

TOWN OF
FARMINGTON

**SITE DESIGN AND
DEVELOPMENT CRITERIA**

2025 EDITION

As amended by the Town Board on January 14, 2025

Effective Date – January 15, 2025

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<u>Date</u>	<u>Section No. / Page No.</u>	<u>Description of Change</u>
11/9/01	4.11, (C) / page 54	Revised from 60 to 100 psi minimum test pressure
		Referenced allowable leakage requirements in Apdx I
11/9/01	Appendix I	Renumbered roman numerals
		Added allowable leakage requirements
11/9/01	Updated	Adopted by Town Board
8/14/07	Updated	Adopted by Town Board
9/25/12	Updated	Adopted by Town Board
11/13/12	Updated	Adopted by Town Board
5/28/13	Updated	Adopted by Town Board
10/22/13	Updated	Adopted by Town Board
1/14/14	Updated	Adopted by Town Board
7/22/14	Updated	Adopted by Town Board
8/11/15	Updated	Adopted by Town Board
8/9/16	Updated	Adopted by Town Board
11/14/17	Updated	Adopted by Town Board
5/8/18	Updated	Adopted by Town Board
7/23/19	Updated	Adopted by Town Board – Sect 4.09 Compaction Req.
11/12/19	Updated	Adopted by Town Board
06/9/20	Updated	Adopted by Town Board – Sanitary Sewer Lateral
4/12/22	Updated	Adopted by Town Board
2/28/23	Updated	Adopted by Town Board
1/1/24	Updated	Adopted by Town Board – December 26, 2023
1/15/25	Updated	Adopted by Town Board – January 14, 2025

Town of Farmington

Site Design & Development Criteria Manual

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SITE DESIGN AND DEVELOPMENT CRITERIA

TOWN OF FARMINGTON, ONTARIO COUNTY, NEW YORK

SECTION 1 - General Information

1.01 Purpose

The purpose of these Specifications is to provide minimum criteria for the design and construction of improvements within the Municipality, which, upon the satisfactory completion thereof, may be offered for dedication to the Town of Farmington for perpetual operation and maintenance. The information contained in this document is to be used in conjunction with the subdivision and site plan regulations provided in the Town Code.

The criteria established is intended to provide minimum standards, which may be upgraded to serve the best interests of the municipality. The information in this booklet is provided to aid in the submission of material in a uniform manner and attempt to expedite the various review and approval procedures.

These criteria shall govern in all areas of private, public, industrial and commercial development and/or areas that will involve the connections to existing municipal systems.

The Town of Farmington has been designated by the U.S. Environmental Protection Agency (EPA) as a small Municipal Separate Storm Sewer System (MS4). All projects within the Town of Farmington are, therefore, subject to the MS4's requirements. When required, the MS4 shall review the SWPPP to determine if all design considerations have been met. The MS4 is required to follow the same principles in the review of the SWPPP to ensure the equivalency of the design specification to the erosion and sediment control practices and performance criteria and the sizing criteria of post construction practices.

It should be noted that the Town of Farmington currently has inter-municipal agreements with the Town of Victor, the Town of Canandaigua, Town of Manchester and the Town of Hopewell regarding sanitary sewer and water installations and districts, which are to be complied with as well.

1.02 Responsibility

It is the responsibility of the Developer to insure preparation of Plans sufficient to meet the standards and requirements herein incorporated. Said Plans shall be prepared by a professional, licensed in the State of New York, who shall have experience in design of land development.

The municipality and/or its representatives shall review the proposed Plans as to their compliance with the standards and conditions encountered while meeting the best interests of the Municipality.

It is the responsibility of the Contractor, acting for the Developer, to construct the facilities in conformance with the approved Plans, Town standards and MS4 requirements.

Construction observation shall be provided by the Municipality or its designated representative to review construction as it is being performed.

The final results of the project remain the prime responsibility of the Developer and until the development is satisfactorily approved by the Municipality and/or its representatives, said development shall not be accepted for dedication.

The Applicant's Design Engineer shall provide a certificate of completed construction to the Department of Health upon completion of construction (i.e. completed works for water).

1.03 Building Permits

Prior to the issuance of a Building Permit the following requirements are to be completed:

1. An approved final subdivision plat (if applicable) is to be filed in the office of the Ontario County Clerk and the liber and page is filed with the Town Development Office and Town Clerk.
2. All final site plan drawings are to be signed and filed in the Town Development Office.
3. If any are required, an area variance, use variance, or temporary use permit for the project has been granted by the Zoning Board of Appeals.
4. If required, a special use permit for the project has been granted by the Planning Board.
5. All requirements of the Town of Farmington dedication checklist (Appendix G-3.0), including but not limited to, the construction of the road base materials, gutters (where required), sidewalks, lighting, and utilities, including Town Board acceptance of the items to be dedicated, are to be completed prior to the issuance of a Building Permit or at the discretion of the Town of Farmington Town Board.

1.04 Dedication of Improvements

All utilities (water, sanitary, storm sewer systems and stormwater management facilities), sidewalks and landscaping in the right-of-way shall be completed, tested and dedicated to the Town prior to any hookups being made.

All public streets shall be dedicated to the Town prior to issuance of any Certificate of Occupancy for a structure located on that street.

1.05 Utilities

If sewer, water, gas, electrical, street lighting or other public utility facilities are to be located within street right-of-way, their location and installation shall be coordinated so that they may be added to, repaired or enlarged at minimum cost.

Lighting districts may be required by the Town. Where required by the Planning Board, the developer shall first be responsible for the installation of street lights in accordance with the Board's condition of final approval. Once installed and operational, the Town Board shall thus be requested to take action to create the necessary lighting district. See the Town of Farmington Zoning Regulations Section 165-64, regarding the standards adopted by the Town for all proposed lighting.

Where proposed development abuts adjacent lands (identified in the comprehensive plan as being) suitable for future development, then the utilities and roads shall be installed within the site seeking approval up to the property line and an easement granted to the Town for access and maintenance purposes.

1.06 Road Construction

Due to the general soil conditions within the Town and normal construction sequences for development, it is deemed to be in the best interests of the Town that the following procedures be followed:

- a) Binder material shall not be placed prior to the completion and approval of all underground utilities and inspection of the base by the Highway Superintendent.
- b) The weather and seasonal limitations as specified under the Standard Specifications of New York State D.O.T. shall apply for placing of bituminous mixtures.

Restrictions (a) and (b) imply completion of all underground systems well in advance of the Developer's schedule for paving.

- c) No Certificates of Occupancy will be approved unless a proper road surface as herein specified has been constructed.
- d) Should construction sequences not allow the required road construction to be completed in the current construction season, the Developer shall provide a temporary road surface as herein specified over which proper ingress and egress throughout the development can be obtained by the residents, school buses, emergency vehicles and highway plows.

The temporary road surface shall only be accepted should the Developer and/or Builder desire Certificates of Occupancy for any residences within the development.

- e) Upon the completion of the binder pavement and all other items related to the completion of a project, the Town may elect to accept for dedication the completed facilities if (1) a two year maintenance agreement (letter of credit, certified check, or other form of surety acceptable to the Town) is submitted to and accepted by the Town (2) the Developer presents a sum of money to complete the top pavement course by Town in the future. The amount of money to be transferred to the Town will be established by the Highway Superintendent. This sum shall include the cost of the Town's labor and material to cause the proper installation of the top course.

It is the intent of this option by the Town to allow the Developer to offer the project for dedication before the final pavement is installed. In the opinion of the Town and when the Developer has substantially completed the related construction in the developed area, the Town will install the final pavement top. In this manner the area will receive a new pavement top that has not been marred or patched as a result of normal construction activity.

Before the expiration of the maintenance agreement and before the final top is applied, the Town Construction Inspector, Highway Superintendent, and Water and Sewer Superintendent are to perform a site inspection with the developer to assess any damages or repairs that may be necessary to be completed by the developer under the maintenance agreement (see Section 5.14 Final Release of Funds of this manual for additional procedural requirements).

1.07 Haul Roads

Haul roads are temporary roads built to facilitate the movement of people, materials and equipment along the route of a job off of existing public roads. Haul roads may be required by the Planning Board, when applicable upon review with the Town Highway Superintendent, Town Construction Inspector, Town Board and/or Town Engineer. All vehicles 10 tons or more are required to use the haul roads. Performance bonds [a form of surety acceptable by the Town Board] may also be considered as an option in lieu of construction of a haul road for necessary repair and maintenance of existing public roads.

1.08 Driveway Culverts

New driveway culvert installation shall be the responsibility of the landowner. The Town Highway Superintendent shall approve the proposed location, size and material of such culverts. See Section 2.05 and associated Appendices for additional design information regarding driveways.

The Town reserves the right to remove and/or install driveway or roadway culverts along existing Town roads to properly transmit surface drainage as determined by the Highway Superintendent.

1.09 Financial Guarantees

The following guarantees will be required: (see also Section 144-32 of the Town Subdivision Regulations regarding these and additional forms of surety required by the Town.)

A) Letter of Credit

An irrevocable letter of credit shall be submitted by the developer to insure the installation of improvements in an amount determined by the Developer's Engineer and approved by the Town Board.

The amount shall include but not be limited to the following items (see Appendix G-2.0 Letter of Credit Release Form):

- 1) Total estimated construction cost of all utilities, laterals, water services, roads, gutters, earthwork, sidewalks, stormwater management facilities, etc.
- 2) Minimum 10% contingency factor
- 3) Engineering and inspection charges
- 4) Street signs and surveyor's monuments
- 5) Record Maps

B) Partial Releases of Credit

Refer to Section 5.12, Letter of Credit Release Procedure, of this manual.

C) Maintenance Guarantee

A maintenance guarantee (an irrevocable Letter of Credit, bond, or other form of surety acceptable to the Town) shall be provided guaranteeing the total construction value of the project against faulty workmanship or materials for a period of two (2) years after acceptance by the Town Board. Individual portions of the project, i.e., sanitary system, water system, can be guaranteed after their individual acceptances by the Town. The financial guarantee for the pavement, gutters, street lights and/or sidewalks will not be accepted until the entire project is ready for dedication (see Section 5.08 and 5.10 for procedural requirements).

1.10 Methods of Release of Funds

A) Surety Release Procedure

The procedure required for the release of funds is referenced in Section 5.12 of this manual. Please refer to Appendix G-2.0 for the approved Letter of Credit Release Form.

B) Release of Retainage

Retainage release shall be considered only after a two-year maintenance bond has been accepted by the Town Board and after the systems have been tested, approved and dedicated to the Town (see Section 5.14 Final Release of Funds of this manual for additional procedural requirements).

C) Release of Maintenance Guarantee

Release of Maintenance Guarantee shall be authorized in writing by the Town Supervisor upon final inspection of the project site and signing off on the Final Inspection Form for Expiring Surety (Appendix G-4.0) by Town authorities including the Highway Superintendent, Water and Sewer Superintendent, and Town Engineer. This inspection shall be completed at least sixty (60) days before the expiration of the Maintenance Guarantee (see Section 5.13 Maintenance Guarantee and Section 5.14 Final Release of Funds of this manual for additional procedural requirements).

If the required improvements are not completely installed within the period fixed, or extended by the Town Board, or the submitted Final Inspection Form for Expiring Surety (Appendix G-4.0) identifies deficiencies, the Town Board may declare the Letter of Credit/ Maintenance Guarantee in default and collect the amount payable thereunder. Upon receipt of such amount, the Town shall install such improvements as were covered by the Letter of Credit / Maintenance Guarantee and are commensurate with the extent of building development which has taken place in the subdivision, not exceeding in cost, however, the amount collected upon the Letter of Credit/ Maintenance Guarantee.

1.11 Applicability of Regulations

The regulations contained in Sections 2, 3, 4 and 5 of these Specifications, for the Design and Construction of land development, shall **apply to all improvements** within the Town of Farmington.

1.12 Record Information

The Town reserves the option to complete the record drawings themselves and draw from the letter of credit, bond, or other surety the appropriate monies to complete them.

Record Information shall be provided in accordance with the New York State Department of Transportation (NYSDOT) Land Surveying Standards and Procedures Manual, latest revision. Standards procedures, Control Network Densification and Extensions Surveys are performed to Federal Geodetic Control Subcommittee Standards and Specifications approved by NYSDOT and the National Geodetic Survey.

The Base Mapping Digital Terrain Models and Geometry shall conform to the NYSDOT CADD Software Standards and the NYSDOT CADD Standards and Procedure Manual (see Section 5.10 for additional Record Information requirements).

1.13 Review of Plans

If construction has not commenced within 18 months after final approval, the plans must be resubmitted for completeness and conformance with current regulations.

1.14 Streetscape Standards

The Town of Farmington is developing streetscape design standards for projects fronting on major corridors. The Applicant's Design Engineer should review the mapping within the Streetscape Design Guidelines document to determine if the site of the proposed action is located within a streetscape corridor.

SECTION 2 - Design Criteria

2.01 Sewage Disposal Systems (refer to Town of Farmington Sewer Master Plan)

A. Individual On-Site Wastewater Treatment Systems

Individual On-Site Wastewater Treatment Systems must conform to the minimum requirements established by the New York State Department of Health per Appendix 75-A of Part 75 Chapter 11 of Title 10 effective 12/1/90 or the latest revisions thereof and/or the Department of Environmental Conservation Design Standards for Wastewater Treatment Works (1996), Recommended Standards for Wastewater Facilities (Ten State Standards) and Farmington Sewer Use Law, Chapter 125 and the Individual On-Site Wastewater Treatment Systems, Chapter 126 as noted herein:

1. Provisions may be required to make the individual house plumbing for connection to future sanitary sewer system.
2. Maximum number of lots to be developed with individual on-site wastewater treatment systems shall be 49 within one subdivision “Realty Subdivision”.
3. A “dry” sanitary sewer system may be required in those areas that are adjacent to proposed trunk sewers established in the Town of Farmington Sewer Master Plan. This will be a discretionary requirement of the Water and Sewer Superintendent.
4. Leach lines shall not cross over or under water, gas or storm laterals, nor be located underneath the driveway area.
5. Minimum total leach line lengths shall equal two hundred feet (200’).
6. Must be designed by a Licensed Professional.

B. Alternate Systems

Alternate systems may be submitted for review by the New York State Department of Health with the following additional restrictions by the Town of Farmington:

1. Any fill or built-up system shall have a taper section ending a minimum of 100 feet from any property line.
2. Fill limits shall include a future expansion area.
3. Evapo-transpiration areas are not acceptable for new construction.
4. Fill systems require professional certification of percolation tests in the in-situ fill and placed fill after it has been in place for at least six months and over at least one winter season.

C. Public Sanitary Sewers (see also Appendices S-1.0 thru S-10.0)

A minimum 25-foot sanitary sewer easement shall be provided to the Town and may be greater where conditions necessitate additional width (i.e. sewers deeper than 12 feet) as determined by the Town. Additionally, no structures shall be within 5-feet of the easement.

Minimum requirements shall be as established by the New York State Department of Health and/or the Department of Environmental Conservation, the Town of Farmington Sewer Use Law(s) and/or the Town of Victor Sewer Use Law(s) except as noted herein:

1. Gravity Sewers

- a. Sewer mains shall be a minimum of 8-inch diameter except in those areas where the sewer shall be of the diameter outlined in the Town of Farmington Sewer Master Plan.
- b. Manhole spacing, maximum of 400 L.F.
- c. The sewer shall be designed at such a depth to provide basement drainage. If site conditions are such that basement drainage cannot be provided to all units, a specific note to that effect shall be placed on the plan.
- d. Water mains, sewer mains and sewer laterals shall not be allowed in a common trench. There shall be at least a ten-foot (10') horizontal separation between the water service and this sewer lateral all the way to the basement wall with a minimum eighteen-inch (18") vertical separation.
- e. All necessary mains and laterals required to connect to the public sewage system as shown on the final approved plan shall be installed by the Developer.
- f. Elevations - Where other utilities parallel or cross the sanitary system, vertical clearance between the systems shall be provided to permit the satisfactory installation of all services.
- g. Laterals for each individual lot shall be:
 - i) Minimum of 4 inches in diameter.
 - ii) Minimum of slope 1/4"/L.F. (2%).
 - iii) Cleanouts shall be provided at a maximum distance of 85 feet and one shall be located on the right-of-way or easement line.

- h. Sanitary Manholes – for sewer 8”- 12”, minimum 4’-0” inside diameter; over 12”, minimum 5’-0” inside diameter; three or more pipes in a manhole requires a 5’-0” inside diameter. Larger pipes may require special design.
- i. Dry Sewers – Where required shall be designed to the grades established from the Sewer Master Plan.
- j. Connections to existing manholes shall utilize core boring with no impact tools and rubber boots with stainless steel snap locks or screw-wedge or sand collars epoxied in place.

2. Pressure Sewers

- a. Pressure sewer systems shall be laid out in a configuration that is hydraulically efficient.
- b. Access shall be provided at the upstream end of each forcemain branch.
- c. All appurtenances and fittings shall be compatible with the piping system designed and shall be full bore with smooth interior surfaces.
- d. Building service connections shall have a minimum diameter of 1-1/4 inches and shall tap into the forcemain with a corporation stop. A check valve shall be provided near the service pump.
- e. The required pipe size shall be determined on the basis of these principal criteria:
 - i) Velocities adequate to assure scouring should be achieved
 - ii) Size should be determined on the basis of the required flow rate
 - iii) Head loss should not exceed pumping pressure capabilities
- f. A velocity of two to five feet (2’ – 5’) per second must be achieved at least once and preferably several times per day based on design flows.
- g. Design shall be for peak sewage flow rate and negligible infiltration
- h. Four-inch (4”) diameter pipe shall be the smallest used for raw sewage forcemains. Smaller pipe may be considered if grinder pumps or similar equipment are installed. These instances will be reviewed on an individual basis.
- i. Automatic air-relief valves shall be provided at high points and major changes in slope in the forcemain to prevent air locking.

- j. Forcemains shall enter a gravity sewer at the bottom of a manhole in line with the flow. If this is not possible, the forcemain shall not enter the receiving manhole more than two feet (2') above the flow line.
- k. Forcemains in systems that operate on a seasonal basis shall be provided with draining capability.
- l. Normal operating pressure shall be in the range of 40-60 psi and shall not exceed 60 psi for any appreciable amount of time.
- m. Cleanouts shall be placed at a maximum spacing of 400 feet, at major changes in direction and where one collector main joins another main. These cleanouts shall include an isolating valve and capped Y-branch fitting located on either side of the isolating valve and pointed upstream and downstream for access during maintenance procedures.

