established by the applicant and whose members shall be jointly and severally liable for costs associated with the maintenance of such detention basins(s), treatment practices and the appurtenant system. Detention basins and/or stormwater treatment practices that treat stormwater runoff from commercial and industrial properties shall be located on property of the owner. The property owner shall be liable for costs associated with the maintenance of such detention basins(s), treatment practices and the appurtenant system. When applicable, a permanent right to drain surface or subsurface drainage systems from any existing or future town lands or roadways shall be granted to the Town of Canton. However, it shall be the property owner's or Homeowners' Association's sole responsibility to maintain and repair all detention basins, stormwater treatment practices and appurtenant structures. Such obligation shall be established within a Declaration of Covenants and Restrictions which shall be submitted for review by the Town, and when approved, filed on the Canton Land Records. Such document shall provide the right, but shall not in any way obligate, the Town of Canton to enter upon the property to make inspections and to make emergency repairs, should the property owner or Homeowners' Association, after proper notice from the Town, fail to execute their responsibilities.

90A.4 Discharge

Unless otherwise approved by the Commission, the discharge of all stormwater shall be into established watercourses, wetlands, or Town/State Highway drains having adequate capacity to accommodate such discharges.

Stormwater from new developments and private property shall be treated and diverted around town owned stormwater treatment systems to the maximum extent practicable prior to discharge into a town drainage system. Town owned stormwater management practices, such as detention and water quality basins, shall only treat stormwater discharge from the town roadway and right-of-way. Private stormwater runoff shall be treated by systems owned and maintained by the property owners pursuant to these Regulations.
90A.5 Drainage Easements and Rights to Discharge

Where the discharge of stormwater shall be onto or through private property, perpetual drainage easements and discharge rights, in favor of the owner of the road, shall be secured by the applicant. Where drainage easements are required, they shall have a minimum width of thirty (30) feet. For open drainage channels, flared end sections/headwalls, and other outlet protection measures, they shall extend a minimum of fifteen (15) feet beyond the outside edge of such measures. Where open drainage channels are used along roads, and the horizontal extent of the design flow plus freeboard specified in Section 90A.10 extends beyond the road right-of-way line, then an additional drainage easement shall be provided beyond the edge of the road right-of-way line. Drainage easements must also be provided for maintenance roads or access ways required to properly maintain drainage or stormwater facilities. These easements must be reviewed and approved by the Director of Public Works.

90A.6 Diversion

Existing drainage paths shall be maintained and the diversion of stormwater runoff from one watershed or watercourse to another shall normally be avoided. Where it is necessary to create such a diversion, special provisions shall be made to minimize the potential damages which may occur as a result of such diversion.

90A.7 Existing Wetlands and Watercourses

All activities that are regulated by the IWWA shall be accomplished in such a way as to minimize the effects which would be adverse to the regimen of such watercourse. Adequate provisions shall also be made to prevent or minimize scour or erosion in the adjacent upstream and downstream reaches of the watercourse. The Applicant shall be responsible for obtaining the appropriate permits from the IWWA.

90A.8 Capacity Within Roadway

Storm drainage systems within the roadway, exclusive of culverts and bridges carrying flows under the road, shall be designed to safely accommodate flows resulting from storms of the maximum intensity which can be expected to occur on an average of once in ten (10) years (10-year storm) without being surcharged.

Gutter flow analysis pursuant to the latest edition of the Connecticut Department of Transportation Drainage Manual (Drainage Manual) shall be provided for all roadways that do not allow for stormwater sheet flow away from the road. Allowable spread within the roadway shall be determined pursuant to the Drainage Manual.

90A.9 Capacity Under Roadways

Culverts crossing under roadways shall be designed to accommodate the following flows:

(A) Minor Structures

These shall include pipe, box culverts or bridges providing for the drainage of adjacent lands less than one (1) square mile in area in which there is no established watercourse.
These structures shall be designed to pass a twenty-five (25) year frequency discharge without flooding or damaging the highway or adjacent property.

(B) Small Structures

These shall include pipe, box culverts or bridges providing for the drainage of adjacent lands less than one (1) square mile in area in which there is an established watercourse. These structures shall be designed to pass a fifty (50) year frequency discharge with one (1) foot of freeboard, and without flooding or damaging adjacent property. The effects of a discharge equal to the one hundred (100) year frequency storm shall be checked. Where such effects are likely to cause damage to persons or property, structures shall be designed to alleviate these problems.

(C) Large Structures

These shall include pipe, box culverts or bridges for the drainage of adjacent lands one (1) square mile or larger in area. These structures shall be designed to pass a one hundred (100) year frequency discharge with a minimum one (1) foot under clearance, relative to the low chord of the upstream face of the structure, and shall not create a backwater which will flood or endanger property or roads upstream.

90A.10 Capacity Within Open Drainage Channels

New open channels and existing open channels into which a new or expanded storm drainage system is proposed to discharge shall be designed to accommodate flows resulting from storms of the maximum intensity which can be expected to occur on an average of once in twenty-five (25) years with a minimum freeboard of six (6) inches.

90A.11 Municipal Improvements

The requirements specified in Section 90 are not intended in any way to preclude the Canton Public Works Department from making storm drainage improvements on existing public roadways. Such improvements, including, but not limited to the conversion of road side ditches to piped drainage systems, the extension, repair, or replacement of existing storm drainage systems, and the installation of new storm drainage systems, shall be permitted provided that a determination is made by the Director of Public Works that such improvements will not result in significant adverse impacts.

90B - COMPUTATION OF STORMWATER FLOWS

90B.1 General

Stormwater flows for sizing storm drainage systems within and under the roadway as defined in Sections 90A.8, 90A.9 and 90A.10, may be computed by use of the Rational Method or by use of the methods described in the most current edition of the U.S. Soil Conservation Service Technical Release No. 20, or Technical Release No. 55, as required by the Drainage Manual. The use of the Rational Method shall not be used for computing flows from drainage areas in excess of two hundred (200) acres, or for computing flows used for sizing stormwater detention facilities or facilities requiring routing calculations. Stormwater flows used for sizing stormwater detention facilities, as well as small and large
structures as defined in Section 90A.9, shall be computed using methods described in the most current edition of the U.S. Soil Conservation Service Technical Release No. 20.

Regardless of the method that is utilized, all computations shall include a Drainage Analysis Map which clearly delineates the drainage area and flow path used for determining the time of concentration to each proposed drainage facility and each existing downstream drainage structure that may become hydraulically overloaded or damaged. The drainage analysis map shall show existing topography of the drainage areas (based on the best available existing mapping), existing and proposed roads, watercourses, wetlands, flood hazard zones, existing and proposed vegetation (woods, fields, lawns, etc.), existing and proposed drainage facilities and structures, and the proposed area of development. When U.S. Soil Conservation Service methods are used, the drainage analysis map should also show soil types as shown on the most currently available soils maps as prepared by the Natural Resource Conservation Service.

90B.2 Rational Method Computations

Where the Rational Method formula is used, computations shall conform with the following guidelines:

(A) Runoff Coefficients

Where the Rational Method formula is used, the following runoff coefficients ("C" values) shall be the minimum values utilized for each type of surface, and a composite "C" value computed for each tributary drainage area. In any case, a composite "C" value of less than 0.30 shall not be used for single family residential developments.

<table>
<thead>
<tr>
<th>Type of Surface</th>
<th>Runoff Coefficient &quot;C&quot; (*) (10-year Storm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavement, roofs and impervious surfaces</td>
<td>0.90</td>
</tr>
<tr>
<td>Embankment Slopes (cuts and fills)</td>
<td>0.40</td>
</tr>
<tr>
<td>Lawns:</td>
<td></td>
</tr>
<tr>
<td>Flat Slope (2% or less)</td>
<td>0.17</td>
</tr>
<tr>
<td>Average Slope (2% to 7%)</td>
<td>0.22</td>
</tr>
<tr>
<td>Steep Slope (7% or greater)</td>
<td>0.35</td>
</tr>
<tr>
<td>Cultivated Fields</td>
<td>0.45</td>
</tr>
<tr>
<td>Pasture</td>
<td>0.30</td>
</tr>
<tr>
<td>Meadows (moist, level grassland)</td>
<td>0.10</td>
</tr>
<tr>
<td>Forested Areas</td>
<td>0.20</td>
</tr>
</tbody>
</table>

* For twenty-five (25) year storm increase runoff coefficients by ten percent (10%), for fifty (50) year storm increase by twenty (20%), and for one hundred (100) year storm increase by twenty-five percent (25%) (except for pavement, roofs and impervious surfaces).

