TOWN OF EAST HAMPTON

STREET STANDARDS

Town of East Hampton

Adopted:	November 25, 1986
Revised:	January 10, 1991
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	June 13, 2000
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01. GENERAL REQUIREMENTS

01.01 Introduction

The following document shall be known as the East Hampton Street Standards, Town of East Hampton, Connecticut.

The adoption of these Standards is for the purpose of promoting the public health, safety and welfare; to ensure protection of the public against the dangers of unsafe road; to ensure protection of the use, value and enjoyment of premises adjoining roads; and to ensure the protection of the Town against costs and expenses in the repair and maintenance of roads after acceptance which are avoidable through careful planning, appropriate design and competent construction. These Standards are and have been adopted pursuant to the East Hampton Road Ordinance and pursuant to the authority conferred upon the Council by Section 13a-71 of the Connecticut General Statutes.

01.02 Use of Standards

The East Hampton Street Standards shall govern the construction and improvements of all roads, drainage structures, appurtenances, and bridges presented or designed to be presented for acceptance and maintained by the Town of East Hampton. As applicable, these Standards are also to be used in conjunction with work within Town right-of-ways and for work required as a result of an approved subdivision or site plan from the East Hampton Planning and Zoning Commission.

01.03 General Prohibitions

01.03.01. Use of Land as a Road (Public)

No person(s) owning land within the Town shall permit the same to be used by the public as a road.

01.03.02. Use of Land as a Road (Private)

No person(s) owning land within the Town shall permit same to be used by any person as a road, other than a driveway, which connects with any Town road unless he shall erect and maintain at all such intersections with a Town road either:

1. Gate - a gate or other obstruction effectively barring the public from using such road; or,
2. Sign - a conspicuous sign, facing the Town road, clearly stating in bold letters that such road is a private way and is not open to the public.

Construction of Road (Public) - No person shall commence construction of any road which is then intended to be opened, at any future time, to the public unless approval of the location, layout, design and construction plans therefore shall have been previously granted by the Town.

Construction of Road (Private) - No person shall commence construction of any road, other than a driveway, which is not then intended to be opened to the public unless he shall:

1. Notify the Town - Previously notify the Town in writing of his intention to commence such construction stating:
    a. The name of the owner(s) of the land upon which such proposed road is to be constructed;
    b. The location and layout off such proposed road specifying any Town road or roads with which such proposed road will connect;

c. That such proposed road is not intended to be opened to the public or offered for acceptance as a Town road;

2. Gate or Sign - Erect and maintain at all intersections with any Town road either:
   a. A gate or other obstruction effectively barring the public from using such road; or,
   b. A conspicuous sign, facing the Town road, clearly stating in bold letters that such road is a private way and is not open to the public.

01.04 References

The State of Connecticut, Department of Transportation's "Standard Specifications for Roads, Bridges and Incidental Construction"; Form 814A, 1995 issue, (or latest edition and any subsequent supplements or issues), shall be considered part of these Standards. Engineers and contractors working on projects in the Town of East Hampton shall be expected to have a copy available for their reference.

Other references, as noted in such section of these specifications, are frequently utilized in design and construction in Connecticut. The listing of these references is not intended to limit the use of other acceptable design and construction methods.

01.05 Standard and Alternate Designs

01.05.01 Design Standard

These Standards shall be considered to be the minimum design standards acceptable and the Town Council shall have the right to vary these requirements as the situation dictates.

No road constructed for private use may be presented to the Town for acceptance at any time after the effective date of these Standards, unless constructed in accordance with these Standards.

These Standards are intended to provide for the best possible design and construction of public improvements in terms of service, safety, economy, and ease of long-term maintenance. The Standards take into consideration the average conditions encountered within the Town of East Hampton. Special designs are expected to be prepared for projects where unusual or extreme conditions are encountered.

01.05.02 Standard Drawings

Typical Street Cross-Section Layout - Curbing
Typical Street Cross-Section Layout - Surface Drainage
Turnaround Layout
Improvement to Existing Street
Existing Street Pavement Repair
Typical Underdrain Detail
Typical Curtain Drain Detail
Typical Timber Guiderail Detail
Sidewalk Detail
Residential Driveway Detail - Curbing
Residential Driveway Detail - Surface Drainage

01.05.03 Alternate Designs

Alternate designs for proposed improvements maybe submitted to the Town Council or its authorized agent. However, the Town Council is under no obligation to approve any variations of the design standards as set forth in these Standards.

01.06 Validity

If any section, paragraph, subdivision, clause, or provision of this set of Street Standards be adjudged invalid or unconstitutional for any reason, such adjudication shall apply only to the section, paragraph, subdivision, clause, or provision upon which such adjudication is based, and 'the remainder of the Street Standards shall be deemed to be and shall continue to be valid and in full force and effect.

01.07 Enforcement

It shall be the duty of the Town Council or its duly authorized agent(s) to enforce the provisions as set forth in these East Hampton Street Standards.

02. PLAN REQUIREMENTS

The following plans, drawings and data shall be submitted for approval prior to the clearing or grading of any land and/or construction of any roadway or improvement:

1. The accurate layout of existing and proposed streets, easements or right-of-way, including those for utilities, sanitary sewers, drainage systems either on or off-site, with accurate bearings and distances including length, radii and central angle of all curves;
2. Accurate location of required monuments will be shown with accurate references based on traverses between U.S.C.G.S. monuments. When monuments are set, they are to have coordinates marked thereon;
3. The-location of all existing and proposed storm water sewers, catch basins, manholes, bridges, and culverts. Pipe sizes and-invert elevations of all drainage structures shall be shown together with outfall into existing sewers or natural water courses;
4. Road profiles, showing accurate existing and finished grades, cross-sections and other detailed road construction plans, including drainage structures and other utilities such as sanitary sewers, water and all other underground utility lines.
5. Watershed data and calculations for the design of drainage structures

The above shall be prepared by a professional engineer, registered in the State of Connecticut and in the case of subdivision roads, shall be submitted for approval to the Planning and Zoning Commission.

Upon final approval of the above-listed submissions for any proposed roadway and auxiliary structures, four (4) copies of said documents will be required for filing with the Planning and Zoning Commission. After completion and approval of all work, one (1) copy of "as-built" drawings shall be filed with the Town, Director of Public Works, Planning Department and Town Engineer.

03. STREET CONSTRUCTION ADMINISTRATION REQUIREMENTS

03.01 General

A pre-construction conference shall be set by the road builder and shall be held with the Town Engineer, Director of Public Works, Contractor and Builder representative(s) present prior to construction start-up. At this time a schedule showing completion target dates for the various phases of work shall be submitted to the Town Engineer and Director of Public Works.

Should a construction project be bonded, the bond(s) in an amount and form approved by the appropriate agencies and commissions shall be posted prior to the commencement of construction.

The Director of Public Works shall be provided with the following names, addresses, and phone numbers:

1. Applicant's representative
2. Project engineer
3. Contractor's superintendent
4. Contractor's foreman (for various phases of work)

The following information on materials shall be submitted to the Director of Public Works:

1. Pipe manufacturer's name and address
2. Precast concrete utility structure manufacturer's name and address
3. Bituminous concrete paving firm's name and address
4. Laboratory test results for road base material
5. Laboratory test results for road sub-base material
6. Letter indicating that bituminous concrete plant is certified by CT DOT

When tying into an existing road, the Project Engineer shall notify the appropriate representatives to insure that existing utilities can be properly located thus reducing the chance of damaging utility lines.

The Director of Public Works shall be notified forty-eight (48) hours in advance of placing storm drains, road base material and bituminous concrete.

The builder shall be required to submit Samples and certifies laboratories reports to the Town documenting the conformance of certain construction materials with the specifications included in these regulations. The applicant shall not be permitted to place, or to have delivered to the project site, any materials for which approvals have not been granted by the Town. Any approvals granted by the Town on the basis of certified laboratory reports shall be conditional upon the tested sample being representative of all such materials utilized for construction. The Town shall reserve the right at any time during the course of construction, for whatever reason, to have additional materials testing conducted. Should the results of such testing find that the materials to no conform to specifications, then such materials shall be removed and replace with conforming materials at the applicant’s expense. The applicant shall be required to reimburse the Town for the cost of any such testing only if the results prove that the materials tested to not conform to required specifications.

Samples and/or verified laboratory reports shall be submitted for the following materials:

1. Rolled Granular Base – A sieve analysis for conformance with the State Standard Specification Section M.02.05 Grading A.
2. Processed Aggregate Base – A sieve analysis for conformance with the State Standard Specification Section M.05.01.

3. Bituminous Concrete – Plant certification by the State Department of Transportation for use of such materials in state highway construction projects.

03.02 Bonds

Street constructed as part of new subdivisions shall be bonded as required under the Subdivision Regulations.

Street constructed or reconstructed not as part of a subdivision shall be bonded as follows:

1. Performance Bond: The Builder shall post a bond in an amount specified in a form approved by the Town to cover the cost of improvements shown and approved by the Town Engineer.
2. Such bond shall include an amount to cover the escalation of construction and other costs for a two-year period. Every two years, the cost of the remaining work shall be reviewed and the bond amount adjusted to reflect the current and projected construction and other costs.
3. Prior to the release of the total amount of the bond, the applicant shall submit "as-built" plans and documents to the Commission covering streets and storm drainage constructed in accordance with the East Hampton Street Specifications, as amended. Such plans shall meeting A-2 level of accuracy survey standards and be signed and sealed by t a registered land surveyor or professional engineer, as appropriate. All plans and maps shall be prepared on fixed line Mylar. All easements, road right-of-ways or open space to be deed to the Town shall have a written description based on survey data. The bond shall be release only upon certification by the Commission that all the required improvements have been completed to its satisfaction.
4. A reduction in the amount of the performance bond may be requested by the builder upon completion of the first course of pavement and stabilization of the sideslopes and drainage structures. A new bond amount reflecting the cost of the remaining improvements may be considered by the Town in an amount approved by the Town Engineer.
5. No performance bond shall be released until such time that a maintenance bond in an amount and form has been accepted by the Commission and posted with the Town of East Hampton.
6. A cash performance bond shall be posted for all sediment and erosion control measures.
7. Maintenance Bonds: A maintenance bond of 10% of the original performance bond or total cost of improvements shall be furnished to the Town of East Hampton by the applicant. The bond shall be for a minimum period of one year following the release of a performance bond (or portion thereof) or Town acceptance of the improvements. The purpose of the maintenance bond is to protect the Town against defective workmanship, materials, or design of the improvements.
8. The applicant shall repair all defects in the construction or operation of required improvements occurring during the period covered by the maintenance bond. The applicant's failure to perform needed repairs within a reasonable time when so requested by the Town Council, may result in the Town's undertaking repairs and billing the applicant for the cost of the repairs.
9. No maintenance bond shall be approved by the Town unless said bond is in a form acceptable to the Town. The Town reserves the right to add conditions to the bond which, in the opinion of the Town, are deemed necessary to indemnify against defective workmanship, materials, or design of the improvements.
10. No maintenance bond shall be released by the Town until it has been in effect for a minimum of one year's duration. The Town shall release said bond only upon receipt of a favorable written report from the Public Works Director, the Town Engineer, or another qualified source retained by the Town to inspect all approved and required public improvements, indicating that the improvements are free of defective workmanship, materials, or design, or that any defects have been corrected to their satisfaction.

03.03 Inspections

03.03.01 General Inspections

All roadway improvements shall require periodic inspections by the Town of its agent as they are being constructed, maintained, or installed in order to reasonably monitor compliance of all procedures, design standards, and requirements of these regulations have been met during the required construction, maintenance, or installation of any improvement. It shall be the duty of the builder to notify the Director of Public Works at least forty-eight (48) hours prior to the commencement of required construction, maintenance, or installation activities of the time when such activities are to be commenced. The builder shall take every reasonable measure to facilitate such inspections. The failure of the builder to so notify the Town or its agency may result in the Town not approving the work performed, and could result in the delay of a bond release or other complications as stated herein. It is the builder's sole responsibility to ensure that all construction shall conform to the requirements of these standards and good construction practices. In respect to all matters pertaining to inspection hereunder, the builder shall designate a construction coordinator who shall be fully authorized to give and receive communications to or from the Town. Such designation shall be made in writing which shall state such individual's mailing address and telephone number and shall be delivered to the Town prior to commencement of any work. All notices, orders or other communications delivered to or served upon such individual shall be deemed to have been delivered or served upon the applicant. All notices or other communications received from him shall be deemed to have been received from the builder.

03.03.02 Inspections

The following is a general outline of key construction stages requiring inspections by the Town. The contractor shall contact the Town and shall not proceed until receiving approval from the Town to do so. At the discretion of the Town, the contractor may be notified of additional inspections that may be required. Unannounced spot inspections may also be made at any time. It is the contractor's sole responsibility to schedule and coordinate all required inspections with the Town Engineer. At a minimum, twenty-four hours advance notification shall be required for the following inspections:

1. Limits of Clearing

2. Sediment and Erosion Control Measures
   After cutting of trees and brush, and installation of sediment and erosion control measures, but prior to any stumping and/or grading.

3. Roadbed Prepare for Cut & Fill
   After stumping and stripping of topsoil and organic material from earth cut and fill areas, but prior to the placement of any fill material.

4. Road Subgrade
   After earth cuts and fills and the formation of the road subgrade. Proof rolling of the subgrade must be observed by the Town after installation of storm drainage improvements and prior to the placement of any gravel subbase materials. Refer to Section 13.3C for testing requirements and procedures.

5. Storm Drainage
   After the installation of storm drainage pipe, underdrains and catch basins, but prior to backfilling.

6. Gravel Subbase
   After the placement of gravel subbase but prior to placement of the process aggregate base.

7. Processed Aggregate Base
   After the placement of processed aggregate base but prior to paving of the bituminous concrete binder course.

8. The Town, or its duly authorized agent(s) shall have free access to the construction work at all times and shall be authorized to take material samples, cores and other tests as deemed necessary to determine compliance with, the East Hampton Street Standards.

9. Final inspection of roads may be by means of core samples to be taken by a Town-designated contractor upon notification to the Town by the builder that all paving has been completed.
   a. Core samples shall be of a standard size and type and be located no more than 500' apart over the entire length of road. In addition to examining the depth of bituminous concrete, base, and subbase tests shall be performed on the samples to determine the quality of materials.

   b. If results indicate an insufficient depth or quality of gravel base and/or bituminous concrete surface, additional samples may be required by the Town in the vicinity of each questionable sample area to determine the extent of the substandard condition and to insure that the Town shall not be prejudiced by an arbitrary test result. Should additional samples indicate unacceptable variances from the specifications set forth in the Town of East Hampton Highway Construction Standards, the developer shall be required to take appropriate corrective measures for the length of road which the Town determines to be unacceptable on the basis of the core samples. Variance in excess of 10 % from the Town of East Hampton Highway Construction Standards for depth of bituminous concrete, subbase or base material is unacceptable.

   c. Upon satisfactory completion of the Final Road Inspection, the builder may request in writing, a partial or full performance bond reduction. The Town, upon approval of the request, may require retaining an amount sufficient to cover public improvement installations not yet completed, based on a current revised cost estimate.

03.03.03 Testing

Material	Tests Required	AASHTO Method	Test Frequency
Subgrade	Sieve Analysis Moisture Density Relationship Field Moisture Density (Nuclear)***	T27, T11 T99, T180 T238	1 Per 2000 CY or Change of Material* 1 Per 2000 CY or Change of Material* 1 per 100 LF of road per 2' lift
Subbase	Sieve Analysis Moisture Density Relationship Field Moisture Density (Nuclear)***	T27, T11 T99, T180 T238	1 Per 2000 CY or Change of Material* 1 Per 2000 CY or Change of Material* 1 per 100 LF of road per 1' lift
	Plasticity** Loss on Abrasion	T90 T96	Refer to Connecticut DOR Form 814 1 Per 2000 CY or Change of Material*
Base	Sieve Analysis Moisture Density Relationship Field Moisture Density (Nuclear)***	T27, T11 T99, T180 T238	1 Per 2000 CY or Change of Material* 1 Per 2000 CY or Change of Material* 1 per 100 LF of road per 1' lift
	Plasticity** Loss on Abrasion Soundness of Aggregate**	T90 T96 T104	Refer to Connecticut DOR Form 814 1 Per 2000 CY or Change of Material* 1 Per 2000 CY or Change of Material*

* Change of Material refers to a change in source, texture, or appearance

** Optional, as required by Town Engineer

***Compaction requirements - 95% of Optimum Dry Density as determined by Modified Proctor

1. Test Report Requirements

Prior to being submitted for review by the Town all test reports shall be reviewed and approved by, and bear the seal of the Engineer of Record who shall be a Professional Engineer register in the State of Connecticut. Each test report shall include all test results, an accurate location map showing where each test and sample were taken, the time and date of each sample and test and the name of the technician performing the tests and/or taking the samples. In addition; the test results shall identify the material and state if the material being tested meets or does not meet all the requirements of the Town and Connecticut Form 814A as amended. All test results shall be submitted to the Town for review.