D. Sewage Lift Stations (See Appendix S-8.0 thru S-10.0)

1. Design

- a. Certain geographic areas or topographic constraints may require the use of a sewage lift station to transmit proposed effluent to the appropriate gravity collector sewer. Once the Town of Farmington Sewer Department deems the use of a sewage lift station is appropriate and meets the intent of the sanitary sewer master plan, the Town and developer shall agree on the most advantageous location for said lift station. In general, sewage lift stations shall be located and sized so as to provide the maximum benefit to not only the new development but also adjacent unsewered areas and provide for ease of access and maintenance.
- b. Once the location of the sewage lift station has been determined, the developer's engineer shall prepare an Engineering Report that identifies the following design parameters:
 - 1. Anticipated flow rates (initial and full build out): Average Day, Maximum Day, Day Peak Hour
 - 2. Number of parcels served
 - 3. Total static head
 - 4. Total dynamic head (TDH)
 - 5. Operating set points
 - i) Pump Off
 - ii) Lead Pump On
 - iii) Lag Pump On

6. High Level Alarm
 7. High point in forcemain
 8. Elevation at forcemain discharge
 9. Flow capacity of forcemain from high point to end under gravity flow conditions
 10. Wet well sizing calculations
 11. System curve
 12. Pump performance point
 13. Anticipated storage time based on average and peak flows including corresponding liquid level elevations related to the lowest floor
 14. Anticipated cycle times per hour (initial and full build out)
 15. Map of design service area and any other lands that are tributary to the pump station
 16. Demonstrate the ability of the pump station to be upgraded for future expansion
 17. Need for odor control
 18. Power requirements
 19. Velocity in forcemain at pump design point, 2.0 fps (minimum)
 20. Retention time in forcemain based on pump cycle time and design point.
- c. This hydraulic data shall incorporate the following minimum standards:
1. The pump station shall be sized to accommodate gravity sewer service for the fully developed contributing drainage basin, based on current zoning.
 2. Pump station invert elevations shall comply with the "Town of Farmington Sanitary Sewer Collection System Master Plan".
 3. The pump station capacity shall incorporate the following parameters:
 - a. Cycle times to be between one (1) start per hour minimum and ten (10) starts per hour maximum.
 - b. Wet well shall be sized to hold a minimum of two (2) hours of average design flow and one (1) hour of peak design flow from "high water alarm" to lowest inflow pipe invert elevation.

4. Compliance with the current policies and directives of the New York State Department of Environmental Conservation, New York State Health Department, and applicable sections of the "Recommended Standards for Wastewater Facilities," latest revision.
 5. Compliance with the standard details contained herein.
- d. Once the specific hydraulic data has been determined, the developer's engineer shall submit to the Superintendent of Sewers a report, sealed by a professional engineer, which recommends a specific pumping system based on pump performance curves and substantial conformance to the preceding "Pump Station and Equipment" specifications.
 - e. The Superintendent and Town Engineer will review and approve the report. Approval of the report shall in no way relieve the Applicant's Design Engineer of responsibility or liability for the project.
 - f. The report shall be accompanied by a utility plan and profiles which relate all pump station appurtenances to the proposed development as a whole including any offsite force main locations and all easements.

2. General

- a. It is not the intent of these specifications to provide standardization of pumping systems. The specifications contained herein are deemed, by the Farmington Sanitary Sewer Department and Farmington Town Board, most suitable to meet the anticipated service requirements. Proposed equipment that may be considered as an equivalent to these specifications will be evaluated on the basis of substantial compliance to these specifications. The Town of Farmington reserves the right to accept or reject products, systems and/or manufacturers based on substantial compliance to these specifications.
- b. The pump station supplier shall furnish one (1) factory built automatically controlled above ground submersible pump valve package capable of handling raw unscreened sewage. The pump station shall be equipped with two (2) submersible sewage pumps with mechanical slide rails installed in a precast concrete wet well.
- c. The pump station enclosure shall be manufactured of reinforced fiberglass designed to allow access to the pump station components for service.
- d. Valves and all internal piping shall be factory pre-mounted inside the station enclosure.

- e. The electrical control panel shall be factory pre-mounted in the pump station enclosure inclusive of conduit and common terminal strip for field connection of power supply.
- f. The electrical control panel shall be equipped with a sanitary liquid level sensing and control system.
- g. The electric distribution equipment shall be located above grade and shall include a transfer switch, fused disconnect and an emergency generator.

3. Station Enclosure

- a. The station enclosure shall contain and enclose all valves, and associated controls and shall be constructed to enhance serviceability by incorporating the following design characteristics:
 - 1. Two access panels per side of station shall be provided. Panels shall be sized and placed to permit routine maintenance operations through the panel openings of the enclosure. For these purposes, routine maintenance shall include frequently performed adjustments and inspections of the electrical components, controls and valves.
 - 2. The access panels shall be provided with a hinge and latch, and shall be protected by a keyed lock.
 - 3. One enclosure side shall contain a screened vent to maximize air flow for enclosure ventilation.
 - 4. Station enclosure, less base, must be removable or able to be disassembled following the removal of reusable hardware.
 - 5. Removal or disassembly of the enclosure shall be accomplished by not more than two maintenance personnel without the use of lifting equipment.
- b. The station enclosure shall be manufactured of molded reinforced orthophthalic polyester resins with a minimum of 30% fiberglass, and a maximum of 70% resin.
- c. An exhaust blower shall be mounted on the side of the enclosure. Blower capacity shall be sufficient to change station air a minimum of once every two minutes. Blower motor shall be operated automatically and shall be turned on at approximately 70 degrees F and shall be turn off at 55 degrees F. Blower motor and control circuit shall be protected by a thermal magnetic air circuit breaker to provide overcurrent and overload protection. Blower exhaust outlet shall be designed to prevent the entrance of rain, snow, rocks, and foreign material.

- d. Pump station shall be provided with a 1300/1500 watt, 115 volt electric heater with cord, thermostat and grounding plug. Ungrounded heaters shall not be acceptable.
- f. The pump station shall be furnished with 1" thick spray foam insulation, which shall be applied to the roof, doors, and corner panels.

4. Station Base

- a. Station base shall be constructed of pre cast, reinforced concrete bonded inside a fiberglass form covering top and sides, and shall be designed to insure adequate strength to resist deformation of the structure during shipping, lifting, or handling. The enclosure base shall function as the wet well top and incorporate a duplex access lid, sized for the installation and removal of the specified pumps, and shall be of sufficient size to permit access to the wet well.
- b. A static wet well vent shall be mounted in the station base and be housed in the station enclosure. The station enclosure shall provide a transition area between the wet well and the vent outlet. The vent shall terminate through the station wall with a screened opening which shall be designed to prevent the entrance of rain, snow, rocks and foreign material.
- c. The station base shall incorporate a cable transition adapter for the pump cables, level controls, and associated wiring. The adapter shall provide for a vapor tight transition between the wet well and the lift station enclosure.
- d. The station base shall be furnished with elastomeric compression sealing devices for all piping penetrations to provide for a vapor tight transition between the wet well and lift station enclosure.

5. Pumps

- a. The pump casing shall be of gray iron, ASTM A-48, Class 30, with a 125# Flange. Casing shall be easily removable from the motor for full inspection of impeller.
- b. All pump openings and passages shall be of adequate size to pass 3" diameter spheres (minimum) and any trash or stringy material which can pass through an average house collection system.
- c. The impeller shall be a multi-vane vortex type with integral stagger-step winglets on each vane. The winglet shall form a stagger-stepped L-shaped cross section at the face of the vane for improved hydrodynamic efficiency. Impeller shall be of ductile iron and precision balanced. Balancing shall not deform or weaken the impeller. The impeller shall be recessed into the pump casing and shall not require flow of liquid through the impeller.

The impeller and seal housing shall incorporate auxiliary vanes to hydraulically reduce pressure on the primary seal and force fibrous materials and solids away from the close axial clearance on the backside of the impeller. The impeller shall be driven by means of a key slotted into the shaft. Impeller fasteners shall be non-corroding. No impeller clearance adjustment or wear rings shall be required.

- d. A hoisting bail shall provide for proper balance of pump while it is being lifted.
- e. All other major pump components such as motor housing, seal housing, and bearing brackets shall be of gray iron, ASTM A-48, Class 30. All external surfaces coming into contact with pumped media shall be protected by water-based epoxy primer and a waterborne enamel topcoat with a minimum 8 mil thickness. All exposed fasteners and lock washers shall be of 300 series stainless steel.
- f. Two separate mechanical seals shall be provided on the shaft, arranged in tandem and shall be lubricated from an oil filled reservoir between pump and motor.
- g. A seal failure electric probe sensor shall be installed in the seal chamber. The sensor shall be capable of sensing leakage into the seal chamber and the sensitivity level shall be set in the control panel.

6. Pump Motor

- a. The motor and pump must be connected to form an integral unit. Motor shall be a squirrel cage, induction type in an air filled water tight enclosure, oil-filled motors shall not be acceptable. The motor shall conform to NEMA design standards, and incorporate Class H insulation materials to withstand a continuous operating temperature of 1800C (3560F). The pump and motor shall be capable of handling liquids with a maximum temperature of 400C (1040F).
- b. Motor shall be capable of sustaining a maximum of 10 starts per hour and shall be inverter duty rated in accordance with NEMA MG1. The motor shall not require a cooling jacket or any other means of auxiliary cooling during normal continuous operation.
- c. Motor housing shall be of cast iron. The stator shall consist of copper windings with copper connectors applied to high grade electrical steel laminations.
- d. Combined rotor and shaft assembly shall be dynamically balanced for vibration free operation.

- e. The motor shall be protected from thermal damage by a group of three separate thermostatic switches embedded into the stator windings, one per stator phase. Each switch shall open independently and terminate motor operation if the temperature of the protected winding reaches the high temperature set point of 160°C (320°F) and shall automatically reset upon cooling of the winding. The thermal sensing device shall be connected to the pump control panel by the contractor.
- f. The pump shall utilize a single probe to monitor both the motor and seal chambers for moisture intrusion. The detection of moisture in either chamber shall send a signal to the control panel which shall be used to notify the user of the need for an inspection.

7. Automatic Discharge Connection

- a. Each pump shall be furnished with a submersible discharge connection system to permit removal and installation of the pump without the necessity of an operator entering the wet well. The design must insure an automatic and firm connection of the pump to the discharge piping when lowered into place.
- b. A base plate with integral 90° elbow connection shall be provided for each pump and anchored to the wet well floor.
- c. Each pump shall be provided with a replaceable slide rail guide shoe attached to pump discharge flange.
- d. Two stainless steel guiderails shall be provided for each pump.

8. Wet Well Access

- a. The wet well access shall be fabricated from welded aluminum sections. A hinged aluminum door shall be provided for each pump. The hinged door shall be fabricated from 1/4" thick aluminum with non skid diamond tread on upper surface. All hardware on access assembly shall be stainless steel with a flush upper surface without protrusions. For safety, the door shall have a 300 lbs/sq.ft. rating and be fitted with a recessed staple for padlock. Door shall be furnished with a flush aluminum drop handle and automatic hold open arm.

9. Valves and Piping

- a. Check Valve: Each pump shall be equipped with a full flow type check valve capable of passing a 3" spherical solid. Valve shall be constructed with flanged ends and fitted with an external lever and torsional spring.
- b. Each discharge line shall be equipped with a 2 way plug valve to permit isolation of the pumps from the common discharge header.

The plug valve shall be non lubricated type. Valve body shall be cast iron with flanged end connections.

- c. The station shall incorporate suction bypass piping to permit emergency access to the pump station wet well. The pipe shall penetrate the station side wall and terminate with a male OPW type quick connect fitting.
- d. The header piping shall be equipped with ball type check valves on the discharge side of each pump to allow a vacuum break to occur, as well as assist purging air from the system in the event that there is insufficient atmospheric pressure available to support the resultant water column. A ball valve and PVC line extending through the pump station base for drainage back to the wet well shall be installed in each pump discharge line.
- e. Piping shall be flanged centrifugally cast, ductile iron, complying with ANSI/AWWA A21.51/C115 and class 53 thickness. All pipes connected to the pump station shall be supported according to good commercial practice.

10. Control Panel

- a. The pump station control panel will be tested as an integral unit by the pump station manufacturer.
- b. The electrical control equipment shall be mounted within a Nema 1 stainless steel, dead front type control enclosure. The enclosure door shall be hinged and sealed with a neoprene gasket. It shall include a removable plated steel back panel on which control components shall be mounted. Back panel shall be secured to enclosure with collar studs. Operator controls shall be mounted on the enclosure door. The enclosure shall be mounted within the fiberglass valve enclosure. The control panel shall be equipped with vapor emission type corrosion inhibitors.
- c. Pump station shall be supplied with a thermostat which shall monitor interior station temperature. The control shall incorporate an unpowered dry contact wired to terminal blocks for field connection to a remote alarm device. The contact will close in the event that the temperature within the enclosure falls below approximately 35 degrees F.
- d. A properly sized heavy duty air circuit breaker shall be furnished for each pump motor. All circuit breakers shall be sealed by the manufacturer after calibration to prevent tampering.
- e. An open frame, across the line, NEMA rated magnetic motor starter shall be furnished for each pump motor. All motor starters shall be equipped to provide under voltage release and overload protection on all three phases.

- f. A reset push button, mounted through the control panel door, shall permit resetting the overload relays without opening the door.
- g. The pump control panel shall be equipped to terminate pump operation due to high motor winding temperature or moisture in the motor housing or seal cavity, utilizing contacts in the pump motor housing and seal cavity. If a moisture or thermal event should occur, the motor starter will drop out and a visible indicator on the door shall indicate the pump motor has been shut down. If shutdown is due to high motor temperature, motor power will automatically be restored when the temperature returns to normal range. If the shutdown occurs due to moisture, a manual reset will be required before motor power is restored. Dry contacts, wired to terminal blocks, shall be furnished for each pump for thermal/moisture shutdown.
- h. Pump mode selector switches shall be connected to permit manual start and manual stop for each pump individually, and to select automatic operation of each pump under control of the liquid level control system. Manual operation shall override the liquid level control system.
- i. Control panel shall be equipped with one oil tight pilot light for each pump motor. Light shall be wired in parallel with the related pump motor starter to indicate that the motor is on or should be running.
- j. A switch shall be provided to permit the station operator to select automatic alternation of the pumps, to select pump number one to be the lead pump for each pumping cycle or to select pump number two to be the lead pump for each pumping cycle.
- k. A duplex ground fault indicating utility receptacle providing 115 VAC, 60 Hertz, single phase current, shall be mounted on the door panel of the control enclosure. Receptacle circuit shall be protected by a 15 ampere thermal magnetic circuit breaker.
- l. The lift station shall be equipped with a 3 KVA stepdown transformer to supply 115 volt, AC, single phase for the control and auxiliary equipment.

11. Level Control

- a. The level control shall be Multi-Smart Level Control and be integrated into the Town's SCADA system.
- b. A submersible transducer system shall be provided as the primary level sensor with a Multi-Trode stick probe as a backup level sensor. Backup level sensor to be provided for all specified operation points.

- c. The electronic pressure switch shall have a digital panel meter with a 3-1/2" display of wet well level or set points.
- d. The level control shall incorporate automatic pump alternation independent lag pump, high water alarm, and alarm silence.
- e. The level control shall have pressure sensors, electronic comparators, and output relays to perform its function reliably.

12. Operational Test

- a. The pump manufacturer shall design and manufacture the entire pumping system. The pumps, motors, piping, valves, and controls shall be totally factory assembled and be given an operational test in accordance with the standards of the Hydraulic Institute. The test shall substantiate the correct performance of the equipment at the design head, capacity, suction lift, speed and HP as herein specified.

13. Electrical Supply Equipment

- a. All electrical supply equipment shall be placed above grade, mounted in a freestanding NEMA 4X enclosure installed by a Licensed Electrician and inspected by the New York State Board of Fire Underwriters.
- b. Electrical supply equipment shall include the following:
 - 1. 1 - 480V/3ph meter receptacle
 - 2. 1 - 480V/3ph double throw transfer switch
 - 3. 1 - 480V/3ph fused disconnection
 - 4. 1 - 480V/3ph Emergency generator connection including weather tight panel compatible with the Town's generator.
- c. Electrical enclosure shall include but not be limited:
 - 1. supply equipment,
 - 2. strip heaters,
 - 3. terminals,
 - 4. indicating contacts,
 - 5. breakers,
 - 6. dead front panel,
 - 7. back panel,
 - 8. padlock handle
 - 9. power block,
 - 10. din rails,

11. GFI service receptacle,
12. transformers.
- d. This equipment shall have the proper ampacity rating as determined by the manufacturer, site engineer and the Sewer Department.
- e. Emergency generator connection shall be compatible with the Town's generator. A fixed mounted emergency generator is required at all locations.
- f. At locations where 480V/3ph power is not available, Developer may propose a 240V/3ph service. Prior approval from the Town is required.
- g. All equipment and installation shall conform to the most recent publication of the National Electric Code and standard details attached.
- h. The developer shall make application to Rochester Gas & Electric and Frontier Communications for new service. Billing accounts will be turned over to the Sewer Department after acceptance of the pump station.

14. Testing

- a. All field installed piping shall be pressure or vacuum tested.
- b. The entire length of the force main shall be pressure tested with water. The force main shall hold one and one-half (1.5) x the working pressure of the pump system or fifty (50) PSI minimum for a thirty (30) minute period with a loss of pressure not to exceed five (5) PSI.
- c. The full length of all suction lines shall be vacuum tested. The suction lines shall hold negative ten (10") inches of Hg. (Mercury) indefinitely. Special attention shall be given to this test because of its relationship to re-prime performance.
- d. The pump station distributor shall include a one half (1/2) day start up procedure with the pump station. A factory- trained representative shall be present to witness all functions of the station and approve their installation in accordance with the manufacturer's warranty.
- e. Upon completion of installation, the lift station shall be tested by continuous operation as directed by the Superintendent of the Sewer Department. The lift station shall also be tested using the Town of Farmington's portable generator. Stations with a fixed mounted generator shall be tested with the generator. The supplier shall be responsible for the complete installation of the pump station.

16. Warranty

- a. The pump station manufacturer shall supply warranty certificates as follows:
- b. Station Enclosure – Five (5) years from defects in material and workmanship and corrosion.
- c. Mechanical equipment and apparatus shall be fully warranted from defects in material and workmanship for a period of one (1) year from the date of acceptance.
- d. The date of acceptance shall be the date of startup witnessed by the factory-trained representative together with submittal of warranty certificates.

