

00047981

BOOK 38639 PAGE 52

Recorded On:

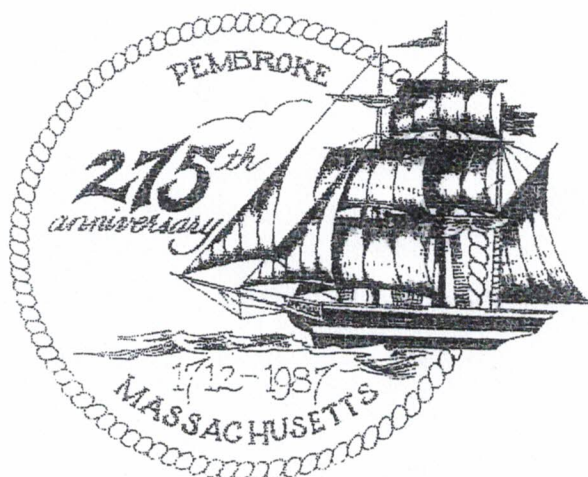
Jun 18, 2010 at 02:25P

PLYMOUTH COUNTY REGISTRY OF DEEDS

John R. Buckley Jr., Register

# Town of Pembroke

## Massachusetts



## Rules and Regulations Governing the Subdivision of Land

A TRUE ATTEST COPY:

REVISED 2010

*Mary Ann Smith*  
TOWN CLERK

## **TABLE OF CONTENTS**

	<b>PAGE</b>
<b>SECTION I.        <u>INTRODUCTION</u></b>	
A.     PURPOSE	1
B.     AUTHORITY	1
<b>SECTION II.      <u>GENERAL</u></b>	
A.     DEFINITIONS	2
B.     PLAN BELIEVED NOT TO REQUIRE APPROVAL	4
C.     SUBDIVISION APPROVAL REQUIRED	5
D.     DEPOSITS	5
E.     CORRECTNESS OF PLAN	6
F.     BUILDING CONSTRUCTION	6
<b>SECTION III.     <u>PROCEDURES FOR THE SUBMISSION AND</u></b>	
<b>                    <u>APPROVAL OF PLANS</u></b>	
A.     PRELIMINARY PLANS	7
1.     General	7
2.     Procedure	7
3.     Contents	7
4.     Preliminary Plan Response	8
B.     DEFINITIVE PLAN	
1.     General	8
2.     Procedure	9
3.     Contents	9
4.     Review by Board of Health	12
5.     Public Hearing	12
6.     Certificate of Approval	13
7.     Performance Guarantee	13
8.     Release of Performance Guarantee	13
9.     Unencumbered Title	14
<b>SECTION IV.     <u>GENERAL REQUIREMENTS AND DESIGN</u></b>	
<b>                    <u>STANDARDS</u></b>	
A.     RELATIONS TO SURROUNDING AREAS	15
B.     AS-BUILT ACCEPTANCE PLAN	15
C.     STREETS	15
1.     Location and Alignment	15
2.     Width	16
3.     Grade	17
4.     Dead-End Streets	17
5.     Maintenance	18
6.     Use	18
D.     EASEMENTS	18
E.     PROTECTION OF NATURAL FEATURES	18
F.     STOP WORK ORDERS	19

## SECTION V. REQUIRED IMPROVEMENTS FOR APPROVED SUBDIVISION

A.	STREETS AND ROADWAYS	20
1.	Initial Preparation	20
2.	Utilities	20
3.	Fill	20
4.	Roadway Base Construction	21
5.	Roadway Paving	22
6.	Inspection Schedule	24
B.	DRAINAGE	25
1.	Design Analysis	26
2.	Design Storm	26
3.	Computation of Runoff	27
4.	Selection of Drain Size	27
5.	Type of Pipe	27
6.	Slope of Pipe	27
7.	Frames, Grates and Covers	27
8.	Catch Basin and Manholes	28
9.	Trench Excavation	28
10.	Pipe Bedding	29
11.	Pipe Laying	29
12.	Backfilling	29
13.	Security Bars	30
14.	Headwalls and Endwalls	30
15.	Scour Protection	30
16.	Recorded Easements	30
C.	WATER PIPES AND RELATED FACILITIES	31
D.	SIDEWALKS	32
1.	General	32
2.	Access Apron	33
E.	CURBING	33
1.	General	33
2.	Terminal Curb Section	34
3.	Granite Curb Construction	34
F.	SIDE SLOPES	34
G.	TOPSOIL REMOVAL	35
H.	LOAMING AND SEEDING	35
1.	General	35
2.	Materials	35
3.	Construction	36
I.	MONUMENTS	36
J.	STREET TREES	36
K.	SIGNS	37
L.	STREET LIGHTS	37
M.	CLEANING UP	37
N.	RETAINING WALLS	37
O.	FIRE HYDRANTS	37
P.	EARTH DISTURBANCE AND GRAVEL REMOVAL	38

SECTION VI.        ADMINISTRATION

A.	VARIATION	39
B.	REFERENCE	39
C.	DESIGN REVIEW AND CONSTRUCTION	
	INSPECTION DEPOSIT AND FEES	39
D.	USE OF FINANCIAL SECURITY AND DEPOSITS	40
E.	APPLICATION FEES	40

APPENDIX A – LEGAL FORMS

FORM A	APPLICATION FOR ENDORSEMENT OF PLAN BELIEVED NOT TO REQUIRE APPROVAL
FORM B	APPLICATION FOR TENTATIVE APPROVAL OF PRELIMINARY PLAN
FORM C	APPLICATION FOR APPROVAL OF DEFINITIVE PLAN
FORM D	COVENANT
FORM E	CERTIFICATE OF COMPLIANCE
FORM F	CERTIFICATE OF PERFORMANCE (Covenant of Approval Release)

APPENDIX B – CONSTRUCTION STANDARDS

PLATE 1	PRECAST CONCRETE CATCH BASIN
PLATE 2	PRECAST CONCRETE MANHOLE
PLATE 3	SIDEWALK AND CURB INLET DETAIL
PLATE 3A	TYPICAL GRANITE CURB INLET INSTALLATION
PLATE 4	TYPICAL MINOR ROADWAY LAYOUT
PLATE 4A	TYPICAL MAJOR AND SECONDARY ROADWAY LAYOUT
PLATE 4B	TYPICAL AND MINOR STREET CUL-DE-SAC DETAIL



PLATE 5	DETAIL – TERMINAL CURB SECTION DETAIL – VERTICAL GRANITE CURB
PLATE 6	BITUMINOUS CONCRETE BERM – TYPE “A”
PLATE 7	CONCRETE AND FIELD STONE MASONARY ENDS
PLATE 8	STEEL GRATE DETAIL
PLATE 9	SIDEWALK RAMP INTERSECTION DETAIL
PLATE 10	WHEELCHAIR RAMP
PLATE 11	WHEELCHAIR RAMP
PLATE 12	SIDWALK PLAN

RULES AND REGULATIONS  
GOVERNING THE SUBDIVISION OF LAND  
PEMBROKE, MASSACHUSETTS

(Adopted under the Subdivision Control Law  
Section 81K-81GG inclusive, Chapter 41, G.L.)

**SECTION I.**

**INTRODUCTION**

**A. PURPOSE**

“The Subdivision Control Law has been enacted for the purpose of protecting the safety, convenience and welfare of the inhabitant of the cities and towns in which it is, or may hereafter be, put in effect by regulating the laying out and construction of ways in subdivisions providing access to the several lots therein, but which have not become public ways, and ensuring sanitary conditions in subdivisions and in proper cases parks and open areas. The powers of a Planning Board and a Board of Appeal under the Subdivision Control Law shall be exercised with due regard for the provisions of adequate access to all of the lots in a subdivision by ways that will be safe and convenient for travel; for lessening congestion in such ways and in the adjacent public ways; for reducing danger to life and limb in the operation of motor vehicles; for securing safety in case of fire, flood, panic and other emergencies; for insuring compliance with the applicable zoning ordinances or by-laws; for securing adequate provision for water, sewerage, drainage, underground utility services, fire, police, and similar municipal; equipment, and street lighting and other requirements where necessary in a subdivision, and for coordinating the ways in a subdivision with each other and with the public ways in the city or town in which it is located and with the ways of neighboring subdivisions. It is the intent of the Subdivision Control Law that any subdivision plan filed with the Planning Board shall receive the approval of such Board if said plan conforms to the recommendations of the Board of Health and to the reasonable rules and regulations of the Planning Board pertaining to subdivisions of land; provided, however, that such Board may, when appropriate, waive, as provided for in Section 81R, such portions of the rules and regulations as is deemed advisable.” (Section 81M of Chapter 41, General Laws)

**B. AUTHORITY**

Under the authority vested in the Planning Board of the Town of Pembroke by Section 81Q of Chapter 41 of the General Laws, said Board hereby adopts these rules and regulations governing the subdivision of land in the Town of Pembroke. To the extent any provision of these rules and regulations is declared invalid or unenforceable, such action shall not effect or impair any other provision of these rules and regulations.

## **SECTION II. GENERAL**

### **A. DEFINITIONS**

#### **"APPLICANT"**

"Applicant" shall include an owner, or his agent (including contractors or subcontractors) provided the agent has submitted written authorization from the owner.

#### **"CERTIFIED BY"**

"Certified by" (or endorsed by) a planning board, as applied to a plan or other instrument required or authorized by the Subdivision Control Law to be recorded, shall mean, bearing a certification or endorsement signed by a majority of the members of a Planning Board, or by its chairman or clerk or any other person authorized by it to certify or endorse its approval of other action and named in a written statement to the register of deeds and recorder of the land court, signed by a majority of the board.

#### **"DRAINAGE"**

"Drainage" shall mean the control of surface water within the tract of land to be subdivided.

#### **"LOT"**

"Lot" shall mean an area of land in one ownership, with definite boundaries, used, or available for use, as the site of building and accessory uses.

#### **"MUNICIPAL SERVICE"**

"Municipal Service" shall mean public utilities, as may be furnished by the Town of Pembroke, such as water, sewerage, gas and electricity.

#### **"PLANNING BOARD"**

"Planning Board": shall mean the Planning Board of the Town of Pembroke established under Section 81A.

#### **"RECORDED"**

"Recorded" shall mean recorded in the Registry of Deeds of Plymouth County, except that, as affecting registered land, it shall mean filed with the Recorder of the Land Court.

#### **"REGISTER OF DEEDS"**

"Register of Deeds" shall mean the Register of Deeds of Plymouth County and, when appropriate, shall include the Recorder of the Land Court.

#### **"REGISTERED MAIL"**

"Registered Mail" shall mean registered or certified mail.

#### **"REGISTRY OF DEEDS"**

"Registry of Deeds" shall mean the Registry of Deeds of Plymouth County and, when appropriate, shall include the Land Court.



**“SUBDIVISION”**

“Subdivision” shall mean the division of a tract of land into two or more lots and shall include resubdivision and, when appropriate to the context, shall relate of the process of subdivision of the land or territory subdivided; provided, however, that the subdivision of a tract of land into two or more lots shall not be deemed to constitute a subdivision within the meaning of the subdivision control law if, at the time when it is made, every lot within the tract so divided has frontage on (a) a public way or a way which the clerk of the city or, town certifies is maintained and used as a public way, or (b) a way shown on a plan theretofore approved and endorsed in accordance with the Subdivision Control Law, or (c) a way in existence when the Subdivision Control Law became effective in the city or town in which the land lies, having, in the opinion of the Planning Board, sufficient width, suitable grades and adequate construction to provide for the needs of vehicular traffic in relation to the proposed use of the land abutting thereon or served thereby, and for the installation of municipal services to serve such land and the buildings erected or to be erected thereon. Such frontage shall be of at least such distance as is then required by zoning or other ordinance or by-laws, if any, of said city or town for erection of a building on such lot, and, if no distance is so required, such frontage shall be of at least twenty feet. Conveyances or other instruments adding to, taking away from, or changing the size and shape of, lots in such a manner as not to leave any lot so affected without the frontage above set forth, or the division of a tract of land on which two or more buildings were standing when the subdivision control law went into effect in the city or town in which the land lies into separate lots on each of which one of such buildings remain standing, shall not constitute a subdivision.

**“SUBDIVISION CONTROL”**

“Subdivision Control” shall mean the power of regulating the subdivision of land granted by the Subdivision Control Law.

Other definitions are as follows:

**“DEAD-END STREETS”**

A way having ingress and egresses at one end only.

**“MAJOR STREET”**

“Major Street” – A way that is currently used or proposed to be used for local traffic with vehicular traffic in excess of 5,000 daily trips.

**“SECONDARY STREET” –**

“Secondary Street”-A way that is currently used or proposed to be used for local traffic with vehicular traffic of fewer than 5,000 but greater than two trips daily.

**“MINOR STREET”**

“Minor Street” – A way that is currently used or proposed to be used solely for access to lots within a subdivision. Minor streets gain access from a single major or secondary street.



**TOTAL CUMULATIVE ROADWAY LENGTH:**

The total linear footage of proposed roadway to be constructed, as shown on a roadway plan on a proposed subdivision plan, and must include any footage of existing roadway from the point of access to a secondary or major street.

**B. PLAN BELIEVED NOT TO REQUIRE APPROVAL**

Any person who wishes to cause to be recorded in the Registry of Deeds or to be filed with the Land Court a plan of land and who believes that his plan does not require approval under the Subdivision Control Law (A.N.R. plan) may submit his plan and two copies thereof and application Form A (See Appendix) to the Planning Board.

The plan shall show:

1. The zoning districts and lot area of each lot in each district;
2. For each lot, the frontage, lot size, area outside of the Flood Plain and Watershed Protection District and outside of all wetlands, and the area unrestricted by easements shall all be shown;
3. All existing and proposed easements;
4. All of the lot to be subdivided in its entirety, all of the lots to be combined in their entirety, and the retained, proposed, and existing lot lines. Retained and proposed lot lines shall be solid lines and existing lines to be changed shall be broken lines;
5. The locus of the lots;
6. The assessors' lot number for all existing lots;
7. All existing structures including principal and accessory buildings and other structures, fences, walls, driveways, parking areas and other improvements;
8. The notation, "not a buildable lot", on any lot which does not meet current zoning requirements;
9. All Flood Plain and Watershed Protection Districts, all wetlands areas, and all areas subject to easements; and
10. The topography to be shown at the minimum of ten (10) foot intervals. Each plan shall be prepared by a Professional Land Surveyor and shall be accompanied by a certification to read as follows:

"I hereby certify that each item required by the Pembroke Planning Board Rules and Regulations, Section II B 1. through 10 are fully and accurately show on the plan."

Said person shall file, by delivery or registered mail, a notice with the Town Clerk stating the date of submission for such determination and accompanied by a copy of said application. If the notice is given by delivery, the Town Clerk shall, if requested, give a written receipt thereof. If the Planning Board determines that the plan does not require approval, it shall, without a public hearing and without

unnecessary delay, endorse on the plan the words "Approval under the Subdivision control Law not required", and any notations deemed necessary by the Board.

The Planning Board may add to such endorsement a statement of the reason approval is not required. The plan will be returned to the applicant and the Planning Board shall notify the Town Clerk of its action.

If the Planning Board determines that the plan is not properly submitted in accordance with the rules and regulations or does require approval under the Subdivision Control Law, it will so inform the applicant in writing and return the plan. The Planning Board will also notify the Town Clerk in writing of its action.

In determining whether a way in existence when the Subdivision Control Law became effective in the Town is adequate to qualify a plan as not constituting a subdivision, the Board shall take into consideration the following factors, among others:

1. whether the right-of-way is in compliance with the definitions of a way as required by the Zoning By-law.
2. whether the existing horizontal and vertical alignment of the roadway provides safe visibility:
3. whether the constructed roadway is at least 15 feet wide and paved with adequate provisions for drainage.

All lots proposed for development, whether they be existing lots or lots proposed to be subdivided on such a pre-existing way must comply with the above and conform to the Planning Board's Policy entitled "Determination of Roadway Adequacy."

C. **SUBDIVISION APPROVAL REQUIRED**

No person shall make a subdivision within the meaning of the Subdivision Control Law of any land within the Town, or proceed with the improvement or sale of lots in a subdivision, or the construction of ways, or the installation of municipal services therein, unless and until the Definitive Plan or such subdivision has been submitted to and approved by the Planning Board as hereinafter provided.