2. Test Procedures

a. Sieve Analysis

This test is required to determine the gradation of the material for comparison with the minimum specifications and requirements of the Town. Samples for this test will be take initially from the source of the material and again during placement at the frequency noted above Initial results for this test shall be submitted to the Town for approval prior to placement of any materials for which this test is required.

b. Moisture Density Relationship

This test is required to establish the optimum moisture content for compaction operations as well as the maximum dry density of the material. The maximum compaction required when the material is in place is expressed as a percentage of the maximum dry density achieved by this test. Samples for this test will be taken initially

from the source of the material and again during placement at the frequency noted above.

c. Field Moisture Density by Nuclear Methods
This test is required to determine the percent compaction of the material in place. The results of this test will be compared to the results of the Moisture Density Relationship test to determine if the percent compaction of the material in place meets the minimum specifications and requirements of the Town. This test will be performed as road construction progresses at the frequency noted above.

03.04 Departure from Approved Plans

In the event that it is difficult to meet the required standards, the builder shall obtain prior approval for any variation from the Town, and shall describe the variation of the plans.

The engineering and construction in the field shall be in accordance with the plans which have been approved by the Town, except that minor field changes may be authorized by the Director of Public Works. Any variations to the approved plans must be prepared and submitted by a registered professional engineer and found by the Town Engineer to be equal to or better than the approved designs.

The Town Engineer shall submit a written report to the Town indicating whether or not all approved and required improvements have been properly installed· in accordance with the subdivision approval and these Standards. The Town is under no obligation to approve any variations to the approved application's construction plans, and indeed may refuse such variations and require that all improvements failing to conform to the construction plans, these regulations, or the approval be constructed or installed to the original specifications as approved by the Town prior to the release of any surety, further issuance of any building or zoning permits, or issuance of any certificate-of-occupancy. The builder is thereby encouraged to properly notify the Town when inspections should or are required to be made, and to install al-l improvements in accordance with the approved plans and these regulations.

03.05. Final Inspection of Roadways

A final inspection of all roadway improvements and utilities will be made to determine whether work has been performed satisfactorily and is in substantial agreement with the approved final drawing and the Town standards. The general condition of the site shall also be considered. Upon a satisfactory final inspection report and filing of "as-built" drawings, action will be taken to release the performance bond covering such improvements and utilities.

04. REQUIREMENTS RELATIVE TO STREET STATUS

The purpose of this section is to assure that all proposed building lots front on or have access to an existing or proposed Town Road or State Highway which is of sufficient width, grade, condition, and design so as to provide an adequate, safe, functional and convenient system for present and prospective traffic and related needs, and to prevent the flooding and icing of streets through proper drainage, and to afford ample access to buildings for firefighting and other emergency vehicles.

04.01 New Street Construction

When a new street is proposed, the following information shall be supplied:

1. Plan profile drawings prepared on 24" x 36" plan profile sheets to minimum scales of l" = 40' horizontal and 1" = 40' vertical, showing:
   a. The location and dimensions of existing and proposed street rights-of-way, edges of pavement, curbs, sidewalks, piping, catch basins, manholes, endwalls, bridges, utilities and utility easements, drainage easements, open channels, monuments, tops and toes of all lopes, ail data required for accurate layout of roadway center lines and rights-of-way, including stationing, bearings, tangent lengths, arc lengths, radii and central angles of all curves; location of property lines' intersection the street right-of-way lines, and the names· of owners of such adjacent property; typical cross-sections of each street, showing proposed dimensions, materials of construction, and locations of drainage piping and other underground facilities, location and description of survey bench mark;
   b. Profiles of existing ground surface on the center line and at each right-of-way line;
   c. Profiles of the proposed center line, showing proposed grades, vertical curve data and stations at grade changes, intersections and at intervals of fifty (50) feet; and,
   d. Profiles of all existing and proposed drainage facilities, bridges and other proposed improvements showing locations, sizes, grades and invert elevations.

2. Detail drawings, drawn to appropriate scales on 24" x 36" sheets, showing in further detail all information required for construction of all proposed improvements that cannot readily be shown on the plan profile drawings.

3. A drainage report including a drainage analysis map, basis of design, detailed design computations and an analysis of the effect of the proposed road and drainage facility construction and land development associated therewith on existing downstream facilities and properties adjacent thereto. Said report shall include the measures proposed to be taken to prevent or alleviate any potentially harmful effects on existing downstream drainage facilities and adjacent property that may result from construction of the proposed road and drainage facilities and land development associated therewith. The drainage analysis map shall be drawn to an appropriate scale and, shall show the following:
   a. Boundaries of the drainage area tributary to each proposed drainage facility inlet;
   b. Boundaries of drainage area tributary to existing downstream drainage facility inlets where such facilities may be hydraulically overloaded due to proposed road and drainage facility construction and land development associated therewith;
   c. Topography of the drainage areas, based on the best existing topographic maps currently available, in sufficient detail to enable determination of the general slopes of existing ground and watercourses;
   d. Existing and proposed roads within the drainage area;

e. Existing flowing and intermittent water courses and wetlands;
f. Existing and proposed vegetation including wooded areas, open fields, lawns and the like;
g. Soil types, as designated by the National Cooperative Soils Survey and shown on the most currently available soils map as prepared by the U.S. Soil Conservation Service and the Middlesex County Soil and Water Conservation District;
h. Existing land use and development; and,
i. Existing and proposed drainage structures and facilities with suitable cross- reference to detailed design computations and construction drawings. Said detailed design computations shall show the design criteria, parameters and methods used in selecting the location, configuration, type and size of all proposed drainage facilities. Such computations shall include tabulated summaries of pertinent design computations. Wherever feasible, such tabulations shall follow the most current format utilized by the Connecticut Department of Transportation, the Federal Highway Administration, the U.S. Soil Conservation Service or such format as may be adopted and amended from time to time by the Commission.

4. A soil report showing the type, nature and extent of the various soils existing within the proposed road right-of-way and in the area where the roadway slopes extend beyond the proposed roadway right-of-way.

   All soil types shall be identified as designated by the National Cooperative Soils Survey and shown on the most currently available soils maps as prepared by the U.S. Soil Conservation Service. Such report shall also include a description of the means and methods proposed to be utilized to overcome any potential soils problems;

5. A detailed plan for erosion and sedimentation control covering all proposed road and drainage facility construction, which plan shall show measures to be taken to control erosion and sedimentation both during and after construction in accordance with the recommendations and standards of the Middlesex County Soil and Water Conservation District;

6. Detailed drawings of all bridges, box culverts, retaining walls and other special drainage structures;

7. Where any road or drainage facility intersects a State Highway, a permit shall be obtained from the Connecticut Department of Transportation.

04.02 Existing Street Reconstruction/Improvement

In the event a proposed subdivision or development fronts on or has the required access to an accepted Town road, whether improved or unimproved, and said road does not contain a roadway with in good condition paved bituminous concrete to a continuous width of at least 24' (twenty-four feet) and/or does not meet the drainage and other requirements of these regulations, then the roadway and/or drainage facilities and other related public improvements for said Town road shall be improved in accordance with the East Hampton Street Standards by the builder at builder(s) expense.

1. All Town roads requiring improvements shall be upgraded to the design standards, requirements and procedures of the East Hampton Street Standards at the expense of the builder.
2. When a new subdivision generates the need for improving an existing roadway and/or its related facilities, the builder shall address:
    a. Roadway construction
    b. Curbing
    c. Side slopes
    d. Storm drainage
    e. Sidewalks (if required)
    f. Erosion and sedimentation control plans
    g. Construction plans
    h. Bonding
    i. Easements
    j. Inspections
    k. any other measures deemed appropriate by the Town.

05. STREETS

05.01. General

05.01.01 References

The following documents are required as references in using this specification:

1. State of Connecticut, Department of Transportation: Standard Specifications for Roads, Bridges and Incidental Construction, Form 814A, 1995 and any subsequent supplements or issues.
2. "Geometric Design for Local Roads and Streets" by the American Association of State Highway Official (AASHO).
3. Town of East Hampton Subdivision Regulations
4. Town of East Hampton Plan of Development

05.01.02 General Requirements

Streets shall be designed and constructed in accordance with the standards and procedures specified in this Section. Higher standards may be required due to special project or site features.

05.01.03 Street

Any road, highway, avenue, lane, or other public right-of-way dedicated to the movement of motor vehicles and that is shown on a subdivision plan approved by the Commission; or that is a State or Town Road as found on the most current map entitled, Town Roads, East Hampton, Connecticut, Connecticut Department of Transportation, scale one inch (1") equals 1,000 feet; but private right-of-ways and discontinued, abandoned, or impassible streets are excluded.

1. Arterial Street: a major through street that conducts relatively high volumes of traffic between communities, and that is not intended to have a residential environment. Usually ADT range is over 3,000 trips and serves over 300 parcels.
2. Collector Street: a street that conducts traffic between major arterial streets, activity centers, and/or neighborhoods. It is a principal traffic route within residential areas and carries relatively high volumes. A collector street ties in a one or both ends with an arterial street. Usual ADT range is 800 - 3,000 trips and serves 80 to 300 parcels.
3. Subcollector Street: a street that provides access to abutting lots and conducts traffic from local and minor streets to a higher classification street or to an activity center. Usual ADT range is 200 - 1,000 trips and serves 26 to 80 parcels.
4. Local Street: a cul-de-sac, loop street, or short street that primarily provides access to abutting lots, but may also serve as a connector to other local and minor streets. Usual ADT range is 75 - 350 trips and services 11 to 25 parcels.
5. Minor Street: A short-dead-end or loop street that serves only as access to abutting lots which shall number no more than ten (10). Minor streets do not serve as through· streets to any other street. Usual ADT range is less than 100 trips and serves 1 to 10 parcels.
6. Loop Street: A street that intersects another street in two (2) places, or loops back on itself in a “dead-end-loop”.
7. Dead-end Street: A street with only one intersection with another public street.
8. Cul-de-sac Street: A dead-end street that terminates in a circular vehicle turning area.
9. Discontinued Street: A street that has been removed from the Town's system of accepted streets through formal action at a Town meeting.

10. Abandoned Street: A street that has been removed from the Town's system of accepted streets through cessation of public use over a period of time.
11. Impassable Street: A street in such a condition that it cannot be navigated by a standard passenger vehicle.
12. Impassable Road: A road determined to be a Town Road which is not passable to ordinary passenger vehicles at certain times of the year.
13. Unimproved Road: A road shown as “unimproved” on the above map or a road determined to be a Town Road which is passable at all times but lacks paving as specified herein.
14. Semi-Improved Road: A road shown as "improved" on the above map or a road determined to be a Town Road which is passable at all times, has a wearing surface somewhat in compliance with these Standards, but does not substantially conform to the requirements for new improved roads.
15. Unimproved Road: A road shown as “improved” on the above map or a road determined to be a “Town Road” which substantially complies to the requirements of these Standards for new improved roads.

05.02 Design Specifications

05.02.01. Street Width

The following minimum dimensions shall be satisfied for the various street classifications:

Classification	Right of Way (feet)	Pavement Width (feet)*
Arterial Street	70	30 minimum
Collector Street	60	30
Sub-Collector Street	50	26
Local Street	50	24
Minor Street	50	22

*measured from face of curb to face of curb or edge of pavement where curbs are not required.

05.02.02 Cul-de-sac Streets

Cul-de-sac streets, in general, shall not exceed 1,000 feet in length. Cul-de-sacs shall have a 50 foot radius at the right-of-way line for local residential roads and a 70 foot radius at the right-of- way line for commercial and industrial roads. The radius of the outer edge of the paved turn- around shall be 10' (ten feet) less than the radius of the right-of-way.

05.02.03 Intersections

The following criteria shall be adhered to in the establishment of intersections:

1. Number of streets: No more than two (2) streets shall intersect or meet at any one point to form a four-way intersection. The centerline of all streets entering the intersection shall pass through a single point.
2. Spacing of intersections: Intersections of subcollector, local, and minor roads shall be spaced a minimum of 200' (two hundred feet) apart, measured from the points of intersection of the centerlines. Intersections of arterial and collector streets, including commercial and industrial roads shall be spaced a minimum of 500' (five hundred feet) apart, measured from points of intersection of the centerlines. Streets intersecting on opposite sides of a street shall intersect exactly opposite one another or shall have the minimum spacing required above.

3. Angle of intersection: Wherever possible, roads shall intersect at a 90 degree angle, or as close thereto as is practical. In no event; however, shall an intersection be allowed where the angle of the intersection is less than 75 degrees within 100' (one hundred feet) of the intersection.
4. Radii of intersecting streets: The radii, at the right-of-way line, of intersection minor and/or local streets shall be a minimum of 20' (twenty feet). The radii, at the right-of- way line, of intersecting minor, local, or subcollector streets with arterial collector, and subcollector streets shall be a minimum of 25' (twenty-five feet). Other intersections shall have a minimum radius of 30' (thirty feet) at the right-of-way line. The Commission may require greater radii where the angle of intersection is less than 90 degrees.
5. The centerlines of intersecting streets shall be tangents within 100' (one hundred feet) of the point of intersection. Exceptions to this standard may be allowed if the intersecting streets are local and/or minor streets, in which case the requirement may be reduced to 75' (seventy-five feet); if a side street with the required tangent intersects with the outside of a broad curve in such a way to provide safe sight distances; or if strict adherence to this requirement would result in undesirable conditions in the opinion of the Town Engineer.
6. Where a new road is being proposed to intersect an existing street, the grading for the intersection shall be shown on a drawing with a scale of 1”=10' and a 0.1 contour interval shall be used to show the grading.

05.02.04 Block Dimensions

Intersecting streets shall be laid out at such intervals that block lengths between street lines generally do not exceed 1,200 feet nor be less than 600 feet. Minimum block width shall be related to the zoning district requirements for yards and generally shall provide for two tiers of lots. Special attention shall be given to blocks in industrial and business zones to provide for access to the lots and areas for parking and truck delivery.

05.02.05 Horizontal and Vertical Design Controls

Minimum Criteria:

STREET CLASSICATION

Design Element	Arterial	Collector	Sub Collector	Local	Minor
Design Speed, (1) mph	45	40	30	25	20
Maximum Gradient, % (2)	8	10	10	10	10
Minimum Gradient, %	1.0	1.0	1.0	1.0	1.0
Stopping Sight Dist. (3) ft.	400	300	200	150	125
K Value for Vertical Curve (4) Crest Sag	 90 100	 70 80	 36 40	 25 30	 20 24

Maximum Center Line Radius, (5) ft.	500	400	300	200	150
Min. Sight Distance at Intersections (6) ft.	600	500	360	300	240

(1) All values shown for arterial streets are for a 50 mph design speed.
(2) The maximum grade may be increased up to 2% in special cases, by the Commission.
(3) Criteria for determining the Minimum Stopping Sight Distance: height of eye, 3.75 ft., and height of object 0.5 ft.
(4) K value is a coefficient by which the algebraic difference in grade may be multiplied to determine the length in feet of the vertical curve which will provide minimum sight distance.
(5) Depending on the application of superelevation.
(6) Intersection sight distance is measured from a point of the intersecting road 20' (twenty feet) from the edge of the other road pavement and measured from a height of eye of 3.75 ft. on the intersecting road to a height of object of 4.5 ft. on either lane of the other road.

Sufficient clearing and regrading shall be accomplished to meet the sight distance visibility requirements and no structures, fences, walls, hedges, rock, shrubs, trees or other landscaping shall be permitted to obstruct such visibility.

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

Grades Approaching Intersections: Grades shall not exceed 3% (three percent) for a distance of not less than 75' (seventy-five feet) from the centerline of the intersection.

Tangent Distance Between Reverse Horizontal Curves: A minimum tangent distance of 100' (one hundred feet) shall be provided between reverse horizontal curves on all streets except collector and arterial streets which shall have a tangent of200' (two hundred feet).

05.02.06 Turnarounds

All dead end roads (cul-de-sacs), permanent and temporary, shall be provided with a circular right-of-way at the terminating end.

