

DESIGNS AND STANDARDS

FOR NEW STREETS AND ROADS WITHIN THE TOWN LIMITS OF

CHURCH HILL, MARYLAND

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## ARTICLE ONE

### GENERAL

- 1.10 GENERAL** All highway, street, and road layouts shall be designed to obtain the most effective and efficient development of the site and of adjoining areas. The street plan shall give suitable recognition to existing topography and shall attempt to preserve trees, provide good drainage, develop natural building sites, and provide a safe and efficient traffic pattern without loss of natural aesthetic value.
- 1.20 PURPOSE** The purpose of this Ordinance is to provide for the development of safe, efficient and beautiful streets that are compatible with the land uses they serve within Town boundaries, provide ample opportunities for walking within Town, minimize Town maintenance costs for its circulation system, ensure vehicular and pedestrian safety, allow for the accessibility of emergency vehicles, minimize the adverse effects of impermeable surfaces on stormwater runoff water quality, allow flexibility in stormwater management plans, and provide for the orderly development of the Town and otherwise implement the Town's Comprehensive Plan.
- 1.30 DEFINITIONS** When used in these Standards, the following terms shall be construed to mean as defined below:
- A.A.S.H.T.O.** American Association of State Highway and Transportation Officials.
- CIRCLE** A circular street having several ends open for vehicular traffic, usually limited to travel in one direction.
- COLLECTOR STREET** A street which is intended to collect traffic from residential streets within a neighborhood or a portion thereof and to distribute such traffic to major thoroughfares. The provision of direct access to abutting properties shall be of secondary importance to the movement of traffic. For purposes of design requirements, collectors are divided into two classes:
- A. Primary Collector Street** - To be required when vehicular traffic on the street is currently or is projected to exceed 2,000 average daily trips.
- B. Secondary Collector Street** - To be required when vehicular traffic on the street is currently or is projected to exceed 1,500 average daily trips.

**COMMERCIAL, INDUSTRIAL  
OR MULTI-RESIDENTIAL  
DWELLING**

**STREET** A street intended to provide access to business and apartment areas involving traffic of a larger volume and somewhat different character.

**CUL-DE-SAC** A street having but one end open for vehicular traffic and having an appropriate turnaround for vehicles.

**DEVELOPER** Any individual, firm, corporation, association, syndicate, co-partnership, trust or any other legal entity or agent thereof commencing to effect a subdivision involving construction of streets for himself or for another.

**EASEMENT** A strip of land where an owner grants a limited right for one or more specific purposes, but not including fee simple title to the land.

**I.T.E** Institute of Traffic Engineers

**OUTLOT** A parcel of land within a subdivision which has been included on a preliminary or final plat, but not designated as a buildable lot.

**PLANNING**

**COMMISSION** Planning and Zoning Commission of Church Hill, Maryland.

**RESIDENTIAL**

**STREET** A street other than a major thoroughfare or collector street and intended primarily for providing access to abutting properties. For purposes of design requirements, residential streets are divided into four classes:

- A. Primary Residential Street** - To be required when vehicular traffic on the street is currently or is projected to exceed 400 average daily trips.
- B. Secondary Residential Street** - To be required when vehicular traffic on the street is currently or is projected to exceed 200 average daily trips. In situations where the residential density is greater than 3 dwelling units per acre and vehicular traffic exceeds 200 average daily trips, the Planning Commission may require the construction of a primary residential street.
- C. Lane**- To be allowed when vehicular traffic on the street is currently or is projected to be fewer than 200 average daily trips.
- D. Alley**- To be allowed at the rear of residences for rear access and utility placement when vehicular traffic on the street is currently or is projected to be fewer than 200 average daily trips.

**S.H.A.** Maryland State Highway Administration.

**STANDARDS** Designs and Standards for New Streets and Roads within the Town Limits of Church Hill, Maryland adopted herewith, revised and amended from time to time by

the Town Commissioners of Church Hill.

**STREET** A public or private right-of-way or thoroughfare intended for vehicular traffic with accompanying sidewalks for pedestrian traffic, whether designated as a freeway, expressway, highway, collector street, residential street, commercial street, avenue, land, circle or rural road which affords the principle means of access to abutting properties.

**SUB-DIVISION** The division of a lot, tract or parcel of land into two (2) or more lots, plots, parcels, sites or other divisions of land.

**SURETY** Any form of security including bond, escrow, deposit, collateral, property, or instrument of credit, in an amount and form satisfactory to the Town Commissioners. Such security is for guaranteeing the satisfactory completion, maintenance, and dedication of all required improvements and facilities.

**TOWN** Town of Church Hill, Maryland.

**TOWN COMMISSIONERS**  
Town Commissioners of Church Hill.

**TOWN ENGINEER** Any licensed engineer employed by the Town of Church Hill.

**TREASURER/  
CLERK-TREASURER**  
Clerk-Treasurer for the Town of Church Hill.

## ARTICLE TWO

### DESIGN PRINCIPLES

- 2.10 GENERAL** - The design of traffic ways includes general layout, alignment, grades, paving widths, type of pavement, drainage facilities and sidewalks, planting strips, and street trees when required. When determining alignment and elevation of traffic ways, the designer must consider the requirements for utilities, including storm drainage facilities where required as well as take into account any unusual aspects of design such as railroad crossings, channelization, etc. Whenever an item is not mentioned in these Standards the reader shall refer to the A.A.S.H.T.O. publication, "Geometric Design Guide for Local Roads and Streets", in its latest edition. Any design not meeting the requirements of these Standards or meeting suggested minimum Standards of A.A.S.H.T.O.'s "Geometric Design Guide for Local Roads and Streets" or I.T.E.'s "Neighborhood Street Design Guidelines" will be deemed inadequate by the Town. All construction and materials required by this Ordinance shall be in accordance with the "Materials and Construction Specifications for the Department of Public Works of Queen Anne's County, Maryland."
- 2.11 DESIGN MODIFICATION** – The Town may grant a modification from any requirement of these Standards if there are exceptional circumstances applicable to the site, such that strict adherence to the provisions of these Standards will result in unnecessary hardship and not fulfill the intent of this Ordinance. A written request for modification shall state the specific modifications sought and reasons for their granting; however, all modifications still must adhere to good engineering practices and must maintain overall consistency with these Standards and other regulations.
- 2.12 FLEXIBILITY IN DESIGN** - The underlying intent of these Standards is to provide a framework within the experienced design engineer will have latitude for creativity in the layout and design of the road systems and their various components. The developer's design engineer is required to use professional skill, experience, and judgment to develop a road design that is safe, efficient, and beautiful.
- 2.13 LIMITS OF WORK** - The limits of work within a subdivision area will generally be set at the furthest property line. Roads must be improved to provide access to all areas within the limits of work. If the limit of work extends to an outlot, it must be extended to the far line of the outlot. If the proposed construction ends at an intersection of an existing or dedicated road, the said intersection shall be completed, and if there are no such existing or dedicated roads, temporary or permanent turnarounds in accordance with approved standards shall be provided.
- 2.20 CIRCLES** - Circles shall have the same minimum radius requirements as cul-de-sacs, except circles shall have a 22-foot reverse radius.
- 2.21 CIRCULATION** – Streets that allow one-way traffic are permitted as part of a comprehensive traffic plan where the applicant can demonstrate to the satisfaction of the Planning Commission that the one-way streets contribute positively to the safety, efficiency, and beauty of the street layout. Each of the typical sections may be modified as necessary to allow for one-way streets. Likewise, the typical section of the "Boulevard" street may be utilized when the Planning Commission deems its use to be a positive contribution to the safety, efficiency, and beauty of the street layout.
- 2.22 CONNECTING ROAD** - No road, separated from a road belonging to the Town or a road maintained by any other public agency shall be improved and accepted by the Town unless a suitable

connecting road to the existing road be improved.

- 2.23 COUNTY ROADS** - The developer is responsible for improving existing County roads to applicable standards if he proposes development of the adjacent property.
- 2.24 CUL-DE-SACS** – Streets which end in cul-de-sacs shall not be longer than 500 feet. The radius of the paved circular portion at the closed end of the cul-de-sac shall be a minimum of 30 feet with a 25-foot reverse radius between the street and the circle. If the radius of a cul-de-sac is greater than 40 feet, a landscaped center island of at least 5-foot radius will be included. A minimum pavement width of 25 feet shall be constructed around the island.
- 2.25 CURB AND GUTTER** - Curb and gutter shall be required for closed section roads as shown on Standard Details for typical sections. It shall be of a size and type as shown on the Standard Details for curb and gutter. Inlets shall be located where dictated by topography and street grades. In no case shall inlets be spaced further than 300 feet apart. Maximum curb radii at intersections shall be as stated in Section 2.31. All curb and gutter shall provide openings for handicap access where required.
- 2.26 EASEMENTS** - The developer shall grant easements wherever necessary for public utility, storm drainage, bicycle ways, etc. All easements shall be 15 feet wide or larger. There shall be no buildings, appurtenances or any other permanent structures erected or placed upon an easement area.
- 2.27 ENTRANCES** - The maximum entrance width is 35 feet and the minimum width is 15 feet. A maximum of one entrance may be allowed in the first 100 feet of frontage. For each additional 100 feet of frontage thereafter a maximum of one entrance may be permitted subject to the approval of the Planning Commission. No entrance shall be closer than five (5) feet to the next abutting property line. No entrance shall be closer than 35 feet to an intersection. Pipe sizes for entrances shall be sized by the developer's engineer and shown on the road plans. It shall be the responsibility of the owner or developer to supply the entrance pipe.
- 2.28 GUARDRAIL** – A guardrail shall be placed where there is hazard to motorist and pedestrians such as along sections with steep side slopes and at the approaches to overcrossing structures. Guardrail shall be placed where directed by the Town Engineer and shall be of a type meeting MD S.H.A. Specifications.
- 2.29 GRADES** - The maximum allowable grade on any road or street shall be six percent (6%). To meet the criteria for cul-de-sacs and circles, grades across the circular portions of cul-de-sacs and circles shall be flattened when necessary. At an intersection of two roads or streets, the normal typical section of the priority street shall continue through the intersection without break. The crown of the other street shall be warped from its normal section to connect to the edge of the priority street. Where two streets of equal importance intersect, both street crowns shall be warped from their normal section so that the centerline elevations of both streets are identical at the intersection.