D. **DEPOSITS**

The applicant shall reimburse the Town for all-advertising fees, and miscellaneous expenses, and for all engineering expenses incurred by the Board's engineer for all services rendered in reviewing and inspecting the proposed subdivision. Such review and inspections are mandatory and are required for the protection of the applicant, the future residents and the public health and welfare

of the Town. (See also Section VI, C.)

E. **CORRECTNESS OF PLANS**

The Board assumes any plans submitted for its approval or endorsement to be correct, unless otherwise notified in writing. The acquisition of necessary rights and the presentation of complete and correct information to the Board are responsibilities of the applicant, and the failure to do so, including the failure to obtain all necessary permits, licenses, releases or rights, may constitute a reason for the disapproval or recession of approval of a subdivision plan.

F. **BUILDING CONSTRUCTION**

Not more than one building designed or available for use for dwelling purposes shall be erected, placed or converted to use as such on any lot in the Town without the consent of the Planning Board. Such consent may be conditional upon providing adequate ways furnishing access to each site for such building.



### **SECTION III.**

### **PROCEDURES FOR THE SUBMISSION AND APPROVAL OF PLANS**

Any person filing a Preliminary or Definitive Plan shall (1) file with the Board at a scheduled meeting, or by registered mail to the Planning Board in care of the Town Clerk and (2) give written notice to the Town Clerk, by delivery or by registered mail, postage prepaid, that he has submitted such a plan as provided in Chapter 41, 81T or the General Laws.

#### **A. PRELIMINARY PLANS**

##### **1. General**

A preliminary plan must be submitted for all non-residential subdivisions and the Board recommends but does not require a submission for residential subdivision. The purpose of a Preliminary Plan is to provide an initial review of the layout and features of the proposed subdivision by the Board and other town agencies and boards. Changes required by the Board in the Preliminary Plan are to be incorporated in the Definitive Plan thus saving the effort and expense of the applicant. (See also Section II, D. Deposits and Section VI, C, Design Review and Construction Inspection Deposit and Fees.)

##### **2. Procedure**

Any person filing a Preliminary Plan shall file:

- a. Two (2) completed "Application for Approval of Preliminary Plan" Form B. (See Appendix A) One such form shall be directly forwarded by the applicant to the Town Clerk by delivery or registered mail.
- b. Upon submission of a Preliminary Plan the applicant will deliver to the Board five (5) copies showing the requirements of Section III, A, 2, c below.

##### **3. Contents**

The Preliminary Plan will be provided at a scale of 1" = 100' or other scale acceptable to the Planning Board.

The Preliminary Plan may be drawn on tracing paper with pencil and should be prepared so as to form a clear basis for a discussion, the results of which should form a firm basis for design of the Definitive Plan.

The information indicated on the Preliminary Plan shall include:

- a. Subdivision name, boundaries, locus, date, scale, legend and title "Preliminary Plan".



- b. Names and addresses of record owner and applicant and the names of the designer, engineer or surveyor.
- c. The name, approximate location and width of all adjacent streets.
- d. The existing and proposed lines of streets, ways, easements and any public areas within the subdivision.
- e. The approximate boundary lines of proposed lots showing approximate areas and dimensions.
- f. The topography of the land in general manner; proposed alterations in topography.
- g. The proposed drainage system, including adjacent existing natural waterways, in a general manner
- h. Zoning classifications including Flood Plain and Watershed Protection District of the area as indicated in the most recent zoning of the Town of Pembroke.

4. Preliminary Plan Response

Within forty-five (45) days after the submission of the Preliminary Plans, the Board shall notify the applicant and the Town Clerk whether such submission has been approved with modifications or disapproved giving specific reasons for disapproval. Approval at this stage in no manner constitutes approval of the proposed subdivision at the definitive stage.

B. DEFINITIVE PLAN

1. GENERAL

The Board requires the submission of a Definitive Plan for all proposed subdivisions. This plan is the document on which the Planning Board will base its approval or disapproval. Any applicant, who owes the Town any monies for outstanding taxes, permits, fees, applications, engineering reviews, damages, etc., shall not be eligible to submit any definitive plan and any plan so submitted shall be returned to the applicant without any action taken by the Board.

The Definitive Plan must be complete upon initial submission, including drainage calculations, tributary plans, cut and fill plans, erosion control plans, stump disposal plans, recorded easements, waiver requests and all other matters required by these rules and regulations. The Board will act upon the initial submission only. If the Board determines that the initial submission is incomplete, the Board shall return the entire Definitive Plan to the applicant who may submit the complete Definitive Plan at a later date. The date of submittal for a Definitive Plan shall be that date on which the Board determines that the submittal is complete. Said determination shall be made at the next regularly scheduled meeting of the Board.

If the developer desires to revise any portion of the plans (whether or not suggested by the Board) or to submit additional matter not initially submitted, the revisions or supplemental information must be accompanied by a request that the Board extend the time for the Planning Board review for a period of sixty (60) days or such lesser period as the Board may allow.

Within one (1) week from the submission of the Definitive Plan, the developer shall have staked the center line of all proposed roadways indication the stations at which the stakes are located, shall have staked the boundaries of all easement areas and shall clear the area sufficient to allow the Board to view the proposed improvements

2. Procedures

Any person filing a Definitive Plan shall file:

- a. An original drawing of the Definitive Plan and thirteen (13) contact prints thereof, dark lines on white background and (1) set of transparencies 8 1/2x11. The original drawing will be returned after approval or disapproval.
- b. A properly executed application, Form C. (See Appendix).
- c. A deposit for design review in accordance with Section VI, C, Design Review and Construction Inspection Deposit and Fees.
- d. All lots shall meet all of the dimensional regulations of the zoning district as required by the Zoning By-laws of the Town.

3. Contents

The Definitive Plan shall be prepared by a Registered Professional Engineer and a Registered Land Surveyor and shall be clearly and legibly drawn in black india ink upon tracing cloth or equal. The plan must be at a scale as the Planning Board may accept to show details clearly and adequately. Sheet sizes shall not exceed 24" x 36". If multiple sheets are used, they shall be accompanied by an index sheet showing the entire subdivision. The Definitive Plans shall contain the following information:

- a. A cover sheet showing the subdivision name, locus, boundaries, date (including all revisions dates), scale, bench mark and datum, and the name and address of record owner, sub-divider, and seal of the engineer and surveyor.
- b. Each sheet shall state the subdivision name and all revision dates of that sheet.
- c. A certified list of abutters, to include those across the street, along with the appropriate Assessors' sheet numbers and parcel numbers



Said certified list of abutters is available from the Town of Pembroke Assessors' Office.

- d. Lines of existing and proposed streets, ways, lots, easements and public or common areas within the subdivision.
- e. Sufficient data to determine the location, direction and length of every street and way line, lot line, easement line and boundary line and to establish these lines on the ground. Data shall include distances, bearings, and bounds, and also, adequate information to determine location by means of distances and bearings from the nearest existing county, state, or federal bound.
- f. Location of all permanent monuments properly identified as to whether existing or proposed.
- g. Location, names, present widths of streets and pavements, boundaries (Approaching or within reasonable proximity of the subdivision) and the location of nearby utilities including waterlines, roadway drainage, sewerage and electrical lines.
- h. Indication and purpose of easements, both existing and proposed, and copies of the executed and recorded easements affecting, or in the subdivision or on the property outside the subdivision affected by the development.
- i. Suitable space on the cover sheet to record the action and notations of the Planning Board and the signatures of the members of the Planning Board.
- j. Existing and proposed topography at a two (2) foot contour level in the subdivision and within one hundred (100) feet adjacent to the subdivision. Sufficient information to clearly indicate areas within the subdivision where gravel removal or filling is proposed and the approximate volumes in cubic yards. Both the cut and fill areas shall be color shaded on two (2) copies of the plan. Existing topography to show dotted; proposed topography to show solid. Topography shall be indicated on plans drawn at a scale of 1" = 40" or other scale that the Planning Board may require. All elevations shall refer to U.S.G.S. mean sea level base.
- k. Existing profiles on the exterior lines and proposed profile on the centerline of proposed streets a horizontal scale of 1" = 4" or such other scale acceptable to the Planning Board. All elevations shall refer to the nearest U.S. Coast & Geodetic Benchmark, the location of which shall be indicated on the cover sheet.
- l. Proposed layout of storm drainage, water, supply, sewerage disposal systems, sub-drainage and other required utilities.
- m. An identifying number for each lot and lot area shown in square feet.
- n. Zoning District boundaries shall be drawn on the plan and identified to conform to the current Zoning By-laws of the town.

- o. The area in square feet shall be shown for each lot indicating the portion of the lot which lies outside of the Flood Plain and Watershed Protection District, outside of wetlands areas, and is unrestricted by easements.
- p. Profiles of drain lines, culverts, proposed drainage swales not otherwise indicated on roadway profiles at a horizontal scale of 1" = 40' and a vertical scale of 1" = 4'. The profile shall indicate existing and proposed grades and the size, location, slope and invert elevations of the proposed drainage improvements.
- q. Details indicating the proposed construction of all catch basins, manholes, channels, retention/detention areas, swales, headwalls, endwalls, hydrants, roadways, sidewalks, wheelchair ramps and all other improvements required by these regulations and by the Planning Board.
- r. An indication of natural and man-made land features including watercourses, marshes, ledge outcroppings, significant trees, walls, fences, existing buildings, paths and roads. The plan shall show all wetlands in the subdivision and within one hundred (100) feet adjacent to the subdivision.
- s. Location of all the following improvements unless specifically waived in writing by the Board: street paving, sidewalks, street signs, street lighting supports, all utilities above and below ground, curbs, gutters, driveway aprons, street trees, storm drainage, easements and fire hydrants.
- t. A plan for the control of erosion and siltation both during and after construction phases. Such plan shall include the proposed construction sequencing and timing, temporary and permanent erosion control plantings, special constructions (if required by the Board) and swale and stream scour protection.
- u. A plan for the disposal of all stumps off site in accordance with D.E.P. Regulations.
- v. A specific written request for each rule and regulation for which the developer requests a waiver.
- w. The Board may require a plan showing traffic flow patterns within the site, entrances and egresses, curb cuts on site and within 100' of the site, surface construction, estimated daily hour and peak hour traffic levels on site and on all abutting public and private ways.
- x. The design analysis required by Section V.B.1-3 and the tributary plan required by Section V.B.3.
- y. An executed easement to the Town on behalf of itself and its' heirs and assigns granting to the Town perpetual access to all easement areas for repair and maintenance and a covenant to the Town not to fill or alter the drainage or other easement areas. The easement and covenant shall be recorded with the plan and a copy of the recorded easement shall be provided to the Board prior to the release of any lots.



- z. A Landscaping sheet(s) showing only the proposed roadway(s), wheel chair ramps, signs, street trees, and cul de sac planting shall be provided. The number and size of trees and other plantings shall also be specified in tabular form. This sheet shall not contain subsurface utility information or bearings and distances of the roadway right-of-way.
- aa. A Conceptual Lot Development sheet(s) showing the house size and placement, driveway location and grading shall be provided. The sheet shall also show Lot Characterization Number (LCN) for each lot and the areas in square feet of the various components used to determine the "LCN".

4. Review by Board of Health

If the proposed subdivision is to be serviced by the municipal sewerage system, the Board of Health shall, within forty-five (45) days after the date of filing of the plan, report to the Planning Board, in writing, approval or disapproval of such plan. In the event of disapproval, the Board of Health shall make recommendations for the modification of the proposed system. If the municipal system is capable of servicing the proposed sewerage extension, failure of the Board of Health to make such a report shall indicate approval by the Board of Health.

Every lot so located that is cannot be served by connection to the municipal sewerage system shall be provided with an individual sewerage system of the type and construction meeting the approval of the Board of Health. If the proposed sewerage system does not meet with it approval, the Board of Health shall make specific findings as to which, if any, of the lots shown on such plan cannot be used for building sites without injury to the public health and include specific findings and the reasons therefore in such report and, where possible, shall make recommendations for the adjustment thereof.

The Board of Health shall send a copy of its report, if any, to the applicant and the Planning Board.

5. Public Hearing

Before approval, modification and approval, or disapproval of the Definitive Plan is given, a public hearing shall be held by the Planning Board, notice of the time and place of which and of the subject matter, sufficient for identification, shall be given by the Planning Board, at the expense of the applicant, by advertisement in a newspaper of general circulation in the town once in each of two successive weeks, the first publication being not less than fourteen days before the day of such hearing. A copy of said notice shall be mailed to the applicant; all owners of land abutting upon the subdivision, as appearing in the most recent tax list, shall also be notified.

6. Certificate of Approval

The action of the Planning Board in respect to such plan shall be by vote, copies of which shall be certified and filed with the Town Clerk and sent by delivery, certified or registered mail to the applicant. If the Planning Board modified or disapproves such plan, it shall state in its vote the reason(s) for it's' action. Final approval, if granted, shall be endorsed at a scheduled meeting of the Board on the original drawing of the Definitive Plan by the signatures of the majority of the Planning Board, but not until the statutory twenty-day appeal period has elapsed following the filing of the certificate of the action of the Planning Board with the Town Clerk and said Clerk has notified the Planning Board that no appeal has been filed. After the Definitive Plan has been approved, the applicant shall furnish the Planning Board with three (3) prints thereof showing all changes required by said approval and submit an audio-cad capable disk of the final subdivision plan in its entirety, including all modifications as outlined in the order of conditions. The applicant shall supply the Planning Board with a certified copy of the recorded plan prior to the release of any lots.

Final approval of the Definitive Plan does not constitute the laying out or acceptance by the Town of streets within a subdivision.

The approval by the Planning Board shall automatically terminate on the date specified by the Board if the construction of ways and installations of municipal services are not completed by said date.

7. Performance Guarantee

Before endorsement of its approval of the Definitive Plan, the Planning Board shall require that the construction of ways and the installation of municipal services be secured by one, or in part by one and in part by the other, of the methods, which methods may be selected and, from time to time, varied by the applicant set forth in Chapter 41, Section 81U of the General Laws. If a covenant is used, it shall be in the format of Form D. in the Appendix A. and recorded at the time the plan is recorded. A copy of the covenant as recorded, with the Book and Page noted, and shall be submitted to the Board promptly after recording and before any release of lots.

8. Release of Performance Guarantee

Upon completion of the improvements and compliance with the requirements of these rules and regulations, the developer or owner will send by registered mail to the Town Clerk and the Planning Board a written statement that the said construction or installation, in connection with which said bond, deposit or covenant has been secured, has been completed in accordance with the requirements contained under these rules and regulations. Such statement to contain.



- a. A Compliance Certificate in the format of Form E. of Appendix A. signed under oath by the developers' engineer that the development has been completed according to the approved plan and that the As-Built Acceptance Plan shows the true location of all improvements.
- b. An As-Built Acceptance Plan as described in Section IV, B.
- c. Written evidence from the Planning Boards agent as to construction of ways and the installation of municipal services, all in accordance with the approved Definitive Plan. The agent's report shall also specify all variations between the Definitive Plan and the As-Built Plan.
- d. Written evidence from the Board of Health as to the installation of sewerage facilities, if applicable.

If the Planning Board determines that said construction or installation has not been complete, it shall specify to the Town Clerk and to the developer, in writing, by registered mail, the details wherein said construction and installation shall have failed to comply with requirements contained under Section V. Upon failure of the Planning Board to act on such application within forty-five (45) days after the receipt of the application by the Town Clerk and the Planning Board all obligations under the bond shall cease and terminate by operation of law and any deposit shall be returned and any such covenant shall become void.

In the event that said forty-five (45) day period expires without such specification or without the release and return of the deposit or release of the covenant as aforesaid, the Town Clerk shall issue a certificate to such effect, duly acknowledged, which may be recorded.

9. Unencumbered Title

The owner agrees to convey and transfer to the Town of Pembroke, at the request of the Town, unencumbered title in fee to the land within the roadway layout and title to all municipal utilities, rights of way and drainage and other special purpose easements without monetary cost and with clear title, free from liens, encumbrances and conflicting rights.

Any and all expenses involved in obtaining an unencumbered title shall be the responsibility of the owner.

#### SECTION IV. GENERAL REQUIREMENTS AND DESIGN STANDARDS

The applicant shall observe all design standards for land subdivision as hereinafter provided. These standards shall be considered as minimum standards and shall be varied or waived only as provided for in Section VI.