The layout of the turnaround shall be in accordance with the Detail.

An open unrestricted area shall be reserved at the end of all turnarounds for the storage of snow. Such area shall be located at the end of the turnaround between the curb and the right of way line for a distance of 25 feet on each side of the extended road center line. This area, which shall be delineated on the drawings, shall be free from all obstructions including, but not limited to, driveways, mailboxes, landscaping and fences. This area may be relocated at the discretion of the Director of Public Works.

The maximum gradient shall be 1.5% and the maximum gradient shall be 5%.

05.02.07 Side Slopes

Sloping Grading: Streets in cut or fill sections shall be provided with slopes not steeper than 2' (two feet) horizontal to 1' (one foot) vertical, unless other structural measures are provided to retain the slope. Steeper (6 to 1) slopes may be permitted in rock cuts. At intersections, banks shall be cut back to maintain the minimum sight distance for intersections as required by these Standards.

The shoulder areas shall be graded so as to slope toward the centerline of the road where the road is in cut, and away from the centerline of the road where the road is in fill. In either case, the cross slope of the shoulders shall be 1 inch per foot.

Areas outside of the shoulders shall be graded up or down to existing grades, at a slope not to exceed two feet horizontal to one foot vertical. In rock cuts, slopes of one foot horizontal to not more than six feet vertical shall be allowed, but care shall be taken to insure that all exposed rock is stable and free from faults, cracks or other infirmities which might lead to collapse or flaking.

The Town Engineer may require additional measures to be taken to maintain the stability of slopes, and to control groundwater seepage, under prevailing soil conditions encountered during construction. These measures may include, but not necessarily be limited to, a decrease in the amount of slope, stabilization blankets or grids, stone slope protection, plantings, wedge drains, underdrains, terracing, drainage swales or retaining structures. In cases where the exposed face of a cut slope consists of decomposed, flaking, highly fractured or unstable rock, slopes shall be flattened so as to protect public safety and minimize future maintenance.

Guide Rails: Protective barriers, consisting of guide railing or single posts, shall be installed wherever deemed necessary to minimize the risk of personal injury or property damage resulting from vehicle departure from the right-of-way. Guide rails shall be in accordance with these Standards.

Slope Rights: Where new streets abut private property, necessary slope rights must be obtained by the builder when in cut or fill, and these slope rights shall be shown on the final layout and on the land records. The developer shall address the effects of fills and cuts on adjacent private property within the slope right area.

Drainage: The applicant shall provide the Town with evidence that no drainage problems will arise on adjacent property due to cut or fill operations.

05.02.08 Street Cross-section

Streets shall be designed with a cross-section as shown on the Detail drawings of these Standards.

05.02.09 Driveways

Access drives shall be constructed such that the flow of road drainage is not impeded, water from the lot is not directed onto the road, safe sightline distances are achieved, and two or more vehicles may be parked off the road during all weather conditions. A plan of proposed driveway with existing and proposed grades, length, width, surfacing and drainage features shown shall be submitted with the application for the driveway permit. Additional information shall be submitted by the ·applicant as required by the Director of Public Works. The plan shall be approved by the Director of Public Works· prior to issuance of the driveway permit and acceptance of the bond. No driveway work shall be done by the applicant prior to issuance of the permit. The driveways shall conform to the following:

1. Grade: The apron portion, which is the section between the edge of pavement and the street line, shall have a maximum grade of 3% (three percent) slope, the next 10’ (ten feet)

shall not exceed 5% (five percent) slope, and the remainder shall not exceed 15% (fifteen percent) slope.

2. Surface: The drive apron shall be paved with a minimum of 2" (two inches), compacted depth, processed gravel or stone. Concrete pavements may be used upon approval of the Director of Public Works. The remainder of the drive shall be stabilized with a suitable surface treatment to prevent erosion and siltation.
3. Surface Water: Even distribution of drive run-off onto the lot is encouraged. If run-off must drain towards the road, the water shall be retained in the roadway gutter or side swale, or picked up by the storm drainage system. Drain pipes shall be installed under the drive as necessary. Where a culvert is required under the d1ive apron, the size pipe shall be large enough to accommodate storm water flow along the edge of the road. The minimum pipe size shall be 12" (twelve inches) in diameter. Pipe shall be reinforced concrete, or asphalt coated corrugated metal. Other pipe may only be used with the permission of the Town Engineer.
4. Sight Line: The grading and clearing at the driveway entrances shall ensure adequate sight distance for vehicles to exit the drive with minimum hazard and disruption of traffic.
5. Sidewalks: Where driveways will cross a sidewalk, the driveway apron shall be graded to meet the grade of the sidewalk, and the section of the sidewalk in the area of the driveway shall be replaced with an 8" (eight inch) thick reinforced concrete section.

05.02.10 Curbing

Curbs shall be constructed along the edge of street pavement in accordance with the dimensions and *details shown in the most current Detail Drawings.*

05.02.11 Utilities

All utilities within the right-of-way of a road shall be located underground.

05.02.12 Protective Barriers

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

1. Embankments - Such protective barriers shall be required on any roadway section constructed on an embankment which places the roadway surface five (5) feet or more above the existing ground surface at the toe of the embankment slope. This requirement may be waived by the Town Engineer where the embankment slopes, are not steeper than four (4) feet horizontal to one (1) foot vertical.
2. Culvert Endwalls - Such protective barriers may be required at culvert endwalls, depending on the height of the endwall and its proximity to the edge of the road.
3. Roadside Obstacles - Such protective barriers may be required to shield natural or man-made fixed object hazards including, but not necessarily limited to, trees, rock outcrops, ditches, retaining walls, bridge abutments and permanent bodies of water.

Where marginal situations occur with respect to the placement or omission of a guide rail, or where it is determined that a vehicle striking a guide rail could potentially be more severe than an accident resulting from hitting an unshielded roadside obstacle, the Public Works Department may approve the use of an object marker.

05.02.13 Fencing

A securely anchored PVC coated chain link fence shall be installed wherever necessary to minimize the risk of personal injury.

In general, fencing may be required at the following locations as directed by the Town Engineer:

1. Rock Cuts - along the top of slope where a rock cut exceeds five (5) feet in height.
2. Culvert Endwalls - at the top of any endwall that exceeds five (5) feet in height.

05.02.14 Road Lighting

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

Lighting standards and luminaries shall conform to the most current utility company standards and shall be of a Colonial type design with fiberglass poles, unless otherwise approved by the Commission, They shall be so located as to safeguard against discomfort glare and disability glare and avoid adverse effects from illumination upon the use, enjoyment and value of adjacent property.

05.02.15 Monuments

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

05.02.16 Road Names and Signs

Road name signs shall be installed at all intersections. Such signs shall be erected in such places as to assure clear legibility by vehicle operators. Size, color, material and physical details shall be as required by the Director of Public Works.

05.02.17 Traffic Control Devices

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

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

The location, type, color, width and patterns of pavement markers and object markers, shall conform to the most current edition- of the Manual of Uniform Traffic Control Devices. In general, pavement markings shall include stop lines. Longitudinal pavement markings (center lines), to delineate the separation of traffic flows in opposing directions, shall only be required on Arterial and Residential Collector Streets.

The design and placement of Object Markers be ad determined by the Public Works Director and shall conform to the most current edition of the Manual of Uniform Traffic Control Devices.

05.02.18 Sidewalks

The Town may require the installation of sidewalks along roads and in pedestrian easements. General requirements for sidewalks are as follows:

1. Sidewalks shall be a minimum of 5' (five feet) in width and shall be located within the street lines with one edge 12 (twelve) to 18 (eighteen) inches away from the property· line. The location may be varied to preserve designed trees, stone walls, or other desirable features; or to match to existing walks.
2. Sidewalks shall be installed when the where directed by the Town. The location shall be shown on the approved plans.
3. Sidewalks shall be constructed of concrete.
4. Sidewalks shall include ramps for the handicapped. Sidewalk ramps shall be constructed at all pedestrian crosswalks in all new sidewalk installations and at all pedestrian crosswalk locations where an existing curb or walk is to be disturbed by construction.

05.02.19 Final Grading and Stabilization

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

Construction methods shall conform to the requirements of the State Standard Specifications far “Topsoil'”; “Turf Establishment”, and “Liming”. Materials shall conform to the State Standard Specification Sections M.13.01-1 for Topsoil, M,13.03 for Fertilizer, M.13.04 for Seed, M.13.05-2 for Mulch, and M.13.02 for Lime.

05.02.20 Landscaping

Street trees, when required by the Commission, shall be planted on private property outside of the limits of the road right-of-way, sight line easements, storm drainage easements or other easements. Specific criteria regarding the proximity of street trees to overhead and underground utility lines shall be as follows:

1. Tall trees, including all species that may reach heights of 50 feet or more at maturity shall be located a minimum horizontal distance of 50 feet from any overhead utility line.
2. Medium trees, including all species that may reach heights ranging from 30 to 50 feet at maturity shall be located a minimum horizontal distance of 30 feet from any overhead utility line.
3. Small trees, including all species that reach maximum heights of 30 feet or less at maturity, may be located under or near overhead utility lines.
4. No street tree shall be located closer than 20 feet from any underground utility line.

When selecting street trees, a mixture of native species shall be provided so as to protect the community forest from disease, insect and environmental blight. In this regard, the goal of the Town is to have a mixture of street trees. Unless otherwise approved by the Tree Warden, street trees shall have a minimum caliper of 2 ½" and shall be species as approved by the Commission.

Construction methods shall conform to the requirements of the State Standard Specifications for “Furnishing, Planting; and Mulching Trees, Shrubs, Vines and Ground Cover Plants”. Materials shall conform to the State Standard Specification Section M.13.07 for Plant Materials. Where existing healthy

native trees meeting the requirements set forth herein can be protected and saved, they may be used in lieu of new plantings provided that they are approved by the Tree Warden, and are properly pruned by a qualified arborist to remove all branches which are dead or which would obstruct required sight lines.

05.02.21 Maintenance of Stabilized and Landscaped Areas

All areas stabilized by vegetation, and all landscaped areas, shall be properly maintained by the person or firm constructing the road, drainage facilities and associated improvements until permanent growth of such plantings has been firmly and effectively established for a period of one year after planting. Maintenance shall include watering, mowing, pruning, fertilizing, cultivating and all else required to maintain the planted areas in a vigorous and healthy condition. All grassed areas showing root growth failure, deterioration, bare or thin spots and eroded areas shall be replanted and all dead, dying or diseased shrubs, plants and trees shall be replaced so as to meet the requirements specified herein.

05.03 Construction Methods and Materials

05.03.01 Construction Survey Procedure

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

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

A permanent Bench Mark shall be established at the beginning and end of each road and at intervals not exceeding 500 feet along the length of the road. These Bench Marks shall be referenced to the same datum shown and identified on the construction drawings for the road.

1. Protection of Stakes and Bench Marks

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

05.03.02 Clearing and Grubbing

Prior to any site work, the limit of clearing shall be staked by the project surveyor and reviewed and approved by the Town.

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

All roots and stumps within the clearing limits shall be grubbed and excavated. No stumps shall be buried on site within the road right-of-way and associated easement areas.

Topsoil shall be stripped from all surfaces of the roadway section which will be disturbed by cut or fill operations. Topsoil so stripped shall be stockpiled on the site of the work and shall be reserved for roadway landscaping. Excess topsoil may only be removed from the site in a lawful manner after all disturbed areas associated with roadway construction have been stabilized.

05.03.03 Roadway Excavation, Formation of Embankment and Disposal of Surplus Material

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

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

Surplus suitable material may be used to flatten fill slopes within the limits of the right-of-way and any slope easements if approved by the Town. Surplus suitable materials that cannot be so utilized shall be disposed of in a lawful manner.

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

05.03.04 Preparation of Subgrade

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

05.03.05 Rolled Granular Base

After the subgrade has been compacted, proof rolled, tested and approved by the Town Engineer, a rolled granular base shall be applied for the full required width of pavement plus one foot beyond each curb line: The rolled granular base shall not be less than eight (8) inches thick after compaction and shall have the cross-slope shown on the Details.

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

05.03.06 Processed Aggregate Base

After the rolled granular base has been placed compacted, and tested as per Section 133C, processed aggregate base shall be applied for the full required width of pavement plus one foot beyond each curb line. The process aggregate base shall not be less than six (6) inches thick after compaction and shall have the cross slope shown on the Standard Detail Drawings.

Construction methods shall conform to the requirements of the State Standard Specifications for "Processed Aggregate Base", and materials shall conform to t e requirements of the State Standard Specification Section M.05.01.

05.03.07 Bituminous Concrete Pavement

After the· processed aggregate base has been brought to the required grade and cross slope, rolled, compacted, and tested as per Section 13.3C, the roadway shall be surfaced with bituminous concrete Class I binder course for the full required width of pavement plus one foot beyond each curb line to a compacted depth of not less than 2 inches. After placement of bituminous concrete curbing on the binder course, a bituminous concrete Class II top or surface course not less than 1 inches thick after compaction shall be placed. The total compacted· depth of Class I binder course and Class II top or surface course shall not be less than 3 inches. Prior to the pavement of the Class II surface course, the surface of the binder course shall be broomed clean and a tack coat applied. No paving shall be permitted between October 31 and April 1 unless the Town Engineer specifically permits an exception due to unusually mild weather conditions. No paving shall be permitted on any day where the base temperature is less than 35 degrees Fahrenheit or when weather conditions of fog or rain prevail or when the pavement surface shows any signs of moisture. Pavement shall be placed so that each course shall have the cross-slope shown on the Standard Detail Drawings.

Completion of the subgrade and all drainage improvements shall occur prior to the issuance of any building permits for lots accessing on said subdivision street. Completion of the Class I binder course shall occur prior to the issuance of Certificates of Occupancy for any lots accessing in said subdivision street. It is recommended that the Class II bituminous surface cannot be installed until a substantial portion of the construction associated with lots accessing on said subdivision street has been completed.

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

05.03.08 Bituminous Concrete Curbing

Machine laid bituminous concrete curbing shall be placed on both sides of the pavement along the entire length of new and improved roads at the offset from centerline of road shown on the Standard Detail Drawings. Bituminous concrete curbing shall not be required on roads approved with open drainage systems, or on existing Town roads where it is determined by the Town Engineer that the installation of enclosed storm drainage systems is not warranted. Irregular or damaged curbing shall not be accepted, and the Town Engineer shall require that improperly placed curbing be removed and replaced.

All materials and construction methods shall conform to the requirements of the State Standard Specifications for “Bituminous Concrete Lip Curbing”. Curbing shall be placed on the road binder course at a height which will maintain a 6 inch curb reveal after placement of the road surface course. Prior to the placement of any curbing, the surface of the pavement shall be cleaned of all loose and foreign material. The surface of the pavement, which shall be dry at the time the curbing is placed, shall be coated with an approved tack coat. All curbing shall conform to the shape shown in the Standard Detail Drawings.

05.03.09 Guide Rail

Guide railing shall be installed in locations as required in Section 05.02.11. The type of guide rail to be utilized shall be as follows:

1. Metal beam rail or 3 cable guide rail with steel posts, in accordance with the State Standard Specifications, shall be required as directed by the Commission.
2. Steel backed timber guide rail, or equal may be required in areas of aesthetic or historical significance, or along designated scenic roads, as determined by the Commission.
3. On low volume residential access streets or residential lanes, an alternative guide rail design may be approved by the Commission.

Regardless of the type of guide rail to be used, all leading and trailing ends shall be secured with concrete end anchors. Blunt or flared ends shall not be permitted.

05.03.10 Monuments

Monuments shall be of reinforced concrete, not less than four (4) inches square at the top and not less than three (3) feet long, shall have a cross mark indented in the top to indicate the exact point of reference, and shall be set so as to project not more than two (2) inches above finished grade.

In exposed ledge areas, a brass plug 1/2 inch in diameter and three (3) inches long shall be installed in the ledge and cemented in place with Portland cement mortar.

05.03.11 Traffic Control Devices

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

Street signs shall be extruded aluminum with materials conforming to the requirements of the State Standard Specification Section M.18.09, M.18.10, M.18.11 and M.18.12. Construction methods shall conform to the requirements of the State Standard Specification for “Sign Face - Extruded Aluminum”. All other signs shall be sheet aluminum with materials conforming to the requirements of the State Standard Specification Sections M.18.09 and M.18.13.

