TOWN OF GREECE

SPECIFICATIONS FOR CONSTRUCTION

OF UTILITIES AND ROADWAYS

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GENERAL PROVISIONS

1 Purpose:

The intent of this document is to inform the Developers and their Designing Engineers of the MINIMUM requirements of the Town of Greece for both design and construction of utilities and streets, (including subdivisions), to be offered for dedication to the Town of Greece. This document shall be used in conjunction with the Town of Greece Drainage Regulations for Development.

The intent of this manual is to replace previous procedural manuals, design standards and construction specifications, and policies for the Town of Greece with a more up-to-date set of regulations and specifications. Included in this manual are sections covering the requirements for preparation of plans; review and approval procedures; financial requirements; general construction procedures; construction specifications; and detail drawings.

The material presented in this manual provides the Developer with the minimum technical details by which the general policies of the Town governing land development and site improvements, are to be carried out

It is not intended that this manual be interpreted as a set of rules which will in any way relieve the Design Engineer from the responsibility of properly designing the proposed improvements.

No construction of site improvements (commercial or subdivisions) shall be started until approval has been granted from the Commissioner of Public Works, Chief Engineer, Finance Director, and the appropriate public utility agencies.

2 Word Usage:

For purposes of this manual, the following provisions and rules shall apply to the use of words:

Words used or defined in on tense or form shall included other tenses and derivatived forms.

Unless specifically indicated otherwise, words used in the singular tense shall include the plural tense, and words used in the plural; tense shall include the singular tense.

The masculine gender shall include the feminine gender.

The word “person” shall include individuals, associations, firms, partnerships, corporations, and any other similar entities.

The word “shall” is mandatory and means that compliance is required.

The word ‘may” is permissive and means that compliance is not required.

Unless otherwise specified, all distances and directions shall be measured horizontally.

The word “used”, as applied to any lot, structure or portion thereof, shall be construed to mean “used, intended, designated, arranged or designed to be used”.

Reference to local or state laws, ordinances, codes, rules or regulations, or sections thereof, shall be construed to include the addendum "as from time to time amended"

3 Definitions:

All words in this ordinance which are not herein to after defined shall carry the meanings which are derived from customary use of the English language. If a dispute should arise, the Construction Inspector shall be responsible for determining which specific meaning is appropriate for a word which has more than one meaning and which is not defined in this ordinance. Any appeal of said determination may be considered by the Commissioner of Public Works.

Easement: an encumbrance on a lot on which authority is given to another person to use a defined portion of that lot for a designated purpose and as shown on the filed Final PIat.

Street: a designated public and/or private roadway for vehicular traffic, but not including private **driveways,** serving three (3) or more lots.

Collector streets: streets which carry traffic from minor streets, including principal entrance streets of a residential development and streets for circulation within such developments as designated by the Planning Board, Chief Engineer, and Commissioner of Public Works.

Dead-end streets and Cul-de-sacs: streets or a portion of a street with only one vehicular outlet.

Site improvements: including, but not limited to grading, drainage, sewers, roads, sidewalks, gutters, street lighting, and related appurtenances, either private or proposed to be dedicated to the Town or other governmental agencies. These items may also be referred to as 'utilities".

Subdivision: the division of a parcel of land into two or more tax parcels.

Residential Site Plan: proposed development of a lot for residential use.

Private Road: roadway serving one or more properties, constructed to Town Standards, which will not be accepted for dedication by the Town as a public right-of-way. Design of private roads must receive the approval of the Chief Engineer and the Commissioner of Public Works.

Site Plan: drawing(s) showing proposed development of any property for non-residential use or for residential property developed without a filed map.

Preliminary PIat Map: drawing(s) showing the overall plan for development of a subdivision which will include proposed utility, hydrant, valve and street lighting locations, streets and lot lines.

Final Plat Map: drawing(s) showing the proposed development and/or divisions of a parcel of land, easements, street names, and which will be filed in the Monroe County Clerk's Office.

Construction Plans: drawing(s) showing the improvements for the parcel of land.

Record Drawing: drawing submitted after he completion of construction that shows actual field location and measurements of the underground facilities. The Record Map shall be certified by a Licensed Professional Engineer and Licensed Land Surveyor.

Building Permit: a document issued by the Building Inspector which authorizes the placement, erection, or construction of a building or addition thereto in compliance with all applicable regulations of the Town of Greece and the New York State Uniform Fire Prevention and Building.

Code and all plans and specifications for said building or addition and for the site on which said building or addition is located.

In this manual, certain titles are used herein as defined as follows:

Design Engineer: A Licensed Professional Engineer retained by the Developer for preparation of plans for a development, experienced in this field, and licensed to practice professional engineering in the State of New York. When appropriate, the Design Engineer may also include Professional Land Surveyor or Licensed Architect.

Developer: the Owner, or Owner's agent, of lands being proposed for improvement who shall be responsible to the Town of Greece for satisfactory construction of site improvements, and conformance with the approved plans. This responsibility can not be delegated to the Contractor.

Contractor: the constructor of site improvements who is agent for the Developer and is responsible to the Town only through the Developer.

Town: shall mean the Town of Greece, Monroe County, New York, the municipality, and special use districts or extensions there under, the Supervisor, Chief Engineer, Commissioner of Public Works, and any and all employees or agents designated to enforce the provisions of the Town of Greece regulations and codes.

Chief Engineer: the representative of the Town of Greece who shall act in all technical engineering matters involved in land development projects, and who will review and approve final development plans.

Commissioner of Public Works: the representative of the Town of Greece who shall act in all technical matters involving land development projects where the improvements will interconnect with and/or be dedicated to the Town, and who will review and approve the final development plans and accept final improvements.

Construction Inspector: the inspection representative for the Town of Greece Commissioner of Public Works assigned to periodically visit the construction site and enforce the requirements of these Construction Standards, and inspect the work. The Town Inspector will act under the direct supervision of the Commissioner of Public Works and/or the Town Engineer where applicable.

Builder: the individual or corporation responsible for the construction of a structure. The Builder may also be the Developer and/or Contractor.

4 Responsibilities of the Design Engineer:

The Design Engineer shall be retained by the Developer and shall act as his agent in ALL matters involving technical engineering decisions or procedures. His services shall include, but not be limited to the following:

Preliminary investigations, including soil analysis, location of existing utilities, topographical and boundary surveys, addresses of existing adjoining properties shown on all drawings submitted for review by the Town.

Preparation of Preliminary Plat for the development.

Conferences with Town officials and attendance at Planning, Zoning, and Town Board meetings.
Preparation of final development plans, including district formations.

Preparation of estimates of construction costs.

Preparation of necessary district and easement descriptions.

Stake out for all construction, including earthwork and finish grades, and conduct and witness necessary utility tests.

Attend pre-construction meetings and job site conferences as required during construction and in preparation for dedication.

Preparation of periodic statements of construction completed for release of funds from the Letter of Credit.

Preparation of the required Instrument Location Map for each new residence within the development which shall show physical ties to the foundations for all cleanouts and services falling within the property boundaries, and any and all easements pertaining to the parcel, as required by the Town of Greece Plumbing Code.

Furnish one (1) set of mylar reproducible "Record Drawing(s)" along with a CD to the Chief Engineer and two (2) sets of prints of same to the Commissioner of Public Works at the time of request for payment of the Underground Final. The "Record Drawings" shall include the information listed below and as shown on the detail drawing:

All sanitary and storm manholes, wyes, laterals, lateral risers, watermains and services shall be located by measuring along the sanitary sewer and utilizing right angle offsets to markers placed by the Contractor, as stated in the Sanitary Sewer section of this manual. Invert elevations of manholes shall be shown along with riser heights and depths at the end of laterals at the right-of-way line. A typical lateral location reading 09+50 (25) indicates a storm lateral, the end of which is located at a twenty-five (25) foot offset perpendicular to the sanitary sewer at Station 9+50 along the sanitary sewer. Where laterals are not perpendicular to the sewer main, wye locations shall also be noted. They shall read Wye 8+25, meaning a wye was installed at Station 8+25 along the sanitary sewer. All main drainage swales within easements shall be shown on the plans with field verified elevations at 50 foot intervals and low points. The geometry and grading of the stormwater management pond shall be on the record drawings.

The proper designations for "Record Drawing" information will be:

D = Storm
S = Sanitary

Release from the Letter of Credit of the Underground Final will not be approved until the required "Record Drawings" are submitted to the Town.

Light pole locations shall be shown on the "Utility Drawings". Light poles are to be located by centerline station and offsite.

Set permanent monuments at locations as directed by the Chief Engineer, and as shown on the approved subdivision p1at. New York Plane Coordinates shall be shown for the monuments on the Final Plat and submitted with the "Record Drawings", if the subdivision p1st was so coordinated. Otherwise, no coordinates shall be shown. Monument locations shall be shown on the Final PIat of the "Record Drawings" with at least three (3) ties to permanent, well spaced objects for each installed monument with the date the monument was set. The monuments shall be Bernsten's Rod Monuments, HDR Series, with a minimum rod length of two (2) feet, supplied with caps containing magnets, or approved equal. The monuments shall be located, set, and the final drill hole placed under the direction of a Land Surveyor licensed to practice in the State of New York.

5 Responsibilities of the Chief Engineer:

The Chief Engineer shall review all plans for new development in the Town of Greece. He shall review street and utility layouts, and all items related to site improvements. The Chief Engineer shall:
Recommend any special design considerations to the Design Engineer and/or Developer.

Furnish any pertinent information as available in the Town records and outline Town procedures which may apply to the Design Engineer. However, it shall be the responsibility of the Design Engineer to satisfy himself by direct inspection, as to the condition of existing features to assure an adequate design. When it is necessary to make modifications to the Design Engineer's plans and specifications to meet certain field conditions, the work shall be carried out to the satisfaction of the Chief Engineer and Commissioner of Public Works in accordance with their instructions.

Review and approve all plans for land development before construction commences.

Review and approve the Design Engineer's estimate of construction costs.

Review and approve district and easement descriptions.

Review, approve and submit preliminary street lighting locations to Rochester Gas and Electric Corporation for their approval and final proposals for locations.

Conduct pre-construction meetings.

6 Responsibilities of the Commissioner of Public Works:

The Commissioner of Public Works shall review all plans for new development in the Town of Greece.

He shall review utility and street layouts, and all items which are to be offered in dedication to the Town. He shall also:

Review and approve all plans for land development before construction commences.

Review and approve the Design Engineer's request for release of funds from the Letter of Credit

Review and approve major drainage swales, ponds and creek improvements before approving payment from the Letter of Credit for storm sewer items.
Review and approve all final site grading.

Inspect and witness tests for all construction of site improvements which may be offered in dedication to the Town.

Recommend acceptance of facilities to be offered for dedication to the Town.

7 Town Approval Prior To Pre-construction:

No site preparations or construction, except grading shall commence until:

Plan approval has been granted by the Planning Board and plans have been reviewed and approved by the Chief Engineer and the Commissioner of Public Works;
All required approvals and signatures have been secured;
All required easement and district documents have been approved;
Plans have received Monroe County Department of Health approvals;

Engineer's Estimate of improvement costs have been reviewed and approved by the Chief Engineer;

The Letter of Credit has been obtained and accepted by the Town;

All necessary insurance certificates and performance guarantees have been submitted and approved by the Town; and

A pre-construction meeting has been held.

Prior to commencement of **ANY** work, the following meetings are required:

Pre-grading meeting must be he held prior to any site work such as clearing and grubbing, grading, earth-moving, or any other operation that changes the appearance of the site. This meeting shall be arranged by the Design Engineer and will include the Developer, the Design Engineer, the Contractor doing the work, the Chief Engineer and the Commissioner of Public Works, or their designated representatives. This meeting will include a field review of the site and will be used to establish schedules, procedures and policies, etc., for clearing and grubbing, grading, earth-moving, erosion control, and similar operations. The Commissioner of Public Works may require the Design Engineer to provide selected survey stakes to properly locate proposed areas of work. Prior to scheduling the pre-grading meeting, the Developer shall be required to post a Letter of Credit for the drainage work, erosion control and re-establishing vegetation for the disturbed area. Site grading may commence only after the approval of the Chief Engineer and the Commissioner of Public Works.

