DEVELOPMENT REGULATIONS

Approved By:

AVON VILLAGE BOARD

Dated: May 16, 2005

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INTRODUCTION

It is the intent of this booklet to provide minimum standards for the proper design and development of lands in the Village of Avon in conjunction with the Avon Village Code. The information contained herein has been prepared as a guide for the systematic and harmonious development of land, while striving to better the community for its residents.

The booklet is divided into two parts, as follows:

Part I - Rules and Regulations

This part deals with the legislative procedures required to properly develop a plan for review by the Village.

Part II – Design and Construction Specifications

This part provides the basic minimum standards that are acceptable for use within the Village and establishes the minimum standards of excellence or quality of construction for the installation of improvements in lands developed within the Village.

In combination these two parts provide the basic understanding and guidelines that are required for the complete development of land in the Village of Avon.

PART I
RULES AND REGULATIONS
FOR THE
DEVELOPMENT OF LAND

VILLAGE OF AVON
LIVINGSTON COUNTY, NEW YORK

SECTION 1 – Citation of Rules and Regulations

These rules and regulations shall be known and may be cited as "The Village of Avon Development Regulations". All development is subject to the requirements of these regulations and as required per the Avon Village Code. Where conflicts between the Village Code and these Development Regulations arise, the Village Code shall supercede.

SECTION 2 – Authority and Requirements of Plat Approval

By reason of a resolution adopted by the Village Board of the Village of Avon, pursuant to the provisions of the Village Law, the Planning Board of the Village of Avon has the power and authority to approve plats of a subdivision of land, site plans, with or without streets or highways within the Village of Avon. Such approval, in accordance with the procedures and regulations set forth below, is prerequisite to recording of all plats of any subdivision of land in the office of the Livingston County Clerk.

SECTION 3 – Purpose

To carry out the purpose of the Village Law and the Village Board in providing for plan approval, these minimum rules and regulations are adopted by the Planning Board, and approved by the Village Board, to provide for the future growth and development of the Village and to afford adequate facilities for the housing, transportation, distribution, comfort, convenience, safety, health, and welfare of its population. Consistent with such purposes, these rules and regulations will assure the orderly development of residential areas, the coordination of existing streets and public utilities with new service, the proper provision of open spaces for passive and active recreation, and the proper location of future sites for public buildings and shopping areas, all to the mutual benefit of the Village and its residents.

All development and work within the Village of Avon is subject to the requirements of and final approval by the Village of Avon.

As deemed necessary, the Village of Avon reserves the right to mandate additional requirements and/or allow deviations from the requirements set forth in these Development Regulations.

SECTION 4 – Definitions

Unless otherwise expressly stated, the following terms shall, for the purpose of these regulations, have the meaning indicated.

Words in the singular include the plural, and words in the plural include the singular. The word "person" includes a corporation, unincorporated association, and a partnership, as well as an individual. The word "building" includes "structure" and shall be construed as if followed by the words "or part thereof". The word "street" includes "road", "highway", and "lane"; and "water-course" includes "drain", "ditch", and "stream". The words "shall" or "will" are mandatory; the word "may" is permissive.

ALLEY (or Service Drive) – A strip of land over which there is a right-of-way serving as a means of access to one or more private properties.

BLOCK – An area bounded by streets.

BUILDER – An individual, partnership, or corporation who obtains a building permit for construction of a structure or structures on lots within the proposed development.

CLEAR SIGHT TRIANGLE – An area of unobstructed vision at street intersections defined by lines of sight between points at a given distance from the intersection of street right-of-way lines.

CONTRACTOR – An agent Acting for the Developer to construct the required improvements of the project. The Contractor is responsible to perform the work in conformance with the approved plans and subject to the review of Village Officials.

PEDESTRIAN WALK – A right-of-way, municipally, or privately owned, which cuts across a block of land to furnish access for pedestrians to adjacent streets or properties.

CUL-DE-SAC – A residential street with one end open for public vehicles and pedestrian access and the other end terminating in a vehicular turnaround.

DEDICATION – The deliberate appropriation of land by its owner for any general and public uses, reserving to himself no other rights than such as are compatible with the full exercise and enjoyment of the public uses to which the property has been devoted.

DEVELOPER – Subdivider and/or an individual, partnership, or corporation holding title to a parcel of land to be developed or subdivided. Commitments and/or requirements for development would be solely between the Village of Avon and the Developer.

DOUBLE FRONTAGE LOTS – A lot, having at least two sides fronting on separate streets which do not intersect while adjoining the lot.

EASEMENT – A right granted to use certain land for a special purpose not inconsistent with the general property rights of the owner.

FINAL SUBDIVISION PLAN – A plan or plat prepared for recording by a registered engineer and/or surveyor, in accordance with applicable sections of these regulations.

GRADING PLAN – A plan showing all present and proposed grades for storm water drainage and disposal.

HALF STREET – One half of a street right-of-way and paving, usually with its center line located on a property line.

IMPROVEMENTS – Those physical additions and changes to the land that may be necessary to produce usable and desirable lots. These may include but not necessarily limited to grading, paving, curbing, fire hydrants, water mains, sanitary sewers, storm sewers, and lighting standards and monuments.

LOT – A parcel of land intended for transfer of ownership or building development, that is presently occupied or capable of being occupied by one principal building or use and by those buildings or uses accessory to the principal buildings or uses.

MASTER OR COMPREHENSIVE PLAN – A comprehensive plan, prepared by the Planning Board, which indicates the general locations recommended for various functional classes of public works, places and structures and for general physical development of the Village and includes any unit or part of such plan separately prepared and any amendment to such plan or parts therein.

PLANNING BOARD – The word Board or the words Planning Board or Village Planning Board shall mean the Village of Avon Planning Board. When Village Board is designated, it will be stated as Village Board.

PLAN, PRELIMINARY – A drawing or drawings clearly marked "preliminary plan" showing the salient features of a proposed subdivision, submitted to the Planning Board for purposes of consideration prior to submission of the plat in final form and of sufficient detail to apprise the Planning Board of the layout of the proposed subdivision.

PLAN, SKETCH – An informal plan, not necessarily to scale, indicating salient existing features of a tract and its surroundings and the general layout of the proposed subdivision.

PLAT, FINAL – A drawing, in final form, showing a proposed subdivision containing all information or detail required by law and by these regulations to be presented to the Planning Board for approval and which, if approved, shall be duly filed or recorded by the applicant in the office of the County Clerk or Register.

PROJECT OBSERVER – An agent of the Village empowered to observe the progress of the project and the compliance of the construction with the specifications and/or approved plans. He

shall have the power to halt construction should the Contractor and/or Developer not be performing the work in a satisfactory manner.

RIGHT-OF-WAY – Land opened for use as a street, alley, or pedestrian-way.

STREET – A general term used to describe a right-of-way, municipally or privately owned, serving as a means of vehicular and pedestrian travel, furnishing space for sewers, public utilities, and shade trees. The streets are classified by function as follows:

1. Private Roadway – A private street or road shall be considered as one serving no more than four (4) lots and will not be dedicated to the Village.

2. Minor Street (Subdivision) – A residential street or a connecting street serving primarily developed neighborhoods with relatively low volumes of through traffic.

3. Collector Street – A Street connecting district centers, serving large volumes of through fast traffic, preferably located outside or bounding the residential neighborhoods.

SIGHT DISTANCE – The maximum extent of unobstructed vision (in a horizontal or vertical plane)along a street from a vehicle located at any given point on the street.

SUBDIVISION – A division of any part, parcel, or area of land by the owner or agent whether by lots or by meets and bounds into lots or parcels for the purpose of conveyance, transfer, improvements, or sale.

1. Minor Subdivision – A subdivision of not more than four (4) lots on an existing street with each proposed lot complying with the Zoning Ordinance and requiring no new streets, nor the creation or extension of improvement districts for the supply of water, sewer, or drainage utilities, and having no substantial adverse effect on access to, use, or development of the remainder of the parcel or adjoining parcels.

2. Major Subdivision – Any subdivision not classified as a "minor subdivision" and/or requiring any new street or extension of any municipal facilities.

VILLAGE ATTORNEY – Reviews necessary documentation as required for districts, easements, letters of credit, dedication, surety, or other legal matters.

VILLAGE BOARD – Acts on behalf of the residents of the Village of Avon for the betterment, protection, and welfare of the community.

VILLAGE ENGINEER – The duly designated Engineer of the Village of Avon, or if there be no such designee, the Engineer assigned to the Village Planning Board. He shall be responsible to review the project plans, progress of construction, and make recommendations, and/or require changes of the Developer to insure that the best interests of the Village shall be preserved in conformance with the standards herein established.

SECTION 5 – Procedures

5.1 Procedural Check List – Site Plans and Subdivisions Combined

Concept

5.1.1 Introductory Meeting with Planning Board

A. Generally review concept of proposed project
B. Planning Board generally ok with project concept or rejects proposal
C. If Project continues – Proceed to Sketch and Preliminary Plans with any changes recommended by Planning Board

Sketch and Preliminary Site Plan and Plat (if Planning Board approves Concept)

5.1.2 Developer's Initial Submittal – Must meet Sketch Plan Requirements as minimum

A. Plans (mandatory for all developments - see checklist)
    1. Must comply with Development Regulations
    2. Required Supporting Information (Drainage Reports/Calculations, SWPPP, etc.)
B. Application
C. Required Fees (if any)
D. Twelve (12) copies of above filed with Village Clerk
E. At least ten (10) days prior to Planning Board Meeting

5.1.3 Scheduled on Planning Board Agenda

5.1.4 Referral/distribution of Submittal for review and comment (by Village)

A. Planning Board Chairman and Planning Board
B. Village Engineer
C. Village Department Heads
D. County Planning Board (if necessary)
E. Interested Outside and Regulatory Agencies, if any
F. Others (as necessary)

5.1.5 Discussion with Planning Board (at scheduled meeting)

A. Informal comments, questions, recommendations received from reviewers
B. Comments and Questions from Planning Board
C. Board Discussion
D. Subsequent Preliminary Plans and revised submittals must be submitted to Planning Board and other reviewing entities at least ten (10) days prior to next Planning Board meeting for reviews. Repeat steps above until Planning Board, Village Engineer, Dept. Heads, and Outside Agencies are satisfied. (In preparing for future Final approval by Village Board, developer may elect to complete plans to standards of Final Plans as required. This would save time at the Village Board and possible additional reviews and revisions as plans would already meet Final Plan status).
E. Preliminary SEQR Classification
    1. SEQR – Unlisted, Type I or Type II (Short or Long Form, Coordinated Review)
    2. Major or Minor Subdivision (See Development Regulations)

5.1.6 Referral and Recommendation to Village Board for Site Plan Approval

Final Site Plan and Plat

5.1.7 Filing of Final Site Plan/Plat (must be preceded by Sketch and Prelim. Site Plan Process)

A. Plans
   1. See Checklist for Final Plans
   2. Must comply with Development Regulations
B. Required Supporting Information (Reports, Calculations, etc.)
C. SEQR EAF (as required)
D. Application Form (if necessary again)
E. Twelve (12) copies of above filed with Village Clerk
F. Officially Received (next following Village Board meeting not less than 14 days following Filing of Application)
G. Major or Minor Subdivision (Minor Sub. – Preliminary and Final approval can be obtained at one meeting)

5.1.8 Referral/distribution for review

A. Village Board
B. Village Engineer
C. Village Department Heads
D. County Planning Board (if required again)
E. Interested Outside Agencies (if necessary again)
F. Others (as necessary)

5.1.9 Review at Village Board Meeting(s)

A. Informal comments, questions, recommendations received from reviewers
B. Planning Board Recommendation
C. Comments and Questions from Village Board
D. Board Discussion
E. Review of SEQR EAF and other environmental information
F. If plans are acceptable to Village Board, engineer, and dept. heads, Developer should prepare for and submit for Public Hearing
G. If plans are not acceptable as is, Developer must continue to review and re-submit plans to Village Board until plans are acceptable - Submit for Public Hearing when plans are acceptable

5.1.10 Public Hearing Scheduled and Advertised

A. Within thirty (30) days of Official Submission; Not less than ten (10) days, nor more than forty-five (45) days after application filing (Village Law)
B. Five (5) days notice of hearing published

5.1.11 Public Hearing – Possible joint Public Hearing with Planning Board (Subdivision) and Village Board (Site Plan and SEQR)

A. Interested parties given opportunity to be heard
B. Verbatim minutes only on request of Developer, aggrieved property owner or at board discretion
C. If public has comments that need addressing or revisions, Developer must revise plans accordingly to address public comments and re-submit for another Public Hearing with revised plans
D. After final Public hearing with no additional public comments or requested revisions proceed to SEQR process and approval process

5.1.12 SEQR process

A. SEQR Coordinated Review (if necessary). Identify Involved Agencies, Notify and Establish Lead Agency (within 30 days)
B. Changes recommended by the Board
C. If Full (Long Form) EAF required, prepare EAF Parts II and, if required, Part III
D. SEQR Determination of Significance – within 20 days of Lead Agency & having all information
    1. Positive Declaration – no further action pending completion of:
        a. Scoping, DEIS, Acceptance, Notice, Hearing, EIS, Findings
    2. Negative Declaration

5.1.13 Insure Developer has reimbursed Village for fees & costs (ie. engineering, attorney, etc.)

5.1.14 Action on Final Site Plan and Final Plat – Approve, Modify, Disapprove – Possible joint meeting with Planning Board (final Subdivision action) and Village Board (final site plan action) after Public Hearing and SEQR process completion(within 62 days of final Public Hearing)

Construction

(Only after Final Village Board approval, SEQR process completion, and reimbursement of all Village fees and costs)