(B) Time of Concentration

Time of concentration (t) shall be determined by the Technical Release No. 55 Method. The maximum sheet flow path length used shall be seventy-five (75) feet.

(C) Rainfall Intensities
Rainfall intensities (i) shall be determined using the frequency/intensity/duration curves for Canton, Connecticut from the NOAA Precipitation Frequency Data Server website http://hdsc.nws.noaa.gov/hdsc/pfds/. The minimum allowable time of concentration shall be five (5) minutes.

90C - MINIMUM PIPE SIZES

90C.1 Surface Drainage

All pipe carrying surface drainage or a combination of surface drainage and subsurface drainage (groundwater) shall have a minimum internal diameter of fifteen (15) inches.

90C.2 Subsurface Drainage

All subsurface drainage pipe used exclusively for intercepting groundwater shall have a minimum internal diameter of six (6) inches.

90D - CATCH BASINS

90D.1 General

Catch basin locations shall be determined by gutter flow calculations for all proposed roadways and for design of existing roadway drainage that includes curbing or where stormwater cannot sheet flow from the roadway. At a minimum, curbed roadways shall be provided with catch basins such that surface water will not travel along the roadway curbline without interception for more than three hundred and fifty (350) feet on roads with grades up to and including five percent (5%) and not more than two hundred and fifty (250) feet on roads with grades up to and including ten percent (10%). Catch basins shall also be installed at all low points, roadway intersections and at the lower end of all cul-de-sacs if sheet flow cannot be achieved. Catch basins located within the paved roadway shall have Type "C" tops and provided with sumps that are at least four (4) feet deep.

90D.2 Off-Road Locations

Where it is necessary to provide catch basins in off-road locations outside of the limits of pavement, they shall have Type "C-G" tops and provided with four (4) foot deep sumps.

90D.3 Inlet Capacity

Where additional inlet capacity is necessary, the installation of double Type II catch basins, or more closely spaced catch basins shall be required.

90E – MANHOLES

Manholes shall be provided at each change of drainage pipe slope or horizontal alignment, at
all pipe junctions and otherwise at intervals of approximately three hundred and fifty (350) feet on long lengths of pipe where catch basins are not used.

90F - FLARED END SECTIONS/HEADWALLS

The inlets and outlets of all exposed drainage conduits shall be protected with flared end sections except where hydraulic, or other considerations necessitate the use of a headwall. When headwalls are provided, they shall be of reinforced concrete construction. Wingwalls shall be provided when required to contain and protect the adjacent earthen slopes and/or direct the flow of water entering or leaving the conduit. Outlet protection shall be provided in accordance with the standards outlined in the "Connecticut Guidelines for Soil Erosion and Sediment Control".

90G - OPEN DRAINAGE CHANNELS

90G.1 General

In general, the use of open channels are encouraged to convey storm water discharges to an acceptable outlet. Where open channel flow is proposed, the channel shall be properly designed to safely carry the design flow as specified in Section 90A10 and shown in the Standard Detail Drawings. Grass drainage channels used along roads shall be in the general form of a trapezoid or parabola having a bottom width of at least three (3) feet with side slopes no steeper than four (4) feet horizontal to one (1) foot vertical, so that they can be graded to provide a gradual transition into adjacent lawn areas, and can be easily mowed. The channel shall be seeded and protected with turf reinforcement mats or sod. Rip rap drainage channels shall be in the shape of a trapezoid having a bottom width of at least two (2) feet and side slopes no steeper than two (2) feet horizontal to one (1) foot vertical as shown in the Standard Detail Drawings. Whenever open drainage channels are located along roads, individual driveway culverts and paved driveway aprons shall be constructed concurrently with the construction of such channels.

90G.2 Stabilization of Open Channels

Special attention shall be given to the stabilization of open channels in the immediate vicinity of pipe inlets and outlets, bridges, at bends and curves and at other critical locations as required to prevent scouring, erosion and/or siltation of watercourses and culverts, and undermining of drainage structures.

90H - UNDERDRAINS

The installation of subsurface drainage systems or underdrains will be required beneath the edge of pavement of a proposed street wherever the ground water is known to be less than three (3) feet below the proposed finished grade of the street and/or as required by the Director of Public Works. Underdrains shall also be installed where localized seeps or springs are observed within the proposed street lines during construction, or where otherwise required by the Director of Public Works.
90I - CONNECTION OF PRIVATE DRAINS

Unless otherwise approved by the Director of Public Works, private storm drains, footing drains, curtain drains, underdrains, basement drains, yard drains or area drains of any kind shall not be permitted to discharge upgradient of or into a town road or road proposed to be dedicated to the Town at a future date. Any such private drains shall be connected to storm drainage structures, but no such connection shall be permitted without first obtaining the approval of the Director of Public Works. When such a connection is not possible or practical, they may be connected directly to an existing or proposed storm drain if approved by the Director of Public Works. Where direct connections are made, they shall utilize appropriate fittings, and be preceded by an access extended to grade. Such access shall be located within a town road right-of-way or easement, and shall have a minimum diameter of twelve (12) inches, or as otherwise deemed necessary to provide direct observation and to facilitate sampling. All access structures shall be provided with a secure top to preclude accidental entry. The following notation shall be placed on all design drawings where the connection of private drains are proposed: "Private drains are the sole responsibility of the owner and the Town of Canton shall assume no responsibility for any maintenance, replacement and/or repair. The owner of the drain shall hold the Town of Canton harmless for any damage or injuries resulting from such connection". Drainage connected to a town owned system must meet the stormwater treatment requirements set forth by these Regulations.
SECTION 100 - DRAINAGE CONSTRUCTION STANDARDS

100A – PIPE

100A.1 General

All pipe used for storm drainage shall be either Class IV Reinforced Concrete Pipe (RCP) or High Density Corrugated Polyethylene Smooth Interior Pipe (HDPE). Unless otherwise approved, all stormwater pipes shall be perforated and shall have the excavation lined with filter fabric wrapping around one (1) inch stone backfill extending to fifteen (15) inches below the proposed finished grade.

100A.2 Minimum Cover

The minimum cover over all storm drainage pipe located within the right-of-way shall be two (2) feet. Where conflicts with other subsurface facilities occur, and with approval of the Director of Public Works, pipe may have as little as eighteen (18) inches of cover, but in such cases extra strength Class V RCP shall be used with a crushed stone bedding extending to a minimum depth of four (4) feet below finished grade.

100A.3 Slotted or Perforated Storm Drains

Where water is encountered in the pipe trenches, or where underdrains are required under Section 90H, storm drains shall either be slotted RCP or Perforated High Density Corrugated Polyethylene Smooth Interior Pipe.

100A.4 Additional Underdrains

Where additional underdrains are deemed necessary in locations not requiring other storm drainage, Perforated High Density Corrugated Polyethylene Smooth Interior Pipe with a minimum internal diameter of six (6) inches shall be used. Wherever the terminal end of an underdrain is not connected to a catch basin or manhole, a cleanout to grade shall be provided. Underdrains shall be installed as shown in the Standard Detail Drawings.

100A.5 Materials and Methods

Except as noted herein, construction methods shall conform to the State Standard Specifications for "Culverts" and "Underdrain and Outlets". Where High Density Corrugated Polyethylene Smooth Interior Pipe is used for storm drains, it shall be installed in a Type II installation as shown in the Standard Detail Drawings, regardless of the internal pipe diameter, with bedding material conforming to the State Standard Specifications Section M.08.01-21. Where reinforced concrete pipe is used for storm drains, it shall be installed in a Type II installation, as shown in the Standard Detail Drawings, with backfill material conforming to the State Standard Specifications Section M.02.06 - Grading A. For underdrains, pipe shall be installed with holes in a upward
position. Aggregate used for backfilling around underdrains and slotted or perforated pipe shall conform to the State Standard Specifications Section M.08.03 - 1 (No. 8 Crushed Stone). Sand shall not be permitted as backfill around underdrains. Geotextile fabric, conforming to the State Standard Specification Section M.08.01 - 26, shall be wrapped around the aggregate as shown in the Standard Detail Drawings.

Reinforced concrete pipe shall conform to the State Standard Specifications Section M.08.01 - 6, or Section M.08.0 - 10 for Slotted Reinforced Concrete Pipe. Material used for sealing joints in concrete pipe shall conform to the State Standard Specifications for Cold-Applied Bituminous Sealer (Section M.08.01-18), or Pre-formed Plastic Gaskets (Section M.08.09.19). High Density Corrugated Polyethylene Smooth Interior Pipe shall conform to the AASHTO Standard Specifications M 294 Type S, or M 294 Type SP/M 252 Type SP for Perforated High Density Corrugated Polyethylene Smooth Interior Pipe.