Pre-construction Meetings must be held prior to installation of any utilities or improvements. This meeting will be arranged by the Chief Engineer with the approval of the Director of Finance and will include the: Developer, Design Engineer, Contractor doing the work, Chief Engineer, Commissioner of Public Works, Building Inspector, representatives from all public utility companies involved in the development, or their designated representatives. This meeting will include a discussion of construction details, schedules, procedures and policies pertinent to the installation and improvements, and will be held at a location designated by the Chief Engineer.

The following items shall have been submitted to and approved by the Director of Finance before a pre-construction meeting will be scheduled:

Engineer's Estimate approved by the Chief Engineer;

Application for filing the Final Plat;

Letter of Credit;

Attorney's Certificate of Title or, Original of the Deed to the property, or Certified copy of the Deed with Original Certification;

Tax Search;

Owner's Declaration (signed by Owner - 3 statements on side 2 of Plat Application - street dedication, not subject to flood and installation of the required improvements at the Owner's expense);

Rochester Gas and Electric letter for installation of services;

Documents for offering in dedication to the Town the installed utilities and roadways meeting Town Standards;

Letter from Monroe County Water Authority stating that the Main Extension Agreements and fees have been received from the Developer.

(These items shall also be required before the Director of Finance will forward the Letter of Credit to the Town Board for their acceptance.)

The following additional items and/or approvals will be required by the Chief Engineer before a pre-construction meeting will be scheduled:

Monroe County Department of Health approval;

Monroe County Water Authority approval;

Copies of the signed contracts between the Developer and the Contractor,

Planning Board approval;

Signed construction drawings;

Approved Town, County and State Permits where applicable;

Current Certificate of Contractor's Insurance.

The above meetings MAY be combined into one meeting if the timing of both phases of work is appropriate.

8 Notice to Construction Inspector:

The Contractor must notify the Commissioner of Public Works at 225-4590, at least forty-eight (48) hours prior to commencing any construction covered by this manual.

Failure to provide such notice may result in a delay in construction or testing; possible rejection of work performed which was not inspected during its installation; or additional work necessary to verify to the satisfaction of the Commissioner of Public Works that the construction was performed in compliance with the regulations herein (i.e. televising of sewers).

NO INSPECTIONS BY TOWN PERSONNEL WILL BE CONDUCTED FOR SITES THAT HAVE NOT RECEIVED MONROE COUNTY DEPARTMENT OF HEALTH APPROVALS.

9 Drawing Requirements:

In addition to the items required by the Planning Board and other reviewing agencies, the following items shall be shown on the site development plans submitted to the Chief Engineer and the Commissioner of Public Works for their review and approval.

Subdivision Plat or Site Plan: north arrow**,** lot numbers, property location ties, centerline stationing, monuments, easements, names of proposed streets, location sketch, general and survey notes, tax account number(s), title block, zoning data, existing district boundaries, signature approval blocks, wetland/flood plain information and boundaries, professional seal, addresses of existing adjacent properties.

Lot numbers shall be consecutive and shall be numbered in a one hundred (100) series corresponding to the section development number (e.g. Section #1, Lot #101, 102,103, etc.; Section #2, Lot #201, 202, 203, etc.).

Utility Plan: North arrow, centerline stationing, gutters, sidewalks, street names, lot numbers, water, sanitary and storm sewer layouts; water valves, bends and tees, hydrants, blow-offs, manholes, inlets, end sections, rip-rap, pipe sizes and lengths, pipe slopes, pipe material, pipe inverts, manhole designations, streetlight locations, general construction notes, utility details, swale details, temporary turnarounds, and steel barricades. Related existing utilities and drainage features shall also be shown.

Profile Sheet: Profile along the centerline of each proposed street showing existing and proposed elevations, proposed street grades, high points, low points, and/or profile along the centerline of pipe for all sewers outside of the right-of-way. Profiles need not be shown for gutter inlet drain pipes unless the pipes are designed to convey storm water from a source other than the gutter inlet. Profiles for ALL sewers shall show pipe size, length, pipe grade, pipe inverts, manholes, manhole designations and pipe crossings.

Grading Plan: North arrow, lot numbers, centerline stationing, gutters, gutter inlets, field inlets, sidewalks, paved channels, street names, schematic layout of storm sewers and storm and sanitary manholes with proper designations, existing and proposed contours, spot elevations as necessary, building pad elevations, first floor and minimum basement floor elevations, existing drainage features, proposed swale details, deep hole test locations and existing trees. If project is part of a multi phased project, all existing contours shall not be "proposed" elevations from previous phase, but field surveyed elevations.

Deep hole excavations will be required through out the site or as ordered by the Chief Engineer. Deep hole information shall include; soil types, depth of bedrock and elevation of ground water.

Existing contours shall be shown as dashed lines. Proposed contours shall be shown as solid lines. All contours shall be at least one (1) for intervals unless otherwise approved by the Chief Engineer. All contours shall be labeled at least every six (6) inches along its length.

Detail Sheet: shall show any detail drawings which are not shown in this manual and are necessary for a proper review of the proposed development plans.

Drainage Area Map: shall be superimposed on a copy of the Grading Plan and shall show the individual land areas entering the proposed storm sewer system. Attention should be given to properly include ALL runoff entering the proposed development from offsite lands. Related storm sewer calculations and any drainage reports are to be submitted with the Drainage Area Map and will be reviewed by the Town Engineer.

Erosion Control Plan: May be superimposed on a copy of the Grading Plan. It shall show all details of the proposed method of handling erosion siltation control during the proposed construction life of the development and shall include, but not be limited to, temporary interceptor swales, staked bale berms, temporary piping, siltation ponds, and construction and maintenance schedules. When construction begins for a development, the erosion control measures will be installed during the grading and earthwork phase to reduce any adverse effects to adjacent properties, and shall remain in use until their removal is approved by the Commissioner of Public Works.

Lateral Map: Shall show all the proposed laterals for each lot or building. At the discretion of the Design Engineer, the proposed lateral locations may be shown on the Utility Plan.

The proposed laterals shall be located in the center of lots or buildings. Cleanouts will not be allowed in or within three (3) foot of driveways. With the approval of the Commissioner of Public Works, a mini-manhole may be used.

Record Drawings: Shall be submitted before the request for the Final Payment form the Letter of Credit. The "Record Drawings" shall show the location of all underground utilities including wye locations and lateral crossings at the right-of-way or easement lines using stationing references, and all other requirements as previously stated in this text.

The Town will also require that "Record Drawings" be submitted for all permanent stormwater management ponds. These shall include the geometry of the pond, top bank/berm elevations and all pipe inverts to show that conformance to the approved construction drawings has been met. A main drainage swales within an easement shall be shown on the plans with field verified elevations at 50 foot intervals and low points.

Since each proposed development is a unique project, the Design Engineer may be required to submit other additional information, reports, calculations, and/or drawings if any of the Town reviewing departments deem it necessary to complete their review. The Record Map shall be certified by a Licensed Professional Engineer and Licensed Land Surveyor. The Developer will be required to submit to the Town of Greece the Record Map in electronic format compatible with the Town of Greece Auto-Cadd software and a mylar reproducible.

10 Financial Requirements:

Engineer's Estimate: After receiving final Planning Board approval and Chief Engineering approval, and before any site construction may begin, the Design Engineer shall prepare and submit an Estimate for Cost of Construction to the Chief Engineer. This Estimate shall itemize the quantity and the costs of all proposed site improvements. The Estimate may be divided into the following sections:

*1 - Grading, Erosion, Ponds, etc.
2 - Storm Sewers
3 - Sanitary Sewers
4 - Pavements

5 - Watrmains
6 - Street Lighting
7 - Monumentation
8 - Misc. (Remedial cleaning of sewers, roads, etc.)

* Shall include all earthwork for the project including rough lot grading to within four inches (4") of final grade for the individual lots.

The Engineer's Estimate shall also include the following items based on the total cost for construction:

5% Town Review Fee
10% Contingencies
5% Owner's Guarantee
3% Performance Guarantee

A sample Engineer's Estimate may be found in the Appendix.

Letter of Credit shall be established by the Developer for all new development construction in the Town of Greece. Additional items may be included if necessary for the completion of the project. The amount of the Letter of Credit shall be at least that amount on the approved Engineer's Estimate for the development. The Director of Finance shall review and approve the Letter of Credit, and will then forward the Letter of Credit to the Town Board for acceptance. If the project is proposed to be a multi-phased project, monies shall be provided in the Letter of Credit for a permanent cul-de-sac. at the phase line with the future phase. When the Letter of Crdit for the future phase has been posted with the town, the funds for the cul-de-sac will released to the developer.

Payments From The Letter of Credit: During the course of construction, the Developer may request a release of funds from the Letter of Credit to cover the work completed to date. The Developer shall request his Design Engineer to prepare a statement of Construction Completed. The Statement shall use the same format as the itemized Engineer's Estimate. Five (5) copies of each statement shall be submitted to the Chief Engineer for review and approval. The Design Engineer, Developer and Contractor shall have each signed the Statement at the time it is submitted to the Town. (All original signatures must be present on the Statements for monies to be released by the Town of Greece). The Commissioner of Public Works and Director of Finance for the Town of Greece shall review, approve and sign all Statements.

The five (5) Statements shall first be submitted to the Commissioner of Public Works who will verify that the work requested is indeed completed and verify that the amount requested for release is correct. The Statement will then be forwarded to the Director of Finance who will approve the amount of the release and request that the lending institution approve a payment from the established Letter of Credit.

Each request for release of monies from the Letter of Credit for items other than completed construction, when not requested in a standard Statement, must be submitted on a Town of Greece voucher.

Monies shall be released from the Letter of Credit for construction items that are inspected and tested, if necessary. On each partial construction statement, an amount equal to 10% of the work completed shall be retained to cover the cost of cleanup, manhole frame adjustments, gutter repair, etc. This retainage will be released at the time of the Final Payment and only after the establishment of a Maintenance Agreement. No retainage shall be held for the watermains,

street lighting, engineering fees, "Record Drawings" and monumentation.
Each Letter of Credit shall contain a line item for Contingencies to cover the "unforseens" that can occur during the course of construction. The 10% Contingency may be increased by the Commissioner of Public Works and Chief Engineer if they feel it is necessary after their review of the proposed development. A release for the Contingencies may be requested from the Letter of Credit with the approval of the Commissioner of Public Works.

The Owner's Guarantee shall be in accordance with the policy adopted by the Town of Greece on November 5,1992. The Owner's Guarantee addresses such items as lot cleanup, cracked gutters and sidewalks, maintenance of drainage, final grading, lowering of cleanouts and water services, asphalt apron installation, landscaping, and any other improvements shown on the approved site plan.

Release of the Owner's Guarantee will be considered ONLY after written recommendations from the Commissioner of Public Works and Building Inspector has been reviewed and approved by the Director of Finance.

3% Performance Guarantee shall be posted with all Letters of Credit This 3% shall be the Town's guarantee that the Contractor will pay all subcontractors and materials suppliers for the development. The amount required shall be 3% of the approved Engineer's Estimate for the cost of construction for the development.

For development of non-residential sites, which may also include construction of Town facilities, the Town may require the Developer to establish a 3% Performance Guarantee. This percentage is the Town's assurance that the Developer will satisfactorily complete construction of all facilities which may be offered in dedication to the Town and all other site improvements as shown on the approved site plan. The amount of the Performance and/or Labor and Materials Bonds will be established by the Director of Planning, the Chief Engineer, and the Director of Finance. The Building Inspector may allow a Certificate of Occupancy to be issued if they determine that the unfinished site improvements are not directly related to the public's safe use of the building. If a Certificate of Occupancy is issued for a structure on an incomplete site, the Developer may be required to present a certified check or Letter of Credit to the Town, in an amount established by the Director of Planning, Building Inspector, and Director of Finance to assure the Town that the required improvements will be completed. Upon completion of the unfinished site work, and with the written approval of the involved departments, the check or Letter of Credit will be released to the Developer.

Highway Permit: Prior to any work being performed in a Town Right of Way, the Developer shall obtain a Highway Permit. The necessary Insurance Certificates will need to be provided to the Town Clerk of the Town of Greece. The insurance certificates shall be in conformance with the current insurance requirements for the town. The insurance shall remain in effect until the work within the right of way has been accepted by the Commissioner of Public Works.

Maintenance Agreements: After completion of the all the site improvements for the project, and with the approval of the Commissioner of Public Works, and the Finance Director, a Two (2) Year Maintenance Agreement shall be established by the Contractor in an amount of 10% of the approved items in the Letter of Credit amount or $2000, whichever is greater. Non-construction items such as street lighting, monumentation, etc., shall be excluded from the Maintenance Agreement.