2.02 Storm Drainage Systems (See Appendices ST-4.0 through ST-8.0 for design details, Appendix ST-3.0 for required notes, and also refer to Appendix ST-1.0 through ST-2.1 for SWPPP and Stormwater Permit Process)

A. General Design Criteria

This section is to provide guidance for the design of storm drainage facilities within an MS4. These facilities shall be designed to collect and transport the runoff from streets, lawns, paved areas, roof areas, and upstream areas while meeting the MS4 requirements. The developer is required to follow the most current edition of New York State Phase II requirements located in the New York State Stormwater Management Design Manual, the latest version of the State Pollutant Discharge Elimination System (“SPDES”) General Permit for Stormwater Discharges from Construction Activities, and submit a Notice of Intent (NOI) form to obtain permit coverage. Prior to submitting this information to NYSDEC for coverage, an MS4 SWPPP Acceptance Form (Appendix ST-2.0) is required to be completed and submitted to the Town of Farmington for approval. Once approved, this form is to be submitted to NYSDEC along with the SWPPP and NOI. A copy of the MS4 Acceptance form is to remain within the approved SWPPP.

In general, the preservation of natural watercourses is preferable to the construction of drainage channels and wherever practical such natural watercourses should be preserved. Storm sewers and drainage facilities shall be based upon a design flow with the minimum return interval of ten (10) years. The design of natural watercourse channels shall depend upon the drainage area according to the following table:

DESIGN RETURN INTERVALS FOR NATURAL WATERCOURSES

<u>Drainage Area</u>	<u>Recurrence Interval</u>
Above 20 square miles	100 years
Between 4 to 20 square miles	50 years
Less than 4 square miles	25 years

Storm drains and channels shall be designed and provided to adequately convey the anticipated runoff from the development, as well as, all contributing area upstream or uphill from the development in question. The minimum size piping used for storm drains shall be twelve (12") inches in diameter, except that catch basin crossovers may be eight (8") inch diameter piping.

The minimum coefficient of runoff to be used is 0.2. Runoff within the subdivision shall be computed by the Rational Formula, TR-20 or other computer modeling software using the "10 year storm". Design of major channels or piping systems conveying water through the subdivision shall be designed using the "25 year storm". Time of concentration to first inlet shall be taken as not less than five (5) minutes and not more than fifteen (15) minutes. The Applicant's Design Engineer shall give particular attention to time of concentration in hilly areas. Analysis of the time of concentration shall be submitted to the Town for review and approval.

Open channels serving as main drainage ways normally will not be accepted by the town where, by engineering design, it has been established that the future flow (under conditions of full development) could be conveyed in a pipe system, up to and including a size of forty-eight (48") inches in diameter or equivalent. Where a forty-eight (48") inch diameter pipes system is not adequate, the town may require an eight (8") inch thick concrete gutter of adequate width, based on required capacity of the drainage way, to substantially contain flows. The concrete gutter shall be constructed as per the standard details provided herein. The developer's engineer bears the responsibility of providing technical design data in this regard, which shall be submitted to the Town Engineer for approval.

The developer's engineer shall be responsible for furnishing, as part of their plans to be presented before the Planning Board, full and sufficient calculations and details of all hydraulic structures. This includes, but is not limited to, cross sections of drainage channels, special manholes and all such other items as may be necessary to establish fully the methods and materials to be followed in construction.

The developer's engineer shall design the vertical control of their subdivision so that surcharge of storm drainage systems will not cause a backup or flooding of basements. This will normally require that cellar drains not be connected to the storm drainage system unless (a) the cellar floor is higher than pavement grade in

order that the street drainage system can run fully surcharged or (b) that basements drainage discharges through a sump pump and check valve.

In the design of storm drainage piping systems, an “N” of 0.013 shall be used for smooth pipe and an “N” of 0.024 shall be used for corrugated metal pipe, unless the corrugated metal pipe has an approved “smooth” lining where “N” of 0.013 may be used.

Where open swales or creeks are involved, the banks shall be constructed with slopes no steeper than one (1) horizontal on three (3) vertical. If for any reason this cannot be achieved, the watercourse shall be piped.

Storm sewer piping along the side or rear of a structure shall be extended past the proposed residence or structure in conformance with the following criteria:

1. All existing open drainage swales shall be piped to a point which is a minimum distance of one hundred forty (140’) feet measured perpendicular from any point on adjacent setback lines.
2. Provide piping one hundred (100’) feet from the end section to the rear of the structure, including garage.

B. Accommodations for House and Lot Storm Drainage

Finished ground level adjacent to house foundation wall shall be a minimum of one (1’) foot higher than the edge of pavement or shall provide a minimum slope of 2% away from the foundation to a swale, culvert, or other collection system. Provisions shall be made for draining positively the surface of each lot by proper grading and construction of swales, ditches or drains. These items shall receive the same careful design attention as the street drainage system (see Appendix H-11.0).

Provisions shall be made for disposing of roof and basement drainage into the street drainage system. This shall be accomplished with the use of storm sewer laterals. When positive discharge from the basement drain cannot be obtained, sump pumps with appropriate check valves shall be installed.

Where storm sewers are not available, roof and basement drainage shall be discharged to splash blocks.

No laundry, sanitary, or kitchen wastes shall be discharged to a storm drainage system. No drain connections from garage floors shall be permitted to enter drainage swales.

Storm drain laterals shall have outside cleanouts.

Rear yard swales shall have a minimum grade of 2%. Where this cannot be provided, a concrete gutter is required. Under no conditions will a grade of less than 1% be allowed for drainage swales.

Yard inlets shall be provided along swales to collect runoff from a maximum distance of three (3) lots or four hundred (400') feet (in any one direction), whichever is less.

C. Stormwater Management Facilities

Stormwater management facilities, sedimentation basins, and erosion control measures in all new land development shall be provided where, in the judgment of the Town Engineer and in compliance with the MS4 (Chapter 138 of the Town Code) and NYSDEC requirements; it is felt necessary in order to provide proper drainage and/or erosion control.

Plan view and details are required to show the pond location, size, inlet structures, and outlet structures as well as any appurtenances. All stormwater management facilities shall be constructed with a minimum 1:3 side slope from base of pond to top of bank. If to be dedicated to the Town, a twenty-five (25') foot access easement shall be provided around all portions of said pond and pond maintenance road to allow access or the pond shall be located on lands dedicated to the Town of Farmington. If the facilities are not to be dedicated to the Town, then a temporary access easement over the maintenance road, outfall structure and forebays are required to allow access to the facility during construction.

In designing the detention facility, attention shall be given to the types of soils found in the site. The Town may require that the pond bottom be lined or constructed of impervious soils or manufactured sealants (i.e. Bentonite) to prevent seepage or piping of stored water along the underlying bedrock.

During design, the Town may require the Developer to provide a soils report done by a professional soils engineer to determine if the on-site material meets the requirements for infiltration capacity or as a pond liner.

The Developer's engineer shall submit, with his final plans, drainage calculations justifying the size of pipes, channels, impoundment basins, and related structures.

Stormwater management facilities shall be required to mitigate the impact of land development to downstream properties and drainage systems. The increased rates of stormwater run-off may cause environmental problems downstream such as highly erosive velocities, flooding and over-topping of banks. The Town may require stormwater basins where deemed appropriate and to have these basins designed in a manner compatible with these specifications. The purpose of this regulation is:

1. To establish the basic general philosophy for these facilities;

2. To set forth a series of parameters or rules governing the design.

While the Town reserves the right to establish particular parameters in each individual instance, the general philosophy is to permit runoff from any particular development to an amount no more than would normally occur under a natural, undeveloped condition, for the particular design storm. The discharge from these facilities shall be at a rate equivalent to the discharge from the upstream area under a natural, undeveloped condition.

The Developer shall design all storm drainage improvements in conformance with the Town's watershed drainage studies. Where on site detention/retention is not required, the Developer shall submit the equivalent fees for their share of any off-site facilities.

The Town reserves the right to establish other more restrictive parameters. For example, if the downstream area has been subject to floods in the past, even while the upstream areas were not developed, and if the Town deems it desirable and appropriate to remedy this situation, they may at their discretion, require an impoundment area of the size and type, which can assist in rectifying the downstream flooding situation.

The following represents the basic philosophy regarding stormwater discharge:

1. No developed area shall discharge more stormwater into adjacent culverts and channels than occurs under a natural undeveloped condition.
2. The flow capacity of channels and culverts immediately downstream from a development does not necessarily govern the adequacy of the total drainage system downstream
3. As one travels downstream in any given drainage basin (and, therefore, from any given development) the area contributing to any drainage channel is increasing.
 - a) Culverts and channels downstream from any development may be able to handle the total runoff from that development alone, but this does not imply that said channels and culverts can handle the total runoff to that location.
 - b) The fact that downstream facilities are inadequate prior to the development and, therefore, flood at certain times, does not imply that this flooding condition or any greater frequency flooding is desirable.

D. Engineering Procedures

In order to arrive at an engineering estimate of storm flows and proposed detention pond size, the engineer should proceed according to the steps listed

herein. The Applicant's Design Engineer may also be required to identify impacts of particular site drainage on the watershed as a whole. The use of computer modeling by developer's engineers is permitted. However, proper documentation of the variables and procedures for the software should be submitted to the Town Engineer for review and approval.

1. The Applicant's Design Engineer shall design the stormwater facility in accordance with the following regulations:
 - a) Ponds located on streams shall be designed using the recurrence interval specified in the design criteria section.
 - b) Ponds located off stream shall be designed as per the following:
 - 1) With a direct discharge to the stream, use a ten (10) year storm
 - 2) With no direct discharge to the stream (i.e., discharge into piped system, culvert, etc.), use a twenty-five (25) year storm.
 - c). All ponds shall have an emergency spillway designed such that a one hundred (100) year storm can be routed through the pond without overtopping the banks.
 - d). Requirements of the New York State Department of Environmental Conservation shall be considered and shall be used in cases where they are more stringent than these regulations.
 - e). All detention/retention facilities shall be designed to address the impacts of a 2 year, 10 year, 25 year, and 100 year storm.
2. The developer's engineer shall use existing topographic maps and the appropriate rainfall charts and graphs to determine the maximum expected natural rate of runoff ($C=0.2$) for the design storms from an undeveloped site. Factors affecting this rate include slope of land, surface cover, area of drainage basin and the presence of lack of well-defined natural channels. This rate of runoff shall be the controlling allowable discharge from any development in the area under question for the given design storm. If downstream sewers, culverts or channels have a capacity of less than the derived rate, this downstream capacity shall control as the allowable discharge rate. The runoff coefficient for developed conditions shall be a weighted number based upon area of impervious surfaces.
3. Design the collection system using the standard rational method, TR-20, or other methods as approved by the Town Engineer.
4. With an area designated for the location of the pond, determine the maximum depth of the pond.
5. Bench marks shall be set on outfall structure elevations.
6. Design an outlet structure, which discharges water as a continuous function of head and which will discharge the maximum allowable flow at maximum pond depth. Lesser storms should discharge approximately proportional lesser flows.

7. Provide inflow hydrographs for a number of design storms of different durations and make a straight line approximately to an outflow hydrograph starting with $Q_0=0$ at $t=0$ and assuming that good pond design is based on the outflow reaching its peak just as the inflow equals the outflow.
8. Calculate the accumulated volume for each of the above cases. The one giving the greatest volume is the critical storm for this retention pond.
9. If desired, make a more detailed analysis using the now determined critical storm and standard flood routing techniques. Otherwise, use the above estimated volume and size the area of the pond.

E. Flood Hazard Prevention

Flood hazard prevention shall include the control of soil erosion of land surface and drainage channels and the prevention of inundation and excessive ground water seepage by comprehensive site grading and the establishment of adequate elevations of buildings, building openings and roadways above the observed, anticipated or computed water levels of storm sewers, streams, channels, floodplains, detention basins and swales.

Particular attention shall be paid to development in the vicinity of Mud Creek, Ganargua Creek, Beaver Creek, Black Creek, Black Brook, Trap Brook, Padelford Brook and their floodplains. No alteration of the existing characteristics of the area shall take place without the specific approval of the regulatory agency and the Town Code Enforcement Officer as to the adequacy of the protective measures taken, if any. The effects of such development on upstream and downstream reaches of the watercourses, as well as adjacent properties, shall be defined by the applicant.

All development proposed within the special Flood Hazard Area as delineated by the National Flood Insurance Program and defined by the Federal Insurance Administration shall comply with the various regulations set forth by the Federal Insurance Administrator and the Town of Farmington (Chapter 87 of the Town Code).

Any filling within a floodplain shall be compensated with an excavated area that is 1.25 times the volume filled within the designated floodplain. The compensatory storage area shall be located in an area adjacent to the affected floodplain. No filling within a floodplain shall be allowed without a Floodplain Development Permit first being issued by the Town Code Enforcement Officer (CEO).

Where developments are located in the lower reaches of a watershed, the Town Engineer may elect to waive all requirements for detention/retention facilities to allow runoff to pass through the area before impact of upstream runoff is observed.

F. Erosion Control

1. General

In order to ensure that the land can be developed without danger of flooding or erosion of downstream areas, the Town shall require the developer to follow the latest version of the New York State Standards and Specifications for Erosion and Sediment Control and MS4 requirements. The Town Engineer shall verify that the required procedures are being put into practice. Such procedures may include:

- a) Exposing the smallest practical area of land at any one time during development; no more than 5 acres of disturbance is permitted at one time without written authorization from the Town MS4 Official.
- b) Installation of temporary vegetation and/or mulching to protect critical areas as soon as grading is complete;
- c) Installation of adequate drainage facilities to accommodate the increased runoff caused by changed soil and surface conditions during and after development. The developer's engineer shall show, as part of their submitted plans, the interceptor swales and sedimentation basins along the lower edges of all developments. Significant topographic data and design grades for the swales shall be shown on the plans;
- d) Fitting of the development plan to the topography and soils so as to minimize the erosion potential;
- e) Retention and protection of natural vegetation wherever possible;
- f) Installation of adequate protective measures when slopes in excess of 1 on 3 are graded; and minimizing such steep grading. This shall include geotextiles with organic material matting;
- g) Installation and maintenance of geotextile fabrics over catch basin, yard inlet, or outlet structures;
- h) Installation of other protective measures as required by the Town Engineer.

2. Design and Implementation

It shall be the sole responsibility of the developer's engineer to incorporate into the subdivision and/or site plans adequate methods of erosion abatement for approval by the Town Engineer.

This design shall be shown on the approved grading plan and consist of, but not limited to staked straw bale buffers, sediment basins and silt fence. The Town Engineer, or other field representative, reserves the right to

modify these erosion control measures, if deemed necessary. Adequate funds shall be held in the Irrevocable Letter of Credit, Bond or Surety to assure that these systems are installed and maintained during the completion of all site work.

The design of an erosion control plan shall be in accordance with “Guidelines for Urban Erosion and Sedimentation Control” published by the NYS Chapter of the Soil and Water Conservation Society. The Town Engineer, or other field representative, reserves the right to modify or order periodic maintenance of said erosion control measures.

If when determined by the Town Highway Superintendent and the Town Engineer, that any part of the erosion control plan has not been implemented; the Town Code Enforcement Officer may place a STOP WORK ORDER on the project until the deficiency has been brought into conformance.

If any portion of the erosion control devices fail, causing downstream siltation, the developer shall bear the cost for any associated clean up or removal of silt from drainage ways, culverts, or ponds. The Town reserves the right to hold contingency money to insure proper remediation.

G. Storm Drains

1. Minimum pipe size - 12 inch diameter*
2. Minimum velocity when flowing full - 3 fps
3. Maximum manhole and catch basin spacing - 300 lineal feet.
4. In general, only natural waterways may be continued in open channels. Street drainage and other parts of a storm sewer system shall be in closed conduit. When gradient and tributary runoff require conduit greater than 36 inches in diameter, then open channel design may be considered after review by the municipality.
5. All pipes shall be smooth bore.
6. The interior of all HDPE gravity sewer pipes shall be de-beaded.

*Any drains less than 12” must be justified with drainage calculations and shall be subject for review by the Town of Farmington Highway Superintendent and forwarded to the Town Engineer

H. Storm Laterals

Laterals installed to the right-of-way or easement line shall be a minimum of 6 inches in diameter. Sump pumps and roof runoff will be required to discharge to storm laterals or, in the absence of storm sewers, to splash pads directed to side or rear yard drainage swales. Underground perimeter storm piping shall be hung from the foundation walls, and is required to be provided with stone bedding and backfill consisting of #1 and/or #2 washed stone. All perimeter storm piping and laterals shall be inspected by the Town.

I. Catch Basins

Catch basins shall be placed at all low points and intersections with maximum spacing of 300 feet. Catch basin leads shall only be connected to the storm sewers at manholes except in those areas where the storm sewer is 24 inches in diameter or greater. In these instances, the catch basin leads can connect directly to the pipe.

J. Storm Manholes

Storm manholes shall be designed to accommodate the pipes entering and exiting the structures.

A schedule of manhole diameters shall be provided on the final plan.

K. Drainage Easements

Drainage easements shall be provided when requested by the Town. The minimum easement width shall be 20 feet. Where open channel drainage is permitted, easements shall be of a proper width to permit adequate maintenance as approved by the Town.

2.03 Water Mains (see also Appendices W-1.0 through W-13.0)

All work performed and materials furnished for the purpose of supplying the development with potable water shall comply with the Regulations and Recommended Standards for Water Works (2012) and the applicable standards as established by the Town of Farmington and the Canandaigua-Farmington Water District.

A. Design

Water supply system shall be designed to provide adequate domestic usage and fire protection. Where public water supply is not accessible, an alternate private supply shall be furnished, which conforms to the New York State Health Department regulations (Subpart 5).

All main sizing shall be substantiated by the Applicant's Design Engineer for the review and approval by the Town. All water mains shall be a minimum of 8 inches except:

1. Where watermains are part of a major transmission distribution network, the Town may require a larger size watermain.
2. Where project demands allow a smaller watermain while still providing adequate fire and domestic flows. In no case will the Town accept for dedication a watermain smaller than 8" inches in diameter. All such exceptions are subject to review and approval of hydraulic calculations to justify sizing.
3. In all cases the watermains shall be capable of providing maximum design flows with a residual pressure not to be less than 20 psi.

B. Hydrants

Hydrants shall be spaced to comply with ISO and New York State Building Code requirements but at maximum 500-foot intervals.

Hydrants are to be placed close enough to all commercial buildings to meet New York State Fire Code requirements as measured from the furthest point of the building from the nearest fire hydrant, or as required by the Town Fire Marshal.

Hydrants are to be placed at all intersections.

C. Valves

Valves shall be located such that no more than 30 dwelling units and no more than two hydrants need be out of service for repair of a water main. Valves shall be provided at intersections and shall be no more than 1,200 feet apart along the watermain.

