

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

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5-1 GENERAL STREET POLICIES

1. Street Design

- A. Streets shall be provided to give access to adjoining property to the satisfaction of the Planning Director. Also, streets shall be provided to connect with appropriate highways and with appropriate streets in adjoining developments.
- B. All rights-of-way shall conform to the standards as set forth in Plates 5-1 through 5-11.
- C. Subdivision blocks shall be spaced to provide reasonable traffic circulation within and between existing or anticipated subdivisions.
- D. Except where more stringent standards are specified in this Article, or where private street standards apply pursuant to Section 20-5.1.8(h) of the Subdivision Ordinance, the standards and criteria of the Virginia Department of Transportation (VDOT) shall apply.

2. Street Dedication

- A. When a development abuts 1 side of any street, which has been included in the State system of highways, the developer shall be required to dedicate ½ of any right-of-way necessary to make such street comply with the minimum width established. Where a minimum width has not been established in the transportation

element of the Spotsylvania County Comprehensive Plan, the minimum right-of-way width for primary (Route 1-600) and secondary streets (Route 601 and above) shall be 120' and 60', respectively.

- B. The subdivider may be required to dedicate more than one-half of the right-of-way, if necessary to improve the horizontal alignment, meet the minimum design standards for that street, or provide the necessary width for future road improvements designated in the transportation element of the Spotsylvania County Comprehensive Plan.
 - C. Also, the subdivider may be required to assume responsibility for such grading, widening or surfacing and curbing of such street as may be deemed necessary by the Planning Director and VDOT to meet minimum State and County safety and/or design standards.
- #### 3. Curb & Gutter (See Plates 5-2, 5-3, 5-4, 5-5, 5-8, 5-11)
- A. Curb and gutter shall be installed as follows:
 - (1) on sides of arterial, collector and local streets which provide frontage to lots within new subdivisions in which the minimum lot size is 25,000 square feet or less,
 - (2) in all new development in the C-1, C-2, and C-3 zoning districts,

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- (3) in all new development in the 0-1 and 0-2 zoning districts.
 - B. Unless LID is being utilized, header curbs shall be installed for raised medians and service drives for proper channelization of traffic.
 - C. Curb cuts for entrances shall be in accordance with the latest edition of the VDOT publication “Minimum Standards of Entrance to State Highways”.
 - D. Curb cuts for residential use entrances shall be located so as to provide a safe and convenient means of ingress and egress for motor vehicles to and from paved or otherwise improved parts of highways and streets, except that no curb cut on public streets shall be less than 30’ from the point of curvature of the curb line/edge of pavement return of the intersecting streets.
 - E. All curbs and gutters shall be VDOT standard. With the concurrence of VDOT, the Planning Director may allow “mountable curb” for tertiary streets. Mountable curb locations must be shown on the preliminary plat and the exception must be granted prior to submission of construction plans, to ensure that where necessary the design provides additional drainage structures, heavy-duty sidewalks to withstand vehicle loads, and proper transitions to normal curb and gutter sections.
 - F. The minimum width for a curb and gutter street shall be in accordance with VDOT REQUIREMENTS (see Plates 5-2 and 5-3 for detailed cross-sections).
- 4. Service Drive
 - A. Whenever a commercial, institutional, or industrial development abuts a road which is included in the State system of primary highways (route numbers less than 600), a service drive extending for the full length of the development along such road, and providing limited access thereto, shall be provided except when a reverse frontage concept is utilized such that no lot has direct ingress or egress to a secondary or primary highway.
 - B. With the approval of the Planning Director, service drives may be eliminated along roads within a zoning district developed in conjunction with a PDH or PDC District, if in accordance with a proffered development plan, or where a shared entrance plan provides a reasonable substitute.
 - 5. Street Construction
 - A. All streets should be constructed and surfaced in accordance with
 - (1) The current VDOT road and bridge specifications
 - (2) The standards set forth in plates 5-1 through 5-12.

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- B. Where required, easements of widths appropriate to the purpose intended shall be provided.
 - C. All stub streets shall be constructed to the property line if eligible to be accepted into the VDOT road system, and shall terminate with a temporary turnaround. If necessary, on-site grading easements shall be dedicated for the future completion of the street when the off-site area is developed.
6. Street Signs and Building Addresses
- A. All street signs erected within the County shall conform to these specifications. Street signs erected within the County for streets that will be maintained by VDOT shall also meet VDOT standards.
 - B. Street signs shall be installed at all street intersections in a location based on the criteria used by VDOT Section 5-1.6C and the latest version of the “Manual of Uniform Traffic Control Devices”.
 - (1) Stop or Yield signs shall be placed at intersections on those streets that have the least amount of anticipated traffic, and;
 - (2) Stop signs shall be placed at intersections where the potential of poor sight distance would necessitate a full stop to increase safety.
- (3) The County traffic engineer may require alternative placement of such signs.
- C. Street Name Sign Specifications
- (1) The minimum height of each sign blank shall be 8 inches. Text shall be applied using upper and lower case letters. The initial letter of each word shall be 6 inches uppercase. The remaining letters of each word shall be 4 ½ inch lower case letters.
 - (1.1) Post-mounted street name signs on multi-lane streets or roads (more than one lane of travel in each direction) shall be on minimum 10 inch high blanks. Uppercase letters shall be 8 inches and lowercase shall be 6 inches.
 - (1.2) Post-mounted street name signs on low volume local streets (with speed limits of 25 mph or less) may be on blanks 6 inches high. Uppercase letters shall be 4 inches and lowercase letters shall be 3 inches. Note sign size is determined by the speed limit as the sign is approached.
 - (1.3) Prefix and suffix lettering on street

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- name signs identifying the type of street (Ave, Blvd, Dr) or designating direction of the section of a town (E, N, S, W) Shall be composed of initial uppercase letters 3 inches in height and lower case letters 2 ¼ inches in height.
- (2) The maximum length of sign blanks shall be 54 Signs exceeding 30 inches in length shall be made of extruded edge sign blanks.
- (3) Street signs shall be made of engineering grade or high intensity reflective metal sheeting, green in background color with white text. The background and text shall be reflective material.
- (4) See “Standard Highway Signs and Markings” book for design layout and appropriate alphabet and characters.
- (5) All public or private street signs shall be mounted atop a 2 inch galvanized square tube 14-gauge metal post. Post shall have 7/16 inch knockouts at 1 inch on center on all four sides. Post shall be placed in a 2 ½ inch galvanized square tube anchor sleeves at a minimum of 8 inches. Anchor sleeves shall be 30 inches minimum. Anchor sleeves shall be driven leaving 3 inches above grade. The post shall be attached to the anchor sleeve with one 3/8 inch curled bolt, lock washer and nut. Post shall be of sufficient length so that the lowest street name sign is 9 feet six inches above grade.
- (5.1) Street name signs up to 30 inches in length may be mounted on the top of the sign post using manufactured hardware. The cap bracket for the lower sign shall have the blade support length not less than 12 inches and shall be drilled out and attached to the top of the post using one 3/8 inch through bolt, lock washer and nut. Cross brackets to mount the upper sign shall have a blade support length of not less than 12 inches in both directions. The longer sign shall always be mounted below the smaller sign.
- (5.2) Street name signs may be mounted to the sides of the post using a minimum of two 3/8 inch through bolts with a flat washer on each side, a

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lock washer and nut. Street names signs longer than 30 inches shall be mounted using a manufactured wing bracket with a horizontal support arm not less than 24 inches in length. When street name signs are mounted to the sides of the post a manufactured rain cap attached by not less than two set screws shall be installed to close the top of the post.

- (6) All hardware and brackets shall be corrosion resistant material, double hot dipped galvanized or stainless steel. .
- (7) Signs for pipestem driveways in subdivisions shall be designed to the specifications shown on Plate 5-13. Street names shall be composed of initial uppercase letters six inches in height with lower case letters 4 inches in height. Numerals minimum 4 inches in height. Private drive may be initial uppercase letters 4 inches in height with lowercase letters 3 inches in height. Minimum sign dimensions are as shown 13 inches wide by 24 inches tall. Width may be increased up to 30 inches on a single post. Two post must be used for
- signs over 30 inches to a maximum width of 54 inches.
- (8) Alternate sign support methods employing decorative post, wooden post, brackets and hardware are subject to approval by Spotsylvania County. The perpetual maintenance, replacement and repair of such approved signage shall be the responsibility of the owner, developer, or HOA/POA. The actual signs (size, color, text, layout, location and mounting height) shall be in accordance with this specification and all applicable VDOT and reference standards without exception.
- (9) Signage on private roads/driveways, and within developments, subdivisions and communities wherein the roads and streets are not VDOT maintained shall be maintained by the property owner, developer or HOA/POA. Signage must be maintained in accordance with this specification and referenced standard.

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D. List of Street Name Abbreviations:

TABLE 5.1

Avenue	Ave
Boulevard	Blvd
Circle	Cir
Court	Ct
Cove	Cove (not CV)
Drive	Dr
East	E
Highway	Hwy
Isle	Isle (not IS)
Lane	Ln
North	N
Path	Path (not PA)
Pike	Pike (not PI)
Park	Pk
Place	Pl
Parkway	Pkwy (not PKY)
Road	Rd
Run	Run (not RN)
Roadway	Rdwy (not RDY)
South	S
Street	St
Terrace	Terr
Turnpike	Tpke
Trail	Trl
West	W

- E. Signs shall be erected when streets are constructed and prior to the issuance of any occupancy permit for a dwelling or building served by said street or streets. Maintenance responsibilities shall continue until such time as they are formally accepted by another responsible party.
- F. Where provision has been made for extension of existing streets to an adjacent parcel, street extension notification signs shall be installed

prior to the issuance of a building permit in the subdivision or section thereof. Such signs shall be designed as shown on Plate 5-14 and located in a manner specified by the Planning Director. The location of such street extension notification signs shall be shown, with details, on construction plans. In those subdivisions where a homeowner's association has been established, provision shall be made in the documents establishing the homeowner's association for the perpetual maintenance and repair of the street extension notification signs by such association.

- G. Address required to be posted – All dwellings and buildings designed for human occupancy within the County shall be identified by reference to a uniform address numbering system, as determined by the County addressing department.
- H. Single-family dwellings – Address numbers for single family dwellings shall be at least three (3) inches in height and shall be made of a durable and clearly visible material. Address numbers shall be conspicuously placed on, above, or at the side of the main entrance so that the number is readily discernible from the street. Whenever a dwelling is more than seventy-five (75) feet from the street, or when address numbers at the main entrance to the dwelling would not be readily discernible from the street, the address number

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shall be placed along a walk, driveway, or other suitable location so that it is readily discernible from the street. Address numbers shall be of a contrasting color to the background on which they are mounted.

- I. Non-residential buildings – Address numbers for commercial and industrial buildings shall be at least four inches in height if located within 75 feet of a roadway, or at least ten inches in height if located greater than 75 feet from the roadway. Address numbers shall be placed at, above or at the side of the main entrance so that the number is readily discernible from the street. If such address number is not readily discernible from the street, it shall be placed along a walk, driveway or other suitable location so that the address number is readily discernible from the street.
- J. Multi-occupancy buildings – Address numbers for apartments and other multi-occupancy buildings shall be at least eight (8) inches in height and be displayed on each building at each entrance so as to be readily discernible from the street. Address numbers for individual apartments, trailers, or units within multi-occupancy complexes shall be displayed on, above, or beside the side of the main doorway of each apartment, trailer, or unit, and shall be at least three inches in height.

5-2 PRELIMINARY STREET PLANNING

1. General Requirements

All streets on preliminary subdivision plats and also any streets in multifamily, commercial and industrial developments, which are to be dedicated for public use, shall be designed to comply with VDOT geometric standards. These standards require that design be based on traffic usage.

- A. In order to determine the proper street cross-section to use and to facilitate review and approval of preliminary plats, the following information shall be provided for each street intersection:
 - (1) The number of vehicles per day entering and leaving the intersection shall be noted on each leg of each street in each direction.
 - (2) The proposed street right-of-way, together with the proposed width of street (face of curb to face of curb or edge of pavement to edge of pavement) for each block and every street in the subdivision, is to be shown.
 - (3) All street construction shall be within the dedicated street right-of-way. Easements shall not be accepted to make up the minimum required right-of-way if any construction is proposed thereon. Slope construction easements shall be provided where required.

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B. The following information shall be shown for all streets which intersect the exterior boundary of the subdivision and which will provide access to adjoining undeveloped property:

- (1) Number of acres expected to contribute vehicles to this street;
- (2) An indication of how the adjoining property is shown on the adopted Spotsylvania County Comprehensive Plan together with the number of units per acre residential density proposed;
- (3) The total number of units expected to be contributing to the subject street; and
- (4) The total vehicles per day expected to be using the street.

C. For streets which intersect the exterior boundary of the subdivision and connect with existing, dedicated or proposed streets in adjoining subdivisions, the following shall be required:

- (1) The number of lots from the adjoining subdivision from which vehicles will be expected to use the subject street; and
- (2) The number of vehicles expected to enter the subdivision over the subject street from said lots.

2. Trip Generation

Trip generation shall be calculated in accordance with the projected traffic/capacity analysis provisions contained in the current VDOT Subdivision Street Design Guide.

3. Traffic Flow Characteristics

A. In the determination of traffic flow calculations, all preliminary plats shall show traffic divides, in a manner similar to that in which drainage divides are commonly shown, for the traffic which will be generated by the subject development and from the adjoining development passing through it, or from adjoining undeveloped property which will ultimately be subdivided with traffic passing through the subject subdivision.

B. The following items shall be considered in the calculations of the traffic volumes where appropriate:

- (1) Will any of the proposed streets serve as principal or secondary access to any school, either existing or proposed?
- (2) Will any of the streets provide access to existing or proposed parks?
- (3) Will any of the streets provide access to a neighborhood or other shopping area?

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(4) Will any of the streets provide access to a public or semi-public facility or institutional use, such as church, nursing home, lodge hall, community swimming pool, private school, fire station, library, etc?

(5) Could any street in the subdivision serve as a bypass or shortcut for traffic with both origin and destination outside of the subject subdivision or the adjacent subdivision or undeveloped property?

C. An allowance for additional traffic volume shall be included when any of the above traffic generators could affect the proposed subdivision streets or which reasonably may be expected to at some future date.

4. Comprehensive Plan

When a subdivision is proposed where a connection between primary or secondary roads has been designated in the transportation element of the Spotsylvania County Comprehensive Plan, that street connection shall be incorporated into the design of the subdivision. If the land proposed for subdivision does not front on both primary and secondary roads to be connected, the connecting street shall be continued to the property line at a location approved by the Planning Director. The connecting street or portion thereof shall be designed so that no lots have direct access via private driveways.

5. Traffic Counts

Peak hour traffic estimates should generally not be used since the VDOT design is based on 24 hour average daily traffic counts. Peak hour estimates may be required for some high traffic streets in order to determine number of lanes and signalization.

6. Reverse Frontage

Streets projected to carry traffic volumes over 2000 VPD shall be designed so that no lots have direct access via private driveways.

7. Entrance Points

When the traffic generated from an entire development is projected to exceed 2000 VPD, the development must connect to an existing state road in 2 locations. In situations where two connections cannot physically be made due to restrictions in topography, sight distance, or limitations in state road frontage, a single connection may be allowed where specifically approved by the Planning Director. This single connecting road must be of a divided standard, extending at least 300 feet into the development for the first 2000 VPD generated. For every additional 500 VPD generated, or fraction thereof, the divided standard shall be extended an additional 100 feet. No lots shall have access to the divided road via private driveways. Internal streets may connect where crossovers are permitted per VDOT standards.

8. Interparcel Access

Unless proffered otherwise during a rezoning application, the arrangement of streets in a development shall provide for

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the continuation of existing streets in adjoining developments, and for the proper projection of streets into adjoining properties which are not yet developed. This street network shall be realized through the use of multiple stub streets and temporary cul-de-sacs.

- A. The development's street network shall be designed to provide an orderly progression from arterial roads, to collector streets, to local streets.
- B. The principal street within a subdivision shall be designed to carry no more than 3000 VPD, except in a case where the transportation element of the Spotsylvania County Comprehensive Plan has designated a street connection between two arterial primary or secondary roads. Principal subdivision streets may be stubbed out in the above case and when necessary to provide access to an undeveloped parcel that lacks primary or secondary road frontage or is otherwise precluded from obtaining safe and reasonably convenient access to a primary or secondary road. Other stub streets and loop streets shall be designed to carry no more than 1000 VPD and will be considered tertiary streets.
- C. Local streets shall be laid out so that their use by through (non-local) traffic will be discouraged.
- D. All streets intended to provide interparcel access shall be designed

to accommodate anticipated traffic from undeveloped adjacent tracts based on the future density and use recommended by the Spotsylvania County Comprehensive Plan.

- E. Street extension notification signs shall be installed in all stub streets in accordance with the provisions of Plate 5-14.

9. Street Cross Section Determination

- A. When traffic volume falls off to indicate a reduced cross section in the middle of the block, no reduction shall be permitted in midblock.
- B. Cross sections may be reduced at intersections and at entrances contributing high volumes of traffic, such as shopping centers and apartments, provided that there is a clear line of demarcation between traffic-generating uses and appropriate transitions are shown.
- C. If a through street has a wide cross section on both ends and traffic volumes would indicate a reduction for only several hundred feet in the middle of the development, the full width street section shall be continued for its entire length.
- D. Averaging of traffic volumes (e.g. averaging 6,000 VPD on one end of the street with 2,000 VPD on the other end to produce a 4,000 VPD volume and thus a lower cross section) shall not be permitted for the purpose of reducing cross-sections.

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E. All calculations which indicate the number of vehicles per day for each portion of each street in the subdivision shall be shown to expedite the review for conformance of proposed typical sections with VDOT standards. Lacking this information it shall be assumed that no estimates have been made, and the plan shall be returned for inclusion of traffic data.

5-3 STREET PLAN AND PROFILE REQUIREMENTS

1. Curb Cut Ramps

A. Policy on Ramps for Mobility-Impaired Persons:

- (1) All single-family residential and all multiple-family housing developments shall provide standard curb-cut ramps located to conform to VDOT standards or Spotsylvania County standards.
- (2) In parking lots for commercial and industrial site plans, standard curb-cut ramps shall be located at the major crosswalks. Where sidewalks are constructed at various vertical elevations, a curb-cut ramp shall be shown at each sidewalk elevation.
- (3) Churches, schools and appropriate public facilities site plans shall show standard

curb-cut ramps as required by the Planning Director.

- (4) All requirements of the Virginia Unified State Building Code (VUSBC) shall be met.

B. Location of Ramps for Mobility – Impaired Persons

- (1) The locations of curb-cut ramps for handicapped persons shall be indicated per standards shown on Plates 5-15 and 5-16.
- (2) At commercial entrances using a CG-11 or CG-13 entrance, the sidewalk may be ramped down to the traveled way, as shown on Plate 5-16.

2. Guard Rail

- A. The location of guard rail shall be indicated on the construction plans.
- B. A guard rail will be required when vehicles are to be protected from fills in excess of 10', or as required by VDOT. The actual starting and stopping point of the guard rail will be determined by the VDOT Representative in the field after the fill has been placed.
- C. A guardrail shall be required along parking lots when cuts, fills, grades or slopes in excess of 10'.

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3. Entrances
 - A. For all driveway entrances (including pipestem entrances), the size, length, and type of driveway entrance culvert shall be indicated where applicable on construction plans.
 - B. CG-11 entrances shall be used for subdivision street connections.
 - C. CG-11 entrances or other entrances approved by VDOT shall be used for all entrances of parking bays, parking courts, townhouses, etc.
4. Proposed Street Construction/Plan and Profile Preparation
 - A. Stations shall be indicated every 100' on centerline; at points of curvature, points of intersection and points of tangency; at centerline intersections, at subdivision or section limits; and at turnaround radius points.
 - B. Existing centerline profiles for 200' minimum distance shall be shown to ensure a proper grade tie when a proposed street is an extension of, or connects with, an existing street.
 - C. When a proposed street intersects with an existing street the centerline profile of the existing street shall be shown for the minimum required sight distance to the right and left of the proposed connection.
 - D. The centerline and building restriction line profiles extended 300' beyond the property line or boundary shall be shown on all streets providing access to adjoining property.
- E. A grade line of all proposed street construction shall include:
 - (1) Percent of grade. The minimum grade for curb and gutter shall be 1% except that the Planning Director or VDOT, whichever may apply, may allow a decrease to ½% based upon unusual topographic conditions. The maximum grade of street construction shall be 9% except as may be approved by the Planning Director in the case of private streets. The minimum grade for streets without curb and gutter shall be 1%.
 - (2) Elevations at the beginning and the end of all vertical curves.
 - (3) The length of vertical curves with elevations, K values and stations of vertical points of intersection (PVI).
 - (4) Elevations computed every 50' on all tangent sections, and grades computed every 25' in all vertical curves.
 - (5) Elevations at all:
 - a. Centerline intersections of streets

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- b. Street centerline intersections with the subdivision boundaries of a subdivision
 - c. Curb returns
 - d. Culvert and storm sewer crossings
 - e. Curb inlets
- (6) The point of finished grade on typical section (i.e. centerline, top of curb, etc.) shall be shown.
- F. Paved roadside ditches shall be indicated in the profile where the depth is not in conformance with the standard street cross section.
- G. All proposed and existing culverts, storm sewer crossings, sanitary sewer crossings, and utility crossings shall be shown on street profiles at the proper location and grade including the station, diameter, type of pipe and invert.
- H. When a proposed street parallels or is located near an existing stream or open drainage way, profiles of the top of the bank of the stream, computed water elevations and invert (or flow line) of stream or open drainage way shall be provided. The relationship of a proposed street grade to existing profiles of the stream or open drainage way shall be shown. Street construction shall not encroach on the approved flood plain limit of the stream.
- I. Grade profiles of proposed curb and gutter construction in cul-de-sacs are to be computed along the face of the curb starting at the beginning of the curb return, following the face of curb around the cul-de-sac thence to the end of the return opposite the point of beginning. Cul-de-sac “unwrap” profile shall be along the edge of pavement.
- (1) Grade ties of the proposed street, before entering the cul-de-sac grade, shall be shown on each end of the cul-de-sac grade profile to ensure proper grade connection.
 - (2) Other acceptable methods may be used subject to the approval of the Planning Director, in the case of private streets, or VDOT.
- J. Building restriction line profiles for cul-de-sacs shall be radial to the existing profile at face of curb and proposed curb grade.
- K. If a temporary turnaround/cul-de-sac is to be constructed at the end of a street which is intended to be extended with the development of the abutting property, the proposed grade and existing profiles shall be carried through to provide for the future extension of the proposed street for a distance of 300' beyond the property line. Final lot grading of the proposed extension shall be shown on the grading plan.