Maintenance Agreements in the form of Bonds, may only be posted with the Town April 1st through November 1st. Maintenance Agreements posted as cash or certified checks may be posted at any time.

The Town of Greece will require two (2) Maintenance Agreements be submitted by the Developer/Contractor:

1. First Maintenance Bond shall be for the underground utilities, stormwater management facilities, sidewalks and the road up to and including the binder course asphalt.
2. Second Maintenance Bond shall cover the top course of asphalt and remaining items not included in the first bond.

Maintenance bonds, cash, letters of credit, certified checks, or cash deposits in the amount of 10% of the underground and/or aboveground construction costs can be posted with the Town Finance Director as maintenance Agreements.

Recognizing that weather conditions govern the ability of the Contractor to perform and the Town to inspect the site improvements, no Maintenance Agreements shall commence before May 1st nor later than October 31st unless approved by the Commissioner of Public Works. These date limitations will normally permit the Contractor and the Town to complete their required functions during periods of normally favorable weather conditions.

Prior to the expiration of the Maintenance Agreements, the Commissioner of Public Works will make an inspection of the site. Any defects or repairs that need to be made will be forwarded to the Contractor, Developer, Director of Finance, and Bonding Institution on a punchlist. If after notice being given, the Contractor fails to complete the items on the punchlist, the Town may demand payment from the Bonding Institution to have the work completed.

11 General Construction Information:

After receiving the necessary approvals for a land development project, construction of the site improvements may proceed. For projects that contain facilities which are to be dedicated to the Town of Greece, or which connect to facilities of the Town, or which directly or indirectly impact on Town facilities, the Town of Greece will require that these new facilities be constructed in accordance with these standards and specifications and any amendments or memos thereto.

Prior to construction, pre-grading and pre-construction meetings are required. These meetings may be combined into one meeting.

During the course of construction of a project involving Town facilities, the Construction Inspector will be responsible for the day to day review of the project on behalf of the Town. If a construction problem should arise, questions should be directed through the Construction Inspector to the Commissioner of Public Works. If any engineering problem should arise, it should similarly be directed to the Town Engineer.

When construction is completed on a proposed Town facility, the appropriate agency within the Department of Public Works will inspect its facilities and recommend acceptance, rejection, or repair of the facility to the Commissioner of Public Works. Responsibility for inspection of projects designed for dedication by the Chief Engineer or private consultants hired by the Town shall be under the jurisdiction of the Chief Engineer and/or the Commissioner of Public Works.

SECTION A - SANITARY SEWERS

Al Sewer Layout Design:

Sanitary sewers will be installed in all new developments whenever the proximity of existing sewers make it possible. Where new sewers are installed they shall be provided for all lots or public buildings. Where the sewers shall be extended in the future, the sewer shall be extended to the property line for future use, unless otherwise directed by the Town Engineer. The Design Engineer shall determine the size of all proposed sanitary sewers so as to provide adequate capacity for the area under development without imposing any hardship on adjoining lands and conforming to the requirements of the "Standards for Waste Treatment Works, Municipal Sewerage Facilities", by the State of New York Department of Environmental Conservation. The Design Engineer shall also consult with the Chief Engineer to inform himself of any special requirements which the Town may have concerning sanitary sewers for development.

The Utility Record Plan shall show the elevations of the pipe inverts and manhole covers or grates; manhole and pipe materials; gradient of pipe; length of pipes between manholes, wye locations, and type of pipe material.

A2 Location:

Sanitary sewers shall general be located within the proposed street right-of-way, outside the pavement area, in subdivisions, unless otherwise approved by the Chief Engineer and the Commissioner of Public Works. For all developments, and with approval in subdivisions, sanitary sewers may be installed on private property. For all sanitary sewer installations on private property which are to be dedicated to the Town of Greece, an easement over the sewer will be provided to the Town. Minimum sanitary sewer easement widths will be at least twice the sewer depth or fifteen (15) feet, whichever is greater. Where this is impractical, special design practices will have to be taken into consideration. All manholes shall be designated by a letter and number code as shown in the detail drawing.

In subdivisions, sanitary sewers shall be located outside of the pavement area between the gutter and right-of-way line, unless otherwise approved. Sanitary manhole locations WILL NOT be allowed in DRIVEWAYS or SIDEWALKS unless otherwise approved.

In all other developments, sanitary sewers shall be located in such areas as to provide unobstructed access, to the sewer and manholes, for maintenance personnel and vehicles.

A3 Sewer Main Size:

Minimum size for gravity sanitary sewer which will be accepted for dedication will be eight (8) inches in diameter. Minimum size for force mains will generally be six (6) inches in diameter. The Design Engineer shall determine the proper strength classification of the sewer pipe after analyzing the height of cover, nature of the foundation soil, type of bedding and trench width. Sewer material, pipe classification, bedding, cradle and encasement information shall be shown on the construction plans.

A4 Sewer Main Material:

Acceptable sewer pipe materials are as follows:

Gravity Mains:

1. Reinforced concrete sewer pipe, with steel and rubber joints meeting ASTM C76 and C443 Specifications.

2. Poly-vinyl chloride sewer main with integral wall bell and spigot rubber ring joints as manufactured by the John-Manville Company and conforming to the requirements of ASTM Designation D3034, Type PSM, SDR 35, Ultra-Rib or approved equal.

Force Mains:

1. Ductile Iron Pipe, Class 52, with mechanical joints.

2. Poly-vinyl chloride pressure pipe with integral bell and spigot rubber ring joints as manufactured by the John-Manville Company and conforming to the requirements of ASTM Designation D2241 and D1784, with a minimum wall thickness of SDR 21 or approved equal.

A5 Pipe Joints and Fittings:

Gravity Sewers:

1. For concrete pipe - shall be steel and gasketed joints meeting ASTM C76 and C443 Specifications.

2. For plastic sewer pipe - joints shall be an elastomeric ring gasket conforming to the requirements of ASTM Designation D3212 or approved equal.

Force Mains:

1. For ductile iron pipe - mechanical joints, minimum Class 52 pipe.

2. For plastic sewer pipe - joints shall be an elastomeric ring gasket conforming to the requirements of ASTM Designation D2241 or approved equal.

A6 Sewer Lateral Size and Material:

Sanitary sewer laterals, between the sewer main and the right-of-way line or easement line, shall be four (4) inch diameter poly-vinyl chloride (PVC), SDR 21 conforming to ASTM Designation D3034, Type PSM, standard lengths. Specifically designed and approved six (6) inch diameter combination laterals shall be poly-vinyl chloride (PVC), SDR 21, conforming to ASTM Designation D3034, Type PSM, standard lengths.

Lateral pipe shall be laid with ends abutting and true to line and grade. Unless otherwise approved by the Inspector, pipe shall be laid to a minimum grade of one-quarter (1/4) inch per foot. Where applicable, every parcel shall have a sanitary sewer lateral.

All wye branches shall be the same material as the main pipe.
Two (2) and four (4) inch diameter forced laterals shall be poly-vinyl chloride (PVC), SDR 21, conforming to ASTM Designation D3034, Type PSM, standard lengths.

A7 Sewer Construction:

NO SEWER INSTALLATION SHALL COMMENCE IF THE CONSTRUCTION PLANS HAVE NOT RECEIVED MONROE COUNTY DEPARTMENT OF HEALTH APPROVAL.

Sewers shall be built to straight line and grade between manholes according to stakes and grades set under the direction of the Design Engineer, and conforming to the approved Construction Plans.

A laser system shall be utilized to define the line and grade of the sewer pipe line. Grade stakes boards shall be placed along the route of the pipe at a maximum of fifty (50) foot intervals. Only a certified operator may use a laser system.

All pipe shall be laid true to line and grade with bells upstream and shall have full, firm, even bearing. Minimum grade for sanitary sewers shall be as follows:

Pipe Diameter	Min % Grade
8”	0.40%
10”	0.28%
12”	0.22%
15”	0.15%

All trenches and other excavation shall be backfilled with the specified material as soon as possible after completion of the construction and inspections. The ground surface shall be kept reasonably smooth and free from deep ruts.

All backfilling within existing highway limits shall be done under the jurisdiction and regulations of the authorities involved. Pavement damaged by settlement of trench backfill shall be repaired by the Contractor. Such repair will necessitate complete removal and rebuilding of the pavement in the area of the trench if such procedure is deemed necessary by the Commissioner of Public Works, or the Owner’s of the said pavement.

Cradle shall be used unless otherwise approved by the Commissioner of Public Works.

Encasement shall be used for shallow sewers beneath highways and in other special conditions. Concrete for cradle and encasement shall obtain a minimum 2500 psi compressive strength in twenty eight (28) days. If conditions warrant, permission may be given to use dry-mix concrete.

Where a concrete cradle is used, the entire trench may be cut by machine. The excavation shall extend sufficiently below grade to allow for a minimum thickness of six (6) inches of cradle at all points. The subgrade shall be trimmed by hand and all loose material removed. Low spots shall be filled with the cradle. The subgrade shall be checked for grade before any concrete is placed. The concrete shall then be continuously deposited and tamped up to the level of the bottom of the pipe.

Before the concrete is set, the pipe shall be evenly embedded therein, the joints made and concrete placed and rammed under the haunches and around the pipe so that the cradle extends for the full width of the trench up to the horizontal centerline of the pipe.

Where encasement is called for, pipe lines shall be encased in concrete by continuing the placement of the concrete cradle until the concrete extends the width of the trench a depth of six (6) inches over the pipe. The entire operation must be completed before the concrete has taken its initial set.

Where a No.1's & 2's washed crush stone cradle is used, the entire trench may be cut by machine. The excavation shall extend sufficiently below grade to allow for a minimum of six (6) inches thickness of cradle at all points. The cradle shall extend the full width of the trench bottom, and shall be shaped so as to provide uniform support for the bottom of the pipe and shall be filled to the spring line (mid-point) of the pipe. Crushed stone cradle shall be a uniform mixture of No. I & 2 crushed stone conforming to the requirements of Section 703-02 of the NYS DOT Specifications.

The pipe trench, particularly that portion below the crown of the pipe shall be of only sufficient width to permit proper installation of pipe and construction of the pipe joints, but in no case shall it exceed the outside diameter of the pipe barrel plus a total of sixteen (16) inches for pipe four (4) inches through twenty-four (24) inches in inside diameter. The pipe shall be laid in crushed stone, or concrete cradle or encasement as indicated on the approved Plan or as required by the Design Engineer and the Construction Inspector.

The initial backfill shall be placed using select earth free from stones until cover of one *(1)* foot over the top of pipe is reached. Subsequent backfill may be made using machinery, but caution must be exercised to avoid having large stones in the backfill material. For pipes placed within the pavement, the Contractor shall compact and backfill by mechanical equipment or any other approved method which will assure no settlement of the backfill material in areas where pavement will be constructed over the pipe. The backfill material will be placed in layers not exceeding twelve (12) inches in thickness after compaction.

The side of the excavation shall have sufficient slope to prevent cave-ins. Bracing or sheeting shall be provided if unstable conditions are anticipated or encountered.

Jointing surfaces shall be carefully cleaned before pipe sections are placed.

Town ordinance requires that a permit be obtained after Town Board approval, from the Town Police Department, for every blasting operation. The Contractor must make application for such permit before any blasting is undertaken. When blasting, great care shall be exercised in the blasting itself as well as in the transportation and storage of the explosives. The Contractor shall observe all rules, regulations and ordinances of the governing authorities in regard to blasting operations including the New York State Department of Labor Industrial Code. The trench shall be covered on top and sides with heavy mats to prevent fragments of rock from being thrown out. A siren, warning persons of danger, shall be given before any blast. Only such quantities of explosives as may be necessary for the proper progress of the work shall be stored on the premises. The Contractor shall save the Town of Greece harmless on account of accident or damage from blasting, either to others or to his own work or employees, and shall promptly make good any damage. A daily blasting log will be kept on file by the Contractor. Whenever the Design Engineer or the Chief Engineer determine that further blasting may injure or damage adjacent rock, masonry, utility lines, or other structures, blasting shall be discontinued. In such cases, the remaining rock shall be excavated by barring, wedging or other approved methods. The minimum distance to existing utilities that blasting will be permitted is fifteen (15) feet.