Additional valves may be required at creek and/or railroad crossings depending on network configuration and permit requirements.

D. Dead End Mains

Provide hydrants or 2-inch blow-off units at the end of all "dead end" mains.

E. Water Services

Provide minimum 1-inch water service or as approved by the Town of Farmington Water Superintendent. Services shall be extended to the right-of-way line of all individual lots. Where an easement is provided, the service shall extend to the easement line. All services shall be Municipex without line couplings.

F. Meter Pits (for individual services)

Meter pits shall be installed when the water service length is greater than 300 feet from the centerline of a given road. Specific applications shall be subject to review by the Town of Farmington Water Superintendent for a determination of need for an individual meter pit.

2.04 Grading

A. General

The finished grading on developed lands shall provide for the effective removal of storm water runoff to a drainage system.

In general, the Applicant's Design Engineer shall try to establish a finished grade at the structure line to permit a minimum of 2.0 percent grade away from the structure to the drainage system.

Drainage shall generally be to side or rear lot swales provided:

1. Swales are of a proper cross-section to permit ease of maintenance by the individual owner.
2. Easements are provided for access and/or maintenance where necessary.
3. Where multi-lot grading is proposed, all swales required for positive drainage will be installed prior to the issuance of a building permit. Easements will be required in this instance to cover all affected lots.

B. Grading Plan

A Grading Plan shall be submitted, with the final plan for any development, showing at a minimum the following items:

1. Existing contours.
2. Proposed finish contours.
3. Spot elevations of proposed finish grades at key locations.
4. Garage floor elevations.
5. Minimum elevations of any architectural opening where flood hazard areas exist.
6. Culvert invert elevations.
7. All elevations shall be established from USC&GS datum and the plan shall show a site benchmark.
8. Drainage flow directional arrows.
9. See Appendix H-11.0 for Typical Grading Plan

2.05 Driveway Design Requirement

Design and location of driveways shall be in accordance with Town Standards set forth in the Town Major Thoroughfare Overlay District Regulations, Chapter 165, Section 34 of the Town Code, applicable Town Standards contained in these regulations and requirements of the New York State Department of Transportation Policy and Standards for Entrances to State Highways. These standards shall also apply to driveways entering on County and Town roads and streets.

A. Vertical Alignment

1. Maximum grade shall not exceed 10%.
2. Finish grade at right-of-way line shall be not more than 2 feet above finish grade at centerline and the driveway slope within the lot shall not be greater than 10 percent.
3. A leveling area of 3 percent maximum adjacent to the right-of-way shall be provided which is a minimum of 30 feet in length from the edge of the street pavement.
4. Driveway shall slope away from the edge of road pavement at the same slope as the road shoulder, and the slope shall extend at least the full width of the shoulder so as not to create a bump or depression in the shoulder area unless shown otherwise in Standard Details.
5. All driveways shall be designed so as to avoid the sheeting of surface water runoff onto an adjacent highway.
6. Driveway pavement shall be flush with edges of gutter and sidewalks.

B. Horizontal Alignment

1. Minimum radius along the centerline of driveways shall be 60 feet.
2. Minimum radius along the inside edge of driveway shall be 35 feet unless shown otherwise in Standard Details.
3. Driveway pavement shall extend at least 10 feet back from the edge of the gutter or shoulder, or 4 feet beyond the sidewalk (if present), whichever is greater.
4. Driveway turnaround areas, when practical, should be incorporated into all plans.
5. All driveways shall be designed so as to avoid the sheeting of surface water runoff onto an adjacent public highway.
6. All driveways are to be a minimum 5 feet from the property lines.

7. All driveways are to be a minimum distance of 43 feet or twice the width of the driveway (12') plus 15 feet from all intersections as measured from the shoulder.

C. Application Requirements

Written application including a plan and a profile of the driveway may be required by the Highway Superintendent for approval.

D. Fire Department Requirements

All common driveways regardless of length and individual driveways, which are longer than 500 feet, shall be constructed to support HS-20 loading and provide an emergency pull off area that is 30' x 80' at intervals of 250' for emergency access clearance from the edge of the driveway to any obstruction. Plans and details of such driveways shall be submitted to the Fire Department for review.

2.06 Driveway Culverts

Design and location of driveway culverts shall be in accordance with applicable Town Standards and requirements of NYSDOT Policy and Standards for Entrances to State Highways. These standards shall apply also to driveways entering on County and Town roads and streets.

- A. Shall be provided along existing road frontage lots to properly convey roadside drainage. The culverts shall be set to the proper grade to allow the natural flow of water. All culverts set shall be subject to the review of the Highway Superintendent having jurisdiction on the road (see Appendices H-3.0 and H-4.0 for driveway culvert installation requirements).
- B. Minimum of 12-inch diameter unless they are a part of a larger drainage course, which may require larger diameter pipes.
- C. The culverts shall extend a minimum of 3 feet beyond the edge of the driveway pavement and be provided with end sections or headwalls. Riprap material or other energy dissipation material should be used as determined by the Highway Superintendent.
- D. Elevations to be set by U.S.C. & G.S. datum.
- E. Culverts shall have a minimum of 12 inches of cover. If High Density Polyethylene (HDPE) pipe is utilized, 12 inches of cover per 12-inch diameter of pipe shall be provided.
- F. If CMP is used, culverts shall be bituminous coated inside and out.

2.07 Roads

The following designations will be used by the Town to classify roads and their respective design criteria (see Appendices H-1.0 through H-1.5):

- A. Town Collector
- B. Local Road (subdivision)
- C. Commercial/Industrial
- D. Private Drive (non-dedicated)
- E. Utility Service Road
- F. Maintenance Access Road

The basic considerations of each road classification are as follows:

- A. Town Collector
 - 1. Provides connections to major roads and represents major traffic pattern throughout the Town
 - 2. Design speed of 55 MPH
 - 3. High volume traffic
 - 4. Provides access to local roads
 - 5. Relatively low density of development abutting such a road
 - 6. Represents typical road built or reconstructed by the Town Highway Department
- B. Local (Subdivision)
 - 1. Densities as permitted by the zoning ordinance
 - 2. Design speeds of 30 MPH or less
 - 3. Low volume of traffic
 - 4. Individual driveways at regular intervals
 - 5. Usually no effect on overall Town traffic pattern
- C. Private (non-dedicated)
 - 1. Has a minimum of 40-foot fee ownership on a dedicated street
 - 2. Low volume of traffic
 - 3. Has no effect on overall Town traffic pattern
 - 4. Design speed of 30 MPH or less
 - 5. Maintenance covered by deed agreement or Homeowner's Association depending on number of units

D. Industrial Road

1. Provides access to established and future commercial and industrial areas
2. Provides access to local roads
3. Relatively low density of residential traffic
4. High volume truck/tractor trailer traffic

E. Utility Service Road

1. Provides access to utility structures
2. Typically within an easement or on dedicated land
3. Used for maintenance vehicle and equipment access

F. Maintenance Access Road

1. Provides access to stormwater management facilities
2. May be of a subsurface design
3. Typically within an easement or on dedicated land
4. Used for maintenance vehicle and equipment access

Each of these roads has basic characteristics that may be varied to be consistent with unique proposals of development and construction. The individual variations of the conditions will not be permitted if they sacrifice design safety or maintenance of a proposed road type. Standard roads shall comply with the typical cross sections shown on Appendix H-1.0 through H-1.5.

2.08 General Road Design Considerations (see Appendix H-1.0 through H-1.5)

A. Right-of-Way

1. Minimum width 60 feet for dedicated roads.
2. Minimum width of 40 feet for private roads.
3. Private underground utilities to be located on easements beyond right-of-way limit.
4. All dead end streets shall be constructed to the property line and have either: a “K” turnaround as specified in Chapter 144, Section 19.J. of the Town Code; or, a hammerhead turnaround designed in accordance with the standards in Appendix H-8.0 of this manual.

B. Horizontal Alignment

The following factors shall be incorporated into the design of each road type:

1. Sight distance must conform to minimum safe stopping sight distance per "Geometric Design of Highways and Streets" AASHTO Latest Edition.
2. Clear sight at intersections
3. No centerline intersection angles less than 75 degrees.
4. Minimum centerline radius of 150 feet.
5. Road pavement intersections shall have a minimum of 35-foot radius.
6. Cul-de-sacs shall not exceed 1,000 feet in length and end with either a cul-de-sac or a hammerhead turnaround (See Appendices H-7.0 and H-7.1 for design and radius requirements).
7. Access to future developments will be provided to property lines.
8. Tangent sections shall be used between curves to maintain the proper flow of traffic at design speeds.

C. Vertical Alignment

The minimum length of vertical curves shall be based upon current AASHTO distance, passing sight distance, riding comfort, and headlight sight distance. Vertical curves are required whenever changes in grade exceed 1 percent.

D. Sight Distance Requirements

Refer to the most current edition of AASHTO, *A Policy on Geometric Design of Highways and Streets*, for sight distance and stopping distance requirements.

E. Road Grades

1. Minimum - 0.7 percent with shoulders; 0.5 percent with gutters.
2. Maximum - 8 percent - Maximum grade may exceed 8 percent for short distances with engineering justification.

F. Leveling Areas

Leveling areas shall be incorporated at all street intersections for a minimum distance of 100 feet from the edge of the pavement and the grade shall not exceed 3 percent.

Leveling areas for driveways shall be a minimum distance of thirty (30) feet from the edge of highway right-of-way and the grade shall not exceed three percent (3%).

G. Road Widths

<u>Class</u>	<u>Pavement Width</u>	<u>Edge Treatment</u>	<u>Drainage</u>
Town Collector	22 ft. min.	5 ft. Shoulder	Roadside Swale
Local (Subdivision)	22 ft.	30" Concrete Gutters	Underground Conduit
Private	14 ft.	3 ft. Shoulder	Roadside Swale
Commercial/Industrial Roadway	24 ft.	5 ft. Paved Shoulder/ Gutters	Roadside Swale/ Conduit

H. Special Considerations

1. Roadside Swale - Where grades exceed 5 percent and/or unstable soil conditions warrant, the swales shall be designed to control flow velocities.
2. Underdrains / Stone Weeps – Will be required on all Town Collector, Local, and Industrial roads, unless proven to be unnecessary. The method used shall be subject to the review of the Town Highway Superintendent.

All pipe shall be perforated and shall be a minimum of four inches (4”) in diameter.

3. Frontage Development - Where frontage development is to be approved along collector roads, the Planning Board may require that the roadside swale be enclosed in conduit along the fronts of the development. Such conduits shall be of the proper size to accommodate anticipated flows as previously outlined. A parallel access road may also be considered by the Planning Board and discussed during sketch plan submittal.

2.09 Road Design

A. General Requirements

The Applicant’s Design Engineer shall consider the proposed use of the road or street when preparing a design. The following criteria is listed as minimum

standards to be considered by the designer. It is the intent of these requirements to obtain a road and a base that is stable and capable of supporting H-20 loading to the sites.

B. Minimum Design Standards for Road Types (see Appendix H-1.0 through H-1.5)

1. Town Collector

- a. Two 6-inch lifts of Type 2 crusher-run stone equally mixed.
- b. One 3-inch lift of Type 1 crusher-run stone.
- c. Geotextile fabric shall be used in all areas of unstable sub-base per discretion of the Highway Superintendent.
- d. Asphaltic concrete courses shall be 3 inches compacted of binder and 1 ½ inch compacted of top.
- e. Stabilized shoulder constructed of crushed stone with a single seal of 0.4 gal/S.Y. hot bituminous liquid with 25#/S.Y. of 1st stone.

2. Local/Subdivision

- a. Two 6-inch lifts of Type 2 crusher-run stone equally mixed.
- b. One 3-inch lift of Type 1 crusher-run stone.
- c. Geotextile fabric shall be used in all areas of unstable sub-base per discretion of the Highway Superintendent.
- d. Asphaltic concrete courses shall be 3 inches of binder and 1 ½ inch of top.
- e. Concrete gutter per Appendix H-5.0.

3. Private

- a. One 6-inch lifts of Type 2 crusher-run stone equally mixed.
- b. One 3-inch lift of Type 1 crusher-run stone.
- c. Fabric shall be used in all areas of unstable sub-base.
- c. A private drive off a dedicated road shall:
 - 1) Be designed to keep surface water flows from entering the travel way of the dedicated street.
 - 2) Provide soil erosion measures on the site as it is being developed.
 - 3) Provide an adequately sized culvert with end sections or headwall treatment.
 - 4) Finish grade and seed the area immediately upon completion of the private drive base.

- 5) Provide a hard surface from the edge of the existing pavement at least 30 feet toward the developed site.
- 6) No private drive should exceed a slope of 3 percent from the edge of the pavement to a point 30 feet into the property being developed to provide a leveling area.
- 7) Maximum grade within the development site shall be 10 percent.

4. Industrial Road

- a. Two 6-inch lifts of Type 2 crusher-run stone equally mixed.
- b. One 3-inch lift of Type 1 crusher-run stone.
- c. Geotextile fabric shall be used in all areas of unstable sub-base per discretion of the Highway Superintendent.
- d. Asphalt concrete courses shall be 3 inches compacted base, 3 inches compacted of binder and 1 ½ inches compacted of top.
- e. 5' paved shoulders constructed of two 6-inch lifts of No. 2 and 3 crushed stone, one 6 inch lift of Type 2 crusher-run stone, 3 inches of compacted binder, and 1 ½ inches of top. Gutters with underground conduit may be installed/required instead of 5' stabilized shoulders. (See Appendix H-5.0).

5. Utility Service Road

- a. Two 6-inch lifts of Type 2 crusher-run stone equally mixed.
- b. One 3-inch lift of Type 1 crusher-run stone.
- c. Geotextile fabric shall be used in all areas.

6. Surface Stabilized Maintenance Access Road

- a. One 8-inch lift of Type 2 crusher-run stone equally mixed.
- b. Geotextile fabric shall be used in all areas.

7. Subsurface Stabilized Maintenance Access Road

- a. One 8-inch lift of Type 2 crusher-run stone equally mixed.
- b. 4" topsoil, permanent seed and mulch.
- c. Geotextile fabric shall be used in all areas.

NOTE: All depths are compacted thicknesses.

2.10 Concrete Gutters

10" concrete gutters with a maximum invert depth of 1-1/2 inches below the pavement edge of the gutter shall be provided along the edges of all local roads (and may be required along industrial roadways) to be dedicated to the Town of Farmington. A typical cross-section is shown in Appendix H-5.0.

2.11 Sidewalks

Where required by the Planning Board, sidewalks shall be concrete and installed in accordance with design standards contained in Appendix H-6.0. All sidewalk surfaces are to be continuous in accordance with the Americans with Disabilities Act. Where sidewalks are to cross driveways, the driveways are to be saw cut for the concrete sidewalk. [See also the Town of Farmington Comprehensive Plan regarding the installation of sidewalks in the Town of Farmington and the MTOD Map].

2.12 Monuments

Monuments per Appendix H-9.0 shall be located at:

- a) P.C. and P.T. of all horizontal curves along one side of the right-of-way.
- b) Maximum of 1,000 feet along one side of right-of-way line.

2.13 Reserved Land for Future Use

Where land areas are reserved for future connections to adjacent parcels, all improvements, i.e., sanitary, storm, water, sidewalks, roads, will be constructed to the common property line.

2.14 Guiderail

Guiderail shall be provided where required by the Town Highway Superintendent. All guiderail locations shall be in accordance with the NYSDOT Highway Design Manual or as approved by the Town Highway Superintendent. All guiderail shall be of a type currently approved by NYSDOT or as approved by the Town Highway Superintendent. Where NYSDOT approved guiderail systems are to be utilized, the plans shall include all relevant NYSDOT detail sheets in full. If so requested by the Town Highway Superintendent or Town Engineer, the Applicant's Design Engineer shall be required to provide a Guiderail Justification Report, inclusive of point of need analysis and considered alternatives.

2.15 Drainage Structures

Where drainage structures such as large diameter pipe culverts, concrete box or three-sided culverts, U-channels, or other constructed drainage ways are proposed, if so requested by the Town Highway Superintendent or Town Engineer, the Applicant's Design Engineer shall provide scaled profiles, cross sections, structural details, hydraulic analysis, hydrology analysis, and any other information deemed necessary by Town Staff.

2.16 Access to Utilities

Stabilized surface access shall be provided to all utilities proposed for dedication to the Town. Stabilized access shall be in accordance with the standards and specifications for Utility Service Access Roads (Section 2.07.E, and H-Series Appendices).

SECTION 3 - Material Specifications

3.01 General Information

The materials intended to establish the degree of excellence are herein included and deemed to be of satisfactory quality for installation within the Town. When new materials may be made available, their use may be permitted in limited test sections with the restriction that should these materials prove unsatisfactory through the test period as established by the Town, they shall be removed and replaced with those herein called for at no expense to the municipality.

3.02 Sanitary Sewers

A. Polyvinyl Chloride (PVC) Pipe for Gravity Sewer

Shall meet the requirements of ASTM D-3034 for Sewer Pipe and Fittings, minimum wall thickness SDR-35. The joints shall be bell and spigot conforming to ASTM D-3212 with elastomeric gasket conforming to ASTM F477. All pipe and fittings shall be made from PVC components as defined and described in ASTM D-1784. Pipe shall be new enough to have manufacturer's specifications still painted on the length of pipe and consist of glossy finish.

B. Polyvinyl Chloride (PVC) Pipe for Sewage Force Mains

Shall meet the requirements of ASTM D-2241 for PVC plastic pipe. Pipe and fittings shall be 160 psi, minimum SDR-21 extruded from clean, virgin, resin compound conforming to ASTM D-1784. Bell and spigot joints are required with elastomeric gaskets conforming to ASTM D-3139. Metallic tracer tape shall be placed over the center of all mains on top of the 18-inch minimum safety cover. Pipe shall be new enough to have manufacturer's specifications still painted on the length of pipe and consist of glossy finish.

C. Ductile Iron (DIP) Pipe for Sewage Force Mains

Shall conform to AWWA C-151, minimum allowable thickness shall be Class 51. Rubber gasket push on joints shall be used in accordance to AWWA C-111. All ductile iron pipe shall be cement-mortar lined in accordance with AWWA C-104.

D. High Density Polyethylene (HDPE) Pipe for Sewage Force Mains

Shall be DR 17, PPI designation PE 3408, and conform to AWWA C906. All joints shall be fuse welded mechanical joints with compression couplings and stainless steel inserts. No glued joints allowed underground. Metallic tracer tape shall be placed over the center of all mains on top of the 18-inch minimum safety cover.