Construction methods shall conform to the requirements of the State Standard Specifications for “Painted Pavement Markings”, and materials shall conform to the requirements of the State Standard Specification Section M.07.20 for 15-minute dry paint.

05.03.12 Sidewalks

Where required, shall be constructed of 3000 PSI Portland Cement Concrete, with an air entraining admixture. Sidewalks shall be a minimum of four (4) feet in width and five (5) inches thick, and shall be constructed on a granular fill base having a minimum compacted thickness of eight (8) inches. The concrete thickness shall be increased to eight (8) inches, and welded wire fabric reinforcement provided at all driveway crossings.

All materials and construction methods shall conform to the requirements of the State Standard. Specifications for “Concrete Sidewalks”. “Granular Fill” shall conform to the requirements of the State Standard Specifications Sections M.02.01 and M.02.06 (Grading A). Portland Cement Concrete shall conform to the requirements of the State Standard Specifications Section M.03.01 (Class A). Welded wire fabric reinforcement shall be WWF 6x6 - W2.9xW2.9.

06. STORM DRAINAGE

06.01 General

06.01.01 References

The following documents are required, or suggested, as references in using this document.

1. Town of East Hampton Subdivision Regulations.
2. Town of East Hampton Plan of Development
3. Drainage Manual, Connecticut Department of Transportation
4. Erosion and Sediment Control Handbook, U.S. Department of Agriculture, Soil Conservation Service, Storrs, CT.
5. Design methods other than those found in the above documents may be utilized if such methods are appropriate for the drainage system in question and approved by the Town Engineer.

06.01.02 General Requirements

Storm drainage systems for surface and subsurface water shall be as generally required by the Town of East Hampton Subdivision Regulations; design and construction shall be in accordance with standards and procedures hereinafter specified. Higher standards may be required due to special project or site features.

In the design of all storm drainage systems for the, construction of streets, commercial and industrial sites, and other facilities, it is imperative that the signer apply the utmost care to protect the life and property of area residents, the travelling public, the Town and the State. All facilities shall be planned and located so as to minimize danger to such life and property.

Systems shall be designed and constructed such that erosion and sedimentation is controlled both during and after construction.

Proposed drainage facilities shall be designed to accommodate the runoff from the entire upstream drainage area with full consideration given to the effects of potential land development that could reasonably occur under the most current zoning regulations.

06.01.03 Alternative Open Drainage System

In certain circumstances the Commission may permit an open drainage system as shown on Plate 6 where such system would be more consistent with the surrounding neighborhood and where the Commission, upon recommendation from the Town Engineer, determines that such a system would be more appropriate to the particular site. This determination shall be based upon at least the following factors and the applicant shall submit a report that addresses each of these items as part of the Subdivision application:

1. The depth to ground water;
2. The location of the site in the watershed and the amount of overland flow anticipated;
3. The design of the storm drainage system the surrounding street system;
4. The natural features of the site (such as slopes and depth to ledge) that would permit or restrict the construction of open swales;
5. The proposed density of the subdivision including proposed lot size;

6. The impacts of ground water recharge that may result from the proposed drainage system; the Commission and/or the Town Engineer may require the applicant to provide data, reports, studies, test borings, and other information to make this determination;
7. Roadway intersections, where a closed drainage system may be more acceptable;
8. Location of open space;
9. The type of roadway Swale linings proposed;
10. The potential for erosion and sedimentation on the site as well as both temporary and permanent erosion control measures.

06.01.04 Analysis

Computations, conforming to the requirements outlined in this section, shall be submitted for sizing all proposed storm drainage facilities as well as the analysis of any existing off-site facilities required by the Town. In addition, computations shall be submitted for both pre- development and post-development conditions for the 2, 10, 25, 50 and 100-year frequency 24- hour duration Type III storm events at each location from which storm water discharges will exit the property under development.

06.01.05 Potential Overload

Where the proposed land development, including roadway and drainage facility construction, is likely to cause an increase in the rate of stormwater runoff such as to hydraulically overload or c use damage to existing downstream drainage structures, facilities, or watercourses, and/or cause flooding which would likely result in physical damage of land and improvements adjacent thereto,· adequate stormwater runoff control measures shall be designed and constructed to prevent or alleviate such harmful effects.

06.01.06 Stormwater Runoff Control

Where stormwater runoff control measures are required by the Town, they may include, but not be necessarily limited to, retention and/or detention with controlled release of increased flows, increasing the hydraulic capacity of downstream drainage facilities, erosion protection measures, stormwater treatment or any combination of the above.

06.01.07 Stormwater Detention

When stormwater detention facilities are required, they shall be sized such that the peak discharge after development shall not exceed the peak discharge prior to development for each of the storm frequencies identified above. Design and construction of stormwater detention facilities shall conform to the requirements for “Detention Basin” as outlined in the “Connecticut Guidelines for Soil Erosion and Sediment Control”. Such facilities shall be located on land to be conveyed to the Town and shall be readily accessible for maintenance purposes via an improved access drive acceptable to the Director of Public Works.

06.01.08 Discharge

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

06.01.09 Drainage Easements and Rights to Discharge

Where the di charge of stormwater shall be onto or through private property, perpetual drainage easements and discharge rights, in favor of the owner of the road, shall be secured by the applicant. Where drainage easements are required, they shall have a minimum width of thirty (30) feet. For open

channels, flared end sections/headwalls, and other outlet protection measures, they shall extend a minimum of fifteen (15) feet beyond the outside edge of such measures.

06.01.10 Diversion

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

06.01.11 Existing Watercourses

All work on established watercourses shall be accomplished in such a way as to minimize the effects which would be adverse to the regimen of such watercourse. Adequate provision shall be made to prevent or minimize scour or erosion in the adjacent upstream and downstream reaches of the watercourse.

06.01.12 Capacity Within Roadway

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

06.01.13 Capacity Under Roadways

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

1. Minor Structures

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

2. Small Structures

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

3. Large Structures

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

06.02. Design

06.02.01. General Requirements

Upstream drainage area: Storm drainage systems shall provide for the proper drainage of the upstream drainage area developed in accordance with the Town of East Hampton "Plan of Development" and subsequent amendments.

Storm drain flows: Except where indicated by special design studies, sto1m drain pipes and culverts will be designed to flow full for the “design storm”. Total allowable headwater depths on pipes and culverts should normally be restricted to less than 1.2 times the clear height of the pipe or culvert in order to preserve this condition. Pipes or culve1ts designed to flow under greater heads will require special studies and may require design treatment.

Placement of drainage structures: The first set of catch basins in a storm drain system shall be located within 350' (three hundred-fifty feet) of the street high point. Spacing between sets of catch basins shall be located as necessary to collect runoff and at a maximum distance of 300' (three hundred feet). When outfall pipes exceed 400' (four hundred feet), manholes shall be placed to give a maximum length of pipe between structures of 400' (four hundred feet). Drainage structures shall be placed at each grade change along a storm drain and at each junction point of two or more storm drains. Inlet structures shall also be located and connected to the system to pick up low spots in shoulder areas of the right-of-way and in adjacent lots.

Placement of pipes: Pipes shall generally be laid on straight alignments, both horizontally and vertically, with structures providing access at all deflection points, or at a junction of two or more lines. In special cases, pipes may be placed on curved alignments but such curvature shall not exceed the manufacturer's recommendations, and approval must be obtained from the Town Engineer.

Minimum slope: All storm sewers shall be designed to provide a self-cleansing velocity of at least 2.5 feet per second when flowing full. Generally, storm sewers shall have a minimum pitch of 0.5% (one half percent). Lesser pitch may be granted by the Town Engineer, provided the self-cleansing velocity is maintained.

Minimum pipe size and type: Pipe for the main line of storm sew r systems shall be a minimum of 15" (fifteen inches), inside diameter. Inlet connections may be a minimum of 12" (twelve inches) inside diameter. Pipe arches of equal cross sectional area to the above noted circular pipes may be substituted. All pipe shall be perforated and laid in stone unless directed otherwise by the Town.

Minimum cover: The minimum cover over all storm drainage within the curb lines shall he 3' (three feet). Where conflicts with other subsurface facilities require, and with the approval of the Town, pipe may have as little as 18" (eighteen inches) of cover, but in such cases, extra strength Class 5 RCP shall be used.

Outlet structures: All storm drain systems shall be terminated with a flared end section, endwall, or other approved structure. Special energy dissipaters may be required to prevent erosion.

Intersection drainage: Inlets shall be installed to properly drain all intersections of new streets, and of new streets with existing streets. Improvements to surface drainage at existing intersections may be required if the traffic of a new subdivision significantly increases the traffic volume at the intersection.

Discharge from drainage system: The overall drainage system shall be designed such that the runoff rate outside of the subdivision, during or after development, does not exceed the rate which existed before development. This may be accomplished by detention basins, infiltration basins, or other acceptable

means. Final discharge points shall be approved by the Town. The final discharge shall be into suitable streams or rivers, or into Town drains with adequate capacity to carry the additional water.

Channels: The use of channels to-carry storm water to natural watercourses will be considered case by case, and provided only with the approval of the Town and the Town Engineer. Channels shall be properly sized for design flows and stabilized according to flow velocity.

Underdrains: The installation of underdrains will be required beneath the edge of pavement of a proposed street wherever the high groundwater level is known to be less than 3' (three feet) below the proposed finished grade of the street. The Town may require underdrains to be installed where localized seeps, springs or high groundwater less than 3' (three feet) below the proposed grade of the street are observed within the proposed street lines during construction. The diameter of underdrains shall not be less than 6" (six inches). Outlets for underdrains shall be connected directly to drainage structures or shall be terminated with an approved outlet. Underdrains shall be placed in 2' (two foot) wide trenches, filled with 3/4" stone and lined with a filter fabric.

Special structures: Bridges, box culverts, deep manholes, non-standard endwalls, and other special structures shall be designed in- accordance with good engineering practices and shall be subject to the approval of the Town Engineer.

Surface and subsurface combined drains: Combined surface storm water and subsurface water drains may be installed only with the permission of the Town Engineer. Graded aggregate shall be used around the pipe and with the pipe and aggregate enclosed in an approved filter fabric. Combined drains shall not be used when crossing the roadway.

Curtain Drains: The installation of curtain drains is a primary consideration is to prevent seeping of water onto the pavement, with resultant freezing in the winter due to slow flow in the road gutter. Designs shall be based on actual site conditions.

06.02.02 Computation of Stormwater Flows

Stormwater flows may be computed by use of the Rational Method or by use of the methods described in the most current edition of the U.S. Soil Conservation Service Technical Release No. 20, or Technical Release No. 55. In general, the use of the Rational Method is discouraged for use in computing flows from drainage areas in excess of 200 acres, or for computing flows from 100-year frequency storms.

Regardless of the method that is utilized, all computations shall include a Drainage Analysis Map which clearly del4leates the drainage area and flow path used for determining the time of concentration to each proposed drainage facility and each existing downstream drainage structure that may become hydraulically overloaded or damaged. The drainage analysis map shall show existing topography of the drainage areas (based on the best available existing mapping), existing and proposed roads, watercourses, wetlands, flood hazard zones, existing and proposed vegetation (woods, fields, lawns, etc.), existing and proposed drainage facilities and structures, and the proposed area of development. When U.S. Soil Conservation Service methods are used, the drainage analysis map shall also show soil types as shown on the most currently available soils maps as prepared by the U.S. Soil Conservation Service.

06.02.03 Rational Method Computations

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

1. Runoff Coefficients

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

	Runoff Coefficient "C" (1)
Type of Surface	(10-year Storm)
Pavement, roofs, and impervious surfaces	0.90
Embankment Slopes (cuts and fills)	0.40
Lawns:	
Flat Slope (2% or less)	0.17
Average Slope (2% to 7%)	0.22
Steep Slope (7% or greater)	0.35
Cultivated Fields	0.45
Pasture	0.30
Meadows (moist, level grassland)	0.10
Forested Areas	0.20

For 25-year storm increase runoff coefficients by 20%, for 50-year storm, increase by 35%, and for 100-year storm increase by 55% (except for pavement, roofs and impervious surfaces).

2. Time of Concentration

   Time of concentration (t) shall be determined by the Seeyle Nomograph for overland flows, and the Kipich Nomograph for concentrated flows.

3. Rainfall Intensities

   Rainfall intensities (i) shall be determined using the frequency/intensity/duration curves for Hartford, Connecticut. The minimum allowable time of concentration shall be five minutes.

06.02.04 Open Channels

In general, open channels shall be avoided, except in conjunction with an approved roadway design incorporating are open drainage systems, and as may be required at storm drainage system outlets to convey storm water discharges to an acceptable outlet. Where open channel flow is required, the channel shall be properly designed to safely carry the design flow. Open channels shall be in the form of a trapezoid having a bottom width of at least two feet and side slopes of not less than two feet horizontal to one foot vertical. The channel shall be seeded and protected with erosion control blankets, sodded, riprapped or otherwise stabilized as the flow quantities and velocities require.

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

Hydraulic design of open channels and- design of bed and bank stabilization shall be done in accordance with the applicable criteria of the most current edition of the Federal Highway Administration publication entitled “Design of Roadside Drainage Channels”.

06.02.05 Connection of Private Drains

Unless otherwise approved by the Director of Public Works, private storm drains, yard drains, area drains, footing drains, curtain drains, underdrains, basement drains or other drains of any kind, shall not be permitted to discharge upgradient or into a town road or road proposed to be dedicated to the town at a future date. Any such private drains shall be connected to storm drainage structures. When such a connection is not possible or practical, they may be connected directly to an existing or proposed storm drain if approved by the Director of Public Works. Where direct connections are made, they shall utilize appropriate fittings, and be preceded by an access extended to grade. Such access shall be located within a town road right-of-way or easement, and shall have a minimum diameter of twelve inches, or as otherwise deemed necessary to provide direct observation and to facilitate sampling. All access structures shall be provided with a secure top to preclude accidental entry. The following notation shall be placed on all design drawings where the connection of private drains are proposed; "Private drains are the sole responsibility of the owner and the Town shall assume no responsibility for any maintenance, replacement and/or repair. The owner of the drain shall hold the Town harmless for any damage or injuries resulting from such connection.

06.02.06 Detention Basins

Detention basins shall conform to the following:

1. Requirements: Detention basins, surface or subsurface, shall be constructed for the purpose of limiting peak discharge from the storm system of the developed area where such discharge would adversely affect the peak flows on receiving streams and storm system.
2. Storm Return Frequency: Detention basins shall be designed for a storm return frequency of not less than 2, 10, 25, and 100 years, or as otherwise directed by the Town.
3. Procedure: The procedure for computing the outflow from detention areas shall consist of the development of an inflow hydrograph and the routing of the inflow through the detention basin to develop an outflow hydrograph.
4. Inflow Hydrograph: The inflow hydrograph may be developed by the modified Rational Method or by the Soil Conservation Service Method. Routing through the detention basin shall be by application of standard storage equation. Other acceptable methods may be used as approved by the Town Engineer.
5. Structure Design: Types and requirements for the retention structure design shall be as appropriate for the site and be in general accordance with the SCS Handbook #387 and the Conn. DOT "Drainage Manual". All designs shall be approved by the Town Engineer.
6. Maintenance Roads: Maintenance roads and easements shall be provided for all retention facilities. The roads shall be a minimum of 12' (twelve feet) wide with a surface treated, 12" (twelve inches) rolled gravel base. Grades shall not exceed 10%.
7. Fencing: Fencing shall be as prescribed by the Town and approved by the Superintendent of Public Works.

6.02.07 Sediment and Erosion Control

Permanent and/or temporary pollution control measures shall be constructed to prevent sedimentation of streams, watercourses, lakes, ponds, and storm systems (refer to Section 08).

06.03 Materials

06.03.01 Reinforced Concrete Pipe

Reinforced concrete pipe, of the same size indicated on the approved plans, shall be Class IV, conforming to the requirements of Article M.08.01, paragraph 6. Class V pipe shall be used in deep fills.

Joints in concrete pipe shall be sealed with either cold-applied bituminous sealer, preformed plaster gaskets, or flexible, water-tight, rubber-type gaskets confoTIP-4-ig to the requirements of Article M.08.01. If the temperature is above 35 degrees F, joints may be Portland cement conforming to the requirements of Article M.11.04.

Reinforced concrete culvert ends shall conform to the requirements of Article M.08.01, paragraph 22.

06.03.02 Corrugated Polyethylene Pipe

Corrugated polyethylene pipe, either corrugated interior surface (Type C) or smooth interior surface (Type S) without perforations or with perforations (Type CP or SP), shall conform to AASHTO M252 or M294 and Article M.08.01-225.