5.1.15 Letter of Credit

A. Developer provide preliminary Letter of Credit (All infrastructure to be dedicated – See Development Regulations requirements – Appendix A)
B. Review by Village, Village Engineer, Dept. Heads, Attorney, etc.
C. Comments/ Revisions provided to Developer
D. Final (revised) Letter of Credit provided to Village
E. Formal Approval and acceptance of final Letter of Credit (Village Board meeting)

5.1.16 Building Permit/Foundation Permit

A. Permits issued by Village CEO

5.1.17 Construction Inspection

A. Pre-construction meeting
B. Inspection provided as deemed necessary by Village (CEO, DPW, Engineer, etc.)
C. Village witnesses all required testing
D. Developer must reimburse Village for all inspection fees and costs

5.1.18 Regulatory Approvals

A. Developer must secure final installed regulatory approvals (DOH, DEC, etc.)

5.1.19 Maintenance Bond

A. Developer provide preliminary Maintenance Bond for dedicated infrastructure
B. Village review Bond – Value must be equal to or greater than 10% of installed costs of all dedicated infrastructure and must be effective for two (2) years from the date of acceptance by Village - See Development Regulations

5..1.20 Formal Acceptance and Dedication – Village Board Meeting

A. Confirm that Village has been reimbursed for all construction fees and costs
B. At official Village Board meeting – Village Board formally resolves to accept dedication of infrastructure and Maintenance Bond

5.1.21 Certificate of Occupancy

A. COO is issued to developer contingent upon Village formally accepting dedication and Maintenance Bond and Village being reimbursed for all fees and costs

5.2. Procedural Checklist – Subdivisions Only (Planning Board Only)

Concept

5.2.1 Introductory Meeting with Planning Board

A. Generally review concept of proposed project
B. Planning Board generally ok with project concept or rejects proposal
C. If Project continues – Proceed to Sketch Plan with any changes recommended by Planning Board

Sketch Plan (if Planning Board approves Concept)

5.2.2 Developer's Initial Submittal

A. Plans
   1. Must comply with Village Code and Development Regulations
   2. Required Supporting Information
B. Application
C. Required Fees (if any)
D. Twelve (12) copies of above filed with Village Clerk
E. At least ten (10) days prior to Planning Board Meeting

5.2.3 Scheduled on Planning Board Agenda

5.2.4 Referral/distribution of Submittal for review and comment (by Village)

A. Planning Board Chairman and Planning Board
B. Village Engineer
C. Village Department Heads
D. County Planning Board (if necessary)
E. Interested Outside and Regulatory Agencies, if any
F. Others (as necessary)

5.2.5 Discussion with Planning Board (at scheduled meeting)

A. Informal comments, questions, recommendations received from reviewers
B. Comments and Questions from Planning Board
C. Board Discussion
D. Recommended/Required Revisions
E. Preliminary SEQR Classification
   1. SEQR – Unlisted, Type I or Type II (Short or Long Form, Coordinated Review)
   2. Major or Minor Subdivision (See Development Regulations and Village Code)

Major or Minor Subdivision (Minor Sub. – Preliminary and Final approval can be obtained at one meeting)

5.2.6 Submission of Preliminary Plan (must be preceded by Sketch Plan Process)

A. Plans (Major or Minor requirements)
B. Required Supporting Information (Reports, Calculations, etc.)
C. SEQR EAF (as required)
D. Application Form (if necessary again)
E. Twelve (12) copies of above filed with Village Clerk
F. Officially Received (next following Planning Board meeting not less than 14 days following Filing of Application)

5.2.7 Referral/distribution for review

A. Planning Board
B. Village Engineer
C. Village Department Heads
D. County Planning Board (if required again)
E. Interested Outside Agencies (if necessary again)
F. Others (as necessary)

5.2.8 Review at Planning Board Meeting(s)

A. Informal comments, questions, recommendations received from reviewers
B. Planning Board Recommendation
C. Comments and Questions from Village Board
D. Board Discussion
E. Review of SEQR EAF and other environmental information
F. If plans are acceptable to Planning Board, engineer, and dept. heads, Developer should prepare for and submit for Public Hearing
G. If plans are not acceptable as is, Developer must continue to review and re-submit plans to Planning Board until plans are acceptable - Submit for Public Hearing when plans are acceptable

5.2.9 Public Hearing Scheduled and Advertised

A. Within thirty (30) days of Official Submission; Not less than ten (10) days, nor more than forty-five (45) days after application filing (Village Law)
B. Five (5) days notice of hearing published

5.2.10 Public Hearing

A. Interested parties given opportunity to be heard
B. Verbatim minutes only on request of Developer, aggrieved property owner or at board discretion
C. If public has comments that need addressing or revisions, Developer must revise plans accordingly to address public comments and re-submit for another Public Hearing with revised plans
D. After final Public hearing with no additional public comments or requested revisions proceed to SEQR process and approval process

5.2.11 SEQR process

A. SEQR Coordinated Review (if necessary). Identify Involved Agencies, Notify and Establish Lead Agency (within 30 days)
B. Changes recommended by the Board
C. If Full (Long Form) EAF required, prepare EAF Parts II and, if required, Part III
D. SEQR Determination of Significance – within 20 days of Lead Agency & having all information
    1. Positive Declaration – no further action pending completion of:
        a. Scoping, DEIS, Acceptance, Notice, Hearing, EIS, Findings
    2. Negative Declaration

5.2.12 Insure Developer has reimbursed Village for fees & costs (ie. engineering, attorney, etc.)

5.2.13 Action on Final Plan – Approve, Modify, Disapprove (within 62 days of final Public Hearing)

SECTION 6 - Development Requirements

6.1 General

A. Land to be subdivided shall be of such character that it can be used safely for building purposes without danger to health or peril from fire, flood, erosion, excessive noise, dust, smoke, or other nuisance.

B. Proper provision shall be made for drainage, water supply, sewerage, and other appropriate utility services.

C. All proposed lots shall be so laid out and of such size as to be in harmony with the development pattern of the neighboring properties. Buildings, lots, blocks, and streets shall be so arranged as to afford adequate light, view, and air.

D. The proposed streets shall be properly related to the proposals shown on the Master Plan, and shall be of such width, grade, and location as to accommodate the prospective traffic, to facilitate fire protection and to provide access of fire-fighting equipment to buildings.

E. Land shall be suited for the purpose for which it is to be developed.

F. The Planning Board shall review proposed developments on their individual merit and their contribution to the Village.

G. The Developer shall strive to comply with standards of good planning and adhere to the specification codes and ordinances of the Village as well as those rules of agencies having jurisdiction over any particular phase of a development.

6.2 Flood Land

Land subject to flooding and land deemed by the Planning Board to be uninhabitable shall not be plotted for residential occupancy, nor for such other uses as may involve danger to health, life or property or aggravate the flood hazard, but such land within the area of the plan shall be set aside for such uses as shall not be endangered by periodic or occasional inundation. Maps showing plotted flood zones are available for review at the Village Hall.

6.3 Streets and Roads

6.3.1 Street Layout

A. Development plans shall conform to any master plans for the Village as shall have been prepared and adopted by the Planning Board or Village Board.

B. Streets in a new development shall be so designed to discourage through traffic but shall have provisions for the extension and/or continuation of streets into and from adjoining

areas. If the subdivision abuts a present or proposed Village connector road or other major thoroughfare, a parallel access road may be considered by the Planning Board for access to frontage lots.

C. If the lots resulting from the original development are large enough for re-subdivision or if a portion of the tract is not subdivided, suitable access and street openings for such an eventuality shall be provided.

D. Streets shall be logically related to the topography to produce usable lots and reasonable grades.

E. Minor streets shall be laid out to discourage through traffic, but provision for street connections into and from adjacent areas will generally be required.

F. Proposed streets shall be extended to provide access to adjoining property where necessary.

G. Where a subdivision abuts or contains an existing or proposed major traffic street, the Planning Board may require marginal access streets, rear service alleys, reverse-frontage lots or such other treatment as will provide protection for abutting properties, reduction in the number of intersections with the major street, and separation of local and through traffic.

H. New half or partial streets will not be permitted except where essential for reasonable subdivision of a tract in conformance with the other requirements and standards contained herein, and where, in addition, satisfactory assurance for dedication of the remaining part of the street can be secured.

I. Wherever a tract to be subdivided borders on an existing half or partial street, the other part of the street shall be plotted within such tract.

J. Dead-end streets shall be prohibited, except as stubs to permit future street extension into adjoining tracts or when designed as a cul-de-sac.

K. New reserve strips, including those controlling access to streets, are prohibited.

6.4 Street Intersections

A. Streets shall be laid out to intersect as nearly as possible at right angles. No street shall intersect another at an angle of less than eighty-five degrees (85°).

B. Multiple intersections involving a junction of more than two (2) streets shall be avoided. Where this proves impossible, such intersections shall be designed with extreme care for both pedestrian and vehicular safety.

C. Streets entering opposite sides of another street shall be laid out either directly opposite one another or with a minimum off-set of one hundred twenty-five feet (125') between their center lines.

D. Where a subdivision abuts or contains an existing street of inadequate right-of-way width, additional right-of-way width will be required where possible.

6.5 Cul-de-Sac Streets

A. Cul-de-sac streets, permanently designed as such, generally shall not exceed one thousand feet (1,000') in length and shall furnish access to not more than twenty (20) dwelling units. Justification for proposed streets exceeding one thousand feet (1,000') in length shall be submitted by the applicant.

B. Cul-de-sac streets shall be designed to provide for effective snow removal, lot placement, road maintenance and topography.

6.6 Blocks and Lots

6.6.1 Blocks

A. The length, width and shape of blocks shall be determined with due regard to the following:

1. Provision of adequate sites for buildings of the type proposed

2. Zoning requirements

3. Topography

4. Requirements for safe and convenient vehicular and pedestrian circulation

5. Utility service and the operation and maintenance of same

B. All blocks in a subdivision shall have a minimum length of at least five hundred feet (500') with a maximum length of twelve hundred feet (1200'). Such blocks containing individual lots shall be at least two (2) lot depths in width, except where reverse frontage may be employed along major highways. Modifications of the above requirements are possible in commercial and industrial developments.

C. In large blocks with interior parks, in exceptionally long blocks, or where access to a school or shopping center is necessary, a crosswalk with a minimum right-of-way of ten feet (12') and a walk five feet (6') in width shall be provided.

6.6.2 Lots

A. The minimum lot size and frontage shall be controlled by the provisions of the Zoning Ordinance of the Village of Avon in effect at the time the development receives final approval.

B. All lots shall abut on a street, and double frontage lots should be avoided. A planting screen easement of at least ten feet (10'), across which there shall be no right of access, shall be provided along the line of lots abutting major traffic artery or other disadvantageous use. All lot lines shall be substantially at right angles to the street or to a tangent of the arc of a curved street. If, after subdividing, there exists remnants of land, they shall be included in proposed or existing lot areas.

C. Corner lots shall be one hundred fifty-five feet (155') minimum width with a depth consistent with the average lot of the subdivision.

6.7 Building Lines, Utilities, Easements and Alleys

6.7.1 Building Lines

The minimum building setback shall be controlled by the provisions set forth in the Zoning Ordinance of the Village of Avon.

6.7.2 Utilities

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

6.7.3 Easements

A. Easements shall be provided for all utilities of a width necessary for installation, repair and/or replacement of said utility; but in no case shall they be less than twenty feet (20') wide.

B. To the fullest extent possible easements shall be centered on or adjacent to rear or side lot lines.

C. No structure shall have its foundation built less than five feet (5') from any easement line.

D. Where a development is traversed by a watercourse, there shall be provided a drainage easement or right-of-way conforming substantially with the line of such watercourse and of such width as will be adequate to preserve natural drainage and maintain the same.

6.7.4 Alleys

Alleys are prohibited in residential developments. In commercial or industrial districts without expressly designed loading areas, alleys with a minimum width of twenty-two feet (22') shall be required. Where such alleys dead end, they shall be provided with a turnaround having an outside roadway diameter of not less than seventy-five feet (75').

6.8 Reservation and Dedication of Lands for Public Use

6.8.1 To meet the requirements of Section 3, the Board shall require the reservation and dedication of at least ten percent (10%) of the area of land to be subdivided for park, playground, recreation, open land or other public purposes or pay a recreation fee as established by the Village Board. In locating lands to be reserved and dedicated, the Board shall consider preservation of special environmental and geographic features, unsuitability of certain lands for building purposes, future expansion of public use areas, the most appropriate type of public land use for the area, and the conditions necessary to preserve access, use and maintenance of such lands for their intended purpose.

6.8.2 Such lands may be retained in private ownership, provided they are permanently dedicated and maintained for their intended use by recorded covenant and security deemed adequate by the Village Board. Alternatively, lands may be offered to the Village as a gift, to be accepted at the discretion of the Village Board.

6.8.3 In the event that the Planning Board, upon consultation with the Recreation and Parks Department, determines that reservation of land of adequate size and suitable purpose cannot be practically located in a proposed subdivision, or that said reservation would not appropriately serve the locale, the Board may condition its approval of a subdivision upon payment to the Village of a sum as set forth in the Fee Ordinance Section 12.

SECTION 7 - Required Improvements

The subdivider or developer of a parcel of land shall make improvements to the parcel in accordance with the minimum standards required in these regulations. Where certain standards of development are not set forth, they shall be established by the Planning Board, following their review of the particular situation.

In many cases alternate improvement standards may be permitted if the Planning Board deems them equal in performance characteristics for the proposed use intended. Additional or higher design standards of improvements may be required in specific cases where the Planning Board believes it necessary to create conditions essential to the health, safety, morale and general welfare of the citizens of the Village of Avon.

7.1 Streets and Pavements

The Village of Avon has established basic guide-lines for the classification of roads to be constructed in the Village. The guidelines are listed in Part II, Design Criteria 2.

7.2 Sidewalks

Sidewalks may be installed on one or both sides of the street or road as the Planning Board may require, depending upon local conditions of public safety. The Planning Board will notify the Developer in writing after the sketch plan has been reviewed by the Board if sidewalks are required.