##### A. RELATION TO SURROUNDING AREAS

The subdivision shall be in conformity with the respective zoning requirements and the general layout shall harmonize and conform with plans for Pembroke, as adopted by the Planning Board.

##### B. AS-BUILT ACCEPTANCE PLAN

1. The developer shall provide the Planning Board with one (1) set of reproducible plans and three (3) sets of prints with a legal description and one (1) disk of the completed subdivision. The plans must be prepared by a Registered Engineer and Surveyor and shall clearly indicate the location of all roadway layouts and the extent of all paved roadway surfaces, the entire drainage system, and all required easement areas, all of which shall be located by means of metes and bounds and shall include horizontal control from the nearest existing county, state or federal bound. The Plan shall also clearly indicate roadway elevations, accurate as-built plans and profiles of all subsurface utilities (including but not limited to water, gas, sewer, drainage, electric, telephone, CATV) showing horizontal and vertical location to +/- 1.0 foot, any required improvements, and all modifications or changes from the Definitive Subdivision Plan. The plan shall have a Planning Board signature block with a minimum of seven (7) lines and a date line and also have a Registry block. The signature block should be located above the engineer's certification block on the right hand margin of the plan on all sheets. The applicant shall record the As-built Plan at the Registry of Deeds and present proof of recording to the Board within 30 days of acceptance. Said plans and profiles to be filed in both hard copy and digital format with the Planning Board and the Department of Public Works. As-Built Plan must be submitted to the Planning Board by their second meeting date in August and must be totally constructed.
2. The engineer may add a note, which shows the Dig-Safe Telephone Number, to the plan.

##### C. STREETS

###### 1. Location and Alignment

- a. All streets in the subdivision shall be designed so that, in the opinion of the Planning Board, they will provide for safe vehicular travel. Due



consideration shall also be given by the developer to the attractiveness of the street layout in order to obtain the maximum amenity of the subdivision. Long straight roadway sections should be avoided on minor streets.

- b. Provision, satisfactory to the Planning Board, shall be made for the reconstruction of adjacent public ways or the additions of alternate access roads or other remedial steps in cases where the development of the subdivision may cause congestion or a danger to pedestrian or vehicular traffic on the adjacent public ways.
- c. The minimum centerline radius of curved streets shall be one hundred fifty (150) feet. Greater radii may be required for secondary or major streets.
- d. All reverse curves shall be separated by a tangent at least one hundred fifty (150) feet long.
- e. Streets shall be laid out so as to intersect as nearly as possible at right angles. No street shall intersect any other street at less than 75 degrees.
- f. Property lines at street intersections shall be rounded or cut back to provide for a curb radius of not less than thirty (30) feet. This provision requires the curb radius to be measured at the edge of the roadway layout and not at the edge of the constructed way.
- g. Streets shall be located directly opposite existing or proposed cross streets, if any. All proposed streets, except those to be located directly opposite an existing or proposed cross street, as provided above, shall be located so as not to create an intersecting street within four hundred (400) feet of an existing or proposed intersecting street. Distanced between intersection streets shall be measured from the centerline to centerline.
- h. All intersections with existing ways or with proposed ways shall be designed so as to afford, in the opinion of the Board, safe and adequate sight distances. Said sight distances shall be designed for a point, which is 6 inches above the paved roadway surface. The sight distance shall be based upon the maximum actual speed upon, or the design speed of, the traveled way, whichever is greater, and not upon any posted speed limit.

## 2. Width

- a. The minimum width of street rights-of-way shall be as specified in Appendix B. Greater width shall be required by the Planning Board when deemed necessary for present and future vehicular travel.
- b. The typical cross section for streets shall conform to that indicated in Appendix B.

3. Grade

- a. Grades of streets shall be not less than 1.0%. Grades shall not be more than 6.0% for major or secondary streets and not more than 10.0% for minor streets.
- b. All changes in grade exceeding one (1) percent shall be connected by vertical curves of sufficient length to afford, in the opinion of the Board, adequate sight distances. All sight distances shall be designed for a point which is 6 inches above any paved surface.
- c. When any street enters another street, whether said other street is within or adjacent to the subdivision, a leveling area shall be provided on said entering street, in compliance with Aashto standards, for a distance of not less than fifty (50) feet, measured from the nearest edge of the traveled area. The grade of the centerline leveling area shall be between -1% to -3%.

4. Dead-End Streets

- a. Dead-end streets shall not be longer than 1,000 feet of total cumulative roadway length.
- b. Dead-end streets shall be provided at the closed end with a turn-around having an outside roadway diameter of at least one hundred (100) feet and a property line diameter of at least one hundred twenty (120) feet, or a temporary turn-around at the option of and as directed by the Planning Board.
- c. Permanent turn-arounds shall be profiled along the centerline turning radius and the center shall remain in a natural or landscaped condition in a manner acceptable to the Board. The maximum profile grade for a turn-around shall be two (2) percent.
- d. The paved surface, excluding berms and curbing, of all turn-arounds shall be a minimum of twenty-four (24) feet in width. Greater widths may be required on turn-arounds at the end of major and secondary streets.
- e. All turn-arounds or cul-de-sacs shall be designed in accordance with Plate #4B. of Appendix B., Construction Standards, except where greater widths may be required on major or secondary streets.
- f. When a roadway is to be extended off of a cul-de-sac, the cul-de-sac will be removed and the roadway will be straightened. Where existing pavement has been removed, grass strips will be installed and trees may need to be planted as determined by the Planning Board. The existing roadway and sidewalks will be scarified with new Streets off Major Streets surfacing starting at Station 0.0 of the original subdivision roadway to the end of the new roadway. Driveway aprons will be brought out to the street to conform to Department of Public Works standards. Drainage may need to be changed to accommodate drainage issues in the street and may need to be modified.



- g. Dead-end streets off Major Streets shall not be longer than 1,000 feet of total cumulative roadway length when the proposed roadway has access from a major street. See Definitions Section 2.A. located on page 5.
- h. Dead-end streets off Secondary Streets shall be no longer than 1,000 feet of total cumulative roadway length when the proposed roadway has access from a secondary street. See Definitions Section 2.A. located on page 5.
- i. Dead-end streets off Minor Street shall be no longer than 1,000 feet of total cumulative roadway length when the proposed roadway has access from a minor street. To determine cumulative length measurement will begin from the location where the minor street gains access from a major or secondary street and not from the point that the proposed street gains access from a proposed, approved or constructed minor street. See Definitions Section 2.A. located on page 5.

5. Maintenance

All roadway and drainage repair and maintenance including snow removal and sanding shall be the responsibility of the applicant or his assigns until acceptance of the roadway by the Town at a Town Meeting.

6. Use

Only lots with sufficient frontage on the subdivision streets may use the streets for access unless the Board otherwise approves.

D. EASEMENTS

Prior to release of any lot, the developer will execute and record an easement to the Town of Pembroke on behalf of itself and its assigns granting the Town perpetual access to all easement areas for repair and maintenance and a covenant to the Town not to fill or alter the drainage or other easement areas. Easements for utilities across lots or centered on the rear or side lot lines shall be provided where necessary and shall be at least twenty (20) feet wide.

All easements, including those for drainage systems, slopes, public utilities, retaining walls, etc., but especially slope easements, shall extend at least ten (10) feet in all directions beyond the limits of any construction, installation, or area requiring maintenance or protection. Areas of construction shall include the installation of any utilities, drainlines, retaining walls, and slopes, that have been created, erected, or altered during the subdivision process. In addition, easements shall be required for the entire drainage system servicing the subdivision. All easements shall be clear of vegetation, large trees, shrubs and structures. Grass will be allowed.

E. PROTECTION OF NATURAL FEATURES

All lots shall conform to the LCN By-law contained in the Pembroke Zoning By-laws.



F. STOP WORK ORDERS

At any time during the course of construction the Board may issue an order to cease some or all work within the subdivision or to undertake corrective or remedial work whenever the applicant has violated these rules and regulations, plan specifications or conditions of approval. The applicant shall comply with all such orders and failure to do so shall entitle the Board to rescind or amend plan approval or to undertake, at applicant's expense, any corrective or remedial action.

## SECTION V. – REQUIRED IMPROVEMENTS FOR APPROVED SUBDIVISION

### .A. STREETS AND ROADWAYS

#### 1. Initial Preparation:

The entire area of each street or way shall be first cleared of all stumps, brush, roots, boulders, debris, like materials and all trees not intended for preservation. All loam, top soil and other yielding material shall be removed from the roadway area to the depth encountered and for the full width of the paved way and stockpiled for use within the subdivision. Rock and boulders shall be taken away or broken off to a depth of not less than 12" below the bottom of the subgrade. (First Inspection) All organic materials shall be completely removed and replaced with approved fill and compacted.

The applicant shall install temporary erosion control in accordance with the Erosion Control Plan as approved by the Planning Board. Erosion Control devices shall be maintained in good condition throughout construction and until permanent erosion control is in place and stabilized.

#### 2. Utilities

All drains, public utilities, including cable t.v. service and water mains, including individual service laterals, shall be underground and installed to the lot lines and the roadway inspected as hereinafter provided (Second Inspection) prior to an further construction of the roadway.

#### 3. Fill

No fill shall be put in place until clearing, grubbing, topsoil stripping and removal of organic or other unsatisfactory material has been satisfactorily completed.

Fill material shall be suitable existing material obtained from excavations or borrowed from off-site sources, and shall be granular soils free of roots, organic material, rubbish, stones over 6" in diameter and frozen soil.

Fills shall not be constructed with material from rock excavation.

Fill shall be placed in successive horizontal layers of 8" to 12" in loose depth and compacted with approved equipment to at least 90% of laboratory maximum density (ASTM D 1557 Method D). Completely compact each layer before placing the next layer. Do not place, spread or compact fill material while ground or fill material is frozen or partially thawed and during unfavorable weather conditions. Fill material which has an excessive moisture content shall not be compacted until the material has been aerated by grading, harrowing or other methods to remove the excessive moisture.

4. Roadway Base Construction

The roadway shall be brought to subgrade as shown on the profiles of the Definitive Plan and in accordance with the approved cross section, as follows:

a. Preparation

The contractor shall not begin placement of road base material until all earthwork and utility installation work has been completed. The road base shall be fine graded to the proposed profile grade and cross section.

b. Bank Gravel

At least eight (8) inches (compacted) of good, clean bank gravel shall be placed and rolled with at least a ten ton roller. The surface shall be wet during rolling to bind the material. Prior to placement of select gravel, the roadway shall be inspected. (Third Inspection)

c. Select Gravel

Thereafter, the roadway shall receive a layer of select gravel of at least four (4) inches in thickness. This layer shall also be wet and rolled with said roller. All gravel used in roadway construction must meet M.D.P.W. Standards as outlined below. Prior to any further construction, the roadway shall be inspected as hereinafter provided. (Fourth Inspection)

d. Fine Grading and Compacting

Before the bituminous base course is spread, but not more than 48 hours prior to spreading, the subgrade shall be shaped to a true surface conforming to the proposed cross section of the roadway and compacted in accordance with the provisions of subparagraphs b. and c. above. All depressions and high spots shall be filled with suitable material or removed and such areas again compacted until the surface is smooth and satisfactorily compacted. A tolerance of  $\frac{1}{2}$  inch above or below grade is not maintained for a distance longer than 50 feet and that the required crown is maintained in the subgrade. Any portion of the subgrade which is not accessible to a roller shall be thoroughly compacted with mechanical tampers or by other adequate methods approved as satisfactory by the Board's consulting engineer. (Fifth Inspection)

e. Gravel Composition

1. Bank Gravel

Bank gravel shall consist of inert material that is hard durable stone and coarse sand free of loam and clay and having no stones larger than six (6) inches. The grading of the material shall conform to the following:

Passing $\frac{1}{2}$ inch sieve	50-85% maximum
Passing No. 4 sieve	40-75% maximum
Passing No. 40 sieve	10-35% maximum
Passing No. 200 sieve	0-10% maximum



2. Select Gravel

Select gravel base coarse material shall consist of approved, hard, durable stone and coarse sand, bankrun or blended, free of loam and clay, uniformly graded and containing no stone having any dimension greater than 1 ½ inches. When spread and rolled, it shall form a firm foundation. The grading of the material shall conform to the following requirements:

Passing 3/8 inch sieve	70% maximum
Passing No. 10 sieve	50% maximum
Passing No. 200 sieve	5% maximum

5. Roadway Paving

- a. After the roadway has been finished with the top gravel coat and inspected (Fifth Inspection), it shall receive the following surface treatment: The roadway shall be paved to the thickness of four (4 ½) inches measured after compaction with two (2) courses of Bituminous Concrete pavement, Type I-1, Base Course, 1 ½" per course, and 1 ½" of Bituminous Concrete Type I-1, Surface (wearing) Course. The aggregate shall consist of clean coarse, sound angular fragment of crushed stone and fine aggregates of clean, ground, durable natural sands or sands manufactured from crushed stone or gravel, or any combination of natural and manufactured sands. Aggregate shall conform to the following:

Percent By Weight Passing

<u>Sieve</u>	<u>Base Course</u>	<u>Top Course</u>
1	100	
3/4	80-100	
1/2	55-80	100
3/8		80-100
No. 4	28-50	50-76
8	20-38	37-54
16		26-40
30	8-22	17-31
50	5-15	10-23
100		6-16
200	0-15	2-7

Asphalt cement shall conform to ASTM D946, penetration grade: 85-100. Percent by weight in the mix shall to 4.5 to 5.5, Base Course, and 5.5 to 7.0, Top Course. Liquid asphalt for tack coat shall be RC-2.

b. Preparation

The Contractor shall not begin placement of road base material until all earthwork and utility installation work has been completed. The road base shall be fine graded to the proposed profile grade and cross section.

c. Placement of Paving

(1.) General

Bituminous Concrete shall not be placed on wet or frozen subgrade or previous courses and during rainy or snowy weather. No mix conforming to the requirements of these Rules and Regulations shall be placed when ambient temperatures are 40 F or below and falling. Bituminous Concrete shall be delivered to the work site at a temperature of not less than 260 F. No mixture shall be placed unless the breakdown and intermediate rolling can be completed by the time the material has cooled to 170 F. and provided the density of the completed material attains at least 95% of the laboratory maximum dry density. No paving shall be placed on weekends or after 4 p.m. on weekdays unless the Planning Board's review engineer is available to be on site.

(2.) Base Courses

The base courses shall consist of two layers of Class I Bituminous Concrete Pavement – Base Course, 1 1/2" per course (Compacted thickness) in accordance with MA Highway Specifications. There shall be at least 24 hours and not more than 72 hours between the laying of the first and the second base courses and construction equipment shall not traverse the roadway during the interim period. The gravel base will be inspected immediately prior to paving and continue throughout the paving process. At the end of each day's paving, each course shall be offset 10' minimum so course joints are not vertically aligned.

Utility frames, boxes, etc. shall be temporarily set to the base course surface grade, and shall be reset to finish surface just prior to the placement of the top course. Bituminous Concrete removed to facilitate resetting shall be replaced with cement concrete. The use of riser rings to adjust grates/covers to the elevation of the final surface grade shall not be permitted. (Sixth Inspection)

Contact Surfaces of curbing and utility frame boxes shall be given a thin coating of tack coat material

The stormwater management system including all roadway drainage structures shall be operational once the base course of pavement has been placed. This shall include temporary siltation and erosion control measures as approved by the Planning Board.

Once the base course of pavement has been placed and prior to the placement of the granite curbing and the wearing course of pavement, the location of the roadway pavement with the Right of Way shall be checked and certified to the Planning Board by the developer's engineer/surveyor.

(3.) Surface (Wearing) Courses

Prior to placement of the surface course of pavement all utility frames, drainage frame and grates/covers shall be reset to the elevation of the final surface grade. The use of riser rings to adjust grates/covers to the elevation of the final surface grade shall not be permitted.

The 1 ½" surface course shall consist of Class I Bituminous Concrete pavement and shall not be placed until, in the opinion of the Planning Board, all other construction, including utilities, drainage structures, outfalls, slope stabilization and permanent erosion control has been completed. (Seventh Inspection)

Prior to installation of the finish course, all edges, ruts, holes and damaged areas of the base course shall be repaired with like base course material, laid hot and compacted. All sand, dust and other foreign materials shall be removed before placing the next course.