06.03.03 Underdrains

Perforated ACCMP, RCP and plastic pipe shall comply with appropriate paragraphs of Article M.08.01.

Aggregate for filling the trench shall meet the requirements of Article M.08.03.

06.03.04 Catch Basins

Catch basins shall be of the type specified and shall be constructed in locations shown on the approved plans.

Catch basins shall have a 2' (two foot) deep sump.

Catch basin tops and sumps shall be precast units conforming to Article M.08.02, paragraph 4. Catch basins may be constructed of concrete building brick or precast masonry units conforming to Article M.08.02, paragraphs 2 and 3, respectively.

Metal for grates and frames as shown in the standard details shall conform to Article M.08.02, paragraph 5.

Catch basin tops shall be adjusted to the required finished road grade.

06.03.05 Riprap

Riprap materials and construction methods shall conform to the applicable requirements of the State Standard Specifications for "Culvert Ends".

06.03.06 Filter Fabric

Filter fabric shall conform to Article M.08.01-26, as applicable. The type of fabric shall be appropriate for the proposed use.

06.03.07 Miscellaneous Open Channel Stabilization

General. Seeding, sodding, burlap erosion protection and other methods of stabilizing beds and banks of open channel shall conform to the applicable materials and construction methods specified in the State Standard Specifications for the particular method approved for use.

Materials and Methods Where No State Standard. Where the State Standard Specifications do not cover the stabilization method approved for use, materials and construction methods shall conform to the

Standards and Specifications contained in the most current edition of the "Erosion and Sediment Control Handbook for Connecticut", as published by the U.S. Soil Conservation Service.

06.04. Construction Specifications

06.04.01 General Requirements

Construction survey stakes will be established at least at 50' (fifty foot) intervals and at all structures. The construction stake shall be marked with the station, offset to the pipeline or structures, and cut to invert.

The backfilled trenches and any adjacent disturbed slopes shall be stabilized to prevent erosion by implementing the appropriate measures described in Section 12 and in the manual "Erosion and Sediment Control Handbook, 1988", published by the U.S. Department of Agriculture, Soil Conservation Service, Storrs, Connecticut.

When excavation takes place in dry weather, reasonable precautions shall be taken by the contractor to insure that the inhabitants in the vicinity of the excavation are not unnecessarily inconvenienced by, or caused discomfort by dust raised from construction operations. Dust should be stabilized by water spray or chemical means, such as calcium chloride.

06.04.02 Trench and Other Excavations

Trench and other excavations shall be of sufficient width and depth at all points to allow pipe to be laid, joints to be formed, and other construction to be placed or built in the most thorough and workmanlike manner; and to allow for trench-side protection, pumping and draining, and for removing and replacing any unsuitable material.

Storm sewer trenches shall be of a depth necessary to cover pipe as shown on the approved plans.

Excavations in earth digging shall be at least 12 (twelve inches) wider than the outside dimensions of the structures they are to contain. The bottom of the pipe trench shall be excavated to lines and shapes satisfactory to the Town Engineer, and to conform to the outside of the pipe insofar as the material will permit, so that the pipe shall have a continuous and even bearing. Whenever the bottom trench or other excavation is rock or boulders, it shall be excavated 6” (six inches) below grade and refilled to grade with sand well-tamped in place. The sides of trench or other excavation in rock shall be excavated to such width at no rock shall be closer than 6” (six inches) to the pipe barrel or other structures. Excavated material may be used for backfill, if suitable. Unsuitable material shall be replaced with bank run gravel conforming to Article M.02.01. When soft or unsuitable material is encountered, the depth of excavation shall be increased to 1' (one foot) below the pipe bottom. The excavated material shall be replaced it (compacted gravel fill conforming to Article M.02.02.

06.04.03 Rock Excavation

In rock excavation, it is especially required that all blasting shall be executed by experienced powdermen in strict accordance with lawful regulations and shall be conducted with all possible case so as to avoid injury to persons and property. It is further required that the rock shall be covered; that sufficient warning shall be given to all persons in the vicinity of the work before blasting; that care shall be taken to avoid injury to electric and telephone lines, drains and other structures; and that caps or other exploders shall not be kept in the same place in which dynamite or other explosives are stored. The contractor shall be held responsible for any claims for damage caused by blasting.

The contractor, in addition to observing all laws and ordinances relating to the storage and handling of explosives, shall also comply with any further regulations which the Town Engineer may deem necessary in this respect.

06.04.04 Water Removal

The contractor shall remove any water which may accumulate or be found in the trench and other excavations made for drainage construction by pumping, draining, bailing, or otherwise; and shall form all sumps and build drains or other works necessary to maintain them. New masonry, shall be protected from injury resulting from the dewatering process. The contractor shall at all times have upon the work site sufficient pumping machinery.

Water from trenches and excavations shall be properly disposed of so as to not endanger public health, public or private property, work completed or in progress, the surface of the highways, cause any interference with public use of existing highways or other traveled ways.

Temporary roadway drainage systems shall utilize erosion checks to prevent sedimentation of any water bodies.

06.04.05 Backfilling

After joints of the storm pipe lines have been completed, the trench shall be backfilled with existing material or selected material if the existing material is unsuitable. The backfill around the sides of the p1pe shall be deposited in 6” (six inch) layers, evenly distributed on both sides of the pipe and tamped in place with power tampers or other suitable tools. The remaining fill above the pipe shall be compacted to the elevation of the road subgrade.

A sufficient number of tampers satisfactory to the Town Engineer shall be provided for compacting the backfill. Backfill around the manholes and around other appurtenant structures shall be placed and compacted as specified above for backfill around pipes. No stones weighing over 50 (fifty) pounds shall be backfilled into the pipe trench or against the structures.

06.04.06 Pipe Installation

Normally, the placement of pipes shall start at the downstream end and progress upstream. Al1 pipe shall be carefully laid, true to the lines and grades shown on the drawings; for reinforced concrete pipe, place hubs upgrade and with the spigot ends fully entered into the adjacent hubs.

Jointing shall be in accordance with Article 6.51.03.

If so ordered by the Town Engineer, any pipe not in true alignment, or showing any settlement or distortion after laying shall either be relaid or corrected to the satisfaction of the Town Engineer.

Where shown on the drawings, the contractor shall connect the proposed drainage system with existing structures or pipes. This work shall be performed in workmanlike manner.

Culvert ends shall be placed as specified in Article 6.52.03.

6.04.07 Placing Riprap

The area indicated on the drawings to be protected by riprap shall be accurately shaped as shown on the detail drawings.

Riprap shall be placed in accordance with Article 7.03.03.

06.04.08 Constructing Catch Basins

Catch basins, manholes, and drop inlets shall be constructed in accordance with Article 5.07.03.

06.04.09 Underdrains

Underdrains shall be constructed in accordance with Article 7.51.02.

06.04.10 Filter Fabric

When filter fabric is specified, construction shall be in accordance with the manufacturer's instructions, or as directed by the Town Engineer.

06.04.11 Erosion and Sedimentation Control Structures

These structures shall be constructed in accordance with the Conn. DOT "Drainage Manual"; the USDA, SCS, "Erosion and Sediment Control Handbook".

07. UTILITIES

07.01 Utilities Locations

07.01.01 Water Mains

Water mains shall be placed 10' (ten feet) north and west of the roadway center line and shall have a minimum cover of 4½' (four and one-half feet).

07.01.02 Hydrants

Hydrants shall be 3' (three feet) from the outside of the curb line.

07.01.03 Telephone Cables and Cable Television

Underground telephone cables and cable television shall be 3' (three feet) from the north and west right-of-way lines at a minimum depth of 30" (thirty inches) below finished grade. Above-ground appurtenances of these cables shall be 7' (seven feet) from right-of- way lines.

07.01.04 Power Cables

Underground power cables shall be 3' (three feet) from the south and east right-of-way lines at a minimum depth of 30" (thirty inches) below sidewalk finished grade. Above ground appurtenances for these cables shall be 7' (seven feet) from right-of-way lines.

07.01.05 Gas Mains

Gas mains shall be placed 10' (ten feet) to the south and east of the roadway centerline and shall have a minimum cover of 3' (three feet).

07.01.06 House Service Gates

House service gates, both water and gas, shall be 3' (three feet) from the curb line.

07.01.07 Sanitary Sewers

Sanitary sewers shall be 5' (five feet) from the south and east roadway curb line.

07.02. Utility Instructions

07.02.01 Existing and Proposed Utility Locations

Existing and proposed utility locations shall be shown on the roadway plan and profile drawings described in previous sections.

07.02.02 Utility Instructions

The utility instructions shall be in accordance with the requirements of the standards and specifications or authority or owner of the individual utility.

07.02.03 Excavating for Utilities

All excavating for utilities shall be completed prior to the placement of any processed gravel.

07.02.04 Telephone, Television, Power Cables

Telephone, television, and power cables may be placed on the same side of the right-of-way in accordance with the utility company's installation requirements.

08. EROSION AND SEDIMENTATION CONTROLS

All plans proposing the disturbance of soil or vegetation in an area deemed sensitive to erosion by the Town shall include a plan of measures to be taken to minimize soil erosion and sedimentation of watercourses and drainage systems.

08.01 Minimum Requirements

A soil erosion and sedimentation control plan, when required, shall be submitted with the application for development and contain at least:

1. Map
    a. Topography
    b. Cleared and graded areas
    c. Proposed land alterations
    d. Details and location of all control measures

2. Narrative description of:
    a. The project concept and goals
    b. Schedule for major land activities/alterations
    c. Soil erosion and sediment control measures
        1. Design criteria
        2. Application/construction details
        3. Proposed maintenance practice

08.02 Plan Outline

The plan must include the items required in Section 8.01. Minimum Requirements. The following erosion and sedimentation control plan outline includes the items in Section 8.01 as well as other issues that should be considered when preparing the plan and included in the plan when applicable.

The plan outline is to be used as an aid in preparing and approving erosion and sedimentation control plans. Its purpose is to serve as a reminder to the developer and the Town of major items that generally need to be considered when developing a plan. The plan outline is as follows:

1. Vicinity Map
    a. Project location
    b. Roads, streets
    c. North arrow
    d. Scale
    e. Major drainageways
    f. Major land uses of surrounding areas
2. Project Features
    a. Property lines
    b. Limit and acreage of development application
    c. Limit and acreage of disturbed area
    d. North arrow
    e. Scale
    f. Legend
    g. Planned and existing roads and streets; elevations and locations
    h. Buildings - existing and planned; elevations and locations

i. Land use of surrounding areas
j. Access roads; temporary and permanent

3. Natural Features
   a. Soils
   b. Rock outcrops
   c. Seeps, springs
   d. Inland and coastal wetlands
   e. Flood plains
   f. Streams, lakes, ponds, drainageways, dams
   g. Existing vegetation
   h. Natural features of adjacent areas

4. Topographic Features
   a. Contours - present and planned (normally 2' (two foot) intervals)
   b. Areas of cut or fill
   c. Planned grades and slope steepness

5. Drainage System
   a. Existing and planned drainage pattern
   b. Existing and planned drainage area map (include off-site areas that drain through project)
   c. Size of drainage areas
   d. Size and location of culverts and storm sewers
   e. Design calculations and construction details for culverts, storm sewers, etc.
   f. Size and location of existing and planned channels or waterway-s with design calculations and construction details to control erosion of the channel or waterway
   g. Existing peak flows with calculations
   h. Planned peak flows with calculations
   i. Changes in peak flows
   j. Off-site effects of increased peak flows or volumes
   k. Measures with design calculations and construction details to control off-site erosion caused by the. project
   a. Survey and soil intonation below culverts and storm sewer outlets
   l. Measures with design calculations and construction details to control erosion below culverts and storm sewer outlets
   m. Measures with design calculations and construction details to control groundwater, i.e., seeps, high water table, etc.

6. Utility System
   a. Location of existing and planned septic systems
   b. Location and size of existing and planned sanitary sewers
   c. Location of other existing and planned utilities, telephone, electric, gas, etc.

7. Clearing, Grading, Vegetative Stabilization
   a. Areas to be cleared, staging and sequence of clearing
   b. Disposal of cleared material
   c. Areas to be graded, staging and sequencing of grading

d. Areas and acreage to be vegetatively stabilized
e. Planned vegetation with details of plants, seed, mulch, fertilizer, planting dates, etc.
f. Temporary erosion protection of disturbed areas
g. Temporary erosion protection when time of year or weather prohibit establishment of permanent vegetative cover

8. Erosion Control Measures
   a. Construction drawings and details for temporary and permanent measures
   b. Design calculations
   c. Maintenance requirements of measures during construction of project
   d. Person responsible for maintenance during construction of project
   e. Maintenance requirements of permanent measures when project is complete
   f. Organization or person responsible for maintenance or permanent measures when project is complete

9. Narrative
   a. Nature, purpose and description of project
   b. Potentially serious erosion or sediment problems
   c. The stages of development if more than one stage is planned
   d. The sequence of major operations on the land, such as installation of erosion control measures, clearing, grading, temporary stabilization, road base, road paving, building construction, permanent stabilization, removal or temporary erosion control measures
   e. The time required for the major operations identified in the sequence
   f. The planned dates for the project. These are often subject to change depending upon markets, financing and permit approvals, therefore the sequence of all major operations and time requited for major operations is more important in minimizing erosion and sediment problems.

08.03 Erosion and Sedimentation Measures

Types of erosion and sedimentation measures and facilities to be considered plans:

1. Vegetative measures
2. Non-structural measures
3. Structural measures

08.03.01 Vegetative Measures

1. Temporary vegetative cover
2. Permanent vegetative cover
3. Sodding
4. Trees, shrubs, vines and ground cover
5. Vegetative streambank stabilization

08.03.02 Non-structural Measures

1. Temporary mulching
2. Permanent mulching
3. Dust control
4. Topsoiling
5. Land grading

6. Sediment barriers
7. Silt curtain

08.03.03 Structural Measures

1. Graded waterway
2. Diversion
3. Permanent lined waterway
4. Sediment basin
5. Detention basin
6. Construction entrance
7. Outlet protection
8. Subsurface drain
9. Riprap
10. Gabions
11. Reinforced concrete retaining wall
12. Precast cellular blocks
13. Prefabricated retaining walls
14. Grade stabilization structure
15. Temporary stream crossing
16. Temporary channel lining

09. DRIVEWAYS

09.01 Permit Requirements

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

Application for a permit shall be made on forms provided by the Building Department and shall be accompanied by a sketch or drawing showing the proposed work to be done. The sketch or drawing shall be in sufficient detail to facilitate an inspection of the work by Town personnel. The Director of Public Works may require the submission of detailed plans, specifications and other engineering data with the application when he shall deem it to be necessary. No permits shall be issued unless all proposed work conforms to the requirements outlined in this section and the Standard Details.

Application fees, in an amount prescribed on the most current Town Fee Schedule shall be submitted with all applications. In addition, a Certificate of Insurance conforming to current town requirements with respect to the types of coverage and limits of liability shall also be submitted. No permits shall be issued until the application fee has been paid, and the Certificate of Insurance received.

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

All proposed construction work shall be completed within one hundred eighty (180) calendar days after issuance of the Driveway Permit unless a one hundred eighty (180) calendar day extension of time is granted by the Director of Public Works upon written request by the owner for such extension and for good cause shown. If a proposed driveway is not constructed within three hundred sixty (360) calendar days from the date of issuance of a permit from the Director of Public Works, the permit shall be null and void.

No certificate of occupancy shall be issued until the Director of Public Works or his authorized representative approves the driveway or, if due to the time of year the bituminous concrete mix plants are closed, a Driveway Completion Bond is provided to the Town to ensure that all work is completed within a six (6) month period. Driveway Completion Bonds shall be in the form of a certified check in an amount determined as follows:

Driveway Aprons	$500.00
Additional Required Driveway Length to High Point	$10.00 per lineal foot Driveway
Repairs	No bond required

Should the owner fail to complete the driveway improvements within the six (6) month time period beginning on the date the bond was provided to the Town, the bond shall be forfeited, and the Town shall utilize the funds to complete the required work. Any excess funds remaining after completion of the improvements shall accrue to the Town.

09.02 Driveway Criteria

Paved driveway aprons shall be provided at each intersection of a driveway with an abutting town road. The driveway apron is that portion of the driveway extending from the town road pavement to the right-of-line of the town road or to a distance of ten (10) feet in from the edge of the town road pavement, whichever is greater. Where a town road adjacent to a proposed driveway does not have any type of bituminous surface course, the Director of Public Works may waive the requirement for a bituminous concrete driveway apron.