E. Sewer Connections for Gravity Sewer

Sewer connections on new sewer main installations shall be made with wye fabricated or injection molded fittings. The minimum strength classifications of these fittings shall be equal to that of the pipe and the fitting shall be compatible with the pipe. Connections to an existing sewer shall be made with GENECO SEALTITE Type "E" Multi-Range Wye Sewer Saddle, with single-wide stainless steel band and stainless steel bolts for sewers up to 14-inches in diameter and GENECO bolt-on saddles for sewers greater than 14-inches in diameter. Connections to mains must be separated by a minimum of 10 feet.

F. Sewer Lateral Pipe for Gravity Sewer

1. Cast iron sewer pipe shall be extra heavy class with rubber gasket joints and maximum lengths equal to 5'-0" per ASTM A-74.
2. PVC pipe shall be of a minimum wall thickness SDR-21 with elastomeric gasket joints, supplied in standard lengths and conform to ASTM D-3034. All SDR-21 pipe will be bedded in stone as indicated in these specifications.
3. No glued joints will be allowed underground, elastomeric gasket or mechanical joints only will be allowed.
4. All WYE connections on existing mains to be GENECO SEALTITE Type "E" Multi-Range Wye Sewer Saddle.

*All commercial applications within building walls shall be SCH. 40. Consult with Code Enforcement Officer for further limitations.

G. Sewer Pressure Pipe for Forcemain

1. Polyvinyl chloride (PVC) pipe and fittings shall meet the same requirements as PVC force mains.
2. Polyethylene (PE) pressure pipe and fittings shall conform to ASTM D-2737 with pressure class PE 2305.
3. High Density Polyethylene (HDPE) 3408

3.03 Storm Drain

A. Reinforced Concrete Pipe

Shall be supplied in conformance with ASTM C-76 Class II. Joints shall be of the bell and spigot type with compression type joint ASTM C443.

B. Polyvinyl Chloride (PVC) Pipe

Shall meet the requirements of ASTM D-3034 or ASTM F679, minimum wall thickness SDR 35 with elastomeric gasket joint, ASTM D-3212.

C. Corrugated Steel Pipe

All pipes shall be coated inside and outside and have joints made with connecting bands. Thickness gauge will be dependent on the load conditions, except that 16 gauge shall be the minimum allowable thickness.

D. High Density Polyethylene (HDPE)

All pipes shall be N12 smooth interior and shall conform to AASHTO M-294. All fittings shall conform to ASTM D1248. The interior of all HDPE gravity sewer pipes shall be de-beaded.

E. Storm Laterals

PVC conforming to ASTM D-3034, with a wall thickness of SDR-35 and a minimum pipe diameter of 6 inches. Fittings shall be gasketed, no glued fittings will be accepted.

F. Catch Basin Leads

Shall be a minimum of 12 inches in diameter (see Appendix ST-5.0); cross-over pipes are to be 12 inch perforated.

1. Reinforced Concrete Pipe.
2. Polyvinyl Chloride Pipe (PVC).
3. Corrugated Steel Pipe.

G. Underdrains

1. Shall be a minimum of 4 inches in diameter, perforated polyethylene.
2. Required on all Town Collector, Local and Industrial Roads unless proven to be unnecessary by the Town Highway Superintendent.

3.04 Manholes and Manhole Ladders

A. Manholes (see Appendix S-4.0 through S-4.2)

Precast reinforced concrete sections shall be manufactured in accordance with ASTM Specification C-478. Riser sections shall have tongue and groove ends and super "O" joints and gaskets conforming to ASTM C-443. Manhole bases may be pre-formed or poured in the field. Roof slabs shall be precast structural concrete, reinforced for H-20 loading and 30 percent impact loading. A 24-inch diameter hole shall be eccentrically located in the roof slab. In place of preformed openings in base sections, flexible manhole sleeves (rubber boots/A lok) cast directly into the base walls may be used with compatible pipe material.

All manholes shall be sealed inside and outside completely with two coats of heavy-duty water repellent protective coating which complies with ASTM Specification D-450, Type B.

Manholes constructed of other materials shall be considered for approval following a review of said manhole construction. In specifying these manholes, the Developer's Engineer shall submit adequate design data and/or shop drawings to substantiate the materials.

1. Shallow Sanitary Sewer Manholes (less than 8' deep)

- Refer to Appendix S-4.0 for detail
- Apply epoxy in vicinity of any forcemain connection at the discretion of the Town of Farmington Water and Sewer Superintendent.
- Step alignment less than 1" (vertical) alignment tolerance

2. Deep Sanitary Sewer Manholes (greater than 8' deep)

- Refer to Appendix S-4.1 for detail
- Apply epoxy in vicinity of any forcemain connection at the discretion of the Town of Farmington Water and Sewer Superintendent.
- Step alignment less than 1" (vertical) alignment tolerance
- Eccentric cone riser sections can be used when manhole depth is greater than eight (8) feet
- Safety platform required when manhole depth is over 18' deep. Fiberglass platform by Access Industrial or approved equal.

B. Manhole Ladders and Steps

Manhole ladders or steps shall be provided in all sanitary and storm manholes and shall be constructed of one of the following materials.

1. Non-corrodible, aluminum magnesium alloy ladders, with intermediate supports at 5-foot intervals.
2. Forged aluminum with drop front design and grooved tread surface.
3. Nylon/Co-Polymer Polypropylene with steel reinforcement manhole steps.
4. Cast iron steps shall not be used.

Steps shall be cast into the walls of riser sections and shall be aligned in each section to form a continuous ladder with rungs equally spaced vertically in the assembled manhole at a distance of 12 inches apart. The first step shall be a maximum of 32 inches from the manhole cover. Step alignment less than 1" (vertical) alignment tolerance in all manholes.

3.05 Frames and Covers

A. Sanitary Manhole Frames and Covers (see Appendix S-5.0)

In areas prone to flooding or standing water, East Jordan Casting Compression watertight manhole frame and cover assembly shall be used. In paved surfaces (roads, driveways, etc.), East Jordan Casting SELFLEVEL manhole frame and cover assembly shall be used. For all other areas, standard East Jordan Casting 1310 Series cast iron frame and cover shall be used unless otherwise specified by the Town Sewer Superintendent.

The word "Sanitary" in letters not less than two (2) inches high shall be stamped or cast into all sanitary sewer manhole covers. The inside diameter for clearance shall be a minimum of 24 inches.

B. Storm Manhole Frames and Covers

Shall be Neenah R-1723 or East Jordan Casting No. 1203 with a vented cover or other approved equal. The inside diameter for clearance shall be a minimum of 24 inches.

C. Catch Basin Frames and Grates

Shall be rectangular, galvanized (ASTM A-123) and sized to fit gutter inlets or field inlets. The gutter grates shall be NYSDOT size no. 9 to fit the catch basin inside dimensions of 24" x 24". The minimum field inlet shall be NYSDOT size no. 9 to fit a field inlet of 24" x 24" inside dimension.

Catch basin manholes shall be set to allow a NYSDOT size no. 9 grate to be installed.

Frames and grates shall be as specified in NYSDOT Specification Drawing 655-6R1 and Section 655 of the NYSDOT Standard Specification Manual. All grates shall be bolted to the frames.

3.06 Water Mains

A. Ductile Iron (DIP) Pipe

Shall conform to AWWA C-151, minimum allowable thickness shall be Class 52. Pipe shall be cement lined in accordance with AWWA C104 and shall have rubber gasket push-on joint in accordance with AWWA C-111.

B. Polyvinyl Chloride (PVC) Pipe

Shall conform to AWWA C-900, minimum Class 200 (DR14) with elastomeric gasket joints, integral bell and rubber rings locked in place, minimum depth 5'-0" with a minimum of six (6) inches sand bedding and a minimum of twelve (12) inches of sand on each side and over top

PVC pipe installation shall include both:

1. Six (6) inch wide metallic tape placed over the center of the pipe on top of the 18-inch safety cover as manufactured by Line Guard III, Inc.
2. #10 gauge copper wire attached to the pipe at 5-foot intervals with plastic ties with a minimum of 150 lbs tensile strength. Wire shall be attached to all cast fittings, hydrants and valve boxes to make a continuous traceable system.

C. High Density Polyethylene (HDPE) Pipe

Upon review and discussion with the Town, may be considered for possible use in special circumstances, i.e. road & stream crossings. Shall be SDR-11 fusion weld with mechanical joints.

D. Fittings

1. Ductile iron shall meet AWWA C-111 Specifications, minimum Class 250, with mechanical or push-on joint, except for hydrant branches, which shall be mechanical joint. Fittings shall be cement lined in accordance with AWWA C-104. Bolts and nuts shall be high-strength, low alloy, coated steel.
2. PVC shall meet specifications of AWWA C-905 made from PVC Compound 12454-B (ASTM D1784) with gasket joints meeting ASTM D3139.

E. Hydrants (see Appendix W-1.0 thru W-1.3)

Shall be manufactured in accordance with AWWA C-502. Hydrants shall be 5-foot six-inch (5'- 6") bury with break-away flange construction and 6-inch (6") mechanical joint inlet. Shoe and inlet shall be epoxy coated. They shall open left, with a one and one-half inch (1-1/2") pentagon operating nut. All hydrants shall be painted yellow. All valve box covers shall be painted blue. Hydrants shall be three-way with two (2) 2-1/2 inch hose nozzles and one (1) 5 inch quick disconnect Storz pumper connection. Main valve openings shall be 5-1/4 inch with the total unit consisting of the tee, guard valve, hydrant and adapters. The main valve seat ring shall be bronze and screw into the bronze drain ring.

1. Canandaigua-Farmington Service Area: Mueller Super Centurion or Kennedy Guardian K-81A (w/ oil lubricated bonnet).
2. "Hydra-5 Fire Hydrant Marker" with spring and flat bracket 5' fiberglass red-white reflective marker (type A) with plated spring to be provided.
3. Stainless steel fasteners shall be used for all underground connections.
4. Paint shall be UV resistant high gloss polyurethane enamel.

F. Flushing Hydrant – Blowoff (see Appendix W-2.0)

Shall be 2 inch self-draining, non-freezing with 5 foot bury, with all bronze parts designed to connect to a 2 inch main line outlet as manufactured by GIL Industries, Inc.

G. Gate Valves

Gate valves shall conform to AWWA-C509, Resilient-seated wedge type epoxy coated gate valves with a non-rising stem. They shall be of the 350-psi test class with a minimum working pressure of 200 psi. Valves shall be open left manufactured by Mueller, Kennedy or an approved equal. Stainless steel bolts and nuts shall be utilized.

The valve ends shall depend on the type of pipe used and the particular use intended.

Valves shall be furnished with a screw type valve box, 5-1/4 inch inside diameter with covers marked with "WATER".

If the valves are buried deep they must have an extension stem that can be reached with a 6 foot valve box key.

H. Anchoring Fittings

Anchoring pipe in accordance with ANSI-A21.4 shall be employed to anchor all hydrants to gate valves. The anchoring pipe shall be coal tar coated, cement lined and provided with a rotating gland. There should be a minimum 18 inches between hydrant and gate valve. These anchoring pipes shall be Clow F-1216, Tyler 5-198 or U.S. Pipe.

I. Restrainers

Shall be manufactured of high strength ductile iron pipe and incorporate a full 360 degree support around the pipe. They shall be as manufactured by Megalug or Uni-Flange series 1500, 1300, 1350, or 1390 depending on the specific use.

J. Water Service Material (see Appendix W-4.0)

1. Corporations stop shall be Mueller H-15008 compression type, or Ford F10003Q.
2. Curb stops shall be Mueller H-15209 Mark II compression type, or Ford B44333Q.
3. Curb boxes shall be Mueller H-10334, 5 feet long with stainless steel rods and stainless steel keys.
4. Plastic pipe shall be Municipex copper tube size (CTS) at 200 psi, with a minimum 1-inch pipe diameter. No. 10 Copperhead tracer wire and sand bedding shall be provided. Stainless steel inserts for plastic tubing shall be from Mueller.
 - a) Polyethylene ASTM D-2737, PE 3408 per AWWA C-901 (Minimum 5'-0" depth and sand encasement required on all PE and PB pipe.)

	<u>Minimum Size</u>	<u>Water Main To Curb Stop</u>	<u>Curb Stop To Building</u>
North Farmington Service Area	1 inch	PE	PE
Canandaigua-Farmington Service Area	1 inch	PE	PE

5. All services tapped into PVC mains shall utilize two bolt stainless steel saddles or brass saddles with brass U-bolts, with triple "O" ring seals as manufactured by Cascade Style CSC2 or equal.
6. Any services larger than 1" shall meet the minimum specifications of the Water and Sewer Superintendent.

K. Meter Pits for Individual Services

Individual meter pits, where required, shall be either Mueller or Ford Plastic 20 inch diameter, Double Lid Style with Wabash cover W2. Cover shall be equipped to receive attachments for radio-read water meters.

L. Fire Service Meters

Where a building or site contains a combined service or fire service, a fire service meter shall be required to be provided in a location and configuration acceptable to the Town Water and Sewer Superintendent. All fire service meters have red caps.

M. Thrust Blocks (see Appendix W-10.0)

Shall be cast in place 3000-psi concrete to dimensions as shown in Appendix W-10.0.

N. PRV Vaults (see Appendix W-7.0)

PRV Vaults, where required by the Town of Farmington, at a minimum shall be of the size and contain all features as shown on the Town of Farmington PRV Vault Detail (W-7.0), and shall be a Lakeland precast concrete vault provided with 48"x48" aluminum hatch with aluminum ladder, sump recess, openings as required, coated, seals, boots, stainless steel trim, dual pilots and dual strainers; or as ordered by the Town Water and Sewer Superintendent. The steel vent pipe is to be painted blue.

The PRV vault shall also be equipped with a Ross 40WR Pressure Reducing Valve and may require a Back Pressure Sustaining feature and reverse flow feature depending on the location in the water system.

3.07 Concrete Gutters and Sidewalks (see Appendix H-5.0 and H-6.0)

A. Concrete

1. Shall be a minimum of 5" thick, and 4000 psi (28 day strength) concrete, 5' minimum width.
2. Air entraining admixture conforming to ASTM Specification C-260.
3. Bituminous expansion material shall conform to NYSDOT Specification 705-07.
4. Curing and sealing compound - conforming to ASTM C-309, Type I, Class B for curing and sealing.

5. Testing is required by the Town as outlined in Section 4.13, C.
6. Sidewalks within driveways shall include 10 gauge, W2.9 6"x6" wire mesh. Sidewalks within driveways in the NYS R.O.W. shall be 6" thick.

3.08 Road Materials (see Appendix H-1.0 through H-1.5)

A. Sub-Base and Base Courses

1. Crusher run stone shall conform to NYSDOT Specification Section 304, Type 2.
2. Aggregate shall conform to NYSDOT Gradation Table 733-4, size as specified.
3. Crushed Stone for Underdrain.
NYSDOT 703-0201, Crushed Stone, consisting of equal parts of Size 1 and 2 washed crushed stone.

B. Bituminous Pavement

1. Binder course shall conform to NYSDOT Specification Section 404, Item No. 404.1989.
2. Top course shall conform to NYSDOT Specification Section 404, Item No. 404.0982

C. Tack Coat

Shall conform to NYSDOT Specification Section 407. The grade shall depend on the specific use intended.

D. Premoulded Bituminous Joint Filler

Shall conform to NYSDOT Specification Section 705-07.

E. Underdrains

Shall be 4-inch perforated SDR-35 PVC per NYSDOT 706-15 or High Density Polyethylene Tubing per AASHTO M-252.

Mirafi is required to be provided under roadways unless determined otherwise by the Town Highway Superintendent.

3.09 Monuments (see Appendix H-9.0)

- A. Monuments shall consist of one-half inch (1/2") diameter reinforcing rod embedded in concrete four inches (4") in diameter by thirty inches (30") deep as shown in Appendix H-9.0. Manufacturer shall be Berntsen, 3/4"x3" rod, cap marked Town of Farmington R.O.W.
- B. All monuments shall be shown on finished plans.
- C. Monuments shall be set as a minimum at all exterior corners of the subdivision, on one side of each street and at all changes of direction in the right-of-way.
- D. Maximum of 1,000 feet at one side of the right-of-way.
- F. Monuments shall be set by a licensed land surveyor before the final Letter of Credit Release.

3.10 Street / Site Lights (see Appendix H-13.0)

All publicly owned streetlights are to be approved by the Highway Superintendent. Fixture shall have a black finish and with 15' tapered, black pole. Fixtures shall be ordered with the acrylic, frosted lens panel option, and shall be limited to 5,000 lumens per fixture. The color temperature shall be 3000K.

Streetlight fixtures to remain privately owned shall be LED Downlight and shall be ordered with a refractive lens panel, 30 watt LED array, 3000K, post top mount, and photocontrol.

3.11 Equivalents

The mention of apparatus, articles or materials by name and such specific description of same as is made herein are intended to convey to the Developer and his Contractor an understanding of the degree of excellence required. The Town shall be the sole judge of the qualifications of the offerings and will determine all questions regarding the conformance of any offer outside the specifications.

For any project it will be assumed that the Developer will furnish the exact materials specified on the plans and specifications unless the Developer files with the Town of Farmington prior to any use in the development, the names and complete description of each article which he proposes to substitute for approval by the Town Board of Farmington.

Any costs incurred by the Town or its representatives associated with the verification of substitute equipment and materials will be the responsibility of the Developer.

SECTION 4 - Installation

4.01 General Information

A. Meaning of Drawings

The Contractor shall abide by and comply with the true intent and meaning of all drawings and of the specifications taken as a whole. If the Contractor believes that the construction indicated on the project drawings will not, when executed, produce safe and substantial results or if it appears that there is any discrepancy in the drawings, it is his duty to immediately notify the Developer's Engineer, in writing, and to thereafter proceed only upon written order.

B. Protection of Property and Work

1. The Contractor shall conduct his operations to prevent damage to trees, garden plots, shrubbery, pipelines, conduits, buildings and other structures. The Contractor shall use all necessary precautions to protect the work and adjacent structures of all kinds during construction and shall so conduct his operations that at no time shall the work or such structures be endangered.
2. Responsibility and damage - the Developer shall be responsible for all parts of his work, temporary or permanent, until the project is complete and shall thoroughly protect all work, finished or unfinished, against damage from any cause as all work is at the Contractor's risk until the same is accepted by the Developer. The use of part or all of the work by the Town as provided for in these specifications shall not relieve the Developer of this responsibility. The Contractor shall be responsible for damage to life and property due to his operations and shall provide all necessary guards, rails, night lights, etc.