- 2.30 HORIZONTAL CURVES** - Where road centerlines change direction, they shall be connected by a horizontal curve with radii to insure a minimum horizontal sight distance as shown in Table 2-2. Minimum radii of horizontal curves shall be limited as shown in the table. The minimum length of a horizontal curve shall be 100 feet. Street alignment in commercial areas should be commensurate with the topography but shall be as direct as possible. A tangent of at least 150 feet shall be used between reverse curves except in unusual situations.
- 2.31 INTERSECTIONS** - Streets shall intersect one another as nearly as possible at right angles and in no case shall the angle of intersection be less than seventy degrees (70°), unless otherwise approved by the Town Engineer. Intersections with primary collectors and arterial highways shall be spaced at intervals not less than 750 feet between centerlines. The number of intersections of collector, residential and other streets within the Town shall be adequate to maintain pedestrian and driver safety and promote pedestrian walkability. Intersections shall be designed with adequate corner sight distances and the area kept free of obstacles. The corner sight distance for collector streets shall be a minimum of 300 feet and desirably should be 400 feet or more. The maximum curb radius at intersections in residential areas shall be 15 feet. In commercial areas, the maximum curb radius shall be 25 feet and desirably should be of a 3-centered curve of sufficient radii to accommodate the largest vehicles expected.
- 2.32 MAILBOXES** - Mailboxes, newspaper boxes, etc. shall not protrude over the paved roadway or shoulder area and shall not be erected in the ditch line.
- 2.33 OPEN SPACE** – With any open space, parkland, public squares, dedicated public easements or land otherwise reserved for open space, the Planning Commission may use flexibility in the location, size, and placement of sidewalks, street trees or any other landscaping.
- 2.34 PARKING** - Diagonal parking shall not be permitted except in master-planned mixed use or commercial developments provided the developer demonstrates to the satisfaction of the Planning Commission that adequate measures are taken to ensure safety. There shall be no parking permitted on collector streets. For commercial streets, the minimum parking lane width shall be nine (9) feet including the gutter pan. The minimum parking lane width for all other streets shall be eight (8) feet including the gutter pan.
- 2.35 RIGHT-OF-WAY** - Minimum widths of right-of-way shall be as shown in Table 2-1. Wider widths of right-of-way may be required by the Town to address unusual drainage and traffic situations, to promote the development of aesthetically pleasing streets and roads, to accommodate pedestrian and/or bicycle travel, or to otherwise to implement the Town's Comprehensive Plan.



**TABLE 2-1 Road Right-of-Way Width Minimums**

<b>CLASSIFICATION</b>	<b>RIGHT-OF-WAY WIDTH MINIMUM (feet)</b>
Primary Collector Street	72
Secondary Collector Street	70
Commercial Street	70
Boulevard	85
Primary Residential Street	50-55
Secondary Residential Street	45-50
Lane	36-40
Alley	25
Cul-de-sac and Circle	70-80
Easement	15

Note: The required minimum right-of-way width for residential streets and lanes depends on the use of open or closed section roads; the higher width being required for open section roads to accommodate drainage ditches.

**2.36 SHOULDERS** - Shoulders shall be required as shown on the typical sections in the Standard Details.

**2.37 SIDEWALKS** - Sidewalks shall be provided as shown on the Standard Details. Sidewalks shall provide a sufficient number of handicap ramps. If the street is to serve five or fewer dwelling units, the Planning Commission may waive the requirement for sidewalks.

The minimum sidewalk width shall be five (5) feet. The Planning Commission, at its discretion, may also require sidewalk widths in excess of five feet depending on the intensity of surrounding development, volume of pedestrian traffic expected, and to accommodate a bicycle path within the right-of-way.

It shall be the responsibility of the homeowner with lot frontage on the street right-of-way to maintain for pedestrian safety, keep free of debris and obstructions, remove snow and ice in a timely manner, and provide for any needed replacement of the sidewalk contained within that adjoining right-of-way.

- 2.38 SIGNAGE** - Traffic control signs and street name signs shall be furnished and erected by and at the expense of the developer, after first obtaining Town approval, to insure uniform signage throughout the Town.
- 2.39 SIGHT DISTANCE** - Vertical and horizontal curves shall be designed for minimum stopping sight distance or more. Design for passing sight distance is not applicable on commercial, secondary collector or residential streets.
- 2.40 STORM DRAINAGE** - Closed storm drainage systems are required where curb and gutter are required in the Standard Details. Also, whenever the proposed grade is less than one half of one percent (.5%) in any area of an open storm drainage ditch, including roadside, inlet and outlet ditches, the Town Engineer may, at his discretion, require a closed storm drainage system with curb and gutter. The depth and/or shape of the ditches serving open section roads may be altered, with the written consent of the Town Engineer, when adequate stormwater facilities show that positive drainage may be maintained during a ten year storm event. Upon review of the Town Engineer and if the applicant demonstrates adequate stormwater management, a road section may utilize closed section road on one side and open section on the other side. When required, a storm drainage plan shall be prepared by a registered Professional Engineer and submitted to the Planning Commission for approval. The storm water system shall be designed for not less than a ten-year storm criteria. Inlet, manholes, grates, etc. shall be of a type found in the MD S.H.A.'s Book of Standards.
- 2.41 STREET PAVEMENT CRITERIA** - All paving except bituminous surface treatment shall be performed in accordance with MD S.H.A. specifications. Surface treatment shall be performed in accordance with Town Standards. Pavement type, thickness and width shall be as shown on the Standard Details.
- 2.42 STREET SPATIAL DEFINITION** – In the design of new residential and commercial streets care shall be given to establishing an acceptable spatial definition and sense of enclosure for the street as described in Appendix A of this Ordinance. To gain a sense of street enclosure the developer shall adhere to no less than a 1:1 ratio of the horizontal street pavement width to the height of the street tree at maturity. Similarly, in no case shall the height of the street tree at maturity be less than the distance from the front lot line to the building line. (Note: “Front lot line” and “building line” are defined in Article 9 of the Town of Church Hill Zoning Ordinance.) The Planning Commission may require a 7' wide planting strip in situations where large trees are required to maintain the minimum street spatial definition ratio of 1: 1. There is no minimum street spatial definition ratio for collector streets.
- 2.43 STREET TREES** – Street trees shall be provided according to a detailed landscaping plan prepared by a licensed landscape architect or licensed forester submitted with the applicant's road plan to the Town for approval. The landscape plan shall show the species selection, spacing, location, rate of growth, maximum tree height and width of tree crown at maturity, and caliper of trees by species at time of planting. The minimum caliper at time of planting for street trees shall be 2.5 inches, measured at four inches above the root ball. The Planning Commission may also require secondary landscaping in the right-of-way in addition to the required street trees consistent with the purposes of this Ordinance. Appendix A of this Ordinance shall be used as the guide in the selection, placement, and spacing of street trees.

Except for collector streets, it shall be the responsibility of the property owner with lot frontage on the street right-of-way for the maintenance and cultivation of the trees contained within that

adjoining right-of-way, unless a homeowners association or other similar entity is created for that purpose.

Street trees on closed section roads are to be planted in the planting strip between the sidewalk and street curb unless a variance is granted by the Planning Commission per Section 2.46 of this Ordinance. Along open section roads or in other situations where there is no planting strip, the developer shall plant trees outside and within fifteen (15) feet of the right-of-way on adjoining property according to the species and spacing criteria set forth in Appendix A of this Ordinance. The trees shall be planted according to the design principles described in Section 2.42 of this Ordinance. The Planning Commission may require that these trees be planted and maintained through a covenant with the landowner.

- 2.44 SUPERELEVATION AND WARPING** - Horizontal curves of commercial, collector and residential streets shall not be superelevated or warped unless directed by the Town Engineer.
- 2.45 UTILITY STRIPS** - When utility strips are required, all utilities shall be located therein when practicable.
- 2.46 VARIANCE** - A variance may be requested of the Church Hill Planning Commission if it can be shown that meeting the standards as set forth in this Ordinance, would create a particular hardship or unusual difficulty. Each variance request shall be reviewed on a case-by-case basis by the Planning Commission. The variance shall only be allowed when the applicant accompanies his or her request to the Planning Commission with findings of fact to indicate the variance requested is the smallest needed to achieve relief and is consistent with the Town's Comprehensive Plan.
- 2.47 VERTICAL CURVES** - To avoid an abrupt change in vertical alignment when passing from one grade to another, a vertical curve shall be used at the grade intersection. On sag curves, the minimum vertical curve length shall be governed by criteria set forth by A.A.S.H.T.O. for headlight sight distance. A sag vertical curve shall be long enough so that the light beam distance is the same as the stopping sight distance. Minimum stopping sight distances are shown in Table 2-2. On crest curves, the minimum vertical curve length shall be determined by criteria set forth by A.A.S.H.T.O. for minimum lengths of crest vertical curves as determined by stopping sight distance. Minimum stopping sight distances are shown in Table 2-2.