6. Inspection Schedule

The developer of this subdivision shall contact the engineer retained by the Planning Board fourteen (14) days prior to commencing construction and shall contact the engineer during construction at all times required by the Rules and Regulations and requested by the engineer. The applicant shall request each inspection at least three (3) business days before the preferred date for such inspection.

a. Inspections shall be as follows:

- (1.) First Inspection – Following initial preparation of site, including temporary erosion control
- (2.) Second Inspection – Installation of utilities, prior to and during back-filling
- (3.) Third Inspection – Installation of 8" gravel



- (4.) Fourth Inspection – Installation of 4” select gravel
  - (5.) Fifth Inspection – Fine grading and compacting
  - (6.) Sixth Inspection – Prior to and during paving of base course
  - (7.) Seventh Inspection – During construction of roadway, finish grading, vertical curbing, walks and erosion control
  - (8.) Eighth Inspection – During paving of surface course, berms and Sidewalks
  - (9.) Final Inspection – Following cleanup and implementation of permanent erosion control and cleaning of drains and roadway.
- b. The Planning Board or its’ agent may require interim inspections as necessary to insure proper construction of roadway and appurtenances.
  - c. The Planning Board may also require testing to verify the satisfactory performance of the work. Copies of test reports shall be submitted to the Planning Board or its’ consultant. Testing may be required for, but not limited to, the following:
    - (1.) Fill material.
    - (2.) Backfill material.
    - (3.) Roadway and sidewalk base material.
    - (4.) Compaction.
    - (5.) Bituminous concrete.
  - d. Materials which do not meet the specifications contained herein and in Appendix B shall be redone until satisfactory.

B. DRAINAGE

Adequate disposal of surface water shall be provided in accordance with the following specifications and approved by the Planning Board. Drainage shall not be placed or deposited in any Town Drainage System without the written approval of both the Highway Surveyor and the

Town's Drainage Commission and without detailed drainage calculations showing sufficient capacity of the existing Town Drainage System to handle the additional amount of drainage. There shall be no adverse impact from any drainage system of the subdivision on any property located beyond the bounds of the subdivision. When drainage is not deposited in a Town Drainage System, it shall be retained on site and retention areas shall be utilized to contain said drainage.

No open trench drainage shall be allowed within any subdivision.

1. Design Analysis

Drainage Plans, Profiles and Computations shall be submitted with the Definitive Plan and prepared by a qualified Registered Professional Engineer. The analysis shall clearly indicate all of the computations for the drainage system, including determination of pipe size, slope, velocity, length, capacity and strength, design flow, and a statement concerning the disposition of flow.

All areas where the flow is discharged to the ground surface will require a drainage easement over the ground subject to flow, obtained by the applicant, and a statement to that effect shall be included with a design analysis. (Reference Section III, B, 3, h & x)

The analysis and drainage design shall meet all requirements of the Massachusetts Stormwater Management Policy.

2. Design Storm

A rainfall having a frequency of occurrence of once in 10 years has been selected for design computations for drain lines unless, in the opinion of the Planning Board, a larger design storm is necessary. This storm amounts to 1.8 total inches of rain in one hour. Intensities for small areas correspond to the time of concentration for the area. A rainfall having a frequency of once in 50 years shall be used for roadway culvert design.

Constructed retention areas shall be accessed by an easement that shall exceed the constructed area by a minimum of 10 feet on all sides. The design of such areas shall be approved by the Board prior to endorsement of the plan.

The size and limits of all drainage easements, both within and

outside the proposed subdivision, should be sufficient to totally contain the resulting maximum flow, spread and/or impoundment of a 24-hour storm.

3. Computation of Runoff

Runoff analysis shall be calculated by using the "Rational Formula" or other approved method which allows for infiltration, filling minor depressions and other losses. The factors used in the Rational Formula are based on the assumption of built up areas throughout town. Pipe, size computed on this basis will be slightly oversized for present land development but will allow adequate capacity for future land development.

Computations shall be based on full development of all tributary areas up gradient of each system. A tributary area plan shall be submitted with the computations and analysis.

4. Selection of Drain Size

The proper drain size may be calculated by using "Manning's Formula" with a "Kutter's" "n" value of .013 for concrete pipe. The minimum size of pipe shall be 12 inches in diameter. Culverts and drains shall be large enough to pass the design storm without surcharge. At manholes, when pipe size changes, the crown of the inflow pipe shall be the same elevation as the crown of the outflow pipe.

5. Type of Pipe

All storm drains shall be reinforced concrete of adequate strength. Concrete pipe shall conform to the State of Massachusetts standard specifications for Highways and Bridges, as amended.

6. Slope of Pipe

All pipes shall be laid on a slope so that the minimum velocity with the pipe flowing full shall be 2.0 feet per second. The maximum velocity with the pipe flowing full shall to 10.0 feet per second.

7. Frames, Grates and Covers

Gray cast iron, ASTM A-48, Manhole frames and covers shall be LeBaron Foundry Co. Catalog No. LK110A with the word "Drain" embossed on the cover, or approved equal. Catch basin frame and grate shall be LeBaron Foundry Co. Catalog No. LK120 frame with waffle (Type F) grate or approved equal.



8. Catch Basin and Manholes

a. Materials

Drainage manholes and catch basins shall be precast, reinforced concrete with a minimum inside diameter of 48 inches. Joints to be mastic, rubber gasket or cement mortar. Manholes to service pipes larger than 30" diameter shall require a special manhole in accordance with Massachusetts M.D.P.W. Construction Standards.

b. Placement

Catch basins shall be installed on both sides of the roadway at low point on continuous grades at intervals not to exceed 300 feet, from another catch basin or high point and at intersections. Such catch basins shall be provided with granite headers with storm inlets. (See detail plate – Appendix B.)

All catch basins shall be connected directly to manholes. Manholes shall be required at every change in direction, slope or diameter in the drainpipes.

9. Trench Excavation

The trench for the pipe shall be excavated to the required line and grade including earth, boulders and ledge. Trenches for storm drains shall be no wider than the outside diameter of the pipe plus 16" for pipes through 18" nominal diameter, and the outside diameter plus 24" for pipe larger than 18". This trench width shall apply from the top of the pipe to the bottom of the trench. Above the top of the pipe the trench may be as necessary to properly install the pipe. Trenches with side slopes steeper than the natural angle of repose of the soil shall be sheeted in an approved manner in conformance with Federal and State safety regulations, as necessary to avoid cave-ins and sloughing.

All excavations shall be properly barricaded and lighted at night where they are close to pedestrian or vehicular traffic. Before any pipe is placed in a newly constructed fill, the Contractor shall place the fill 2' (minimum) above the top of the proposed pipe elevation before excavating the trench. If any cross pipes, conduits, drains or other unforeseen obstacles are encountered in the excavation which cannot be relocated, the drain shall be redesigned to avoid the obstruction in a manner suitable to the Planning Board or its' agent.

Possible obstructions to the line shall be investigated prior to the construction of the drain in its immediate vicinity. All unsuitable material for backfill is to be removed from the site.

10. Pipe Bedding

Trenches shall be excavated with a flat bottom, but the full length of the pipe, except the bell, must rest upon undisturbed soil except as hereinafter specified. Where trenches have been over-excavated, a selected earth or gravel foundation, thoroughly compacted, shall be provided for proper pipe bedding. Soil, which is considered to be unsuitable by the Planning or its' agent, shall be removed below the bottom pipe and replaced with compacted sand and gravel to the bottom of the pipe. Unsuitable soil or other excavated material shall be disposed of in an approved manner.

11. Pipe Laying

Pipe shall be laid starting with the downstream end. Grade boards, lasers, or other approved devices shall be provided to insure that the pipe is laid true to line and grade. Reference benchmarks shall be clearly marked to enable the Inspector to quickly check the grade and invert elevations.

Rubber gaskets shall be used at all pipe joints. The downstream pipe shall be laid with groove or bell end facing upstream in the proper position. The spigot or tongue end shall be placed in the bell or groove such that the inverts match.

12. Backfilling

After the pipe has been laid and inspected, the trench shall be backfilled. (Second Inspection) The space under the pipe haunches shall be carefully filled with selected material, free from stones or frozen earth, and compacted carefully to prevent the pipe from moving. The layer of backfill up to 12 inches over the top of the pipe shall also be of selected material free from stones and frozen earth, well compacted. The remainder of the trench shall be backfilled in 12 inch layers, except as noted below, and each layer shall be fully compacted to at least 90% of laboratory maximum density (ASTM D1557 Method D). Under roads or other traffic areas the trench shall be backfilled in 6 inch layers with each layer compacted to the same 90% density as above. Pavement and base course materials removed during the excavation process shall be replaced with pavement and base course to match those removed. When, in the opinion of the Planning Board or its' agent, the excavation is deep enough to warrant it, temporary pavement shall



be provided as directed. Trenches not in pavement shall be left in a mounded condition as directed by the Planning Board or its' agent.

13. Security Bars

Security Bars shall be provided at the entrance and outfall of all culverts or open pipe drains. Bars shall be constructed according to the detail indicated on Plate 8, or of a design approved by the Planning Board or its' agent, and the grate shall be installed in a manner approved by the Planning Board or its' agent. A suitable drawing of the grate and method of installation shall be submitted for approval with the plans for the drains and appurtenances.

14. Headwalls and End walls

Precast or Cast-in-place concrete shall be provided at both ends of culverts and the discharge ends of storm drains and shall conform to the tables of the Detail Plate – Appendix B. Flared end sections may be used, if by the Planning Board. No headwall or end wall shall be located within twenty (20) feet of any roadway layout.

15. Scour Protection

The discharge ends of all drains shall be protected with a rip-rap apron of a width not less than 10 times the nominal pipe diameter from the end of the discharge pipe and composed of a six (6) inch layer of stones placed on a bed of sand and gravel six (6) inches in thickness. The rip-rap for exit velocities greater than five (5) feet per second shall be composed of a layer of stones twelve (12) inches in thickness or more placed upon a bed of sand and gravel six (6) inches in thickness. The stone shall be sized so that not less than 60% shall have one dimension twelve (12) inches or more and in accordance M.D.P.W. Std.258.20. The stones, after being laid, shall be carefully chinked by hand to make a reasonable smooth and shaped surface. Where exit velocities are greater than ten (10) feet per second, the thickness of stones and dimensions of the individual pieces shall be sized to prevent displacement by the flow. In this case, details and calculations shall be submitted to the Planning Board or its' agent for approval. In addition, rip-rap will be required for all drainage channels having design flow velocities greater than five (5) feet per second and for any changes in direction or intersection of drainage channels.

16. Recorded Easements

Shall be required for the entire drainage system of any subdivision. Prior to the release of any lots, the developer will execute and record an easement to the Town of Pembroke on behalf of itself and its

assigns granting the Town perpetual access to all easement areas for repair and maintenance and a covenant to the Town not to fill or alter the drainage or other easement areas.

C. WATER PIPES AND RELATED FACILITIES

Water pipes and related facilities such as hydrants, blow-off and shut-off valves shall be installed within the subdivision, providing all lots on each street with municipal water supply for domestic and fire protection use. On Minor streets, all water service shall be installed on that side of the street without the sidewalk.

All plans for the installation of municipal water supply require the approval of the Board of Water Commissioners.

Hydrants shall not be farther than 500 feet apart unless a waiver for a greater distance is approved by the Planning Board. The cost for materials, labor and installation shall be borne by the applicant.

Materials used in such installation shall conform to the Town Water Department specifications. Water mains shall be no less than 8 inches in diameter and shall be of larger size when required by the Board. All water pipe and facilities including curb stops for each lot shall be constructed prior to the finish grading of the roadway base.

All hydrants shall be placed in accordance with Typical Roadway Section (Appendix 8) and shall open LEFT. Gate valves shall open RIGHT. The type of hydrant and valve shall be approved by the Town Water Department.

Individual lot connections shall be installed from the water main to the lot line of each lot within the subdivision. Connection shall only be made to existing mains when, in the judgment of the Water Department, the capacity is sufficient to accommodate the additional connections. Curb stops shall be compression type or approved equal and shall be placed at the lot line.

Where adjacent property is not subdivided or where all the property of the applicant is not being subdivided at the same time, provision shall be made for the future extensions of the utility system by continuing the mains for the full length of streets and the exterior limits of the subdivision at such grade and size which will, in the opinion of the Board, permit their proper future extensions. Applicant shall provide all necessary easements required by the Board. Water mains shall have at least five (5) feet of cover material and located in accordance with Typical Roadway Section Plate – Appendix B.

All dead-end water mains shall terminate with a hydrant, placed on an area, which would allow for proper drainage of water for periodic flushing.



The applicant is required to show on an "As-built" Plan two distance ties from permanent objects to each gate valve, curb box, and tee connection.

All water mains and appurtenances shall be disinfected and pressure tested in accordance with A.W.W.A. and Town Water Department standards. The applicant is required to notify the Water Department 48 hours prior to testing. All testing shall be inspected by a Water Department representative.

D. SIDEWALKS

1. General

Sidewalks shall be required on both sides of the street for major, secondary and minor streets and as required by the Planning Board. The grade shall be at least 1" above curb and/or curb inlet grade and shall have a smooth and continuous grade transition to driveways or other grade changes. Sidewalks shall be in accordance with specification **a** below unless extension, expansion or repair of existing bituminous concrete shall be under **b**.

The applicant may request a waiver of the sidewalk for one side of the roadway provided the applicant agrees to pay a sum equal to the cost of construction of said sidewalk. The Planning Board will receive a check, in the amount of which to be determined by the Planning Board Engineer, prior to the release of any lots.

- a. Cement Concrete  
4" thick cement concrete, reinforced with No. 4, 4" x 6" mesh, 3,000 lb. concrete wood float finished, placed on a base of at least 12" of well compacted gravel.

An expansion joint (3/4" open) shall be provided at least every 20'. Dividing joints shall be scored every 4'. Base gravel material shall be in accordance with the specifications outlined above for street construction, provided that no stone shall have a dimension in excess of 2 1/2".

It shall be thoroughly compacted, using a sidewalk roller weighing at least two tons. (See Detail Plate – Appendix B).

- b. Bituminous Concrete  
The foundation shall be 8" of bank gravel as specified in (a) above material and compaction. The wearing surface shall be laid in two courses – a 2" binder course and a 2" top course the thickness to be

measured after compaction. The material and application shall conform to the specifications for roadway surfacing. The use of a paving machine is allowed providing all conditions in Plate #3 are adhered to. Any other method of installing bituminous concrete sidewalks will require a waiver from the Planning Board. (See Detail Plate - Appendix B). Bituminous sidewalks shall be compacted using a two ton roller.

1. Access Aprons

Each lot within the subdivision shall be served by a paved apron 10' wide and 10' deep from the back edge of the Cape Cod Berm constructed as required by Section V, A of these rules.

E. CURBING

1. General

Curbing is required along both sides of all roadways and shall be one of the following types:

- a. Granite Curb – Type VA-5 (See Detail Plate Appendix B)
- b. Bituminous “Cape Cod” – (See Detail Plate – Appendix B)

Vertical granite curb shall be required in the following cases:

- a. At all finished roadway grades exceeding 6%.
- b. All header and terminal curb sections to catch basins.
- c. All street intersections along turning radius extending a minimum of 8' tangent along each side of each roadway plus a 4' terminal curb section.
- d. Traffic islands and the center of cul-de-sacs.
- e. When granite curbing for 6% grades terminates within 100' of granite curb rounding, the granite curb shall be extended to connect both sections so as to provide a clear and continuous line.
- f. On both sides of all major and secondary streets.
- g. On roadway curves, the radii of the curb sections shall be equal to the radii of the roadway curve. Short straight sections shall not be used to approximate the required radius.



2. Terminal Curb Sections

Terminal curb sections shall consist of granite curb, 4' minimum in length, placed at a slope so that the top of stone is at finished road pavement grade at its terminus. (Reference Detail Plate – Appendix B)

3. Granite Curb Construction

Excavate a trench at least eighteen (18") inches wide to a minimum depth of six (6") inches below the bottom of the curbstones. The edge of the trench shall be six (6") inches from the curb line into the roadway. Shape the excavation to a uniform surface and tamp. Place curb base material in the full width of the trench for curb foundation. The base material shall be a six (6") inches of concrete – placed dry. See Plate No.5

Set the stones on the foundation true to line and grade with the front face vertical with a seven (7") inch reveal. Add or remove curb base material as necessary to adjust the stones and to provide full, uniform support. Backfill the curb front and back with poured cement concrete (3500) psi. Do not set curb and curb base material or backfill on frozen or thawing subgrade. Fill the space between curbstones with cement mortar and point the mortar joints.