When the Design Engineer permits the Contractor to double bench the excavation so that the sanitary and storm sewer pipes can be laid in the same trench, it shall be his responsibility to designate pipe of a sufficient class or strength and bedding that will satisfy the loading conditions created. The lower pipe trench shall be backfilled to at least the trench invert of the higher pipe prior to installation of the higher pipe.

Where an existing pipe or duct crosses the trench at an elevation which conflicts with the proposed grade for the new pipeline, either the grade of the new pipeline shall be changed, or the existing pipe shall be relocated. In either case, the Contractor must receive written approval from the Commissioner of Public Works before continuing the project. The new pipeline shall have a clearance from the existing pipe of not less than six (6) inches. The space between the two (2) pipes shall be solidly filled with compacted select earth. Before the trench is refilled, the existing pipelines shall be permanently supported as required by the Owner of the said pipeline.

At the end of each day the Contractor shall plug the sewer to keep foreign material from entering. The Contractor is to insure that all roads and driveways in the construction area will be immediately backfilled and cleaned after the pipe has been installed to such a degree that the residents concerned will have complete freedom of movement into and out of all subject property. No open excavations will be permitted over night unless the excavations are adequately barricaded and lighted in compliance with New York State Department of Labor Code Rule 23.

Water will not be allowed to accumulate in the trenches, but shall be drained or pumped away from the work to established drainage channels. Drainage channels shall be maintained at all times to prevent flooding of adjacent property. Where it is necessary to cut off the flow in a stream or channel, a suitable, approved bypass shall be provided.

Existing tie-in manholes downstream from the construction site shall be plugged, and shall remain plugged until the sewer has satisfactorily passed ALL tests required by the Commissioner of Public Works.

A8 Sanitary Manholes:

Sanitary manholes shall be constructed at all changes in sewer alignment, grade and pipe size. Maximum manhole spacing shall generally be three hundred (300) feet. Manholes shall have a minimum inside diameter as follows:

Pipe Size	Inside Manhole Diameter
24” or less	4’ diameter
27” - 36”	5’ diameter
42” - 48”	6’ diameter
Greater than 48”	Special Detail Required
All 3 & 4 way manholes	5’ minimum diameter

Sanitary manholes shall be constructed of precast reinforced concrete manhole sections with a concrete base as per the detail drawings. Manhole materials shall conform to the following specifications:

1 . Precast reinforced concrete manhole sections, ASTM Designation C478.

2. Red Brick conforming to ASTM Designation C32 shall be used for making grade adjustments, inverts, and benches only. Adjustments may also be made with precast riser sections.

3. All concrete shall conform to NYSDOT General Specifications and Structural Concrete Specifications for Portland Cement and Concrete as follows:

   a. Concrete base and Bench: NYSDOT Item 601.01, Class A, minimum compressive strength of 3000 psi in twenty-eight (28) days.

   b. Pre-cast concrete cover slabs and pipe riser sections: NYS DOT Item 601.01, Class A, minimum compressive strength of 4000 psi in twenty-eight (28) days.

Manhole reinforcing Steel and Wire:

Reinforcement Reinforced steel bars shall conform to ASTM Designation A615. Wire fabric shall conform to ASTM Designation A82 or A496 and Al 85 or A497.

Mortar: Mortar shall be Portland Cement conforming to ASTM Designation C270, Type M, Mortar for Unit Masonry.

Manhole Steps and Ladders:

1. Alcoa Aluminum Alloy 6061 -T6, forged from extruded section 48724 to dimensions shown on the detail drawings. Embedded portion of the step is to be coated with a coal tar pitch varnish.

2. Gray cast iron or galvanized wrought iron coated with a coal tar pitch varnish installed at the time of manufacturing in pre-cast manholes. Castings shall conform to ASTM Designation A48, Class 30B.

3. Plastic

4. Ladders shall be Alcoa Aluminum Alloy 606 1-T6. Shop drawings shall be submitted for approval before fabrication. Special written approval for this item is required from the Commissioner of Public Works.

Damp-proofing:

All manholes shall be painted with two (2) coats of interior coating Farbertite as manufactured by Briggs Bituminous Composition Company or Bitumastic Super Service Black as manufactured by Koppers Company Inc., or approved equal. The coating shall be applied according to the manufacturer's current instructions.

Manhole Construction:

The concrete base for each manhole shall be pre-cast. Inverts shall be formed of concrete and lined with sewer brick or a one-half (½) section of sewer pipe as detailed. Formed inverts shall be accurately shaped to a semi-circular section conforming to the inside of the adjacent sewer pipe. Changes in sewer size and grade shall be made gradually and evenly throughout the manhole. Changes in direction of the sewer and entering branches shall have a curve of as large a radius as the size of the manhole will permit.

Concrete Pipe Manholes:

Concrete pipe manholes shall be constructed of concrete pipe with pre-cast cover slabs or concentric cones and aluminum or cast iron steps or ladders per detail drawings. Concrete pipe riser section joints shall be mortared both inside and out and made watertight.

When Drop Manholes are required, the contractor shall furnish and install one or more outside drop connections according to the detail drawing.

A9 Sanitary Sewer Lift Stations:

Lift Stations shall conform to the specifications established by the "Ten State Standards" and/or the Monroe County Department of Health, which ever is more restrictive.

Al0 House Laterals:

Laterals within the right-of way shall be laid in accordance with the specifications for the main sewer pipe. Lateral pipe shall be laid true to line and grade. Unless otherwise permitted by the Commissioner of Public Works, lateral pipe shall be laid at a minimum of one-quarter (1/4) inch per foot.

Connection to a new sewer shall be made using a wye branch and bend of Less than 45 degrees encased in stone cradle. Pipes shall be fitted together and matched so that when laid they will form a sewer with a smooth uniform invert. The interior of the pipes shall be cleared of all dirt and foreign material as the work progresses.

All lateral connections to existing sewers, including method and materials, must be approved by the Commissioner of Public Works, prior to construction.

Sanitary laterals shall be installed to the easement line or at least ten (10) feet beyond the right-of-way line or property line, whichever is greater, and shall be tested along with the sewer main. The ends of all laterals shall be plugged with a watertight plug to prevent infiltration and exfiltration. A twelve (12) foot long 2X4 pressure treated or hardwood timber shall be placed at the invert of the lateral pipe to mark the location and depth of the lateral pipe. At the top of the lateral marker, the word "SAN" (sanitary), will be painted in GREEN, with one and one-half (1-1/2) inch stenciled letters; or the letter "6", will be painted in GREEN, with three (3) inch stenciled letters.

If the end of a lateral is greater than ten (10) feet deep, the 2X4 marker shall be increased by four (4) foot intervals until at least two (2) feet of the marker extends above the finished grade. The depth below finished grade of all laterals is to be recorded on the lateral marker. Cleanouts shall be installed on the right-of-way line wherever possible, and in no case more than ten (10) feet into the property.
Unless there is conflict due to an easement, the cleanout shall be placed on the easement and/or every fifty (50) feet as required by the Building and Plumbing
Code. NO CLEANOUTS SHALL BE INSTALLED IN OR WITHIN FIVE (5) FEET OF DRIVEWAYS.

A11 Sewer Testing:

Any sanitary sewer installed and connected to a Town of Greece dedicated sewer shall meet Town Specifications and testing procedures.

Lamping and televising will be required on all sanitary sewers after testing has been completed. sewer tapes need to be submitted, reviewed approved by the Chief Engineer prior to acceptance by the Commissioner of Public Works.

The contractor shall furnish all materials and equipment necessary to conduct the sewer test as outlined herein in accordance with the requirements set forth and the instructions of the Design Engineer.

All materials and equipment shall be subject to the approval of the Chief Engineer and the Commissioner of Public Works.

After the pipe trenches have been backfilled to full depth, the sewer main shall be flushed and cleaned. Arrangements for water supply from the available water system will have to be made and approved by the Monroe County Water Authority ONLY. These arrangements will have to be made before any cleaning and flushing begins. The MCWA may require the Contractor to truck in the water supply necessary to complete the work. All materials flushed from the sanitary sewer system shall be intercepted and removed to prevent the materials from entering the existing sanitary system. Existing manholes shall be plugged as necessary to prevent flushed materials from entering the existing system.

The sewer line shall be inspected to determine if any displacement of the pipe has occurred. A bright light shall be flashed between manholes. If the illuminated interior of the pipe line or an inspection of the interior by the Design Engineer and Construction Inspector shows poor alignment, displaced pipe, or any other defects as designated by the Design Engineer and the Construction Inspector, they shall be remedied by the Contractor as directed by the Design Engineer and Construction Inspector at no additional cost to the Town or Developer.

After the pipe has been laid and upon satisfactory completion of the displacement inspections, the entire sewer system, including manholes, sewer mains and laterals, shall be tested for infiltration, exfiltration, or both in sections as directed by the Design Engineer and Construction Inspector, and shall satisfactorily meet the test requirements of ASTM Designation C425 and as modified herein prior to final acceptance of the work.

All tests shall be conducted in a manner to minimize interference with progress of work and such tests shall be made prior to making connections with other sewers unless otherwise permitted by the Commissioner of Public Works. All stubs and house connections shall be adequately plugged to resist the test pressure.

The Design Engineer and the Construction Inspector will designate the tests to be performed on the basis of the ground water elevations and other physical conditions at the time tests are to be performed. Ground water elevations at the time of testing shall be determined by means of test holes made by the Contractor at intervals of approximately one thousand (1000) feet or less along the sewer line in locations approved by the Design Engineer, or by means of standpipes placed at manholes designated by the Design Engineer. The Contractor shall notify the Design Engineer and Construction Inspector when the sewer is ready for testing and tests shall be conducted as soon as possible thereafter under the direction of the Design Engineer. Personnel

for reading meters, gauges, or other measuring devices will be furnished by the Design Engineer. All other labor, equipment, water and materials, including maters and gauges, shall be furnished by the Contractor at his own expense to perform the required tests.

The maximum length of pipe to be tested shall not exceed one thousand (1000) feet. Exfiltration and infiltration shall not exceed a maximum rate of one hundred (100) gallons per inch of diameter of pipe per day per mile of sewer pipe. The infiltration and exfiltration tests shall extend over a period of not less than twenty-four (24) hours. The initial reading shall be taken and followed by not less than four (4) consecutive hourly readings. Additional readings shall be made twenty-four (24) hours after the initial reading.

If, upon testing, the leakage exceeds the specified amount, the Contractor shall make the necessary repairs or replacements at his expense, required to permanently reduce the leakage within the specified limits and the tests shall be repeated until the leakage requirements are met.

Infiltration-Exfiltration Testing

Depending on the field conditions, the Design Engineer and Construction Inspector shall order either an infiltration or exfiltration or both, as follows (variation from the specified tests shall be permitted only by written approval from the Commissioner of Public Works):

Infiltration Test - This test may be used only when the groundwater levels are at least two (2) feet above the top of the pipe for the entire length of the section to be tested during the entire period of the tests. Groundwater levels will be measured as specified previously.

Infiltration through joints shall be measured by using a water-tight weir or any other approved device for volumetric measurement installed at the lower end of the section under testing.

Exfiltration Test - This test consists of filling the pipe with water to provide a differential head of not less than four (4) feet nor more than ten (10) feet above the top of the pipe or above groundwater, whichever is higher, at the highest point of the pipe under test and then measuring the loss of water from the sewer. Exfiltration shall be measured by the drop of water level in a standpipe installed for this purpose or in one of the sewer manholes available for convenient measuring.

If public water is available, approval for its use must be obtained from the Monroe County Water Authority. The Contractor shall comply with all rules and regulations governing the use of the MCWA facilities. If no public water is available, the Contractor shall use tank trucks at no additional cost.

Air Testing of Sewers

After completing backfill of a section of wastewater line, the Developer or his contractor shall at his expense, conduct a Line Acceptance Test using low pressure air. The test shall be performed according to stated equipment, procedures and under the supervision of the Chief Engineer.

Equipment

Cherne Air-Loc Equipment, as manufactured by Cherne Industrial, Inc. of Edina, Minnesota or approved equal. Equipment used shall meet the following minimum requirements.

a. Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be inspected.

b. Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking.

c. All air used shall pass through a single control panel.

d. Three individual hoses shall be used for the following connections: (l) From control panel to pneumatic plugs for inflation; (2) From control panel to sealed line for introducing the low pressure air; (3) From sealed line to control panel for continually monitoring the air pressure rise in the sealed line.