All paved driveway aprons shall have a minimum lip of one and one-half (1 1/2) inches at the town road gutter line. If a driveway apron is constructed prior to the placement of the top or surface course of a subdivision road to be dedicated to the Town of Hebron at some future date, then the driveway lip shall be increased in height so that after completion of the road construction, a minimum lip of one and one-half (1 1/2) inches is maintained.

Driveways shall have a minimum pavement width of ten (10) feet, and a maximum pavement width of twenty (20) feet. All brush, trees and any other obstructions shall be cleared and removed for a distance of three (3) feet beyond the edge of pavement along both sides of the entire length of the driveway.

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

The visibility at driveway intersections with town roads shall be such as to allow a stopped vehicle on the driveway, located ten (10) feet back from the gutter line, to see, and to be seen from, a vehicle approaching from either direction along the town road, a distance of not less than two hundred (200) feet, based on a height of eye and object of 3.5 feet. The Director of Public Works may require the removal of sight obstructions including but not limited to trees, bushes, shrubs, boulders, rocks, and stonewalls, or adjustments of cut slopes, adjacent to intersections of a private driveway with a town road in order to assure an adequate sight distance and to ensure a safe and efficient means of access for emergency vehicles.

With respect to grade and driveway surface type, driveways shall be designed and constructed in accordance with the latest revision of the East Hampton Zoning Regulations Ascending driveways shall be graded so as to establish sheet flow drainage and avoid the discharge of concentrated runoff into town roads.

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

Driveways shall be constructed in such a manner that they do not permit the runoff of water from the abutting town road to enter into the property of the owner, or adjacent properties, thereby creating a nuisance to the Town and the property owner, unless an easement in a form satisfactory to the Town is granted by such owner to the Town for such runoff. Under no circumstances shall a driveway apron be

constructed so as to obstruct or alter the free flow of water in the road gutter line or other drainage ways of the Town.

Where culverts under driveways are required by the Director of Public Works within the town road right-of-way, such culverts shall be constructed of reinforced concrete pipe with concrete flared end sections provided at the pipe inlet and outlet. High density corrugated polyethylene smooth interior pipe shall only be allowed if specifically authorized by the Director of Public Works. Driveway culverts shall be a minimum of fifteen (15) inches in diameter, and sized to adequately convey under the driveway all surface runoff which may reasonably be expected to reach the culvert inlet during a storm with a 10-year recurrence interval. All culverts shall be of such design to withstand AASHTO H-20 loadings and shall have a minimum cover over the top of the culvert of one (1) foot, unless otherwise approved by the Director of Public Works or his duly authorized representative.

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

Driveways shall be located and constructed such that no disturbance of road right-of-way monumentation occurs. In the event of accidental disturbance of-a monument, the owner of the property served by the driveway shall be responsible for retaining and paying for the services of a land surveyor licensed in the State of Connecticut to reset the monument and to provide a Letter of Certification to the Director of Public Works.

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

09.03 Driveway Construction Standards

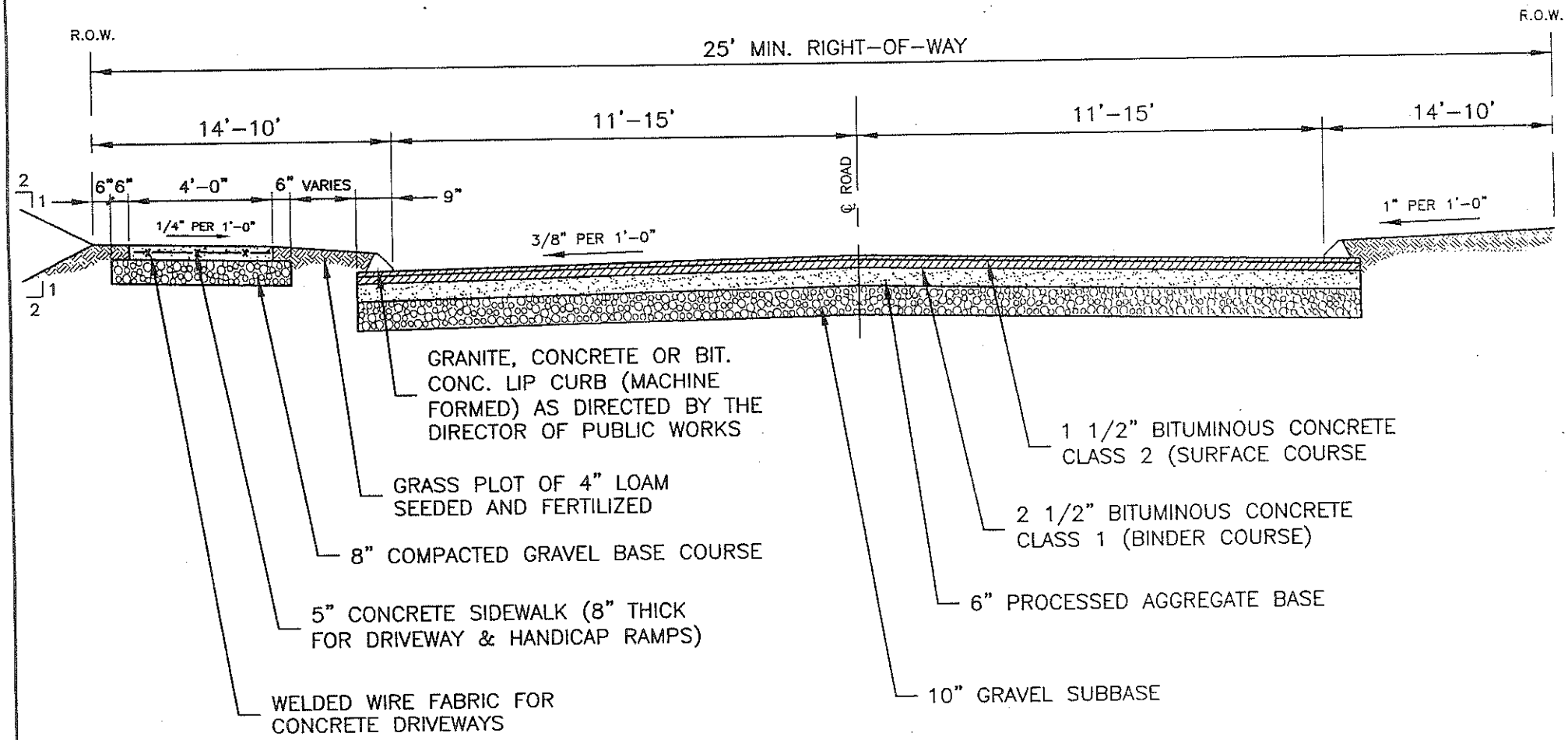
Driveway and driveway apron paving shall consist of a minimum of two (2) inches, after compaction, of Class H bituminous concrete placed on a minimum of eight (8) inches, after compaction, of processed aggregate base. Class II “Bituminous Concrete” and “Processed Aggregate Base” materials shall conform to the State Standard Specifications Sections M.04.01, M.04.03, and M.05.01 respectively.

APPENDIX. STANDARD DETAILS

NOTES:

1. ALL MATERIAL THICKNESS ARE FOR COMPACTED DEPTH.

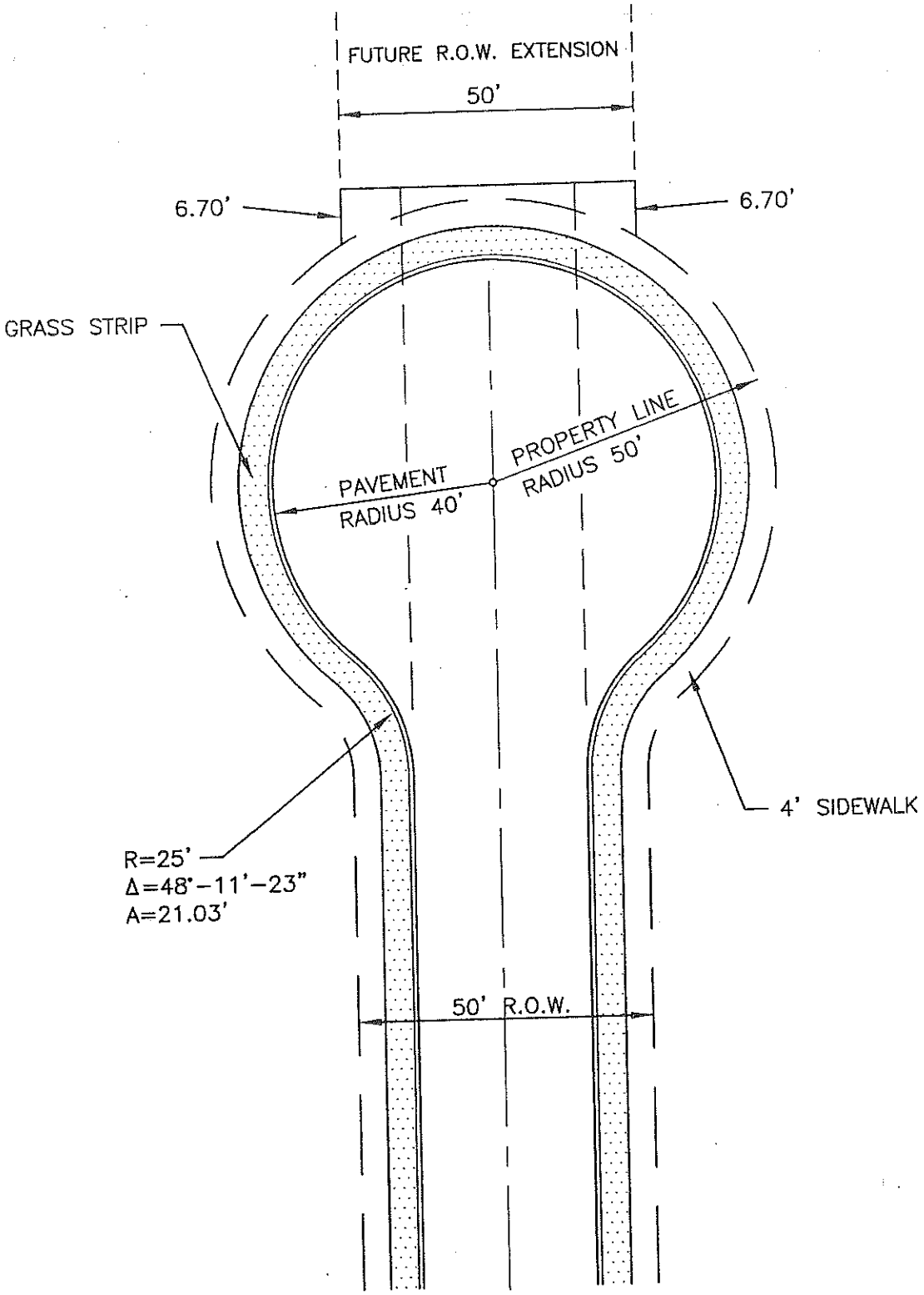
2. IF BINDER COURSE IS LEFT AS TOP COURSE FOR AN EXTENDED PERIOD. A TACK COAT OF BITUMINOUS MATERIAL SHALL BE APPLIED BEFORE LAYING THE



TYPICAL STREET CROSS SECTION LAYOUT

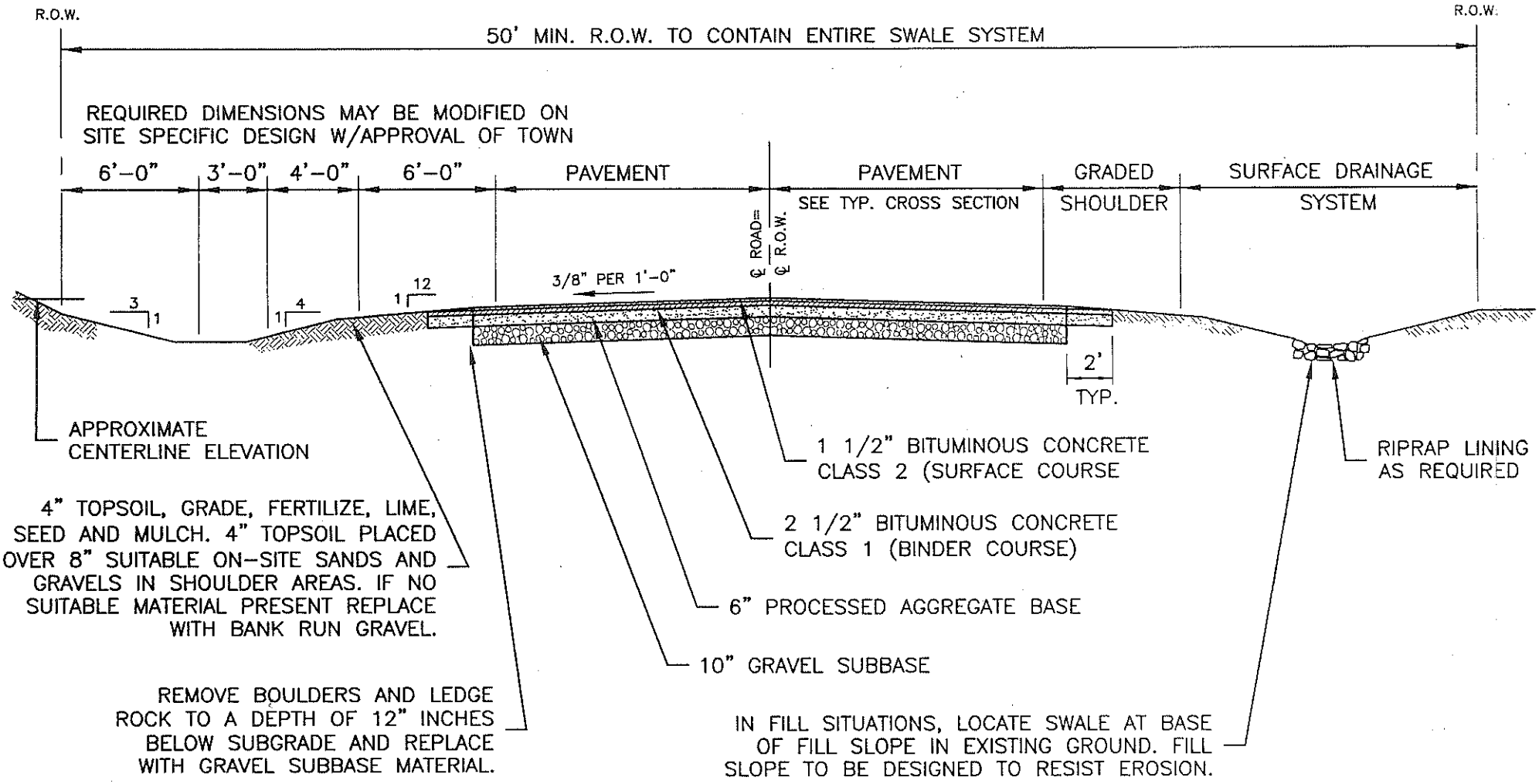
CURBING

N.T.S.