**TABLE 2-2 Road Design Speed, Minimum Stopping Sight Distance and Minimum Radius**

<b>Road Classification</b>	<b>Design Speed</b>	<b>Minimum Stopping Sight Distance</b>	<b>Minimum Radius</b>
Primary Collector	45 mph	325 feet	725 feet
Secondary Collector	35 mph	250 feet	500 feet
Commercial	35 mph	250 feet	500 feet
Residential (Primary and Secondary only)	25 mph	150 feet	200 feet

**4.28 LIGHTING** - Streetlights shall be provided within the right-of-way. The spacing and height of lighting fixtures shall be according to the standards set forth in Appendix B of this Ordinance. The design of outdoor lighting fixtures is subject to Planning Commission approval, which approval shall be based on a streetlight design guide adopted by resolution by the Planning Commission. Absent a resolution adopted such a design guide, the Planning Commission shall approve streetlight designs that are compatible with its small town quality of life.

## ARTICLE THREE

### PRIVATE ROADS

- 3.10** The Town Planning Commission may allow private roads in commercial / industrial / residential developments provided all of the following conditions are met:
- A. The road shall meet the standards of road design and construction in the Town of Church Hill Road Ordinance corresponding to the typical section determined by the Planning Commission to be most appropriate given anticipated traffic types and volumes.
  - B. Access shall be provided to a State, Town, or County road and shall meet the applicable standards.
  - C. Gates, fences, barriers, or other means shall not obstruct or limit access on a private road that serves more than one lot or that provides access to a residential use containing more than two dwelling units.
  - D. The proposed road shall be private, non-Town owned, and maintained and shall not be petitionable in perpetuity to the Town for Town ownership or for Town maintenance. A notation of such restriction shall be placed on the plat and signed by the property owner(s). The developer shall be responsible for providing for road construction and the property owner(s) for maintenance including snow removal and repairs as well as other improvements and road services normally provided by the Town. The cost of design, construction, and bonding shall be borne by the developer.
  - E. Upon approval of a subdivision with a private road, the deed and the contract of sale for new lots shall show that:
    - 1. The road will be private and the Town will not maintain the road.
    - 2. The lot owner has an undivided ownership interest in the private road.
    - 3. The lot owner has signed a shared maintenance agreement providing for the maintenance of the private road.
  - F. No lot or parcel in a subdivision subject to these regulations shall be transferred until a contract agreement for the road improvements has been executed and a plat recording has been completed, and the platted streets and sidewalks (as required by final plat or preliminary approval letter) have been completed and appropriate bond or acceptable guarantee has been provided and accepted by the Town Commissioners for completion of streets and sidewalks in the subdivision in which the lot or parcel is located. The amount of the bond or guarantee shall be 125% of the estimated cost of completing construction, for guaranteeing to the

Town that the subdivider or developer will complete the construction within such time as may be proposed by the developer and approved by the Town Commissioners.

- F. All other permit, bonding, and review requirements of this Ordinance pertaining to public roads shall also apply to private roads.

## ARTICLE FOUR

### PERMITS

- 4.10 GENERAL** - No person or organization shall improve any road without first obtaining a construction permit from the Town. Such permit shall be non-transferable and it may be revoked if any provisions thereof, or these Standards are violated. Willful refusal of any permittee to stop construction after receiving notice of such revocation shall be deemed a violation of this Ordinance.
- 4.20 PERMIT APPLICATION** - Application for a permit to begin road construction shall be made on forms provided by the Town and shall, when required by the Town, be accompanied by special specifications peculiar to the scope of work covered by the permit.
- 4.30 APPLICATION APPROVAL** - If, after review of the application, it appears to the Town that the proposed work conforms with requirements, the applicant shall be notified of the amount of bonds and fees.
- 4.40 PERMIT ISSUANCE** - Before a construction permit will be issued the applicant must obtain a Sediment Control permit from the Queen Anne's County Planning and Zoning Office. The permit will be issued after bond, fee, plan, and sediment control requirements have been met. When a permit has been issued, work thereunder must be commenced within sixty (60) days, unless cause to the contrary be shown, and thereafter be continued to conclusion of all work covered. Such permit shall automatically expire one year after issuance, unless extended in writing by the Town. It shall be the responsibility of the permittee to apply for an extension at least thirty (30) days prior to the expiration of the permit. The holder of a permit shall notify the Town at least seventy-two (72) hours before commencement of any construction thereunder, and in the event that there is an interruption of the work for a period of more than five (5) days, then the permittee shall notify the Town at the end of each interruption of his intent to actively resume operations.

## ARTICLE FIVE

### BONDS AND FEES

- 5.10 BONDS** - All permittees will be required to provide performance and labor, and materialmen's payment sureties before permission to start construction by the Town. The performance surety and payment surety shall each be in the amount of one hundred twenty-five percent (125%) of the estimated cost of the improvements, conditioned upon the contractor complying with the terms and conditions of this Ordinance and the Specifications, and indemnifying the Town against or from all cost, expenses, damages, injury or loss to which said Town may be subjected by reason of any wrong doing, misconduct, want of care or skill, negligence or default upon the part of the developer or the contractor. Both sureties shall be executed with the same company or bank, and shall be approved by the Town Commissioners and the Town Attorney before acceptance. Whenever the surety so furnished shall be deemed by the Town to be insufficient or unsatisfactory, the permittee, within ten (10) days after notice to that effect, shall furnish and deliver new sureties to the Town in the same penalty and on the same conditions, with surety satisfactory to the Town, and this duly shall continue on the part of the permittee, whenever and so often as the Town shall require new bonds with a satisfactory surety. If the permittee shall fail to furnish such bonds within ten (10) days after said notice, all further work will not be approved by the Town.

In lieu of filing bonds, the permittee may enter into an agreement with the Town, such agreement to be approved by resolution of the Town Commissioners, providing that the permittee shall deposit with the Clerk-Treasurer such sum of money as is estimated by the Town to be one hundred fifty percent (150%) of the total cost of the project. The agreement shall itemize the several phases of the work or construction. Upon completion of each phase or step, the permittee shall notify the Town that he is ready for inspection. The Clerk-Treasurer is hereby authorized to refund to the permittee any installment due under the terms of the agreement upon receipt of a certificate signed by the Town Engineer or his authorized representative, certifying that the work has been performed by the permittee according to Town Standards and Specifications, and that the permittee is entitled to the installment due for completion of such work. Upon final completion of all work for which the permit is issued, a final certificate shall be issued and, upon acceptance of the street by the Town, the final payment shall be made to the permittee. The final draw of payment under the terms of the agreement shall in no event be less than twenty percent (20%) of the original 150% deposit for this project.

For minor projects where the estimated total cost is less than five thousand dollars (\$7,500.00), in lieu of filing bonds, the permittee shall deposit with the Clerk-Treasurer such sum of money as is estimated to be the total cost of the project. All other terms and conditions in the preceding paragraph will apply to minor projects under \$7,500.00.

If a cash bond is offered, it shall be deposited with the Clerk-Treasurer who shall give his/her official receipt therefore, stipulating that said cash has been deposited in compliance with this section. Letters-of-Credit may also be used as surety in lieu of bonds provided the conditions of the surety are acceptable to the Town.



All cash, corporate bonds, and letters-of-credit covering construction filed hereunder shall be released upon, but not before acceptance of the completed street, or road by the Town. Cash bonds or assignment of funds shall not be released in whole or in part, until a release covering the work completed has been filed with the Town, and signed by the contractors on the project indicating that they have been paid for the work accomplished. All bonds must be recorded by the permittee and a copy of the recordation fee receipt must be provided for the Town.

**5.20 FEES** - An inspection/review fee shall be required in the amount of six percent (6 %) of the estimated cost of the improvements. This fee shall be required before permission to start construction is granted by the Town.