Procedures

All pneumatic plugs shall be seal tested before being used in the actual test installation. One length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plugs to be checked. Air shall be introduced into the plugs to 25 psig. The sealed pipe shall be pressurized to 5 psig. The plugs shall hold against this pressure without bracing and without movement of the plugs out of the pipe.

After a manhole to manhole reach of pipe has been backfilled and cleaned, and the pneumatic plugs are checked by the above procedures, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any groundwater that may be over the pipe. At least two minutes shall be allowed for the air pressure to stabilize.

After the stabilization period (3.5 psig minimum pressure in the pipe), the air hose from the control panel to the air supply shall be disconnected. The portion of line being tested shall be termed "Acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig (greater than the average back pressure of any ground water that may be over the pipe) shall not be less than the time shown for the given diameters in the following table:

Pipe Dia. in Inches	Minutes
4	2.0
6	3.0
8	4.0
10	5.0
12	5.5
15	7.5
18	8.5
21	10.0
24	11.5

In areas where groundwater is known to exist, the Developer or his contractor shall install a one-half inch diameter capped pipe nipple, approximately 10' long, through the manhole wall on top of one of the sewer lines entering the manhole. This shall be done at the time the sewer line is installed. Immediately prior to the performance of the Line Acceptance Test, the groundwater shall be determined by removing the pipe cap, blowing air through the pipe

nipple into the ground so as to clear it, and then connecting a clear plastic tube to the nipple. The hose shall be held vertically and a measurement of the height in feet of water over the invert of the pipe shall be taken after the water has stopped rising in this plastic tube. The height in feet shall be divided by 2.3 to establish the pounds of pressure that will be added to all readings. (For example, if the height of water is 11-1/2 feet, then the added pressure will be 5 psig. This increases the 3.5 psig to 8.5 psig, and the 2.5 psig to 7.5 psig. The allowable drop of one pound and the timing remain the same.)

If the installation fails to meet this requirement, the Developer or his contractor shall, at his own expense, determine the source of leakage. He shall then repair or replace all defective materials and/or workmanship as specified elsewhere. The air test shall be repeated until the reach of sewer meets with the test requirements.

Deflection Testing of Sewer

The Contractor shall perform the same tests as required above. In addition, a deflection test shall be performed on all flexible sanitary sewer mains after the final backfill has been in place for at least thirty (30) days. No pipe which has a deflection exceeding five percent (5%) of its nominal inside diameter shall be approved. Testing shall be performed without the use of mechanical pull devices, by running a rigid ball or mandrel, having a diameter of ninety-five percent (95%) of the nominal inside diameter of the pipe, through each section of sewer pipe to be tested.

SANITARY SEWERS THAT ARE INSTALLED WITHOUT THE STANDARD TOWN INSPECTIONS SHALL BE TELEVISED BEFORE THE SEWERS WILL BE ACCEPTED BY THE TOWN.

A12 Final Inspection:

Before final approval of the sanitary sewer system can be granted, all sanitary sewers shall have been cleaned, flushed, tested, mandrel tested and televised, to the satisfaction of the Design Engineer and Commissioner of Public Works.

No active connections shall be made to the sewer main until the main has received all the required approvals from the Town of Greece and Monroe County Department of Health.

SECTION B - STORM SEWERS

B1 Sewer Layout and Design:

The design and construction of all drainage facilities shall be in accordance with the NYSDEC Stormwater Design Manual. Storm sewers, shall be based on "Drainage Regulations for Development", a document adopted by the Town Board, and the 'New York State Guidelines for Urban Erosion and Sediment Control", page A4.2 (March 1988). The following requirements are intended to supplement these regulations. If any conflict should arise between the Drainage Regulations and the Storm Sewer Section, the NYSDEC Stormwater Design shall prevail.

The Utility Record Plans shall show the elevations of the pipe inverts and manhole covers or grate; manhole and pipe material; gradient of pipes; length of pipes between manholes; headwall and culvert details and other pertinent information as required by the Chief Engineer.

B2 Location:

Storm sewers shall generally be located in the right-of-way between the gutter and sidewalks, and out of the pavement area. Rear yard storm inlets shall be provided as required. All sewers located on private property, which are to be dedicated to the Town of Greece, shall be covered by an easement to the Town of Greece. Minimum storm sewer easement widths will be at least twice the sewer depth or fifteen (15) feet, whichever is greater. Manholes shall be located at all changes in grade, alignment, and pipe size and shall generally not be more than three hundred (300) feet apart. All manholes and field inlets shall be designated by a letter and number code on the construction plan and profile drawings as shown on the detail drawing.

In Subdivisions storm sewers shall be located between the gutter and right-of-way line, unless otherwise approved. Storm manhole locations will not be allowed in driveways. Manholes will not be allowed under sidewalks.

In all other developments the storm sewers shall be located in such areas as to provide unobstructed access, to the sewer and manholes, for maintenance personnel and vehicles.

B3 Sewer Main Size:

The size of individual pipes shall be determined by the Design Engineer in accordance with the Drainage Regulations. The minimum storm sewer size to be accepted for dedication shall be twelve (12) inches in diameter. Pipes from field inlets to the storm system may be eight (8) inch, if approved by the Chief Engineer.

B4 Sewer Main Material:

Storm sewer pipe shall conform to one of the following ASTM Specifications utilizing standard lengths. The type of pipe must be consistent with its location, depth and application. Acceptable pipe materials are as follows:

1. C14 Plain Concrete sewer pipe with rubber ring joints and conforming to ASTM Designation C443.

2. C14x Extra Strength Concrete sewer pipe with rubber ring joints and conforming to ASTM Designation C443.

3. Corrugated Metal Pipe conforming to the requirements of AASHO Designation M36 and Ml 90, gage to be indicated. Joints shall be soiltight. All fittings shall be manufactured fittings with neoprene gaskets. Corrugated metal pipe may only be installed for storm sewers with a depth of less than eight (8) feet.

4. Smooth -lined, Corrugated Metal Pipe conforming to the requirements of AASHO Designation M36. The pipe shall be full circle, corrugated metal pipe composed of a smooth liner pipe and helically corrugated shell integrally attached at helical look seams spaced not more than thirty (30) inches apart and extending from end to end of each length of pipe. The corrugated metal pipe shall be coated in conformance with the requirements of AASHO Designation M190, Type A. Joints shall be soil tight neoprene gaskets. All fittings shall be manufactured fittings.

   "Low-head" or elliptical smooth-lined pipe may only be installed for storm sewers with a depth of less than eight (8) feet. Each joint is to be numbered by the supplier to insure a proper seal when the pipe sections are installed at the construction site.

5. Plastic Sewer Pipe: Poly-vinyl chloride pipe (PVC) conforming to the requirements of ASTM Designation D3034, Type PSM, SDR 35 or ADS N-12 may be used for storm sewers. Joints shall be an elastomeric ring gasket conforming to the requirements of ASTM Designation D3212 or approved equal; or high density polyethylene corrugated pipe with smooth interior (HDPE) conforming to ASTM Designation D3350.

B5 Storm Lateral Size and Material:

Storm laterals shall be a minimum of four (4) inch diameter or as determined by the Chief Engineer and the Commissioner of Public Works, and be poly-vinyl chloride (PVC) pipe, SDR 21.

Lateral pipe shall be laid with ends abutting and true to line and grade. Unless otherwise permitted by the Inspector, pipe shall be laid to a minimum grade of one-quarter (1/4) inch per foot. Where applicable, every parcel shall have a storm sewer lateral.

B6 Storm Sewer Construction:

Refer to Section A7 of Sanitary Sewers, except for the following additions and/or deletions:

Cradle shall be used where design criteria warrants and for sewers laid in rock or unstable foundation material. Encasement shall be used for shallow sewers beneath roadways and in other conditions as recommended by the Design Engineer, the Commissioner of Public Works and the Chief Engineer.

Pipe shall be laid in select earth bedding$_1$ sand cradle, crushed stone cradle, or concrete encasement as indicated on the approved construction plans or as required by the Design Engineer.

B7 Storm Manholes and Manhole Construction:

Refer to Section A8 of Sanitary Sewers, except for the following additions and/or deletions:

Storm manhole covers shall be perforated.

Storm manhole inverts shall be formed of concrete with a uniform broomed finish applied.

All storm sewer manholes with an invert depth greater than three (3) feet shall be precast concrete structures.

B8 Storm Lateral Construction:

Connection to a new sewer shall be made using a wye branch or a 45 degree bend or a saddle slant, both encased in crushed stone. Pipes shall be fitted together and matched so that when laid, they will form a sewer with a smooth and uniform invert. The interior of the pipes shall be cleared of all dirt and foreign materials as the work progresses. All lateral connections to existing sewers, including method and materials, must be approved by the Commissioner of Public Works before work commences.

Crushed stone encased riser pipes shall be utilized for all laterals over ten (10) feet deep according to the detail drawing.

Storm laterals for each lot shall be installed to the easement line or at least ten (10) feet beyond the right-of-way line or property line, whichever is greater, and shall be inspected along with the main storm sewer. Cleanouts shall be located on the easement line.

Generally, storm sewer laterals will be installed to each lot from the sewer main along the right-of-way, not from side yard sewer lines. The end of all laterals shall be plugged with a watertight plug to prevent infiltration or exfiltration. A twelve (12) foot long, 2X4 pressure treated or hardwood timber shall be placed at the invert of the lateral pipe to mark the location and depth of the lateral end. At the top of the lateral marker, painted in GREEN, with three (3) inch stenciled letters, shall be the letter “D”. If the end of a lateral is greater than twelve (12) feet deep, the 2X4 timber marker shall be increased in length by four (4) foot increments until at least two (2) feet of the marker extends above the finished surface grade. The depth below finished grade of all laterals is to be recorded on the lateral marker.

B9 Inlets:

Inlets shall be provided where indicated on the approved construction plans and in all locations necessary to receive surface runoff so as to minimize or prevent ponding in all but the most severe runoff conditions. Spacing of gutter inlets shall be determined to some degree by roadway gradient, but length of gutter tributary to gutter inlet shall not generally exceed three hundred (300) feet. Area tributary to field inlets shall general not exceed two (2) acres or four (4) lot widths. Inlets shall be placed in gutters adjacent to the center of a lot or at the property line. Inlets shall not be placed near driveway aprons.

Construction of inlets shall conform to the detail drawings in the Appendix, and according to the following specifications:

Frame and grate shall be galvanized, rectangular type conforming to NYSDOT Standard Detail 655-6 or approved equal. The sizes shall be:

a. To be used on inlets built with inside dimensions of 19" x 22-1/2":

#1 - 23-15/16" x 27-1/2" Frame

22-11/16" x 26-1/2" Grate

b. To be used on inlets built with inside dimensions of 24" x 24":

#9 - 28-15/1 6" x 27-1/2" Frame

27-11/16" x 26-1/2" Grate

All inlets shall be precast units. Four (4) inch flexible underdrain pipe shall be installed around the perimeter of the road inlet, with the middle third (1/3) weep being plugged.

All inlets shall have fifteen (15) to seventeen (17) inches of grade change between the top of box to the centerline of the road before placement of the concrete apron.

Before placing the concrete apron, the frame shall be adjusted on the inlet wall to allow a one-eighth (1/8) inch drop from invert of gutter to top of grate. This drop shall be formed gradually in the invert.

The inlet shall be provided with No. 1A crushed stone backfill (conforming to the requirements of Section 703-02 of the NYSDOT Specifications) around the exterior, extending from the concrete base to the top of the masonry wall on a 3-on-I slope. The backfill shall be compacted before placing of the concrete apron.

Outlet pipes shall be a minimum of twelve (12) inch diameter from the first inlet to the second inlet. Outlet pipes under roadways and gutters shall be perforated and gasketed. The trench excavation shall be bedded to a minimum of six (6) inches under the pipe and backfilled completely with a blend of No.1 & 2 washed crushed stone (conforming to the requirements of Section 703-02 of the NYSDOT Specifications) wherever perforated pipe is utilized. All connections under roadways shall be constructed before the road base is installed.

Pre-cast inlets shall also conform to the following requirements:

The inlet shall be 4000 psi air entrained concrete with a minimum five (5) inch thick reinforced walls and a minimum six (6) inch thick reinforced base.

The top of the inlet walls shall be cast with a construction key to secure the concrete apron.