7.3 Storm and Surface Drainage

Many stormwater discharges from construction activities within the Village will require authorization under Section 402 of the Clean Water Act and the New York State Pollutant Discharge Elimination System (SPDES) permitting program. All development within the Village must satisfy both local and state regulations. Where requirements imposed by the SPDES General Permit (GP-02-01) are more restrictive than corresponding requirements in these regulations, the provisions which are more restrictive shall govern.

All storm sewers and drainage facilities such as gutters, catch basins, bridges, culverts and swales shall be designed and installed for the developed land. Such facilities shall also be capable of handling upland flows that may be generated from future land development. For road design, road-side swales are not permitted. Gutters and underdrains will be required as a minimum.

The following points should be considered in the design of storm drainage facilities:

A. Lots shall be laid out and graded to provide positive drainage away from buildings.

B. Storm sewers, culverts and related installations shall be provided:

1. To permit unimpeded flow of natural watercourses

2. To insure adequate drainage of all low points along the line of streets

3. To intercept storm water runoff along streets at intervals reasonably related to the extent and grade of the area drained.

C. Discharge of sump pumps or roof leaders directly to roadside gutters or channels will not be permitted.

D. In the design of storm sewer installations, special consideration shall be given to avoidance of problems which may arise from concentration of storm water runoff over adjacent properties. Surface swales or channels serving multiple lots shall have a catch basin or field inlet to serve every third lot.

E. The Village requires construction to be complete and the design engineer's certification of all surface drainage improvements and erosion control measures on a development prior to issuance of any building permits.

7.4 Public Sanitary Sewer System

Where the public sanitary sewer system, in the opinion of the Water and Sewer Commission, is reasonably accessible, sanitary sewers and appurtenances shall be installed and dedicated to the Village or appropriate district to adequately serve all units with connections to the public system. The design and installation of said sewers shall be subject to the approval of the Planning Board. All sewer discharges shall be in accordance with the Village Sewer Use Ordinance.

Where lots cannot be served by the extension of an existing public sanitary sewer, the Developer shall obtain the approval of subsurface disposal fields by the appropriate agencies.

Once the individual disposal systems are installed, they shall be inspected by the Village and certified to the Village Clerk as to the installation relative to the approved plans.

In areas not presently served by public sanitary sewers, the Planning Board may require, in addition to the installation of temporary individual on-site sewage disposal facilities, the installation and capping of sanitary sewer mains and house connections if studies of the Water and Sewer Commission indicate that extension of public sanitary sewer trunks or laterals to serve the property subdivided appears probable or necessary to protect the public health.

7.5 Public Water Supply

Where the public water supply, in the opinion of the Planning Board, is reasonably accessible, the Developer shall provide and dedicate to the Village, a complete water distribution system, including hydrants. The design and installation of said system shall be subject to the approval of the Planning Board.

7.6 Planting

Adequate tree planting shall be required of the Developer on all lands developed in the Village of Avon. A landscape plan shall be required to designate tree species and locations. Trees shall generally be planted outside the Village right-of-way and easements, except that trees may be planted in the Village right-of-way if the following conditions are present:

A. The trees are a minimum of ten feet (10') from the edge of the gutter or road shoulder.

B. The trees are a minimum of seven feet (7') from the edge of any sidewalk or paved area.

C. There are no underground utilities within fifteen feet (15') of the proposed tree.

D. The trees are of a variety that will be medium to small in stature, do not generally have a wide spreading root system and do not generally have a large spreading trunk base.

E. The average trunk diameter shall be at least one and one-half inch (1-1/2") in diameter and at a height of 5' off the ground.

F. No tree shall be planted within twenty-five feet (25') from an existing or proposed street light or street intersection.

7.7 Monuments

Permanent reference monuments shall be shown on the final plan and shall be set at final grade as may be required. Monuments shall be as shown in the Appendix C-C.

7.8 Street Signs

Permanent street signs, of the same specifications as those of the Village Highway Department, showing the names of the intersecting streets shall be erected at each intersection.

7.9 Street Lighting

The Planning Board shall require adequate street and sidewalk lighting to be installed. Such a system shall be coordinated with the electrical utility system and in accordance with the Village Standards and shall be approved and directed by the Village Engineer.

7.10 Electric, Telephone, Cable TV or other Buried Cable Utility

In every development provisions shall be made for a satisfactory utility supply system. All necessary wires serving the development and the street lighting system shall be underground, rather than on poles, standards or towers. Underground conduit and cables shall be installed at a minimum distance of 1.5 feet below the lowest elevation of a roadside ditch or swale.

SECTION 8 - Plan Requirements

All developments requiring Planning Board action shall be submitted to the Village Clerk at least twenty one (21) days prior to a scheduled Planning Board meeting. The submittal package shall include the plans, reports, sketches, application fees and exhibits that may be required for review by the Board.

Before plans are submitted to the Planning Board for review they shall be checked by the designer according to the following lists for the various phases of plan development.

Incomplete submittals shall be cause for rejection until the plans comply with these regulations or other such conditions required by the Village of Avon.

8.1 Sketch Plan

The sketch plan shall be a schematic representation of existing conditions and proposed improvements including:

A. General location plan (1" = 2,000').
B. Location key map at a scale of one (1) inch equals five hundred (500) feet showing the location of the property with respect to surrounding property and streets which includes all streets, streams and property within fifteen hundred (1, 500) feet of the applicant's property. All property held by the applicant within the area should be identified.
C. Tax map indicating subject parcel and surrounding uses.
D. Sketch Plan, scale (no smaller than 1" = 100').
E. Title ('Sketch') and name of development.
F. North point, scale, date and date of any revisions.
G. Name(s) of the record Owner(s), Developer(s) and their addresses.
H. Name of Design Professional responsible for preparation of plan.
I. Zoning District and limitations including minimum lot size and setbacks and maximum coverage.
J. Property boundary dimensions.
K. Area and tax account number of property(ies) involved .
L. Location and approximate dimensions of all existing property lines and lots. The map must include the entire area proposed to be subdivided and as well as the remainder of the tract owned by the subdividing owner. The map must show the proposed development on the overall parcel and its effect on future development.
M. Names of all owners of record of adjacent properties and properties within five hundred (500) feet. Names of developments within five hundred (500) feet.
N. General topography (5' vertical contour intervals) on U. S. C. and G. S. datum.
O. Indication of all existing natural features such as waterbodies, streams, wetlands, wooded areas and large trees that may affect the design.
P. Indication of all existing utilities, poles, roads, sidewalks, paved or improved surfaces, lighting, drainage improvements, culverts, stormwater inlets or discharges, sewer manholes, etc.

Q. All structures and buildings on adjoining properties (so that setbacks, etc can be properly considered).
R. Approximate location, dimensions and areas of all proposed or existing lots.
S. Schematic plan of intended development, utilities, roads, etc.
T. Schematic indication of boundaries of all areas to be disturbed during development.
U. Schematic method of water supply and sanitary sewage disposal.
V. Schematic method of stormwater management, conveyance and discharge.
W. Schematic location and extent of any property proposed to be set aside for playground or park use
X. Submittal to Village Engineer

8.2 Preliminary Plan

In addition to the requirements for a sketch plan, the following will be required:

A. Scale (no smaller than 1" = 50'), title ('Preliminary') and name of development
B. Property boundaries with bearings and distances.
C. Acreage of tract to be subdivided to the nearest tenth (1/10) of an acre.
D. All existing property lines, easements or other encumbrances on the property, certified by a licensed land surveyor per a recent survey and the purpose for which the easements or right-of-way were established. The entire area proposed to be subdivided and as well as remainder of tract owned by the subdividing owner must be included.
E. Zoning minimum lot area and width requirements, zoning setbacks and restriction lines.
F. Existing topography on tract proposed for subdivision (2' contour intervals maximum).
G. Topography datum U.S. C. & G. S.
H. Bench mark based on U. S. C. & G. S. datum.
I. All existing natural features: watercourses, tree masses, large trees that may influence the design, wetlands, floodplains, etc.
J. All existing buildings, culverts, utilities with dimensions, sizes and inverts with other significant man made features.
K. Percolation and deep test holes and locations with results (if applicable).
L. Special information as requested by the Planning Board at sketch plan stage.
M. Sight distances for access to the parcel or proposed streets (required and provided).
N. Location, dimensions and area (to nearest tenth of acre) of all proposed lots.
O. Each block shall be numbered and the lots within each block shall be numbered consecutively in accordance with the procedure established by the Village. The total number of residential lots shall be noted on the plans.
P. Location and width of all proposed streets and bridges and typical sections.
Q. Location and approximate dimensions and sizes of other development improvements.
R. Where the Preliminary Plan covers only a part of the applicant's entire holdings, a concept shall be submitted of a prospective street and utility layout for the remainder of the property and for access to adjoining properties.
S. Boundaries and extent in acres of all areas proposed for disturbance during development.
T. Proposed topography (2' contour intervals maximum) shall be shown to properly evaluate and plan the development.

U. Preliminary designs of water supply, including location, points of connection, mains, laterals, services and hydrants.
V. Preliminary designs of sanitary sewer, including locations, inverts and elevations of points of connection, manholes, mains, laterals, pump stations and force mains.
W. Preliminary designs of stormwater facilities, sewers, swales, culverts, ponds, control structures and discharges including locations, sizes, grades and inverts.
X. Preliminary designs of Erosion and Sedimentation Control Plan.
Y. Location, dimensions, quantities, sections, intensities, seeding and details concerning proposed sidewalks, street, site, building or signage lighting, street trees, landscaped areas and other development improvements
Z. Location and extent of any property proposed to be set aside for playground or park use.
AA. Proposed location, size and width of easements, parks, right-of-way, public areas or parcels of land to be dedicated or reserved for public use.
BB. Water service calculations to justify service size.
CC. Design reports for sanitary utilities and stormwater facilities. Drainage Reports and calculations.
DD. Status of SWPPP and Notice of Intent Filings if necessary
EE. Status of Phase 2 stormwater regulations compliance
FF. SEQR EAF Forms and Documentation
GG. Status of jurisdictional and regulatory approvals (NYSDOT, NYSDEC, DOH, etc.)
HH. Preliminary traffic study or reports if required
II. Status of Village Engineer review
JJ. New York State Office of Parks, Recreation, and Historic Preservation (SHPO) review status
KK. Livingston County Planning Board review status
LL. Submittal and review by Village Supt. of Public Works

8.3 Final Plan

In addition to the requirements for the Preliminary Plan, the following will be required:

A. Size of the plan shall be acceptable for filing in the County Clerk's Office.
B. Scale (no smaller than 1" = 50'), title ('Final') and name of development.
C. Name, seal and signature of the registered professional(s) responsible for the plan.
D. An actual field survey of the boundary lines of the tract, giving complete descriptive data by bearings and distances, made and certified to by a licensed land surveyor.
E. The corners of the tract shall also be located on the ground and marked by monuments as approved by the Village Engineer and shall be referenced and shown on the plat.
F. Location, material and approximate size of all monuments.
G. Street lines, lot lines, right-of-way, easements and areas dedicated or proposed to be dedicated for public use.
H. Sufficient data to determine readily the location, bearing and length of every street, lot and boundary line shown on the plan.
I. The length of all straight lines, radii of all curves, lengths of arcs and tangent bearings for each street.
J. All dimensions shall be shown in feet and in hundredths of a foot.

K. The proposed setback line from each street or property line.
L. Names of streets within and adjacent to development as approved by County 911, County Highway Department, Postal Service, and others designated by the Village Board.
M. Lot numbers and area of each lot to the right-of-way.
N. Proposed finished garage floor, basement, and first floor elevations.
O. Lowest architectural opening elevations in designated flood zone areas.
P. Spot elevations within swales, paved parking lots, etc.
Q. Final designs of water supply, including location, points of connection, mains, laterals, services and hydrants. Location, sizes and types of pipe for all water mains, location of all valves, hydrants, blowoffs, etc shall be included.
R. Final designs of sanitary sewer, including locations, inverts and elevations of points of connection, manholes, mains, laterals, pump stations and force mains. Location, size, invert elevations, type and class of pipe on all sanitary sewer systems shall be included.
S. Final designs of stormwater facilities, sewers, swales, culverts, ponds, control structures and discharges including locations, sizes, grades and inverts. Location, size, invert elevations, type and class of pipe on all storm sewer systems shall be included.
T. Final designs of all temporary or permanent measures to control Erosion and Sedimentation, to control stormwater discharge quantity or to preserve stormwater discharge quality.
U. Profiles with detailed information of all streets, storm sewers, sanitary sewers and water main crossings.
V. Design and plan details of all special construction (culverts, bridges, headwalls, etc.).
W. Engineering calculations are required to substantiate proposed designs.
X. All on-site sanitation and water supply facilities shall be designed to meet the applicable minimum specifications of the County Health Dept., State Department of Health, and State Department of Environmental Conservation, and a note to this effect shall be stated on the plat and signed by a licensed engineer.
Y. Note on all final plans: "Placement and arrangement of building, waste disposal system, driveway, utilities and drainage will not be changed without prior approval of the Village".
Z. Landscaping plan with planting schedule if required by the Planning Board.
AA. Details required to specify special conditions, materials or methods of construction.
BB. Other necessary details, as required by Municipal Code Section 31.61.
CC. Indication of approval from all jurisdictional and regulatory agencies (NYSDEC, NYSDOT, DOH, etc.).
DD. On all subdivisions, signature lines must appear for project approval by the Village Planning Board Chairman, Village Code Enforcement Officer, and Village Engineer. On all site plans (or site plans and subdivisions combined) signature lines must appear for project approval by the Village Mayor, Village Planning Board Chairman, Village Code Enforcement Officer, and Village Engineer.
EE. Easements, Easement Maps and Descriptions, Legal Covenants, etc. as well as a copy of such covenants or deed restrictions as are intended to cover all or parts of the tract.
FF. The final map shall contain on its face a certification that the developer will comply with all Federal and State laws, rules and regulations for the development of the subject property.
GG. Final drainage reports and calculations.