## ARTICLE SIX

### CONTRACT PLANS AND DRAWINGS

- 6.10 GENERAL** - When plans for street layout and construction are submitted to the Town for approval they must fulfill the following requirements: Street layouts shall be prepared on sheets separate from utilities. An approval block must be provided for each plan sheet for approval of the Town Engineer. Plans shall be prepared on standard size plan sheets (24"x36"). Drawing numbers of other utilities being prepared for the improvement at the same time shall be shown on the plan portion of the street plans.
- 6.20 TITLE SHEET** - The title sheet shall bear a vicinity map. The following information shall also be shown:
- a. Name and section of subdivision.
  - b. Election district, Town, County and State.
  - c. Name and address of owner.
  - d. Certification of Engineer (signature and seal).
  - e. Approval block.
- 6.30 TYPICAL SECTIONS** – Typical sections of each type of proposed street to be constructed shall conform with the typical sections shown in the Standard Details. The sections shall give the following information:
- a. Right-of-way width.
  - b. Base and shoulder width.
  - c. Paving detail.
  - d. Slopes and grades.
  - e. Location of sidewalks, if applicable.
- 6.40 PLAN** – The plan shall show the following information:
- a. **Street names:** The names of all streets shall be clearly lettered either along the centerline or along one property line, whichever is more convenient; however, all names on each drawing shall be placed in the same relative position.
  - b. **Widths of right-of-way, pavement, and easements:** Widths of existing and proposed rights-of-way and pavements for each street shall be shown by dimensioning. Slope easements, where established, and utility easements and rights-of-way which intersect streets shall be shown by dimensioning.
  - c. **Topography:** The location of all structures and topography at two foot intervals shall be accurately shown, including trees, hedges, and property markers. This topography shall be carried at least 100 feet beyond right-of-way lines, 200 feet beyond the ends of streets and 200 feet in each direction from an intersection.

d. **Coordinates, Bearings and Ties:** Bearings on street centerlines and coordinates of centerline P.C.'s and P.T.'s and of intersecting street centerline P.I.'s shall be shown along the respective centerlines. In addition to the above requirements, all P.I.'s, P.C.'s P.T.'s and other points that are needed to re-establish the centerline of the street shall be referenced to permanent features or guarded hub stakes that will not be disturbed prior to the completion of all work. The location and description of all referenced points and the distance and/or angles to the centerline control points shall be shown on all street drawings.

e. **Horizontal curve information:** Centerline curve information for each horizontal curve shall be tabulated on the plan in the following order:

$\Delta =$  \_\_\_\_\_ ° ' " (External Angle)

$D_c =$  \_\_\_\_\_ ° ' " (Degree of Curve)

$R =$  \_\_\_\_\_ ft. (Centerline Radius)

$T =$  \_\_\_\_\_ ft. (Tangent Length)

$L =$  \_\_\_\_\_ ft. (Length of Curve)

$E =$  \_\_\_\_\_ ft. (External)

f. **Stationing:** Stationing along the surveyed centerlines of tangents shall be in even 50' stations, indicated by a small circle and the station number. Stationing along horizontal curves shall be indicated in like manner. Where lines have not been surveyed, stations shall be shown by tick marks. P.C.'s and P.T.'s of horizontal curves shall be indicated by a small double circle on the centerline, and their stations shown to the nearest hundredth of a foot. Stations of P.C.'s and P.T.'s of curbs on circular portions of cul-de-sacs and circles shall be shown on the plan. P.I.'s of intersecting street centerlines shall be indicated by a small double circle at the centerline intersection, and the equality to the nearest hundredth of a foot shall be lettered thereunder.

g. **P.I.'s of Curb Lines:** The points of intersection of curb lines shall be indicated by small linked crosses, and shall be identified thereunder as N.E., N.W., S.W., or S.E.

h. **Direction of Drainage:** Arrows approximately 1/2 inch long shall be drawn around all curb returns and at all critical drainage points to indicate the direction of surface water flow in ditches or gutters. Wherever the slope of a gutter is reversed from the street slope, a note to that effect shall appear on the plan. When an inlet adjacent to a curb return is to be set to such an elevation that it serves as the low point along the curb return, and grades of the intersecting streets are such that a true picture of the top curb grade in the inlet area is not feasible on the profile, a grading plan for the intersection shall be submitted indicating the exact location of the low point with a computed elevation shown on the plan.

- i. **Storm Drainage:** The design engineer shall indicate on the street plans the proposed storm drainage systems, including entrance pipes in the right-of-way. The storm drainage shall be shown schematically with drainage structures and direction of flow.

## 6.50 PROFILES

- a. **Top Curb Grade (closed sections) and Centerline Grade (open sections) submitted for approval shall be shown by a clear line and designated "TOP CURB GRADE", and "CENTERLINE GRADE".** On profiles where the grades are warped, both grades shall be shown by a solid line with a note designating each. Circles shall be used on profile grade lines to designate vertical curve P.V.C.'s and P.V.T.'s of top curb lines or centerlines. P.V.I.'s shall be shown by a triangular symbol. All percents of grades shall be shown to two decimal places.
- b. **Previously Established Top Curb Grade and Centerline Grade:** Where a grade line shown on a drawing is taken from a previously established grade, it shall be designated as "ESTABLISHED TOP CURB GRADE", or "ESTABLISHED CENTERLINE GRADE". The date established and the design drawing number of such previously established grades shall be noted on the profile. On existing pavement, grades shall be field surveyed.
- c. **Existing Ground Profiles at Centerlines:** The profile of the existing ground along the centerline of a proposed street shall be shown by dashed lines. The existing ground profiles shall be labeled, and the date of the field survey shall be indicated.
- d. **Vertical Curves:** A vertical curve shall be shown on profiles as a smooth curve between tangents. Although vertical curves are parabolic curves with radii, these curves may be represented with a standard circular curve template. The correct templates for given vertical curves will be tangent at the P.V.C. and P.V.T., and will pass through the computed middle ordinate elevation at the P.T. Computation of the middle ordinate will be required.
- e. **Top Curb Grades for Cul-de-Sacs and Circles:** Top curb grades for cul-de-sacs and circles shall be shown as profiles running linearly around the perimeter of the cul-de-sac or circle curb including the approach returns.
- f. **Top Curb Grade of Intersecting Streets:** Top curb grades for standard curb returns of intersecting streets shall be shown as profiles along the horizontal tangents from the P.C.'s of the curb lines to the P.I.'s of the curb lines. Where returns exceed a 35 foot radius, or when a drainage problem is evident, top curb grades shall be shown independently as profiles running linearly around the circumference of the curb line as directed by the Town Engineer.
- g. **Stationing and Elevations:** Stations of all points of intersection of curb lines and pavement edges shall be determined at right angles to the centerline. Therefore, a face of curb line shall not be extended to intersect a centerline at a skew in order to establish a station. Throughout profiles, elevations shall be shown for each 50' station with additional elevations every 25' throughout horizontal and vertical curves. Stationing shall be at these points on the profile. All elevations shall be referenced to the U.S. Coast and Geodetic Survey. Elevations shall be computed and shown to the hundredth of a foot. Where curbs

are warped, separate elevations shall be given for each curb and shall be identified as N.T.C., S.T.C., E.T.S. and W.T.C. Stationing and elevations shall be shown for all curb return P.I.'s and vertical curve P.C.'s and P.T.'s. Points of intersection of curb lines shall be designated P.I.N.E., P.I.N.W., P.I.S.E., and P.I.S.W. to correspond with the plan.

- h. Extensions of Profiles:** At any point where a proposed street is an extension of an existing street, the profile of the existing centerline or top curb shall be shown for at least another 200 feet and the elevation of the curb noted. All street profiles shall be extended a sufficient distance to define clearly the situation and this distance shall never be less than 200 feet beyond the limits of construction, except in the case of a profile terminating at a tee intersection. Where profiles must be broken or continued on the same or other sheets, a minimum of 200' profile shall be repeated.
- i. Profiles of Entrances to Parking Areas:** Where such profiles are required by the Town Engineer, these profiles shall show the finished top of curb grade or centerline grade for all entrances to parking areas independently and apart from the profiles of proposed streets and thoroughfares and they shall be clearly labeled.

#### 6.60 SCALES

- a.** Plan views shall be drawn at a scale of 1" = 50'.
- b.** Profiles shall be drawn with a horizontal scale of 1" = 50' and with a vertical scale of 1" = 5'.

## ARTICLE SEVEN

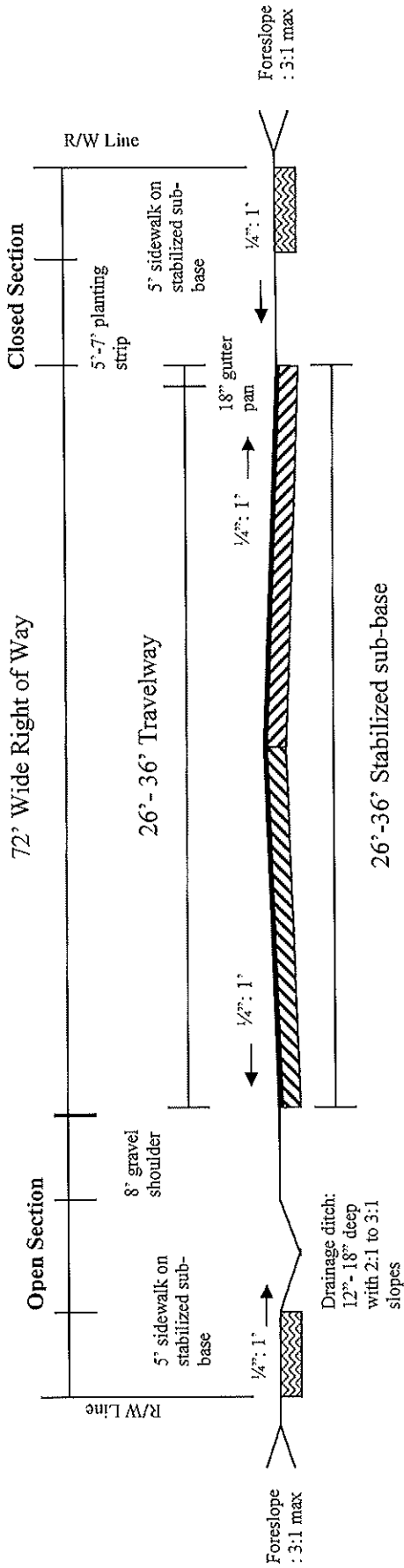
### PROCEDURE FOR ROAD PLAN AND CONSTRUCTION PERMIT APPROVAL

- 7.10 The developer shall submit the preliminary and/or sketch plan to the Planning and Zoning Commission Office (Town Hall) and must obtain preliminary approval before proceeding further.
- 7.20 Plans shall be prepared in accordance with Standards and Specifications of the Town. All road plans must meet these requirements.
- 7.30 The developer shall submit the preliminary road construction plan including a construction schedule to the Town for review. Comments shall be made in writing by the Town Engineer or the Town Engineer's representative and returned to the developer.
- 7.40 Upon approval of the preliminary plan, a final road plan and construction schedule shall be prepared and submitted to the Town Engineer for the Town Engineer's approval and signature.
- 7.50 After the Town Engineer has approved and signed the road plans, the Town Engineer shall advise the developer, the developer's engineer, and the Town, in writing, of the Town Engineer's approval and the amount of the performance and payment sureties, and inspection fee.
- 7.60 The developer or the developer's engineer shall provide the Town with two paper copies and one mylar copy of the approved road plan.
- 7.70 The developer shall submit the sureties to the Town Commissioners and Town Attorney for approval. After approval, the developer shall pay recordation fees and provide the Town with a copy of the Court receipt.
- 7.80 The developer shall pay the inspection fee, whereupon the construction permit shall be issued provided all other requirements have been met
- 7.90 In cases where variances have been requested, variances must be granted before approval of the final road plan will be given.