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- L. Street construction shall be provided for the full frontage of all lots.
 - M. All street improvements intended for public maintenance must be constructed within the dedicated street right-of-way, except for easements for cut and fill slopes.
 - N. The maximum centerline grade of permanent cul-de-sacs may not exceed three percent. However, steeper grades may be permitted in certain instances with prior approval of the Planning Director or VDOT, whichever may apply.
 - O. If a difference exists in elevations on proposed curb grades, curb elevations showing top of right curb and top of left curb shall be shown on the plans.
 - P. Curb returns shall be shown on the profiles. The identification, by number, of the curb returns may be required on the plan and profile.
 - Q. Street landings shall be provided on plans to ensure adequate sight distance. Separate sight distance profiles at major intersections may be required.
 - R. Driveway profiles on lots with steep grades shall be shown. Lot grading plans must provide for adequate vehicular clearance for driveway approaches, departures, and breakover transitions.
 - S. Profiles of the centerline of a street and both left and right curb returns shall be shown at the intersections of streets on steep grades to assure proper transition from one street to the other.
 - T. A proper connection to any proposed VDOT construction shall be shown when appropriate.
 - (1) VDOT approval is required on all plans and revisions within VDOT right-of-way.
 - (2) State route numbers of existing streets shall be shown.
 - (3) A symmetrical transition of the pavement at an intersection with existing street shall be shown.
 - a. Transitions shall be a minimum of 36' from the end of the curb return to the existing edge of pavement.
 - b. A longer pavement transition and a turn lane may be required depending on the location of the intersection. Standard road edge delineators shall be shown. (See Plate 5-39.)
5. Access Management Guidelines
- Minimum distance between signals, intersections and driveways on an arterial road.

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6. Sight Distance

VDOT recognizes only 2 types of entrances onto the highway system, private entrances and commercial entrances.

- A. Subdivision street connections to the existing highway system are considered as commercial entrances until such time as these streets are accepted into the highway system.
- B. Roads within subdivisions must meet the sight distance requirements of commercial entrances at their intersections. See the current VDOT publication “Minimum Standards of Entrance to State Highways.”
- C. Sight distance profiles will be required.

7. Other Information to be Shown on Plats

- A. The design for all pipestem driveways shall be shown, either by reference to the appropriate standard or by drawings. Turnarounds and the location of required utilities shall also be shown.
- B. Adequate ingress-egress easements shall be provided when more than 1 lot is to use a common driveway.
- C. Paved ditches at the edge of the roadway and at the toe of a fill shall be shown along with easements where necessary. Computations for determining the need for paved ditches shall be provided.

D. A maximum 2H: 1V slope at the end of street construction, with a necessary easement, shall be shown on the plan.

E. Slope construction easements shall be shown where required when the slope is greater than 3H: 1V.

F. Erosion and sediment control protection to be provided at the end of construction of curb and gutter shall be shown.

G. The typical cross section for public and private streets, access aisles and parking areas shall be shown. A typical pavement section of all pavement types shall be shown.

(1) Where a special typical section is approved, details shall be provided on plans.

(2) Typical sections and geometric design criteria for streets shall conform to Plates 1-5 through 13-5.

H. Cul-de-sacs shall be provided at the ends of all dead-end streets, except where exempted by VDOT criteria for the acceptance of stub streets.

(1) The minimum pavement radius and right-of-way radius of the cul-de-sac shall be as shown on Plate 5-6.

(2) Cul-de-sacs shall be of a length sufficient to accommodate a typical roadway section for the

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- distance of one lot width, the applicable lot width to be the minimum required by the zoning district in which the subdivision is located.
- (3) The maximum cul-de-sac length from the center of the intersection to the center of the cul-de-sac shall not exceed 1,000 feet.
- I. Sidewalks shall be shown for residential development where required by Section 20-5.1.8(j) of the Subdivision Ordinance and any other types of development, subject to the criteria stated below:
- (1) For subdivisions where the shown minimum lots size is 25,000 square feet or less, a sidewalk shall be constructed on both sides of all streets:
- (2) For subdivisions within 1 mile of a recreation facility or elementary school, and/or within 1 ½ miles of an intermediate or high school, a sidewalk shall be provided along all subdivision boundaries contiguous to an existing street, including along all reverse or side frontage lots and open space.
- (3) In any subdivision, streets projected to carry traffic volumes over 3000 VPD shall have sidewalks constructed on both sides.
- (4) In any commercial or office development connecting proposed buildings and to each property line that is adjacent to land zoned for commercial, office or residential development.
- (5) With the approval of the Planning Director, trails or bicycle lanes may substitute for required sidewalks. See Plates 5-2, 5-3, 5-17, 5-18, 5-19, 5-20, and 5-21. Trails and/or bicycle lanes shall be provided where designated in the Spotsylvania County Comprehensive Plan.
- (6) In cases where sidewalks are required curb and gutter shall also be required.
- J. Traffic barricades and “NO THRU STREET” signs shall be shown where required. See Plate 5-22.
- K. Water service cutoffs must be located in utility strips unless otherwise permitted by the Planning Director.
- L. The following note shall be shown on all plans:
- (1) Subbase depth for subgrade based on CBR value of 10. Soil tests of subgrade must be submitted for actual determination of required subbase thickness prior to construction. The minimum number of tests is 3 per street or 5 per collective mile.

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- (2) A smooth grade shall be maintained from centerline of existing road to the proposed curb and gutter to preclude the forming of false gutters and/or the ponding of any water on the roadway.
- M. The following notes shall be shown for all streets, service drives, etc., in subdivisions with public streets:
- (1) The methods and materials used in the construction of all streets shall conform to the current VDOT Road and Bridge Specifications unless herein modified.
- (2) Subbase depth is based on a subgrade CBR value of 10. Subgrade support soils, immediately under the pavement, with CBR values of less than 10, but more than 3 will require an additional 6" of subbase, base or select material. For subgrade support soils with CBR values of less than 4, 1" of subbase or base material shall be added for each point below CBR 10. However, in any case the aggregate subbase layer is not to exceed 12". Where the CBR is more than 10, the subbase may be reduced 1" for each 5 points above CBR 10. The Vaswani method is an acceptable alternate base pavement structure guide.
- (3) Rights-of-way must be cleared for full width, all utilities in place, and fine graded to true typical section before bituminous material is plied.
- (4) Dust control shall be maintained on those sections of the project as may be designated by the inspector.
- (5) The absolute minimum stopping sight distance for alignment design for crest vertical curves is to be based on height of eye 3'-6", height of object 6". Intersection sight distance is to be based on posted speed limits and 3'-6" height of eye and 4'-3" height of object. For sag vertical curves, see VDOT requirements.
- (6) Sidewalks must be provided as required by Section 20.5.1.8(k) of the Spotsylvania County Subdivision Ordinance and the Spotsylvania County Design Standards Manual. VDOT will accept maintenance in accordance with the provisions of Part III, Section 3.1 of the Subdivision Street Requirements manual. Proposed sidewalks must be constructed in accordance with UD-3 standards, as shown on Plate 5-9. Sidewalks not eligible for VDOT maintenance shall be maintained by a homeowner's association or other responsible organization for the development.

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- (7) Water curb stops or meters will not be accepted in the gutter line or wings of driveway aprons. Water curb stops or meters are to be located in the grass strip between the back of the curb and the front edge of the sidewalk.
 - (8) Where base asphalt is required, a minimum thickness of 1 ½” of temporary asphalt surface shall be placed immediately after the base has been compacted and cured. Temporary asphalt will be placed and maintained in “sag” curves to provide positive drainage to curb inlets. The temporary asphalt shall be removed immediately prior to placing the final surface course. As an alternate method of obtaining positive drainage, the approach gutters for drop inlet structures (DI) in sag areas shall temporarily be omitted. Instead, the face block will be secured to the DI and the base asphalt will be finished flush with the opening of the structure at the face block. Immediately prior to placement of the final surface course, the base asphalt shall be removed and the approach gutter section cast.
 - A. Required thicknesses of subbase, base course, and top or surface are shown on Plates 5-1, 5-2, and 5-3. Subbase thickness is based on a subgrade CBR value of 10 and may be increased or decreased as allowed by the standards.
 - B. Alternate equivalent pavement sections may be substituted for those called for in the standards provided they have the approval of VDOT and are designed in accordance with current VDOT standards.
2. Private Streets, Access Ways and Aisles, Parking Lots
 - A. On dead-end streets or parking courts greater than 300’ in length, a turnaround area for emergency vehicles shall be provided in a location satisfactory to the Fire Official. For typical designs, see Plate 5-6. Alternative designs will be considered based upon the turning requirements of the vehicles to be accommodated, location of parking, and the level of access afforded by the overall site design.
 - B. In developments subject to common or joint use, such as single-family attached and multiple-family developments:
 1. For geometric design.
 2. For pavement design, see standard pavement section 5-5.2F.

5-4 PAVEMENT DESIGN

1. Public Streets

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- C. In residential mobile home parks (RMHP Districts):
 - 1. For geometric design, see Plate 5-4.
 - 2. For pavement design, see standard pavement section 5-4.2F.
- D. In subdivisions in the Resort Residential District, where private streets have been approved by the Planning Director as provided in Section 20-5.1.8(h) of the Subdivision Ordinance:
 - 1. For geometric design, see Plate 5-5.
 - 2. For pavement design, see standard pavement section 5-4.2F.
- E. For single-family residential joint use access ways serving 3 to 5 lots, or 5 or fewer lots in cluster subdivisions:
 - 1. For geometric design, use the pipestem lot standards.
 - 2. For pavement design, use standard pavement section 5-4.2F.
- F. Standard Pavement and Pipestem Driveway Section
 - 1. When maintained by the property owner (i.e., shopping centers, office buildings, etc.):
 - a. A 6” base and a 2” bituminous surface is required to ensure a dustless surface.
 - b. No soils test or subbase will be required.
 - c. A concrete pavement design in accordance with current engineering procedures is acceptable.
 - 2. When maintained by individual homeowners, a homeowners association or similar organization:
 - a. A 6” base and a 2” bituminous surface are required to ensure a dustless surface.
 - b. Soils tests shall be provided for the laboratory CBR test, VTM-8. If the CBR is less than 10, 1” of subbase is required for each point below CBR 10. If the subgrade CBR is 10 or greater, no subbase is required.
 - c. A concrete pavement designed in accordance with current engineering procedures is acceptable.
- G. All subbase and base material, as well as subgrade for all streets, parking areas, sidewalks, pipestem driveways, and curb and gutter shall be compacted in accordance

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with VDOT Road and Bridge Specifications.

3. Standard Driveway Entrances and Pipestem Driveway Standards

See Plates 5-10, 5-11, 5-13, 5-23, 5-24, 5-25 and 5-26 for standard driveway entrances and pipestem standards.

5-5 PARKING GEOMETRICS AND STANDARDS

1. General Information

There shall be 3 major layouts for off-street

A. Parallel Parking Spaces

parking facilities for automobiles: parallel parking, universal size car parking, and accessible parking for persons with disabilities.

2. Geometries and Standards

The following tables shall represent the minimum size requirements for required automobile parking spaces (see Article 5, Division 9 of the Zoning Ordinance for required number of parking spaces per use):

TABLE 5.2

Direction of Parking	Stand Width (feet)	Depth of Stalls (feet)	Aisle Width (feet)
One-way aisle (one-side parking)	8.5	22	12
One-way aisle (two-side parking)	8.5	22	15
Two-way aisle (two-side parking)	8.5	22	20

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B. Universal Size Car Spaces

TABLE 5.3

Parking Angle	Stall Width (feet)	Depth of Stalls Perpendicular to Aisle (feet)	One-Way Aisle Width (feet)*	Two-Way Aisle Width (feet)*
45°	8.5	19.0	15.5	18.0
60°	8.5	20.0	17.0	19.0
90°	8.5	18.0**	23.0	23.0

* Where required, fire lanes shall have a minimum width of 20’ and a maximum width of 24’.

** This dimension may be reduced by up to 1.5’ where the Planning Director determines that adequate “head-in” overhang exists exclusive of required planting or screening requirements, and sidewalks.

C. When required by the provisions of the VUSBC, ADA and FFHAG, accessible parking spaces and related access aisles and accessible routes for persons with disabilities shall conform to all requirements of the VUSBC, ADA and FFHAG. Each such space shall be identified by an above-grade sign. The required signs shall be 12” wide by 18” high. These signs shall display the internationally recognized symbol of accessibility and the words “DMV PERMIT REQUIRED, \$250 FINE” as illustrated in Plate 5-35. Van accessible spaces shall have an additional sign 12” wide by 7” high and shall display the words “VAN ACCESSIBLE” as illustrated in Plate 5-36 and shall be mounted below the primary sign. All required signs shall be installed on a wall or post so that the lower edge of the sign(s) is not less than 4’ or more than 7’ above grade.

Such signs shall be located so they cannot be obscured by a vehicle parked in the space. These signs shall consist of white lettering on a blue background. The dollar amount displayed on the sign shall be as specified in County Code Section 12-119.

D. Delineation of Parking Spaces. Except for parking spaces provided for and on the same lot with single family detached or attached dwellings, all paved parking areas shall be delineated as follows:

1. All parking lot delineations shall be in white or, at the discretion of the Planning Director, an alternative color may be permitted, provided the color is in contrast with the parking lot surface and does not conflict with the delineation of fire lanes or other restricted parking areas.

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2. Parking spaces shall be delineated with a single line having a minimum width of 4". Parallel curb or head-in parking spaces shall be striped for the full width or length of the parking stall.

Notwithstanding the above, the Planning Director may approve an alternative delineation of parking spaces upon a determination that the proposed markings clearly define the parking spaces.

3. The width or length of all parking stalls shall be measured from the centerline of the stripe or alternative marking to the centerline of the adjacent stripe or marking used to delineate the parking stall or face of a physical barrier, such as a wall or curbing.
4. Parking space delineation shall be maintained for visual effectiveness.
5. Parking spaces in unpaved lots shall be delineated by providing individual wheel stops for each unpaved parking space.

5-6 COMMON/PIPESTEM DRIVEWAYS

1. General Requirements (See Plates 5-13, 5-25 and 5-26)
 - A. The desirable maximum grade for all pipestem driveways is 15%.

The Planning Director may approve grades in excess thereof where an unusual environmental or topographic condition exists.

- B. All pipestem driveways shall have an adequate angle of approach and angle of departure. All pipestem driveways shall have a minimum centerline radius of 50'.

2. Access Easements

- A. Adequate ingress and egress easements shall be provided when more than 1 lot is to use a common driveway, and suitable provision shall be made for a turnaround on all pipestem driveways serving 3 or more lots as per Plates 5-6, 5-10 and 5-11.
- B. Single lot pipestems under 12' in width shall be provided with an ingress and egress easement 12' in width.
- C. All pipestem driveways regardless of number of units served or easement width shall have additional easements for slope and drainage where necessary due to terrain. Easements shall note which lots have the right to use these driveways.

3. Design and Construction Requirements

- A. The plan view, including necessary turnaround, utilities, and typical section of pipestem driveways serving more than one lot, shall be

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shown on the grading plan for each construction or development phase. The pipestems shall be included in each project's completion bond.

- B. Pipestem driveways shall be designed and constructed in accordance with Plates 5-10, 5-11, 5-13, 5-25 and 5-26, except that:
1. A 6" welded wire fabric reinforced concrete pavement is acceptable in lieu of a 2" bituminous surface. (See Plate 5-25.)
 2. Concrete shall be as specified by VDOT Road and Bridge Specifications. Concrete shall be Class A3 General Use, central mixed, and delivered in agitator-type equipment.
 3. The reinforcement shall be adequately supported by metal chairs at a level of 3" (+ or – ½") above the bottom of concrete.
 4. Expansion joints shall be provided every 30' in accordance with VDOT Road and Bridge Specifications, and shall be placed all the way through the joints.
 5. Contraction joints shall be provided every 15'. The joints shall be 1 ½" deep, or 1/4 of the concrete thickness.
 6. Longitudinal control joints shall be provided in the center of all pipestems.

7. Compaction of subgrade shall conform to VDOT Road and Bridge Specifications, Section 305. The compaction shall be verified by County inspectors prior to placement of concrete.
8. The pavement surface shall have a minimum continuous pitch of ¼" per foot. Storm water runoff shall not be channeled longitudinally within the paved portions of the pipestem or along the edge unless curb and gutter is provided. When a crown is used, a well-defined swale shall be provided, as required, on both sides of the drive.
9. Concrete curing materials shall conform to VDOT Road and Bridge Specifications.
10. The opening to traffic shall conform to VDOT Road and Bridge Specifications.
11. The concrete may be hand-finished, and shall be provided with a broom or burlap drag texture.
12. Materials, equipment and construction methods shall comply with VDOT Road and Bridge Specifications, except where stricter specifications are identified.

5-7 STREET LIGHTS

1. General Information

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- A. Street lighting shall be provided in conjunction with all new developments as a requirement of subdivision and site plan development, for the purpose of crime deterrence, pedestrian safety, and reducing traffic hazards at intersections. The extent of street lighting required for each development shall be based on actual proposed density and proposed use. The developer will pay the cost for installation of the street lights by the electric utility company. Street lighting shall be compliant with full cut off fixtures, refer to Plates 5-32 and 5-33.
- B. The developer shall bond 110% of the estimated street light installation cost as part of the completion bond for public improvements required prior to final plat approval in accordance with Article 6 of the Subdivision Ordinance. All easements required by the electric utility company for street lighting shall be provided by the developer.
- C. All street lighting systems shall be installed by the electric utility company or certified licensed electric contractor. The electric utility company or certified licensed electric contractor shall acquire the necessary permits from VDOT/County for the purpose of street lighting on all existing roadways in the state roadway system. The street lighting systems shall be owned and maintained by the electric utility company or the Developer/Homeowners Association, if installed by a private certified licensed electrical contractor.
- D. After the street lights are installed and energized, the homeowners' association or other responsible organization shall make payment to the electric utility company for the monthly operating and maintenance costs.
- E. VDOT will allow roadway lighting within the right-of-way by land use permit only. On curb sections, poles shall be placed behind the curb and preferably behind the sidewalk. For shoulder sections, the pole shall be placed a minimum of ten (10) feet from the edge of the pavement and behind the ditch line.
2. General Requirements
- A. Residential Subdivisions
1. Subdivisions in which the minimum lot size is 25,000 square feet or less
- a. Street lights shall be installed along all proposed streets that will be included into the VDOT Roadway System. Refer to Plate 5-34.
- b. A minimum of 3 street lights shall be installed along the existing State road at all entrances into the subdivision. Street lights shall be installed for the full

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frontage of properties where existing State road to houses within the subdivision.

Refer to Plate 5-33

- c. Streetlights (Plate 5-34) shall be installed along all trails and sidewalks that front existing State Roads to the property line.
- d. Refer to Plate 5-27 for a typical lighting layout.

- 2. Subdivisions in which the minimum lot size is greater than 25,000 square feet

- a. Street lights shall not be required for streets within subdivisions containing lots greater than 25,000 square feet in area.
- b. A minimum of 3 street lights shall be installed along the existing State road at all proposed entrances into the subdivision. Refer to Plate 5-33
- c. Streetlights (Plate 5-34) shall be installed along all trails and sidewalks to the development's property line that front existing State Roads.
- d. Refer to Plate 5-28 for a typical lighting layout.

B. Industrial and Commercial Subdivisions

- 1. Street lights shall be installed along all streets that are to be included into the VDOT Roadway System. This shall include a minimum of 1 street

access is provided from an light at each intersection within the subdivision.

- 2. A minimum of 3 street lights shall be installed along the existing State road at all entrances into the subdivision. Where the existing State road provides frontage for uses within the subdivision, street lights shall be installed along the entire frontage. Refer to Plates 5-32 and 5-33.
- 3. Refer to Plate 5-29 for a typical lighting layout.

C. Site Plans

- 1. Street lights shall be installed along all existing State roads providing frontage to the development.
- 2. Refer to Plate 5-30 for a typical lighting layout.

D. Planned Developments (PDH and PDC Districts)

- 1. Street lights shall be installed along all arterial and collector streets that will be included in the VDOT Roadway System.
- 2. A minimum of 3 street lights shall be installed along all existing or proposed State roads at all entrances into the development. Where the existing State road provides frontage for land uses within the development, street lights

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- shall be installed along the entire frontage.
3. Street lights shall be installed throughout the development in accordance with the residential subdivision, industrial and commercial subdivision and site plan requirements as previously stated in Section 5-7.2A, B, and C.
4. Refer to Plate 5-31 for a typical lighting layout.
- E. Public Improvement Plans. Street lights shall be installed along streets that will be included into the VDOT Roadway System in accordance with the residential subdivision, industrial and commercial subdivision, site plan and planned development requirements as previously stated in Section B-2A, B, and C.
3. Standards and Criteria
- A. Luminaire Style
1. The standard roadway fixtures, RF-2 (see Plates 5-32 and 5-33) shall be used where one or more of the following conditions apply:
- a. Installations along non-curb and gutter roadways (see Plate 5-32).
 - b. Installations along roadways not interior to a residential subdivision.
 - c. Installations along roadways with projected or existing traffic counts in excess of 3000 vehicles per day.
2. The standard roadway fixture, RF-2 (see Plate 5-33) may be used where all of the following conditions apply:
- a. Installations along curb and gutter roadways (see Plate 5-33).
 - b. Installations along roadways interior to a residential subdivision.
 - c. Installations along roadways with projected or existing traffic counts of 3000 or less vehicles per day.
3. The alternate security lighting fixture, RF-3 (see Plate 5-34) may be used where all of the following conditions apply:
- a. Installations along curb and gutter roadways with underground electrical wiring (see Plate 5-34).
 - b. Installations along roadways interior to a residential subdivision.
 - c. Installations along roadways with projected or existing traffic counts of 3,000 or less vehicles per day.
- B. The exact pole spacing, bracket length, intensity of the light source, and luminaire mounting height shall be determined by the electric utility company or certified electric contractor if not specified on site plan, responsible for installation, or as directed by the Planning staff

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during site plan approval, as necessary to meet the guidelines of the Illuminating Engineering Society of North America for the type of area being illuminated. Pole placement relative to the street and right-of-way shall conform to Plates 5-32, 5-33, and 5-34, or other criteria used by VDOT.

5-8 FRED BUS TURNOUT, SHELTER, AND BENCH SPECIFICATIONS

See Plates No. 5-43 through 5-45

5-9 UTILITY LOCATIONS, MAIL BOXES, AND ROAD EDGE DELINEATORS

See Plate 5-37 for utility pole locations. See Plate 5-38 for mail box locations. See Plate 5-39 for road edge delineator locations.