A minimum of four (4) inches thick crushed stone (primary size of No.1's) leveling course shall be placed prior to installing the inlet

B10 Head walls:

The Design Engineer shall show the construction details for all Head walls on the construction plans. Head walls shall be constructed from a minimum of 3000 psi cast-in-place concrete and shall be reinforced as necessary.

B11 End Sections:

Where specified, end sections shall meet the following requirements:

Galvanized Metal - AASHO Specifications M-36, in accordance with NYSDOT Specifications Item 603.18 or Item 603.19 of the NYSDOT Specifications.

Reinforced Concrete - NYSDOT Specifications Item 603.73

B12 Rip-rap and Gabions:

Rip-rap and gabions shall be installed as required by the Chief Engineer and as designated on the approved plans. Rip-rap shall be encased in concrete.

B13 Drainage swales:

Drainage swales shall be installed in conjunction with earthwork and inlet installations. After the swales are completed and the storm sewers constructed, the Inspector will assure conformance with the approved plan. If any serious deviations from the plan are found, the Chief Engineer will be informed. It will be the Design Engineer's and the Contractor's responsibility to correct the swales to the satisfaction of the Inspector.

When major swales between inlets are shown on the approved plan and they are not installed to the satisfaction of the Commissioner of Public Works, the Contractor shall not be paid for the inlets until the Commissioner is satisfied that the swales are in conformance with the approved plan.

All sedimentation and/or detention basins will be installed as part of the earthwork and grading for the project, and must be in place prior to the installation of any underground utilities for the project commences.

B14 Concrete Channel Inverts:

Concrete channels shall be installed along the length of the approved channel or swale when the invert slope is less than 1.0% or where the Chief Engineer determines it to be necessary. The location and grade of the concrete invert will be reviewed and approved by the Chief Engineer.

Materials used for the construction of concrete inverts are as shown on the detail drawing in the Appendix.

Restoration, grading and seeding of the banks adjacent to the concrete swale shall be completed as soon as is reasonable without causing damage to the concrete. Payment for the concrete invert will not be made to the Contractor until this work has been completed to the satisfaction of the Commissioner of Public Works and must be completed no later than the time of payment for the Underground Final.

B15 Stormwater Management Facilities:

Stormwater Management Facilities shall be constructed for all developments in accordance with the NYSDEC Stormwater Design Manual, and as required by the Chief Engineer. While the town reserves the right to establish particular parameters in each individual instance, the general philosophy is to permit runoff from any proposed developed site at a peak rate of no greater than seventy (70) percent of the undeveloped conditions for the entire range of quantifiable run-off events (i.e. 1-year to 100-year).

It should be noted the Town definitely reserves the right to establish other more restrictive parameters where known restrictions or locations of documented flooding exist. The restriction may take the form of increased retention rates or alternate stormwater management requirements to avoid increasing existing known drainage problems.

Stormwater Management Facilities may consist of ponds, surface storage, rooftop storage, pipe storage, or deep wells. The Chief Engineer will review and approve all proposed detention facilities.

The Owner/Developer is responsible for continuing maintenance of the Stormwater Management Facilities until they are no longer required or when the Final Release from the Letter of Credit.

Stormwater Management Facilities shall have a minimum of 1.0% longitudinal grade and a minimum 2.0% transverse grade before approved by the Town will be approved.

Stormwater Management Facilities must be mowable, maintenance and service accessible, and seeded.

Stormwater Management Facilities shall be final graded and seeded prior to the approval of the UNDERGROUND FINAL to the Contractor.

Perimeter and invert elevations of completed detention facilities shall be shown on the grading plan of the "Record Drawings" to assure that conformance to the approved design has been obtained.

B16 Erosion Control and Erosion Control Devices:

Erosion control shall be used where erosion of embankments or drainage channels may be expected or where directed by the Chief drawings. The Chief Engineer shall determine which procedures for erosion control will be required for the site to be developed. Such procedures may include:

Exposing the smallest practical area of land at any one time during development

Provision of temporary vegetation and/or mulching to protect critical areas.

Provision of adequate drainage facilities to accommodate effectively the increased runoff caused by changed soil and surface conditions during and after development.

Fitting of the development plan to the topography and soils to minimize the erosion potential.

Retention and protection of natural vegetation wherever possible.

Installation of permanent final vegetation and structures as soon as possible.

Provision of adequate protective measures when slopes in excess of 10% are graded; and minimizing such steep grading. Erosion control devices may also include interceptor swales, staked straw bale dams, stone filter berms, sedimentation ponds and trickle tubes.

All sedimentation/erosion facilities will be installed by the Contractor and will be the responsibility of the Owner/Developer to maintain in a satisfactory operational condition throughout the duration of construction on the site. Facilities may only be removed after approval has been obtained from the Commissioner of Public Works.

All erosion/sedimentation control facilities will be reviewed and approved by the Chief Engineer, and where applicable the Monroe County Department of Health.

Until all erosion/sedimentation control facilities are in place, there will be NO final payment made to the Contractor for the storm sewer items as per the Engineers Estimate for that project.

B17 Offsite Drainage:

The Developers of land in the Town of Greece shall be responsible for handling the existing offsite storm water runoff entering his parcel. The Developer of the parcel of land shall not adversely alter the storm water runoff on upstream or downstream properties.

All easement areas adjacent to drainage structures shall be graded with a maintainable slope and seeded before payment from the Letter of Credit may be approved.

B18 Cleaning and Flushing:

Upon completion of construction of the storm sewer system, the Contractor shall clean and flush all pipes, manholes and inlets. The system shall be left free of all sand, stones, silt, or mortar projections. The benches and inverts of manholes and the bottoms of inlets shall have all mortar spillage chipped away to leave a smooth, clean surface.

Approval for the use of public water for use in cleaning and flushing must be obtained from the Monroe County Water Authority. The Contractor shall comply with all rules and regulations governing the use of the MCWA facilities. If no public water is available, the Contractor shall use tank trucks at no additional cost

All materials flushed from the storm sewer system shall be intercepted and removed to prevent the materials from entering any stream, waterway, discharge facility or existing storm sewer system. Manholes shall be plugged, where necessary, to prevent flushing of foreign material into existing systems.

B19 Testing of Sewers:

A visual inspection of each section of completed sewer shall be made for smoothness of invert, freedom from obstructions, and straightness of line. The sewer shall be substantially watertight and free from infiltration. The storm sewer system shall be televised and submitted to the chief Engineer prior to final acceptance by the Town of Greece. Any defects shall be repaired to the satisfaction of the Commissioner of Public Works.

B20 Final Inspection:

Before final approval of the storm sewer system can be obtained, all storm sewers shall have been cleaned, flushed, lamped, and televised, to the satisfaction of the Chief Engineer and the Commissioner of Public Works.

SECTION C - PAVEMENTS

C1 Roadway Classifications:

The Town of Greece has four (4) types of roadways as follows:

-1

Collector Roads: Surface streets providing land access and traffic circulation service within residential, commercial and industrial areas.

Local-Collector Roads: Classified as collector locally

Local Roads: Surface Streets used primarily for direct access to residential property; volumes typically exceed those found on subdivision roads.

Subdivsion Roads: All subdivsion roadways not previously classified.

Private Drives: Roadways that will not to be accepted at any time for dedication to the Town. Maintenance of private roadways will be the responsibility of the Developer and/or the Homeowners Association.

For all practical purposes, the following specifications for pavements shall pertain to dedicated roadways only.

C2 Gradients:

Minimum pavement gradient for Town roads shall be 0.5%. Maximum gradients shall be 8% for minor subdivision roads and 6% for major collector roads.

Vertical curves shall be provided at all changes of grade greater than 1.6%. The length of vertical curves shall be consistent with adequate sight distances and good gutter design; however, no vertical curve shall be less than one hundred (100) feet in length.

Horizontal curves shall have a minimum centerline radius as listed below:

Minimum Centerline

Deflection Angle	Radius
0-30 degrees	300’
30-60 degrees	150’
60-90 degrees	75’

All gradients and curves not meeting these standards must be reviewed by the Chief Engineer and the Commissioner of Public Works and will only be approved under unusual conditions.

Where a proposed subdivision street intersects with an existing State or County highway, or Town collector roadway, the special flare detail will be required as directed by the Chief Engineer and the Commissioner of Public Works. All developments entering a County or State highway will be constructed in accordance with the requirements outlined in the highways permits issued by the appropriate agency having jurisdiction.

C3 Construction Schedule:

Pavement construction, including boxing for sub-base, shall not be started before all utility installation, including electric, gas, telephone, and cable television, under the proposed pavement area, is completed and the trench backfill is sufficiently compacted at least 95% of maximum density as determined by ASTM Designation Dl 656 and Dl 557 to eliminate harmful settlement of the pavement materials.

Foundation stone and binder course material may not be placed after November 15th. Top course material may not be placed until the foundation courses of asphalt have been in place a minimum of two (2) winters or seventy percent (70%) of homes are occupied within the phase being paved. In no case shall the binder left open for more than four years. No Top Course shall be placed after October 15th and prior to May 15th. This schedule is subject to seasonal weather conditions and may only be changed by approval from the Commissioner of Public Works.

General site grading, including detention/siltation ponds and rear yard swales, as shown on the approved grading plans must also be completed before the road box is cut. Heavy earthmoving equipment will not be permitted on any portion of the pavement material or on the sub-grade after it is shaped.

C4 Sub-grade:

A thoroughly and satisfactorily compacted sub-grade foundation, to at least 95% of the maximum density determined by ASTM Designation D1556 and Dl 557, is required.

All topsoil, boulders, and unsuitable foundation material shall be removed and replaced with approved material, properly compacted. Around structures, such as manholes and inlets, the sub-grade shall be compacted by tamping with suitable tampers.

Low spots or ruts, which develop in the sub-grade after it has been compacted, must be removed by filling with approved material. The entire sub-grade shall then be re-compacted. If necessary, the entire sub-grade shall be reshaped and reconstructed, and then re-approved.

The edges of the foundation trench shall be cleanly cut and free from loose material. The compacted bed for the pavement sub-base shall be cut to exact centerline elevation as indicated by stakes set every fifty (50) feet, with vertical curves staked every twenty-five (25) feet, under the direction of the Design Engineer, with a crown as shown on the typical section.

The compacted sub-grade shall be checked before the pavement sub-base course is placed. Compaction tests may be required to be conducted by an approved independent testing laboratory when directed by the Commissioner of Public Works and the testing paid for by the Developer an/or Contractor.

C5 Sub-base Course:

Since sub-grade materials vary considerably in the Town of Greece, it shall be necessary for the Design Engineer to thoroughly investigate and analyze the sub-grade soil and specify thickness of sub-base course on the construction plans. The thickness specified is subject to approval by the Commissioner of Public Works.

If a sub-base course is required, it shall consist of approved virgin material of a similar soil composition as the existing materials, or the roadway shall be boxed to hard ground and brought back to sub-base grade with suitable compactable material as approved by the

Commissioner of Public Works, and shall be laid down in separate courses not thicker than eight (8) inches, thoroughly compacted to at least 95% of the maximum density with a ten (10) ton vibratory roller or tandem roller.

The sub-base course shall be in accordance with the dimensions outlined for the specific type of road and in all cases extend six (6) inches beyond the outside edges of the gutter/curb. The sub-base material shall be approved by the Commissioner of Public Works.

The intent of this sub-base course is to provide a suitable foundation for the pavement base and shall be used in conjunction with work required to satisfactorily construct a compacted sub-grade foundation.

C6 Foundation Course:

The foundation course shall conform to the dimensions and thick nesses as outlined for the specific type of road. All stone shall be a Dolomite crusher run for conforming to the requirements of Section 304-02 and 703-02 respectively of the NYSDQT Specifications.

Road weeps shall be installed using a blend of No.1 & No.2 washed crushed stone. The stone shall be placed on a layer of filter fabric. The filter fabric shall be placed along the outside of the road weep. The top of the stone shall not have the filter fabric. The stone shall be left open to allow sub-surface road drainage to drain to the weep stone.

The stone base shall be constructed in lifts as outlined for the specific road being constructed. Each course shall evenly spread with an approved mechanical spreader in such quantity that after being compacted with a ten (10) ton vibratory roller, the thickness of each course will be as specified.

The rolling of each course must begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller. The course shall be feathered up at the outside edge of the gutter construction.

After the last course is thoroughly compacted, No.00's and No.1's crushed Dolomite stone dust shall be uniformly spread, by hand or a drag broom, and rolled.