100B - CATCH BASINS AND MANHOLES

100B.1 General

Catch basins and manholes shall be precast reinforced concrete units constructed in accordance with the Connecticut Department of Transportation Standard Sheets. Structures built with masonry concrete block units shall be allowed on a case by case basis as approved by the Director of Public Works.

100B.2 Materials and Methods

Except as noted herein, construction methods shall conform to the requirements of the State Standard Specifications for "Catch Basins, Manholes and Drop Inlets", and materials shall conform to the requirements of the State Standard Specifications Section M.08.02. Materials used for mortar shall conform to the State Standard Specifications Section M.11.04. All pipe penetrations shall be bricked and mortared inside and outside of all catch basin and manhole structures. All catch basin frames and grates shall be 507K-Type A, constructed of painted steel. Manhole frames and covers shall be heavy traffic duty, constructed of cast iron. Frames shall have a twenty-four (24) inch internal opening. Covers shall be marked "STORM". Where required by the Director of Public Works, covers shall be bolted.

100C - FLARED END SECTIONS/HEADWALLS

100C.1 General

Flared end sections and headwalls shall be constructed in accordance with the Connecticut Department of Transportation Standard Sheets.

100C.2 Materials and Methods

All materials and construction methods shall conform to the State Standard Specifications for "Culvert Ends" and "Retaining Walls, Endwalls and Steps". When high density corrugated polyethylene smooth interior pipe is used, and culvert ends are
specified, they shall be concrete culvert ends. High density polyethylene culvert ends shall not be permitted.

100D - RIPRAP

100D.1 General

Stone for this work shall be of the size, and placed to the limits and depth, specified on the Drawings.

100D.2 Materials and Methods

Construction methods shall conform to the requirements of the State Standard Specifications for "Riprap" and materials shall conform to the requirements of the State Standard Specification Section M.12.02. Where geotextile fabric is specified underneath riprap, it shall conform to the requirements of the State Standard Specification Section M.08.01 - 26.

100E - STABILIZATION OF OPEN CHANNELS

100E.1 General

Open channels shall be stabilized with riprap, sod, or seed protected with turf reinforcement mats. When conditions are such that lining of the open channel with rip rap is necessary to prevent erosion, the size of the rip rap shall be calculated pursuant to the Connecticut Department of Transportation Drainage Manual. The method of stabilization shall be as specified on the Drawings.

100E.2 Materials and Methods

For stabilization with rip rap, all work shall conform to the requirements specified in Section 100D above. For stabilization with sod or seed protected with turf reinforcement mats, all materials and methods shall conform to the State Standard Specifications for "Sodding" and "Turf Establishment" respectively.

100F - SPECIAL STRUCTURES

100F.1 General

Special structures, including but not limited to bridges, box culverts, retaining walls and stormwater treatment units shall be designed and constructed in accordance with the most current applicable standards of the Connecticut Department of Transportation, or as otherwise directed by the Director of Public Works. Plans and specifications prepared and sealed by a professional engineer who is competent in the field of structural engineering shall be submitted for all special structures. In the case of bridges, such plans and specifications shall be accompanied by a written statement from the design engineer certifying that the bridge has been designed to withstand AASHTO HS20-44 Live Loads, and that any waterway opening conforms to the Standards established in Section 90A.9 of these Regulations. Upon completion of construction of any special
structure, the professional engineer shall be required to provide a written statement to the Director of Public Works that the special structure was constructed in substantial conformance with the approved design drawings and specifications.

100F.2 Private Drain Access Structure

Where private drain access structures are required prior to a direct connection to a storm drain, they shall be fabricated from high density corrugated polyethylene pipe and fittings conforming to AASHTO Standard Specification Sections M 294 Type S and M 252 Type S. The fabrication of the access structures shall conform to the Standard Detail Drawings, and shall include as a minimum a standard 12”x12”x12” tee with reducers and couplings as required at each end of the horizontal run, and a twelve (12) inch inside diameter vertical riser pipe extending to grade. A snap on end cap shall be securely fastened at the end of the vertical riser pipe, and shall be set flush with the proposed finish grade elevation.
SECTION 110 - SOIL EROSION AND SEDIMENT CONTROL CRITERIA

110A - SOIL EROSION AND SEDIMENT CONTROL PLANS & PERMITS

110A.1 General

No construction shall be undertaken unless an erosion and sediment control plan, which explains and illustrates the measures which will be taken to control erosion and sediment transport, is submitted to and approved by the Town of Canton. Plans shall be prepared in accordance with the Canton Zoning Regulations, Section 7.6, Soil Erosion and Sediment Control.

110A.2 Stormwater General Permits

When a project requires a Connecticut Department of Environmental Protection "General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities", copies of the registration form and Stormwater Pollution Control Plan submitted to the State shall also be submitted to the Town of Canton prior to the start of any activity.

110B - CONSTRUCTION & MAINTENANCE PROCEDURES

110B.1 General

The practices and measures included in the approved erosion and sediment control plan shall be implemented during the entire construction period and maintained until adequate permanent vegetation is established. Erosion control measures shall be supplemented as field conditions require, or as directed by the Town of Canton.

110B.2 Contact Person

Prior to the start of any roadway construction, the name, address and day/night telephone numbers of the person designated by the owner to be responsible for the implementation of erosion and sediment control practices and measures shall be provided to the Director of Public Works.

110B.3 Final Site Clean-up

Following the permanent stabilization of all disturbed areas, all remaining temporary erosion control measures that are not bio-degradable, as well as all accumulated sediments, shall be removed from the site and disposed of in a lawful manner. In addition all accumulated sediments remaining in permanent facilities such as plunge pools, drainage channels, detention areas and catch basins, shall be removed and disposed of in a lawful manner. The removal of temporary erosion control measures and accumulated sediments shall be conducted in a manner so as not to disturb existing permanent vegetation. All exposed areas remaining after the removal of erosion control measures shall be immediately seeded and mulched.

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SECTION 120 - FINAL GRADING, STABILIZATION AND LANDSCAPING CRITERIA

120A - FINAL GRADING AND STABILIZATION

120A.1 General

Except as otherwise specified herein, all areas disturbed by the construction of roads, drainage facilities and associated improvements that are not paved or occupied by structures shall be properly graded to smooth uniform slopes that maintain the general shape of existing landforms, covered with topsoil to a minimum depth after settlement of six (6) inches, and limed, fertilized, seeded and mulched with straw hay.

120A.2 Materials and Methods


120B - LANDSCAPING

120B.1 General

All plantings shall be such as to minimize any requirement for mowing, weeding, or other forms of maintenance by the Town of Canton.

120B.2 Street Tree Locations

Street trees, when required by the Commission, shall be planted on private property five (5) feet outside of the limits of the road right-of-way, sight line easements, storm drainage easements or other easements. They shall be planted on both sides of the street at approximate intervals of fifty (50) feet, subject to minor adjustments based on locations of driveways and underground utilities. Specific criteria regarding the proximity of street trees to overhead and underground utility lines shall be as follows:

(A) Tall trees, including all species that may reach heights of fifty (50) feet or more at maturity shall be located a minimum horizontal distance of fifty (50) feet from any overhead utility line.

(B) Medium trees, including all species that may reach heights ranging from thirty (30) to fifty (50) feet at maturity shall be located a minimum horizontal distance of thirty (30) feet from any overhead utility line.

(C) Small trees, including all species that reach maximum heights of thirty (30) feet or less at maturity, may be located under or near overhead utility lines.

(D) No street tree shall be located closer than twenty (20) feet from any underground
utility line.

(E) The Connecticut Guidelines for Erosion and Sediment Control should be consulted to determine if a specific site will support the growth of the proposed mixture of street trees.

(F) A ten (10) foot wide temporary easement in favor of both the applicant and the Town of Canton shall be provided parallel with and directly adjacent to the outside of the road right-of-way line for the planting of street trees. This temporary easement shall automatically expire on the date when the Town of Canton releases the maintenance bond for public improvements.