All driveway openings tilt the last curbstone so that the top of the stone is finish road pavement grade at the edge of driveway. (Terminal Curb Section)

F. SIDE SLOPES

Side slopes shall be constructed, graded and compacted so as to have a maximum rate of 3 to 1 to a point where it coincides with the existing grade. Side slopes shall have a leveling area of two (2) feet minimum as shown on the Typical Roadway Section. Appendix B. Each slope and drainage area created by construction must be fully stabilized to the satisfaction of the Board within 30 days of the commencement of construction. The aforementioned stabilization must apply to the entire area of the slope or drainage area and may, at the discretion of the Board, require supplementing with hay bales. No work except stabilization may proceed within the subdivision subsequent to the formation of said slope or drainage area if this condition is not met. Reference Erosion control Plan Requirement, Section III, B., 3., s.

The Board may require permanent slope easements of the Definitive Plan, or from other owners, in order to provide access and the right of repair to the Town or the individual responsible for repair.

G. TOPSOIL REMOVAL

No removal of topsoil from the development shall be made until a six (6) inch thickness of loam has been provided throughout the entire area of all lots and on the planting strips along the roadway. Only such areas as roadways and areas requiring filling may be stripped of topsoil. Areas on the lot where cut and fill is not required for construction of the road shall not be stripped of topsoil. Only surplus loam, after the above requirements have been met, may be disposed of.

H. LOAMING AND SEEDING

1. General

All disturbed areas within roadway, cut and fill areas, stump disposal areas, walkways, easements, etc. shall be cleared and grubbed at least six (6) inches of an approved loam topsoil shall be applied. These areas shall be protected from erosion and seeded with an acceptable perennial lawn grass or other approved ground cover. Planted areas will not be accepted until there is a substantial, uniform and healthy growth and until roadway construction has been completed.

2. Materials

- a. Topsoil shall be a natural soil representative of productive sols in the vicinity, free of subsoil, foreign matter, roots and stones larger than one (1) inch in diameter.
- b. Lawn seed shall not exceed 1% weed content and shall be fresh, clean, new crop seed composed of the following varieties mixed in proportions and testing minimum percentages of purity and germination indicated:

<u>Common Name</u>	<u>Proportion By Weight</u>	<u>% Purity</u>	<u>% Germination</u>
Kentucky Bluegrass	10	85	80
Red or Chewing Fescue	6	97	80
Redtop	2	92	90
White Clover	1	96	90

- c. Commercial fertilizer shall consist of an N-P-K mixture, either 5-10-5 (5 parts nitrogen, 10 parts phosphorous, 5 parts potassium) or 4-12-4 (4 parts nitrogen, 12 parts phosphorous, 4 parts potassium). The above fertilizer shall be transported in containers which will insure proper protection and handling.



3. Construction

a. Finish Grading

All areas which have been regarded or stripped of topsoil shall be scarified, leveled and brought to an accurate sub grade. Topsoil shall be spread after subsoil fills are properly settled and subsoil has been scarified to insure proper bond. The settled topsoil shall meet the approved finish grade and shall be at least six (6) inches deep. Where existing topsoil is satisfactory, the seed bed shall be prepared by plowing or tilling to a depth not greater than the topsoil thickness, then harrowing the dragging thoroughly.

b. Preparation of Seed Bed

A few days before seeding, commercial fertilizer (as specified above) shall be evenly distributed, at the rate of 25 lbs. of fertilizer per 1,000 square feet of lawn area, and raked into the soil.

c. Maintenance

All seeded areas shall be watered and maintained until a thick stand of grass is established.

After three or four weeks of favorable growing weather, all bare spots shall be recultivated, reseeded, raked and rolled as per subparagraph b., above.

d. Seasonal Limits

Seeding shall be done during the proper season. No seeding shall be done in frozen soil or during unfavorable weather conditions at which time temporary mulch may be required.

I. MONUMENTS

Monuments shall be installed at all street intersections, at all points of change in direction or curvature of streets, at all points bounding a drainage easement and at other points where, in the opinion of the Board, permanent monuments are necessary. Such monuments shall be at least 6' square x 4' long reinforced concrete or granite posts and must extend from 3 1/2' below finished grade to not more than 6" above ground unless otherwise specifically authorized by the Board in writing. No permanent monuments shall be installed until all construction, which could disturb or destroy monuments, is completed and all monuments shall be shown on the As-built Plan.

J. STREET TREES

Street trees not less than 3" caliper 3' from grade and of a species approved by the Planning Board shall be planted on each side of every street in the subdivision

wherever, in the opinion of the Planning Board, existing woodlands or suitable individual trees are not retained. Trees shall be located inside the layout not greater than 60 feet apart in the layout with not fewer than two (2) trees per lot. Trees are to be planted 15 months prior to signing of the As-built Plan. Types of trees, which will be accepted, are: Locusts, Crimson King Maples, Ornamental Bradford Pears and Little Leaf Lindens. All trees shall be guaranteed for one full year after acceptance of As-Built Plan. A root shield shall be placed 12 inches down and 1 inch below grade for a distance of 3 to 4 feet on sidewalk side.

K. **SIGNS**

The applicant shall furnish and erect necessary street signs to designate the name of each street in the development; said signs to conform to those used by the Town. The applicant shall be required to install stop signs at all intersections created by the proposed subdivision. The applicant may be required to install other signs deemed necessary by the Board for safety.

L. **STREET LIGHTS**

The applicant shall be responsible for the cost of furnishing, erecting and illuminating street lights at locations approved by the Planning Board for a period of two (2) years after the date of satisfactory completion of construction of ways and installation of municipal services. Applicant shall provide evidence that the cost of illumination has been prepared.

M. **CLEANING UP**

All areas of the subdivision must be cleaned so as to leave a neat and orderly appearance free from debris and other objectionable materials. All drainage pipes and structures shall be cleared and flushed, at the applicant's expense, prior to final inspection and approval.

N. **RETAINING WALLS**

Retaining walls shall only be permitted (1) if located more than twenty feet from the roadway layout, (2) if not more than three (3) feet in height, (3) if in conformance with the current DPW construction standards and specifications, relating to reinforced concrete retaining walls and (4) where the location, construction and safety measures are sufficient, in the opinion of the Planning Board, to fully protect anticipated vehicular and pedestrian traffic.

O. **FIRE HYDRANTS**

No building permits shall be issued until all utilities are installed an operating satisfactory. This includes that fire hydrants pass a flow test adequate in the determination of the Pembroke Fire Chief for fire protection. When installing a hydrant, a hydrant marker shall be installed at the same time.



P. **EARTH DISTURBANCE AND GRAVEL REMOVAL**

In the design and construction of subdivisions the following shall apply:

1. Each subdivision shall be designed so as to minimize the amount of earth to be disturbed or removed.
2. No lot in a subdivision shall have more than fifty (50%) percent of the buildable land scarified or disturbed. The Board may require reclamation if, in the opinion of the Board, scarification of the proposed layout of the site has occurred within the last 10 years.
3. No more than 1.5 cubic yards of earth for each foot of roadway to be constructed shall be removed from the subdivision.
4. No earth at all shall be removed from the subdivision except under such terms and conditions as may be required by the Board as used herein, the term "earth" shall include loam, soil, gravel, clay, peat, silt or rock.

## SECTION VI – ADMINISTRATION

### A. VARIATION

Strict compliance with the requirements of these Rules and Regulations may be waived only by a recorded vote of the Board when, in the judgement of the Planning Board, such action is in the public interest and not inconsistent with the Subdivision Control Law.

### B. REFERENCE

For matters not covered by these Rules and Regulations, reference is made to Section 81-K to 81-GG, inclusive, of Chapter 41 of the General Laws.

### C. DESIGN REVIEW AND CONSTRUCTION INSPECTION DEPOSIT AND FEES

#### 1. General

The Planning Board may assign as their agent(s) appropriate Town agencies or officials and may at their discretion employ professional assistance to review plans and inspect construction. Costs will be paid by the applicant.

#### 2. Fees and Deposits

A deposit of not less than four thousand (\$4,000.00) dollars shall be made by the applicant, payable to the Town of Pembroke, for fees in relation to Professional Services including but not limited to engineering and review inspections, at the time of Definitive Plan submittal or at the time of Preliminary Plan submittal. Additional deposits of higher amounts may be required in the case of extraordinary size, construction design or design change. As the above deposits are expended, the applicant shall, upon notice from the Board, make further deposits in such a manner that the total deposit with the Town shall, at all times, equal the initial amount as determined by the Board. The Board shall not take any further action for a person, trust, corporation or other entity who owes fees, whether or not relating to the parcel in issue, which have not been paid as required. (Reference Section III (B) (2) (c).

#### 3. Return of Deposit

Upon satisfactory completion of all improvements, the Board shall refund to the applicant any deposit remaining. Reference Section III, B, 8.



## USE OF FINANCIAL SECURITY AND DEPOSITS

Financial Security can be used at the discretion of the Planning Board for any necessary work required to complete the ways and installation of municipal services in said subdivision. For further reference see Massachusetts General Laws, Chapter 41, Section 81U.

### D. APPLICATION FEES

Application fees shall be required and shall accompany all submittals of A.N.R. Plans (A-Forms), Preliminary Plans, and Definitive Plans. Application fees are intended to cover the cost of services, to include indirect costs, overhead, administrative burden, fringes, benefits, cost of facilities, etc. necessary for the Town to render services performed by, and/or support of, the Planning Board.

Application fees shall include a per submittal fee and a per lot fee and shall be in accordance with the following schedule:

#### 1. A.N.R. PLANS (A-FORMS)

- a. Residential \$350.00 per submittal plus \$250.00 per new buildable lot
- b. Commercial \$500.00 per submittal plus \$1,000.00 per new buildable lot
- c. Industrial \$5,000.00 per submittal plus \$2,500.00 per new buildable lot

#### 2. Preliminary Plans

- a. Residential \$500.00 per submittal plus \$150.00 per lot
- b. Commercial \$800.00 per submittal plus \$300.00 per lot
- c. Industrial \$1,000.00 per submittal plus \$400.00 per lot

#### 3. Definitive Plans

- a. Residential \$1,500.00 per submittal plus \$650.00 per lot
- b. Commercial \$2,500.00 per submittal plus \$750.00 per lot
- c. Industrial \$5,000.00 per submittal plus \$2,000.00 per lot
- d. Modification: \$500.00 per submittal plus \$500.00 per lot.

### F. AS-BUILT PLANS

The applicant will pay to record the As-Built plan.

A P P E N D I X   A

LEGAL FORMS



**FORM A**

**APPLICATION FOR ENDORSEMENT OF PLAN  
BELIEVED NOT TO REQUIRE APPROVAL**

File one completed form with the Planning Board and one copy with the Town Clerk in accordance with the requirements of Section II, B.

PEMBROKE, MA \_\_\_\_\_ 20 \_\_\_\_\_

To the Planning Board:

The undersigned, believing that the accompanying plan of his property in the Town of Pembroke does not constitute a subdivision within the meaning of the Subdivision Control Law, herewith submits said plan for a determination and endorsement that Planning Board Approval under Subdivision Control Law is not required.

1. Name of Applicant: \_\_\_\_\_  
Address \_\_\_\_\_
2. Name of Engineer or Surveyor \_\_\_\_\_  
Address \_\_\_\_\_
3. Deed of Property Recorded in Plymouth Registry  
Book \_\_\_\_\_, Page \_\_\_\_\_
4. The number and identification of the lots to be addressed in this application \_\_\_\_\_  
\_\_\_\_\_
5. Assessors Plan (number and letter) \_\_\_\_\_
6. Intent: (building purposes, recording purposes, transfer, etc.) \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Signature of Owner

\_\_\_\_\_  
Address

**FORM B**

**APPLICATION FOR TENTATIVE APPROVAL  
OF PRELIMINARY PLAN**

File one completed form with the Planning Board and one copy with the Town Clerk in accordance with the requirements of Section III-A.

Pembroke, MA \_\_\_\_\_ 20\_\_\_\_

To The Planning Board:

The undersigned herewith submits the accompanying Preliminary Plan of property located in the Town of Pembroke for the tentative approval as a subdivision as allowed under the Subdivision Control Law and the Rules and Regulations governing the Subdivision of Land of the Planning Board in the Town of Pembroke.

1. Name of Applicant \_\_\_\_\_  
Address \_\_\_\_\_
2. Name of Engineer or Surveyor \_\_\_\_\_  
Address \_\_\_\_\_
3. Deed of property Recorded in Plymouth Registry,  
Book \_\_\_\_\_, Page \_\_\_\_\_.
4. Location and Description of Property: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Signature of Owner

\_\_\_\_\_  
Address



**FORM C**

**APPLICATION FOR APPROVAL  
OF DEFINITIVE PLAN**

File one completed form with the Planning Board and one copy with the Town Clerk in accordance with the requirements of Section III, B.

Pembroke, MA \_\_\_\_\_ 20 \_\_\_\_

To The Planning Board:

The undersigned herewith submits the accompanying Definitive Plan of property located in the Town of Pembroke for approval as a subdivision under the requirements of the Subdivision Control Law and the Rules and Regulations governing the Subdivision of Land of the Planning Board in the Town of Pembroke.

1. Name of Applicant \_\_\_\_\_  
Address \_\_\_\_\_
2. Name of Engineer or Surveyor \_\_\_\_\_  
Address \_\_\_\_\_
3. Deed of Property Recorded in Plymouth Registry  
Book \_\_\_\_\_, Page \_\_\_\_\_
4. Location and Description of Property: \_\_\_\_\_  
\_\_\_\_\_
5. Submission:  
Original Drawing and 12 Contact Prints  
(2) Application Form C  
Certified Abutter List with Addresses  
Executed and Recorded Easements  
(2) Cut and Fill Plans  
Inspection Fee  
Erosion Control Plan  
Waiver requests, if any  
(2) Drainage Design Analysis  
Tributary Area Plan  
Design Construction

I certify that all the above items required for submission with a Definitive Plan have been submitted with this application for approval.

\_\_\_\_\_  
Signature of Owner

\_\_\_\_\_  
Address

**FORM D**  
**COVENANT**

The undersigned \_\_\_\_\_, of \_\_\_\_\_,  
MA 02359, Plymouth County, Massachusetts, hereinafter called the "Covenantor",  
having submitted to the Pembroke Planning Board a Definitive Plan of a subdivision  
entitled \_\_\_\_\_ dated \_\_\_\_\_ and revised  
\_\_\_\_\_ made by \_\_\_\_\_

does hereby covenant and agree with said Planning Board and the successors in office of  
said Board, pursuant to General Laws (Terr. Ed.) Chapter 41, Section 81U, as amended,  
that:

1. The Covenantor is the owner of record of the premises shown on said plan.
2. This covenant shall run with the land and be binding upon the executors,  
administrators, heirs, assigns of the covenantor, and their successors in title to  
the premises shown on said plan.
3. The construction of ways and the installations of municipal services shall be  
provided to serve any lot in accordance with the applicable Rules and Regulations  
of said Board before such lot may be built upon or conveyed, other than by  
mortgage deed; provided that a mortgagee who acquires title to the mortgaged  
premises by foreclosure or otherwise and any succeeding owner of the mortgaged  
premises or part thereof may sell any such lot, subject to that portions of the  
Covenant which provides that no lot shall be built upon until such ways and  
services have been provided to serve such lot.
4. Nothing herein shall be deemed to prohibit a conveyance subject to this Covenant  
by a single deed of the entire parcel of land shown on the subdivision plan or of  
all lots not previously released by the Planning Board without first providing such  
ways and services.
5. This covenant shall take effect upon the approval of said plan.
6. Reference to this covenant shall be entered upon said plan and this covenant shall  
be recorded when said plan is recorded.



**FORM D - PAGE 2**

The undersigned \_\_\_\_\_ and \_\_\_\_\_, covenantors hereby agree that such interest as I, we, may have in said premises shall be subject to the provisions of this covenant and insofar as is necessary release all rights of tenancy by the curtesy, dower, homestead and other interests therein.

COVENANTOR \_\_\_\_\_

Executed as a sealed instrument this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_

**COMMONWEALTH OF MASSACHUSETTS**

Plymouth      SS.      August 7, 2009,

On this \_\_\_\_\_ day of \_\_\_\_\_, before me personally appeared \_\_\_\_\_ member of the Pembroke Planning Board and acknowledged the foregoing instrument to be his free act and deed before me.