TURNAROUND LAYOUT

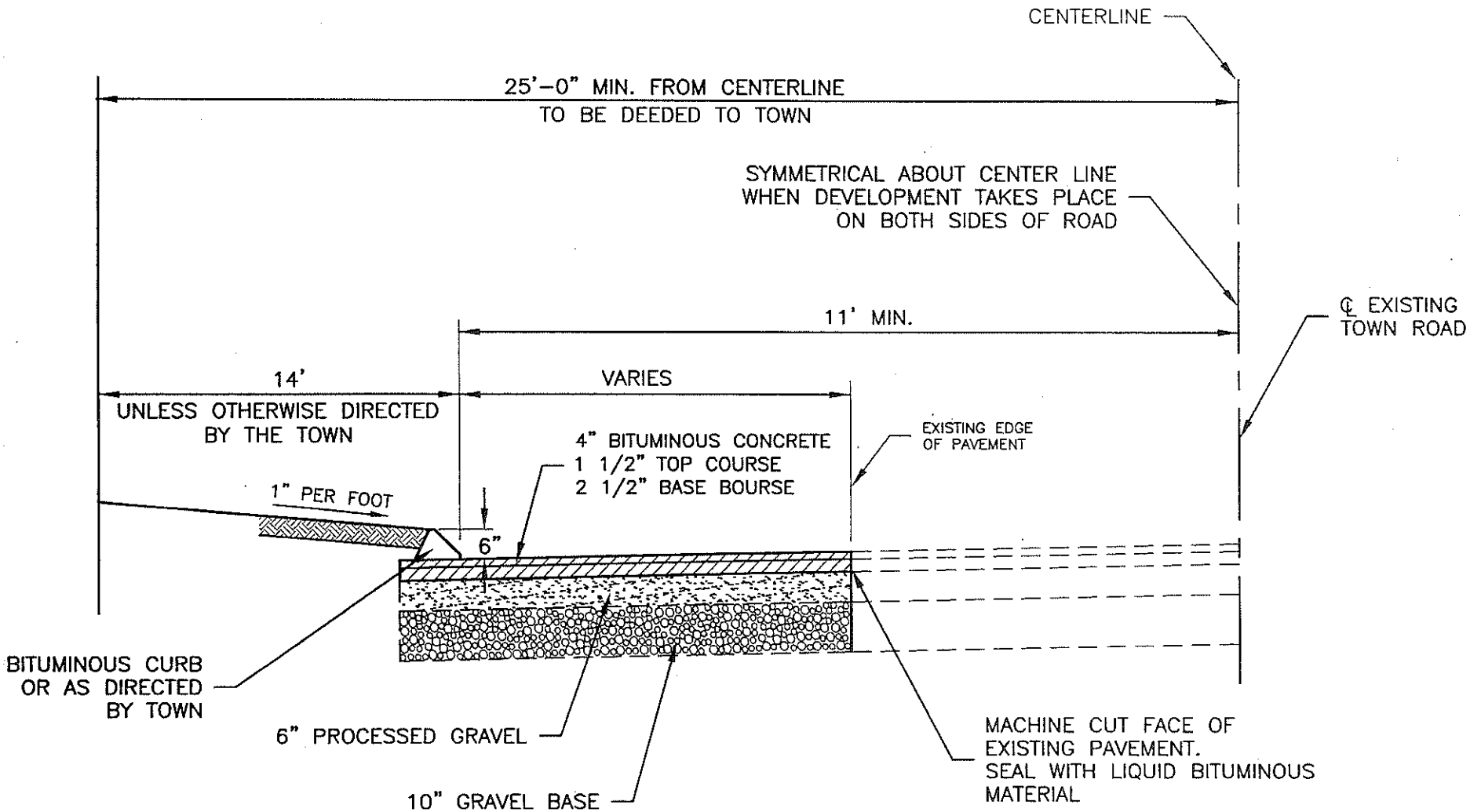
N.T.S.



TYPICAL STREET CROSS SECTION LAYOUT

SURFACE DRAINAGE

N.T.S.

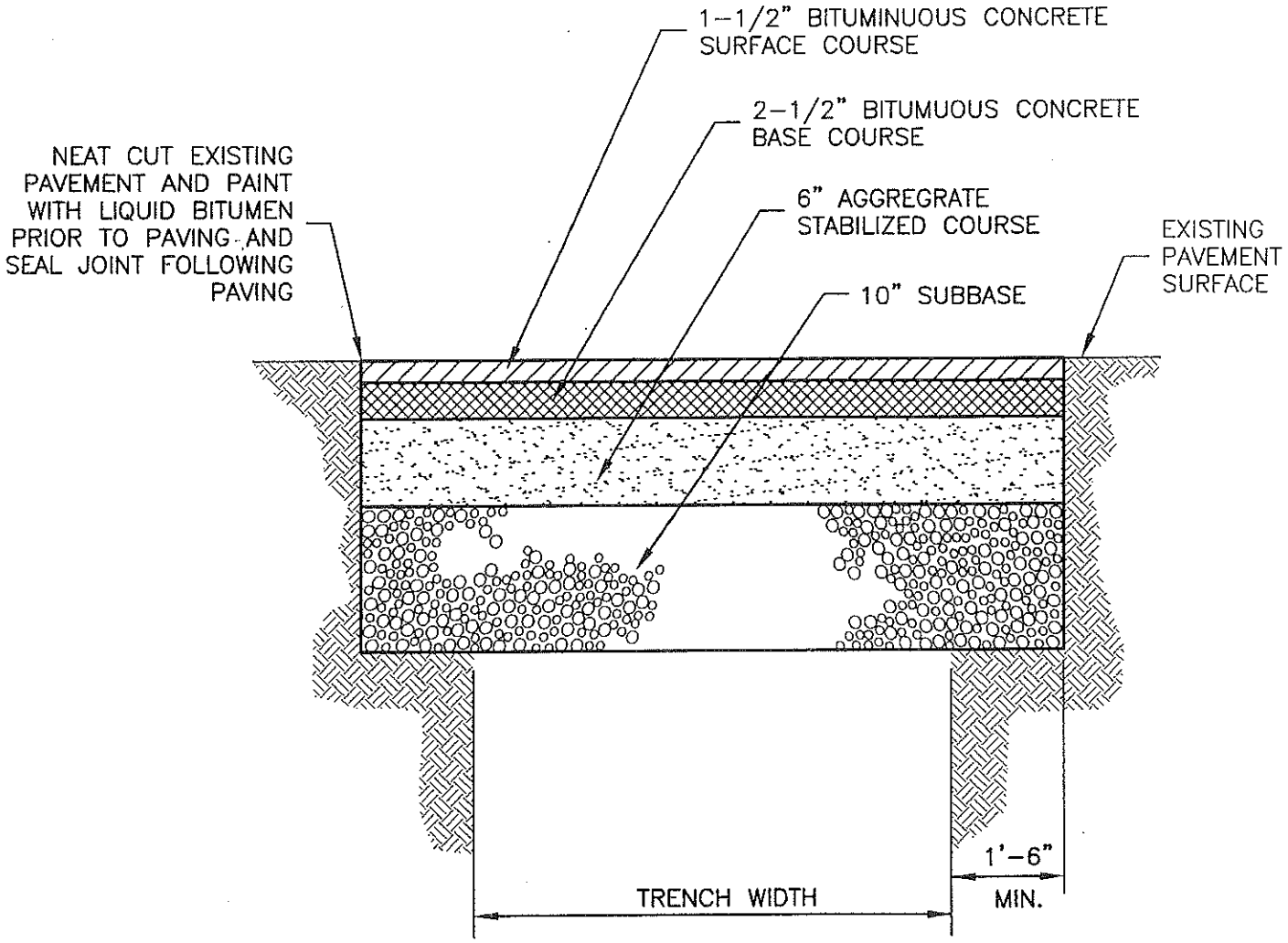


IMPROVEMENT TO EXISTING STREET

N.T.S.

NOTE:

THE CONTRACTOR SHALL MAINTAIN A MINIMUM 15' WIDE TRAVELWAY AT ROAD CROSSINGS AT ALL TIMES DURING CONSTRUCTION



PAVEMENT REPAIR OVER TRENCH

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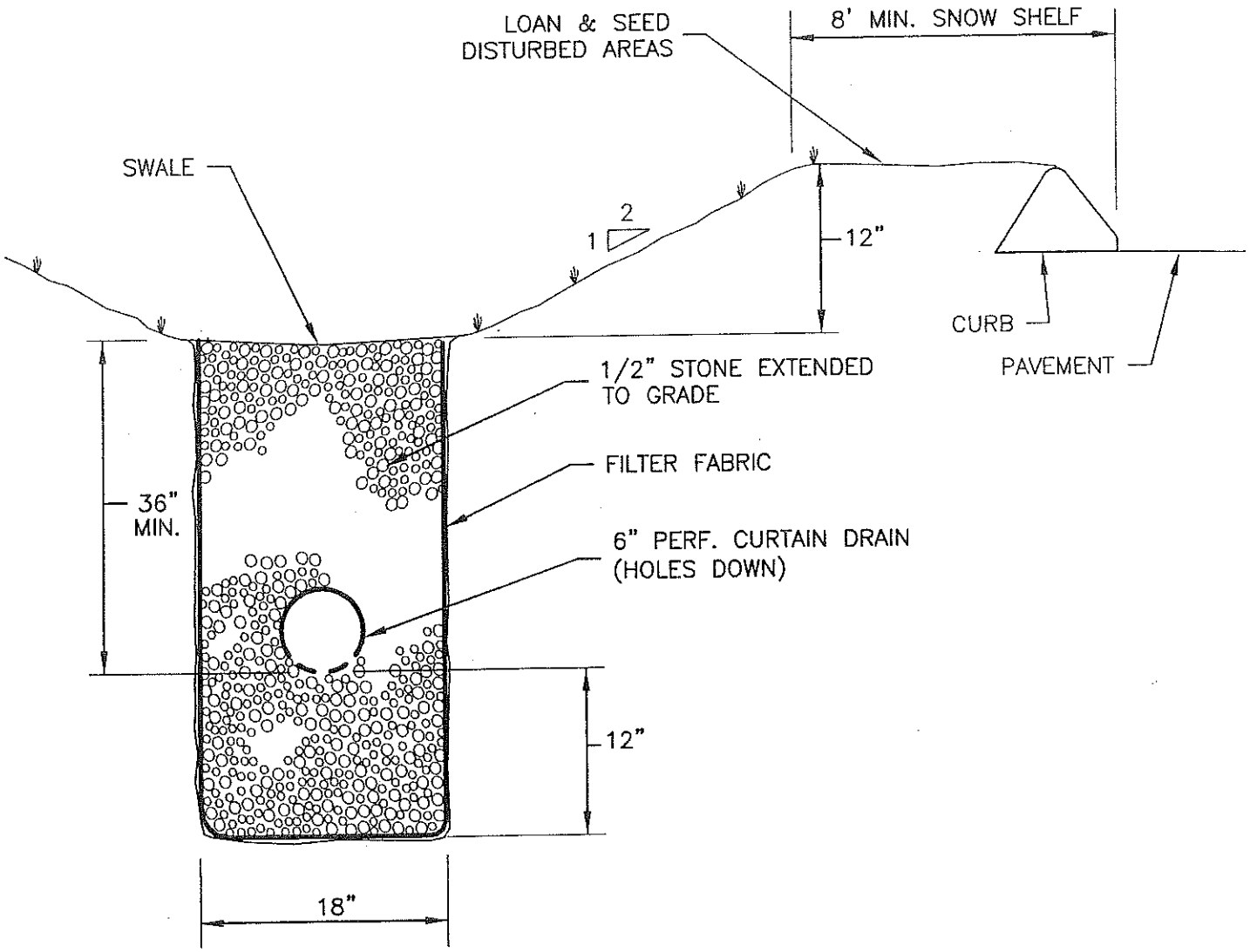

CURTAIN DRAIN DETAIL

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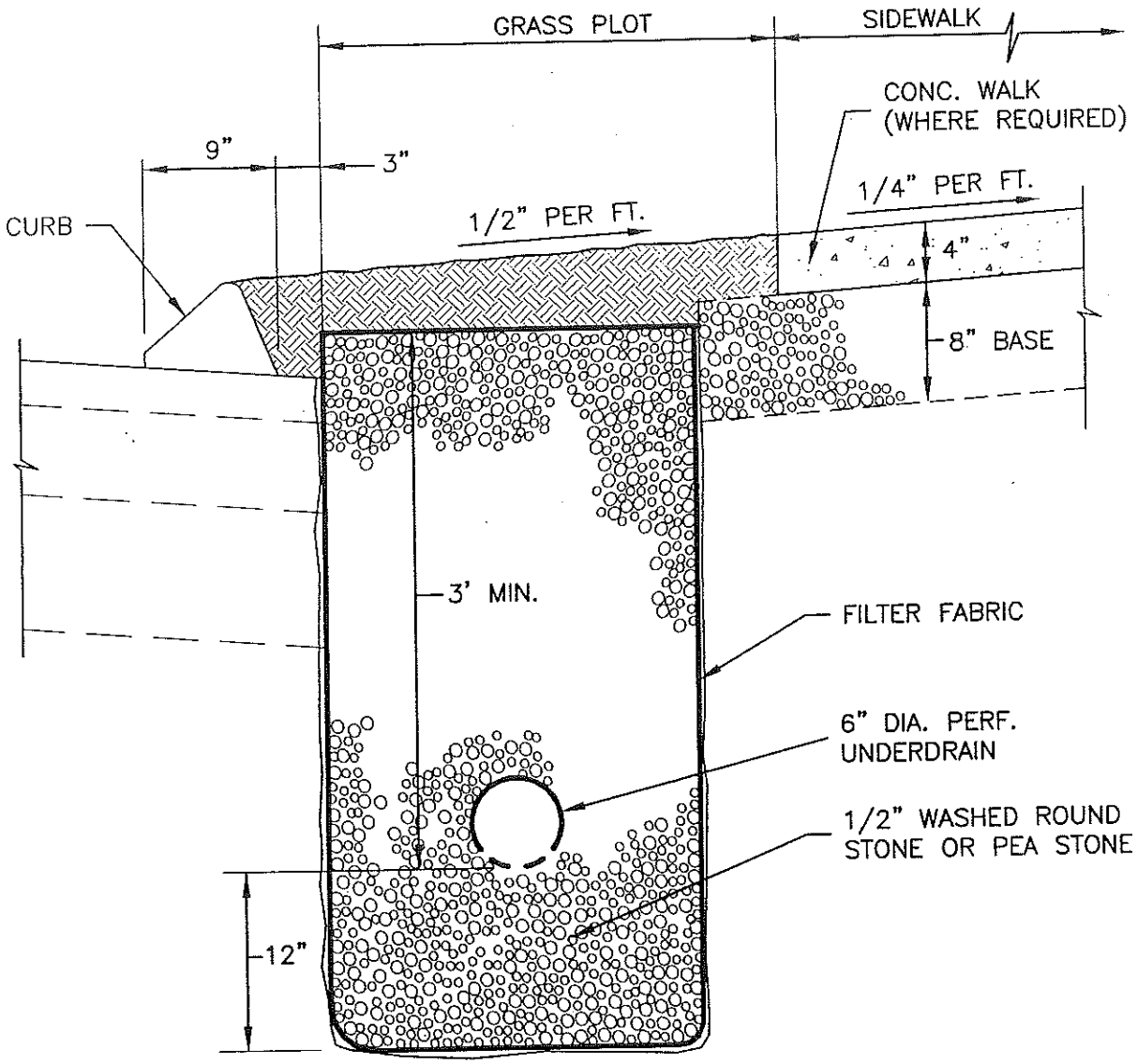

TYPICAL UNDERDRAIN DETAIL

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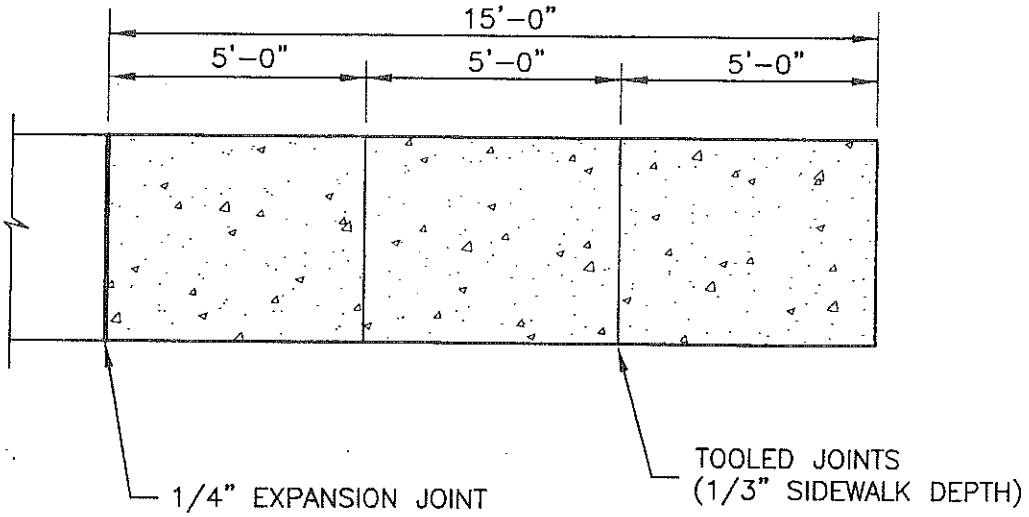