120B.3 Street Tree Species

When selecting street trees, a mixture of predominately native species shall be provided so as to protect the community forest from disease, insect and environmental blight. In this regard, the goal of the Town of Canton is to have a mixture of street trees such that at least eighty percent (80%) of the total number of trees includes native species, which are designated by an asterix (*) in the list below. Furthermore, no one species should comprise more than ten percent (10%) of the total. In general, projects requiring plantings of fifty (50) or more street trees shall have a variety of species such that no one species comprises more than ten percent (10%) of the total project plantings. For projects requiring less than fifty (50) street trees, no one species shall comprise more than twenty percent (20%) of the total project plantings. No tree, or its cultivars, cited in the list entitled "The Non-native Invasive & Potentially Invasive Vascular Plants in Connecticut" as amended, shall be selected for planting. Unless otherwise approved by the Commission, street trees shall have a minimum caliper of two (2) inch DBH and shall be one of the following species:

(A) Tall Trees

*Paper Birch (Betula papyrifera) White Fir (Abies concolor)
*Pin Oak (Quercus palustris) Japanese Zelkova (Zelkova serrata)
*Red Maple (Acer rubrum)
*Red Oak (Querus rubra borealis)
*White Oak (Querus alba)
*Black Gum or Tupelo (Nyssa sylvatica)
*American Sweetgum (Liquidambar styraciflua)
*Green Ash (Fraxinus pennsylvanica)

(B) Medium Trees

European Hornbeam (Carpinus betulus) Katsura Tree (Cercidiphyllum japonicum)
*American Holly (Ilex opaca)

(C) Small Trees
Indian Magic Crabapple (Malus 'Indian Magic') Japanese Crabapple (Malus floribunda)
*Flowering Dogwood (Cornus florida) Kousa Dogwood (Cornus kousa)
Fringe Trees (Chlonanthes virginicus)
*Crimson Cloud Hawthorn (Crataegus laevigata 'Crimson Cloud')
*Wintering Hawthorn (Crataegus viridis 'Winterking')
*American Hornbeam (Carpinus caroliniana) Saucer Magnolia (Magnolia X soulangiana)
Japanese Maple (Acer palmatum)
*Eastern Redbud (Cercis canadensis)
*Serviceberry (Amelanchier X grandiflora) Sourwood (Oxydendrum arboreum)
*Nannyberry (Viburnium lentago)

Prior to planting street trees, the proposed location of trees to be planted shall be approved by the Canton Tree Warden. Construction methods shall conform to the requirements of the State Standard Specifications for "Furnishing, Planting, and Mulching Trees, Shrubs, Vines and Ground Cover Plants". Materials shall conform to the State Standard Specification Section M.13.07 for Plant Materials. Where existing healthy native trees meeting the requirements set forth herein can be protected and saved, they may be used in lieu of new plantings provided that they are approved by the Tree Warden, and are properly pruned by a qualified arborist to remove all branches which are dead or which would obstruct required sight lines.

120B.4 Ornamental Landscape Features

Ornamental landscape features including, but not limited to boulders, grouping of rocks, statues, signs, exterior lighting (except required street lights), walls, basketball hoops and other obstructions, shall be prohibited within the road right-of-way, medians, center islands, sight line easements, storm drainage easements or other easements.

120B.5 Medians and Center Islands

Medians and center islands, when permitted by the Commission, shall be planted with low-growing plants and shrubs that will not exceed a fully mature height in excess of two and one half (2.5) feet as measured from the adjacent roadway gutterline. Surface areas that remain unplanted shall be covered with wood or stone chips underlayed by a landscape fabric barrier designed to retard the growth of weeds, so as to effectively minimize any requirements for mowing, weeding, or other forms of maintenance. Construction methods for new plantings shall conform to the requirements of the State Standard Specifications for "Furnishing, Planting and Mulching Trees, Shrubs, Vines and Ground Cover Plants". Materials shall conform to the State Standard Specification Section M.13.07 for Plant Materials. The Town of Canton shall neither accept any responsibility, nor costs, associated with the maintenance of median and center island areas. Where medians and center islands are proposed, and approved by the Commission, a legal mechanism shall be established for perpetual maintenance. Such mechanism shall require the approval of the Commission, the Director of Public Works, the Canton Tree Warden and the Town Attorney.
120C - MAINTENANCE OF STABILIZED AND LANDSCAPED AREAS

All areas stabilized by vegetation, and all landscaped areas, shall be properly maintained by the person or firm constructing the road, drainage facilities and associated improvements until permanent growth of such plantings has been firmly and effectively established for a period of two (2) years after planting, with all subsequent maintenance becoming the responsibility of the property owner having frontage along the road. Maintenance shall include watering, mowing, pruning, fertilizing, cultivating and all else required to maintain the planted areas in a vigorous and healthy condition. All grassed areas showing root growth failure, deterioration, bare or thin spots and eroded areas shall be replanted and all dead, dying or diseased shrubs, plants and trees shall be replaced so as to meet the requirements specified herein.
SECTI0N 130 - CONSTRUCTION OF DRIVEWAYS

130A - PERMIT REQUIREMENTS

130A.1 Purpose

The purpose for establishing regulations governing the construction of driveways serving private property is to maintain the physical integrity of existing Town Roads; to protect the public from adverse situations that may otherwise endanger their health, safety and welfare; and, to establish basic standards for providing access by emergency service vehicles.

130A.2 General

A driveway or access road serving private property and intersecting with a town or private road shall be constructed in such a manner that it does not interfere with the existing drainage, movement of traffic, or removal of snow from the abutting road. No person, firm or corporation shall conduct work or make improvements of any kind within a town road or associated right-of-way, including but not limited to clearing, excavating or grading, until a permit has been obtained from the Director of Public Works or his authorized agent at least seventy-two (72) hours prior to the commencement of any work. A driveway or access road serving private property and intersecting with a State road or roadway within an adjacent town shall meet the standards of the applicable governing authority. Driveways serving more than one lot shall conform to the standards established in this section, except as may otherwise be required by the Canton Zoning Regulations, Sections 7.2 and 7.8.

130A.3 Application

Application for a Driveway Permit shall be made on forms provided by the Department of Public Works. The Director of Public Works may require the submission of detailed plans, specifications and other engineering data with the application when he shall deem it to be necessary. No permits shall be issued unless all proposed work conforms to the requirements outlined in this section and the attached Standard Detail Drawings.

130A.4 Repair of Pre-existing Driveways

The Permit Requirements and Driveway Criteria included within this section are not intended to preclude the routine maintenance, repair, or reconstruction of driveways constructed prior to the adoption of these regulations. As such, the Director of Public Works may, at his or her discretion, waive any Permit Requirement and Driveway Criteria included within Sections 130A and 130B respectively, except that the application required in Section 130A.3 shall be submitted.

130A.5 Inspection

All construction work covered by an Driveway Permit shall be subject to the
inspection and approval of the Director of Public Works or his authorized representative. It is the responsibility of the owner to notify the Director of Public Works at least seventy-two (72) hours prior to any paving of a driveway or driveway apron so that an inspection can be made of the base materials and driveway or driveway apron grade. If in the opinion of the Director of Public Works or his authorized representative there is some question if the driveway or driveway apron exceeds the maximum grades permitted in this section, then it is the responsibility of the owner to retain the services of a professional land surveyor to prepare a profile based on an actual field survey. Any driveway or driveway apron that is not found to be in conformance with the requirements in this section shall be reconstructed as required to conform.

130B - DRIVEWAY CRITERIA

130B.1 Driveway Aprons

Paved bituminous concrete driveway aprons shall be provided at each intersection of a driveway with an abutting road. The driveway apron is that portion of the driveway extending from the town road pavement to the right-of-way line of the town road or to a distance of twenty (20) feet in from the edge of the town road pavement, whichever is greater. In the case of uncertainty as to the true location of a town road right-of-way line, for the purposes of this section a reference right-of-way line shall be established by measuring twenty-five (25) feet from the centerline of the existing road pavement. However, this clause shall not be construed as establishing any rights in ownership of land, its purpose being merely to establish a reference line for driveway improvement purposes. Where a town road adjacent to a proposed driveway does not have any type of bituminous surface course, the Director of Public Works may waive the requirement for a bituminous concrete driveway apron.

130B.2 Driveway Lip

All paved driveway aprons shall have a minimum lip of one and one and a half (1½) inches at the town road gutter line. If a driveway apron is constructed prior to the placement of the top or surface course of a subdivision road to be dedicated to the Town of Canton at some future date, then the driveway lip shall be increased in height so that after completion of the road construction, a minimum lip of one and one and a half (1½) inches is maintained.

130B.3 Driveway Width and Turnaround

Residential driveways shall have a minimum pavement width of ten (10) feet, and a maximum pavement width of twenty (20) feet. All other driveways shall meet the requirements of Canton Zoning Regulations, Sections 7.2 and 7.8.

Driveways that exceed three-hundred (300) feet in length shall have a width of twelve (12) feet with a minimum load-bearing shoulder width of two (2) feet. Pull off areas adjacent to the driveway shall be provided at average intervals of three-hundred (300) feet or as deemed necessary by the Director of Public Works due to slope, sightline or
other site characteristics. Pull offs shall have a minimum load-bearing length of forty (40) feet and minimum width of ten (10) feet. An adequately sized, located and surfaced turnaround area that will accommodate a fire truck shall be provided. Unless the following distance requirements are waived by the Director of Public Works due to specific site characteristics, the turnaround area shall be no closer than seventy-five (75) feet from a house site and no further than two-hundred (200) feet from a house site and the turnaround shall be at least thirty (30) feet in length, twelve (12) feet in width with two (2) foot wide load-bearing shoulders.