C. Permits

1. The Developer shall secure all necessary permits from the Town including the Code Enforcement Officer, Highway Superintendent, Water and Sewer Superintendent, and/or any other agency who may have control over any work prior to the start of construction.
2. Where dedication of Town Infrastructure is required, the following are to be completed prior to the issuance of a building permit:

- a. Roadway(s) constructed, including all gutter, curbs, or other roadway features, in accordance with the applicable Town Roadway Cross Section (see Appendix H-1.0 thru H-1.5). Topcoat shall not be required if within 1 year of the initial paving.
- b. All utilities constructed within public roadway corridor, or otherwise to be dedicated and completed as part of the current project phase. Testing is not required prior to issuance of building permits.
- c. All easements filed with the Town Clerk and County Clerk. Copies of filing information, including all materials submitted for filing, provided to the Town Engineer and Town Development Office.
- d. The project is currently compliant with all Town MS4 requirements, SPDES general permit requirements, and SWPPP requirements, including providing the Town with copies of all inspection reports.
- e. For projects with sidewalk to be dedicated to the Town, the sidewalk shall be installed by the contractor and inspected by the Town prior to issuing of building permits. See section 4.13 B.

D. Grading

Completion of grading per the grading plan to within 1 foot of design grade shall precede any trench excavation. Such grading shall include house "pads", removal of enough material to form "box" for road base, surface drainage channels, required temporary situation basins, etc.

Construction brush and debris will not be buried on the site. Wood materials shall be cut, chipped, mulched or removed from the site and deposited in a permitted construction/demolition landfill.

E. Grading Permit

Prior to issuance of a grading permit, the following items shall be provided:

1. A grading plan, and erosion and sediment control plan specific to the work to be performed under the grading permit.
2. A site-specific sequence of construction for all work to be performed under the grading permit.
3. A letter of credit, or other surety acceptable to the Town, in an amount approved by the Town Board. The letter of credit or other acceptable surety shall cover the costs of earthwork, erosion and sediment control, and any other items permitted to be completed as part of the grading permit and so identified by the Town for inclusion within the letter of credit / surety.
4. An approved grading permit SWPPP or overall project SWPPP, with a signed MS4 SWPPP Acceptance Form.

5. For sites where total land disturbance activities exceed 5 acres: a letter from the Applicant's Design Engineer requesting issuance of a 5-Acre Waiver, and a signed 5-Acre Waiver Form; or, a phasing plan demonstrating how the project will remain under 5-acres of disturbed area. Note: the Town may require a phasing plan be provided for any project, including those with an approved 5-Acre Waiver.
6. The NYSDEC Acknowledgement Letter for coverage under the NYS SPDES General Permit for Stormwater Discharges from Construction Activity.
7. A Pre-Construction Meeting is to occur. An additional Pre-Construction Meeting, and all items on the Pre-Construction Meeting Checklist, will be required to be completed prior any additional work being permitted.
8. Completion of the Grading Permit Checklist, Appendix G-11.0.

F. Pre-Construction Meeting / Site Construction Activity

A pre-construction meeting is required and scheduled through the Town Development Office prior to the start of construction of a development. The Developer, his Contractor and Applicant's Design Engineer shall meet with all utility representatives, Town Department Heads, Town Engineer and project observers to discuss the overall project, its impacts and schedules. A project construction sequence shall be presented in writing and discussed at this meeting.

The following are required to be completed prior to the scheduling of a preconstruction meeting and/or site construction activity taking place:

1. Final Subdivision / Site Plans approved and signed, copies and PDFs of signed plans and SWPPP provided to the Town and Town Engineer.
2. Final SWPPP approved and MS4 acceptance form signed by the Town MS4 Official.
3. NOI and MS4 SWPPP Acceptance Form submitted to NYSDEC. NYSDEC acknowledgement letter provided to Town Development Office.
4. Town of Farmington 5-Acre Waiver requested and form completed. Submitted to Town Development Office / CEO and approved.
5. Town of Farmington Stormwater Maintenance Agreement completed and forwarded to Town Development Office / CEO, Town Construction Inspector, and Town Engineer.
6. The Easement Package as outlined within this manual (section 5.07) is to be provided to the Town Construction Inspector for review. The Easement Package is to be forwarded to the Town Attorney for review.
7. All agency approvals and/or permits required have been forwarded to the Town Development Office.

8. A Surety Estimate has been approved by the Construction Inspector and Town Engineer, recommended by the Planning Board, approved by the Town Board, and provided to the Town Clerk.
9. The Town of Farmington Preconstruction Checklist Form (Appendix G-10.0) has been completed by the Applicant, signed by the Applicant, and submitted to the Town CEO for review and approval.

G. Construction Schedule

The Developer shall provide a construction schedule showing the order in which work will be completed at the preconstruction meeting. The schedule shall be reviewed at the preconstruction meeting and revised if necessary. No work will begin until an acceptable schedule is on file with the Town. Hours of Operation within the Town of Farmington are the following:

1. Weekdays from 7:00 am to 7:00 pm.
2. Saturdays from 7:00 am to 6:00 pm
3. Sundays – No work is permitted.
4. No work is permitted on the following Federal Holidays: New Year’s Day, Birthday of Dr. Martin Luther King Jr., President’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.
5. The Applicant / Contractor shall provide notification for work being conducted on other Town Holidays with the Town Construction Inspector and Town CEO not less than 48 hours prior to permit scheduling.

H. Change Orders

No changes are permitted without first receiving an approval from the Town of Farmington Building Department. A formal change order request shall be made to the Town Building Department for review and approval. Upon completion of the review, a formal decision will be rendered.

I. Existing Utilities or Structures

Before construction begins near any existing utility or structure, the Contractor shall notify the appropriate Owner of his intention and their instructions as to the protection of their property must be followed. Before commencing work, the Contractor shall determine the exact location of any structure or underground utility in order that the Contractor's project will not damage or disrupt these facilities.

The Contractor shall maintain site as needed to prevent entry of mud, debris, etc. into existing utilities or onto streets near the site as required under Section 4.09 (e).

All existing underground facilities shall be checked for damage before backfilling. In the event a facility is damaged, the Owner of that facility shall be notified by the Contractor so as to insure an acceptable repair and/or replacement.

J. Facilities for Observation

The Contractor shall furnish all reasonable facilities and aid to the construction observers for safe and convenient footways, scaffolds, ladders, etc., that may be needed for the examination and review of any part of the work. The Town of Farmington may stop work when the Contractor has no responsible agent on the project or if the Town feels that the Contractor is not performing the work in the best interests of the municipality.

Disorderly, intemperate and incompetent persons shall not be allowed on the project. The employees who neglect or refuse to follow the construction observer's instructions shall be permanently removed from the project by the Contractor. Failure to conform to these controls may warrant refusal of the municipality to consider the development for dedication.

K. Layout

It shall be the responsibility of the Developer to have the work carefully laid out by qualified surveying or engineering personnel in a manner that will assure accurate completion of the work.

L. Defective Work

The review of the work shall not relieve the Developer of any of his obligations to comply with the specifications. Any defective work shall be made good and any unsuitable materials which have been previously overlooked by the Town or its representatives shall be removed and replaced. If the work or any part thereof shall be found defective at any time before the final acceptance of the project, the Developer shall make good such defect in a manner satisfactory to the Town.

4.02 Trench Excavation

A. Excavation

Under this term will be included all excavation in trenches and pits, together with all backfilling and embankments that may be needed for the laying of the utilities and appurtenances or that may be necessary for the laying, changing and construction of any water, sewers, conduits, culverts, drainage ditches or water courses, or for any other incidental work that may be required or ordered by the Town or its representative.

It is the Contractor's sole responsibility to make sure that all work shall be conducted in strict accordance with the Federal Safety Standards of OSHA.

B. Width of Trenches

The trenches shall be of such width as may be required by the Applicant's Design Engineer to insure proper laying and handling of the pipes and appurtenances, proper tamping and backfilling operations. In all cases, trenches should be kept as narrow as possible. The Contractor shall be responsible to provide sheeting/bracing or other requirements to insure the safety of his workmen in conjunction with the proper installation of the pipe.

C. Depth of Trenches

In general, the trenches shall be excavated to such a depth to properly install utilities to the grade established in the field by the Applicant's Design Engineer. The depth of the excavation shall allow the proper bedding material to be placed under the pipe.

Any extra excavated depth by the Contractor shall be filled with compacted crushed stone to the proper grade required.

The trenches for water pipe shall, in general, be excavated to such depth as will provide twelve inches (12") of cover over the top of the pipe from the elevation of the greatest recorded frost penetration. In no instance shall this thickness of cover be less than four feet, six inches (4'-6") or five feet (5'-0") for PVC pipe from finished grade except in places where said pipe is required to pass over or under any existing pipes, other structures or will be within a cut area for future highway widening and as noted on the plans. Minimum cover when crossing under roads or highways shall be six feet (6').

D. Tunneling/Boring

Work shall generally be conducted in open trenches or excavations, with proper protection. Tunneling/ Boring shall be done only in areas specifically called for by the design plans with design details approved by the Town.

E. Blasting

Whenever necessary to resort to blasting for making the excavations, the trench shall be covered in a form to prevent fragments of rock from being thrown out. Only experienced, licensed workmen shall be employed in the handling and uses of explosives. All blasting operations shall be conducted in strict accordance with existing ordinances, regulations and specifications relative to rock blasting, storage and use of explosives.

F. Bailing and Draining

The Contractor shall furnish a sufficient pumping plant and shall provide and maintain, at his own expense, satisfactory drainage whenever needed in the trench and other excavations during the progress of the work and up to final inspection. No structures shall be laid in water. Water shall not be allowed to flow or rise upon any concrete or other masonry or flow on adjacent lands. All water pumped or bailed from the trench or other excavation shall be conveyed in a proper manner to a suitable point of discharge and may require temporary siltation traps.

G. Bottom of Trench

The bottom of the trench shall be carefully graded and formed according to the directions of the Applicant's Design Engineer, before any structures are laid thereon. When other instructions or design are not indicated, all trenches shall be excavated in a straight line. The excavation shall extend at least 6 inches below the bottom of the pipe and a carefully compacted bed of crushed stone screenings placed in the bottom of the trench up to the level of the spring line of the pipe. See Appendix W-12.0 for specific bedding material requirements.

It is the intention of this specification to achieve not less than Class "B" pipe bedding.

H. Suitable Bedding and Safety Backfill Material (see Appendix W-12.0)

It shall be the responsibility of the Contractor to generally utilize material excavated from the trench in order to provide the required backfill to meet the listed specifications unless crossing an existing or proposed road. Should the nature of the soil be such that the Contractor is unable to meet the above requirements by selecting, with reasonable care, from the excavated material, he shall provide the following materials, if so ordered by the Town.

Additional twelve (12) inches of crushed stone or concrete cradle when the trench bottom does not provide sufficient bearing capacity or when specification requires specific bedding for certain utilities.

Sand encasement shall be ordered by the Town when the trench is excavated in rock, boulders, or hard pan and none of the material above this level is suitable for backfilling the pipe.

4.03 Pipe Installation

A. Line and Grade

All pipes and appurtenances of whatever character shall, when set, conform to the alignments and grades required by the Applicant's Design Engineer. All of the required special castings and other fixtures that are indicated upon the plans, or that may be required during the progress of the work, shall be installed in their proper positions. Saddle connections on sanitary sewer shall be concrete cradled. Wye connections may be stone encased with the approval of the Town of Farmington.

B. Laying Pipe and Castings

The Contractor shall use suitable tools and appliances for the safe and convenient handling and laying of all utilities and appurtenances. All pipes and castings shall be carefully examined by the Contractor for defects and no pipe or casting which is known to be defective shall be laid. All PVC pipe shall be glossy with the manufacturer's marks legible. If defective pipe or castings should be discovered after being laid, these shall be removed and replaced with sound pipe or castings. The pipes shall be cleaned before they are laid and shall be kept clean until they are accepted with the completed work. All ends of the pipes shall be watertight capped to exclude water and debris from entering the pipes except during the actual pipe laying.

Sewers shall be built to the lines and grades between manholes as shown on the project drawings. The Contractor shall provide sufficient grade control to properly install the pipe and appurtenances. Sewer pipe shall be laid upgrade with spigots placed in the direction of flow. All pipes shall be fitted together to form a smooth, even invert. Pipes disturbed after laying shall be removed and relaid.

After the pipe has been placed and adjusted to line and grade, the bed shall be trimmed to support the pipe for its entire length. Material used for bedding shall be thoroughly compacted under the bottom and the haunches of the pipe. The trench shall then be backfilled to above the top of the pipe and carefully compacted to hold the pipe in position.

C. Cutting Pipe

Whenever it may be necessary to cut any straight pipe for any purpose, cutting shall be done to the satisfaction of the Engineer by skilled workmen with proper tools, in such manner as will not cause any cracking of the pipe.

4.04 Manhole Construction

A. General

Manholes shall be constructed of the size, type and at the locations shown on the Plans, or as designated by the Applicant's Design Engineer in the field.

The manhole bed shall be excavated level and include a minimum of 6 inches of crushed stone.

Manhole risers and flat slab covers shall be precast reinforced units. Manhole bases may be precast "Monobase" or field poured with 3,500 concrete psi.

Eccentric cone sections may be used on the top of manhole riser sections if the inside height dimension from the bench wall to the bottom of the eccentric section exceeds 8 feet.

Interior and exterior concrete surfaces shall be sealed by the supplier and touched up or recoated by the Contractor with like material.

Any pipe entering a manhole shall be neatly cut with proper sharp tools before installation in the manhole. Pipe shall not be "chipped off" after installation.

All openings and joints in the manhole sections shall be completely filled once the sections are set, with approved caulk and sealed with 2 coats of approved bitumastic coal tar sealer.

*NOTE: When PVC is used all openings around pipes shall be completely filled with 100 percent epoxy non-shrink grout.

Before each barrel of the manhole is set, the joint shall be cleaned and the barrel correctly aligned, so that the steps form a continuous ladder. The first step shall be a maximum of 32 inches below finished grade and continue to the top of the bench wall.

It is the intent of these specifications to construct first-class manholes, which will exclude all ground water, by means of carefully constructed foundations, tight barrel joints and the coating of the inside and outside of the manholes.

B. Frames and Covers

The frames shall be firmly set in a bed of not less than one full inch of cement mortar and adjusted to the finished grade. The manhole frame may be set directly on the concrete roof slab, providing the top will be at the proper grade; otherwise, precast concrete spacers or bricks shall be mortared to the roof slab to raise the

frame to the proper grade. A maximum of three courses of spacers or bricks shall be used to adjust the frames and grates to the proper grade.

Cretex PRO-RING adjustment rings are an acceptable alternative to concrete spacers.

C. Inverts

Inverts shall be constructed in all manholes. The inverts may be constructed of the mainline pipe or brick (Grade SS) and shall be the depth of the pipe. When PVC material is used, all brick, concrete or other masonry material that interfaces with the PVC shall be adhered to the PVC with 100 percent epoxy non-shrink grout. Manholes with 2 or more inverts shall have a smooth transition of flow.

D. Drop Manholes (see Appendix S-6.0)

Wherever the invert of the entering sewer is more than 2 feet above the invert of the outlet sewer, it shall be connected with a vertical inside drop with a drop bowl by RELINER[®] or approved equal. The drop pipe shall have an elbow at the bottom, rotated to the direction of flow. Drop pipe to be secured to manhole wall with stainless steel straps and anchor bolts.

E. Sealing of Manholes

All manholes shall be sealed with two (2) coats of approved bitumastic coal tar sealer as applied by the manhole manufacturer to the entire interior and exterior surfaces in minimum dry thickness of 11 mils per coat. Application shall be in accordance with the coating manufacturer's recommendations and shall be certified thereto by the suppliers. Before placement in the field, abraded areas shall be touched up with two coats by the Contractor. Covers and other exposed surfaces shall also be coated in the field. Improper materials or mil thickness shall be cause for rejection of manhole sections.

4.05 Catch Basins (see Appendix ST-4.0)

Catch basins shall be constructed as shown in the Appendix ST-4.0 or as shown on the plans for special conditions. Catch basins shall be constructed of precast concrete.

All catch basins shall be coated inside and outside with two coats of heavy-duty coal tar sealer.

4.06 Sewer Laterals and Water Services (see Appendices S-2.0 and W-4.0)

Sewer laterals and water services shall be installed to the right-of-way (or easement) line for all lots. Each service shall be located with a two-inch by four-inch (2"x 4") hardwood

or pressure-treated stake extending a minimum of three feet (3') above finished grade. The stakes shall be color coded in conformance with Industrial Code 53 to denote the type of service they represent.

Sewer connections on new sewer main installations shall be made with wye fittings only. Connections to an existing sewer main shall be made with approved saddles.

Select backfill shall be provided for all service trenches. Bedding and backfill quality shall be at the discretion of the Town representatives at the site.

All lateral installations and repairs are to be inspected and approved by the Town of Farmington.

4.07 Hydrants and Valves (see Appendix W-1.0 through W-1.4)

A hydrant unit shall consist of a hydrant, guard valve, mechanical joint tee and anchor pipes.

Before hydrants or valves are installed they shall be checked to determine if they are in the proper working order.

Hydrants shall be set plumb with the break flange 3 inches above the finished grade. Hydrant weeps shall be surrounded by at least 10 cubic feet of crushed stone or gravel. If the ground water is higher than the drainage plug, the plug shall be closed and the crushed stone eliminated.

Valve boxes shall be centered and placed plumb over the operating nut of the valve and adjusted to the final grade.

All hydrants shall be painted yellow with red bonnets and nozzle covers, and all valve box covers shall be painted blue.

4.08 Backfilling and Finishing

A. General

Trenches shall be immediately backfilled following the installation of utilities unless specifically changed in writing by the Applicant's Design Engineer. The roadways and sidewalks shall be left unobstructed, with their surface in a safe passable condition. The trench shall be tamped sufficiently to prevent settlement of or damage to existing or newly installed structures.

B. Backfill Immediately After Approval (see Appendix W-12.0)

Storm and sanitary piping shall have a minimum of six (6) inches crushed stone bedding and a minimum of twelve (12) inches of crushed stone on each side and

over the top of the pipe. Crushed stone shall be NYSDOT 703.02 #1 & #2 or #1 & #1A. The material must not be thrown down from above faster than the workmen below can properly distribute and compact it.

Watermain piping shall have a minimum of six (6) inches sand bedding and a minimum of twelve (12) inches of sand on each side and over the top of the pipe.

C. Restrictions as to Materials

No rock or frozen materials shall be placed in trenches within existing or proposed streets. Such material may be used in fields where immediate compaction is not necessary and at least 2 feet of select fill has been placed over the pipe.