\_\_\_\_\_  
Notary Public

My Commission expires:  
\_\_\_\_\_

**FORM E**

**CERTIFICATE OF COMPLIANCE**

PEMBROKE, MA. \_\_\_\_\_ 20 \_\_\_\_\_

To The Planning Board:

I hereby certify that the construction of the subdivision entitled \_\_\_\_\_  
\_\_\_\_\_ has been completed according to the approved plan and that the  
accompanying "As-built Acceptance Plan" entitled \_\_\_\_\_  
\_\_\_\_\_ dated \_\_\_\_\_ 20 \_\_\_\_\_ is true and correct.

Professional  
Registration  
Stamp

Engineer \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

**FORM F**

**(COVENANT RELEASE)**

Pembroke, MA, October 27, 2008

The undersigned, being a majority of the Planning Board of the Town of Pembroke, MA, hereby certify that the Covenant dated \_\_\_\_\_ and recorded in the Plymouth County Registry of Deeds, Book \_\_\_\_\_, Page \_\_\_\_\_ (or registered in the Plymouth District of the Land Court as Document No. and noted on Certificate of Title No. ) is released as to the following enumerated lots shown on Plan entitled \_\_\_\_\_ in Pembroke, MA" recorded with said Deeds as Plan No. \_\_\_\_\_ of \_\_\_\_\_ (or registered in said Land Court as Plan No. ) and said lots are hereby released from the restrictions as to the conveyance and building specified thereon.

Lots designated on said Plan as follows: .

Majority of the Planning Board of the Town of Pembroke

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**COMMONWEALTH OF MASSACHUSETTS**

Plymouth

Ss

20

On this \_\_\_\_\_ day \_\_\_\_\_, before me personally appeared \_\_\_\_\_ one of the above named members of the Planning Board of the Town of Pembroke, MA and acknowledged the foregoing instrument to be the free act and deed of said Planning Board.

\_\_\_\_\_, Notary Public.

My Commission expires: \_\_\_\_\_.



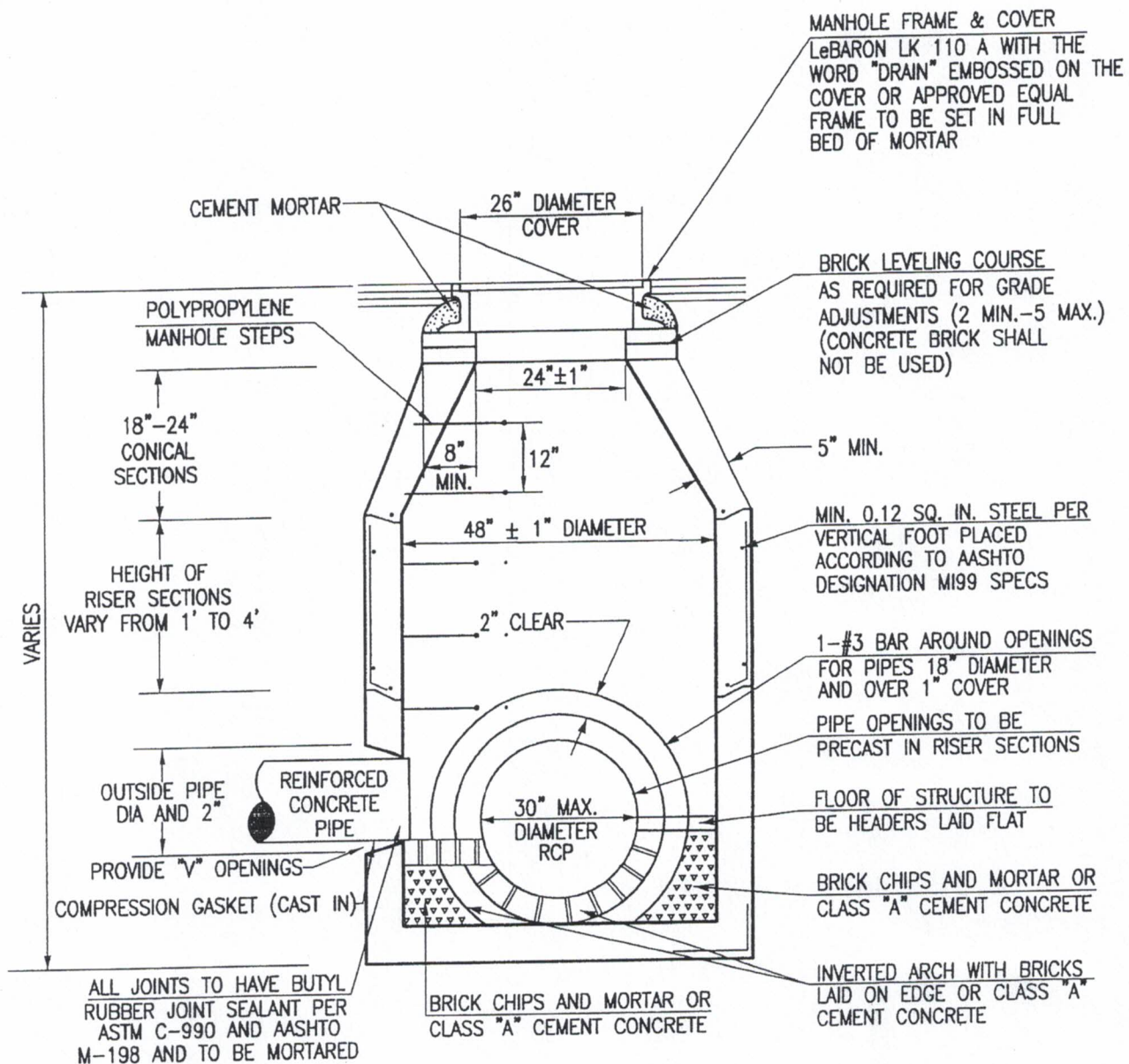
A P P E N D I X      B

CONSTRUCTION DETAILS

NOTE

When not specifically stated, the Massachusetts Department of Public Works, Standard Specifications for Highways and Bridges, and the Mass. D.P.W. Construction Standards (latest editions) shall apply.

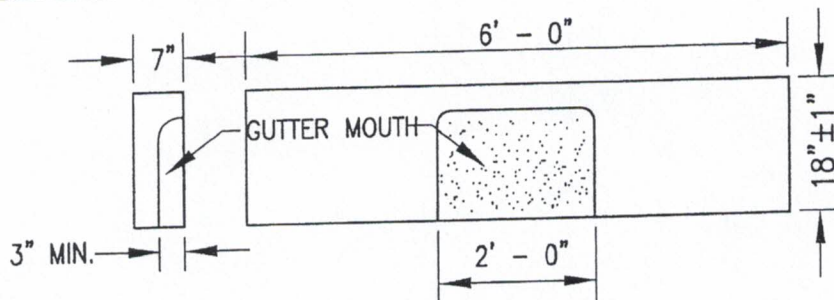




## PRECAST CONCRETE MANHOLE

(NOT TO SCALE)

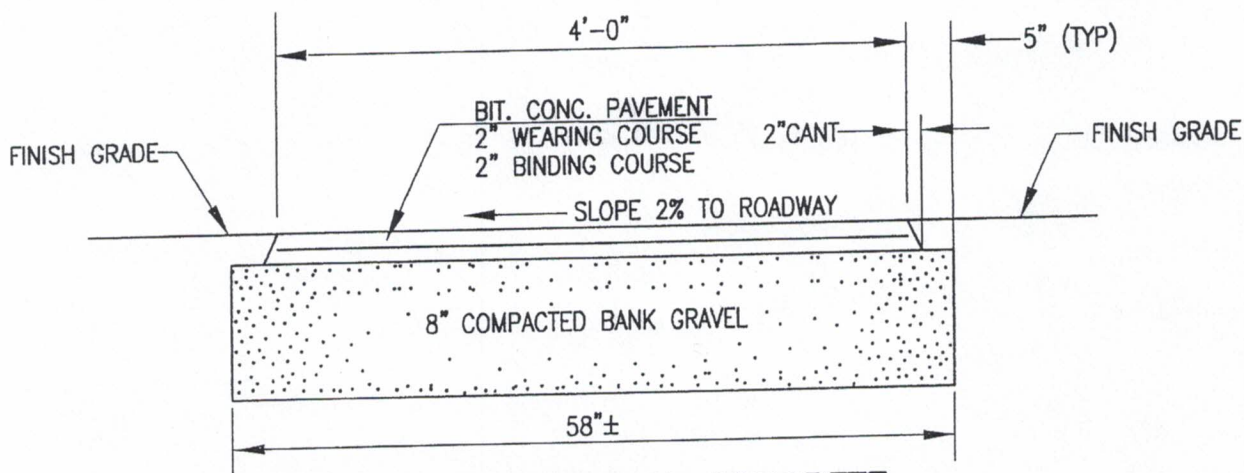




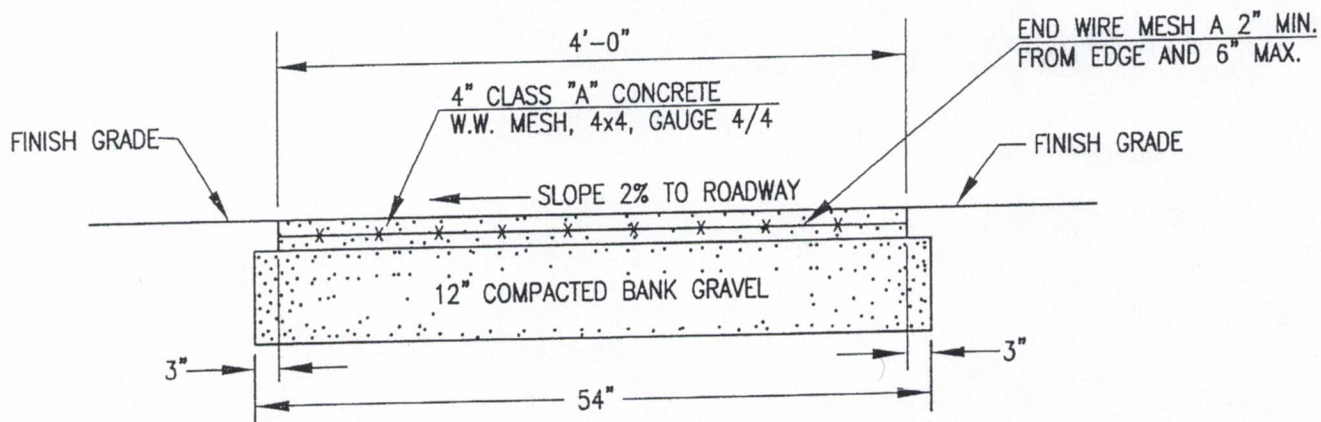
### NOTES:

1. GRANITE CURB INLETS ARE REQUIRED ON ALL CATCH BASINS
2. PROVIDE GRANITE CURB INLETS FOR EACH NEW CATCH BASIN CONSTRUCTED  
PROVIDE 4' LONG (WHEELCHAIR) TRANSITION GRANITE CURBING ON BOTH SIDES OF ALL GRANITE CURB INLETS.

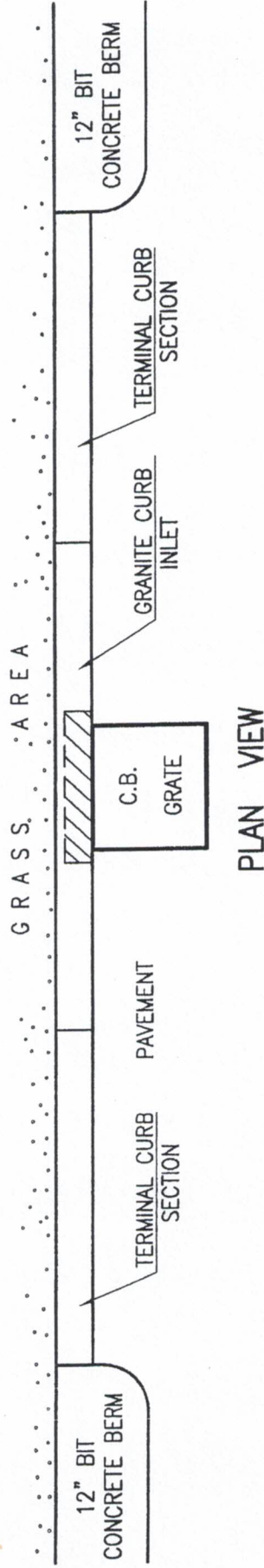
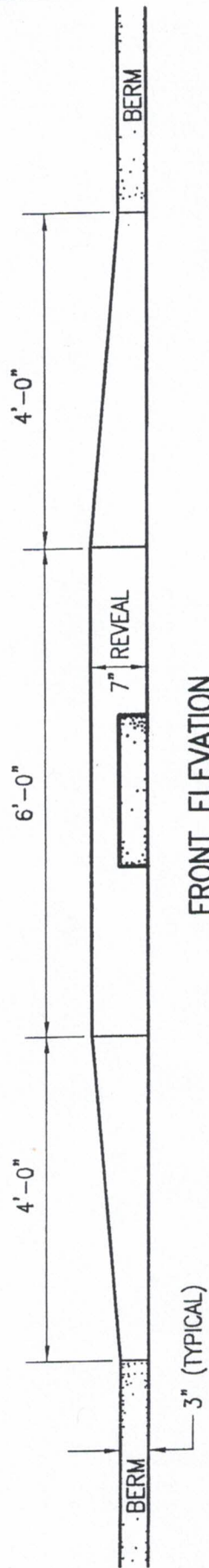
### GRANITE CURB INLET (NOT TO SCALE)



### TYPICAL BITUMINOUS CONCRETE SIDEWALK SECTION (NOT TO SCALE)



### TYPICAL CONCRETE SIDEWALK SECTION (NOT TO SCALE)



# TYPICAL GRANITE CURB INLET INSTALLATION WITH BITUMINOUS CONCRETE BERM

(NOT TO SCALE)

[illegible]

(NOT TO SCALE)

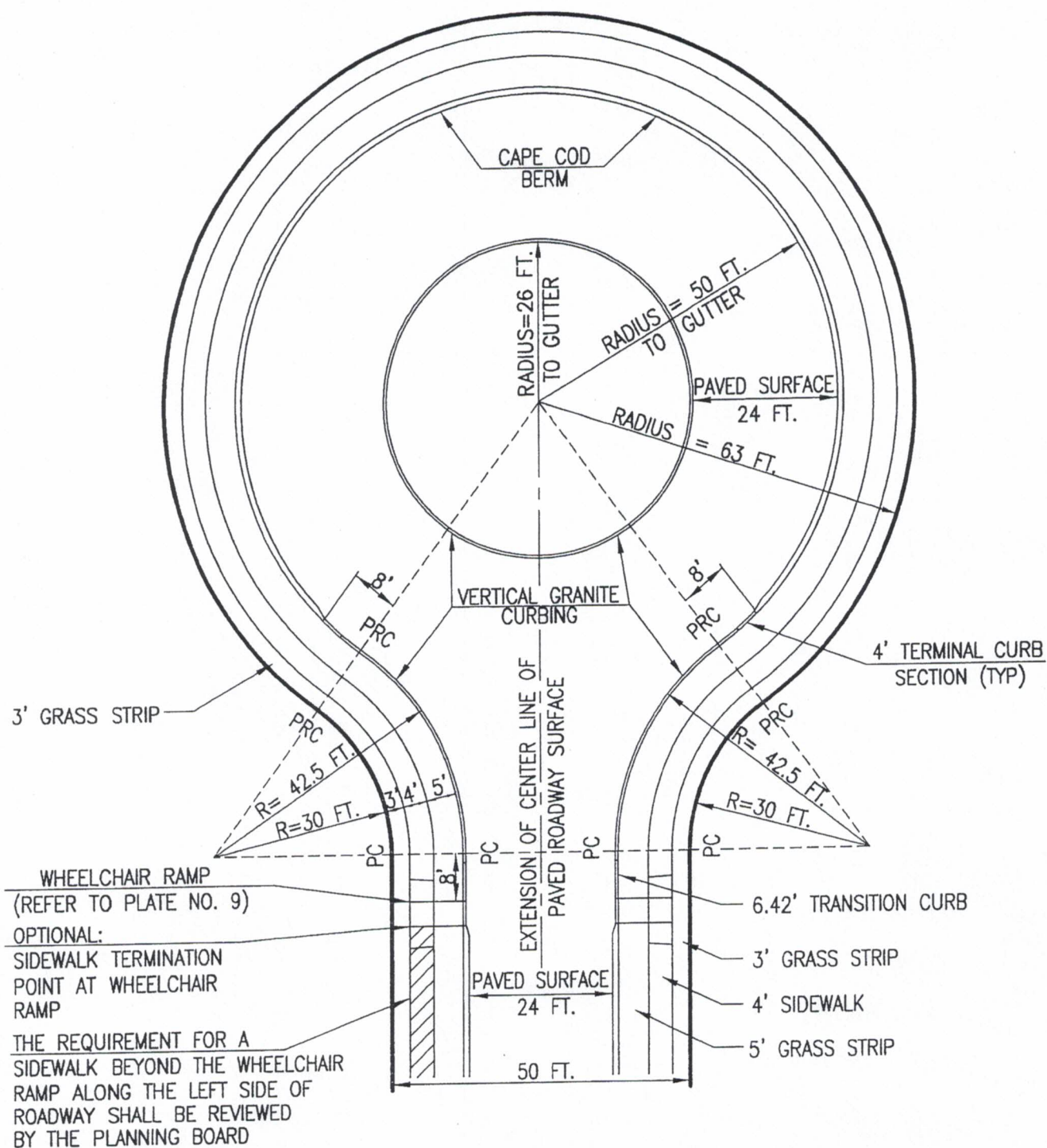


(NOT TO SCALE)