130B.4 Side Line Setback

The side or edge of a driveway shall not be located any closer than five (5) feet from an adjacent property line, unless it is a shared driveway. In addition, the point at which the driveway curb radius intersects the edge of pavement or curb line of a town road shall not encroach beyond the point where the extension of the property line meets the town road.

130B.6 Vertical Alignment

To facilitate access for emergency service vehicles, driveway grades shall have gradual transitions so as to prevent “bottoming out” on a crest and “bumper drag” in sags. Such transitions shall be sufficient to permit transit by a vehicle with a twenty (20) foot wheel base and four (4) foot front and six (6) foot rear bumper overhang.

130B.7 Sight Distance

The visibility at driveway intersections with town roads shall be as determined by Canton Zoning Regulations, Sections 7.2 and 7.8.

130B.9 Ascending Driveways

Driveways which ascend into private property shall be paved from the driveway apron to the high point in the driveway. Unless otherwise approved by the Director of Public Works, driveways shall be cross sloped so as to establish sheet flow drainage and avoid the discharge of concentrated runoff into town roads.

130B.10 Descending Driveways

For driveways which descend into private property, driveway aprons shall rise in elevation from the town road gutter line to the town road right-of-way line a minimum of six (6) inches before descending into the property.

130B.11 Drainage

Driveways shall be constructed in such a manner that they do not permit the runoff of water from the abutting town road to enter into the property of the owner, or adjacent properties, thereby creating a nuisance to the Town and the property
owner, unless an easement in a form satisfactory to the Town of Canton is granted by such owner to the Town for such runoff. Under no circumstances shall a driveway apron be constructed so as to obstruct or alter the free flow of water in the road gutter line or other drainage ways of the Town of Canton. In addition, if in the opinion of the Director of Public Works, discharges from concentrated surface runoff or groundwater seeps will adversely impact upon a town road or associated right-of-way, then he shall require the installation of a storm drainage and/or subdrainage system to intercept and convey such discharges to an acceptable outlet location.

130B.12 Driveway Culverts

Where culverts under driveways are required by the Director of Public Works within the town road right-of-way, such culverts shall be constructed of reinforced concrete pipe, high density corrugated polyethylene smooth interior pipe or other materials as may be approved by the Director of Public Works, and shall be of such size, not less than fifteen (15) inches in diameter, as to adequately convey under the driveway all surface runoff which may reasonably be expected to reach the culvert inlet during a storm with a ten (10) year recurrence interval. All culverts shall be of such design to withstand AASHTO HS20-44 loadings and shall have a minimum cover over the top of the culvert of one (1) foot, unless otherwise approved by the Director of Public Works or his duly authorized representative. Culverts shall be placed on a minimum eight (8) inch depth bed of half (½) inch crushed stone, and, shall be backfilled with half (½) inch crushed stone to a minimum dimension of six (6) inches around the outside perimeter of the pipe, with a layer of filter fabric placed on top of the crushed stone. Inlet and outlet ends of culverts shall have flared end sections.

130B.13 Removal of Guide Rails

Any driveway installation which requires the removal of a portion of a guide rail shall be secured with concrete end anchorages on each side of the driveway. All such work shall be the responsibility, and at the expense of, the applicant.

130B.14 Crossing of Existing Sidewalks

Any driveway installation that crosses over an existing sidewalk shall require the complete removal and reconstruction of that portion of the sidewalk extending to the closest construction joint located beyond the edge of driveway. The reconstructed sidewalk section shall match the grade and width of the original sidewalk unless otherwise approved by the Director of Public Works. Construction of the sidewalk shall conform to the Construction Standards outlined in Section 80M of these Regulations and the Standard Detail Drawings, and shall be the responsibility and at the expense of the applicant.

130B.15 Damage to Existing Sidewalks

Any damage to an existing sidewalk including, but not limited to, cracking and chipping, shall be repaired by, and at the expense of, the applicant. Such repair
shall include the complete removal of the damaged section of sidewalk extending to the closest construction joint located on each side of the damaged area. The reconstructed sidewalk section shall match the grade and width of the original sidewalk and shall conform to the Construction Standards outlined in Section 80M of these Regulations.

130B.16 Disturbance of Monuments

Driveways shall be located and constructed such that no disturbance of road right-of-way monumentation occurs. In the event of accidental disturbance of a monument, the owner of the property served by the driveway shall be responsible for retaining and paying for the services of a professional land surveyor to reset the monument and to provide a Letter of Certification to the Director of Public Works. Where driveways are constructed on new roads which have not yet been monumented, they shall be located so as not to interfere with the future placement of monuments.

130B.17 Final Grading and Stabilization

Where grading is required within a town right-of-way, slopes shall not be steeper than one (1) unit vertical to two (2) units horizontal, and shall be covered with a minimum of six (6) inches of topsoil, and limed, fertilized, seeded and mulched.

130C- DRIVEWAY CONSTRUCTION STANDARDS

130C.1 Driveway Materials

Driveway apron paving shall consist of bituminous concrete pavement or concrete pavement. Required driveway paving beyond the driveway apron shall consist of a non-erodible all-weather surfacing including, but not necessarily limited to, bituminous concrete pavement; concrete pavement; brick, concrete, or stone pavers; penetration macadam or chip seal; and, porous paving systems using concrete or plastic grid structures. Driveway materials other than those listed in the Road Design Standards Table shall be approved by the Director of Public Works.
SECTION 140 - EXCAVATION WITHIN A TOWN ROAD RIGHT-OF-WAY AND PUBLIC LAND

140A - PERMIT REQUIREMENTS

140A.1 Purpose

The purpose for establishing regulations governing excavation of Town property, including excavation within a Town road right-of-way and public land is to maintain the physical integrity of existing Town Roads and to protect the public from adverse situations that may otherwise endanger their health, safety and welfare.

140A.2 General

No person, firm or corporation shall conduct work or make improvements of any kind within a Town road right-of-way and public land, including but not limited to clearing, excavating, grading, paving or installation of any utility lines until a Road Opening Permit has been obtained from the Director of Public Works or his authorized agent at least seventy-two (72) hours prior to the commencement of any work.

140A.6 Inspection

All construction work covered by an Road Opening Permit shall be subject to the inspection and approval of the Director of Public Works or his authorized representative. It is the responsibility of the owner to notify the Director of Public Works at least seventy-two (72) hours prior to conducting any work. Any work that is not found to be in conformance with these Requirements shall be reconstructed as required to conform. Any periodic inspections made by the Director of Public Works or his authorized representative shall be strictly limited to making general observations regarding the progress of the work and general conformance of the work with the provisions of these regulations. In making these inspections, neither the Director of Public Works nor his authorized representative shall have authority over, or responsibility for, the means, methods, techniques, sequences or procedures of construction selected by contractor(s); for supervision, direction and control over contractor(s) work; for safety precautions and programs incident to the work of contractor(s); for enforcing any requirements with respect to safety precautions and programs incident to the work of the contractor(s) or any of contractor(s)’ subcontractors; or for any failure of contractor(s) or any of contractors(s) subcontractors to comply with laws, rules, regulations, ordinances, codes or orders applicable to contractor(s) furnishing and performing their work, all of which are under the direct control, and are the sole responsibility, of the contractor(s).

140A.7 Exemptions

All municipal departments, authorities, commissions, municipal utilities or agencies shall be exempt from the insurance and bonding requirements of the Road Opening Permit when using their own work force and equipment. No application fee shall be required of a private contractor or contractors doing work for the Town of Canton or any department, authority, commission, municipal utility or agency when done under the
direction of the Director of Public Works.
SECTION 150 - WATER SUPPLY FOR FIRE PROTECTION

150A - WATER SUPPLY

150A.1 Water Supply

Any new subdivision, including any subsequent or prior resubdivisions of the same parcel of land which contains more than four (4) building lots or dwelling units, that is not served by a year round public water supply system, shall provide an on-site water supply tank (water supply) of a sufficient volume as to be adequate for firefighting purposes, with a minimum volume of 30,000 gallons. Such water supply shall be completed in conformance with the standards established in these regulations, including a satisfactory Conditional Acceptance Test, prior to the issuance of any building permits or the storage of any combustible materials on the property.