HH. Final SWPPP and Notice of Intent Filings if necessary
II. Phase 2 stormwater regulations compliance – DEC approved
JJ. SEQR EAF forms and documentation
KK. Final traffic study or reports if required
LL. Village Engineer sign off/approval
MM. New York State Office of Parks, Recreation, and Historic Preservation (SHPO) sign off/approval
NN. Livingston County Planning Board approval
OO. Village Supt. of Public Works final approval

SECTION 9 – Variances

9.1 Hardships

Where the Planning Board finds that because of unusual circumstances of shape, topography or other physical features of the proposed development or because of the nature of adjacent developments, extraordinary hardship may result from strict compliance with these regulations, it may waive the regulations so that substantial justice may be done and the public interest secured; provided that no such waiver shall be granted which will have the effect of nullifying the intent and purpose of these regulations, or any other pertinent rules, regulations or ordinances of the Village of Avon.

9.2 Large Scale Development

The standards and requirements of these regulations may be modified by the Planning Board in the case of a plan and program for a new complete community or a neighborhood unit, which in the judgment of the Planning Board provides adequate public spaces and improvements for the circulation, recreation, light, air and service needs of the tract when fully developed and populated, and which will also provide such covenants to other legal provisions as will assure conformity to and achievement of the plan.

9.3 Conditions

In granting variances and modifications, the Planning Board may require such conditions as will, in its judgment, secure substantially the objectives of the standards or requirements so varied and modified.

SECTION 10 – Amendments

The rules and regulations as set forth above may be amended, altered or revised by the Planning Board from time to time, after public hearing and subject to the approval of the Village Board.

SECTION 11 – Validity

Should any section or provision of these rules and regulations be declared by a court of competent jurisdiction to be invalid, such decision shall not affect the validity of the rules and regulations as a whole, or any other part thereof.

SECTION 12 - Fee Ordinance

The Village of Avon has a Fee Ordinance or schedule on file at the Village Clerk's office. Copies of this schedule are available and fees required for parcel development are listed on this schedule.

SECTION 13 - Expenses

All expenses incurred by the Village of Avon for the review and evaluation of all proposed plans, subdivisions, development, work, and construction inspection, (i.e. engineering fees, attorney fees, archeological fees, project observation or engineering inspection fees, etc.) shall be billed back to and recouped by the Village from the developer and/or owner of the proposed project. All construction inspection fees, as noted for the Letter of Credit, shall be collected by the Village in the amount of not less than three percent (3% minimum) of the total cost of the infrastructure to be dedicated to the Village (See Section 14).

SECTION 14 – Project Observer

The installation of improvements and any development of land shall be subject to observation at all stages by representatives of the Village of Avon, and for such purposes free access shall be accorded, and requested information shall be promptly submitted. All costs of observation, including time, reimbursable expenses, and testing of materials, shall be paid for solely by the Developer. A sufficient sum for observation costs (minimum three percent [3%] of the total construction costs for dedicated infrastructure) shall be provided by the Developer in either a letter of credit or cash prior to beginning improvements or development.

PART II
SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF IMPROVEMENTS WITHIN THE VILLAGE OF AVON, LIVINGSTON COUNTY, NEW YORK

SECTION 1 - General Information

1.1 Purpose

The purpose of these specifications is to provide certain criteria for the design and construction of improvements within the Village by private developers, which upon the satisfactory completion thereof, will be dedicated to the Village of Avon for perpetual maintenance. These specifications are to be used in conjunction with Part I of these Regulations and the Avon Village Code.

The criteria established in these specifications are intended to establish minimum standards to serve the best interests of the Village. 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 specifications shall govern in all areas of private industrial and commercial development and/or areas that will involve the connection of utilities into the existing municipal systems.

1.2 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 utilities for land development. All development, utility, and infrastructure construction must meet the "Recommended Standards for Wastewater Facilities" and the "Recommended Standards for Water Works", both commonly referred to as "Ten States Standards".

The Village and/or its representatives shall review the proposed plans as to their compliance with the standards and meeting the best interests of the Village.

It is the responsibility of the Contractor, acting for the Developer, to construct the facilities in conformance with the approved plans and the Village Standards.

Inspection shall be provided by the Village or its designated representative to assure that construction is being performed in a satisfactory manner, as stated under Article 5.12 in Part I of these regulations.

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

1.3 Considerations

1.3.1 Building Permits

Building permits shall not be granted until the approved Subdivision Plan is filed with the County Clerk.

1.3.2 Road Construction

Due to the general soil conditions within the Village and normal construction sequences for development, it is deemed to be in the best interests of the Village 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 Public Works Superintendent.

B. The weather and seasonal limitations as specified under the Standard Specifications of New York State Department of Transportation 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 Certificate 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 and highway plows.

   The temporary road surface shall only be required 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 Village may elect to accept for dedication the completed facilities if (1) an acceptable two year maintenance bond is submitted to the Village and (2) the Developer presents a sum of money to complete the top pavement course by Village forces in the future if the Village chooses to use Village forces to complete the top pavement course. Otherwise the Developer will be required to complete the top pavement course. The amount of monies to be transferred to the Village will be established by the Highway Superintendent. This sum shall include the cost of the Village's labor and material to cause the proper installation of the top course.

It is the intent of this option by the Village to allow the Developer to offer the project for dedication before the final pavement is installed. In the opinion of the Village and when the Developer has substantially completed the related construction in the developed area, the Village may install the final pavement top. However, the Village may elect to require the Developer to complete 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 bond and before the final top is applied, the Village and the Developer will hold the final site review to assess any damages or repairs that may be necessary by the Developer under bonding agreement.

1.3.3 Driveway Culverts

New driveway culvert installation shall be the responsibility of the land owner. The Village shall approve the proposed location, size and material of such culverts.

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

1.3.4 Grading

In subdivisions of more than five (5) lots the developer is responsible for the grading of all lots, including finish grading, to be in conformance with the proposed grading plan as approved by the Planning Board. In subdivisions of up to five (5) lots the developer may allow the individual owner to complete the final six inches (6") of grading.

The grading of all subdivisions will be required to be completed within six inches (6") of final grade before above ground construction can be started.

1.4 Financial Guarantees

1.4.1 Letter of Credit (Required)

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 Village Engineer and the Village Board. The amount shall include but not be limited to the following items (see Appendix A for typical format):

A. Total estimated construction cost of all utilities, laterals, water services, roads, gutters, earthwork, etc.
B. Minimum 10% contingency factor.
C. Engineering and inspection charges (minimum 3%).
D. Street signs and surveyor's monuments.
E. As-built maps.

1.4.2 Maintenance Bond (Required)

Upon the completion of construction and as a condition of dedication to the Village, a Maintenance Bond shall be provided by the Developer guaranteeing the project against faulty workmanship or materials for a period of two (2) years after acceptance by the Village. Maintenance Bonds shall be written by a surety licensed to do business in New York State and shall be in the amount of ten percent (10%) of the total value of the infrastructure to be dedicated to the Village. Bonds shall be approved as to form and content by the Village prior to any dedication procedure.

Individual portions of the project, i.e., sanitary system, water system, can be bonded with their individual acceptances by the Village. A Maintenance Bond for the pavement, gutters, and/or sidewalks will not be accepted until the entire project is ready for dedication. A Maintenance Bond for final road top pavement will be for two years from the time of topping and acceptance.

1.5 Methods of Release of Funds

1.5.1 Letters of Credit

The procedure required for the release of funds is as follows:

A. Submission of periodic construction estimates by the Contractor to the Developer and the Design Engineer.
B. The site shall be inspected by the Village's and Developer's agents to satisfy themselves that the work is completed to the monetary value of the estimates found within the requested release of funds.
C. The Developer's Engineer, Developer, Village Inspector, and Village Engineer shall approve in writing up to 90% of the total amount of item (a) (see Appendix B for typical example of estimate).
D. The Village Engineer shall then submit the proposed estimate to the Village for the final authorization of release of funds from the Letter of Credit. Approval by the Village officials for authorized periodic payments is not to be construed as acceptance of the work completed to date.
E. Partial release from the Letter of credit may be granted by the Village as individual components of the development are completed. Such a release shall not be construed as final acceptance of the work by the Village.
F. If the required improvements are not completely installed within the period fixed or extended, the Village may declare the Letter of Credit in default and collect the amount payable thereunder. Upon receipt of such amount, the Village shall cause to be installed such improvements as were covered by the letter and as commensurate with the extent of development that has taken place, not exceeding in cost, however, the amount collected upon the Letter of Credit.

1.5.2 Release of Retainage

Retainage release shall be considered after the systems have been tested and approved by the Village.

1.5.3 Release of Maintenance Bond

Release of Maintenance Bond shall be authorized in writing by the Village upon final inspection of the project site by Village authorities. This inspection will be completed at least one month before the expiration of the Bond.

1.6 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 public works improvements within the Village of Avon.

1.7 Utility Extension

Utility and infrastructure extensions to properties must extend the entire length and road frontage of that property.

SECTION 2 - Design Criteria

2.1 Sanitary Systems

2.1.1 Private Disposal Systems

Private disposal systems must conform to the minimum requirements established by the State Department of Health, County Health Department, and Avon Sewer Use Law except as noted herein and according to "Ten States Standards":

A. Provisions may be required to make the individual house plumbing for connection to the future sanitary sewer system (see detail in Appendix C).

B. Maximum number of lots to be developed with private systems shall be 49 within one subdivision.

C. Leach lines shall not cross over or under water, gas or storm laterals, nor be located underneath the driveway area.

2.1.2 Sanitary Sewers

Minimum requirements shall be as established by the State Department of Health, New York State Department of Environmental Conservation, and Avon Sewer Use Law except as noted herein and according to "Ten States Standards":

A. Sewer mains shall be a minimum of 8" diameter except in those areas-where the route within the development is part of the Sewer Plan. In these areas the sewer shall be of the diameter called for in the Plan.

B. Manhole spacing, maximum of 300 1f.

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 design plans.

D. Elevations - where storm drains parallel the sanitary system, a minimum of 2' of vertical clearance between the two systems shall be provided to permit the satisfactory installation of laterals.

E. Laterals for each individual lot shall be:

1. Minimum of 4" in diameter
2. Minimum of slope of l/4"/lf (2%)
3. Cleanouts shall be provided at a maximum distance of 100' and one shall also be located on the right-of-way line. Where an easement is provided, the cleanout shall be located on the easement line.

F. Sanitary Manholes - for sewers 8" - 12", minimum 4'-0" inside diameter; over 12" - minimum 5'-0" inside diameter; three or more pipes in a manhole require 5' inside diameter. Larger pipes may require special design.

2.2 Storm Drainage Systems

In general, all development projects shall be required to provide for the adequate conveyance of storm drainage through the development. The natural drainage patterns are to be followed as much as possible. Drainage systems shall be sized to accommodate the future potential runoff based on the probable land use and the ultimate developments of the upland watershed area.

Unless otherwise dictated or approved by the Village, the developer shall be responsible to ensure that post-development storm water discharge peak flow rates from the developed area are equal to or less than existing storm water discharge peak flow rates from the proposed area of development. The Village reserves the right to require a developer to implement drainage improvements such that post-development storm water, runoff quantities and peak flow rates from the site are less than those under existing conditions.

Many stormwater discharges from construction activities within the Village will require authorization under Section 402 of the Clean Water Act and the New York State Pollutant Discharge Elimination System (SPDES) permitting program. All development within the Village must satisfy both local and state regulations. Where requirements imposed by the

SPDES General Permit (GP-02-01) are more restrictive than corresponding requirements in these regulations, the provisions which are more restrictive shall govern.

In addition to drainage improvements within proposed developments, the developer shall also be responsible for the costs of any downstream and/or off-site improvements determined by the Village to be necessary to effectively and adequately accommodate post-development storm water, runoff quantities and peak flow rates from the proposed development. Stormwater management facilities shall be designed in accordance with and sized in conformance with the "New York State Stormwater Management Design Manual.

The "New York State Stormwater Management Design Manual" describes acceptable stormwater management practices (SMPs) to meet water quantity and water quality treatment goals. The Planning Board shall, upon a recommendation from the Village Engineer, approve the SMP(s) implemented in a particular development. Where conditions warrant, the Planning Board may require specific or additional SMP(s) to be implemented.

2.2.1 Storm Sewers and Stormwater Conveyances

A drainage area of up to 1,000 acres shall be designed to transmit the flow of a one-in-ten year storm. Larger systems and structures on natural watercourse channels shall have design return intervals as follows:

Drainage Area	**Design Return Interval**
l,000 acres to 4 square miles	25 year
4 square miles to 20 square miles	50 year
20 square miles and above	100 year

Culverts and conveyances shall be designed to accommodate the specified design storm for the drainage area but shall also be analyzed for the next highest increment of storm return interval to evaluate possible complications. In addition, a "risk analysis" of the area affected by the system or structure may dictate the use of a longer return interval storm than the drainage area method above indicated.

2.2.2 Allowance for Overflow Conditions

Overflow situations shall be designed into each system to protect against damage from major storms and provide an outlet for storm water, should inlets or pipes become damaged or plugged.

2.2.3 Natural Channels and Open Swales

Natural channels are generally preferred alignments for major components of a residential drainage system. However, the utilization of open channels shall be evaluated as to the ease and cost of maintenance, safety hazard and aesthetics before being allowed. The channels may require special invert or side design to properly convey water while keeping the maintenance cost minimal. Road-side swales and channels are not permitted in the Village of Avon for handling road drainage and run-off. As a minimum, road-side gutters will be required.