5-10 BICYCLE RACKS AND TRAILS

A. BICYCLE RACKS

1. Bicycle racks shall be installed on sites in accordance with the Highway Corridor Overlay District and in situations where bicycle rack installation has been proffered or conditioned as part of a public hearing case. The installation of bicycle racks shall be in conformance with the following standards, listed below and illustrated on plate 5-40.
 - a. Support the bicycle upright by its frame in two places.
 - b. Prevent the wheels of the bicycle from tilting or twisting.
 - c. A U-lock should be able to lock the front wheel and the down tube of an upright bicycle or lock the rear wheel and seat tube of the bicycle.
2. A single bicycle rack shall meet the following criteria:
 3. Two or more single racks may be mounted in a row on a common base or attached in a row to a frame.
 4. Inverted “U” racks mounted in a row should be placed 30 inches apart on center, allowing enough room for two bicycles to be secured to each rack and providing easy, access to each bicycle.
 5. Racks should be made of material that resists being cut or detached using common hand tools. The rack should be anchored so that it cannot be stolen with the bikes attached. Racks that are large and heavy enough such that the rack cannot be easily moved or lifted with the bicycles attached do not have to be anchored.
 6. Racks shall be placed so that they do not block the entrance, inhibit pedestrian flow in or out of the building or generally impede snow removal. If placed on a sidewalk or pedestrian walkway,

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- racks should be placed so that at least 5 feet of sidewalk width is maintained.
7. Where multiple racks are installed in rows with aisles separating the rows the following dimensions shall apply:
 - a. Minimum aisles width shall be 48 inches. The aisle is measured from tip to tip of bike tires across the space between racks.
 - b. Minimum depth shall be 72 inches for each row of parked bicycles.
 - c. Areas with a high turnover rate should have a minimum aisle width of 72 in and should have more than one entrance.
 8. Racks shall be mounted within 50 feet of the entrance it serves, or as close as the nearest car parking space, whichever is closer and shall be clearly visible from the entrance it serves.
 9. Creative, three-dimensional bicycle-parking racks are allowed provided the criteria of the rack design are met.
 10. When possible, bicycle parking areas should be protected from the elements (rain, snow, etc.).
- B. TRAILS**
1. Public trail structures including bridges and culverts must be designed to accommodate intended railway corridor user groups as specified in the Spotsylvania County Trailways Master Plan. Such structures must meet minimum standards for:
 - a. Width- allowing ten (10) feet or more to adequately accommodate width of railway, emergency and/or maintenance access and two way traffic and/ or multiple user groups.
 - b. Engineering- to safely accommodate forces of compression, tension, torsion, and shear considering specified user groups and weather conditions.
 - c. Emergency and/ or Maintenance Accommodation- accommodate emergency and/or maintenance access by all terrain or similar type vehicle with equipment.
 - d. Load limitations to be clearly signed upon bridge structure or in approach of structure.
 - e. Bridge approaches and exits shall be flush with the trailway in order to allow for seamless access and crossing.
 2. Public trailways shall be constructed to accommodate the intended corridor user group as specified in the Spotsylvania County Trailways Master Plan and meet the following standards:
 - a. See Plate 5-21 for minimum bicycle and pedestrian off-road greenway trail cross section. Surface material and

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cross section may vary based on user group. (Refer to Spotsylvania County Trailways Master Plan Trailway Facility Design Guidelines and Plate 5-17 through 5-19).

- b. Trailway intersections with roadways, other trailways, or other facilities shall be clearly marked to notify users of upcoming merge or crossing points. A warning sign shall appear at least 500 feet prior to the intersection to allow for awareness and stopping. Trailways to have stop signs at roadway and railroad crossing points to avoid potential conflict.
 - c. All public trailway entry points will clearly specify user rules and regulations including hours of operation, leave no trace policies, trail surface conditions and/ or level of difficulty, and permitted user groups.
 - d. Trailway crossing points upon roadways shall provide adequate sight distance visibility to allow such users to adequately assess roadway conditions and allow for safe road crossing.
 - e. Trailways shall include distance markers every ¼ mile.
 - f. Trailway surfaces within the first 50 feet (water-side 50 feet) of a Resource Protection Area (RPA) shall be of pervious type material consistent with Chesapeake Bay requirements. Trailway surfaces within the second 50 feet (land-side 50 feet) can utilize impervious trail materials provided impacts are properly mitigated consistent with Chesapeake Bay requirements. In all cases the trail surface shall be constructed to permit safe user-friendly navigation by the intended user group.
 - g. Equestrian trails shall be separated from or be developed parallel to bicycle and pedestrian trailways along greenway corridors as identified in the Spotsylvania County Trailways Master Plan. A minimum ten (10) foot buffer is preferred. (For reference see Spotsylvania County Trailways Master Plan Trailway Facility Design Guidelines and Plate 5-15, 5-17, 5-18).
3. The acquisition of public trailway easements will be necessary to establish many pieces of the planned public trailway system. The minimum preferred easement width for public trails is:
 - a. Forty (40) feet for multi-use trail corridors without equestrian use; and
 - b. Fifty (50) feet for multi-use trail corridors with equestrian use.
 - c. In all cases, the boundary of the public access easement shall be posted every five-hundred (500) feet by the easement holder or

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

responsible party in partnership with the easement holder to prohibit trespass off the easement onto private property.

Comprehensive Plan and the County's Trailways Master Plan.

4. At minimum, designated trailhead locations will offer maintained restroom facilities and trailway, trail-head signage and/ or information kiosk including trailway system map, bioretention areas, pedestrian crosswalks where needed, and parking spaces. (For reference see examples located in the Spotsylvania County Trailways Master Plan Trail Design Guidelines & Sections and Trailhead Layout). Equestrian oriented trailheads will also include hitching post(s), parking spaces adequate to serve truck and trailer, and water pump.

5-11 PLATES

The following plates will illustrate and assist in the explanation of the standards and specifications in Article 5 (Streets, Parking, and Driveways) of the Spotsylvania County Design Standards Manual, and Chapters 20 and 23 (Subdivisions, Zoning), of the Spotsylvania County Code.

Plates pertaining to the development of trailway facilities are meant to generally guide the design and construction of county trailway facilities in order to ensure consistency throughout the County regarding right-of-way, trail surfaces, stability and drainage, and basic amenities; a complement to the Spotsylvania County

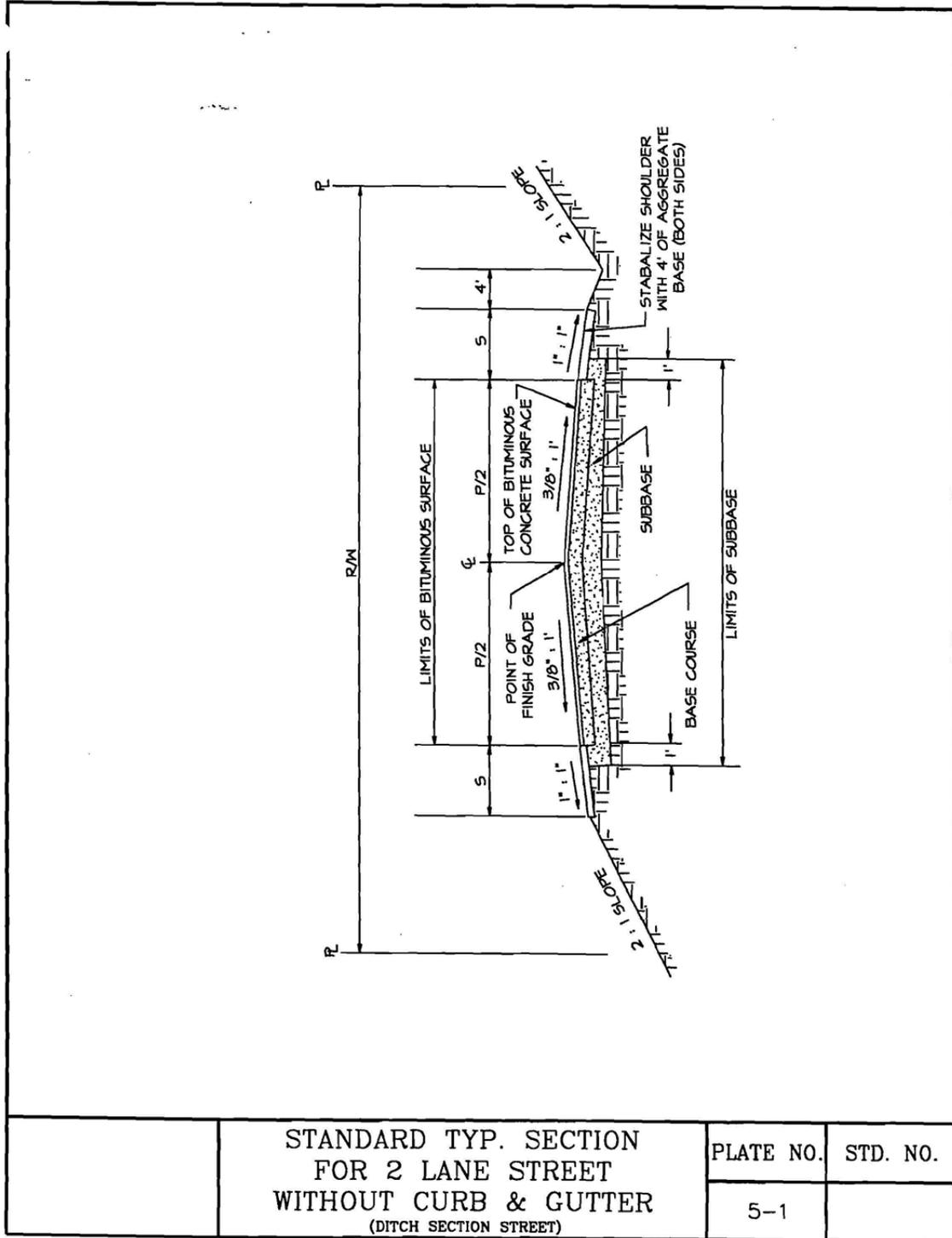
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

Table 5.4

GEOMETRIC DESIGN GUIDE FOR SUBDIVISION STREETS															
ROADWAY SECTION CRITERIA															
SHOULDER & DITCH ROADWAYS					CURB & GUTTER ROADWAYS										
SHOULDER & DITCH ROADWAYS					RESIDENTIAL NON-RESIDENTIAL										
HORIZONTAL & VERTICAL CONTROL Maximum Cut or Fill Slopes = 2:1					Minimum roadway (c-c) and right-of-way (ROW) widths shall be based on the length of street and special requirements regarding off-street parking. (See VDOT "Subdivision Street Requirements" 24 VAC 30-90-130 D.3.g and 24 VAC30-90-280)										
PROJECTED TRAFFIC VOLUME	TERRAIN	DESIGN SPEED (MPH)	CURVE DATA		MAXIMUM GRADE (%)	MINIMUM SIGHT DISTANCE		PAVEMENT WIDTH (FT)	RIGHT OF WAY WIDTH (FT)	SHOULDER WIDTH (MINIMUM)		LENGTH UNDER 0.5 MILES OR MORE	LENGTH 0.5 MILES OR MORE	LENGTH NOT A FACTOR	
			RADIUS (MIN) (FT)	DEG. (MAX)		SUPER-ELEVATION	STOPPING (FT)			@ INTER-SECTIONS (FT)	FILL W/GR			CUT OR FILL W/O GR	PARKING ALLOWED (FT)
UP TO 250	LEVEL	25	120	48	7	150	250	18	40	7	4	CC-28 ROW=40	CC-30 ROW=40	CC-24 ROW=40	CC-30 ROW=40
	ROLLING		120	48						9					
251-400	LEVEL	25	120	48	7	150	250	20	50	7	4	CC-28 ROW=40	CC-30 ROW=40	CC-24 ROW=40	CC-30 ROW=40
	ROLLING		120	48						9					
401-1000	LEVEL	25	180	32	7	150	250	22	50	7	4	CC-36 ROW=44	CC-36 ROW=44	N/A	CC-38 ROW=46
	ROLLING		180	32						9					
1001-2000	LEVEL	30	300	19	7	200	300	22	50	9	6	CC-36 ROW=44	CC-36 ROW=44	N/A	CC-38 ROW=46
	ROLLING		300	19						9					
2001-4000	LEVEL	30	300	19	7	200	300	22	50	9	6	CC-38 ROW=46	CC-38 ROW=46	N/A	CC-40 ROW=48
	ROLLING		300	19						9					
OVER 4000	LEVEL	40	535	10.5	7	275	400	24	50	9	6	CC-40 ROW=48	CC-40 ROW=48	N/A	CC-40 ROW=48
	ROLLING		40	10.5						9					

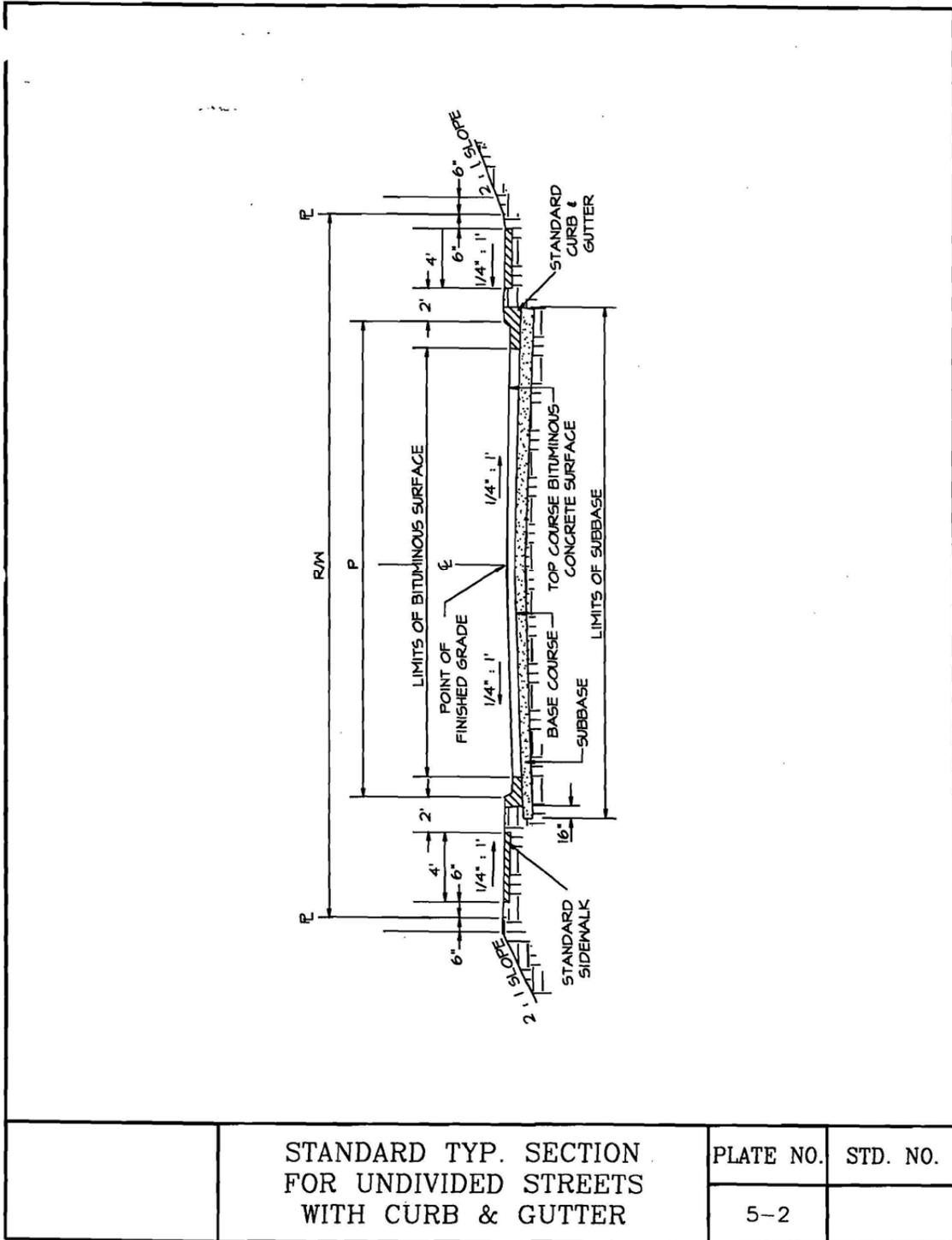
This table is to be used with Plate Nos. 5-1 & 5-2.

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

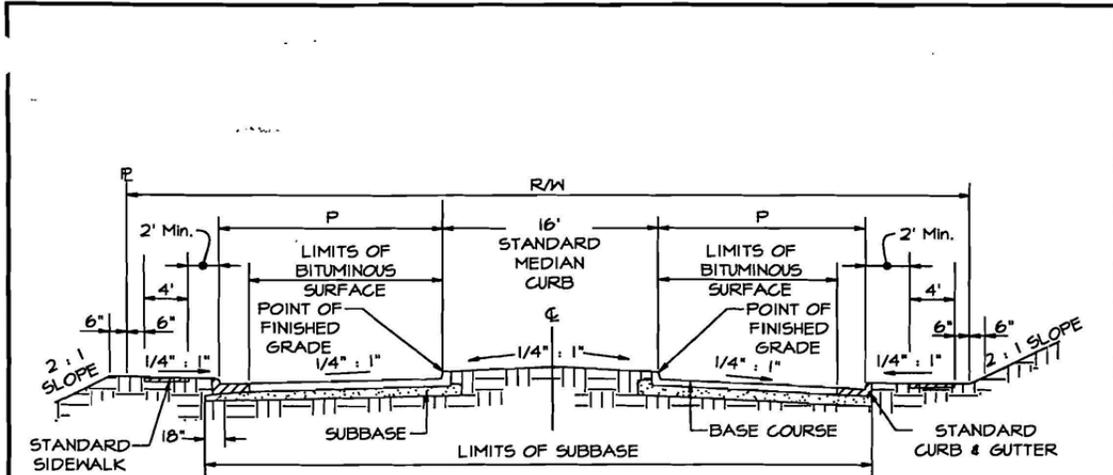


SSS

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



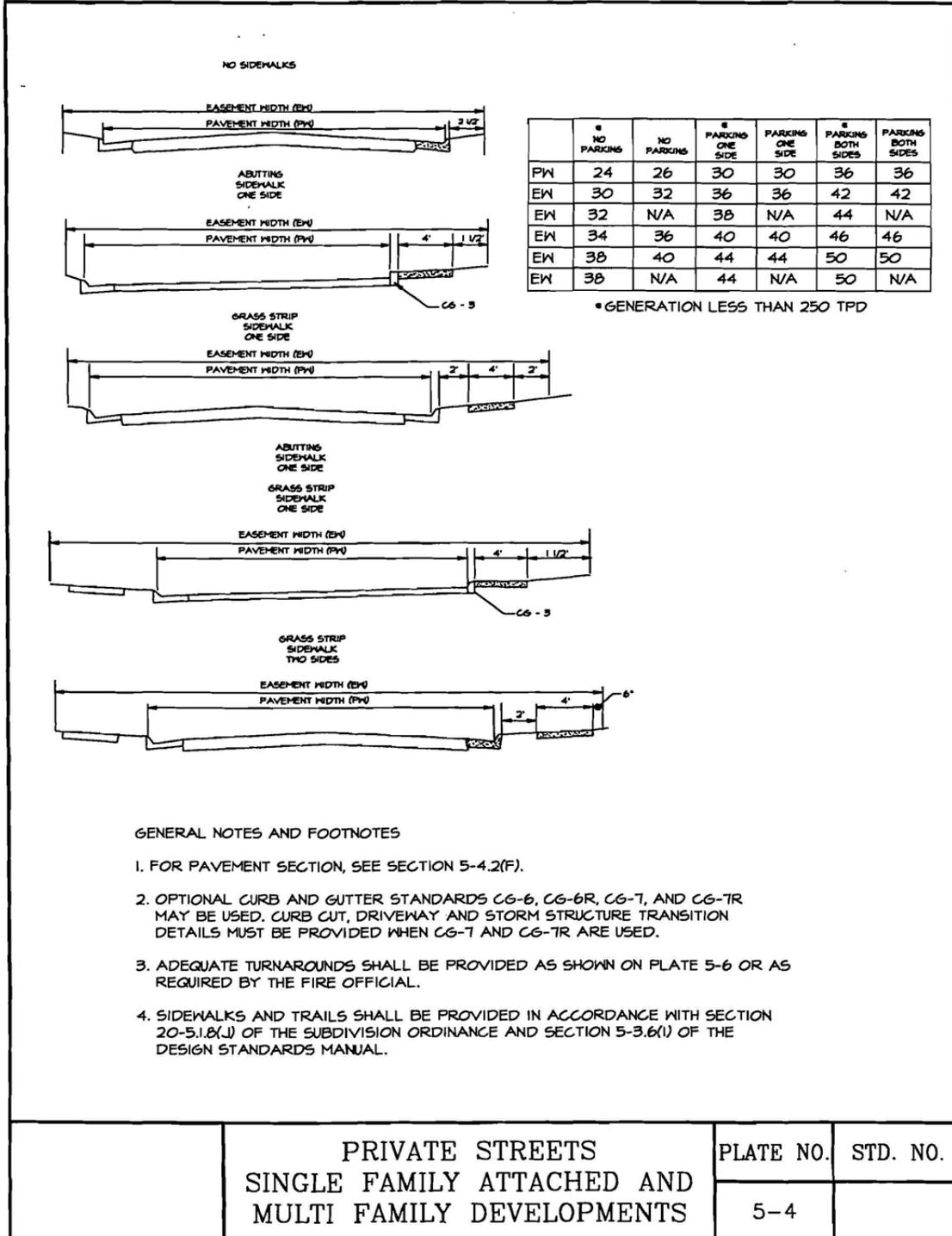
CATEGORY	DESIGN SPEED	MAX. CL GRADE	MIN. CL RADIUS	SSD (3)	K VALUE		TYPICAL SECTION			PAVEMENT SUB-BASE BASE (5)	SUR-FACE	R-O-W WIDTH	
					SAG	CREST	P	G	S				
MAJOR SUBDIVISION STREET (1)													
VI. 5,500 - 8,000	45	7%	800'	410'	92	127	27'	2'	6'	10"	6"	2"	90(MIN)

GENERAL NOTES AND FOOTNOTES

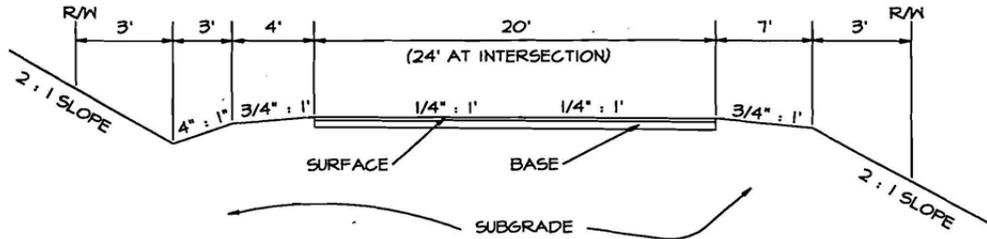
1. Category IV, V, and VI streets shall be superelevated in accordance with Std. TC-4 of VDOT Road and Bridge Standards.
2. Intersection sight distance is based upon 3.5 height of eye and 4.25' height of object and is 10 times the design speed (minimum 450').
3. Stopping sight distance is based upon 3.5 height of eye and 0.5' height of object.
4. Base and subbase designs are predicated upon a subgrade CBR value of 10.
5. Stone subbase material shall extend under the curb and gutter a minimum distance of 18" from the face of curb. The stone thickness under the curb and gutter shall be the pavement depth in excess of the 7" depth of the gutter face but no less than 4".
6. 12' wide left turn lanes shall be provided at all median crossovers. Any portion of the raised median that becomes less than 6' wide shall be constructed in concrete.
7. Sidewalk to be provided in accordance with Section 20-5.1.8(J) of the Subdivision Ordinance and Section 5-3.69(I) of the Design Standards Manual.
8. Streets with traffic counts in excess of 8000 VPD shall be designed in accordance with VDOT Road and Bridge Standards.