150A.2 Authority Having Jurisdiction and Required Submissions

For the purposes of this section, the Authority Having Jurisdiction (AHJ) is the Canton Fire Department. Plans and details for proposed water supplies, which must be prepared by a licensed professional engineer, shall be subject to the approval of the AHJ. Plans submitted for approval shall be drawn to scale and shall include a site plan, tank top plan and a section showing the tank dimensions and piping configuration. In addition, the submission shall include calculations and details, prepared by a licensed professional engineer, for the anti-flotation design so that the tank will not float when empty.

150A.3 Locations

The locations of water supplies shall be subject to the approval of the AHJ and the Director of Public Works. Water supplies shall be provided at intervals no greater than a two thousand (2,000) foot truck travel distance from the nearest lot line of the furthest lot. The spacing of water supplies may be increased or eliminated at the discretion of the AHJ if NFPA compliant sprinkler systems are provided for each individual house located within the development. The arrangement of the tank shall be as shown on the Standard Detail Drawings.

150A.4 Property

In order to ensure proper operation and maintenance of the water supply, the Town shall be granted access to all water supplies required by this section not located on public property or within public rights of way. Such access shall be in the form of either a deeded increase in the width of the right-of-way, a deeded easement granting to the Town the right to access the property for operation and maintenance of the water supply, or a combination thereof. Such right-of-way expansion or other easement shall extend to a minimum of fifteen (15) feet outside the limit of the tank walls in every direction and shall include a pull-off area sufficient for fire truck parking as required.
by Section 150A.15.

If the water supply is located outside of the Town right-of-way, an easement shall be provided to the Town granting rights of access and training, but maintenance of said access shall be the sole responsibility of the owners of the property. The access shall be maintained during all weather conditions. Any roadway providing access to a water supply must conform to the design and construction standards established in these regulations for a driveway.

No landscaping, trees, or shrubs will be permitted within a minimum of fifteen (15) feet of the limit of the tank walls; the ground within such area that is not occupied by the fire truck pull-off area shall be maintained as lawn cover by the applicant.

150A.5 Concrete Tank Requirements

The tank shall be a watertight precast concrete tank with a waterproofed exterior; a minimum volume of 30,000 gallons; and shall be rated to withstand AASHTO HS20-44 highway loadings and all dead and live loads imposed during the installation of the tank. Cast-in-place concrete tanks will not be acceptable for tank volumes under 40,000 gallons.

150A.6 Fiberglass Tank Requirements

Single wall fiberglass tanks may be used as an alternate to concrete tanks if permitted by the AHJ. In addition to the requirements in Section 150A.2 above, the application for approval to use a fiberglass tank shall include the tank manufacturer’s:

1. Product data;
2. Installation instructions that will ensure the tank can withstand AASHTO H-20 highway loads;
3. Operating guidelines;
4. Maintenance requirements;
5. Warranty information.

Details shall also be provided for the thirty (30) inch diameter manway extension required by Section 150A.13, special backfill requirements and a concrete top slab.

150A.7 Excavation

During tank installation, all excavation shall be performed in compliance with the manufacturer’s guidelines and OSHA regulations. The applicant shall be solely responsible for construction methods, means, techniques, and for construction site safety programs. Construction operations shall be conducted in conformance with all applicable local, State and Federal safety laws, rules, regulations and codes. The excavation area for the tank shall not remain open longer than one (1) week without
the approval of the AHJ in consultation with the Director of Public Works. Open excavations shall be guarded with barriers, including fencing, sufficient to protect the public safety.

A leveling pad consisting of a twelve (12) inch depth of ¾-inch crushed stone, or such other size stone as specified by the tank manufacturer, shall be placed on the native undisturbed subgrade material at the bottom of the excavation. If the tank manufacturer’s specifications call for other than ¾-inch crushed stone, a copy of such specifications shall be provided to the AHJ.

Temporary protection to guard against tank flotation during installation shall be provided.

150A.8 Suction Piping

All suction piping shall be six (6) inch Schedule 40 steel pipe. The pipe that extends through the top of the tank shall have a vertical alignment, with a ninety (90) degree long sweep provided to establish the final horizontal direction. The final suction connection shall be six (6) inch male National Standard Hose Thread and shall have a plastic cap. The plastic cap shall have a ⅛-inch vent hole to permit drainage and venting of the suction line. The suction pipe connection must be thirty-six (36) inches above the level of the shoulder where the vehicle wheels will be located when the tank is in use. All horizontal suction piping must slope a minimum 1/16-inch per foot uphill toward the pumper connection. The bottom of the suction pipe to the pumper connection must not exceed a fourteen (14) foot vertical distance. The bottom of the suction pipe shall be supplied with an anti-vortex plate, with a minimum size of 16” x 16”, set a minimum of six (6) inches above the tank floor. The suction piping system shall be capable of delivering 1,000 gpm for seventy-five (75%) of the tank capacity.

150A.9 Fill Piping

Fill piping shall be four (4) inch Schedule 40 steel pipe and shall be sloped towards the tank. The fill connection shall be a four (4) inch Storz connection with cap. The fill connection shall be thirty-six (36) inches above final finished grade.

150A.10 Vent Piping

Vent piping shall be eight (8) inch Schedule 40 steel pipe. Vent pipe shall terminate with a one hundred and eighty (180) degree return bend and have a final exhaust point thirty-six (36) inches above final finished grade. The return bend shall be fitted with #4 mesh stainless steel bird screen.

150A.11 Pipe Support

All piping shall be positively supported at the tank top or below the frost line so that
no vertical displacement of the pipe can take place. Galvanized steel pipe sleeves shall be provided for pipe penetrations through the concrete ballast slab. The annulus between the pipe and the sleeve shall be filled with oakum and sealed with one (1) inch of mortar at the top and bottom of the opening.

150A.12 Piping Color

All piping above grade, including bollards, shall be primed with a rust inhibitor and painted with two coats of red paint.

150A.13 Access Hatch

A thirty (30) inch square, clear inside dimension, access shall be provided to the tank. The access cover shall be an insulated aluminum hatch with a lifting handle and safety latch to hold the cover open at the ninety (90) degree full open position. The hatch shall be designed for a minimum live load of one hundred and fifty (150) pounds per square foot. The hatch shall include a hasp for provision of a padlock. All hatch hardware, except the cover, shall be stainless steel. The hatch cover shall be of a skid resistant design. For concrete tanks the walls of the access shall be formed concrete or masonry block set in mortar. If masonry block is used, the entire interior and exterior surfaces shall be parged with mortar. For fiberglass tanks, a thirty (30) inch diameter manway extension to grade shall be provided that is firmly attached to the top of the tank.

150A.14 Backfill

Unless otherwise approved by the AHJ, backfill over the top of the tank shall be two (2) feet of concrete ballast over a two (2) inch thick polystyrene insulating board extending down below the top of tank at least two (2) feet along the sides of the entire tank perimeter. The insulation board shall be secured during placement of concrete and backfill material with mechanical fasteners or adhesive to prevent displacement. The ballast slab shall be broom finished. Earth backfill must extend a minimum of ten (10) feet at ¼-inch per foot slope beyond the edges of the tank and then have a maximum 2H:1V slope extending out to the existing ground elevation. All disturbed areas shall be restored in accordance with the requirements in Section 120A and Section 150A.4 of these regulations. Unless otherwise specified by the tank manufacturer, backfill placed within four (4) feet of the tank shall conform to the gradation requirements for Rolled Granular Base specified in Section 80E of these regulations. The maximum backfill lift shall be twelve (12) inches before compaction, which shall be a minimum of ninety-five percent (95%) of the dry density for the material when tested in accordance with AASHTO T180, Method D.

150A.15 Fire Truck Pull Off

A paved fire truck pull off shall be provided and meet the requirements of the Improved Access road in the Standard Detail Drawings.
150A.16 Bollards

Concrete filled steel bollards shall be installed with a minimum center-to-center spacing of five (5) feet in order to protect the pipe connections from vehicle contact. The bollards shall be placed along the entire length of the fire truck pull off and spaced so that the suction and fill pipes are centered at openings between the bollards. Bollard pipes shall be eight (8) inch Schedule 40 steel pipe and backfilled with concrete. Bollards shall be installed such that their base is a minimum of forty-two (42) inches below grade and extend to a height of forty-two (42) inches above grade.

150A.17 Signage

A "No Parking" sign and the water supply source sign shall be installed at locations to be determined by the AHJ. The applicant shall provide the "No Parking" sign on retro- reflective sheet aluminum and shall provide the signposts. The water supply source sign shall be provided by the AHJ at no cost to the applicant.