2.2.4 Runoff Computations and Sizing of Stormwater Facilities

The design of stormwater conveyance systems shall be generally established by the Rational Formula (Q = CiA) where:

Q = Runoff in cfs

C = Runoff coefficient

i = Rainfall intensity in inches/hours

A = Drainage basin area in acres

B. Rainfall intensity figures for sizing stormwater conveyances shall be taken from the charts provided in Appendix E for the time of concentration and return period required for a particular basin.

C. Times of concentration for sizing stormwater conveyances shall be calculated by the design engineer but shall be a maximum of 15 minutes to the first inlet for a residential subdivision.

D. Runoff Coefficients for sizing stormwater conveyances shall also be calculated by the design engineer to establish a weighted value representative of the type of development proposed. In general, the following ranges shall be adhered to:

Description of Area or Character of Surface	**Runoff Coefficient**
Business District	0.70 to 0.95
Residential:	
Single Family	0.40 to 0.50
Apartments	0.50 to 0.70
Industrial	0.50 to 0.90
Pavement	0.10 to 0.30
Roofs	0.70 to 0.95
Lawns	0.10 to 0.35

Factors to be considered in the determination of the runoff coefficient for sizing stormwater conveyances are: soil type, slope of land, development density, etc.

E. Points of discharge shall be to recognized U.S. C.&G.S. drainage courses. They may require subdividers to obtain downstream easements to reach a suitable outfall.

F. Culverts shall be designed to accommodate the design storm for the drainage area but shall be checked for the next highest increment of storm return interval to evaluate the possible flooding complications caused by backup. Headwater and/or tailwater

calculations will be required to determine ponding that may occur. In general, the use of multiple culverts is discouraged because of maintenance problems. Inlets and outlets of culverts shall be protected from erosion or turbulence problems by the use of rip rap, headwalls, energy dissipaters, or the like.

G. Backyard swales shall be designed with minimum side slopes of 1 on 4 and a minimum longitudinal slope of 1.0 %. Field inlets shall be generally provided every 300 lineal feet, at all low points, and where swales intersect.

H. Retention or detention ponds may be required for new developments within the Village where, in the judgment of the Planning Board and the Village Engineer, these facilities may be applied to the existing conditions or topography and dictate the practicality of this alternative.

It shall be the Developer's responsibility to see that no more adverse effect is felt downstream than can be tolerated without undue hazard or inconvenience to the Village or downstream property owners. Where conditions warrant, the Planning Board shall, upon a recommendation from the Village Engineer, approve the SMP(s) implemented in a particular development. Where conditions warrant, the Planning Board may require specific or additional SMP(s) to be implemented.

All stormwater management facilities developed within the Village shall, regardless of the specific applicability of the SPDES permitting program and the General Permit GP-02-01, be designed in general accordance with and sized in conformance with the "New York State Stormwater Management Design Manual (NYSSDM). Should the requirements for such facilities found elsewhere within these regulations conflict with those found in the NYSSDM, the more restrictive provisions shall govern.

In general, if a retention pond is to be used on the site, the following parameters shall be adhered to at a minimum:

1. Pond shall be designed to accommodate the return interval storm for the drainage basin size plus a 1'-0" minimum freeboard.
2. The pond outlet should be protected against erosion.
3. An overflow mechanism should be designed to allow for larger than design storms.
4. Ponds constructed in fill or using dikes shall be reviewed very closely regarding soil stability and permeability to preclude any filtration and undermining.
5. Runoff calculations for larger facilities may use alternate methods such as unit hydrograph or one of the Soil Conservation Service methods applicable to the situation.

I. The design engineer shall submit the following information for review of the drainage design:

1. A U.S.C.&G.S. quadrangle reprint with the development and drainage basin outlined.

2. A tabular form (see Appendix E for typical) showing computed runoffs and design capacities of the system.
3. A map of the development showing the on-site drainage areas with inlets numbered in conjunction with the tabular calculation sheet.

2.2.5 Storm Drains

A. Minimum pipe size - 12" diameter

B. Minimum velocity when flowing full - 3 fps

C. Maximum manhole and catch basin spacing - 300 lf

D. 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 thirty-six inches (36") in diameter, then open channel design may be considered.

2.2.6 Storm Laterals

All sump drains in the Village of Avon must be connected to the Village storm system. The sump drains include gravity sump lines and sump pump forcemains.

All gravity sump drains must be a minimum 4" diameter PVC SDR 21 pipe from outside the building to the connection to the storm system and must include a check valve on the discharge side of the sump pump within the interior of the building as approved by the Village. The line must be installed at a minimum burial depth of 4-feet, at a minimum slope of 1/4" per foot, and must include cleanouts starting at approximately 10'-20' outside the building spaced at maximum 85' intervals to the road R.O.W. line. There will not be any cleanouts required beyond the R.O.W. line. The sump may be connected to the existing storm line or catch basin as approved by the Village.

All sump pump forcemain storm laterals must be a minimum 4" diameter PVC SDR 21 pipe from outside the building to the connection to the storm system and must include a check valve on the discharge side of the sump pump within the interior of the building as approved by the Village. The sump may be connected to the existing storm line or catch basin as approved by the Village.

Roof leaders, downspouts, etc. are not permitted to be connected to any Village storm systems or to sump drains connected to the Village storm systems. The Village reserves the right to approve or reject any other proposed connection to its storm system as it deems necessary and/or appropriate.

Any private party seeking permission to connect a private sump drain into the Village's storm sewer system will be responsible for all costs associated with the design, installation and maintenance of all portions of the sump drain connection up to the Village right-of-way line.

This includes but is not limited to the gravity sump lines or sump force main as applicable, line cleanouts and check valve portions of the private system.

2.2.7 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 drains at manholes except in those areas where the storm drain is 24 inches in diameter or greater.

2.2.8 Storm Manhole

Storm manholes shall be of the following inside diameter: (assuming that a maximum of three (3) pipes are placed in any one manhole)

Pipe Diameter (Largest)	**Inside Manhole Diameter**
12" - 18"	4'-0"
21" - 30"	5'-05"
33" - 42"	6'-0"
Greater than 42"	Special Design

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

2.2.9 Drainage Easements

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 determined by the Village.

2.3 Water Mains

All work performed and materials furnished within the development for the purpose of supplying the development with potable water shall comply with the Village of Avon Rules and Regulations. Minimum standards shall be as set forth by the State Department of Health, the Livingston County Department of Health, and "Ten States Standards".

2.3.1 Design

All watermains shall be minimum 8" except:

A. Where six (6) or fewer units are on a loop, a two inch (2") diameter main may be used if fire protection is no more than 500 feet away.

B. Where mains are part of a major transmission distribution network, the Village Engineer may require a larger size than eight inches (8") at no cost to the Village.

Water supply systems shall be designed to provide adequate domestic usage and fire protection.

The water system shall be designed to provide adequate fire flow at the critical point in the development while satisfying the average daily domestic flow.

In all cases, the mains or sub-loop systems shall be capable of providing maximum design flows with a residual pressure not to be less than 20 psi.

All main sizing shall be substantiated by the design engineer for the review and approval by the Village. Fire suppression requirements shall comply with the local fire code and I.S.O. Standards.

2.3.2 Hydrants

Hydrants shall be spaced to comply with I.S.O. requirements commensurate with the density of structures but, in no case, at greater than five hundred foot (500') intervals.

2.3.3 Valves

Valves shall be located such that no more than thirty (30) dwelling units and no more than one (1) hydrant need be out of service for repair of a watermain. Valves shall generally be provided at intersections and shall be no more than eight hundred feet (800') apart along the watermain. Additional valves may be required at creek and/or railroad crossings depending on network configuration and permit requirements.

2.3.4 Dead End Mains

Dead end mains shall be avoided where possible but should provide hydrants or two inch (2") blow-off units at the end of all "dead end" mains.

2.3.5 Water Service

Provide minimum of three-quarters inch (3/4") water services to the right-of-way line of all individual lots or where an easement is provided, the service shall extend to the easement line.

2.3.6 Meter Pits

Meter pits shall be installed when the water service is greater than 250 feet from the centerline of a given road. Remote read meters shall be placed outside the pit area.

2.4 Grading

2.4.1 General

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

In general, the design engineer shall try to establish a finished grade at the structure line to permit a minimum of 2.0% grade away from the structure to the drainage system.

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

A. Swales are of a proper cross-section to permit ease of maintenance by the individual owner.

B. Easements are provided for access and/or maintenance where necessary.

2.4.2 Grading Plan

A grading plan shall be submitted with the final plan for any development showing the following items (refer to Appendix K for typical example):

A. Existing contours.
B. Spot elevations of proposed finish grade at key locations.
C. First floor elevations.
D. Directional arrows for drainage.
E. Proposed finish contours where required by the Village Engineer.
F. Minimum elevation of any architectural opening where required by the Village Engineer.
G. Culvert invert elevations. All elevations shall be set from U.S.C.&G.S. datum.

2.5 Roads and Gutters

2.5.1 Road Classifications

The following designations will be used by the Village to classify roads and their respective construction procedures:

A. Collector Street.
B. Minor Street – Subdivision.
C. Private (Non-Dedicated).

The basic considerations of each road classification are as follows:

A) Collector Street

1. Provides connections to major roads and represents major traffic pattern throughout the Village.
2. Design speed of 30 miles per hour.
3. High volume traffic.
4. Provides access to subdivision roads.
5. Relatively low density of development abutting such a road.

B) Minor Street - Subdivision

1. Densities as permitted by the current zoning provisions.
2. Design speeds of 30 miles per hour or less.
3. Low volume of traffic.
4. Individual driveways at regular intervals.
5. Usually no effect on overall Village traffic pattern.
6. Generally rimmed with well maintained shrubs and lawns.

C) Private Roadway

1. No more than four (4) lots.
2. Provide a nine-inch (9") minimum gravel base plus four inch (4") crusher run top for ultimate pavement in the future.
3. Roadway shall be a minimum of sixteen feet (16') wide.
4. Design speed of 30 miles per hour or less.
5. Maintenance agreement required.

Each of these roads has basic characteristics which may be varied by the Village 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 pavement width shall comply with the typical cross sections shown on Appendix I.

2.5.2 General Design Considerations

A. Rights of Way

1. Minimum width sixty feet (60') for minor streets.
2. Private underground utilities to be located on easements beyond right-of-way limit.

B. Horizontal Alignment

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

1. Minimum sight distance (along centerline) for minor street of one hundred feet (100').

   Minimum sight distance (along centerline) for collector street of two hundred feet (200').

2. Minimum clear sight distance at intersections for minor streets of three hundred feet (300').

3. Minimum clear sight distance at intersections for collector streets of five hundred feet (500').

4. No centerline intersection angles less than 85°.

5. Minimum centerline radius of 150 feet - minor street.

   Minimum centerline radius of 300 feet - collector street.

6. Road pavement intersection shall have a minimum of 35 feet radius.

7. Cul-de-sacs shall not exceed five hundred feet (500') in length and end with a offset turnaround when possible (see Appendix G).

8. Access to future development will be provided when required.

9. Tangent sections shall be used between curves to maintain the proper flow of traffic.

C. Vertical Alignment

1. Length of vertical curve to be consistent with the proper sight distance required for each road type.

2. Vertical curves required whenever changes in grade exceed one percent (1%).

D. Road Grades

1. Minimum - Five-tenths percent (0.5%)

2. Maximum - eight percent (8%)

E. Leveling Areas

Leveling areas shall be incorporated at all intersections for a minimum distance of 100 feet and the grade shall not exceed three percent (3%).

F. Road Widths

Class	Pavement Width	Shoulders	Drainage
Collector Street	24 ft. min.	6-8 ft. or 30" concrete gutters*	Gutters & underdrains as a minimum with storm system or road-side swales (Curbing as required by the Village).
Minor Street	22 ft.	30" concrete gutters	Gutters & underdrains as a minimum with storm system (Curbing as required by the Village).
Private	16 ft.	4 ft.	Gutters & underdrains as a minimum with storm system.

* As determined by the Village Board

G. Special Considerations

1. Roadside Swales – Where grades exceed five percent (5%) and/or unstable soil conditions warrant, the swales shall be improved using some type of stable flow line, i.e. concrete, rip-rap or pipe. Generally, road-side swales will not be permitted within the Village unless authorized by the Village.

2. Subbase Condition – Underdrains and Geotextile Fabrics will be required. The developer and/or contractor building the road will be required to install underdrains. The method used shall be subject to written approval of the Highway Superintendent and/or Village Engineer. Underdrains are required with all gutter installations.

3. Frontage Development – Where frontage development is to be approved along connector roads, the Planning Board may require the road-side swale be enclosed in conduit along the fronts of the development. Such conduits shall be of the proper size to accommodate anticipated flows outlines in Part 2, Section 2. This requirement is dependent on the depth of the swale and maintainability aspects related thereto.

2.5.3 Road Design

A. General Requirements

The design engineer shall consider the proposed use of the road when preparing a road design. The following criteria are 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 will not move, pump, shift, or visibly appear to be questionable for proper road construction.

B. Minimum Design Standards for Each Road Type

1. Collector Street

a. Two (2) six inch (6") courses of Type 2 crusher run.
b. One (1) four inch (4") crusher-run leveling course, Type 2.
c. Top course shall be two (2) courses of asphaltic concrete of two inch (2") binder (Type 3) and one inch (1") top (Type 7) compacted thickness.
d. Six inch (6") thick stabilized shoulder.

2. Minor Street - Subdivision Road

a. Two (2) four inch (4") lifts of Type 2 crusher run.
b. Four inch (4") crusher-run leveling course, Type 2.
c. One (1) one inch (1”) lift of stone dust for leveling and/or choking of the road base
d. Pavement course shall be two inch (2") binder Type 3 and one inch (1") Type 7 top of asphaltic concrete.