**ARTICLE EIGHT**  
**STANDARD DETAILS**

Road Classification	R-O-W	Average	Pavement	Design	Parking	Sidewalk	Open
	Width	Daily	Width	Speed	Allowed	Closed	
or	(feet)	Trips		(mph)		Section	
Primary Collector	72	>2,000	26'- 36'	45	N	Y	either
Secondary Collector	70	<2,000	24'- 30'	35	N	Y	either
Commercial	70	>2,000	40'	35	2 sides	Y	closed
Boulevard	85	<4,000	2 x 18'-22'	35	2 sides	Y	either
Primary Residential	50-55	<1,500	25'	25	1 side	Y	either
Secondary Residential	45-50	<400	22'	25	1 side	Y	either
Lane	36-40	<200	18'	25	N	either	either
Alley	25	<200	15'	15	N	N	either
Cul-de-sac and Circle	70-80	-	30' curb radius	-	N	Y	either
Easement	15	-	-	-	-	N	-

# Primary Collector Typical Section



### SPECIFICATIONS

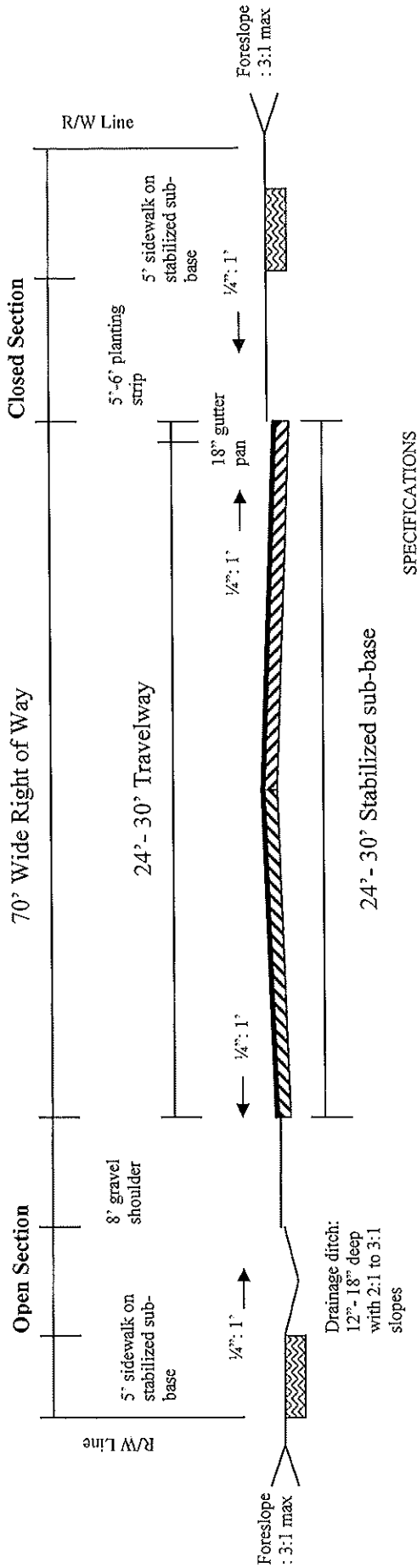
1. Pavement - Shall be 1 1/2" compacted bituminous concrete surface course (SHA mix design 9.5mm) on 3" compacted bituminous concrete base course (SHA mix design 19mm).
2. Stabilized Sub-base- Shall be 10" minimum compacted bank run gravel laid and thoroughly compacted in two 5" lifts or 8" of CR-6 aggregate laid and compacted in one lift. Compaction shall meet or exceed 93% of the modified proctor density for the material. Other alternatives to stabilized sub-base must be approved by the Town Engineer prior to the initiation of construction.
3. Sub-grade- All unsuitable materials shall be removed to a point 12" below subgrade of the stabilization. If unsuitable material is encountered at or below this point, the unsuitable material shall be removed as directed by the Town Engineer. The unsuitable material shall be replaced with select borrow.
4. Curb and gutter- The curb and gutter shall be SHA mix No. 2, 3,000 PSI 28 day compression strength.
5. Shoulders- Shoulders should be 6" bank run gravel with double surface treatment.
6. Sidewalks- The concrete sidewalk shall be SHA mix No. 2, 3,000 PSI- 28 day compressive strength of 4" in depth. The stabilized sub-base shall be 4 inches minimum compacted bank gravel placed and compacted on approved subgrade to 95% of the modified proctor density for the material. The sidewalk shall have a 1/4", 1' positive flow to the roadway drainage system.
7. Finish Grading- All areas within right-of-way and drainage/utility easement shall be graded to provide positive drainage to gutter flow line and stabilized with a minimum of 4" of topsoil, seeded and mulched per NRCS specifications.
8. All methods of construction shall be in compliance with Town of Church Hill Standards and shall be consistent with the MDOT/SHA standard specifications for construction of materials.

Notes: Design speed: 45 mph  
> 2,000 ADT

Drawing not done to scale  
No parking allowed in travelway  
6" curb encroaches on the planting strip  
May be open or closed section



# Secondary Collector Typical Section



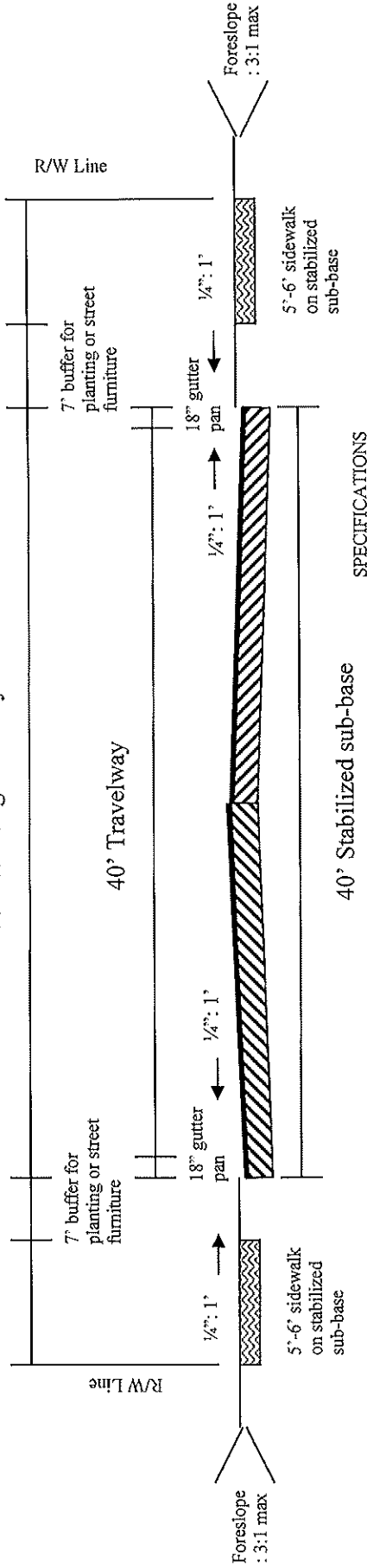
### SPECIFICATIONS

1. Pavement - Shall be 1 1/2" compacted bituminous concrete surface course (SHA mix design 9.5mm) on 3" compacted bituminous concrete base course (SHA mix design 19mm).
2. Stabilized Sub-base- Shall be 10" minimum compacted bank run gravel laid and thoroughly compacted in two 5" lifts or 8" of CR-6 aggregate laid and compacted in one lift. Compaction shall meet or exceed 95% of the modified proctor density for the material. Other alternatives to stabilized sub-base must be approved by the Town Engineer prior to the initiation of construction.
3. Sub-grade- All unsuitable materials shall be removed to a point 12" below subgrade of the stabilization. If unsuitable material is encountered at or below this point, the unsuitable material shall be removed as directed by the Town Engineer. The unsuitable material shall be replaced with select borrow.
4. Curb and gutter- The curb and gutter shall be SHA mix No. 2, 3,000 PSI 28 day compression strength.
5. Shoulders- Shoulders should be 6" bank run gravel with double surface treatment.
6. Sidewalks- The concrete sidewalk shall be SHA mix No. 2, 3,000 PSI- 28 day compressive strength of 4" in depth. The stabilized sub-base shall be 4 inches minimum compacted bank run gravel placed and compacted on approved subgrade to 95% of the modified proctor density for the material. The sidewalk shall have a 1/4" : 1" positive flow to the roadway drainage system.
7. Finish Grading- All areas within right-of-way and drainage/utility easement shall be graded to provide positive drainage to gutter flow line and stabilized with a minimum of 4" of topsoil, seeded and mulched per NRCS specifications.
8. All methods of construction shall be in compliance with Town of Church Hill Standards and shall be consistent with the MDOT/SHA standard specifications for construction of materials.