STANDARD TYP. SECTION FOR MULTI-LANE STREET WITH CURB & GUTTER	PLATE NO.	STD. NO.
	5-3	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



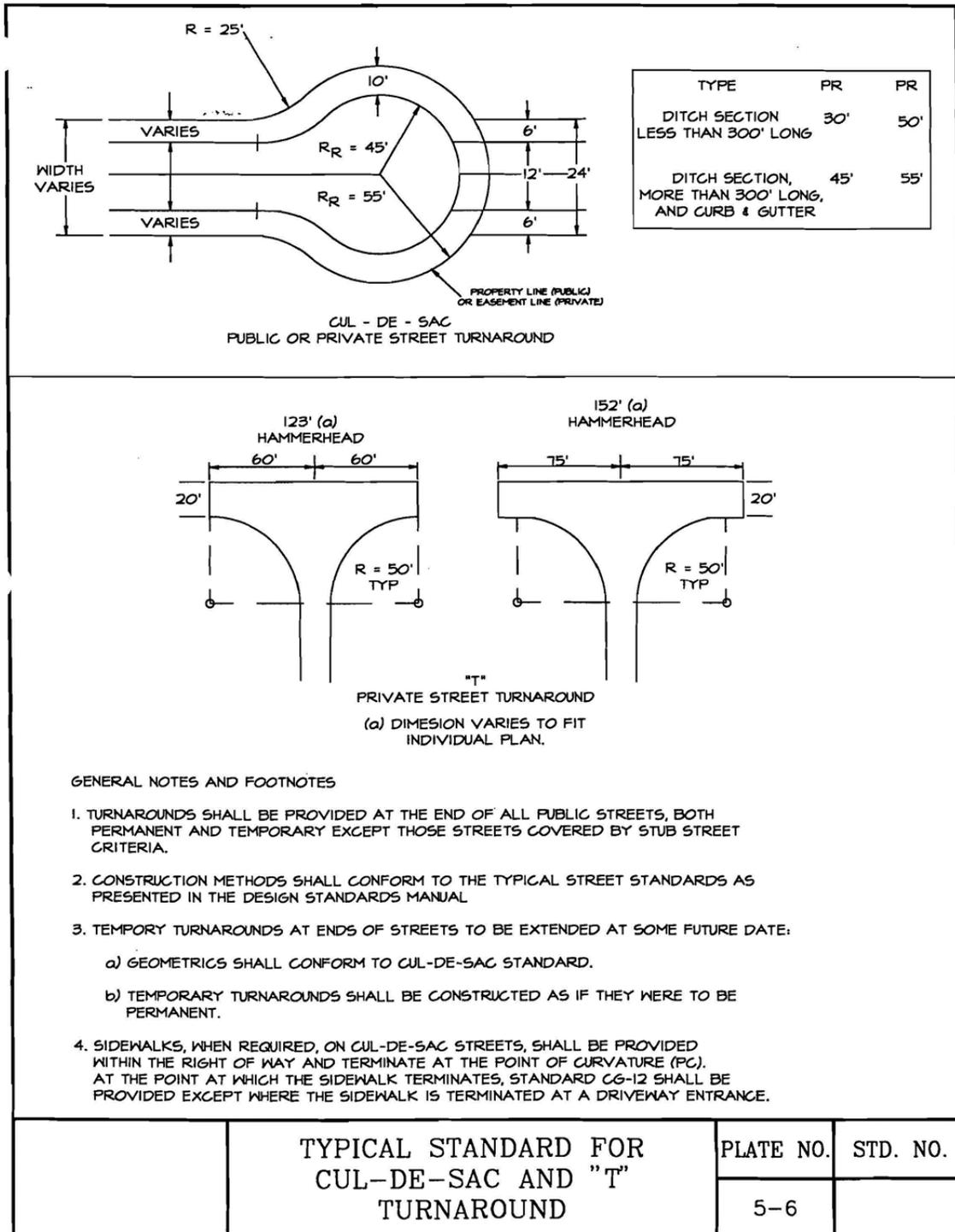
CATEGORY (VPD)	TYPE OF TERRAIN	DESIGN SPEED	MAX. CL GRADE	MIN. CL RADIUS	SSD (5)	PAVE-MENT WIDTH	R.O.W. WIDTH
1. 0 TO 250	ROLLING	25	10%	120'	150'	20'	50'

GENERAL NOTES AND FOOTNOTES

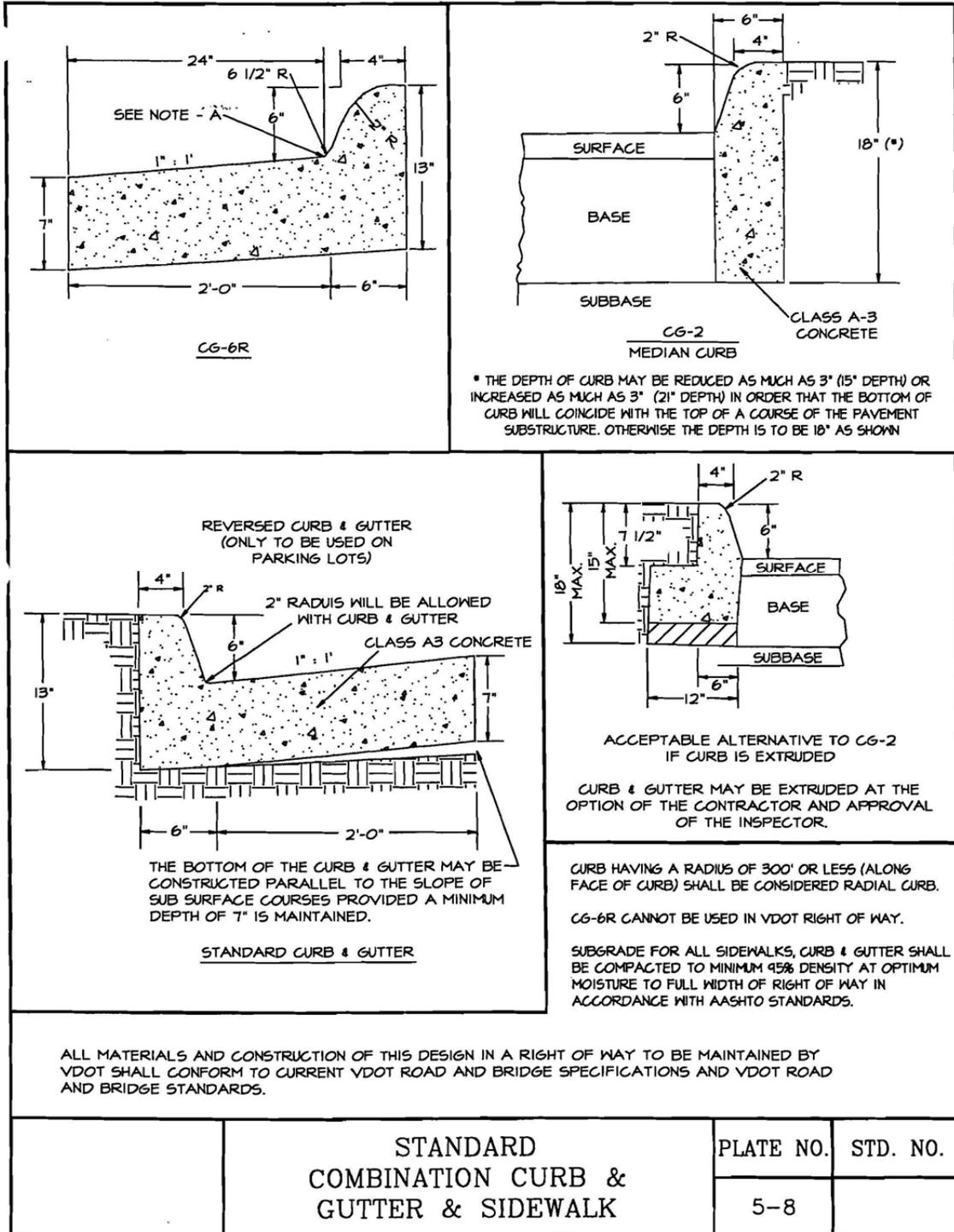
1. TYPICAL SECTION MAY BE USED IN SUBDIVISIONS IN THE RESORT RESIDENTIAL ZONING DISTRICT, PROVIDED AN EXCEPTION HAS BEEN OBTAINED IN ACCORDANCE WITH SECTION 20-5.1.8(H) OF THE SUBDIVISION ORDINANCE.
2. FOR PAVEMENT SECTION, SEE SECTION 5-4.2F(2). PAVEMENT SECTION SHALL CONSIST OF 6" OF STONE BASE AND 2" OF SURFACE ASPHALT AS A MINIMUM.
3. SIDEWALKS OR TRAILS SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 20-5.1.8(J) OF THE SUBDIVISION ORDINANCE AND SECTION 5-3.6L OF THE DESIGN STANDARDS MANUAL.
4. ADEQUATE TURNAROUNDS SHALL BE PROVIDED AS SHOWN ON PLATE 5-6 OR AS REQUIRED BY THE FIRE OFFICIAL.

STANDARD TYPICAL SECTION PRIVATE STREETS RESORT RESIDENTIAL SUBDIVISIONS	PLATE NO.	STD. NO.
	5-5	

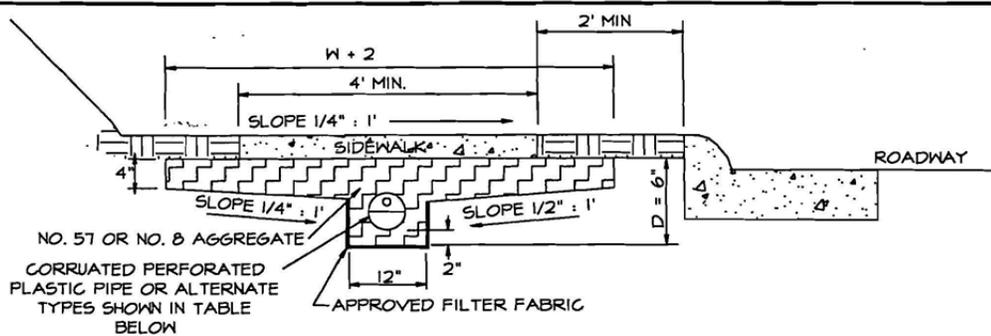
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ALTERNATE UNDERDRAIN PIPE	*ST	6" PIPE CRUSHING STRENGTH LBS./LF	*ST	8" PIPE CRUSHING STRENGTH LBS./LF
PERFORATED HELICALLY CORRUGATED LOCK SEAM SEAL	.052		.064	
PERFORATED VITRIFIED CLAY		1000		1000
POROUS WALL CONCRETE		1100		1500
PERFORATED CONCRETE		1500		1300
PERFORATED CORRUGATED STEEL	.052		.064	
PERFORATED ASBESTOS CEMENT		1100		1300
PERFORATED CORRUGATED ALUMINUM	.048		.060	
PERFORATED BITUMINIZED FIBER		1400		1700

*STEEL THICKNESS - INCHES

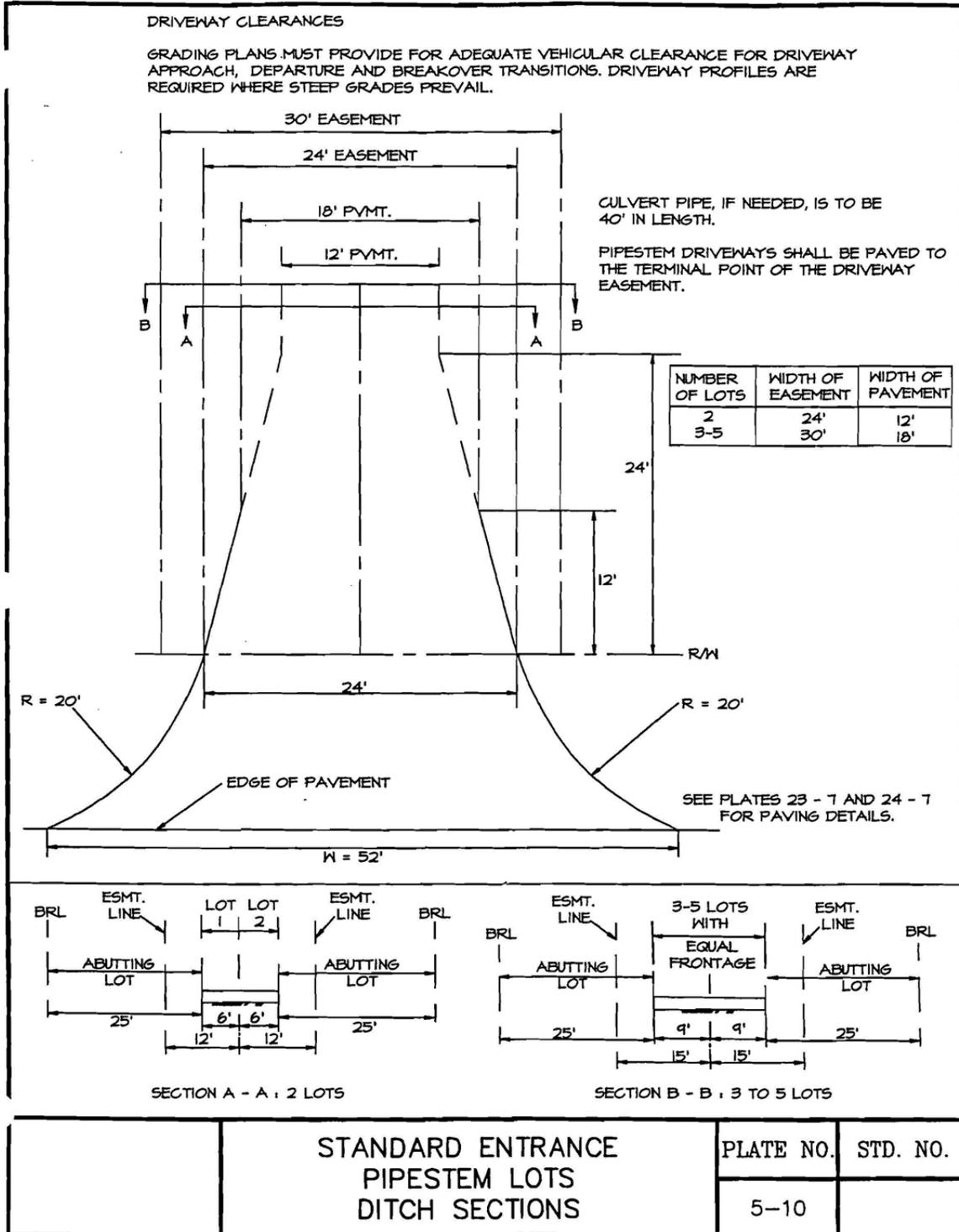
General Notes and Footnotes

- Sidewalk underdrains are to be used when the sidewalk longitudinal gradient is 3% or more and when the underlying soil has 34% or more passing the no. 200 sieve and has a PL of 13 or less.
- Sidewalk underdrains should be tied into the storm sewer systems at points about a city block apart. Underdrain runs must not exceed 1,000 feet in length without discharging into the storm drain system or into an open drain. The length of run may be increased up to an additional 1,000 feet if 8" diameter pipe is used in the downstream 1,000 feet section of the run.
- All pipe to be 6" unless otherwise noted on plans. Minimum grade of pipe shall be 0.5%. 45° bends may be used to permit connection to drainage structures. Plastic pipes will not be permitted under street pavement sections. The pipe used in the pavement section shall be adequate to support street pavement loadings.
- When the street section has been rough graded and CBR tests are made for street pavement design sieve and PL analysis will be included with the CBR tests. If these tests indicate that underdrains are required, additional classification tests will be made of the sidewalk subgrade to determine if sidewalk underdrains are required. These tests will be made at all changes of subgrade material and not more than 500 feet apart. Plan revisions based on these tests will then be prepared by the design consultant and submitted to the site review engineer for review and approval. This revision will include a section of UD-3 underdrain.
- Compaction tests on natural subgrade must be made and approved after the subgrade has been shaped and prior to the placing of sidewalks.
- Where required, sidewalk underdrains shall be used for all walkways which are to be maintained by a public agency or a homeowners association.

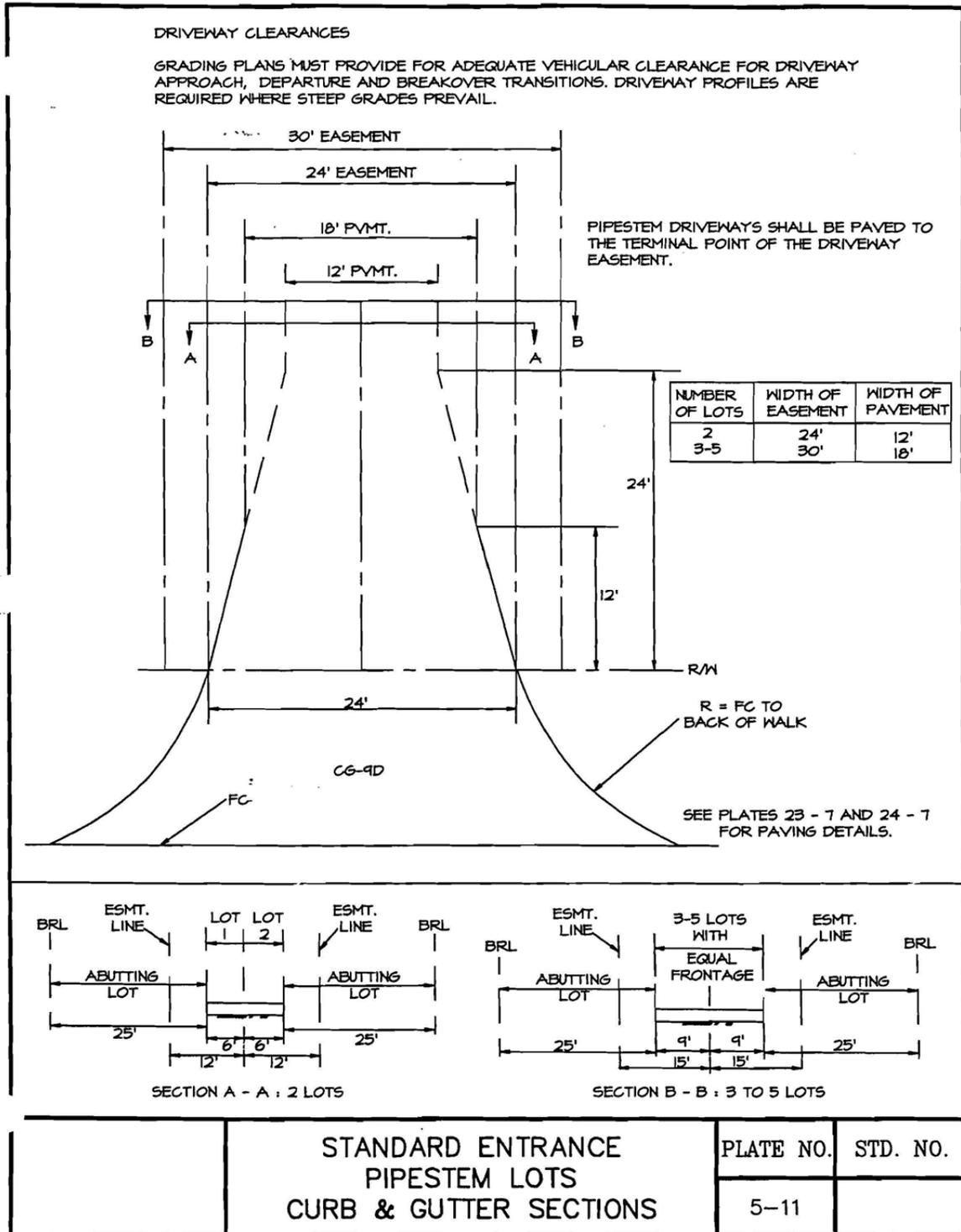
All materials and construction of this design in a right of way to be maintained by VDOT shall conform to the current VDOT Road and Bridges Specifications and VDOT Road and Bridge Standards.