3. Double Surface Treatment Road (To be used only at the discretion of the Highway Superintendent)

a. Two (2) six inch (6") courses of Type 2 crusher run.
b. Three inch (3”) crusher-run leveling course, Type 2.
c. Quantities for a double surface treatment per square inch:

i. .35 gallons of CRS-2 or RS-2 asphalt emulsion, 40 lbs. of No. 1 crushed stone.
ii. .40 gallons of CRS-2 or RS-2 asphalt emulsion, 25 lbs. of No. la crushed stone.

NOTES: (1) All depths are compacted thickness.
(2) Underdrains and geotextile Fabrics will be required.

2.5.4 Concrete Gutters / Curbing

In general (as a minimum), gutters with a maximum valley depth of one and one-half inches (1-1/2") shall be provided along the edges of all roads to be dedicated to the Village of Avon.

Curbing (concrete or granite) may be required at the discretion of the Village. A typical cross section is shown in Appendix J.

2.5.5 Driveway Culverts

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.

B. Minimum of twelve inch (12") 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 five feet (5') beyond edge of the driveway pavement, a minimum of 30 feet in length and centered on the driveway pavement.

D. End sections or headwalls shall be provided on both ends of the culverts.

E. Elevations to be set by U.S.C.&G.S. datum.

F. Culverts shall have a minimum of 12 inches of cover.

2.5.6 Sidewalk Design

Sidewalks will be required by the Planning Board and shall be located either one-foot (1') inside the right-of-way or one foot (1') outside the right-of-way in a seven foot (7') sidewalk easement as required by the Village and shall conform to the Specifications and Details herein included. The Planning Board may require sidewalks on both sides of the road and has the right to an easement outside the right of way to accommodate utilities.

2.5.7 Monuments

Monuments per Appendix C-C shall be located at:

A. P.C. and P.T. of all horizontal curves. One side only.

B. Maximum of 1,000 feet along one side of right-of-way line.

2.6 Street Lighting

Street lighting shall be provided for new streets constructed in the Village of Avon, street extensions, and as designated by the Village for new construction. The street lighting layout shall be shown on the construction plans and shall be in accordance with standards listed herein and is subject to the review, requirements, and approval of the Village.

2.6.1 Illumination

The following minimum levels of illumination (at the ground surface) shall be provided:

Residential Streets - 0.2 foot candles Commercial Streets - 0.9 foot candles IES Classification Type V

Spacing, size, height of fixtures shall be selected to produce the minimum levels of illumination.

Maximum spacing - 75 feet (1).

Height - 10' residential
- 13' commercial

One (1) fixture shall be provided for each intersection.

2.7 Miscellaneous

Where land areas are reserved for future connections to adjacent parcels, all improvements, i.e., sanitary, storm, water, roads, etc., will be constructed to the common property line. This requirement may be waived by the Planning Board under special conditions. Utility and infrastructure extensions to properties must extend the entire length and road frontage of that property.

2.8 Record Mapping and Documentation

Developer/Owner must provide record mapping/as-built plans and record documentation to the Village of Avon after construction, as well as operation and maintenance manuals and warranties for equipment installed and dedicated to the Village. In addition, the Developer/Owner must provide record mapping/as-built plans for infrastructure dedicated to the Village in a format suitable for incorporation to the Village Geographic Information System (G.I.S.).

SECTION 3 - Material Specifications

3.1 General Information

The materials intended to establish the degree of excellence are herein included and/or deemed to be of the satisfactory quality for installation within the Village. Where other materials may be proposed in substitution for those herein called for, the Developer shall submit a written request to the Village Engineer for approval. 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 Village Engineer), they shall be removed and replaced with those herein called for at no expense to the Village.

All standard designations (NYSDOT Standard Specifications, ASTM, AWWA, etc.) used in these Specifications shall be the latest edition and/or revision thereof.

3.2 Sanitary Sewers

3.2.1 Polyvinyl Chloride (PVC) Pipe for Gravity Sewer

Shall meet the requirements of ASTM D-3034 SDR-35 or ASTM F789 PS-46 for Sewer Pipe and Fittings. 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, minimum Class 12454-B.

3.2.2 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-26 extruded from clean, virgin, approved Class 12454-B resin compound conforming to ASTM D-1784. Bell and spigot joints are required with elastomeric gaskets. Joint performance shall conform to ASTM D-3139 while gaskets shall meet ASTM F477.

3.2.3 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.

3.2.4 Sewer Lateral Pipe for Gravity Sewer

A. Cast iron sewer pipe shall be extra heavy class with rubber gasket joints and maximum lengths equal to 5’-0”.

B. PVC pipe shall be of a minimum wall thickness SDR 21 with elastomeric gasket joints, supplied in standard lengths and conforming to ASTM D-3034.

3.2.5 Sewer Lateral Pipe for Pressure Sewer

A. Polyvinyl chloride (PVC) pipe and fittings shall meet the same requirements as PVC forcemains.

3.2.6 Sewer Connections

Sewer connections on new sewer main installations shall be made with fabricated or injection molded wye fittings. The minimum strength classifications of these fittings shall be equal to that of the pipe and compatible with the manufacturer of the pipe.

Connections to an existing sewer shall be made with GENCO strap-on saddles with stainless steel straps and stainless steel or bronze bolts for sewers up to 14" in diameter and GENCO bolt-on saddles for sewers greater than 14" in diameter.

3.3 Storm Drainage

3.3.1 Reinforced Concrete Pipe

Shall be supplied in conformance with ASTM Specification C-76 Wall B. Joints shall be of the bell and spigot type with compression type joint.

3.3.2 Polyvinyl Chloride (PVC) Pipe

Shall meet the requirements of ASTM D-3034, minimum wall thickness SDR 35 with elastomeric gasket joint, ASTM D-3212. Depending upon the situation, the Village may require PVC SDR 21.

3.3.3 Corrugated Steel Pipe

All pipe shall be coated inside and outside with joints made with connecting bands and neoprene gaskets. Thickness gauges will be dependent on the load conditions, except that sixteen (16) gauge shall be the minimum allowable thickness.

3.3.4 Corrugated Polyethylene Tubing (HDPE)

Pipe shall be smooth lined (smooth bore) and shall conform to the requirements of ASTM F-405 or ASTM F-667. Use of HDPE pipe for storm systems and/or culverts must be approved by the Village.

3.3.5 Storm Laterals

All gravity sump drains must be a minimum 4" diameter PVC SDR 21 pipe from outside the building to the connection to the storm system and must include a check valve on the discharge side of the sump pump within the interior of the building as approved by the Village. The line must be installed at a minimum burial depth of 4-feet, at a minimum slope of 1/4" per foot, and must include cleanouts starting at approximately 10'-20' outside the building spaced at maximum 85' intervals to the road R.O.W. line. There will not be any cleanouts required beyond the R.O.W. line. The sump may be connected to the existing storm line or catch basin as approved by the Village.

All sump pump forcemain storm laterals must be a minimum 4" diameter PVC SDR 21 pipe from outside the building to the connection to the storm system and must include a check valve on the discharge side of the sump pump within the interior of the building as approved by the Village. The sump may be connected to the existing storm line or catch basin as approved by the Village.

Roof leaders, downspouts, etc. are not permitted to be connected to any Village storm systems or to sump drains connected to the Village storm systems. The Village reserves the right to approve or reject any other proposed connection to its storm system as it deems necessary and/or appropriate.

3.3.6 Catch Basin Leads

Shall be a minimum of twelve inches (12") in diameter.

A. Reinforced Concrete Pipe (RCP)
B. Polyvinyl Chloride Pipe (PVC)
C. Smooth Interior Corrugated High Density Polyethylene Pipe (SICHDPE)*
D. Corrugated Steel Pipe (CSP)

* Preferred Material

3.4 Manholes and Manhole Ladders

3.4.1 Manholes

Pre-cast 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.

All manholes shall be sealed inside completely with two (2) coats of heavy-duty water repellant protective coating made of coal tar 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 those manholes, the developer's engineer shall submit adequate design data and/or shop drawings to substantiate the installation.

3.4.2 Manhole Ladders and Steps

Manhole ladders or steps shall be provided in all sanitary and storm manholes and shall be constructed of one (1) of the following materials:

A. Non-corrodible, aluminum magnesium alloy ladders, with intermediate supports at five foot (5') intervals.

B. Forged aluminum with drop front design and grooved tread surface.

C. 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 twelve inches (12") apart. Steps shall be of cast iron with an asphalt coating as manufactured by Neenah R1890EI, steel reinforced copolymer polypropylene step by M.A. Industries, Inc., or approved equal.

3.5 Frames and Covers

3.5.1 Sanitary Manhole Frames and Covers

Shall be Neenah R-1556, Syracuse Castings 1009 or approved equal. The word "Sanitary" shall be cast into the top of the cover. The inside diameter for clearance shall be a minimum of twenty-four inches (24").

3.5.2 Storm Manhole Frames and Covers

Shall be Neenah R-1726A, Syracuse Castings 1032 or approved equal with a vented cover. The inside diameter for clearance shall be a minimum of twenty-four inches (22").

3.5.3 Catch Basin Frames and Grates

Shall be rectangular galvanized (ASTM A-123), sized to fit gutter inlets or field inlets. The gutter grates shall be size No. 1 to fit the catch basin inside dimension of 18" x 24". The minimum field inlet shall be size No. 9 to fit a field inlet of 24" x 24" inside dimension.

Catch basin manholes shall be set to allow a No. 1 grate to be installed.

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

3.6 Water Mains

3.6.1 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 C-104 and shall have rubber gasket push-on joint in accordance with AWWA C-111. Mechanical joint glands shall be retainer glands only. Mains shall be designed for 150 psi working pressure.

3.6.2 Polyvinyl Chloride Pipe (PVC)

Shall conform to AWWA C-900 minimum allowable thickness DR-18. Pipe shall have rubber gasket push-on joints, mains shall be designed for a working pressure of 150 psi.

3.6.3 Fittings

Shall meet AWWA C-111 Specifications, ductile iron, minimum Class 250, with mechanical joints. Fittings shall be cement lined in accordance with AWWA C-111. Mechanical joint glands shall be retainer glands only. All fittings and valves shall utilize retainer glands and thrust blocks as required.

3.6.4 Water Pipe

A. Four inches (4") or larger, ductile iron pipe conforming to AWWA C-151 or polyvinyl chloride pipe (PVC) conforming to AWWA C-900.

B. Three inches (3") or less, copper Type "K" per ASA H23.1 or polyethylene pressure pipe/tubing per AWWA specifications. Polyethylene materials (min. 200 PSI) shall be designed by standard P.E. codes 2406, 3406, and 3408, and shall conform to ASTM D3350. Polyethylene materials shall also conform to AWWA C901-88.

3.6.5 Hydrants

Shall be manufactured in accordance with AWWA C-502. Hydrants shall be manufactured for five foot (5') bury with break-away flange construction and six inch (6") mechanical joint inlet. They shall open right and be painted yellow. Hydrants shall be three (3) way with two (2) two and one-half inch (2-1/2") hose nozzles and one (1) four and one-half inch (4-1/2") pumper connection and have National Standard threads, ANSI B-26. Main valve openings shall be five and one-quarter inch (5-1/4") and packing shall consist of the tee, guard valve, hydrant and adapters. Hydrant shall be designed for 250 psi working pressure.

Hydrant unit shall be, Kennedy Guardian K-81-D, or Clow Centurion.

3.6.6 Resilient Wedge Gate Valves

Valves shall conform to AWWA C-500 and ANSI A21.11 bronze stem nut, resilient rubber seat ring, O-ring packing. They shall be of the 400 psi test class with a minimum working pressure of 200 psi, valves shall open Left and be manufactured by Mueller.

3.6.7 Anchoring Fittings

Shall be required on all hydrant units and shall be paint seal coated, cement lined and provided with a swivel gland. There should be a minimum 24" between hydrant and gate valve. Fittings shall be either: Clow F1216 or approved equal.

3.6.8 Valve Boxes

All gate valves shall be equipped with cast iron Buffalo-type, two-piece, screwed valve boxes with five and one-quarter inch 5-1/4") shaft (Mueller Style H-10360). Cover shall be marked "Water".

3.6.10 Brass Service Mater

A. Corporation - Mueller, Compression Type
B. Curb Stops - Mueller, Compression Type
C. Curb Boxes – Mueller

3.6.11 Water Services

A. 3/4" corporation cocks - Mueller H-15008.
B. 3/4" curb stops - Mueller H-15209 spring loaded.
C. Curb boxes - Mueller H-10334 - Ext. 54"- 66".
D. 3/4" Copper Pipe Type "K" ASA Spec. H-23.1 - B88-47, or polyethylene pressure pipe/tubing per AWWA specifications. Polyethylene materials shall be designed by standard P.E. codes 2406, 3406, and 3408, and shall conform to ASTM D3350. Polyethylene materials (min. 200 PSI) shall also conform to AWWA C901-88, regarding testing, dimensions, etc. Tests on the pipe shall be made in accordance with requirements that are no less restrictive than National Sanitation Foundation (NSF) No. 14 requirements. Dimensions of the pipe/tubing shall conform to copper tube size compression fittings and must have stainless steel inserts included.

Services greater than one inch (1") in diameter shall utilize double strap bronze saddle clamps by Mueller.

3.7 Concrete Gutters and Sidewalks

A. Concrete

1. Shall be a minimum of 4,000-psi (28-day strength) Class A concrete conforming to NYSDOT Specification 609.
2. Air entraining admixture conforming to ASTM Specification C-260.
3. Bituminous expansion material shall conform to NYSDOT Specification 705-07.
4. Curing sealing compound - Accuseal by Allerton Chemical Co. or Polyclear by Upco Company or equal.

B. Testing

The developer shall obtain one (1) sample from each two (2) trucks delivering to the site and have the sample compression tested by an independent testing laboratory.

Results of these tests shall be submitted to the Highway Superintendent.