Notes: Design speed: 35 mph  
 < 2,000 ADT  
 Drawing not done to scale  
 No parking allowed  
 6" curb encroaches on the planting strip  
 May be open or closed section

# Commercial Typical Section

70' Wide Right-of-Way

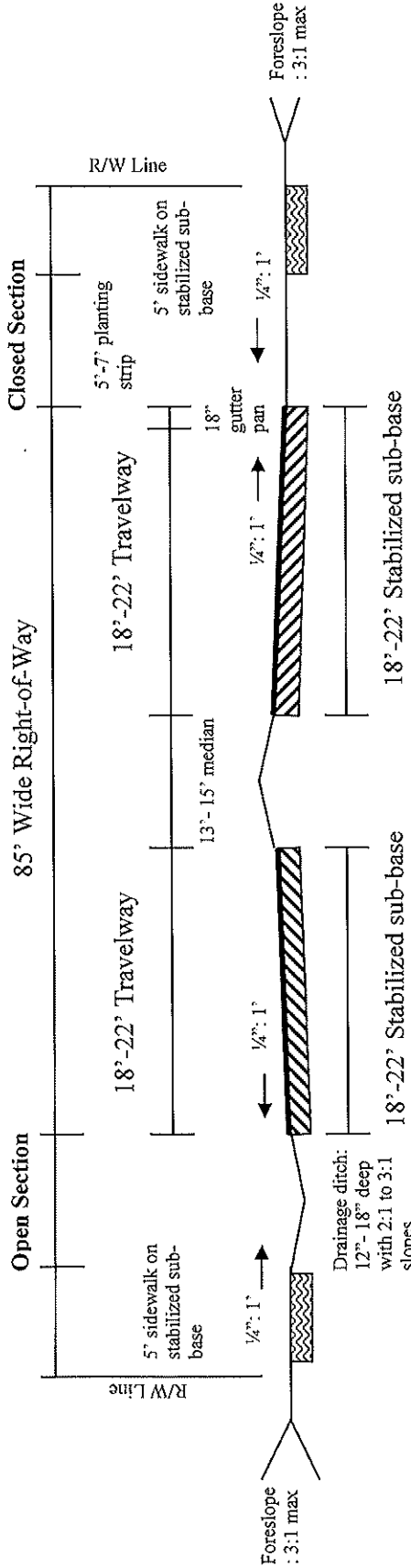


## SPECIFICATIONS

1. Pavement— Shall be 1 1/2" compacted bituminous concrete surface course (SHA mix design 9.5mm) on 3" compacted bituminous concrete base course (SHA mix design 19mm).
2. Stabilized Sub-base- Shall be 12" minimum compacted bank run gravel laid and thoroughly compacted in three 4" lifts or 10" of CR-6 aggregate laid and compacted in one lift. Compaction shall meet or exceed 95% of the modified proctor density for the material. Other alternatives to stabilized sub-base must be approved by the Town Engineer prior to the initiation of construction.
3. Sub-grade- All unsuitable materials shall be removed to a point 12" below subgrade of the stabilization. If unsuitable material is encountered at or below this point, the unsuitable material shall be removed as directed by the Town Engineer. The unsuitable material shall be replaced with select borrow.
4. Curb and gutter- The curb and gutter shall be SHA mix No. 2, 3,000 PSI 28 day compression strength.
5. Sidewalks- The concrete sidewalk shall be SHA mix No. 2, 3,000 PSI- 28 day compressive strength of 4" in depth. The stabilized sub-base shall be 4 inches minimum compacted bank run gravel placed and compacted on approved subgrade to 95% of the modified proctor density for the material. The sidewalk shall have a 1/4": 1' positive flow to the roadway drainage system.
6. Finish Grading- All areas within right-of-way and drainage/utility easement shall be graded to provide positive drainage to gutter flow line and stabilized with a minimum of 4" of topsoil, seeded and mulched per NRCS specifications.
7. All methods of construction shall be in compliance with Town of Church Hill Standards and shall be consistent with the MDOT/SHA standard specifications for construction of materials.

Notes: Design speed: 35 mph  
 > 2,000 ADT  
 Drawing not done to scale  
 Parking Lanes on both sides of street  
 6" curb encroaches on the buffer strip  
 Closed section only

# Boulevard Typical Section



## SPECIFICATIONS

1. Pavement— Shall be 1/2" compacted bituminous concrete surface course (SHA mix design 9.5mm) on 3" compacted bituminous concrete base course (SHA mix design 19mm).
2. Stabilized Sub-base- Shall be 10" minimum compacted bank run gravel laid and thoroughly compacted in two 5" lifts or 8" of CR-6 aggregate laid and compacted in one lift. Compaction shall meet or exceed 95% of the modified proctor density for the material. Other alternatives to stabilized sub-base must be approved by the Town Engineer prior to the initiation of construction.
3. Sub-grade- All unsuitable materials shall be removed to a point 12" below subgrade of the stabilization. If unsuitable material is encountered at or below this point, the unsuitable material shall be removed as directed by the Town Engineer. The unsuitable material shall be replaced with select borrow.
4. Curb and gutter- The curb and gutter shall be SHA mix No. 2, 3,000 PSI 28 day compression strength.
5. Sidewalks- The concrete sidewalk shall be SHA mix No. 2, 3,000 PSI- 28 day compressive strength of 4" in depth. The stabilized sub-base shall be 4 inches minimum compacted bank run gravel placed and compacted on approved subgrade to 95% of the modified proctor density for the material. The sidewalk shall have a 1/4": 1' positive flow to the roadway drainage system.
6. Finish Grading- All areas within right-of-way and drainage/utility easement shall be graded to provide positive drainage to gutter flow line and stabilized with a minimum of 4" of topsoil, seeded and mulched per NRCS specifications.
7. All methods of construction shall be in compliance with Town of Church Hill Standards and shall be consistent with the MDOT/SHA standard specifications for construction of materials.

Notes: Design speed: 35 mph  
<4,000 ADT

Parking allowed on one side of each travelway

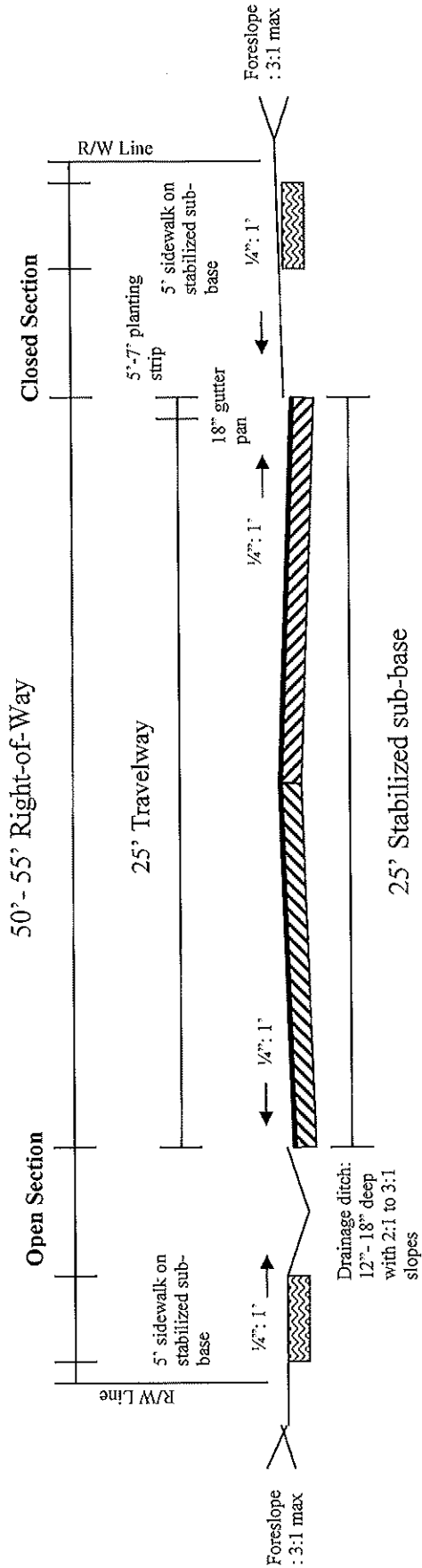
Drawing not done to scale

6" curb encroaches on the planting strip and median

May be open or closed section

Curbs without gutters may be required for travelways abutting median strip

# Primary Residential Typical Section



### SPECIFICATIONS

1. Pavement - Shall be 1 1/2" compacted bituminous concrete surface course (SHA mix design 9.5mm) on 3" compacted bituminous concrete base course (SHA mix design 19mm).
2. Stabilized Sub-base- Shall be 8" minimum compacted bank run gravel laid and thoroughly compacted in two 4" lifts or 6" of CR-6 aggregate laid and compacted in one lift. Compaction shall meet or exceed 95% of the modified proctor density for the material. Other alternatives to stabilized sub-base must be approved by the Town Engineer prior to the initiation of construction.
3. Sub-grade- All unsuitable materials shall be removed to a point 12" below subgrade of the stabilization. If unsuitable material is encountered at or below this point, the unsuitable material shall be removed as directed by the Town Engineer. The unsuitable material shall be replaced with select borrow.
4. Curb and gutter- The curb and gutter shall be SHA mix No. 2, 3,000 PSI 28 day compression strength.
5. Sidewalks- The concrete sidewalk shall be SHA mix No. 2, 3,000 PSI- 28 day compressive strength of 4" in depth. The stabilized sub-base shall be 4 inches minimum compacted bank run gravel placed and compacted on approved subgrade to 95% of the modified proctor density for the material. The sidewalk shall have a 1/4" : 1" positive flow to the roadway drainage system.
6. Finish Grading- All areas within right-of-way and drainage/utility easement shall be graded to provide positive drainage to gutter flow line and stabilized with a minimum of 4" of topsoil, seeded and mulched per NRCS specifications.
7. All methods of construction shall be in compliance with Town of Church Hill Standards and shall be consistent with the MDOT/SHA standard specifications for construction of materials.