STREET	A	B
MAJOR	54'-0"	15'-0"
SECONDARY	50'-0"	13'-0"

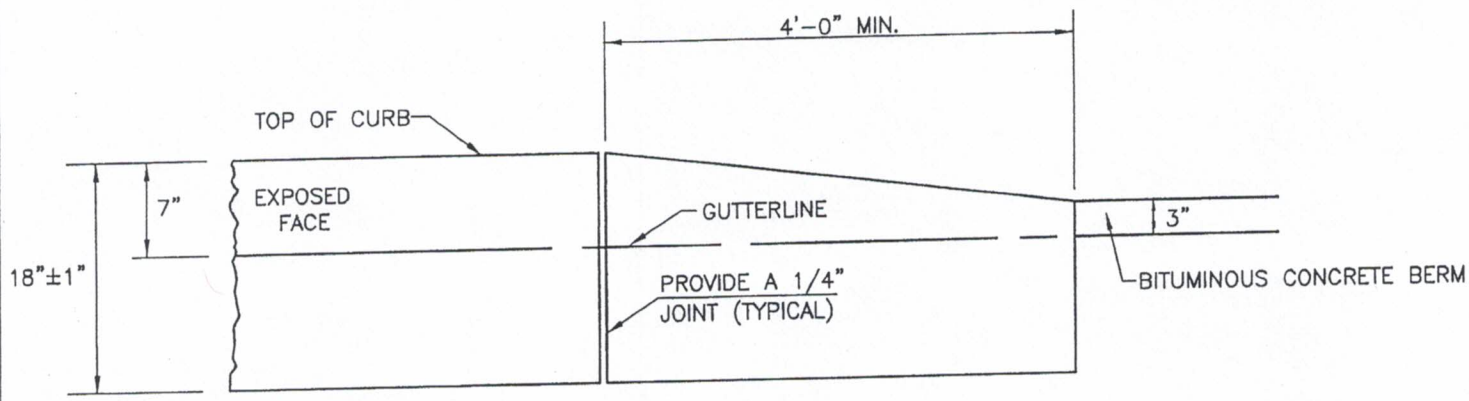
\*MAXIMUM CUT OR FILL - 3:1 SLOPE

MINIMUM DISTANCE BETWEEN SLOPE AND EDGE OF ROADWAY LAYOUT SHALL BE 2 FT.

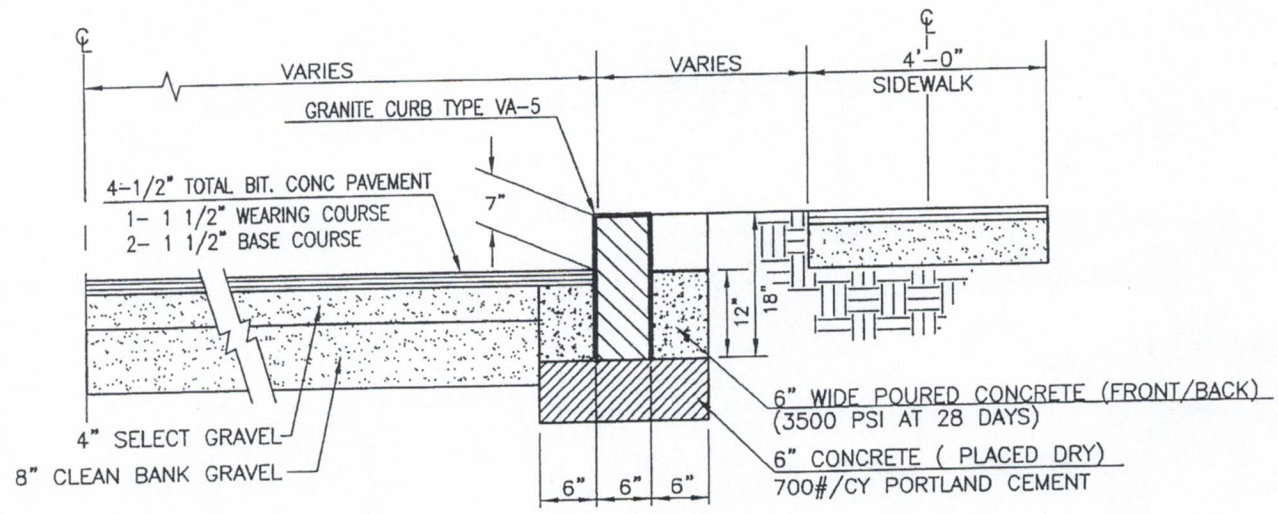


## MINOR STREET CUL-DE-SAC CONSTRUCTION DETAILS

(NOT TO SCALE)

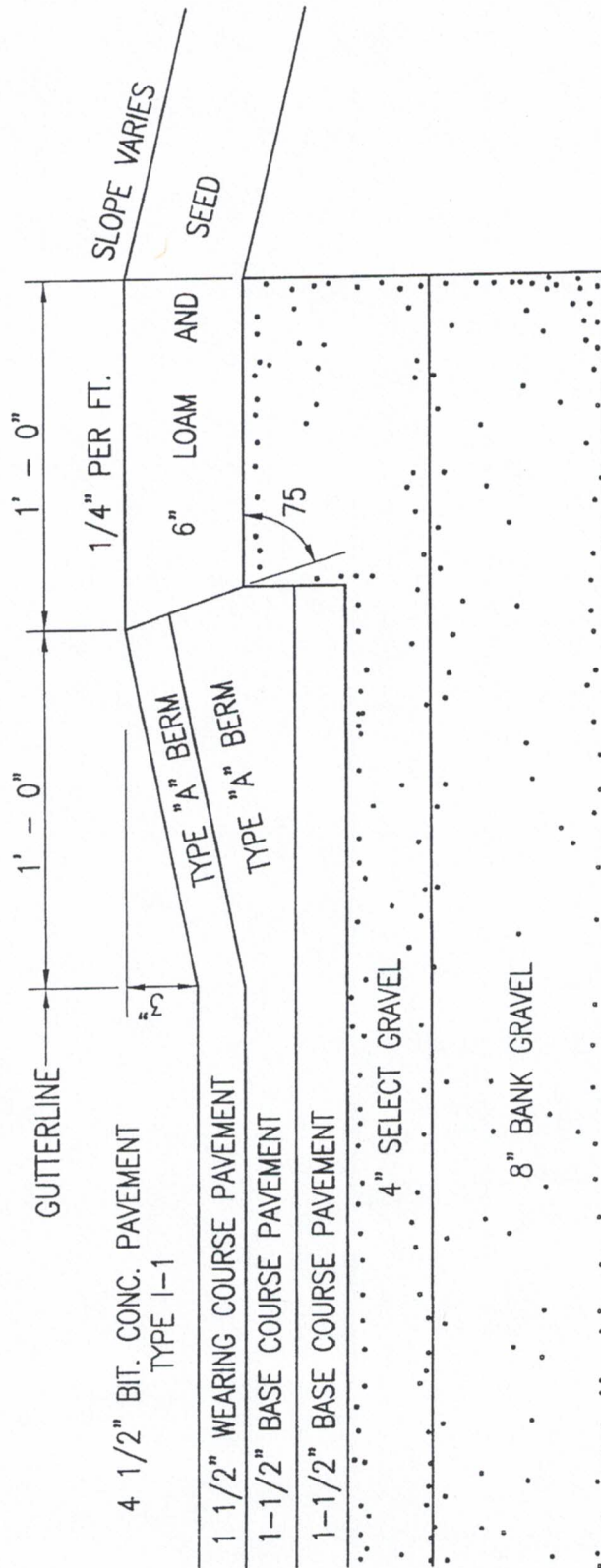


**DETAIL-TERMINAL CURB SECTION**  
 SCALE 3/4"=1'0"



**GRANITE CURB DETAIL**  
 SCALE 3/8"=1'0"





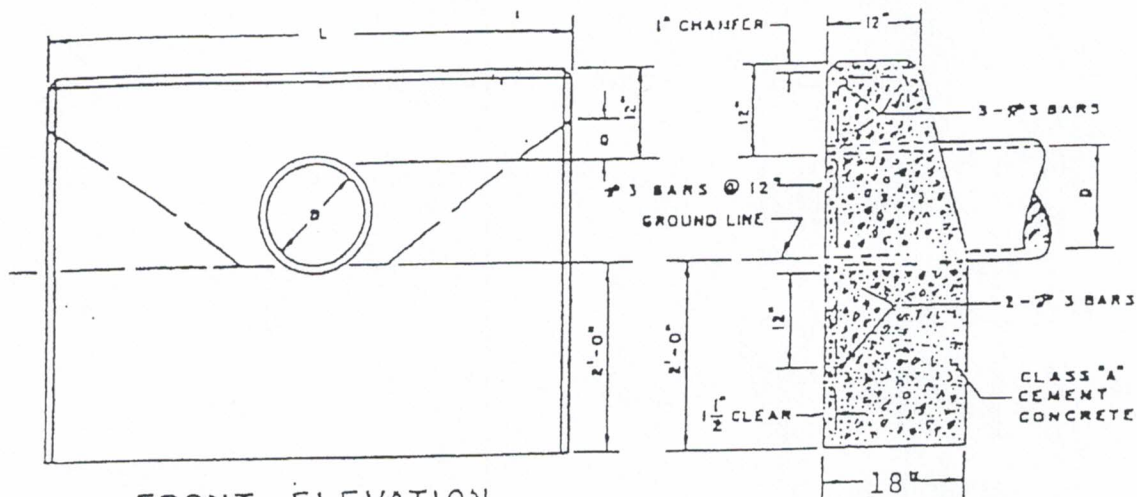
## CAPE COD BERM

(NOT TO SCALE)

### NOTE:

BITUMINOUS CONCRETE BERM SHALL BE CONSTRUCTED MONOLITHICALLY USING BOTH THE 3" BITUMINOUS BASE COURSES AND THE 1 1/2" WEARING COURSE.

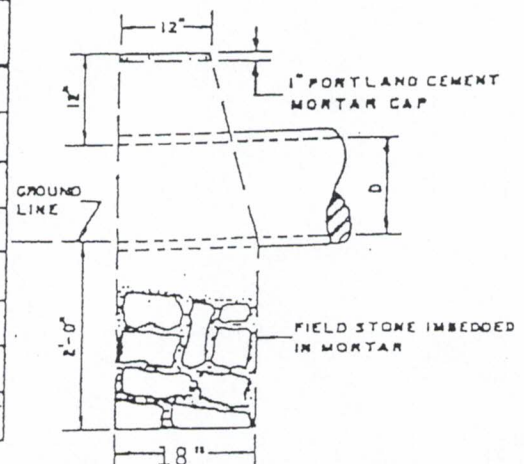
# CONCRETE AND FIELD STONE MASONRY ENDS FOR 8" TO 30" PIPE CULVERT



FRONT ELEVATION

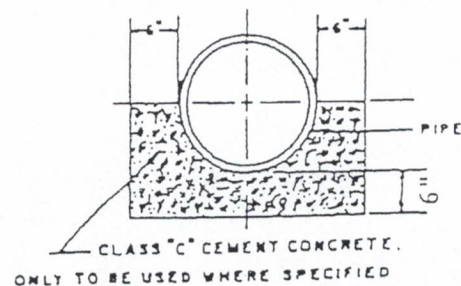
END ELEVATION

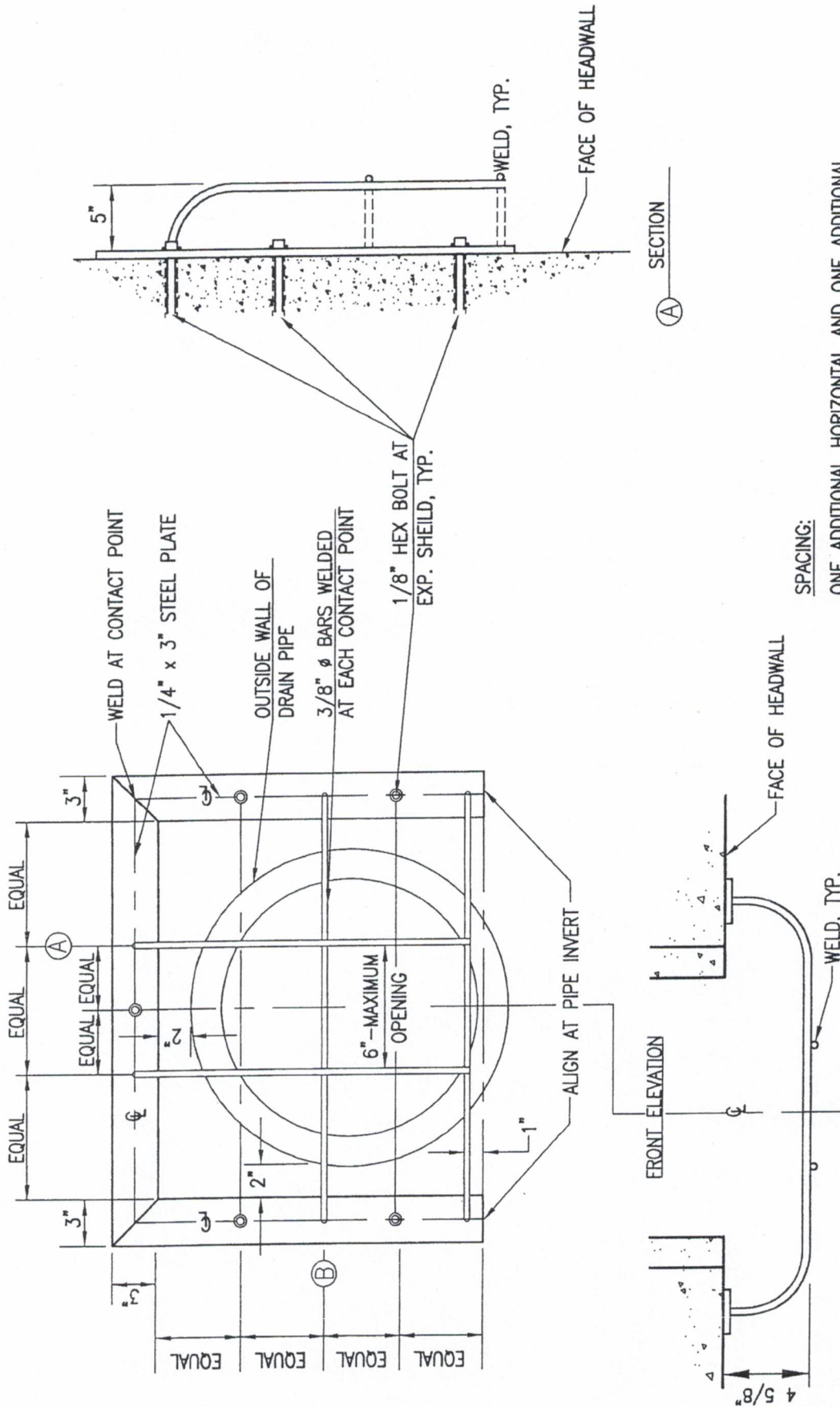
TRENCH EXCAV. 1'-0" DEPTH	PIPE DIAM.	1 $\frac{1}{2}$ : 1 SLOPE			2 : 1 SLOPE			TRENCH EXCAV. 1'-0" DEPTH
CU. FT.	D	L	CONG. OR F.S.M. CU. YDS.	STEEL LBS.	L	CONG. OR F.S.M. CU. YDS.	STEEL LBS.	CU. FT.
21.60	8"	4'-2"	0.77	15	5'-10"	1.08	21	27.40
23.91	10"	4'-10"	0.92	20	6'-8"	1.28	23	30.35
26.25	12"	5'-6"	1.08	21	7'-6"	1.49	29	33.25
29.75	15"	6'-6"	1.34	24	8'-9"	1.82	32	37.63
33.25	18"	7'-6"	1.61	30	10'-0"	2.18	39	42.00
37.35	21"	8'-6"	1.95	34	11'-6"	2.62	43	47.25
39.38	24"	9'-3"	2.16	35	12'-6"	2.97	50	50.75
43.75	30"	10'-6"	2.63	44	15'-0"	3.86	62	59.50
Q		4" FOR 1 $\frac{1}{2}$ : 1 SLOPE						
		6" FOR 2 : 1 SLOPE						



END ELEVATION

## CONCRETE CRADLE FOR PIPE CULVERTS





# NOTES

1. GRIND ALL WELDS SMOOTH.
2. ROUND ALL EXPOSED BAR ENDS.
3. ALL BARS SHALL BE EPOXY COATED.
4. COATING TO BE APPLIED PRIOR TO INSTALLATION ON HEADWALL.
5. RECOAT ANY DAMAGED SURFACE AFTER INSTALLATION ON HEADWALL.