3.8 Road Materials

3.8.1 Sub-Base and Base Courses

A. Crusher run stone shall conform to NYSDOT Specification 304, Type 2.

B. Aggregate shall conform to NYSDOT Specification 703.

3.8.2 Bituminous Pavement

A. Binder course shall conform to NYSDOT Specification Section 403, Type 3 (dense binder).

B. Top course shall conform to NYSDOT Specification Section 403, Type 7F.

3.8.3 Tack Coat

Shall conform to NYSDOT Specification Section 407, Grade HFMA-2h.

3.8.4 Premoulded Bituminous Joint Filler

Shall conform to NYSDOT Specification Section 705-07.

3.8.5 Underdrains and Catch Basin Crossovers

Shall be fully coated twelve inch (12") perforated corrugated metal pipe in conformance with NYSDOT Specification Section 707-07. The underdrain shall be installed at all catch basin crossovers with perforations up. Pipe to be backfilled to road subbase material utilizing #2 crushed stone NYSDOT Gradation Table 703-4.

3.9 Monuments

Monuments shall consist of one-quarter inch (1/4”) Diameter reinforcing rod embedded in concrete as shown in Appendix C-C.

3.10 Street Lighting - Fixtures and Poles

The following are general regulations for street lighting; however, final style, illumination, locations, model types, height, etc. are subject to the review, requirements, and approvals of the Village of Avon, and the Village Engineer.

Cast aluminum construction with spun aluminum vent assemblies. Provide 120 volt GFI receptacle with weatherproof cover plate. Stainless steel exterior hardware. Lantern panels shall be ultraviolet stabilized Polycarbonate. Post shall be cast aluminum base, tapered spun aluminum shaft, three inch (3") diameter lantern tenon standard with ladder rest. Street sign arm and signs provided at all intersections.

Bases shall be 4,000 psi - 28 day strength concrete minimum of two inches (2") larger than base of pole. Base shall be installed minimum of four feet six inches (4'-6") below grade. Ladder rests shall be of cast aluminum construction. Street sign arms shall be cast aluminum construction.

3.11 Equivalents

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

For the project it will be assumed that the Contractor will furnish the exact equipment called for in the plans and specifications unless the Contractor files with the Village of Avon the name and complete description of each article which he proposes to substitute as approved by the Village Engineer and the Village Board.

SECTION 4 – Installation

4.1 General Information

4.1.1 Preconstruction Meeting

A preconstruction meeting shall be held prior to the start of construction of a development. The Developer, his contractor and engineer shall meet with respective Village department heads and inspectors to discuss the overall project and to permit definite familiarization with Village requirements.

4.1.2 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.

4.1.3 Protection of Property and Work

A. The contractor shall so conduct his operations as to damage no more than is absolutely necessary, trees, garden plots, shrubbery, pipe lines, 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.

B. Responsibility and damage - the developer shall be responsible for all parts of his work, temporary or permanent, until the project is accepted by the municipality and he 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 municipality 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, flashing walking light, barrier fences, etc.

C. Erosion and Sedimentation Control – the developer shall be responsible for controlling erosion and sedimentation throughout the development process. Erosion and Sedimentation Controls shall be provided in conformance with the "Guidelines for Erosion and Sediment Control in Urban Areas of New York State", as those standards may be revised from time to time (see New York Standards and Specifications for Erosion and Sediment Control DRAFT, January 2004). Where the provisions of these regulations requiring the control of erosion and sedimentation conflict with requirements applicable under the New York SPDES permitting program, the requirements that are the more restrictive shall govern.

4.1.4 Construction Schedule

Prior to the start of the work, the developer shall provide the Building Inspector with a schedule showing the order in which work will be completed. The schedule shall include estimated dates of completion for each portion of the project.

4.1.5 Permits

The developer shall secure all necessary permits from the Village of Avon and/or any other agency that may have control over any work prior to the start of construction.

4.1.6 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 take necessary precautions to prevent entry of mud, debris, etc. into existing utilities.

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 so as to insure an acceptable repair and/or replacement.

4.1.7 Facilities for Inspection

The contractor shall furnish all reasonable facilities and aid to the inspectors and safe and convenient footways, scaffolds, ladders, etc., that may be needed for the examination and inspection of any part of the work.

Inspectors may stop work when the contractor has no responsible agent on the project, or if he 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 inspector's instructions shall be permanently removed from the project. Failure to conform to these controls may warrant refusal of the municipality to accept the development for dedication.

4.1.8 Layout

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

4.1.9 Defective Work

The inspection 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 over looked by the Village 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 Village.

4.2 Grading

Completion of grading per grading plan to within one foot (1') 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 siltation basins, etc.

4.3 Trench Excavation

4.3.1 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 other water, gas or drain pipes, sewers, conduits, culverts, drainage ditches or water courses, either under or over the proposed pipes, or for any other incidental work that may be ordered by the Village or its representative. A11 work shall be done in accordance with the Federal Safety Standards of OSHA. The Contractor is solely responsible for compliance with all safety regulations.

4.3.2 Width of Trenches

The trenches shall be of such width as may be required by the Engineer to insure proper and workmanlike laying and handling of the pipes and appurtenances, proper tamping and backfilling when laid. 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.

4.3.3 Depth of Trenches

In general, the trenches shall be excavated to such a depth to properly install the utilities to the grade established in the field by the Engineer. The depth of the excavation shall allow the proper bedding material to be placed under the pipe. Any extra depth shall be filled with compacted crushed stone to the proper grade required.

4.3.4 Tunneling

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

4.3.5 Blasting

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

4.3.6 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. All water pumped or bailed from the trench or other excavation shall be conveyed in a proper manner to a suitable point of discharge.

4.3.7 Bottom of Trench

The bottom of the trench shall be carefully graded and formed according to the directions of the Engineer, before any structures are laid therein. When other instructions or designs are not indicated, all trenches shall be excavated to a flat bottom. All storm, sanitary, and water lines shall be cradled a minimum of six inches (6") below the barrel of the pipe. In hard pan, boulder formations, loose rock, or solid rock, the excavation shall potentially extend beyond six inches (6") below the bottom of the pipe as required by the Village, and a carefully compacted bed of No. 1 stone placed in the bottom of the trench up to the level of the bottom of the pipe. Once the pipe has been correctly installed, additional No. 1 stone shall be installed and compacted carefully to a point a minimum of twelve inches (12") above the pipe.

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

4.3.8 Suitable Bedding and Safety Backfill Material

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 select earth requirement from a point twelve inches (12") above the pipe to the design subgrade. Should the nature of the soil be such that the contractor is unable to meet the above requirements by selecting reasonably from the excavated material, he shall provide gravel if so ordered by the Village or its Engineer.

Select fill shall be sand, gravel or similar material which shall be free from clay, loam, organic material, debris, frozen materials and shall contain only small amounts of stones, pebbles or lumps over one inch (1") in narrowest dimension but none over two inches (2") in greatest dimension.

Stone for bedding and encasement shall be approved imported aggregate meeting the requirements of NYSDOT Standard Specification 703-02.01 No. 1 crushed stone.

Compaction densities shall be 95 percent of the maximum density obtained at optimum moisture content as determined and controlled in accordance with AASHTO Standard T99, Method C. Field density tests shall be made in accordance with AASHTO Standard Tl9. Each layer of backfill shall be moistened or dried as required to obtain specified compaction results. Compaction cost to be paid by Developer.

4.4 Pipe Installation

4.4.1 Line and Grade

All pipes and appurtenances of whatever character shall, when set, conform to the alignments and grades required by the 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.

4.4.2 Laying Pipe

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. 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 pipe ends to be plugged during and after all construction activities to protect the pipe from infiltration.

Sewer shall be built to straight lines and grades between angle points or manholes unless specifically changed on the project drawings. The contractor shall provide sufficient grade control to properly install the pipe and appurtenances.

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 rammed 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 into place to hold the pipe in position.

4.4.3 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.

4.4.4 Impervious Trench Barriers

Impervious barriers may be required, at the discretion of the Highway Superintendent, at maximum intervals of 500 feet along all water, sanitary and storm pipe trenches to minimize the continuous flow of water through and along the pipe trench.. The length of the impervious barrier shall be a minimum of five (5) feet and shall consist of material that is approved by the Village. The impervious barrier shall be installed for the full width and depth of the trench, including bedding underneath the pipe. Possible soils approved and used for this barrier shall be thoroughly and carefully compacted.

4.5 Manhole Construction

4.5.1 General

Manholes shall be constructed of the size, type and at the locations shown on the plans, or as designated by the Water and Sewer Superintendent and/or the Highway Superintendent. No manholes are to be placed in pavements of dedicated roads.

The manhole bed shall be excavated level and include a minimum of six inches (6") 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 psi concrete.

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.

Openings around pipes shall be completely filled with non-shrink grout and after initial set, waterproofed on the outside with a heavy coal-tar coating. Riser and cover slab joints shall be made, using non-shrink grout in a sufficient quantity to fill the joint completely. Lift holes shall be closed, using non-shrink grout and waterproofed by covering them with coal tar coating on

both sides. All joints and openings shall be closed immediately upon setting the manhole. Lift holes shall not be used until the concrete is properly cured.

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 no more than fifteen inches (15") before 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.

A. Frames and Covers

The frames shall be firmly set in a bed of not less than one full inch (1") 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 shall be mortared to the roof slab to raise the frame to the proper grade. Brick mortar plastered one-half inch (1/2") inside and out with coal tar coating may be substituted for the precast concrete spacers. A maximum of six inches (6") of bricks shall be used to adjust the frames and grates to the proper grade.

B. Inverts

Inverts shall be constructed at all manholes. The inverts may be constructed of the mainline pipe or brick (Grade SS) and shall be the depth of the pipe.

4.5.2 Drop Manholes

Wherever the invert of the entering sewer is more than two feet (2') above the invert of the outlet sewer, it shall be connected with an outside drop with a cleanout pipe half bricked up. Where possible, the drops shall be constructed with vertical drop pipes; otherwise, the drop may be offset. When drops are placed, the entire excavation around the drop pipes shall be filled with 3,000 psi concrete extending not less than two feet (2') along the main sewer.

The cleanout opening in the barrel of the manhole shall be cut in after the manhole wall pipe is in place, and the joints between the cleanout pipe and the manhole wall shall be thoroughly sealed with cement mortar on the inside and bituminous joint material on the outside, using suitable gasket in between.

4.5.3 Shallow Sewer Manholes

Where any manhole is three feet ten inches (3'-10") or less from invert to bottom of roof slab, the contractor is to provide a manhole as shown in Appendix O. The roof slab shall be precast structural concrete reinforced to withstand a concentrated wheel load of eight (8) tons plus 30% impact. The slab shall be formed to fit into the ends of the vertical pipe and shall have a full bearing for its entire circumference.

4.5.4 Sealing of Manholes

All manholes shall be sealed with two (2) coats of 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 (2) coats by the contractor. Covers and other exposed surfaces shall also be coated in the field. Improper materials or mil thickness will be cause for rejection of manhole sections.

4.6 Catch Basins

Catch basins shall be constructed as shown in the Appendix or as shown on the plans for special conditions. Catch basins shall be constructed of brick conforming to ASTM C-32, Grade M.S. or may be precast concrete.

All catch basins constructed of precast concrete and receiving water from pavement runoff shall be coated inside with two (2) coat of Bitumastic 300-M by Koppers or Farbertite by Briggs Bituminous Composition Company or approved equal.

4.7 Laterals and Water Services

Laterals and water services shall be installed to the rights-of-way (or easement) line for all lots. Each service shall be located with a two inch by four inch (2" x 4") witness 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. Connections to an existing sewer main shall be made with approved saddles.

4.8 Hydrants and Valves

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 three inches (3") above the finished grade. Hydrant weeps shall be surrounded by at least ten (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. Hydrants that have weeps plugged shall be tagged to indicate that the weep holes have been plugged.

Valve boxes shall be placed plumb over the operating nut of the valve and adjusted to the final grade. All hydrants shall be painted yellow and all valve box covers painted blue.

4.9 Backfilling and Finishing

4.9.1 General

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

4.9.2 Backfill Immediately After Approval

Under areas that are outside of roadway or paved surfaces, No. 1 stone shall be deposited around the utility and appurtenances covering them by hand from a minimum six inches (6”) below the utility to a depth of at least twelve inches (12") above the pipe unless otherwise ordered by the Village. The remainder of the backfill in these non-paved areas shall be select earth material as approved by the Village. This select earth shall be thoroughly tamped or rammed as it is being thrown in so as to fill the lower portion of the trench thoroughly throughout. The material must not be thrown down from above faster than the workmen below can properly distribute and compact it. See section 4.9.4 for backfilling under roadways, streets, and all pavement surfaces.

4.9.3 Restrictions as to Materials

No rock or frozen earth shall be put in the trench until the refilling has reached at least two feet (2') above the top of the pipe lines and then not unless especially permitted by the Engineer. All spaces between suitable pieces of rock shall be thoroughly filled with earth by backfilling in alternate layers of rock and earth. The trench shall be finished smooth and undulations will not be acceptable.

4.9.4 Backfilling Pavement Crossings

All main lines or laterals that cross existing or proposed streets shall be bedded from six inches (6”) below the pipe to twelve inches (12”) above the pipe with No. 1 stone. Backfill for the remainder of the entire trench for these utilities shall be #2 crusher run stone, which shall be compacted in maximum six inch (6") lifts to the pavement subgrade elevation. In no instance shall virgin material be used for backfill to be excavated at a later date for gravel backfill. The utility shall have a Class B bed throughout the entire length of the trench.

4.9.5 Cleaning Up

As the work progresses or as directed by the 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.

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

4.10 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 AASHTO Standard T-99, Method C. Field density tests shall be made in accordance with AASHTO Standard T-146.

Each layer of backfill shall be moistened or dried as required, and shall be compacted in the following densities, unless otherwise specified. Tests may be taken at any depth of the backfill as requested by the Village.