D. Backfilling Pavement Crossings (see Appendix W-12.0)

All utility lines or laterals that cross existing or proposed streets shall be backfilled with crusher run stone conforming to NYSDOT 304-2.02 Gradation Type 2. Crushed or screened gravel may be used with the approval of the Town.

Material shall be compacted in lifts of 1 foot maximum to the elevation of the road subgrade. From there the backfill shall conform to the material specifications for individual road sections.

In no instance shall spare native material be used for backfill to be excavated at a later date for crusher run stone backfill.

Backfill shall be compacted in accordance with 4.10.

E. Cleaning Up

All roadways, intersections, gutters, and sidewalks shall be routinely cleaned of accumulated debris, sediment and tools throughout the construction process.

As the work progresses or as directed by the Applicant's Design Engineer, all rubbish or refuse, unused materials and tools, shall be removed at once from along and near the trench line construction.

Rough clean up along the route shall immediately follow installation procedures. Large spoil banks will not be permitted in developed areas.

Final clean up and landscaping shall proceed immediately after the installation, testing and approval of the facility.

Erosion control measures must be maintained throughout the construction process and removed only upon the approval of the Town.

In all cases, the project site shall be restored to a condition equal to or better than that, which previously existed.

4.09 Compaction

Compaction densities specified herein shall be the percentage of the maximum density obtainable at optimum moisture content as determined and controlled, in accordance with ASTM D1557. Field density tests shall be made in accordance with ASTM D6938.

Each layer of backfill shall be moistened or dried by the contractor as required and shall be compacted to the densities specified below in 4.09 A., B., and C., unless otherwise specified by the Town.

A. Select Fill

Under all existing or proposed roads, driveways, parking areas: 95% maximum modified Proctor dry density (ASTM D1557).

All other areas: 92% maximum modified Proctor dry density (ASTM D1557).

B. Methods and Equipment

Methods and equipment proposed for compaction shall be subject to the approval of the Town. Compaction by rolling or operating heavy equipment over fill areas shall be conducted in a manner by which damage to existing utilities and structures shall be avoided. Any pipe or structure damaged thereby shall be replaced or repaired as directed by the Town at the expense of the Developer.

C. Testing

1. Field density tests will be paid for by the Developer.
2. The Developer shall furnish all necessary samples for laboratory tests and shall provide assistance and cooperation during field tests. The Developer shall plan his operations to allow adequate time for laboratory tests and to permit taking of field density tests during compaction.
3. A qualified testing agency should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proof-rolling; placement and compaction of controlled compacted fills; backfilling of excavations in the completed subgrade.
4. Each lift of compacted fill should be tested, evaluated, and reworked as necessary until approved by the Qualified Testing Agency or Geotechnical

Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and moisture content at a frequency of at least one test for every 5,000 square feet of compacted fill in open areas and every 50 linear feet of compacted utility trench backfill.

5. Any areas found to be below required compaction densities shall be removed and replaced with new material at the Developer's expense. The methods of operation and/or the backfill materials shall be changed to meet required compactions.
6. Inadequate compaction shall be cause for the Town to issue a stop work order on a project.

Subgrade

1. The subgrade shall be graded to remove all unsatisfactory or unstable material. Where material is removed below the subgrade elevation, suitable granular material shall be used to bring the road to proper subgrade. Where ground water or poor soil conditions exist, the Developer shall be required to install perforated underdrain and crushed stone weeps to drain the base. The entire subgrade surface shall be thoroughly compacted and proof rolled in accordance with NYSDOT Specification 203-3.12.
2. Mirafi Geotextile Fabric material is required by the Town to stabilize the subgrade and subbase before the Contractor proceeds to install same.

When the subgrade is completed, the Contractor shall so notify the Town Highway Superintendent and the Town Engineer for a proofroll. No movement shall be observed in the subgrade material as the roller passes. Upon the review and written approval of the subgrade by the Town Highway Superintendent and Town Engineer or his representative, the subbase material may be placed.

Subbase Material

1. Approved subbase materials shall be uniformly deposited and compacted in layers with a roller, according to NYSDOT Specifications. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement of the course ahead of the roller. After compaction, the top surface of this course shall not extend above the theoretical elevation for this course and when tested with a gutter to gutter stringline, any deviation from the theoretical grade line shall be satisfactorily eliminated.
2. When the subbase has been prepared to the satisfaction of the Town Highway Superintendent or his representative, the Developer may place the binder course, however, the Developer shall provide 48-hour notice to the Town Highway Superintendent or his representative prior to placement of the binder course.

3. If subbase conditions are changed as determined by the Town Highway Superintendent or his representative before the binder is placed, he may order the Developer to seal the stone with a rapid sealing liquid asphalt emulsion as specified in NYSDOT Specification 702 with 0.5 gallons per square yard as determined by the conditions and not more than 24 hours prior to placement of binder asphalt.
4. If the compaction of the subbase is questionable by the Town Highway Superintendent or his representative, it may require re-rolling or stone replacement by the Developer.

Bituminous Pavement

1. Binder shall be placed and compacted to a minimum finished layer thickness of 3 inches with a self-propelled asphalt spreader and rolled according to NYSDOT Specifications 402-3.04 and 402-3.07. Before applying the top course, any irregularities in the binder course shall be eliminated but at no time will "cold patch" or "winter mix" be allowed on the binder for repair work.
2. Before the surface course is placed, the binder will be cleaned by the Developer and inspected by the Town Highway Superintendent or his representative to determine the condition of the pavement. A tack coat at the rate of 0.1 gallon/square yard before placing the surface course (top coat) shall be applied.
3. Surface Course shall be placed and compacted to a minimum finished layer thickness of 1 ½ inch top coat with a self-propelled asphalt spreader and rolled in accordance with NYSDOT Specifications 402-3.04 and 402.3.07.

4.10 Testing of Underground Utilities

A. General Information

Upon the satisfactory completion of the installation of the underground utilities, the Contractor shall proceed to test each of the installed facilities as herein specified. These tests shall be conducted in the presence of the Town. No test will be accepted unless witnessed by the Town. **Results and records/logs of these tests shall be submitted to the municipality upon receipt of testing results**, and as part of the record drawing information.

Water used by the Developer during any testing procedures will be paid for by the Developer - all hydrants for water supply or testing use shall be operated by the Town Water Department.

B. Sanitary Gravity Sewers (see Appendix S-7.0)

1. All sewers shall be flushed clean by the Contractor.

2. All flexible pipe shall be tested for deflection. The deflection test shall be conducted after the final backfill has been in place at least 30 days to permit stabilization of the soil-pipe system.
 - a. No pipe shall exceed a deflection of 5 percent. If deflection exceeds 5 percent, replacement of the defective sewer will be required.
 - b. The required mandrel test for deflection will be supplemented with a new required videotaping.
 - c. The contractor will flush and video tape all new sewer mains, and provide the televised footage to the Town (CD, flash drive, etc.). Each manhole-to-manhole section shall be clearly labeled with digital references showing the exact location of each sanitary wye. Camera used for televising shall be crawler/tractor type. Televising is required prior to dedication and prior to the maintenance bond expiring.
3. Leakage test shall also be conducted on the sewer. This test may be either by water or low-pressure air testing.
4. Each manhole shall be subjected to an infiltration or exfiltration test as determined by the Town.
 - a. Water Testing - Each manhole shall be filled with a maximum of 10 feet of water, subjected to a 24-hour test and show a loss of water not to exceed 15 gallons/24 hours for a 4-foot IDMH. Infiltration tests shall adhere to the same limits.
 - b. Vacuum Testing - Each manhole shall be subjected to a vacuum of 10 inches of Hg for one minute with an allowable loss of 1 inch of Hg.

C. Sanitary Forcemains (see Appendix S-7.1)

Pressure tests shall be made only after the completion of backfilling operations and at least 36 hours after the concrete thrust blocks have been cast.

The duration of pressure tests shall be one hour, unless otherwise directed by the Town. Test pressure shall be 100-psi minimum or a pressure of 2-1/2 times the maximum system operating pressure, whichever is greater. All tests are to be conducted in the presence of the Town. Allowable leakage shall be as specified in Appendix S-7.1.

The pipeline shall be slowly filled with water. The specified pressure, measured at the lowest point of elevation, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Town.

During the filling of the pipe and before applying the specified pressure, all air shall be expelled from the pipeline by making taps at the point of highest elevation. After completion of the test, the taps shall be tightly plugged at the main.

D. Storm Drains

All storm sewers shall be flushed clean by the Contractor and in the presence of the Town of Farmington Construction Inspector or Approved Designee the lines shall be lamped.

E. Water Mains (see Appendix W-9.0)

Provisions for metering the flushing and testing water shall be made. Water used must be purchased by the Developer.

1. Pressure Tests

Water piping shall be flushed and tested in conformance with the latest revision of ANSI/AWWA C600 standard for ductile-iron pipe, C605 for PVC pipe, or equivalent of C600 and/or C605 for PE pipe.

2. Disinfection

The proposed works must conform to the latest revision of ANSI/AWWA C651 standard, tablet method excepted. Following flushing and testing the engineer shall oversee collection of an appropriate number of bacteriological samples for total and fecal coliform and for standard bacterial plate count after 1) the field free chlorine residual is less than 1.5 PPM 2) the sample points have been decontaminated and 3) the main has sat for a minimum of 16 hours without any water use. Two sets of samples a minimum of 15 minutes apart shall be collected while the sample taps are left running. The engineer shall coordinate the appropriate number and locations of samples to be collected with the County or State Health Department having jurisdiction.

3. Samples

After flushing of the newly disinfected main and in accordance with the section above, the contractor shall obtain samples of water and submit them to a laboratory approved by the New York State Department of Health. Upon the receipt of a satisfactory laboratory report, this information together with the Applicant's Design Engineer's Certificate of Construction shall be submitted to the New York State Department of Health for approval. Upon receipt of the Approval of Completed Work

from the Health Department, the water system shall be considered complete and may be accepted for service by the Town.

F. Defective Areas

In any areas where satisfactory results of applied tests cannot be obtained, the defective portion of the system shall be located and replaced with new material.

That portion of the system shall then be retested until satisfactory results are obtained. Use of repair clamps will not be permitted by the Town.

4.11 Surface Improvements

General Information

The Contractor shall not proceed to construct any surface improvements, including roads, gutters and/or sidewalks until the underground system has been installed, tested and approved by the Town.

Careful attention shall be given by the Contractor to obtain the necessary compaction densities as specified. In general, the soils in Farmington preclude ultimate compaction in a short period of time due to the high clay content in the soil. Therefore, paving of the top road surface may be delayed by order of the Town of Farmington for a period of one (1) year or at least until a winter season has passed since the completion of the road binder course.

4.12 Roads/Streets

A. Subgrade

The subgrade shall be graded to remove all unsatisfactory or unstable material. Where material is removed below the subgrade elevation, suitable granular material shall be used to bring the road to proper subgrade. Where ground water or poor soil conditions exist, the Developer shall be required to install perforated underdrain and crushed stone weeps to drain the base. The entire subgrade surface shall be thoroughly compacted according to NYSDOT Specification 203-3.12.

Geotextile shall be required by the Town to stabilize the base or subbase before the Contractor proceeds with installation. This requirement may be waived by the Town Highway Superintendent upon submission of appropriate subsurface soil test results to prove that this fabric is unnecessary.

No movement shall be observed in the subgrade material as the roller passes.

When the subgrade is completed, the Contractor shall notify the Town Highway Superintendent and the Town Engineer for a base determination. Upon the review and written approval of the subgrade by the Highway Superintendent and the Town Engineer, the base material may be placed.

B. Base Material

Approved base materials shall be uniformly deposited and compacted in layers with a roller, according to NYSDOT Specifications. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement of the course ahead of the roller. After compaction, the top surface of this course shall not extend above the theoretical elevation for this course and when tested with a straightedge 16 feet in length, any bump or depression over 1/4 inch from the theoretical grade line shall be satisfactorily eliminated. When the base has been prepared to the satisfaction of the Highway Superintendent, the Developer may place the binder course. If base conditions are changed as determined by the Highway Superintendent before the binder is placed, he may order the Developer to seal the stone with a rapid sealing liquid asphalt emulsion as specified in NYSDOT Section 702-10 or 702-11 with 0.5 gallons per square yard as determined by the conditions and not more than 24 hours prior to placement of binder asphalt.

C. Bituminous Pavement

1. Binder shall be placed and compacted to a minimum finished layer thickness of 3 inches with a self-propelled asphalt spreader and rolled according to NYSDOT Specifications 401-3.06 and 401-3.12. Before applying the top course, any irregularities in the binder course shall be eliminated but at no time will "cold patch" or "winter mix" be allowed on the binder for repair work.
2. Before the surface course is placed, the binder will be cleaned by the installer and inspected by the Highway Superintendent to determine the condition of the pavement. It shall be necessary to apply a tack coat at the rate of 0.1-gallon/square yard before placing the surface unless this requirement is waived by the Highway Superintendent.
3. Surface Course shall be placed and compacted to a minimum finished layer thickness of 1 1/2 inches with a self-propelled asphalt spreader and rolled in accordance with NYSDOT Specifications 401-3.06 and 401.3.12.

D. Temporary Road Construction

Where construction sequences preclude the specified road construction items and these requirements for Certificates of Occupancy, a temporary road consisting of the specified road section less top surface course may be constructed.

This temporary road shall be reviewed by the Town Highway Superintendent and approved in writing prior to the issuance of any Certificate of Occupancy. The Town may accept dedication of the road if sufficient monies remain in the financial guarantee to top the road the next year.

E. Continuation of Existing Town Roads

When construction of a road is continued from an existing road or previous developed section, the pavements shall be joined with a triangular cut of at least 15 feet from edge of the pavement to the centerline of the old pavement. The intent of this provision is to eliminate any grade difference and make a smooth riding transition.

All pavement joints shall receive a tack coat before placing the binder or top course.

Town Roads within approved subdivisions are to be constructed to the furthest extent possible, whether it be the property line or phase boundary, and shall terminate with an approved Town Turnaround.

F. Stabilized Shoulders

Stabilized shoulders shall be constructed to the dimensions shown on the typical sections. Construction methods shall conform to NYSDOT Specification 410-3.01. The base course shall consist of a wedge of crusher run stone with a single surface treatment.

G. Underdrains

Underdrains shall be installed in conformance with NYSDOT Specification 605 and underdrain filter Type 1 per NYSDOT Specification 605-2.02. The underdrain shall be laid on four inches (4") of compacted stone and require six inches (6") of stone above and around the pipe.

4.13 Concrete Gutters and Sidewalks

A. Concrete Gutters (see Appendix H-5.0)

1. Concrete gutters shall be a minimum of 10 inches in depth and constructed true to the shape, line and grade on a thoroughly compacted base. The gutters may be constructed using a slip form method or in-place formwork.
2. Joints between sections shall be placed every 10 feet at right angles to the flow line and must be "wet struck" 1/8 inch wide and 3/4 inch deep. Full depth bituminous expansion joints shall be placed every 50 feet and at all structures or inlets.

3. Gutters shall be broom finished before the joints are struck and the finish shall be consistent throughout the project.
4. Gutters shall be cured and sealed by spraying with an approved curing and sealing compound at the rate recommended by the manufacturer.
5. One coat of curing and sealing compound shall be applied when the work is complete and another coat after the gutters have set for 48 hours.
6. The use of burlap or coverings for curing or protection is not acceptable until after the concrete has been sprayed and set.
7. Prior to final paving, the gutters shall be flooded and checked for horizontal and vertical line and grade and finish. If any gutters are found to be constructed in an unacceptable manner by the Superintendent of Highways, they shall be removed and replaced. They shall also be backed up with select fill (no cobbles greater than 3 inches) to help prevent any movement during paving.
8. Gutter replacements shall conform to the existing gutter regarding finish and color.

B. Concrete Sidewalks (see Appendix H-6.0)

1. Shall be designed to meet the Americans with Disabilities Act (ADA) requirements.
2. As the Town has agreements regarding the installation and maintenance of sidewalk in State and County right of ways, the design standards for Town sidewalks shall apply along State and County highways within the Town of Farmington.
3. Minimum 5 inches in depth and constructed true to shape, line and grade. Sidewalks installed through driveways shall be reinforced with W2.9 6" x 6" wire mesh (10 gauge), and shall be 6" thick if also within the NYS R.O.W. Concrete shall be minimum 4000 psi, air entrained.
4. For sidewalks to be dedicated to the Town or within the NYS R.O.W., no concrete shall be placed before April 20th or after October 31st. No concrete shall be placed unless the ambient air and base material surface temperature is above 40 degrees, except in the Town R.O.W. when following ACI 306 Cold Weather Concreting.
5. Minimum width shall be 5 feet or to match existing.
6. The base shall be thoroughly compacted crusher run stone with a thickness of 6 inches. The base material shall extend 6 inches outside each edge of the concrete sidewalk.
7. A cross slope of 1/4 inch per foot shall be maintained for positive drainage toward street level.

8. Construction joints shall be wet struck at 5-foot increments and be 2 inch deep. Full depth bituminous expansion joints shall be placed every 25 feet and at all castings.
9. Sidewalks shall be broom finished and have troweled edges with a corner radius of 1/4 inch. The finish shall be consistent throughout the project.
10. Two coats of approved clear, non-yellowing curing and sealing compound shall be applied. One coat immediately following the finish work and the second coat 48 hours later.
11. A 10-foot sidewalk easement may be required.
12. Crosswalks and signage shall be in accordance with sections 4.18, 4.19, and 4.20.

C. Testing

1. The Contractor shall obtain in accordance with ASTM C-31 two samples from every other truck delivering concrete to the site and have the samples compression tested by an independent testing laboratory.
2. Results of these tests shall be submitted to the Town Highway Superintendent.

4.14 Monuments (see Appendix H-9.0)

The monuments shall be installed at those locations shown on the approved final plan and as located in the field by a Licensed Land Surveyor. They shall be installed to a depth of at least 30 inches below finished grade with the top surface to be flush with finished grade. Upon the installation of the monuments the location shall be certified to the Town by a Licensed Land Surveyor as to their accuracy.

4.15 Final Grading

Upon satisfactory completion of the utilities and roads, the entire area within the right-of-way shall be raked, graded and hydroseeded according to the approved plans.

The site Contractor shall be responsible for all work within the right-of-way while also maintaining the erosion control. In those areas where home building has started, clean up and site maintenance will then become the responsibility of the builder. Debris and spoil banks created during the development (not home building) of the site shall be entirely removed and/or disposed of from the site. No burying of debris or material shall be allowed on approved or proposed building lots.