Notes: Design speed: 25 mph  
400-1,500 ADT

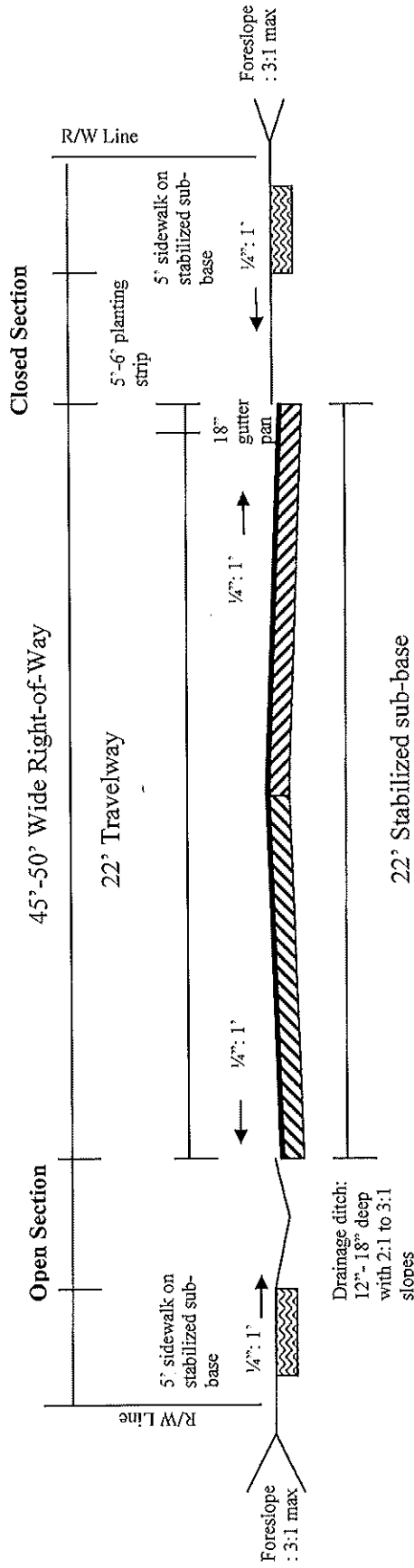
Drawing not done to scale

Parking allowed on one side

6" curb encroaches on the planting strip

May be open or closed section

# Secondary Residential Typical Section

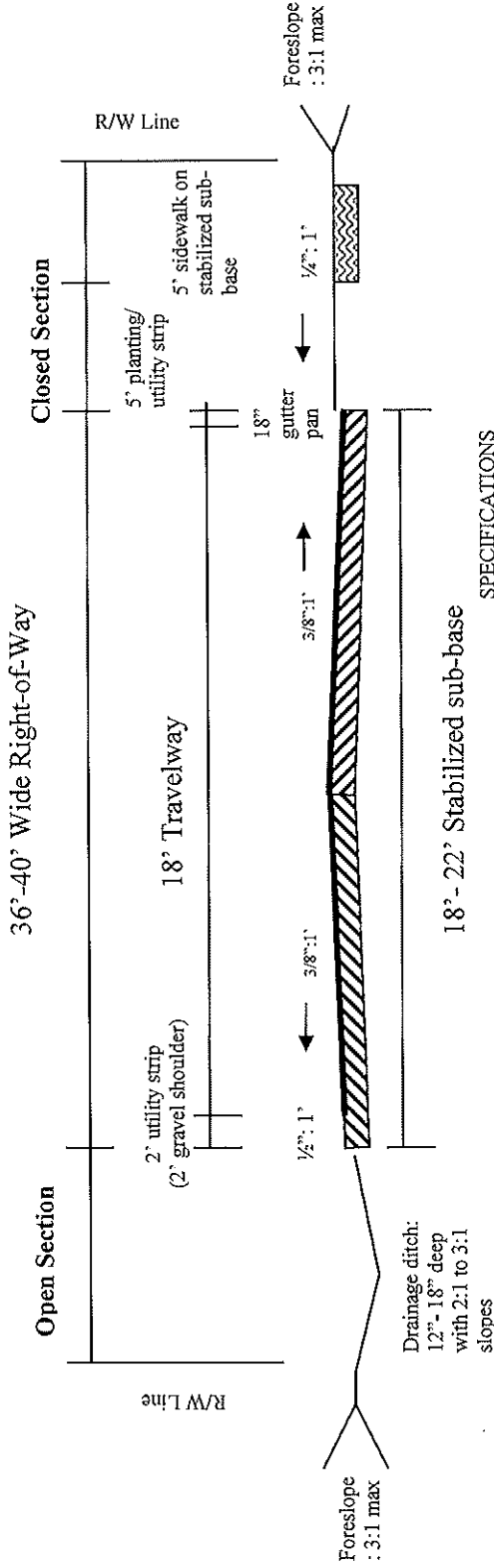


## SPECIFICATIONS

1. Pavement - Shall be 1 1/2" compacted bituminous concrete surface course (SHA mix design 9.5mm) on 3" compacted bituminous concrete base course (SHA mix design 19mm).
2. Stabilized Sub-base- Shall be 8" minimum compacted bank run gravel laid and thoroughly compacted in two 4" lifts or 6" of CR-6 aggregate laid and compacted in one lift. Compaction shall meet or exceed 95% of the modified proctor density for the material. Other alternatives to stabilized sub-base must be approved by the Town Engineer prior to the initiation of construction.
3. Sub-grade- All unsuitable materials shall be removed to a point 12" below subgrade of the stabilization. If unsuitable material is encountered at or below this point, the unsuitable material shall be removed as directed by the Town Engineer. The unsuitable material shall be replaced with select borrow.
4. Curb and gutter- The curb and gutter shall be SHA mix No. 2, 3,000 PSI 28 day compression strength.
5. Sidewalks- The concrete sidewalk shall be SHA mix No. 2, 3,000 PSI- 28 day compressive strength of 4" in depth. The stabilized sub-base shall be 4 inches minimum compacted bank run gravel placed and compacted on approved subgrade to 95% of the modified proctor density for the material. The sidewalk shall have a 1/4": 1' positive flow to the roadway drainage system.
6. Finish Grading- All areas within right-of-way and drainage/utility easement shall be graded to provide positive drainage to gutter flow line and stabilized with a minimum of 4" of topsoil, seeded and mulched per NRCS specifications.
7. All methods of construction shall be in compliance with Town of Church Hill Standards and shall be consistent with the MDOT/SHA standard specifications for construction of materials.

Notes: Design speed: 25 mph  
 < 400 ADT  
 Parking allowed on one side  
 Drawing not done to scale  
 6" curb encroaches on the planting strip  
 May be open or closed section

# Residential Lane Typical Section

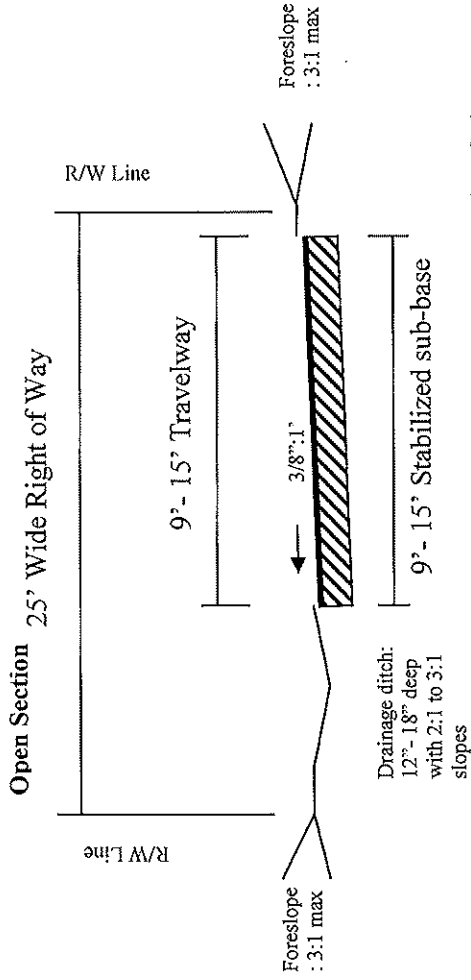


## SPECIFICATIONS

1. Pavement - Shall be polymer modified asphalt emulsion [CRS-2] applied with chip seal stone at the following rates: 1<sup>st</sup> course 45 lbs MD #7 stone on 1/2 gallon CRS-2P per square yard; 2<sup>nd</sup> and 3<sup>rd</sup> courses 35 lbs MD #7 stone on 1/2 gallon CRS-2 per square yard.
2. Stabilized Sub-base- Shall be 8" minimum compacted bank run gravel laid and thoroughly compacted in two 4" lifts or 6" of CR-6 aggregate laid and compacted in one lift. Compaction shall meet or exceed 95% of the modified proctor density for the material. Other alternatives to stabilized sub-base must be approved by the Town Engineer prior to the initiation of construction.
3. Sub-grade- All unsuitable materials shall be removed to a point 12" below subgrade of the stabilization. If unsuitable material is encountered at or below this point, the unsuitable material shall be removed as directed by the Town Engineer. The unsuitable material shall be replaced with select borrow.
4. Sidewalks- The concrete sidewalk shall be SHA mix No. 2, 3,000 PSI- 28 day compressive strength of 4" in depth. The stabilized sub-base shall be 4 inches minimum compacted bank run gravel placed and compacted on approved subgrade to 95% of the modified proctor density for the material. The sidewalk shall have a 1/4":1' positive flow to the roadway drainage system.
5. Shoulders: Shoulders to be 6" bank run gravel with double surface treatment.
5. Ditches- Shall be excavated to gradients as show on construction drawings and stabilized with a minimum of 4" of topsoil, seeded and mulched per NRCS specifications.
6. All methods of construction shall be in compliance with Town of Church Hill Standards and shall be consistent with the MDOT/SHA standard specifications for construction of materials.