# SPACING:

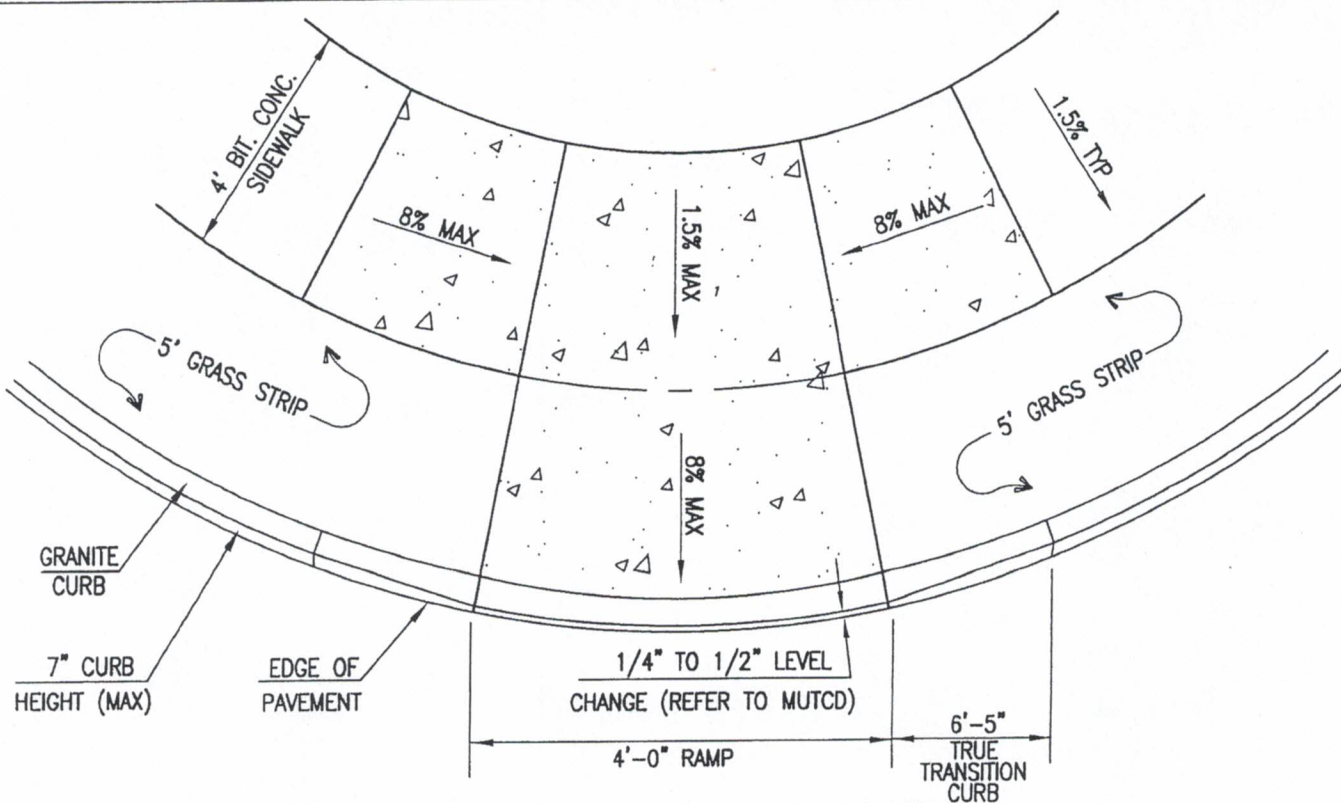
ONE ADDITIONAL HORIZONTAL AND ONE ADDITIONAL VERTICAL BAR (EQUALLY SPACED) SHALL BE ADDED FOR ALL PIPES BETWEEN 18" AND 24" IN DIAMETER (INCLUSIVE).

TWO ADDITIONAL HORIZONTAL AND TWO ADDITIONAL VERTICAL BARS (EQUALLY SPACED) SHALL BE ADDED FOR ALL PIPES BETWEEN 30" AND 42" IN DIAMETER (INCLUSIVE).

# GRATE DETAIL

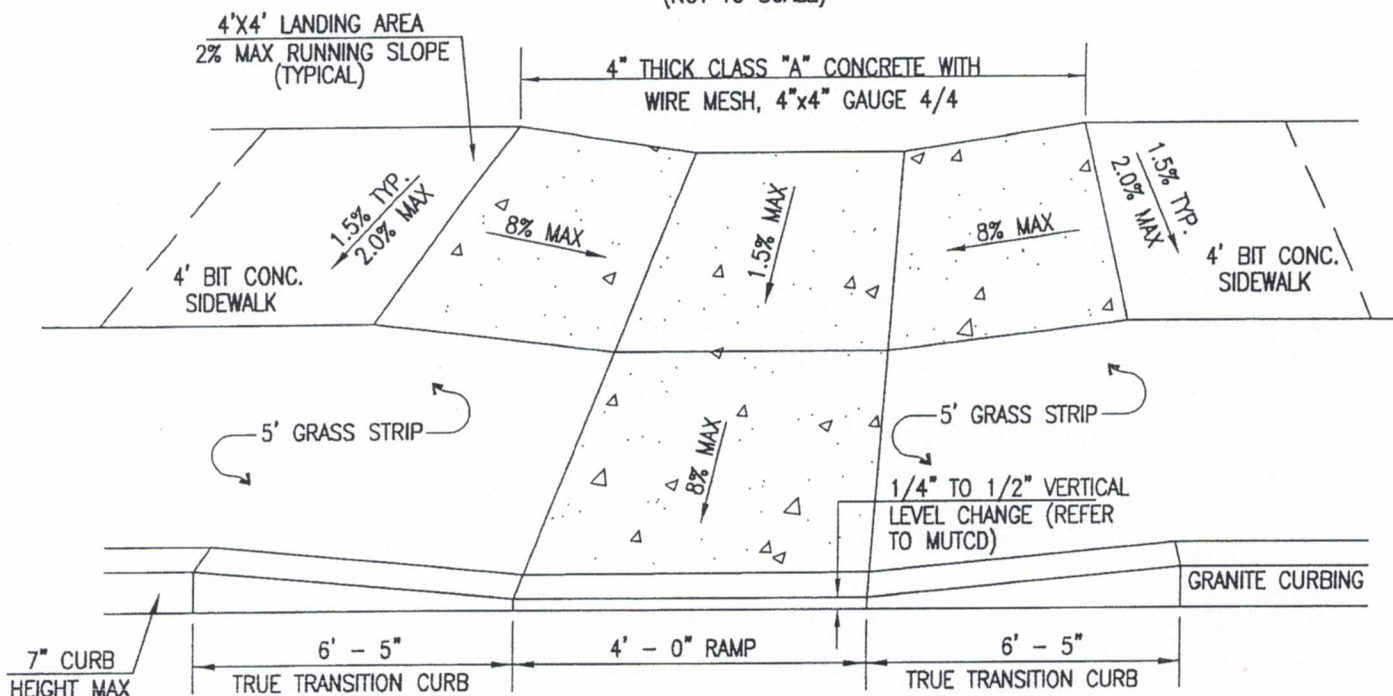
(NOT TO SCALE)





## WHEELCHAIR RAMP

(NOT TO SCALE)



## WHEELCHAIR RAMP

(NOT TO SCALE)

MUTCD: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

PEMBROKE PLANNING BOARD

PEMBROKE, MASSACHUSETTS

PLATE NO. 9

APRIL 2009

CONTINUE SIDEWALK TO END OF  
PROPERTY OWNED BY APPLICANT

NOTE:  
PRIOR TO LOCATING THE HANDICAP RAMPS,  
CROSSWALK AND ASSOCIATED STOP LINE; THE  
SITE DISTANCE SHALL BE REVIEWED BY THE  
PLANNING BOARD.

REFER TO MANUAL ON UNIFORM  
TRAFFIC CONTROL DEVICES  
(MUTCD) SECTION 3B.17:  
CROSSWALK MARKINGS

4' WIDE BIT. CONC. SIDEWALK

CAPE COD BERM

CROSSWALK  
6' WIDE MINIMUM

ROADWAY CENTERLINE

CAPE COD BERM

PT

4' WIDE BIT. CONC. SIDEWALK  
(OPTIONAL FROM PT)

END OF SIDEWALK  
IF WAIVER OF ONE  
SIDEWALK GRANTED

REFER TO MUTCD  
SECTION 3B.16:  
STOP & YIELD LINES

REFER TO MUTCD  
SECTION 2B.06:  
STOP SIGN PLACEMENT

REFER TO  
521 CMR 21.00:  
CURB CUTS

CONCRETE  
RAMP

STOP LINE

4.00'  
MIN

6'

GUTTER LINE

EOP

ROADWAY CENTERLINE

4'x4' MIN LANDING AREA  
@ BOTTOM OF RAMP  
LOCATED W/IN CROSS  
WALK

7.50' TO  
CENTERLINE OF  
CROSSWALK

EOP PC

15' MAX  
TO STOP SIGN

## WHEELCHAIR RAMP

MUTCD: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

PEMBROKE PLANNING BOARD

PEMBROKE, MASSACHUSETTS

PLATE NO. 10  
APRIL 2009



THE REQUIREMENT FOR A  
SIDEWALK BEYOND THE PT  
ALONG THE LEFT SIDE OF  
ROADWAY SHALL BE REVIEW  
BY THE PLANNING BOARD

4'x4' MIN LANDING AREA

ⓐ BOTTOM OF RAMP LOCATED  
W/IN THE MARKED CROSSWALK  
(2% MAX RUNNING/CROSS SLOPE)

4.0' TRANSITION CURB

R=30.00'

15' MAX  
TO STOP SIGN

OPTIONAL:  
SIDEWALK TERMINATION  
POINT

R=24.50'

BIT. CONC.  
SIDEWALK  
(TYPICAL)

R=20.50'

1.5% TYPICAL  
2% MAX  
CROSS SLOPE

4.00' MIN  
LANDING  
AREA

3.75' MIN  
FOR 2%  
CROSS SLOPE

LOT LINE

5.00'  
(TYPICAL)

4.00'  
(TYPICAL)

4.00' MIN  
LANDING  
AREA

3.75' MIN  
FOR 2%  
CROSS SLOPE

STOP  
SIGN

8% MAX  
RADIAL

3.00' MIN  
EL=0.46

3.75' MIN  
FOR 2%  
CROSS SLOPE

4.00' MIN  
EL=0.40

3.35' MIN  
1.5% MAX  
RADIAL

3.75' MIN  
FOR 2%  
CROSS SLOPE

2% MAX  
RUNNING  
SLOPE

1.5% TYPICAL  
2% MAX  
CROSS SLOPE

BIT. CONC.  
SIDEWALK  
(TYPICAL)

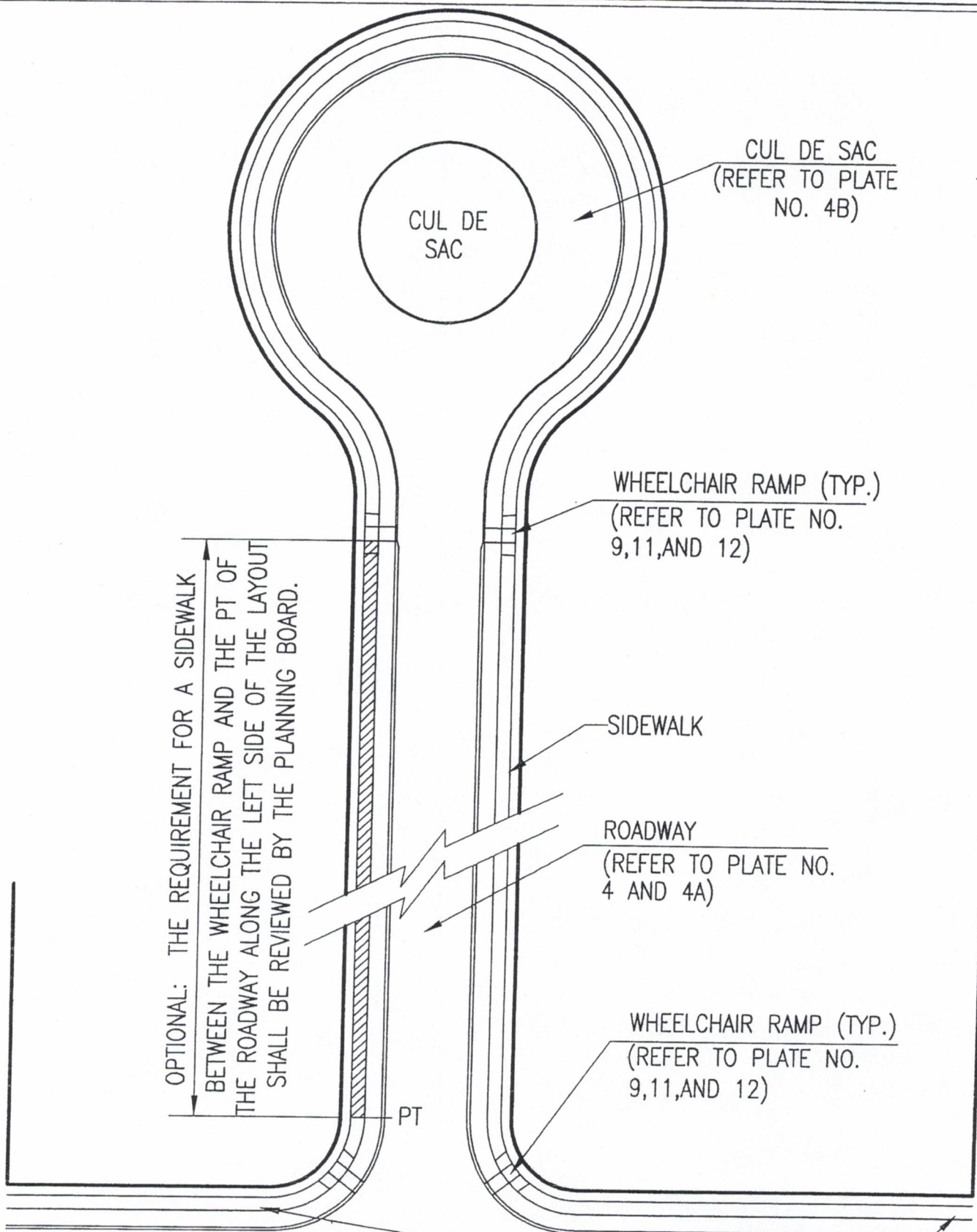
4.0' TRANSITION CURB

GUTTER LINE

# WHEELCHAIR RAMP

SCALE: 1/4" = 1'-0"





**SIDEWALK PLAN**  
(NOT TO SCALE)