After rolling, the course may be tested with a straightedge sixteen (16) feet in length. Any depression over one-quarter (1/4) inch in depth shall be satisfactorily eliminated.

After the completion of rolling, no hauling other than necessary to bring material for the next course, will be allowed over the rolled material.

No surplus filler will be allowed on this course. This course shall not be laid in excess of five hundred (500) linear feet without being rolled and thoroughly filled so as to render it stable and thereby prevent softening of the subgrade.

If the subgrade material should become churned up into or mixed with the foundation or sub-base course for any reason, the Contractor shall remove the mixed material and replace it with foundation course material or suitable material as approved by the Commissioner of Public Works.

At least two (2) working days before placing any foundation and sub-base material, the Contractor shall inform the Commissioner of Public Works of his schedule for work.

C7 Bituminous Concrete Pavement:

The bituminous concrete surface shall conform to the materials and thick nesses as outlined for the specific roadway classifications.

The bituminous concrete materials shall conform to the requirements of Item 403.11 Type 1 Base, Item 403.13, Type 3 Binder, and Item 403.1901, Type 7F Top, of the NYSDOT Specifications and shall be constructed in accordance with the requirements of Section 400 of the NYSDOT General Specifications for Bituminous Pavement.

Prior to the arrival of the bituminous material for the paving course, the underlying course shall have been brought to the grade which is parallel to the proposed finished surface.

All loose and foreign material shall be cleaned from the surface of the foundation course by brooming or other approved methods.

The bituminous mixture (plant mix) shall be placed only where the surface to be covered is dry and clean, and shall be laid only when weather conditions are suitable in the opinion of the Commissioner of Public Works. All defective areas of the foundation course shall be repaired in advance of laying the bituminous course. The bituminous material shall be transported from the mixing plants to the work site in tightly covered vehicles. The vehicles shall be cleaned of all foreign material prior to be loading.

Where gutters, curbs, manholes and other objects come in contact with the pavement, they shall receive a uniform tack coat of Item 407.0101 of the NYSDOT Specifications, applied according to the latest recommendations of the manufacturer.

The base/binder course shall be laid with a finishing machine of an approved type, to a depth which, when compacted, shall be parallel to and the required depth below the finished surface. Placement by hand raking will be permitted only in areas that are inaccessible to the finishing machine.

The base/binder course shall be rolled with a self-propelled ten (10) ton vibratory roller or tandem roller, with a second five to eight (5-8) ton finishing roller on site in case of mechanical failure to the ten (10) ton roller. Rolling shall start immediately after placement while the material is still hot and workable. The roller shall travel parallel to the pavement. The rolling shall begin at the shoulder and progress toward the center of the road. The rolling shall continue until all roller marks disappear and the surface shows no signs of future compressibility. In areas inaccessible to the roller, compaction shall be affected with iron tampers weighing not less than twenty-five (25) pounds and having a bearing area not greater than forty-eight (48) square inches.

After the base/binder course has been in place for a sufficient period of time, as determined by the Commissioner of Public Works, the Contractor shall place the required layer of specified top course. Spreading and rolling shall be in accordance with the specifications as previously stated for the binder course.

Prior to placing the top course material, the binder course shall be cleaned of all foreign materials and repaired in accordance with Section C. Any pavement repairs required shall be made prior to the placement of the top course of asphalt. The Commissioner of Public Works shall require a coat of the previously specified tack coating to be applied to all existing pavement edges and foundation course material at the specified rate of application.

The top course shall be distributed in a uniform layer by a finishing machine. Placement by hand raking will be permitted only in areas that are inaccessible to the finishing machine. The top course shall be compacted with at least a ten (10) ton vibratory roller or a tandem roller, with a second five to eight (5-8) ton finishing roller on site in case of failure of the ten (10) ton roller. The roller shall travel parallel to the pavement. The roiling shall begin at each shoulder and progress toward the center of the road. The rolling shall continue until all roller marks disappear and the surface shows no signs of future compressibility. In areas which are inaccessible to the roller, compaction shall be accomplished with iron tampers not weighing less than twenty-five (25) pounds and having a bearing area not greater than forty-eight (48) square inches.

The surface may be tested with a sixteen (16) foot straightedge laid parallel with the centerline of the road upon any portion of the surface and any variations from a true profile exceeding one-quarter (1/4) inch shall be satisfactorily eliminated or the pavement relaid.

The Contractor must notify the Commissioner of Public Works at least two (2) working days before any surface material is scheduled to be placed and no material shall be placed until authorization has been received from the Town.

B8 Pavement Repairs:

Pavement repairs shall be made due to cracks, breaks or settlement as determined by the Commissioner of Public Works according to the following method:

The existing pavement shall be cut square and exceed the area to be replaced by at least six (6) inches on all sides. The pavement shall be cut by mechanical means to produce neat vertical edges.

All unsuitable material shall be removed to a depth which will assure no future failure of the road surface. The material removed shall be replaced with the specified material as stated above and at the direction of the Commissioner of Public Works. All material shall meet the compaction requirements as stated previously including the existing subgrade material.

Prior to placing the bituminous materials, the Commissioner of Public Works shall require a coat of the previously specified tack coating to be applied to all existing pavement edges and foundation course materials at the specified rate of application.

C9 Gutters:

Gutters shall be in accordance with the dimensions are shown on the detail drawings in the Appendix.

At street intersections, the gutters shall have a radius of at least thirty-five (35) feet adjacent to the pavement. Forms shall be curved to provide a smooth line to the gutter.

Concrete shall be 4000 psi, air-entrained conforming to the requirements of Item 609.05 of the NYSDOT Specifications with a desired slump of two (2) inches and a maximum slump of three (3) inches. The desired air content is 6% but in no case shall it be less than 5% nor greater than 7%. The air entraining admixture shall be ‘Darex” or approved equal.

FULL DEPTH expansion joints consisting of one-half (½) inch pre-molded bituminous impregnated felt joint material shall be provided every thirty (30) feet of gutter on each side of the gutter inlet aprons.

The gutter shall be constructed on a compacted crushed stone foundation.

The gutter shall be formed using steel forms unless otherwise approved by the Commissioner of Public Works. The forms shall be set true to line and grade and held rigidly in position throughout construction. They shall have sufficient strength when staked to resist the pressure of the concrete without springing. At least two hundred (200) feet of forms shall be in place before placement of concrete commences.

After the forms are set, they shall be checked for grade and alignment and the subgrade shall be tested with a screed. Before placing the concrete, the steel forms shall be oiled and the subgrade shall be cleaned for any waste or loose material that may have accumulated. Extremely dry subgrade shall be moistened. The concrete shall be continuously placed in each section and the placement, striking and finishing shall be completed with dispatch. Any excess water from floating shall be swept out of the gutter as the work progresses. The forms shall be filled to the surface with wet concrete above finished grade.

The top shall be struck off with a screed or strike board and the surface floated with a wooden float until the concrete is thoroughly compacted and free from surface depressions and irregularities.

The gutters may also be placed by the use of an approved gutter machine using a screed to form the invert and the specified shape as shown on the detail drawings, and equipped with a vibrator attachment. Gutter placed by machine must comply with all applicable specifications for gutters

At the appropriate time, the concrete shall be scored every ten (10) feet to a depth of one and one-half (1-1/2) inches. The concrete shall then be broomed lightly with a fine-bristled broom and edged with an approved edging tool. This brooming is to fill small voids, thus making it unnecessary to do an excessive amount of floating and troweling which brings too much water to the surface causing spalling of the finished concrete in the future. The edges of the gutter at the joint shall be touched up with a pointing trowel to break the sharpness. Care shall be taken not to break the sidewalls of the gutter.

The forms shall not be removed until the concrete has hardened sufficiently so that there will be no injury to the gutter. Immediately upon removal of the forms, the gutter shall be backfilled to prevent undermining of the gutter in the case of precipitation. At expansion joints, the joint material shall be cut away so it does not protrude beyond the face of the concrete, and the edge of the filler shall be flush with the surface of the gutter so that it will form no obstruction of the flow of water.

After the concrete has taken its initial set, it shall be sprayed with Polyclear at a rate of one (1) gallon per two hundred and fifty (250) square feet with an approved mechanical spray distributor or an approved curing and salt inhibitor compound applied at the rate as specified by the manufacturer.

After the concrete is finished, it shall be cured for a period of seven (7) days before it is open to traffic. During cold weather, the concrete shall be cured for much longer periods as deemed necessary by the Commissioner of Public Works.

Concrete gutters shall not be installed where there is water lying between the forms or where the crushed stone is soft from precipitation. Gutters shall be protected from imminent rainfall

by waterproof material, such as sheet plastic, supported above the gutters to prevent impressions in the concrete.

If at any time during the progress of the work the temperature is in, or in the opinion of the Commissioner of Public Works will, within twenty-four (24) hours drop to, forty (40) degrees Fahrenheit, the water and aggregate used in preparing the concrete shall be heated and precautions shall be taken to protect the work from freezing for at least five (5) days. In no case shall concrete be deposited on frozen subgrade or sub-base or when the air temperature is thirty-five (35) degrees Fahrenheit or below.

The complete gutters shall be uniform in appearance, free from honeycomb, checks, cracks or surface irregularities. The gutters shall be a continuous channel for leading water to the proper drains without pockets which form pools or rough places which produce uneven flow. Where the gutter is unsatisfactory, whole sections shall be taken out and replaced. Surface patching will not be permitted. No traffic of any sort will be allowed on the gutters for a minimum of seven (7) days after replacement.

C10 Curbing:

Curbing shall be constructed as directed by the Town Engineer and the Commissioner of Public Works in conformance with the requirements of NYSDOT Designation 609.05.

C11 Concrete Sidewalks:

Concrete sidewalks shall be constructed to the specifications as indicated for gutters with the following modifications:

Sidewalks shall conform to the requirements of Item 608.0101 of the NYSDOT Specifications. Exact dimensions for the sidewalks are shown on the detail drawing.

Sidewalks shall have both construction and expansion joints. Construction joints shall be located at five (5) foot intervals. Expansion joints shall be placed every twenty-five (25) feet. FULL DEPTH expansion joints shall be constructed between sidewalk and curbs, gutters, pavements, or other existing sidewalks, buildings and other rigid objects.

All joints shall be finished with an edging tool of one-quarter (1/4) inch radius. Contraction joints shall be scored into the slabs at five (5) foot intervals to a depth of one and one-half (1-1/2) inches from the surface.

After the concrete has been placed, the surface shall be brought to the required grade by screeding. The screed shall be moved across the slab with a sawing motion, advancing forward a short distance with each movement. There should be a slight surplus of concrete against the front face of the screed.

The concrete shall be allowed to harden to the degree that when a person stands on it, their feet leave only a slight imprint. The surface shall then be floated with a wooden float. The floating operation shall compact the concrete at the surface and remove all humps, voids and other imperfections. The surface shall be given a fine broom finish. Slabs shall be broomed transversely to the direction of the main flow of traffic. The concrete shall be cured the same as specified for concrete gutters.

C12 Asphalt Driveway Aprons:

A driveway apron, defined as that portion of the driveway located within the right-of-way, between the gutter or pavement, and the sidewalk OR right-of-way line, is required for each developed parcel of land. The schedule for installation of driveway aprons will be determined by the Commissioner of Public Works.

Driveway aprons shall consist of NYSDOT Specifications Item 403.13, Type 3 Binder, in a finished compacted depth of two (2) inches, over a prepared and compacted base of #2 and #3 crushed Dolomite stone, with a minimum compacted depth of six (6) inches.

Apron pavement width shall be a minimum of eighteen (18) feet for "double-width" aprons and twelve (12) feet for "single-width" aprons. An acceptable angle and edge shall be provided on each side of the apron as shown on the detail drawing. Stone base for aprons shall extend a minimum of six (6) inches beyond the edge of the apron pavement.

SPECIAL CONDITIONS:

No cleanouts, curb boxes, valve boxes, manholes or catch basins will be allowed in or within three (3) feet of driveways.

Driveway aprons shall be a minimum of five (5) feet from the approved hydrant and street light pole locations. If poles have to be relocated during the construction period due to conflicts with driveways, the cost for the relocation shall be borne by the Builder/Developer.

On lots having a side yard easement for Town utilities, the driveways shall not be constructed on said easements.

On lots adjacent to and/or containing temporary turnarounds, the driveways shall be located a minimum of forty (40) feet away from said turnaround location.

For the first lot on the right as you enter a cul-de-sac, the driveway shall be located on the property line away from the neck of the cul-de-sac entrance.