Notes: Design speed: 25 mph  
 < 200 ADT  
 No parking allowed  
 No density greater than 3/du per acre  
 May be open or closed section  
 Drawing not done to scale

# Alley Typical Section



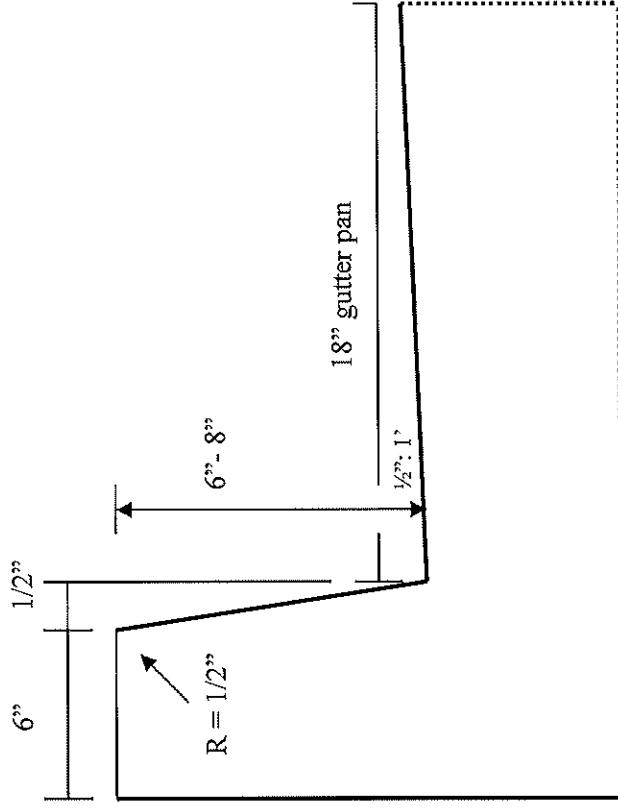
## SPECIFICATIONS

1. Pavement - Shall be polymer modified asphalt emulsion [CRS-2] applied with chip seal stone at the following rates: 1<sup>st</sup> course 45 lbs MD #7 stone on 1/2 gallon CRS-2P per square yard; 2<sup>nd</sup> and 3<sup>rd</sup> courses 35 lbs MD #7 stone on 1/2 gallon CRS-2 per square yard.
2. Stabilized Sub-base- Shall be 8" minimum compacted bank run gravel laid and thoroughly compacted in two 4" lifts or 6" of CR-6 aggregate laid and compacted in one lift. Compaction shall meet or exceed 95% of the modified proctor density for the material. Other alternatives to stabilized sub-base must be approved by the Town Engineer prior to the initiation of construction.
3. Sub-grade- All unsuitable materials shall be removed to a point 12" below subgrade of the stabilization. If unsuitable material is encountered at or below this point, the unsuitable material shall be removed as directed by the Town Engineer. The unsuitable material shall be replaced with select borrow.
4. Ditches- Shall be excavated to gradients as show on construction drawings and stabilized with a minimum of 4" of topsoil, seeded and mulched per NRCS specifications.
5. All methods of construction shall be in compliance with Town of Church Hill Standards.

Notes: Design speed: 15 mph  
< 200 ADT

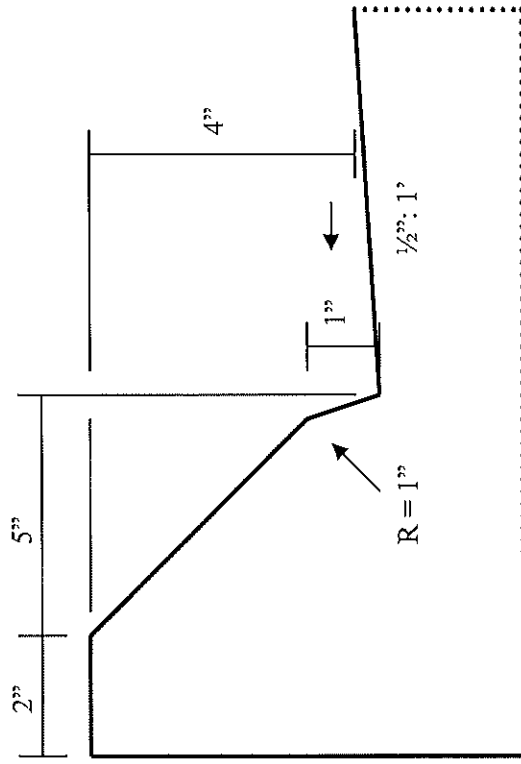
No parking allowed  
Closed section also possible

# Vertical Curb for Town Road Construction





### Sloping Curb for Town Road Construction



## APPENDIX A

### STREET TREE SELECTION AND PLACEMENT

#### Selected Street Trees

Species Common Name	Botanical Name	Height at maturity (feet)	Width at maturity (feet)
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#### Collector, and Commercial [and Boulevard] Street Trees

Silver Maple	<i>Acer Saccharinum</i>	80-100	60-80
Red Maple	<i>Acer rubrum</i>	50-60	40-60
Willow Oak	<i>Quercus phellos</i>	50-80	50
Scarlet Oak	<i>Quercus coccinea</i>	50-80	50
Red oak	<i>Quercus rubra</i>	60-80	40
Sawleaf zelkova	<i>Zelkova serrata</i>	50-60	50
Maidenhair	<i>Ginkgo biloba</i>	60-100	40
London plane	<i>Platanus acerifolia</i>	40-60	40
Littleleaf linden	<i>Tilia cordata</i>	60-100	40
Black cherry	<i>Prunus sargentii</i>	70-90	40
Bald cypress	<i>Taxodium distichum</i>	50-100	40
Carolina hemlock	<i>Tsuga caroliniana</i>	50-70	40
Scotch pine	<i>Pinus sylvestris</i>	75	45

#### Primary and Secondary Residential Street Trees

European hornbeam	<i>Carpinus betulus</i>	30-40	10-15
Common hackberry	<i>Celtis occidentalis</i>	35-45	35
Claret ash	<i>Fraxinus oxycarpa</i>	30-40	30
Red horsechestnut	<i>Aesculus carnea</i>	30-50	30
Honey locust	<i>Gleditsia triacanthos inermis</i>	30-80	30-40
Black tupelo	<i>Nyssa sylvatica</i>	30-50	25
Chinese tallow	<i>Sapium sebiferum</i>	35	35
American sweet gum	<i>Liquidambar styraciflua</i>	40-50	35
River birch	<i>Betula nigra</i>	50	40
Japanese pagoda tree	<i>Sophora japonica</i>	40-50	40-50
Chinese pistachio	<i>Pistachia chinensis</i>	40-50	40-50
Trident maple	<i>Acer buergeranum</i>	50	40
Sawtooth oak	<i>Quercus acutissima</i>	30-50	30

Note: Developers are encouraged to use native species from the above list since they are acclimated to the area and should have a greater survival rate. Tree species permitted for Collector or Commercial Streets may be planted on Residential Streets.

<b>Species Common Name</b>	<b>Botanical Name</b>	<b>Height at maturity (feet)</b>	<b>Width at maturity (feet)</b>
<b>Residential Lane Trees</b>			
Lavalle hawthorn	Crataegus x lavallei	20	10
Washington thorn	Crataegus phaenopyrum	20-30	20-25
Pagoda dogwood	Cornus alternifolia	15-25	15-25
Goldenrain	Koelreutria paniculata	25-35	20
Chokecherry	Prunus Virginia	20-30	15-25
Star magnolia	Magnolia stellata	25	25
Bradford Pear	Pryus calleryana	25-40	15-20

Note: Developers are encouraged to use native species from the above list since they are acclimated to the area and should have a greater survival rate. Tree species permitted for Residential Streets may be planted on Residential Lanes.

### **Tree Placement for Spatial Definition**

Street trees shall be placed so that the tree crowns shall abut one another at the expected growth of the trees at maturity. At a minimum, there shall be no less than two street trees for each property on the street in the R-SF and R-1 zones.

## APPENDIX B

### Standards for the Height and Placement of Streetlights

Street Type	Maximum Height	Maximum Spacing
Boulevard	20 feet	60 feet
Commercial Street	20 feet	60 feet
Primary Residential Street	18 feet	60 feet
Secondary Residential Street	18 feet	60 feet
Residential Lane	12 feet	40 feet