150A.18 Inspections and Testing

Inspections shall be conducted by a designated representative of the AHJ at the following points, or as otherwise requested:

- Preconstruction meeting
- Rough excavation
- After placement of the crushed stone leveling pad
- During setting and backfilling of the tank
- Installation of piping
- Placement of concrete ballast slab
- Leakage testing
- Suction flow test

The applicant shall provide the AHJ with at least forty-eight (48) hour notice prior to the need for an inspection. All water required for leakage and flow testing shall be provided by the applicant. The applicant shall refill the tank upon completion of all testing and prior to final acceptance.

Leakage test shall be conducted after construction of the tank is completed. Prior to witnessing the leakage test, the tank shall be filled with potable water to within one (1) inch of the inside top of the tank. To account for absorption, the installer will be permitted to presoak the tank for one (1) day prior to starting the leakage test. The leakage test duration shall occur over a seven consecutive day time period during which time tank level measurements will be made by the designated representative of the AHJ. The test will be considered acceptable if there is no measurable drop in water level for the duration of the test. Failure of the leakage test will require repairs to be made to the tank until a successful leakage test.
is achieved. All repairs shall be made in accordance with prior written instructions provided by the tank manufacturer.

Following completion of a successful leakage test, a suction flow test will be conducted by the AHJ. The suction flow test will be considered acceptable if the suction can be primed in one (1) minute or less; a draft can be maintained for two (2) cycles with durations of five minutes each; and, water can be flowed at 1,000 gpm or more.

Following completion of a successful suction flow test, and refilling of the tank with potable water, the AHJ will issue a Conditional Acceptance. Final Acceptance will not occur until the Record Drawings required by Section 150A.19 are approved by the AHJ in consultation with the Director of Public Works, and all public improvements are accepted by the Town of Canton in accordance with Section 60 of these regulations.

150A.19 Record Drawings and Easements

Record Drawings of the installation of the water supply for fire protection shall be provided to the AHJ along with copies of the applicable easement documents filed in the Canton Land Records. The Record Drawings shall provide accurate As-built information and include:

1. A site plan drawn to scale showing, at a minimum:
   a. The tank location;
   b. Fire truck parking;
   c. Bollards and piping;
   d. Delineations of property owned by the Town;
   e. Delineations of easements in favor of the Town.

2. A to scale tank section showing all piping and tank elevations;

3. Any other necessary drawings as determined by the AHJ in consultation with the Director of Public Works.
NOTE: SEE DESIGN STANDARDS TABLE FOR DIMENSIONS

(SEE FIGURE 6)

DATE: JULY 2018

* MAXIMUM SLOPE PERMITTED IN ROCK CUTS ONLY.
NOTE:
UNDERGROUND POWER, TELEPHONE, CABLE T.V., AND ELECTRICAL TRANSFORMERS SHALL BE LOCATED OUTSIDE OF THE ROAD RIGHT-OF-WAY WITHIN A UTILITY COMPANY EASEMENT.
STANDARD DETAIL DRAWING

CUL-DE-SAC
(CIRCULAR)

SCALE: 1"=40'

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JULY 2018

FIGURE 4
NOTE: WIDTH AND DEPTH OF GRASS CHANNEL SHALL BE INCREASED AS REQUIRED TO CONFORM TO THE DESIGN REQUIREMENTS.
NOTES:

1. CONTRACTOR SHALL PROTECT EXCAVATIONS BY SHORING, BRACING, SHEET PILING, UNDERPINNING OR OTHER METHODS TO PREVENT CAVE-IN OR LOOSE SOIL FROM FALLING INTO THE EXCAVATION AND DAMAGING THE WORK OR ADJACENT STRUCTURES AND UTILITIES.

2. GRADED STONE FILTERS WITHOUT GEOTEXTILE FABRIC MAY BE USED WITH APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.
SUBGRADE, ABOVE THIS LINE: UNDER PAVEMENT: SEE TYPICAL ROAD SECTION
OFF PAVEMENT: PROVIDE 6" OF TOPSOIL.

GRANULAR FILL MEETING GRADING "C" OF ARTICLE M.02.06 OF THE CTDOT STANDARD SPECIFICATIONS
CLASS IV RCP
ORIGINAL GROUND OR PREPARED SURFACE

COMMON FILL UNDER VEGETATED AREAS, OTHERWISE GRANULAR FILL
FINISHED GRADE

2'-0" MIN.
1'-0" MIN.
0.1 \( B_C \) CAREFULLY SHAPE TO FIT PIPE
4" MIN.

IN UNSTABLE SOIL CONDITIONS OR ROCK, PROVIDE 12" MIN. GRANULAR FILL MATERIAL (IF CRUSHED STONE IS USED, IT SHALL BE 3/8" SIZE AND SHALL BE WRAPPED IN GEOTEXTILE FABRIC).

\[ B_C + 2'-0" \]

NOTES:

1. CONTRACTOR SHALL PROTECT EXCAVATIONS BY SHORING, BRACING, SHEET PILING, UNDERPINNING OR OTHER METHODS TO PREVENT CAVE-IN OR LOOSE SOIL FROM FALLING INTO THE EXCAVATION AND DAMAGING THE WORK OR ADJACENT STRUCTURES AND UTILITIES.
NOTES:

1. CONTRACTOR SHALL PROTECT EXCAVATIONS BY SHORING, BRACING, SHEET PILING, UNDERPINNING OR OTHER METHODS TO PREVENT CAVE-IN OR LOOSE SOIL FROM FALLING INTO THE EXCAVATION AND DAMAGING THE WORK OR ADJACENT STRUCTURES AND UTILITIES.
SUBGRADE, ABOVE THIS LINE: UNDER PAVEMENT: SEE TYPICAL ROAD SECTION OFF PAVEMENT: PROVIDE 6" OF TOPSOIL

NO. 8 CRUSHED STONE (3/8")

SLOTTED RCP OR PERFORATED HIGH DENSITY CORRUGATED POLYETHYLENE SMOOTH INTERIOR PIPE

ORIGINAL GROUND OR PREPARED SURFACE

GEOTEXTILE FABRIC

1' MIN. OVERLAP

FINISHED GRADE

2'—0" MIN.

0.1 Bc, CAREFULLY SHAPE TO FIT PIPE

4" MIN.

IN UNSTABLE SOIL CONDITIONS OR ROCK, PROVIDE 12" MIN. 3/8" CRUSHED STONE WRAPPED IN GEOTEXTILE FABRIC

Bc + 2'—0"

NOTES:

1. CONTRACTOR SHALL PROTECT EXCAVATIONS BY SHORING, BRACING, SHEET PILING, UNDERPINNING OR OTHER METHODS TO PREVENT CAVE-IN OR LOOSE SOIL FROM FALLING INTO THE EXCAVATION AND DAMAGING THE WORK OR ADJACENT STRUCTURES AND UTILITIES.
NOTES:
1. SEE STENCILING DETAILS, FIGURE 18
2. WHERE DIRECTED BY THE DIRECTOR OF PUBLIC WORKS, PROVIDE 4 - #4 REINFORCING BARS BY 20 FEET LONG IN SIDEWALK WITH ADJACENT TREES.
3. AT CONSTRUCTION JOINTS, PROVIDE PLASTIC INSERTS (SPEED DOWEL) TO ACCEPT #4 REINFORCING BAR. REINFORCING BAR SHALL BE 2 '-0" LONG. PROVIDE TWO BARS PER JOINT.
4. CONCRETE SEALER MANUFACTURED BY CRETE DEFENDER PRODUCT P2
CROSS SECTION

NOTES:
1. SEE STENCILING DETAILS, FIGURE 18.
NOTES:

1. ORIENTATION OF RAMP SHALL BE AS SHOWN ON PLAN.
NOTES:

1. ORIENTATION OF RAMP SHALL BE AS SHOWN ON PLAN.
NOTE:

ALL CROSSWALK PAVEMENT MARKINGS SHALL BE WHITE, TYPE I EPOXY RESIN.
NOTE: UNDER NO CIRCUMSTANCES SHALL MONUMENTS BE BURIED BENEATH THE GROUND SURFACE OR COVERED WITH LANDSCAPE OR OTHER MATERIALS SUCH THAT THEY ARE NOT VISIBLE.
NOTE: IN ROCK OR LEDGE A DRILL HOLE MAY BE SUBSTITUTED FOR AN IRON PIN

GRANITE BOUNDARY MARKER

Finish grade
Set flush
Metal disc set in grout
Cut granite

2'-6"

Pin to be:
#6 rebar with punch mark
1/2" I.D. pipe
3/4" solid rod with punch mark

Metal disc to be bronze
Notation on disc to read: "TOWN OF CANTON BOUNDARY"

IRON PIN

METAL DISC
NOTE:

THE FONT USED IN THIS DETAIL IS NOT 'CLEARVIEW HWY' FONT.