For corner lots located at a three (3) and/or four (4) way intersection, the driveways shall be located a minimum of thirty (30) feet from the right-of-way intersect to maintain sight distance at the said intersection.

A Temporary Easement shall be provided on the "future phase" side of the project phase line where a road is temporary dead end. This will be required for the purposes of construction of a permanent cul-de-sac in the event the project does not progress. Monies will be placed in the Letter of Credit for each phase of the project for the construction of a permanent cul-de-sac. The money will be released at the time the Letter of Credit is posted with the Town of Greece for the next phase that would extend the road.

SECTION D - STREET LIGHTING

Dl Subdivision Street Lighting:

The Design Engineer shall include on the construction drawings, the light pole locations, for the approval of the Chief Engineer. Upon approval of the submitted design, the Chief Engineer shall forward two (2) copies of the layout to Rochester Gas and Electric Corporation for their review. They will then submit to the Town a final layout for authorization and acceptance by the Town Board.

Light poles shall be placed as shown on the detail drawing. Pole spacing shall be a maximum of two hundred (200) feet and minimum of one hundred and fifty (150) feet distance apart from center to center along the road length. Poles shall be placed in an alternating pattern on both sides of the road, generally mid-lot or at lot lines and at least twenty (20) feet from manholes, valves, hydrants and laterals. Each intersection and curve shall be properly lighted.

The Developer shall include in the Letter of Credit, an amount sufficient to cover the costs of light poles and conduit installation.

The Contractor shall include the costs for light pole and conduit installation in his Performance and Labor and Materials Guarantees.

The materials and method used in installation shall be in conformance with the requirements of this section and as shown on the detail drawing. All work shall meet with the satisfaction of the Commissioner of Public Works.

It is the intent of this specification to provide poles and conduit in subdivisions to be paid for by the Developer and installed by the Contractor. The Design Engineer shall be responsible for the precise field staking of the pole locations in conformance with the approved layout submitted from Rochester Gas and Electric Corporation.

THE DEVELOPER IS HEREBY PLACED ON NOTICE THAT THE APPROVED LIGHT POLE AND CONDUIT LOCATIONS ARE FINAL AND BINDING. The Developer is advised to consult with the Design Engineer regarding any conflicts between proposed pole locations before submitting for a building permit. Desired driveway aprons shall be installed a minimum of five (5) feet away from the designated pole locations. Any changes to the approved layout shall have approval of the Chief Engineer and the Commissioner of Public Works, and the cost of these relocations will be the Developer's responsibility.

D2 Light Pole Materials:

Light pole material shall be black fiberglass, round, for post top luminaries.

Pole Dimensions - Eighteen (18) feet overall length, approximate diameter forty-eight (48) inches from butt is five (5) inches tapering to approximately three (3) inches in diameter at the top and terminating in a three (3) inch outside diameter by three (3) inch long tenon with external steel tubing ferrule reinforcement. A two and one-half (2-1/2) inch diameter wire opening twenty (20) inches from butt shall be provided.

Pole Construction - Hollow, glass filament and resin, stabilized for ultraviolet and weathering effects, color pigment to be integral part of construction resin. Completed pole to be inert to soil chemicals, fertilizer, and de-icing salts and unable to support combustion.

Pole Strength - Pole shall adequately support luminaries with four (4) square feet effective protected area in 100 mph wind and support a ladder with a two hundred and fifty (250) pound person working on the Iuminaire with a safety factor often (10) or greater.

Poles shall be manufactured as follows:

Shakespeare - Columbia, South Carolina

Or approved equal, subject to the approval of the Town Engineer and the Commissioner of Public Works.

Conduit material shall be two (2) inch diameter PVC, Schedule 40.

Bends, couplings and fittings shall be PVC, Schedule 40.

D3 Conduit Installation:

The conduit shall be placed with a smooth grade and alignment in the trench. A maximum of three (3), ninety (90) degree bends shall be utilized between the pole and the power source. Minimum cover over the conduit shall be twenty-four (24) inches, free of large rocks, frozen earth, debris, etc. and compacted to at least 95% maximum density. All joints and couplings are to be installed according to the manufacturer's instructions and made watertight. The Contractor will provide a continuous nylon pull cord within the conduit with a minimum breaking strength of two hundred and fifty (250) pounds between the power source and top of pole. The conduit shall be mandrel led after installation with a ball mandrel, 70% of the size of the conduit diameter. The joining of conduit to Rochester Gas and Electric facilities shall be as directed by Rochester Gas and Electric. Conduit shall extend from a ninety (90) degree bend located twenty (20) inches from the butt end to the power source.

D4 Pole Installation:

The bottom four (4) feet of the eighteen (18) foot pole shall be set in a sixteen (16) inch diameter hole and backfilled with earth compacted in six (6) inch layers for the bottom three (3) feet. One (1), eighty (80) pound bag of premixed dry concrete shall be placed around the pole in a six (6) inch layer and tamped. The top six (6) inches of earth shall be placed around the pole and tamped. During the entire backfilling operation, the pole will be stabilized in a plumb position.

D5 Construction Schedule:

All conduit proposed to fall within the pavement area shall be placed prior to the placement of the stone base. All other conduit and the light poles shall be placed following the installation of sidewalks or as directed by the Commissioner •of Public Works. Lamping of the poles is at the discretion of the Town of Greece Commissioner of Public Works and Director of Finance.

SECTION E - MISCELLANEOUS

El Seeding in the Right-of-Way:

It is the Developer's responsibility to topsoil and seed the area between the sidewalk (or right-of-way line where there are no sidewalks) and the gutter (or edge of pavement where there are no gutters or curbs). A minimum of three (3) inches of topsoil, free of stones, roots, brush, etc., shall be placed and graded. Topsoil shall have an acidity rating between 5.5 pH and 7.6 pH. The organic content shall not be less than 3% and not more than 20%. The topsoil shall be rolled and tamped to prevent settlement. Before seeding or fertilizing, the topsoil shall be trimmed and raked. All objectionable material shall be removed and a finely pulverized seed bed shall be formed.

Fertilizer (10-6-4, 50% organic) shall be spread with a mechanical spreader at a rate often (10) pounds per one thousand (1000) square feet.

Seed shall be a well mixed blend proportioned as follows:

TYPE OF SEED	AMOUNT
Manhattan III Perennial Ryegrass	25%
Affinity Perennial Rye Grass	25%
Pennlawn Red Fescue	25%
Kentucky Blue Grass	25%

Minimum rate of germination shall be 80%. The seed shall be spread by mechanical spreader at a minimum rate of five (5) pounds per one thousand (1000) square feet. The seed shall be covered to a maximum depth of one-quarter (1/4) inch by careful stirring of the seed bed with rakes or similar equipment.

Hydro seeding may be used in lieu of the above.

Any areas which fail to show a uniform catch of grass shall be reseeded by the Developer. All seeded areas shall be mulched. The schedule for seeding within the subdivision shall be approved by the Commissioner of Public Works.

E2 Street Signs:

The Developer shall erect and maintain temporary street signs until such time as permanent signs are erected. Temporary street signs shall be erected at all intersections.

Permanent street signs shall be erected by the Town, as directed by the Commissioner of Public Works. Need for sign placement to be determined by the Public Safety Commissioner during the review process. Signage shall be installed by qualified personnel of the Department of Public Works when the Developer's Final has been approved and paid. Regulatory signage shall be installed prior to the Developer's Final if deemed necessary by the Public Safety Commissioner, and only after specific Town Board action has been granted.

E3 Identification Signs:

Identification signs for subdivision, multiple dwelling or commercial projects shall be in conformance with the Town of Greece Zoning Ordinance page 44-45 Sec.300c 2a (3) & (4).

E4 Lot Markers:

Lot markers shall be erected and maintained by the Developer for all new lots within the subdivision. They shall be attached to the water service marker. Lot markers shall be in place for all lots before the issuance of any foundation permits, and shall be maintained until all lots in the section are completed andlor permanent street address numbers have been affixed to the residence.

E5 Temporary Turnarounds:

The Developer shall install a temporary turnaround at the end of any newly constructed road which is temporarily or permanently dead-ended to allow for the safe turning of vehicles as shown on the detail drawing. The location of the turnaround shall be approved by the Commissioner of Public Works and the Chief Engineer.

Materials for the construction of the turnaround shall consist of twelve (12) inches of Dolomite crusher run stone base and two (2) inches of binder conforming to NYSDOT Specifications Item 403.06, Type 2A Binder.

E6 Dead End Road Delineators:

6 x 6 Pressure Treated posts shall be installed at the end of a newly constructed road or sidewalk which is temporarily or permanently dead-ended. The posts shall be placed six (6) feet on centers and extend from right-of-way line to right-of-way line on streets as shown on the detail drawing.

Material for the delineator shall consist of 6 x 6 posts, located as shown on the detail drawing. The posts shall be seventy two (72) inch minimum length. The posts shall be placed a minimum of thirty six (36) inches into the ground. Posts shall be provided with red aluminum reflective delineators.

E7 Box Beam Guide Rail Barricades:

Box beam guide rail barricades may be required to be installed in such areas as bridge and culvert crossings of roadways and as directed by the Chief Engineer and the Commissioner of Public Works and as shown on the approved construction plans for the site.

E8 Non-woven Polypropolene Filter Fabric:

Filter fabric may be required for special applications on Town facilities or within Town owned property. Such applications may be, but are not limited to trench under drains, road stabilization, gabion installation, and sediment control. All filter fabric shall be approved by the Chief Engineer and the Commissioner of Public Works before its use.

Non-woven polypropylene filter fabric shall be “Supac” as manufactured by Phillips Fibers Corp.; ‘Mirafi” as manufactured by Celanese Fibers Marketing Company; or approved equal. Permeability and resistance to clogging must be suitable for installation in fine, silty soils. Filter material must be capable of passing water.

Installation of the filter fabric shall be to the manufacturer’s specifications and as directed by the Chief Engineer.

E9 Individual Lot Certification:

The Developer will be required to provide the town with two certifications for home construction.

The first certification shall be provided when the foundation walls are completed and ready for framing. The Developer will be required to verify that the elevation of the top of foundation wall is in conformance with the approved plans.

The second certification will be required prior to issuance of a Certificate of Occupancy for a home. The Developer will be required to provide a “Lot Certification” Map that shall show that the site grading is in conformance with the Approved Site Grading Plan for the lot.

Failure for the grading to conform with the approved plan will result in not receiving a Certificate of Occupancy until the lot is graded in accordance with the approved site plan.

In the event the house is completed during the winter months and final site grading can not be completed, a conditional Certificate of Occupancy may be provided at the discretion of the Building Inspector.

ENGINEER'S ESTIMATE FOR CONSTRUCTION

Project Name, Town of Greece, New York

Owner/Developer/Contractor

Date

ITEM NO.	DESCRIPTION	EST. QUANTITY	UNIT PRICE	TOTAL
SANITARY SEWERS				
	(List all items)		Total	$$$$
STORM SEWERS				
	(List all items)		Total	$$$$
PAVEMENTS				
	(List all items)		Total	$$$$
GRADING AND EARTHWORK				
	(List all items)		Total	$$$$
WATERMAINS				
	(List all items)		Total	$$$$
SEDIMENTATION AND EROSION CONTROL				
	(List all items)		Total	$$$$
STORMWATER MANAGEMENT PONDS				
	(List all items, such as grading, rip-rap, concrete gutters, seeding, etc.)		Total	$$$$
GENERAL AND MISC.				
	(List all items)		Total	$$$$

TOTAL

Total

SUMMARY

Sanitary Sewers	(Amount)
Storm Sewers	"
Pavements	"
Watermains	"
Sedimentation and Erosion	"
Stormwater Management Facilities	"
General and Misc.	"

CONSTRUCTION COSTS	(Amount)	(Amount)
Street lighting (x)	"	
Record Drawings" and Monumentation	"	
Subtotal	(Amount)	(Amount)
5% Town Fee (5% of above Subtotal)	"	
10% Contingency (10% " ")	"	
5% Owner's Guarantee (5%" ")	"	
3% Performance Guarantee (3%" ")		
Subtotal	(Amount)	(Amount)
TOTAL AMOUNT FOR LETTER OF CREDIT		AMOUNT

*** A line item amount for the Owner's Guarantee in the Letter of Credit is at the discretion of the Developer per the new policy adopted by the Town of Greece, November 5,1992.