SIDEWALK & UNDERDRAIN	PLATE NO.	STD. NO.
	5-9	

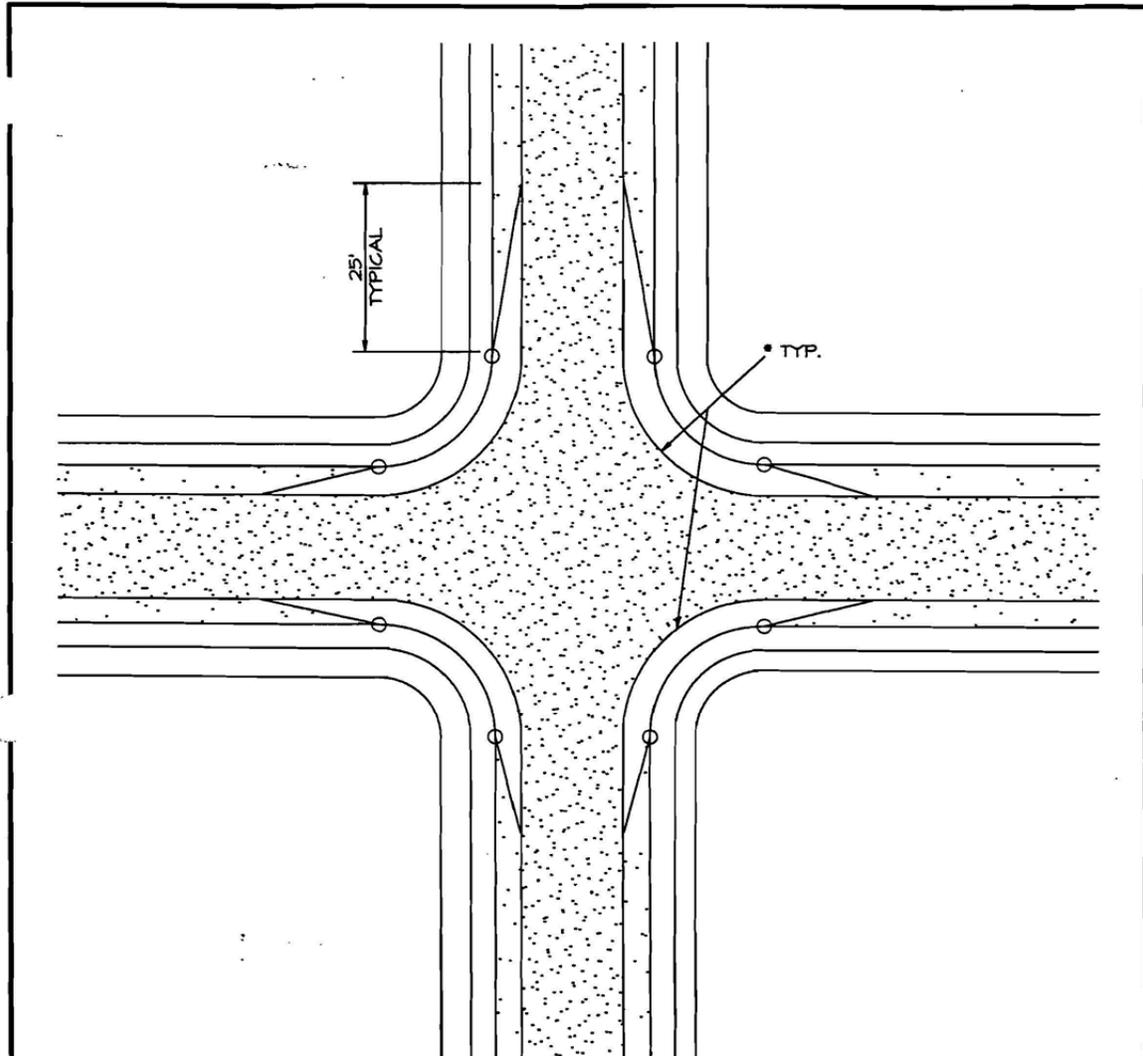
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

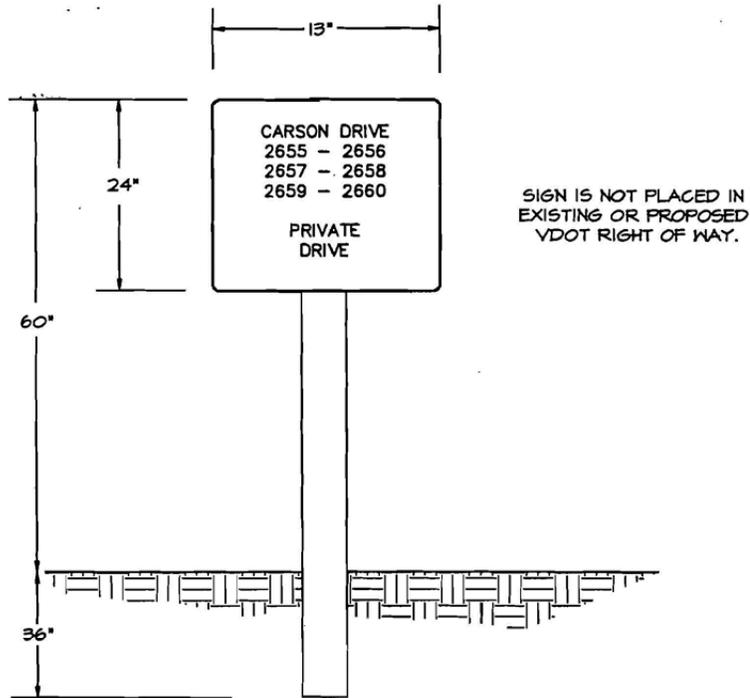


THE SHOULDERS WILL BE PAVED WITH A MINIMUM 2" OF SURFACE MIX ASPHALT (SM-2A) THROUGHOUT THE INTERSECTION TO EACH POINT OF TANGENCY. A MINIMUM 25' TAPER WILL BE REQUIRED FROM THESE POINTS TO THE EDGE OF PAVEMENT.

* EDGE OF ROADWAY AND SHOULDER SHALL BE DELINEATED BY 4" WIDE WHITE PAVEMENT MARKING

SHOULDER STABILIZATION AT INTERSECTIONS	PLATE NO.	STD. NO.
	5-12	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



GENERAL REQUIREMENTS

THE PIPESTEM DRIVEWAY SIGN SHALL CONTAIN THE STREET NAME, THE HOUSE NUMBERS AND THE WORDS " PRIVATE DRIVE" OR " PRIVATE STREET".

THE SIGN IS TO BE PLACED ON A 3", METAL "U" CHANNEL POST 6' LONG.

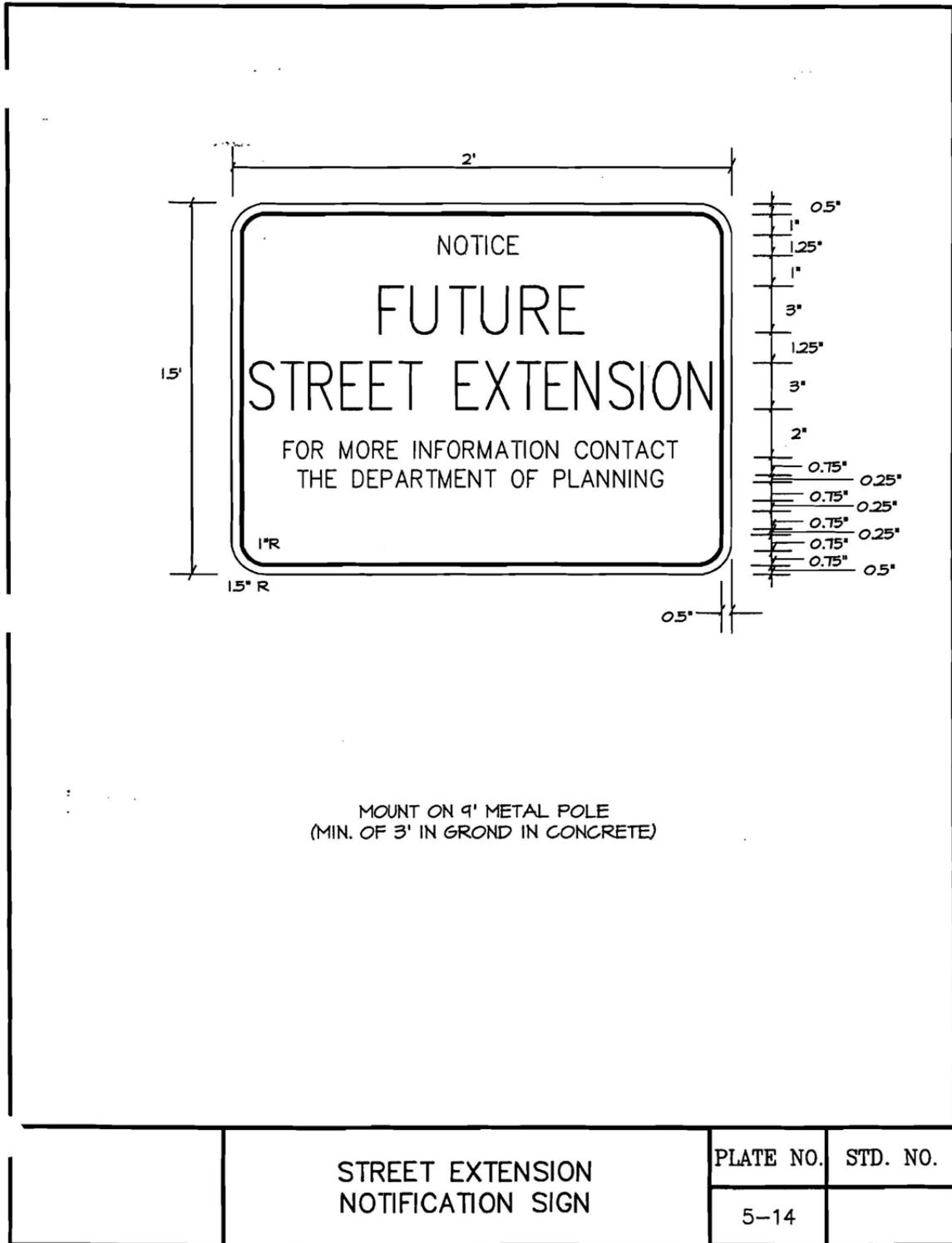
THE SIGN IS TO BE PLACED ON THE RIGHT SIDE OF THE PIPESTEM DRIVE WHEN SIGHT DISTANCE PERMITS.

THE SIGN SHALL BE MADE WITH REFLECTIVE MATERIALS AND BE GREEN WITH WHITE BORDER AND STANDARD 2" LETTERING

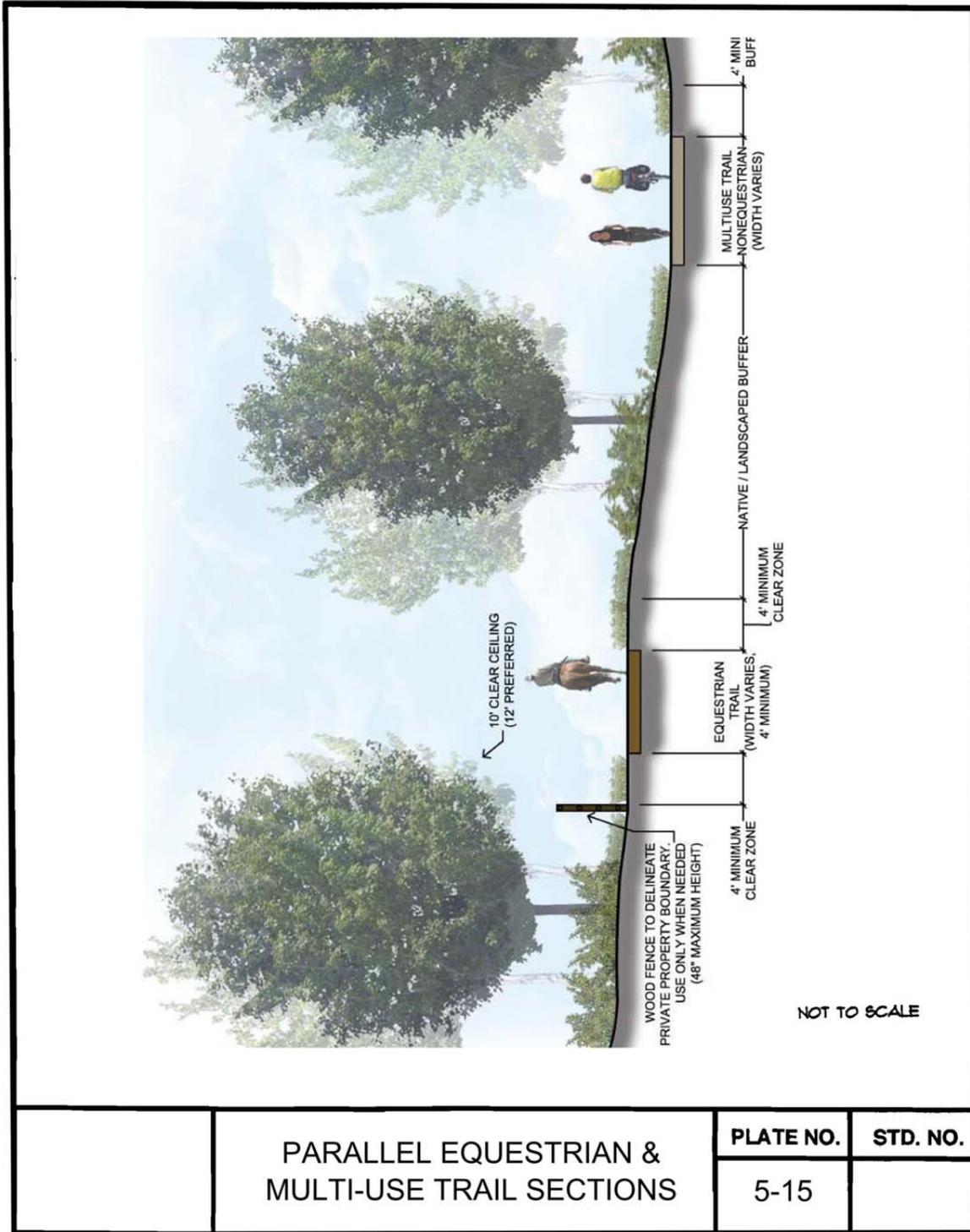
ALTERNATE DESIGN MAY BE APPROVED BY THE DIRECTOR.

	PIPESTEM DRIVEWAY SIGN	PLATE NO.	STD. NO.
		5-13	

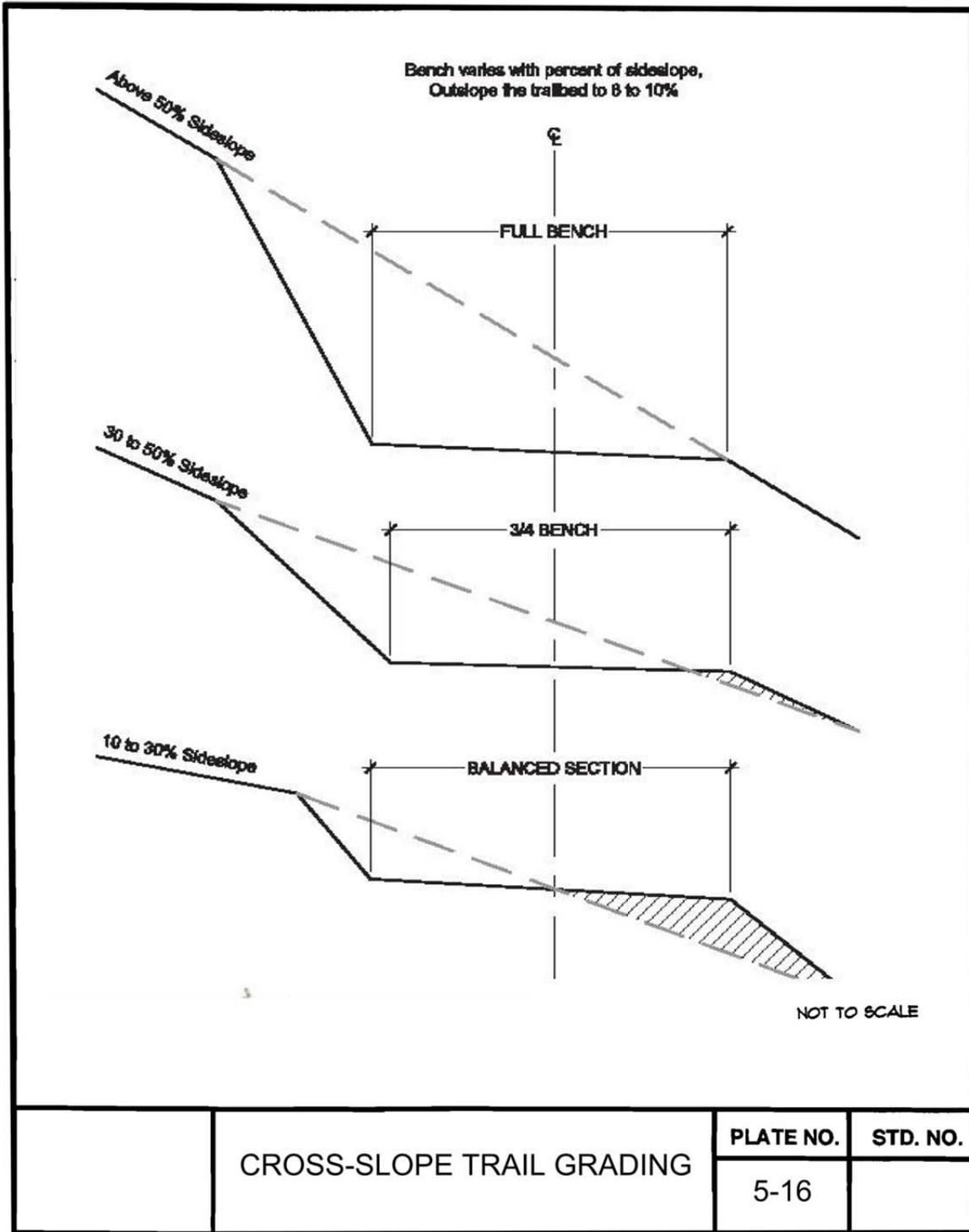
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



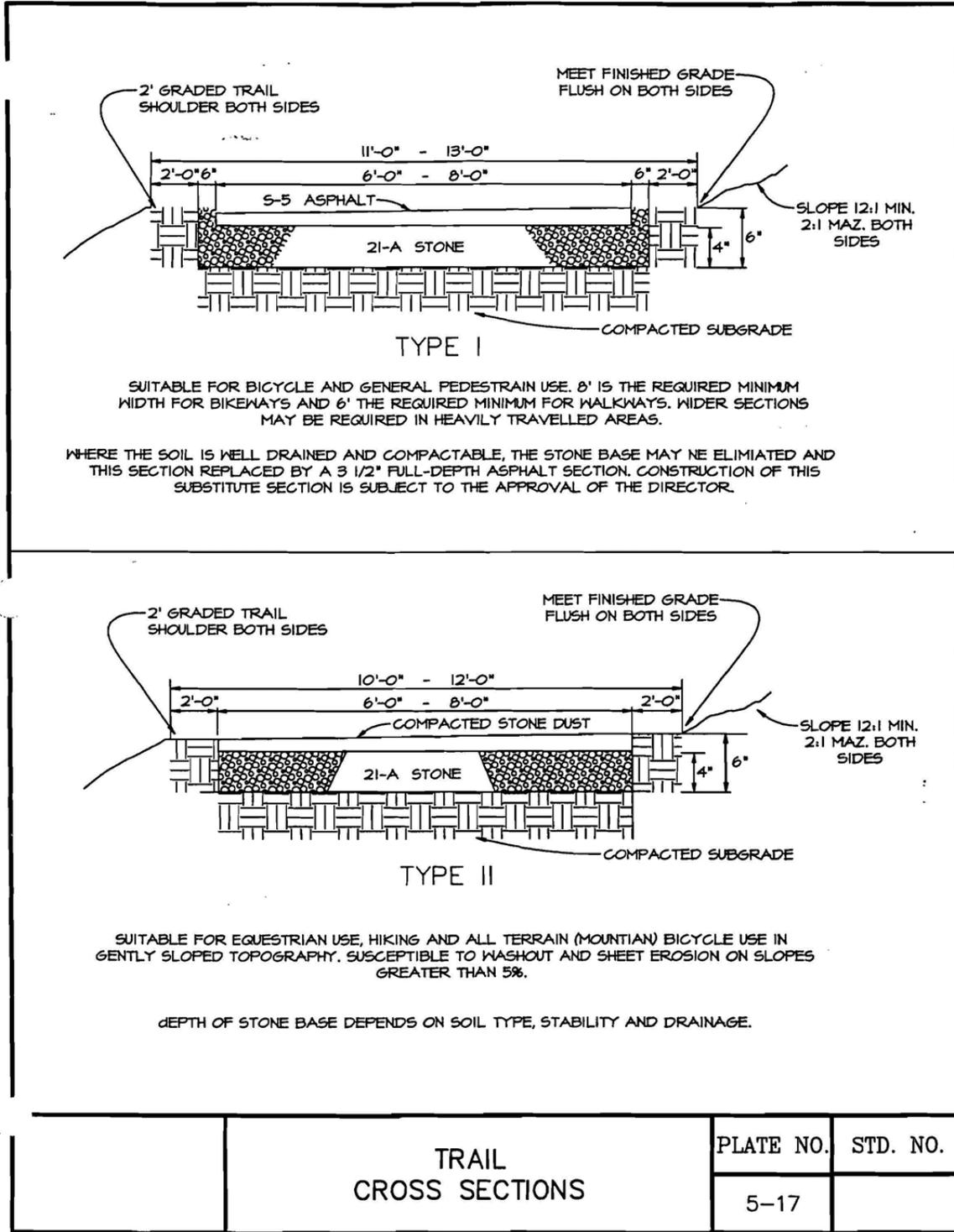
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



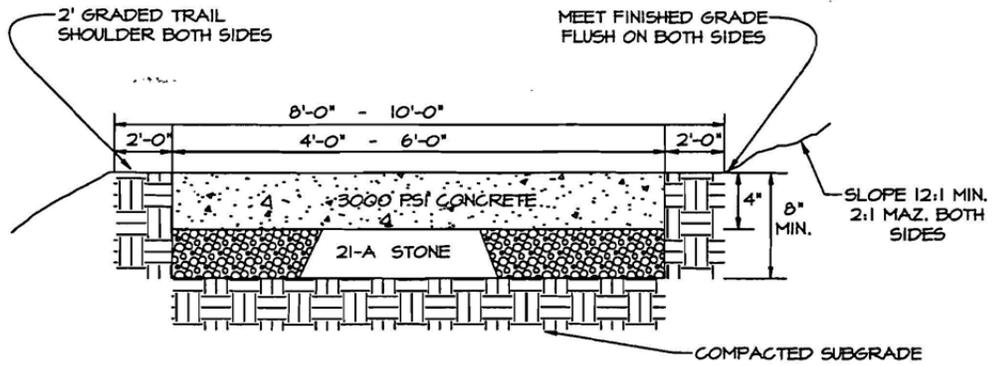
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



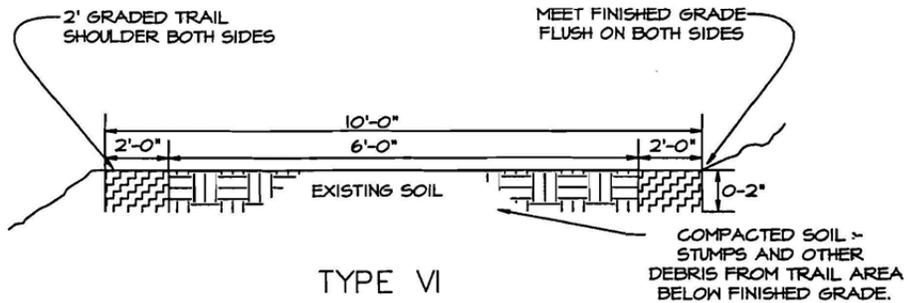
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



TYPE IV

SUITABLE FOR GENERAL PEDESTRIAN USE. UNSUITABLE FOR BIKEWAYS. ACCEPTABLE FOR VDOT MAINTENANCE.

SUBGRADE FOR ALL SIDEWALKS SHALL BE COMPACTED TO MINIMUM 95% DENSITY AT OPTIMUM MOISTURE TO FULL WIDTH OF RIGHT-OF-WAY OR EASEMENT IN ACCORDANCE WITH AASHTO T99.