A. Select Fill

Under all existing or proposed roads, driveways, parking areas - 95%
All other areas - 85%

B. Methods and Equipment

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

C. Testing

1. Field density tests may be ordered by the Village as necessary and 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.

   If compaction tests do not meet specifications herein, the developer shall be ordered to change the method of operations and/or backfill materials.

   Inadequate compaction shall be cause for the Village to issue a stop work order on a project.

4.11 Testing of Underground Utilities

4.11.1 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. The tests shall be conducted in the presence of the Village. No test will be accepted unless witnessed by the Village.

4.11.2 Sanitary Sewers

A. All sewers shall be flushed clean by the contractor and in the presence of the Village, the lines shall be lamped. If required by the Village, a ball one-inch (1") less in diameter than the sewer shall be passed through the pipe.

B. Sewer lines shall be tested with an exfiltration or infiltration test as determined by the Village or be air tested.

1. Exfiltration Tests - The system (including laterals) shall be filled with water to attain a ten foot (10') head of water at the highest test point. The maximum water loss shall not exceed 50 gallons/inch/diameter/mile/day. The test shall be conducted over a 24 hour period.
2. Infiltration Tests - Under conditions acceptable to the Village, infiltration tests may be conducted using the limits specified in (1).

C. Manholes - Each manhole shall be subjected to an infiltration, exfiltration, or vacuum air test as determined by the Village. Each manhole shall be filled with a maximum of ten feet (10') of water, subjected to a 24 hour test and show a loss of water not to exceed 15 gallons/24 hours for a four foot (4') IDMH. Infiltration tests shall adhere to the same limits. Vacuum air tests shall consist of drawing vacuum of 10" of HG. The sealed manhole shall allow no more than one half inch (½") of loss for one (1) minute.

4.11.3 Storm Drains

All storm sewers shall be flushed clean by the contractor and in the presence of the Village the lines shall be lamped.

4.11.4 Water Mains

A. Testing - The entire system, including services to the curb stops, shall be pressure tested at a minimum of 1.5 times the working pressure or 150 psi, whichever is the greater of the two, at the point of testing for a period of two (2) hours. A leakage test shall also be conducted along with the pressure test. Pressure tests must include hydrant units. The tests performed shall be in accordance with AWWA C-600.

B. Disinfection - Upon completion of the pressure testing, the main shall be disinfected in accordance with AWWA C-601. (Item 7.3 therein does not apply.)

C. Sample - After flushing of the newly disinfected main the Village of Avon Representative shall obtain samples of water and submit them to a laboratory approved by the New York State Department of Health. A satisfactory laboratory report, together with a licensed Professional Engineer's Certificate of Construction shall be submitted for approval. Upon receipt of the Approval of Completed Works, the water system shall be considered complete and may be accepted for service by the Village.

4.11.5 Defective Areas

In any area where satisfactory results of applied test 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.

4.12 Roads, Gutters and Sidewalks

4.12.1 General Information

The contractor shall not proceed to construct any of these items until the underground utility system has been installed, tested and approved by the Village.

Careful attention shall be given by the contractor to obtain the necessary compaction densities as required under Section 4.10.

As a minimum, the road shall be designed and constructed to the shape and dimensions as shown in Appendix I. If deemed necessary by the Board, a greater road width and base may be required in those areas where particular traffic patterns require a special design.

4.12.2 Roads and Gutters

A. Subbase - 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 the proper subgrade. The entire subgrade surface shall be thoroughly compacted according to NYSDOT 203-3.12. No movement shall be observed in the subgrade material as the roller passes.

When the subbase is completed, the contractor shall so notify the Public Works Superintendent and the Village Engineer for a final inspection. Upon the inspection and written approval of the subbase by the Public Works Superintendent, the base material may be placed.

B. Base Material - Approved base material 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 straight-edge 16 feet in length, any bump or depression over one-quarter inch (1/4") from the theoretical grade line shall be satisfactorily eliminated.

C. Concrete Gutters - Concrete gutters shall be a minimum of six inches (6") in depth and constructed true to the shape, line and grade and placed on a thoroughly compacted base. The gutters may be constructed using a slip form method or in-place form work.

Joints between sections shall be placed every ten feet (10') at right angles to the flow line and must be "wet struck" one-eighth inch (1/8") wide and three quarters inch (3/4") deep. Full depth expansion joints shall be placed every 50 feet and at all structures or inlets. The full depth expansion joints shall contain bituminous expansion joint material for its full depth.

Gutters shall be broom finished before the joints are struck and the finish shall be consistent throughout the project.

Gutters shall be cured and sealed by spraying the Accuseal by Allerton Chemical Company or Polyclear by Upco Company or approved equal. The spray shall be applied at the rate as recommended by the manufacturer.

One (1) 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.

The use of burlap or coverings for curing or protection is not acceptable until after the concrete has been sprayed and set.

The gutters, prior to final paving, shall be flooded, checked for horizontal and vertical line, graded and finished. If any gutters are found by the Highway Superintendent to be constructed in an unacceptable manner, they shall be removed and replaced.

Gutter replacements shall conform to the existing gutter regarding finish and color.

D. Bituminous Pavement

1. Binder shall be placed and compacted to a minimum finished layer thickness of two inches (2") in accordance with NYSDOT Specification Section 403 – Hot Mix Asphalt (HMA) Pavements for Municipalities (most recent addition). 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.

Before the surface course is placed, the binder will be cleaned and inspected by the Highway Superintendent to determine the condition of the pavement. It may be necessary to apply a tack coat at the rate of 0.1 gallon/square yard before placing the surface. See Part II, Section 1.3.2.

2. Surface course shall be placed and compacted to a minimum finished layer thickness of one inch (1") in accordance with NYSDOT Specification Section 403 – Hot Mix Asphalt (HMA) Pavements for Municipalities (most recent addition).

E. Double Surface Treatment

1. Have base surface well compacted and shaped to desired grade and crown (1/4" per foot).

2. Spread asphalt with asphalt distributor that has an accurate spray bed.

3. Spread stone with an aggregate spreader properly calibrated to accurately place correct poundage of stone per square yard.

4. Roll stone in with pneumatic roller. Use a flat steel roller for final roll to even the final surface.

4.12.3 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 surface course may be constructed.

This temporary road shall be inspected by the Highway Superintendent and approved in writing prior to the issuance of any Certificate of Occupancy. The Village may accept dedication of the road and sufficient monies will remain in the letter of credit to top the road the next year.

4.12.4 Continuation of Existing Road

When construction of a road is continued from an existing road or previously developed section, the roads shall be joined with a triangular cut of at least fifteen feet (15') from edge of curb to the centerline of the new 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 courses.

4.12.5 Stabilized Shoulders

Collector Streets shall be constructed to the dimensions shown on the typical sections. Construction methods shall conform to Item 410-3.02. The base course shall consist of a wedge of crusher run stone with a minimum thickness of six inches (6") at the outside edge.

4.12.6 Underdrains and Catch Basin Crossovers

Underdrains shall be installed in conformance with Item 605 using twelve inch (12") fully coated perforated CSP crossovers and four inch (4") PVC underdrain and underdrain filter Type 1 per NYSDOT 605-2.02.

The underdrain shall be laid four inches (4") of compacted stone and require six inches (6") of stone above and around the pipe. The crossover pipes shall be laid on six inches (6") of compacted Type 2 crushed stone and backfilled to the road base elevation with same material.

4.12.7 Sidewalks

Sidewalks shall be required by the Planning Board. Side walks shall be five feet (5') wide, five inches (5") deep of 4,000 psi concrete on a four inch (4") base of gravel or crushed stone. The blocks shall be five feet (5') long with bituminous expansion joints every 50 feet. The finish shall be consistent with the gutter specifications. Sidewalks shall be handicap accessible and ADA compliant at all times.

4.13 Monuments

The monuments shall be installed in those areas shown on the approved final plan and as located in the field by the Licensed Land Surveyor. They shall be installed to a depth of at least forty-eight inches (30") below finished grade with the top surface to be flush with finished grade.

4.14 Final Grading

Upon satisfactory completion of the utilities and roads, the entire area within the right-of-way shall be raked and finished to an acceptable appearance.

The Contractor shall be responsible to fine grade the right-of-way at least once. In those areas where home building has started, unsightly clean up and depressions will then become the responsibility of that 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.

4.15 Final Cleaning

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

4.16 Signs

Street and traffic signs may be supplied by the Village Street Department and they shall be set in locations designated by said Department. Payment for signs shall be the responsibility of the developer.

4.17 Street Lighting and Electric Power Supply

The plans shall show all provisions for electric power to the fixtures including connection to the electric power company service, meter, wiring (in conduit) in accordance with the National Electric Code and the Electric Power Company requirements. All costs for permits, fees and installation shall be paid by the developer. Wiring shall be sized to maintain voltage drop to less than 5%. All wiring shall be installed below grade in conduit. Conduit shall be installed in concrete base to pole base concealed from view continuously. Provide in-line fused protection in base of pole.

4.17.1 Spares

Provide one (1) complete spare fixture for every twenty (20) fixtures or multiple thereof.

SECTION 5 - Approval of Project for Dedication

5.1 General

All construction within the right-of-way shall be complete with final inspections and approvals of the construction by the Village departments involved:

A. Public Works Department

B. Building Inspector

C. Village Engineer

D. Village Board

5.2 Monuments

Monuments shall have been set in their required locations.

5.3 Grading

Final grading shall be completed within the right-of-way and all spoil removed from the site.

5.4 Street Signs

All street and traffic signs shall be properly set in their designated locations.

5.5 As Built Plans

Record Drawings or As Built Plans and all testing results shall be supplied to the Village at least fifteen days prior to dedication procedures or release of retainage outstanding on the utilities and are subject to the Village's review and approval. Record maps shall be prepared by a licensed professional. The Design Engineer shall submit six prints, a reproducible (Mylar) and the digital drawing files (or G.I.S. files) of the project in the latest version of AutoCAD shall be submitted to the Village. Digital information should be submitted either on a compact disc or a digital versatile disc. The record map shall contain (as a minimum) the following information:

5.5.1 Record Drawings

The record map shall contain the following information:

A. The locations and inverts of all sanitary and storm sewers, water mains and appurtenances.

B. The locations of all valves, catch basins and hydrants.

C. The location at the property line of each individual lot
   1. Sanitary Lateral
   2. Storm Lateral
   3. Water Service Curb Box

D. Any other significant details affecting the operation or maintenance of the system by the Village.

E. The locations of all facilities shall be tied to visible and reproducible objects.

F. All easements shall be shown on record drawings

G. All as-built data and locations should be located by instrument survey and/or GPS and coordinated with the Village of Avon GIS.

5.5.2 Digital Drawing Files / G.I.S. Files

The digital drawing files or G.I.S. Files shall contain the items listed in 5.5.1 and the following information:

A. The horizontal and vertical position of all new utilities to be dedicated to the Village shall be related to the New York State Plane Coordinate system, North American Datum, 1983 horizontally and North American Vertical Datum 1988. The coordinate positions (x,y,z) shall be clearly delineated on the record drawings. The appurtenant items requiring coordinate positions shall include, but not limited to, all manholes, drainage inlets, end sections, clean outs, valves, curb boxes, hydrants, pump stations, points of

utility connection to existing, and dead ends. Maximum horizontal positional error to be no greater than 0.5'±, vertical error shall be no greater than 0.10'±.

B. Digital drawing files are to be submitted in a format compatible with the Village's GIS. The current version of CAD software (as of December 2004) is AutoCAD 2004, the developer can contact the Village for coordination of drawings created with other drafting software.

C. A Database File must also be submitted along with the Digital Drawing files. This file is to be created in a Microsoft Excel or Microsoft Access file format and contain point files (x,y,z), keycode (per Village), and descriptions. The Database File should contain the make, model, size and date of installation for, but not limited to, the following items – all water, storm, and sanitary sewer mains, all manholes, drainage inlets, end sections, clean outs, valves, curb boxes, hydrants, pump stations, points of utility connection to existing, and dead ends.

If the developer or design engineer are unable to create the required information, or unable to submit information in the required format, a proposal should be requested from the Village for the necessary data collection, database creation, and conversion of all necessary record information into the required format

5.6 Maintenance Bonds

The submission and acceptance of Maintenance Bonds guaranteeing a value against faulty workmanship or materials for a period of two (2) years after acceptance by the Village is required for all improvements to be offered to the Village for dedication. Maintenance Bonds shall be written by a surety licensed to do business in New York State and they shall be in the amount of ten percent (10%) of the final construction cost of each dedicated improvement. Bonds shall be approved as to form and content by the Village prior to any dedication procedure.

5.7 Release of Final Monies

The Village Board, upon recommendation from the Village Engineer, shall then authorize release of monies retained in the Letter of Credit.

LIST OF APPENDICES

APPENDIX	TITLE
A	Letter of Credit – Summary Sheet
B	Letter of Credit Release
C	Sanitary/Storm Connection and Cleanout Detail (2)
D	Sanitary Lateral Detail (2)
E	Rainfall Intensity Curve (2)
F	Storm Sewer Calculations
G	Standard Cul-de-Sac Plan (3)
H	Standard T-Turnaround
I	Typical Road Cross Section
J	Typical Gutter and Curb Details (2)
K	Typical Grading Plan
L	Standard Field Inlet
M	Standard Catch Basin Gutter Detail
N	Standard Storm Sewer and Catch Basin Manhole
O	Standard Shallow Storm Manhole
P	Standard Sanitary Sewer Manhole
Q	Standard Drop Connection
R	Standard Manhole Dimensions
S	Sanitary Manhole Over Existing Sewer Line
T	Cleaning and Testing of Sanitary Sewers
U	Water Main Pressure Test
V	Typical Water Meter Pit
W	Typical Water Meter Vault
X	Typical Water Service
Y	Hydrant Unit
Z	Watermain Blowoff Detail

LIST OF APPENDICES