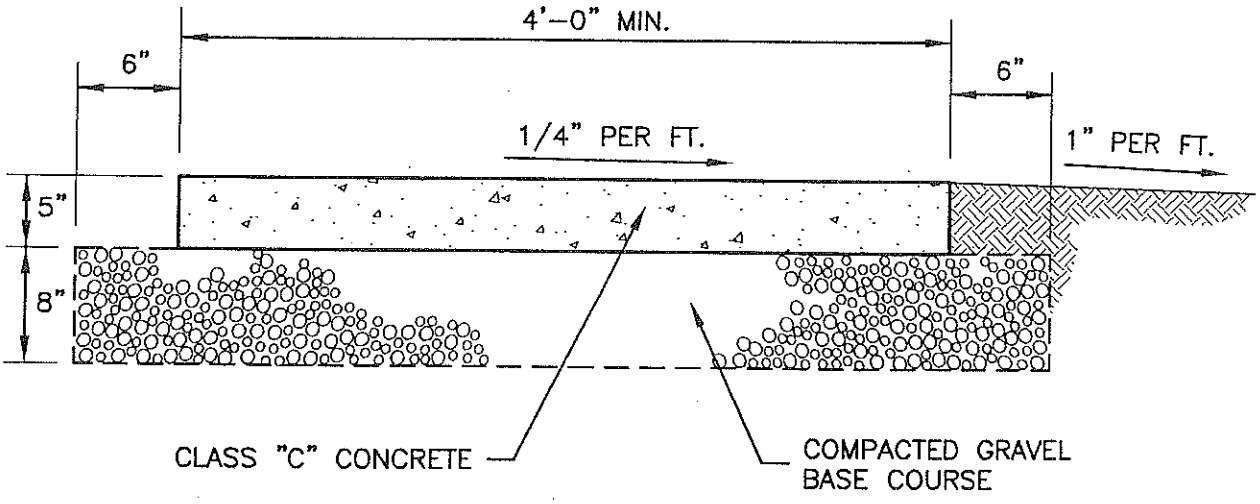

SECTION

SIDEWALK DETAIL

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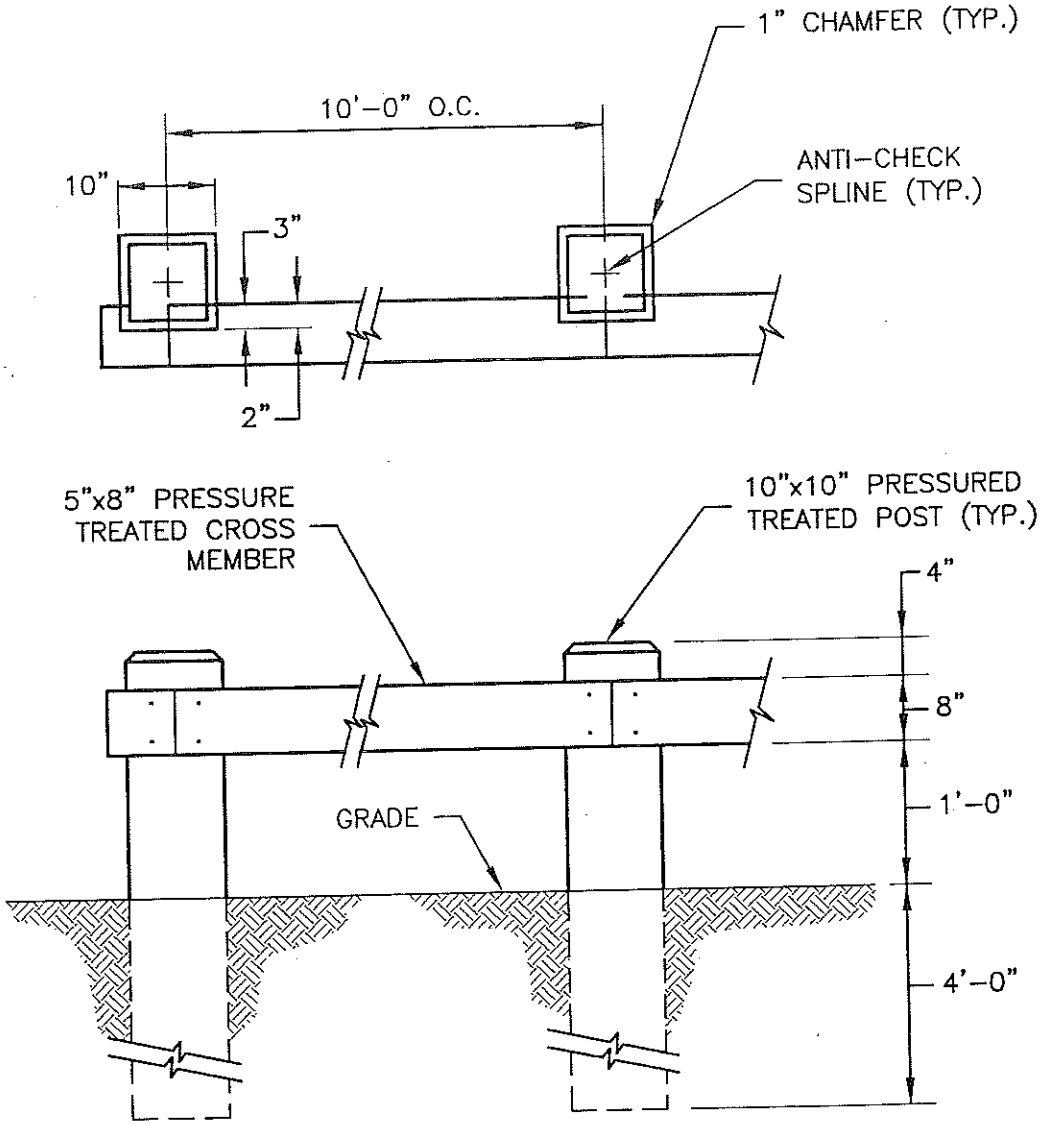
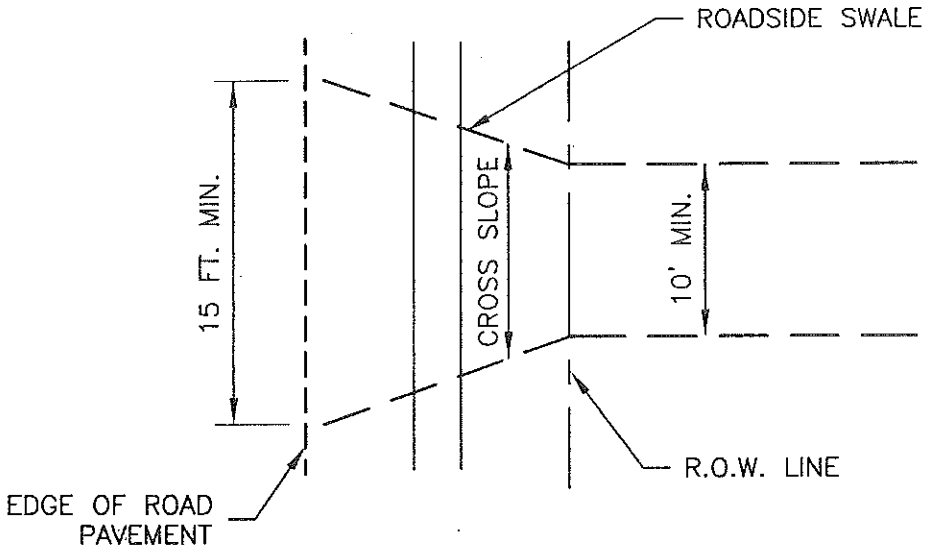


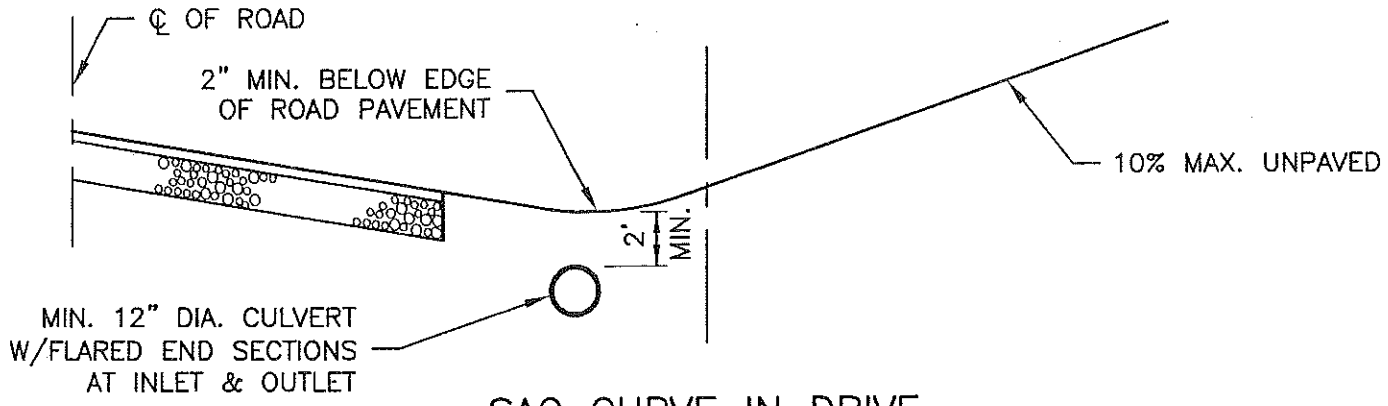
WOOD GUIDE RAIL

N.T.S.

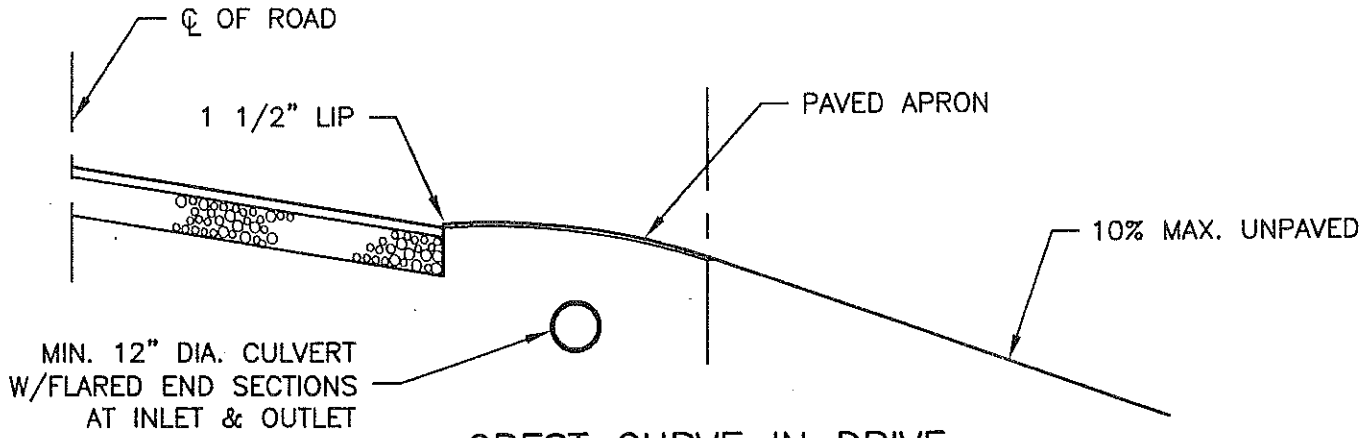
NOTE:

BELOW DETAILS SHALL BE USED WHERE A
STORM DRAINAGE SYSTEM IN THE ROAD EXISTS





SAG CURVE IN DRIVE



CREST CURVE IN DRIVE

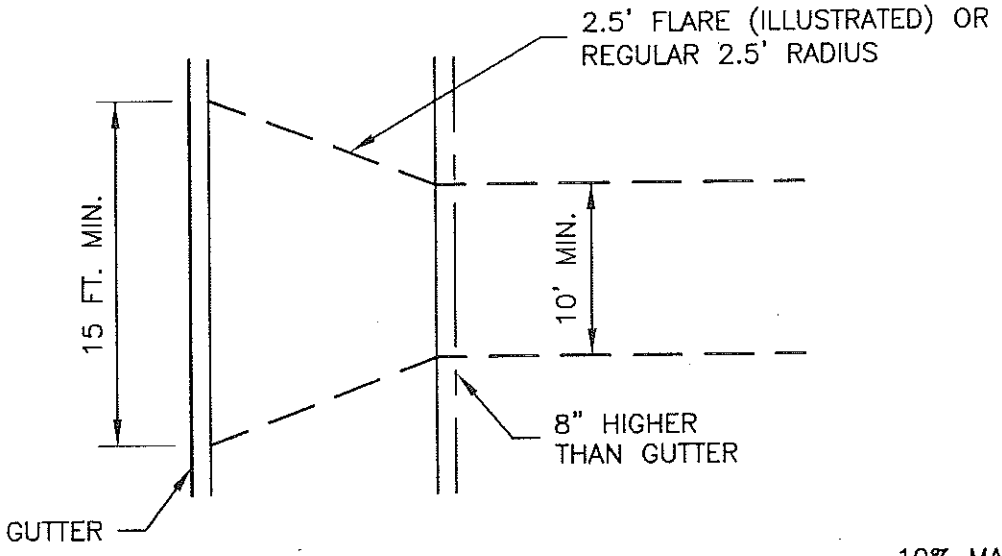
RESIDENTIAL DRIVEWAY DETAIL

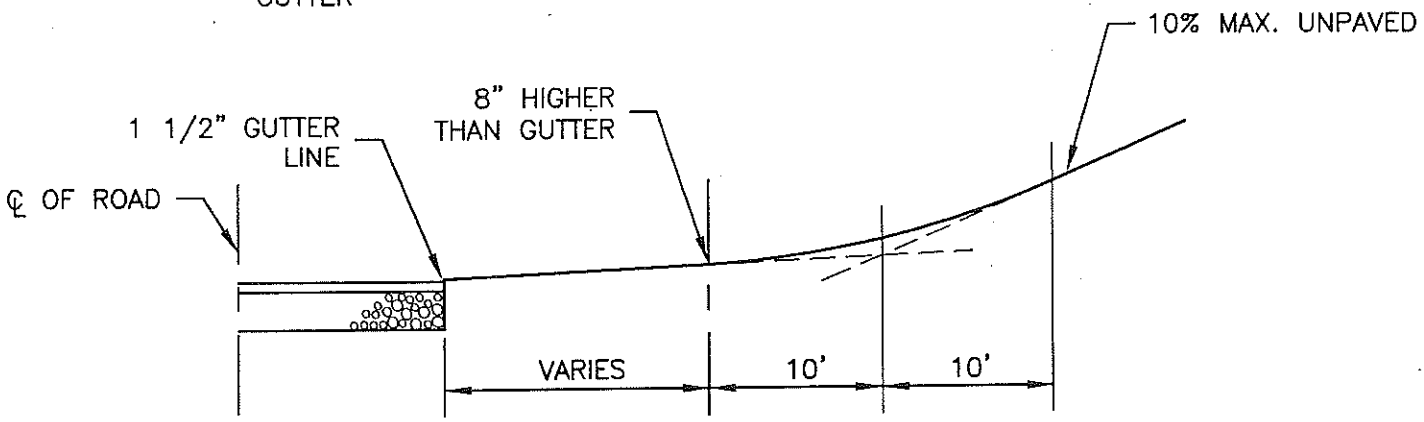
SURFACE DRAINAGE

N.T.S.

NOTE:

BELOW DETAILS SHALL BE USED WHERE A STORM DRAINAGE SYSTEM IN THE ROAD EXISTS





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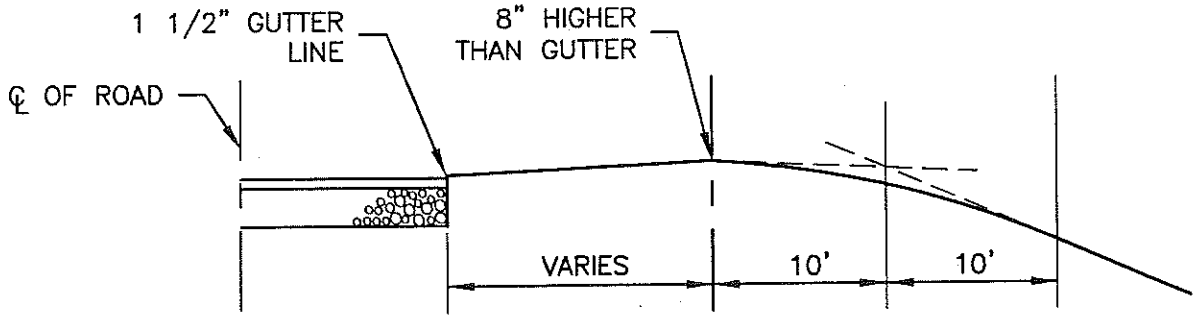

CREST CURVE IN DRIVE

RESIDENTIAL DRIVEWAY DETAIL

CURBING

N.T.S.