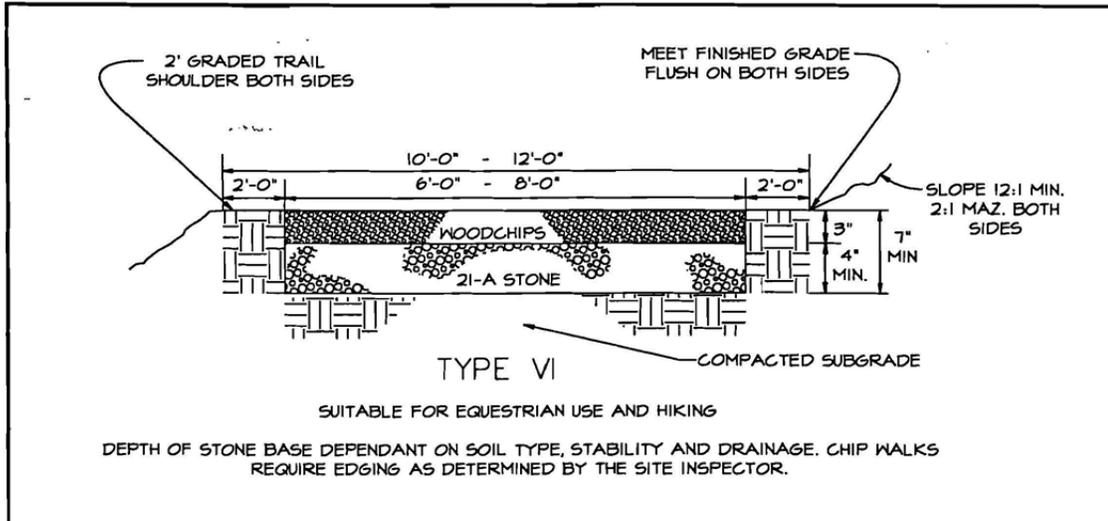
TYPE VI

SUITABLE FOR EQUESTRIAN USE, HIKING AND ALL-TERRAIN (MOUNTAIN) BICYCLE USE IN LOW DENSITY AREAS. CONSTRUCTION OF THIS SECTION IS SUBJECT TO THE APPROVAL OF THE DIRECTOR.

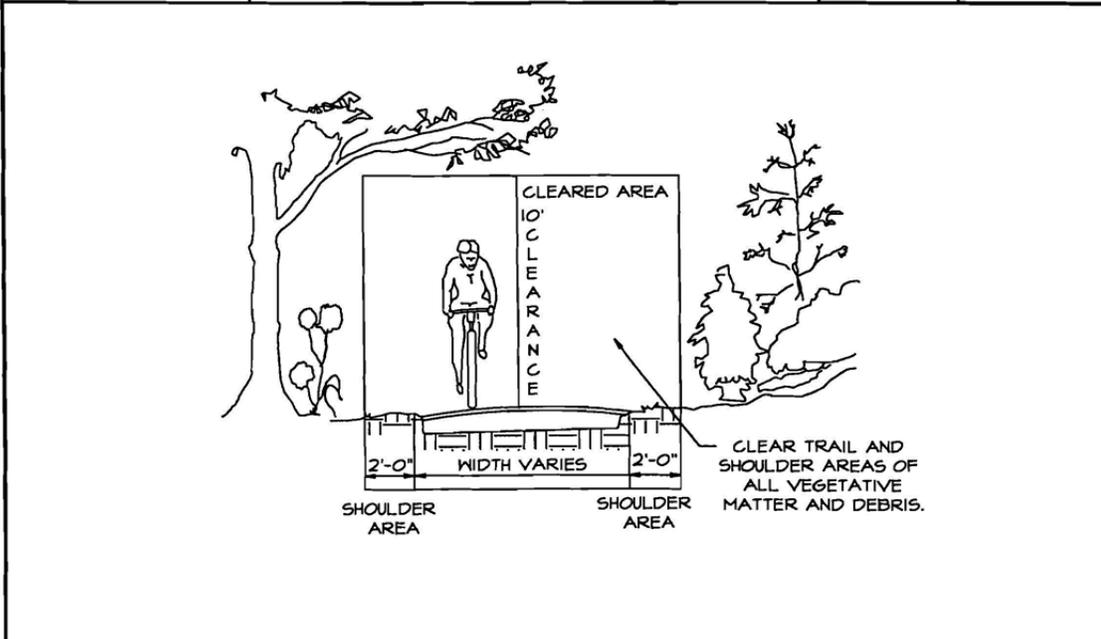
ALIGNMENT OF THIS TRAIL SHOULD BE SUCH THAT THERE IS MINIMUM GROUND DISTURBANCE DURING CLEARING.

	TRAIL CROSS SECTION	PLATE NO.	STD. NO.
		5-18	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

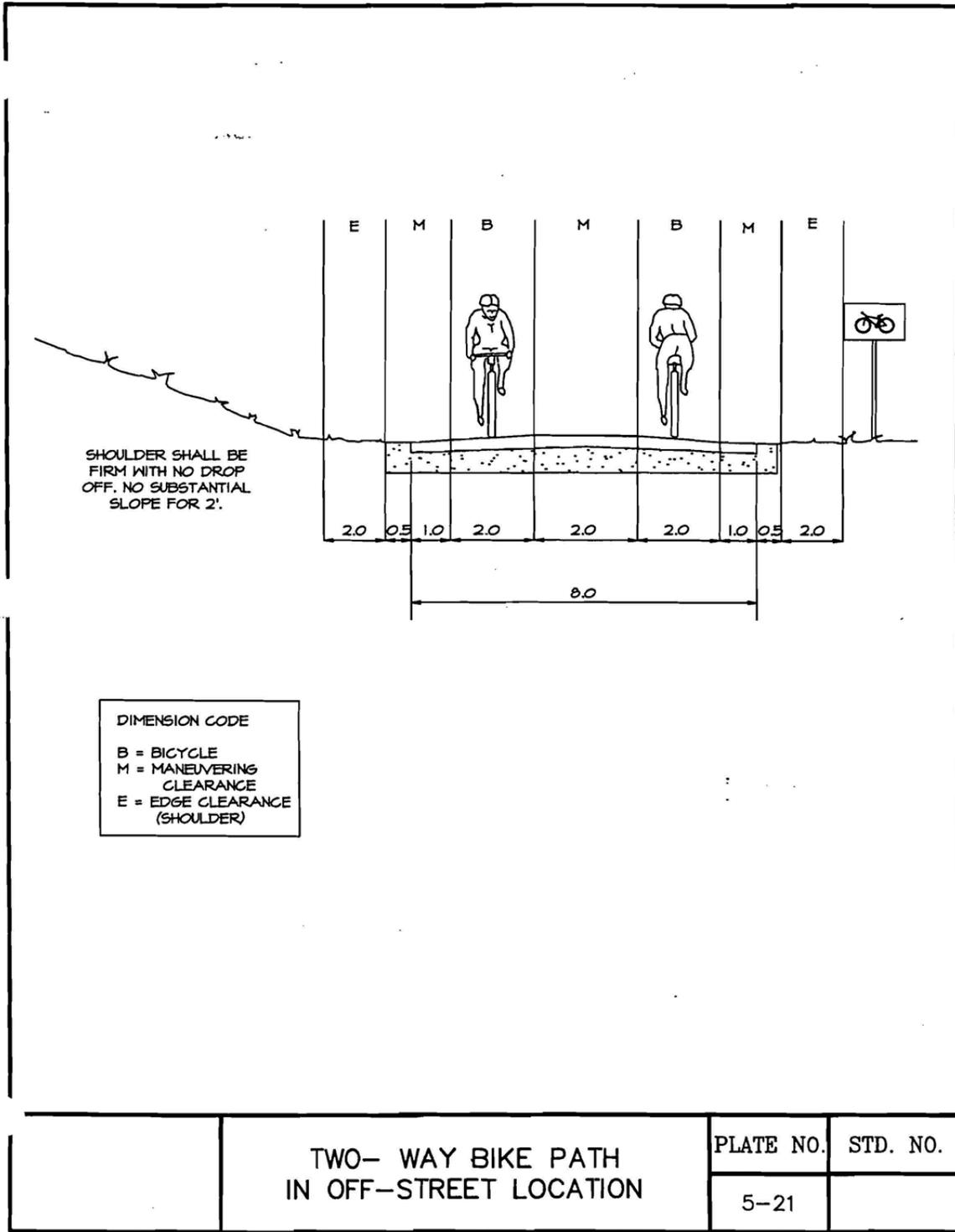


	TRAIL CROSS SECTION	PLATE NO.	STD. NO.
		5-19	

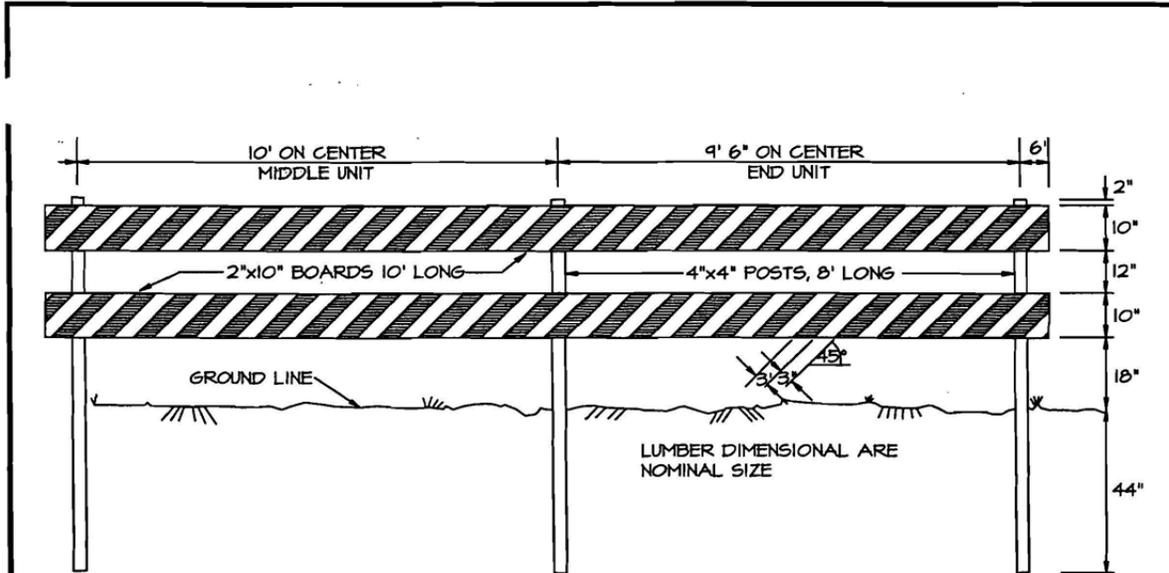


	TRAIL CLEARING	PLATE NO.	STD. NO.
		5-20	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



GENERAL NOTES

BARRICADE RAILS SHOULD BE SUPPORTED IN A MANNER THAT WILL ALLOW THEM TO BE SEEN BY THE MOTORIST AND PROVIDE A STABLE SUPPORT NOT EASILY BLOWN OVER BY THE WIND OR TRAFFIC. THE REFLECTORIZED AREA SHALL HAVE A SMOOTH, SEALED OUTER SURFACE. THE PREDOMINANT COLOR FOR THE BARRICADE COMPONENTS SHALL BE WHITE, EXCEPT THAT UNPAINTED GALVANIZED METAL OR ALUMINUM COMPONENTS MAY BE USED. BECAUSE OF THEIR VULNERABLE POSITION AND POSSIBLE HAZARD THEY COULD CREATE, BARRICADES SHOULD BE CONSTRUCTED OF LIGHT WEIGHT MATERIALS AND HAVE NO RIGID STAY BRACING.

PLANKS TO BE FASTENED TO POST WITH 2-3/8" x 6-1/2" CARRIAGE BOLTS AND WASHERS OR WITH 2-7/16" x 4" LAG SCREWS AND WASHERS.

BOLTS AND SCREWS NOT TO BE PLACED CLOSER THAN 2" FROM EDGE OF PLANKS.

THIS BARRICADE TO BE PLACED AT END OF ALL DEAD END STREETS.

THIS FOLLOWING NOTE SHALL APPEAR ON THE PLANS, " THE BARRICADE SHALL BE REMOVED AT SUCH TIMES AS THE NEED NO LONGER EXISTS, AS DETERMINED BY THE DIRECTOR".

IF THE BARRICADE IS WITHIN VDOT RIGHT OF WAY, A PERMIT IS NEEDED FOR ITS REMOVAL

CHARACTERISTICS

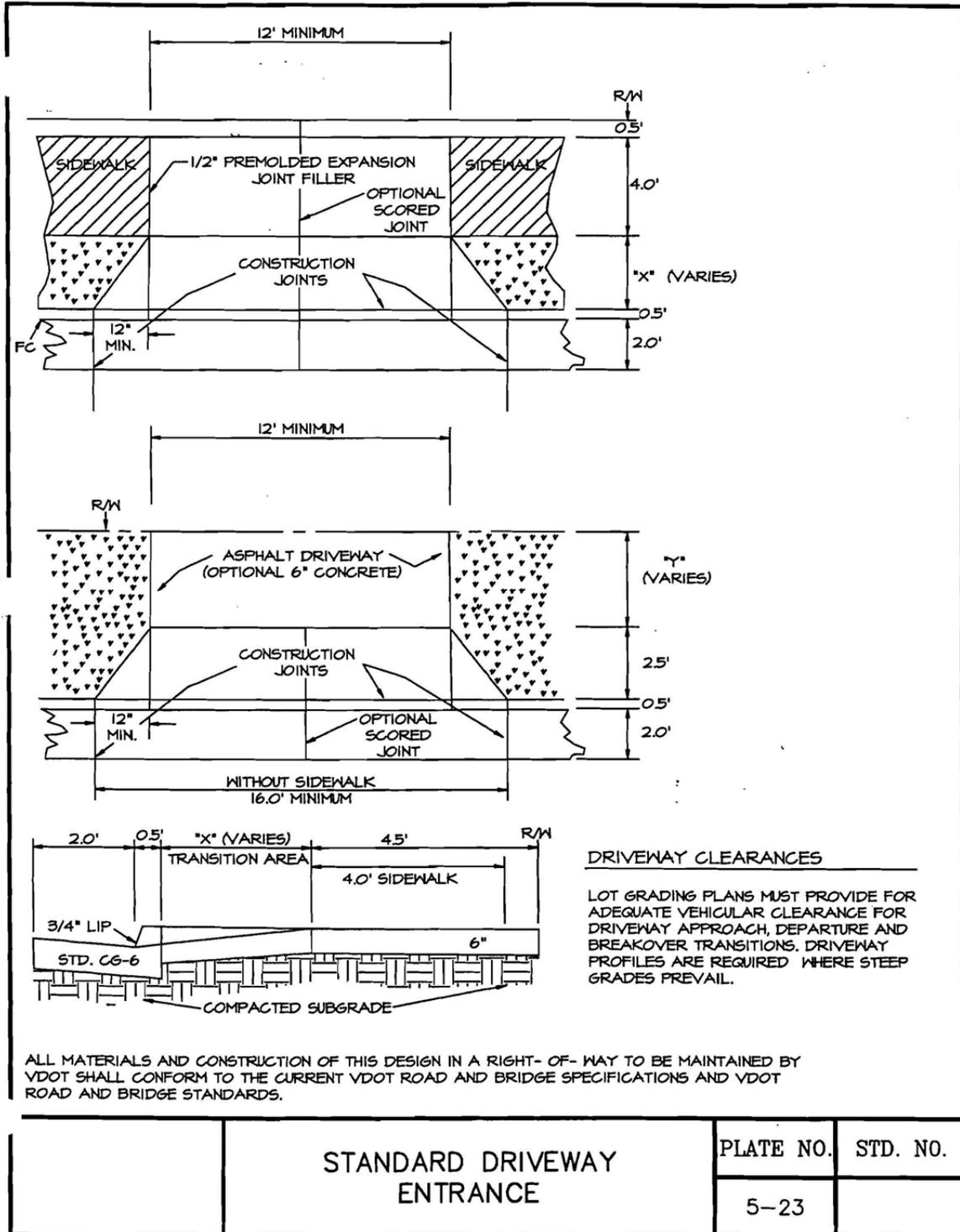
COLOR OF STRIPES	REFLECTORIZED RED & REFLECTORIZED WHITE
WIDTH OF STRIPES	6 INCHES
NUMBER OF REFLECTORIZED RAIL FENCES	4 (TWO EACH DIRECTION)

FOR WOODEN COMPONENTS NOMINAL LUMBER DIMENSIONS WILL BE SATISFACTORY.

THIS BARRICADE IS DESCRIBED IN SECTION 6C-8, MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, US DEPARTMENT OF TRANSPORTATION.

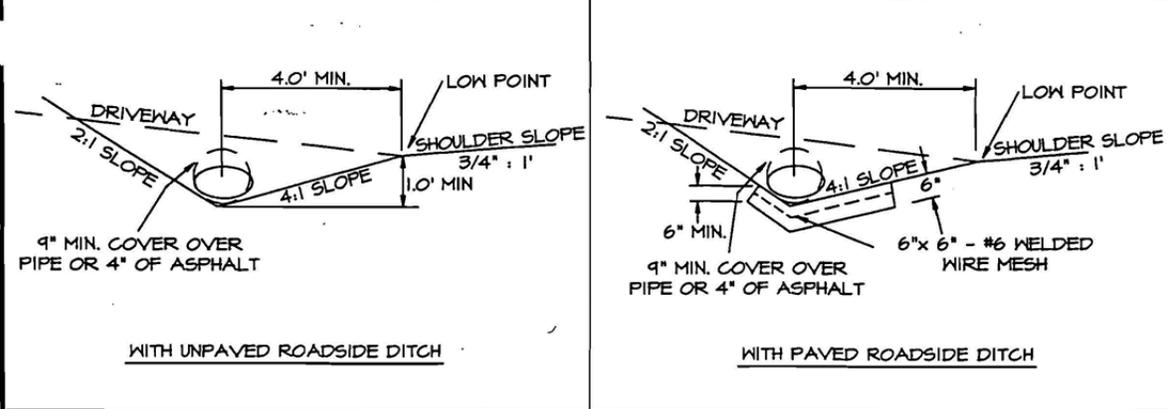
STANDARD TRAFFIC BARRICADE	PLATE NO.	STD. NO.
	5-22	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

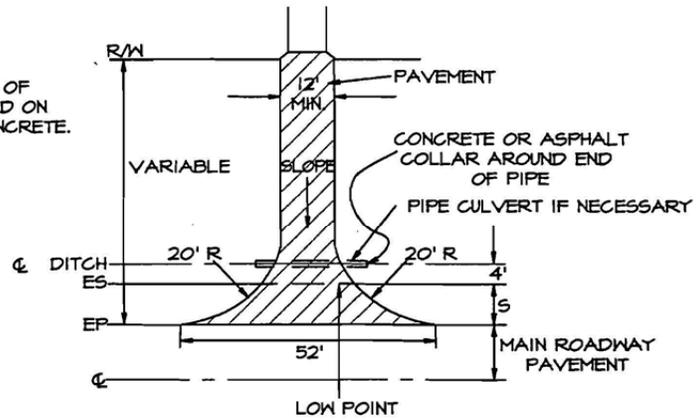


ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

DRIVEWAY CULVERT PIPE INSTALLATION



SURFACE TO R/W LINE, MINIMUM 1-1/2" OF THE SAME TYPE OF SURFACING AS USED ON THE STREET AND 6" OF BASE, OR 5" CONCRETE.



CONCRETE PIPE OR CORRUGATED METAL PIPE MAY BE USED. INDICATE TYPE AND SIZE ON PLANS.
 DRIVEWAYS SHALL BE SURFACED FROM EDGE OF PAVEMENT TO PROPERTY LINE WITH THE SAME TYPE OF SURFACING AS USED ON STREET.
 ALL DRIVEWAY GRADES SHALL START BACK OF THE SHOULDER LINE.
 IN CUT SECTION, SIDES OF DRIVEWAY SHALL BE GRADED TO A MAXIMUM 3:1 SLOPE.
 PRIVATE ENTRANCE PIPES SHALL BE OF SUFFICIENT LENGTH TO PROVIDE FOR A MINIMUM 1-1/2" : 1' SIDE SLOPE AT CENTER OF DITCH.
 NO PRIVATE ENTRANCE PIPE SHALL BE LESS THAN 24' IN LENGTH.
 FOR DIMENSIONS OF S, SEE PLATE NO. 5-1 & GEOMETRIC DESIGN GUIDE FOR SUBDIVISION STREETS.
 DITCH LINE MAY BE MOVED BACK TO PROVIDE REQUIRED COVER. THE TRANSITION OF THE DITCH LINE SHALL BE SMOOTH WITH A MINIMUM LENGTH OF 10'

DRIVEWAY CLEARANCES

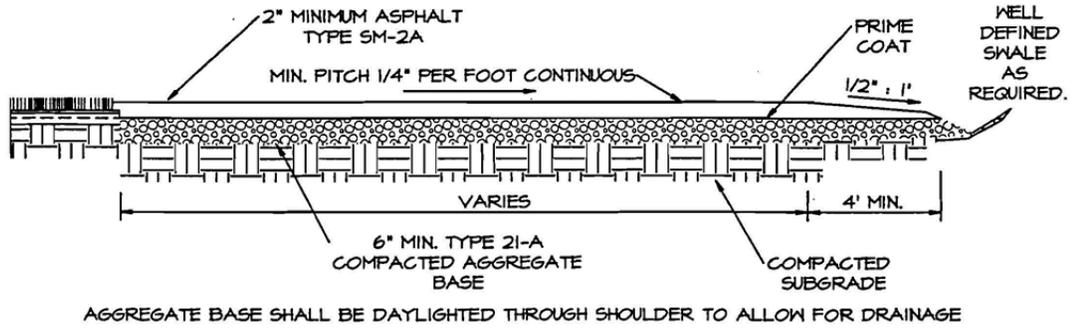
GRADING PLANS MUST PROVIDE FOR ADEQUATE VEHICULAR CLEARANCE FOR APPROACH, DEPARTURE AND BREAKOVER TRANSITIONS. DRIVEWAY PROFILES ARE REQUIRED WHEN STEEP GRADES PREVAIL.