ALL SIGNAGE SHALL MEET CURRENT MUTCD STANDARDS.
12" END CAP

12" RISER

FROM PRIVATE DRAIN

12" REDUCER AS REQUIRED

12" TEE

12" REDUCER AS REQUIRED

TO MUNICIPAL STORM DRAIN

STANDARD DETAIL DRAWING
PRIVATE DRAIN ACCESS STRUCTURE
SCALE: NONE

REGULATIONS FOR PUBLIC IMPROVEMENTS
DATE: JULY 2018
FIGURE 21
BITUMINOUS CONCRETE PULL OFF - SAME
PAVEMENT SECTION AS LOCAL ROAD

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8" CONCRETE FILLED STEEL
BOLLARDS (6 AT 5' O.C.)

PROPERTY LINE OR
EASEMENT TO TOWN, (TYP.)

SUCTION CONNECTION
WATER SUPPLY TANK

R.O.W.

25'

15' MIN.

TANK

15' MIN.

35'

LENGTH

15' MIN.

30' TAPER

15'

40'

30' TAPER

12'

BITUMINOUS CONCRETE PULL OFF - SAME
PAVEMENT SECTION AS LOCAL ROAD
6" SCHEDULE 40 STEEL SUCTION PIPE
4" SCHEDULE 40 STEEL FILL PIPE
8" SCHEDULE 40 STEEL VENT PIPE

30" SQUARE ALUMINUM HATCH WITH LOCKING HASP
8' MAXIMUM TO PULL OFF EDGE
STEEL SLEEVE, (TYP.)
FILL ANNULUS WITH OAKUM AND
PROVIDE 1" MORTAR SEAL AT THE
TOP AND BOTTOM OF OPENING.

4" STORZ CONNECTION WITH
PLASTIC CAP

4" SCHEDULE 40 STEEL FILL
PIPE

ALUMINUM
HATCH

FINISHED
GRADE

8" VENT PIPE
(SCHEDULE 40 STEEL PIPE)

#4 MESH BIRD SCREEN

3'-0"

3'-0"

3'-0"

2'-0" CONCRETE BALLAST

2" POLYSTYRENE BOARD
INSULATION, SECURE TO
TANK TOP AND SIDES
DURING CONCRETE AND
BACKFILL PLACEMENT

6" SCHEDULE 40 STEEL
SUCTION PIPE

14'-MAXIMUM

3'-FILL LEVEL

16"

12" MIN. CRUSHED
STONE

ANTI VORTEX
PLATE

DATE: JULY 2018
FIGURE 24

STANDARD DETAIL DRAWING
WATER SUPPLY FOR FIRE PROTECTION
SECTION 'A-A'
SCALE: NONE

REVISIONS:

REGULATIONS FOR
PUBLIC IMPROVEMENTS
DATE: JULY 2018
FIGURE 24
ADAPTER 6" MALE NST PROVIDE WITH PLASTIC CAP WITH VENT HOLE.

6" SCHEDULE 40 STEEL ELBOW

BROOM FINISH CONCRETE BALLAST SLAB
FINISHED GRADE

2'-0" CONCRETE BALLAST

2" POLYSTYRENE BOARD INSULATION, SECURE TO TANK TOP AND SIDES DURING CONCRETE AND BACKFILL PLACEMENT

12" MIN. CRUSHED STONE

ANTI VORTEX PLATE

PRECAST CONCRETE TANK

8' MAXIMUM TO PULL OFF EDGE

3'-0"

EDGE OF PULL OFF

36"
1. REFER TO FIGURE 28 FOR DETAIL OF DRIVEWAY APRON WITH SIDEWALK.

NOTES:
1. REFER TO FIGURE 28 FOR DETAIL OF DRIVEWAY APRON WITH SIDEWALK.
ASCIENDENTE CALZADA

CALZADA DESCENDENTE
1. REFER TO FIGURE 26 FOR PLAN DIMENSIONS AND DRIVEWAY APRONS.

NOTES:

SIDEWALK
(8" OF CTDOT CLASS "C" AIR ENTRAINED CONCRETE WITH WWF4x4-W4.0xW4.0 WELDED WIRE FABRIC REINFORCEMENT AT ALL DRIVEWAY CROSSINGS.)

GRAVEL BASE
(8" OF CTDOT ROLLED GRANULAR BASE, GRADING C)
WOOD FLOAT OR BROOM FINISH

2 #5 CONTINUOUS TOP & BOTTOM LAP 24” PROVIDE CORNER BARS

1’-0” MIN. ROLLED 3/4” Ø CRUSHED STONE UNDER ENTIRE SLAB

6” CONCRETE SLAB ON GRADE

COMPACTED GRANULAR FILL

#4 @ 12” EACH WAY 3” 2’-0” 12”"
NOTE: IMPERMEABLE EMBANKMENT MATERIAL SHALL CONTAIN AT LEAST 15% PASSING THE #200 SIEVE AND NOT MORE THAN 50% PASSING THE #200 SIEVE. NO STONES LARGER THAN 6 INCHES SHALL BE ALLOWED WITHIN THE COMPACTED EMBANKMENT. WITHIN TWO FEET OF ANY STRUCTURE, THE MAXIMUM SIZE SHALL BE 3 INCHES. CONSTRUCTION SHALL NOT TAKE PLACE DURING COLD PERIODS WHERE TEMPERATURES ARE CONSISTENTLY LOWER THAN 40 DEGREES FAHRENHEIT. EMBANKMENT MATERIAL TO BE COMPACTED IN LIFTS TO 95% MAXIMUM DRY DENSITY.
STONE CHECK DAM

2" STONE

MIRAFI 140 N FILTER FABRIC

MODIFIED RIPRAP

NOTE: KEY ENDS INTO EXISTING GRADE

FLOW
24” MINIMUM

CROSS SECTION

1’ TYP

MIRAFI 140 N FILTER FABRIC
4" COMPACTED GRANULAR BASE

8" COMPACTED GRAVEL SUBBASE

NOTES:
1. MAINTENANCE ACCESS WAYS SHALL BE A MINIMUM OF 12' WIDE & SHALL HAVE A MAXIMUM SLOPE OF 15% AND A MAXIMUM CROSS SLOPE OF 4%.
2. ACCESS WAYS SHALL BE PROVIDED TO ALL MAJOR SYSTEM COMPONENTS.
LOAM & SEED TO TOP OF GRID

TURF REINFORCEMENT GRID UNIT
STABILGRID HD2.0 OR EQUAL

2" OF 3/8" CRUSHED STONE

6" COMPACTED GRAVEL SUBBASE

NOTES:

1. MAINTENANCE ACCESS WAYS SHALL BE A MINIMUM OF 12’ WIDE & SHALL HAVE A MAXIMUM SLOPE OF 15% AND A MAXIMUM CROSS SLOPE OF 4%.

2. ACCESS WAYS SHALL BE PROVIDED TO ALL MAJOR SYSTEM COMPONENTS.

3. SEED ACCESS WAY WITH DURABLE, DROUGHT TOLERANT SPECIES (BLUE GRAMA, BUFFALO GRASS, SHEEP FESCUE, HARD FESCUE OR EQUAL).
CAST IRON MANHOLE FRAME & COVER
NEENAH FOUNDRY, CATALOG NUMBER
R-1726—A IMPRINTED WITH THE WORD "DRAIN"

6" THICK, 24" ID, 39" OD (MIN)
PRECAST CONCRETE GRADE RING.
FILL SPACE BETWEEN GRADE RING
& CLEANOUT WITH MORTAR

THREADED COLLAR & PLUG
WITH EXTRUDED NUT

SOLID DRAIN PIPE

"SANITARY" TEE

FLOW

PERFORATED DRAIN PIPE

STANDARD DETAIL DRAWING
CLEANOUT
SCALE: NONE

REVISIONS:

DATE: JULY 2018
FIGURE 34
STANDARD DETAIL DRAWING

OBSERVATION WELL

SCALE: NONE

REVISIONS:

CAST IRON MANHOLE FRAME & COVER
NEENAH FOUNDRY, CATALOG NUMBER
R-1720-A IMPRINTED WITH THE WORD "DRAIN"

4" PERFORATED PVC DRAIN PIPE
3/4" CRUSHED STONE
MIRAFI 140 N FILTER FABRIC

6" PRECAST CONCRETE GRADE RING. FILL SPACE BETWEEN GRADE RING & CLEANOUT WITH MORTAR

2" CONCRETE PATIO BLOCK FOOT PLATE

DATE: JULY 2018

FIGURE 35