4.16 Final Cleaning

During the time period between initial installation and testing and acceptance for dedication, debris and/or sediment may accumulate in the utility systems. The Developer shall be responsible to flush and remove this debris from the system prior to the final inspection for dedication.

4.17 Signs

Street and traffic signs shall be supplied by the Developer and installed by the Town in accordance with standards outlined in the Manual of Uniform Traffic Control Devices (MUTCD) including the most current New York State Supplement to the Manual on Uniform Traffic Control Devices for Streets and Highways (NYS Supplement)(State of New York, Department of Transportation, Division of Traffic and Safety).

Signs and posts shall be ordered by the Highway Department for consistency throughout the Town Highway Department. Upon receipt of signs, they shall be placed in the field by the Highway Department with sign post and installation cost the responsibility of the Developer.

4.18 Crosswalk Requirements

Crosswalks, and all other pedestrian crossings of vehicular travel ways, are to comply with MUTCD and NYS Supplement requirements. Pedestrian crossing features such as signs and signals shall be as ordered by the Town Highway Superintendent or Authority Having Jurisdiction (AHJ).

4.19 Pavement Marking Requirements

All pavement markings for Town roads, private roads, and any other travel ways identified by the Town Highway Superintendent, are to comply with MUTCD and NYS Supplement requirements. The Applicant's Design Engineer shall include pavement marking plans and details within the Subdivision / Site Plan Set if so requested by the Town Highway Superintendent or Town Engineer. All pavement markings on Town roads shall meet NYSDOT specifications.

SECTION 5 - Requirements for Dedication and Project Acceptance

5.01 General

All construction within the right-of-way or on lands to be dedicated to the Town shall be complete with a final site inspection and written approvals of the construction by the following in compliance with Section 144-33.A of the Town of Farmington Town Code:

1. Water and Sewer Superintendent
2. Code Enforcement Officer
3. Highway and Parks Superintendent
5. Construction Inspector
6. Planning Board Chairman (as may be appropriate)
7. Town Engineer (as may be appropriate)
8. Town Supervisor's Office

5.02 Monuments

Monuments shall have been set in their required locations and certified by the applicants licensed Land Surveyor.

5.03 Grading

Final grading and hydroseeding and mulching to achieve full stabilization shall be completed within the right-of-way and all spoil removed from the site.

5.04 Landscaping

All landscaping is to be completed as per the approved subdivision and site plans and inspected by the Town of Farmington Water and Sewer Superintendent, Highway Superintendent, Code Enforcement Officer, Construction Inspector, and Town Engineer when applicable

5.05 Lighting

All lighting is to be LED, Dark Sky Compliant, and in accordance with the Town Code.

5.06 Street Signs

All street and traffic signs, including street identification numbers, shall be properly set in their designated locations.

5.07 Road and Easement Dedications

The Dedication process requires many documents, which must be prepared and checked by many departments within the Town of Farmington. Therefore, we recommend you start the process right after the binder is laid in the road. This would give sufficient time for you to prepare documents, review them, and obtain the necessary Resolution(s) at Town Board meeting(s) well before you require a Certificate of Occupancy (C of O) for a completed dwelling.

STEPS TO FOLLOW:

1. The developer and/or the developer's engineer(s) contacts the Farmington Building Department (Town Construction Inspector) for the necessary Road and/or Easement Dedication packet of forms.
2. The documents needed for the granting of easements are:
 - A. Easement(s) with Legal Description(s);
 - B. Easement Area Survey Map(s);
 - C. Form TP-584.2 for the Easements (only one is needed for all easements);
 - D. Bill of Sale;
 - E. Survey Map;
 - F. Attorney's Certification of Title (must show the Grantor's ownership interest in the property and show that the subject property is free and clear of all liens and encumbrances that would affect the granting of said easement(s). If there are any liens or encumbrances that would affect the granting of said easement(s), they must all be cleared, discharged or satisfied to the Town's satisfaction prior to the Town accepting the easements);
 - G. If Developer is a corporation or limited liability company:
 - i. a copy of the corporation's Articles of Incorporation or LLC's Articles of Organization,
 - ii. Filing Receipt with the New York State Department of State,
 - iii. Certificate of Good Standing,
 - iv. Franchise Tax Report,
 - v. LLC's Operating Agreement and
 - vi. Resolution of the corporation's Board of Directors/LLC's Members authorizing the transfer of the easements and authorizing the officer who will be signing the documents to sign them;
 - H. Payment by Grantor of all Recording and Filing Fees

3. The documents needed for conveying title to the roadbed are:
 - A. Warranty Deed with Legal Description (for dedication of road(s));
 - B. TP-584;
 - C. RP-5217;
 - D. Release;
 - E. Bill of Sale;
 - F. Survey Map;
 - G. An Abstract of Title to be retained by the Town;
 - H. Preliminary Fee Title Insurance Policy or Attorney's Certification of Title (Policy or Attorney's Certification of Title must show the Grantor's ownership interest in the property and show that the subject property is free and clear of all liens and encumbrances. If there are any liens or encumbrances, they must all be cleared, discharged or satisfied to the Town's satisfaction prior to the Town accepting the deed and/or easements);
 - I. If Developer is a corporation or limited liability company:
 - i. A copy of the corporation's Articles of Incorporation or LLC's Articles of Organization,
 - ii. Filing Receipt with the New York State Department of State,
 - iii. Certificate of Good Standing,
 - iv. Franchise Tax Report,
 - v. LLC's Operating Agreement and
 - vi. Resolution of the corporation's Board of Directors/LLC's Members authorizing the transfer of the easements and authorizing the officer who will be signing the documents to sign them;
 - J. Payment by Grantor of all Recording and Filing Fees
4. After the documents, survey descriptions and maps have been prepared, they are returned to the Farmington Building Department (Town Construction Inspector) for review. If there are no changes, the Town Construction Inspector forwards to the Town's Attorney.
5. The Town's Attorney reviews the documents for accuracy. If the documents are in order, Counsel will forward them to the Town Board along with Board Resolutions for the Town Board to adopt and an Order for the Highway Superintendent to lay out the highway(s) in question.
6. Once the Town Board has adopted the Board Resolution(s), the Town Supervisor will sign all approved documents. The developer or the developer's agent will need to arrange with the Town for pick up of the signed documents and arrange to have them recorded in the Ontario County Clerk's Office. Immediately after the documents have been recorded, the developer or the developer's agent must send to the Town Clerk, the Town Building Department, the Town Water and Sewer Department and the Attorney for the Town a copy of the recording receipt from the County Clerk showing the recording date and liber and page of each document that has been recorded. The Town Code Enforcement Officer will not issue a Certificate of Occupancy (C of O) until it has this written proof of recording.

7. The developer must satisfy all requirements for dedication and project acceptance as outlined in the Town of Farmington's Site and Development Criteria Handbook, paragraphs 5.01 through 5.06, 5.08, and 5.10.

5.08 Dedication Process

Prior to the Town Board taking dedication, the following items are to be completed as required per Section 144-33 of the Town of Farmington Town Code and as outlined below:

- A final inspection is to be performed by the Town of Farmington including Highway Superintendent, Water & Sewer Superintendent, Code Enforcement Officer, Construction Inspector, a Planning Board representative and/or Town Engineer, as may be appropriate, to confirm all proposed dedicated items have been completed and constructed per the approved plans and Town requirements, and the Final Inspection Form (Appendix G-4.0) is to be completed.
- The Dedication Form (Appendix G-3.1) is to be completed, signed (by those who completed the inspection), and forwarded with the dedication package to the Town Board.
- Confirmation that all easement maps and legal descriptions, land transfer documents, and R.O.W. documents have been received and reviewed by Town Staff, and filed with the Town Clerk and County Clerk by Town Attorney.
- MS4 Stormwater Facility Maintenance Agreement (if applicable) provided to, and reviewed and approved by Town Attorney, and provided to Town Clerk.
- The Town Attorney prepares resolutions to Accept Dedication of the General Site Improvements and are received by the Town Clerk.
- Town Engineer provides a Letter of Recommendation to accept a Maintenance Bond or other form of approved surety.
- The submission and acceptance of a two (2) year Maintenance Bond for all improvements to be offered to the Town for dedication. Maintenance sureties shall be written by a surety licensed to do business in New York State and they shall be in the amount of 10 percent of the dedicated items.
- The submission of all testing results to the Town and acceptance of project As-Build Drawings meeting the Town of Farmington requirements as listed below within Section 5.10.
- Completion of the Dedication Checklist (Appendix G-3.0).

5.09 Certificates of Occupancy

All requirements of the Building Permit process (Section 1.03), including Town Board acceptance of items to be dedicated, are to be completed prior to the issuance of a Certificate of Occupancy (C/O), or at the discretion of the Town Code Enforcement Officer. Certificate of Occupancy for new single or multi-family dwellings or additions thereto, or new commercial buildings or additions therein, shall also require the following:

1. All lawn areas and site landscaping shall be established and the site shall be stabilized prior to issuance of a Certificate of Occupancy, or at the Town Code Enforcement Officer discretion.
2. Driveway shall be paved at least 10 feet out from the edge of the gutter or shoulder, or 4 feet beyond the sidewalk (if present), whichever is greater. Driveway pavement shall be flush with edges of gutter and sidewalk.
3. A certified boundary survey, prepared by a licensed professional, shall be provided and include the following information:
 - a. Locations of all monuments, markers, pins, and pipe markers for the lot, and the distances of these items from the lot lines.
 - b. An as-built outline of the dwelling and all associated structures, with dimension lines shown extending from each structure to all boundary lines.
 - c. Finished elevations for the dwelling, and all attached and detached garages and accessory structures.
 - d. Locations of the following site features (if present on site): driveways, sidewalks, fences, retaining walls, stairs, and decks.
 - e. Locations of the following utilities and utility structures (if present): watermain, water service (including curb stop), private well, sanitary sewer, sanitary lateral, septic tank, distribution box, pump station, leach field, storm sewer, storm lateral, downspouts and leaders (including discharge points), electrical pull boxes, transformers, utility poles, and overhead wires.
 - f. As-built contours at one-foot (1') intervals for the developed/altered portion of the site. Contour information for the remainder of the site may be from existing surveys or GIS data and should be presented at an interval appropriate to adequately convey the shape of the land, and at a maximum interval of ten foot (10').

5.10 As-Built Requirements

1. A PDF of the record drawings is to be provided to the Town Construction Inspector and the Town Engineer, for review.

2. Once approved by the Construction Inspector and Town Engineer, a stamped and signed PDF copy of the record drawings is to be provided to the Director of Planning & Development, Director of Planning & Development, Town Engineer, and Town of Farmington Water & Sewer Department.
3. A copy of the digital information (as described further in this section) is to be provided to the Town Engineer for review and approval. The Town Engineer shall notify the Town whenever such information is received and whenever such information is approved.

All as-built drawings submitted to the Town of Farmington shall adhere to the following requirements:

- A. All survey data to be in NAD 83 coordinates. NY Central projection units – US Feet.
- B. All elevations to be based on NAVD 88 Orthometric Heights.
- C. A minimum of one site benchmark will be established.
- D. All infrastructure dedicated to the Town of Farmington is to include but not limited to: monuments and pins delineating dedicated Town of Farmington properties, fire hydrants, storm & sanitary manholes, catch basins, water valves, curb stops, sewer cleanouts, light poles and stormwater management facilities.
- E. Delivered to the Town of Farmington in a .dwg format that includes the following attributes with each structure:
 - Northing
 - Easting
 - Ortho Height
 - Point Code
 - Point I.D.
 - Material
 - Manufacturer
- F. All required points and attributes are to be included in separate files in either .csv or ascii format so that they can be administered and uploaded onto the Town of Farmington’s GIS System.
- G. Water lines to be delivered in a .dwg format with attribute data to include length of line, material and size.
- H. Sanitary sewer lines to be delivered in .dwg format with attribute data to include length of line, material, size, inlet line, outlet line, slope line, and flow direction arrows.

- I. Storm sewer lines to be delivered in .dwg format with attribute data to include length of line, material, size, inlet line, outlet line, slope line, and flow direction arrows.
- J. All data is to be delivered to the Town of Farmington and Town Engineer by email, download link, or USB drive. All data shall be in a .dwg format digital file, along with a point file in .csv or ascii format.

The following Record Drawing information shall be provided as described:

- A. Locations and Elevations of all sanitary/storm manholes, catch basins, culvers, this includes invert and top elevations of sanitary sewers, watermain, storm sewers, slopes, size and lengths.
- B. Locations and Elevations of all water system valves, curb boxes, fire hydrants, sanitary sewer lateral and main connection at wyes, sanitary sewer clean-outs, storm lateral, and water service line and curb box.
- C. Finished Elevations and slopes of road surfaces and gutters, including road name and curve table.
- D. Locations and finished elevations of all stormwater management facilities and outfall structures, and all other stormwater management practices. Record Drawings shall be required to include a stage storage table comparing design elevations and volumes to as-built conditions.
- E. Locations of all light poles, sidewalks, street signs, and guiderail.
- F. Liber/page number of any easements or right-of-way and including floodplain numbers.
- G. Any other significant details affecting the operation or maintenance of any system by the town or districts.
- H. All record data and test results shall be supplied to the Town/Districts and are subjected to review and approval at least 15 days prior to any dedication procedure.

If the developer cannot provide the record information as detailed above the Town may elect to complete the record information at the Developer/owner's expense.

5.11 Letter of Credit Approval Procedure

The following is the required procedure for review and approval of letters of credit:

1. Developer submits the following to the Town Construction Inspector and Town Engineer:
 - a) Cover letter identifying the project and requested letter of credit amount.
 - b) Completed "Applicant's Engineers Estimate".
2. Town Construction Inspector and Town Engineer review the Letter of Credit Estimate for accuracy and compare the Letter of Credit Estimate to the plans.

3. Town Engineer prepares a letter of recommendation and fills out the applicable sections of the Letter of Credit / Surety – Established form (Appendix G-1.0), and submits the letter and form to the Director of Planning & Development.
4. Director of Planning & Development reviews Town Engineer’s letter of recommendation and Appendix G-1.0 form. The Director of Planning & Development continues filling out the G-1.0 form and submits the letter and form to the Town Planning Board with recommendation of action regarding adequacy of the surety.
5. Town Planning Board recommends acceptance of the surety and refers the matter to the Town Board for approval.
6. Town Board accepts by resolution the surety and copies of the resolution are sent to the Town Construction Inspector, Department Heads, Town Clerk, Planning Board Chairman, Town Supervisor, and the applicant and a copy filed with the Town Development Office.
7. Once the letter of credit / surety is filed with the Town Clerk, the Town Clerk shall complete the remainder of the Appendix G-1.0 form, sign the form, and forward the completed form to the Town Engineer and Director of Planning & Development.

5.12 Letter of Credit Release Procedure

The following is the required procedure for review and approval of both partial and final letters of credit releases:

1. Developer submits the following to the Town Construction Inspector:
 - a) Cover letter identifying the project and requested letter of credit to be released.
 - b) Completed “Town of Farmington Letter of Credit - Release Form” (See Appendix G-2.0).
 - c) Completed “Engineer’s Estimate”.
2. Town Construction Inspector reviews the Letter of Credit Release request and reviews quantities of installed materials with developer.
3. Once quantities are verified, Town Construction Inspector obtains written approvals on the Town Department Head Signature Sheet from the following Department Heads:
 - a) Water and Sewer Superintendent
 - b) Highway and Parks Superintendent
 - c) Code Enforcement Officer

4. Town Construction Inspector submits to Town Engineer the following:
 - a) Copy of developers submittal package,
 - b) Fully signed Letter of Credit / Surety Release Form (Appendix G-1.1)
5. Town Engineer compares Engineer's Estimate to plans and reviews his findings with the Town Construction Inspector.

After reaching concurrence with the Town Construction Inspector, the Town Engineer submits a letter of recommendation to the Director of Planning & Development including the following information:

- a) Name of Project
 - b) Recommended letter of credit release amount
 - c) Original letter of credit amount
 - d) Letter of credit balance
 - e) Reference to completed and signed "Letter of Credit Release Form" (Appendix G-2.0) submitted by developer
 - f) Copy of Developer's engineers estimate
 - g) Copy of the Letter of Credit / Surety Release Form (Appendix G-1.1 complete with Department Head approval signatures)
7. Director of Planning & Development reviews Town Engineer's letter and submits to Planning Board with recommendation of action.
 8. Copies of the letter of recommendation are sent to the Town Construction Inspector, Department Heads, Town Clerk, Planning Board and Town Supervisor.
 9. Planning Board recommends to Town Board whether to honor the request.
 10. Town Board adopts resolution to release requested letter of credit amounts.
 11. Town Clerk provides notice to applicant.
 12. Partial release from the Letter of Credit may be granted by the Town Board as individual components of the subdivision and/or site development are completed. This shall not be construed as final acceptance of the work by the Town.

5.13 Maintenance Guarantee

The submission and acceptance of a two (2) year Maintenance Bond or the use of 10 percent of the value of the dedicated items in the established Letter of Credit (LOC) for

the project, for all improvements to be offered to the Town for dedication. Maintenance sureties shall be written by a surety licensed to do business in New York State and they shall be in the amount of 10 percent of the dedicated items. [The Maintenance surety shall be approved as to form and content by the Municipal Attorney prior to any dedication procedure and final release of funds.]

5.14 Final Release of Funds

Prior to the authorizing of the final release from the Letter of Credit, a final site inspection and approval is to be provided by the Town Department Heads and Town Engineer (upon request by the Town). The Town Board, upon recommendation from the Town Engineer, receipt of the Dedication Form (Appendix G-3.1) signed by the appropriate Department Heads and/or Staff, receipt of a two (2) year Maintenance Guarantee, and certified record (As-Built) drawings approved by the Highway Superintendent and Water and Sewer Superintendent, shall then authorize the final release of monies retained in the Letter of Credit.

A minimum of 60 days prior to the Maintenance Guarantee expiring, a final inspection completed by the Town Department Heads and submission of the Final Inspection Form for Expiring Surety (Appendix G-4.0) is to be provided to the Town Development Office.

If the required improvements are not completely installed within the period fixed, or extended by the Town Board, or the submitted Final Inspection Form for Expiring Surety (Appendix G-4.0) identifies deficiencies, the Town Board may declare the Letter of Credit/ Maintenance Guarantee in default and collect the amount payable thereunder. Upon receipt of such amount, the Town shall install such improvements as were covered by the Letter of Credit/ Maintenance Guarantee and are commensurate with the extent of building development which has taken place in the subdivision, not exceeding in cost, however, the amount collected upon the Letter of Credit/ Maintenance Guarantee.