ALL MATERIALS AND CONSTRUCTION OF THIS DESIGN IN A RIGHT-OF-WAY TO BE MAINTAINED BY VDOT SHALL CONFORM TO THE CURRENT VDOT ROAD AND BRIDGE SPECIFICATIONS AND VDOT ROAD AND BRIDGE STANDARDS

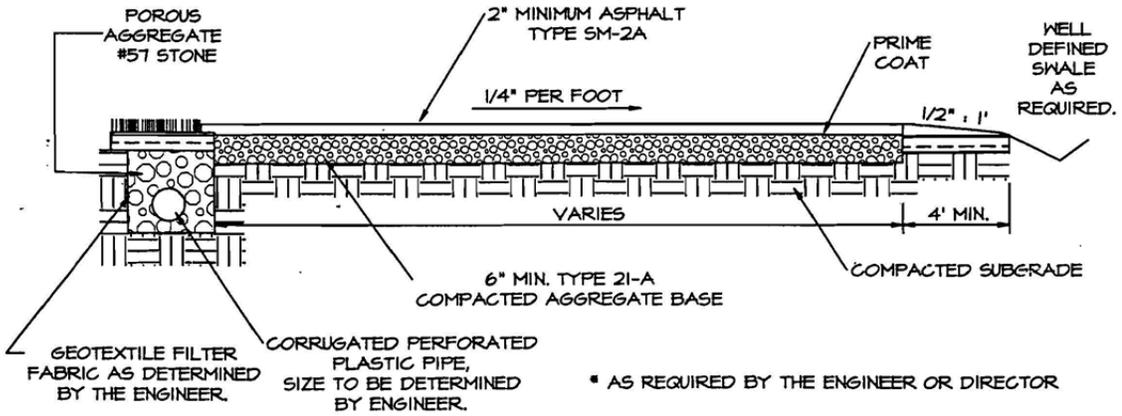
STANDARD DRIVEWAY ENTRANCE STREETS—NO CURB & GUTTER	PLATE NO.	STD. NO.
	5-24	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

STANDARD PIPESTEM



HIGH WATER TABLE PIPESTEM

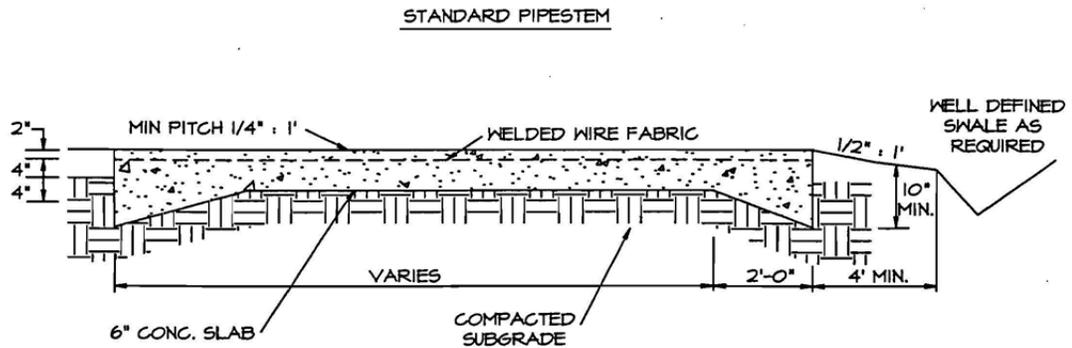


STANDARD DRIVEWAY
ENTRANCE

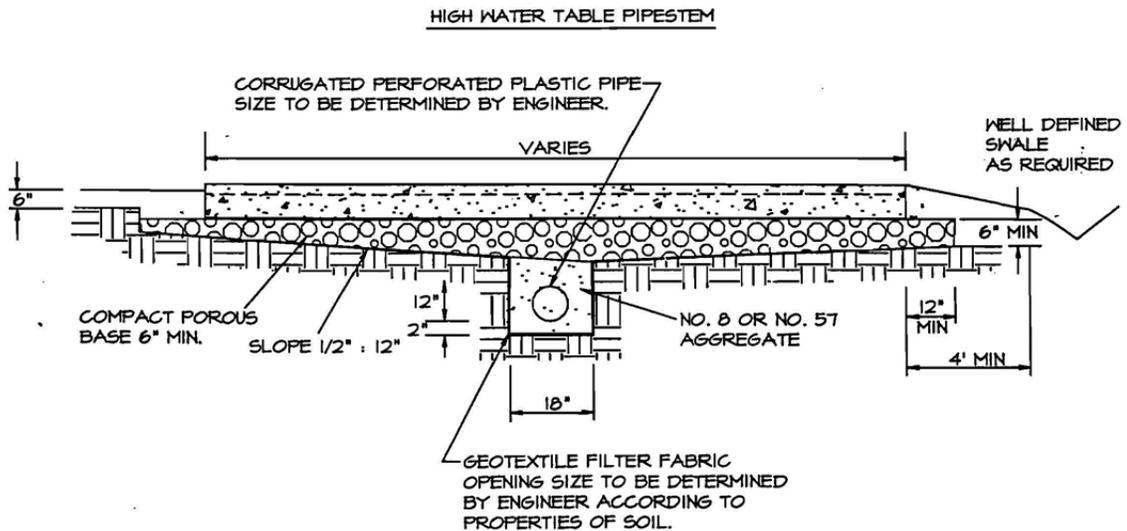
PLATE NO.	STD. NO.
5-25	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

STEEL FABRIC REINFORCEMENT SHALL CONSIST OF MEMBERS RIGIDLY ATTACHED AT ALL JOINTS OR POINTS OF INTERSECTION. LONGITUDINAL MEMBERS SHALL BE NO. 2 GAUGE WIRE SPACED AT 6" ON CENTER. TRANSVERSE MEMBERS SHALL BE NO. 4 GAUGE WIRE SPACED AT 12" ON CENTER. (REFORCING STEEL INSTITUTE DESIGNATION 6 x 12 - W55 x W4).



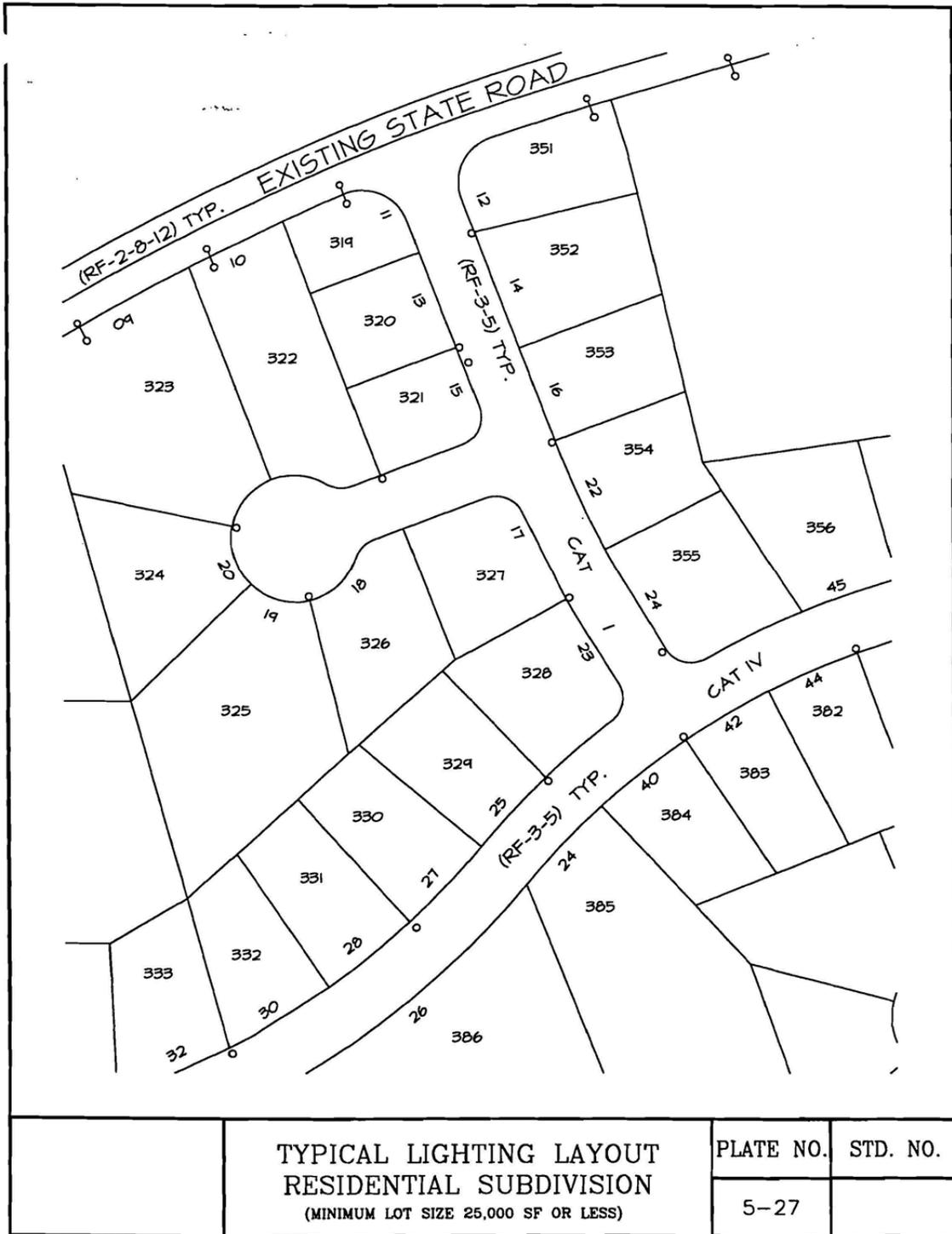
PIPESTEM DRIVEWAY UNDERDRAIN IS TO BE USED WHEN THE DRIVEWAY LONGITUDINAL GRADIENT IS 3% OR MORE AND WHEN THE UNDERLYING SOIL HAS 34% OR MORE PASSING THE NO. 200 SIEVE AND HAS A P.I. OF 13 OR LESS.



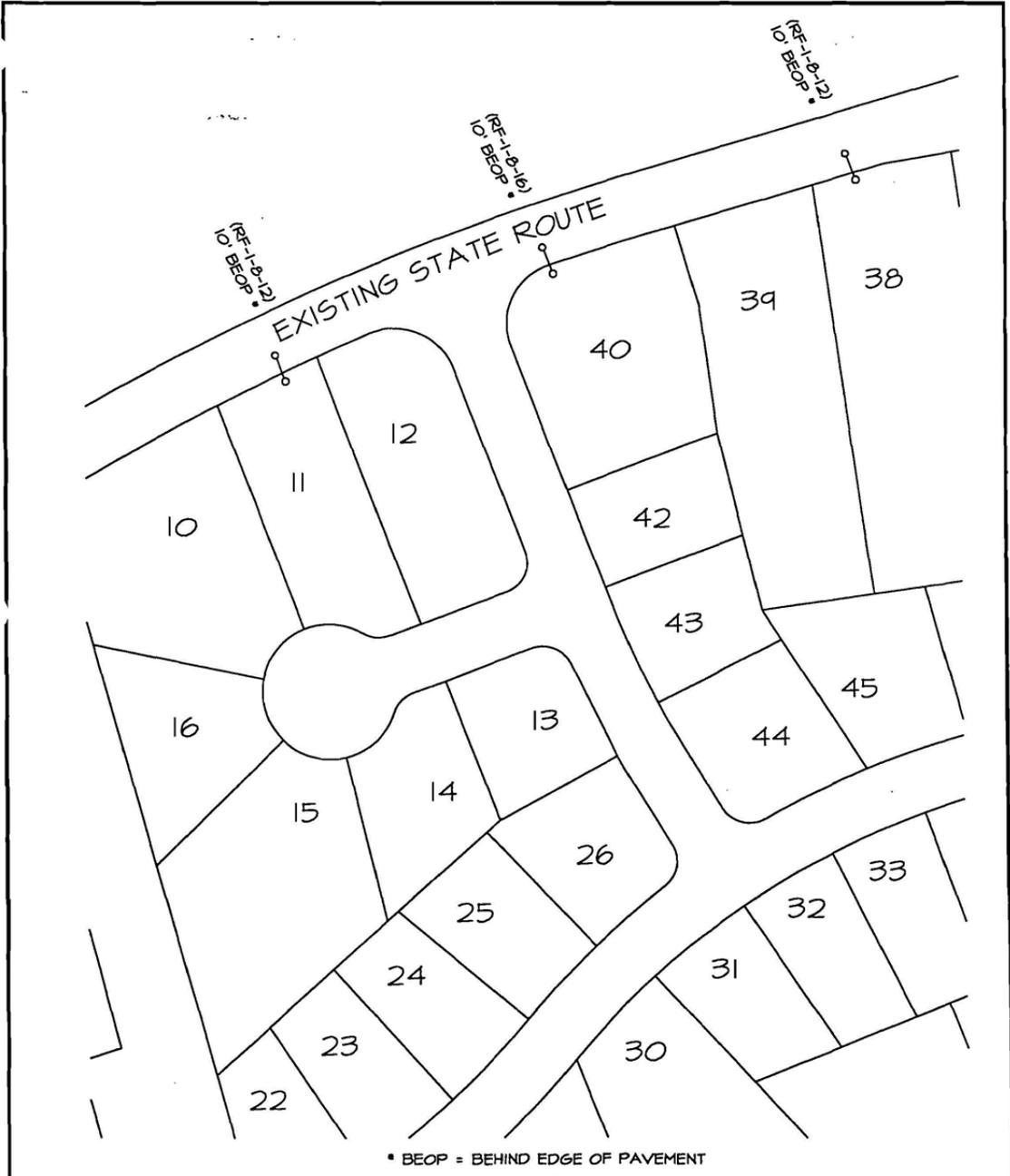
CONCRETE
PIPESTEM STANDARDS

PLATE NO.	STD. NO.
5-26	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

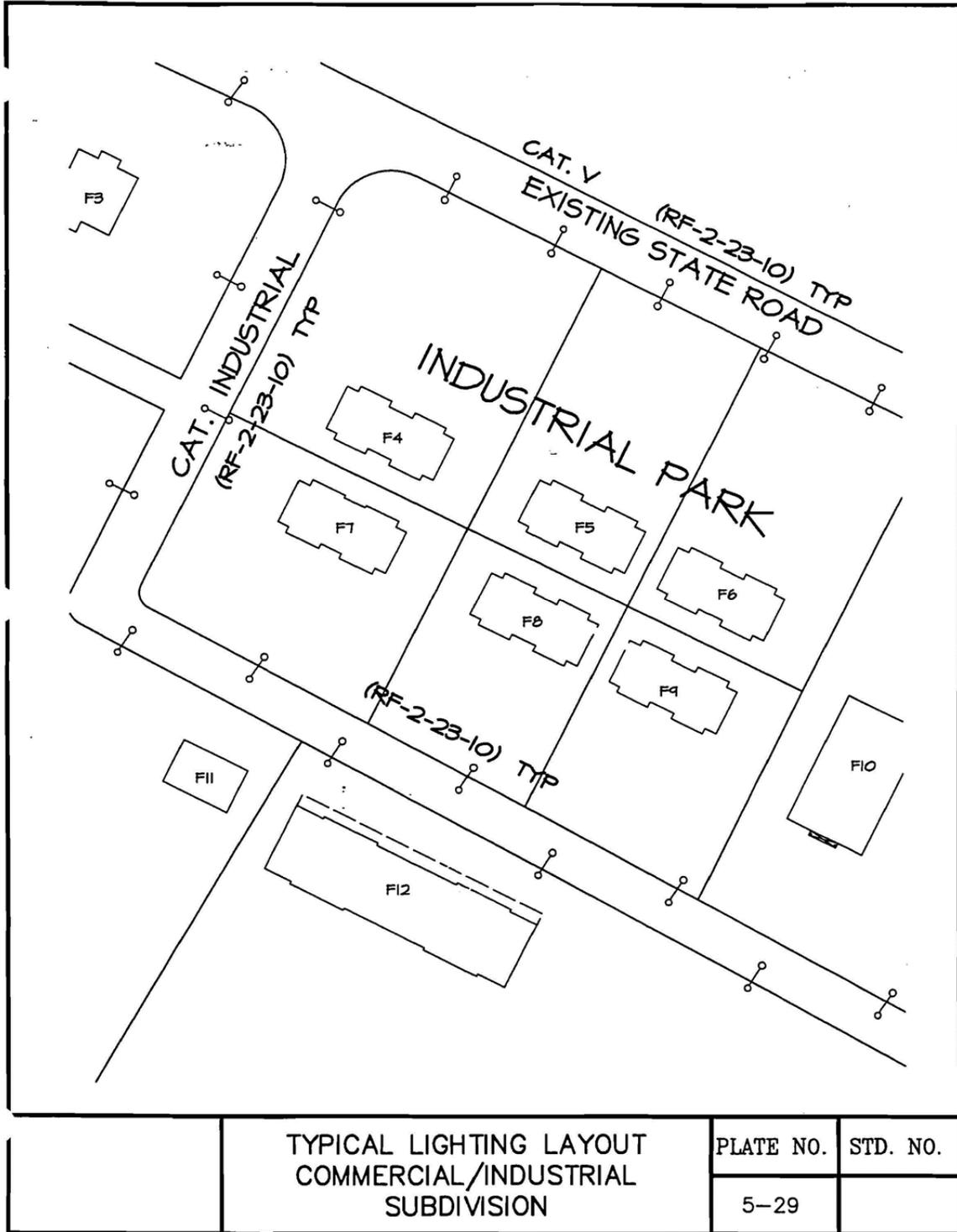


ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

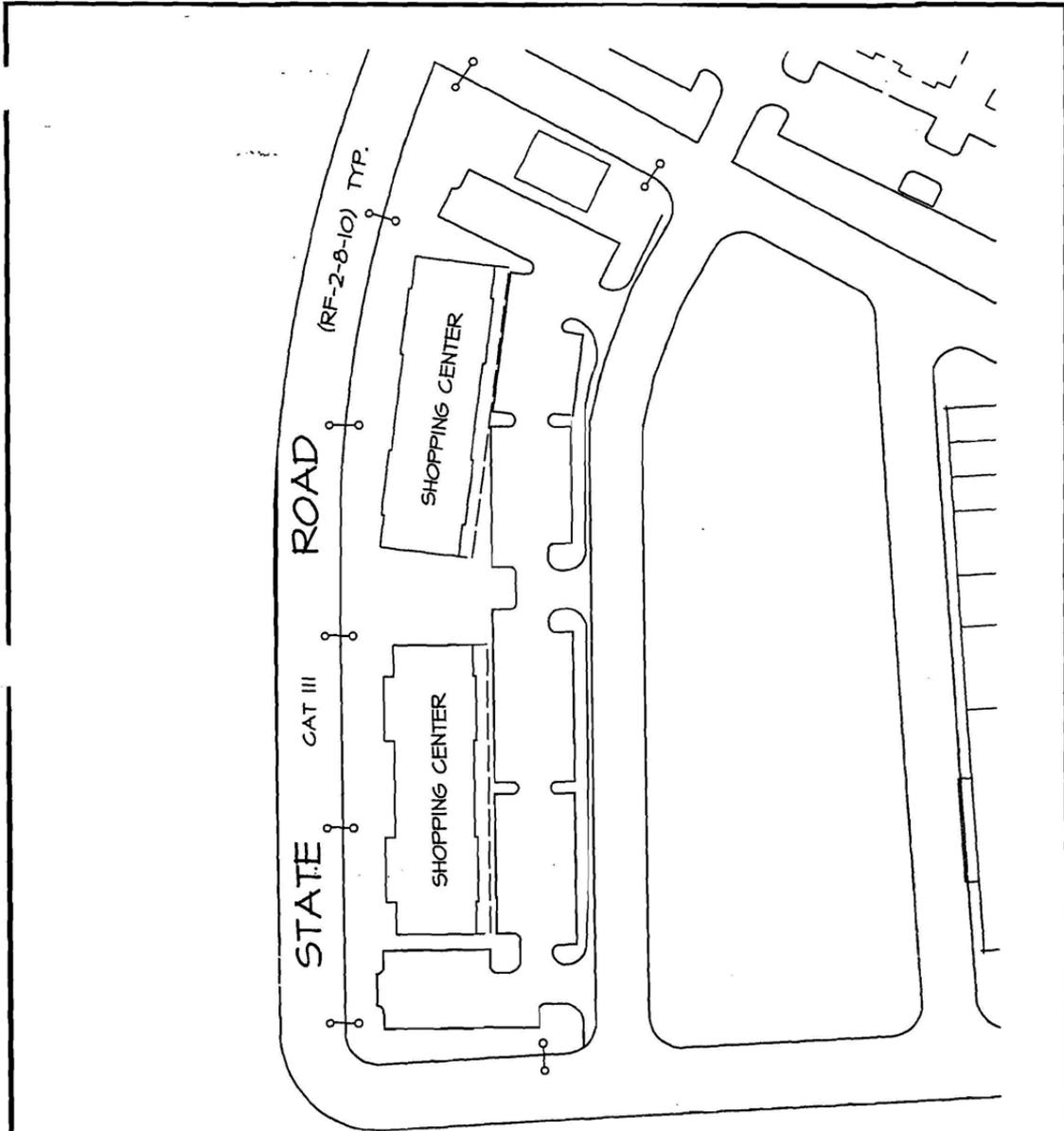


	TYPICAL LIGHTING LAYOUT RESIDENTIAL SUBDIVISION <small>(MINIMUM LOT SIZE GREATER THAN 25,000 SF)</small>	PLATE NO.	STD. NO.
		5-28	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

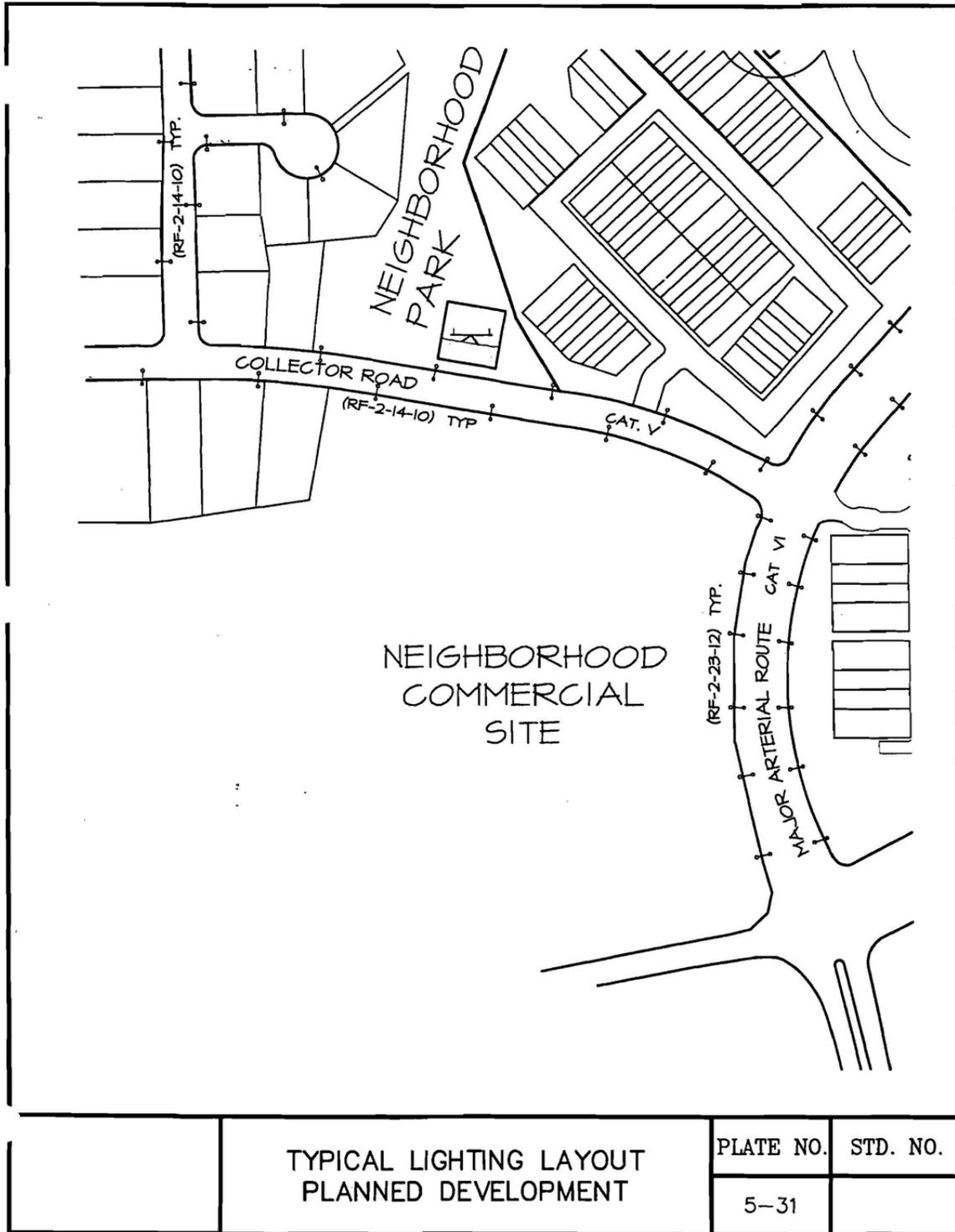


ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

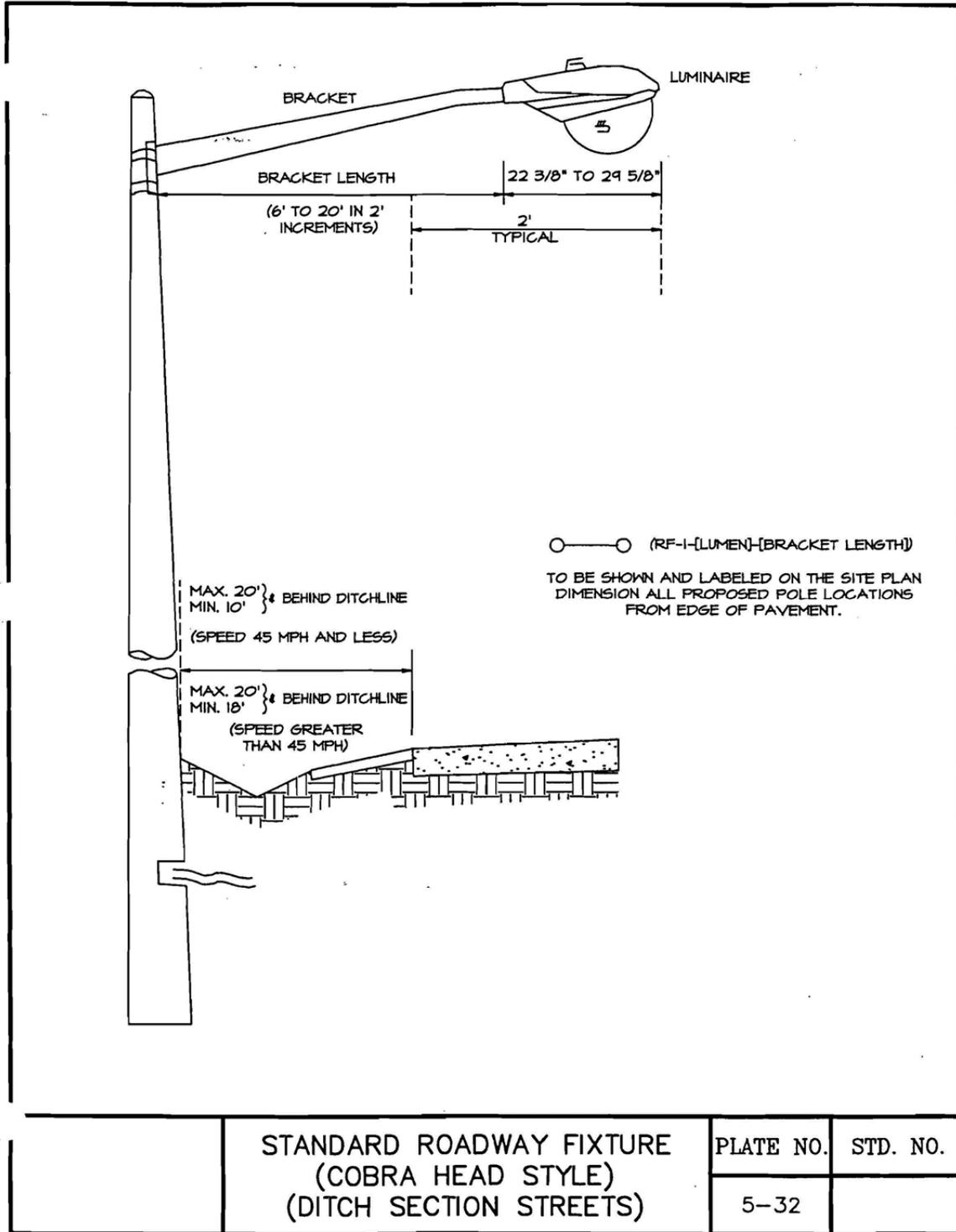


	TYPICAL LIGHTING LAYOUT SITE PLANS	PLATE NO.	STD. NO.
		5-30	

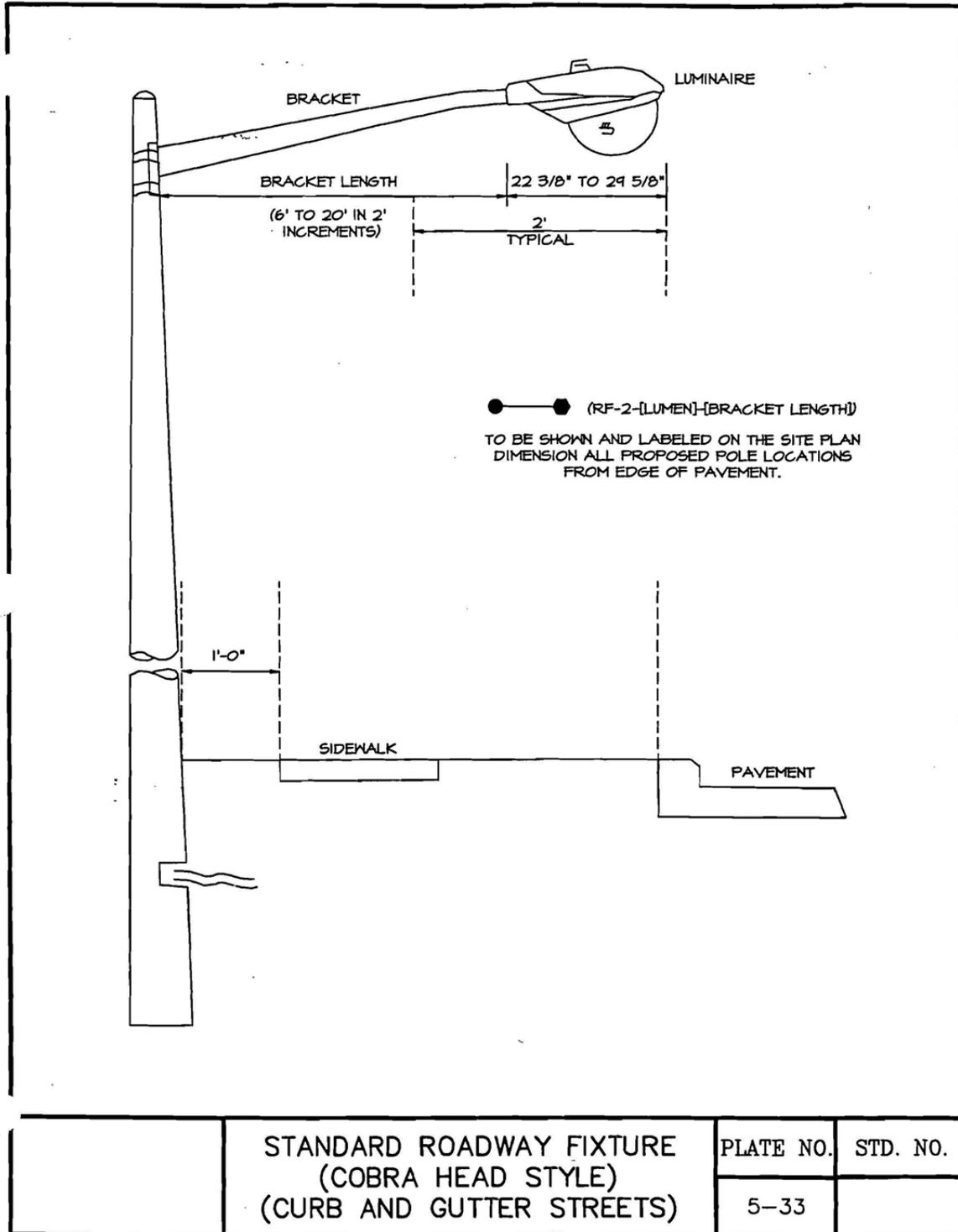
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



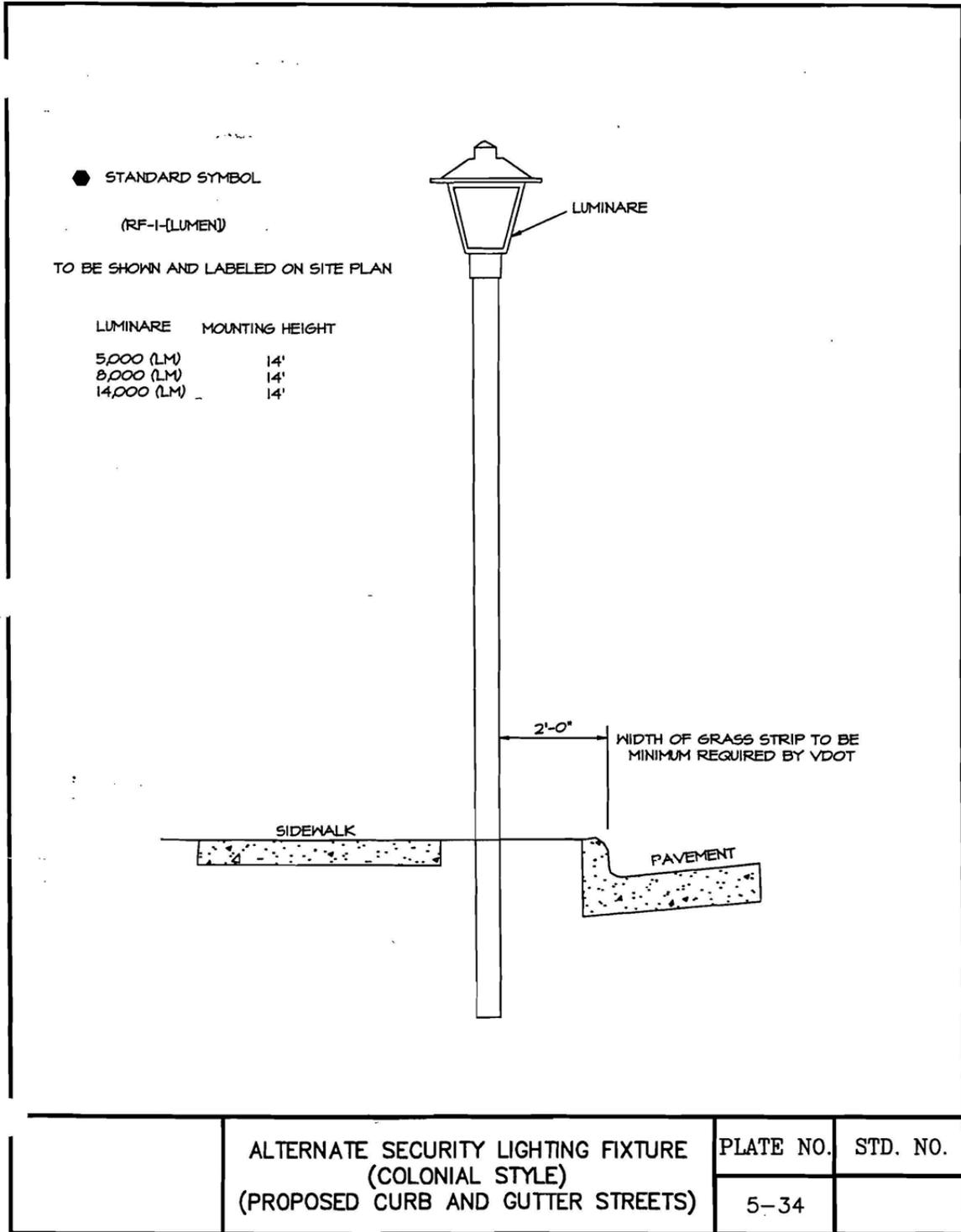
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



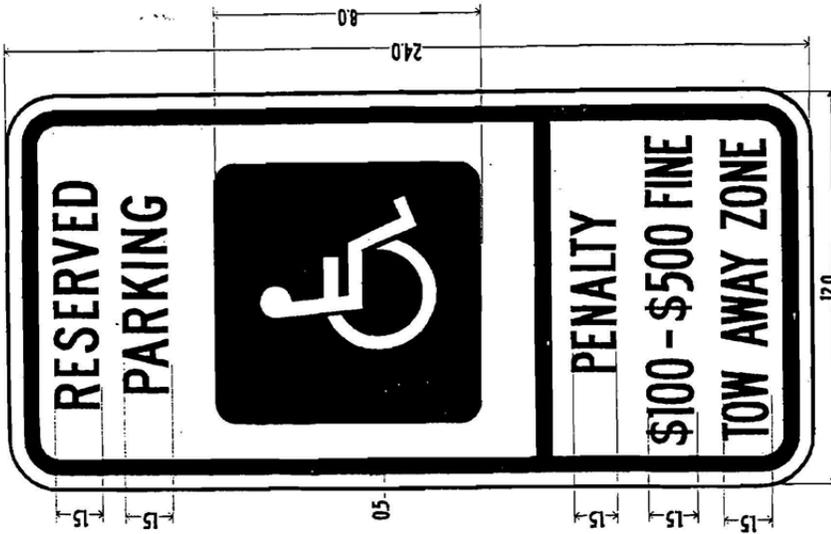
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



NEW VA. HANDICAPPED SIGN ON .80 GAUGE ALUM.
 COLORS: GREEN BORDER & LEGEND, BLUE HANDI-
 CAPPED SYMBOL, WHITE EG. BACKGROUND

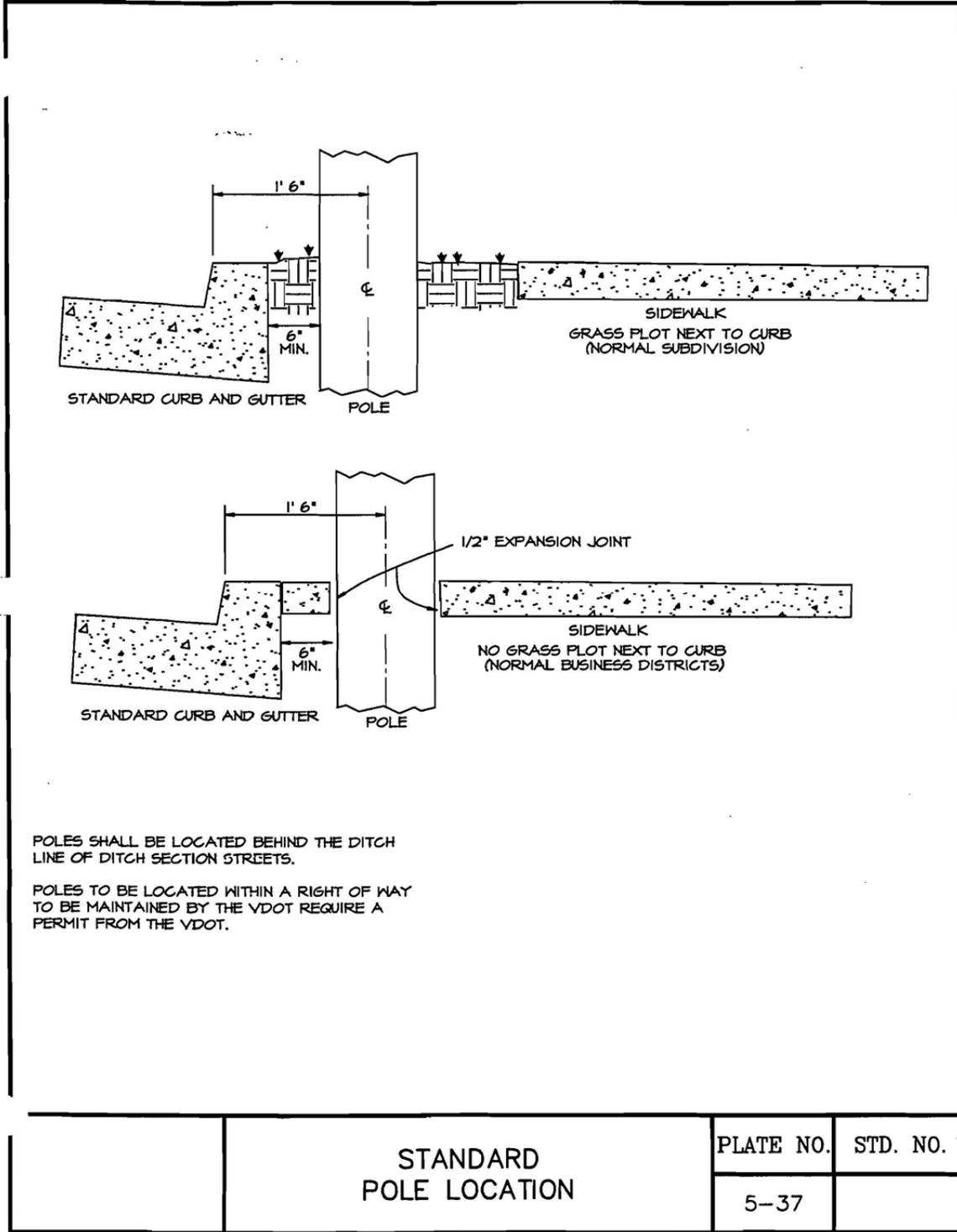
1988 PFM SOURCE: PAGE 7-26	ACCESSIBLE SIGNS	PLATE NO.	STD. NO.
		5-35	



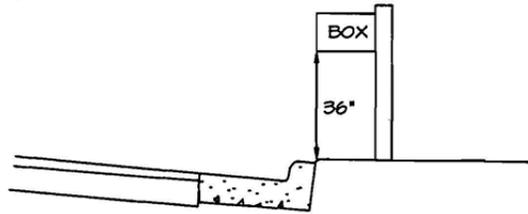
COLORS: GREEN BORDER &
 LEGEND WHITE EG. BACK-
 GROUND ON .80 GAUGE
 ALUM.

VAN ACCESSIBLE SIGNS	PLATE NO.	STD. No.
	5-36	

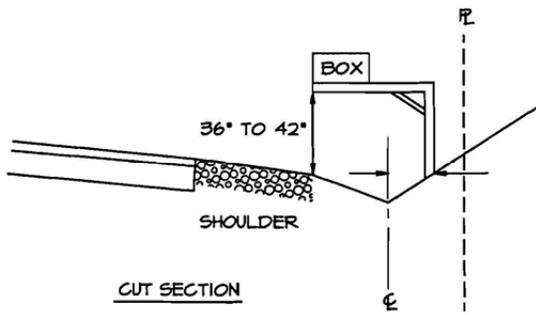
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



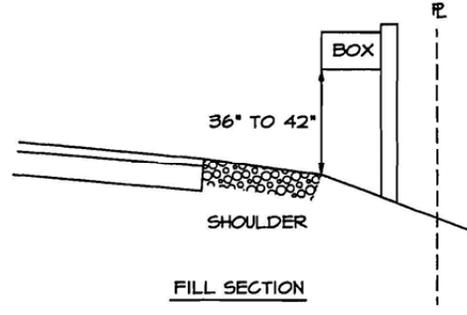
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



CURB AND GUTTER SECTION



CUT SECTION



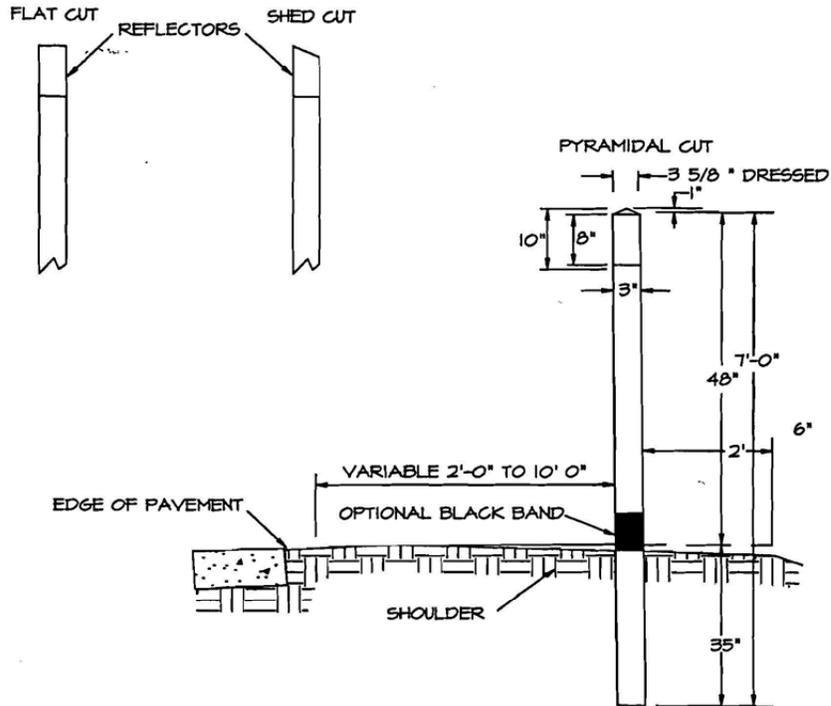
FILL SECTION

NOTES:

1. ON DITCH SECTIONS STREETS, FACE OF MAIL BOX TO BE IN LINE WITH BACK EDGE OF SHOULDER.
2. ON DITCH SECTION STREETS IN CUT, SUPPORT FOR MAIL BOX TO BE MIN. 2' TO THE OUTSIDE OF THE DITCH LINE.
3. ON CURB AND GUTTER SECTION STREETS FACE OF BOX TO BE IN LINE WITH BACK EDGE OF CURB LINE.
4. MAIL BOX HEIGHT SHALL BE:
 - A) ON DITCH SECTION, 36° TO 42° FROM TOP OF CURB TO BOTTOM OF BOX.
 - B) ON CURB AND GUTTER SECTION, 36° FROM TOP OF CURB TO BOTTOM OF BOX.
5. THE FACE OF THE MAIL BOX AND POST SHALL BE SET, AS SHOWN ON THE FILL SECTION DETAIL, WITHIN THE RADIUS OF THE DE-5 ENTRANCE

MAIL BOX LOCATION	PLATE NO.	STD. NO.
	5-38	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



THESE DELINEATORS CONSIST OF REFLECTORIZED SHEETING, CUT TO A 3" BY 8" VERTICAL RECTANGLE, MOUNTED ON A BACKING OF ALUMINUM ALLOY, NOT LESS THAN 0.063" THICK. THE COLOR OF THE REFLECTIVE SHEETING SHALL, IN ALL CASES, CONFORM TO THE COLOR OF THE EDGE-LINES. THE REFLECTORS ARE ATTACHED TO WOOD POSTS WITH ALUMINUM ALLOY NAILS OR SCREWS. THE TOP OF THE POSTS MAY HAVE A FLAT, SHED OR PYRAMID CUT. HOWEVER, THEY SHALL BE UNIFORM THROUGHOUT A PROJECT. MATERIAL SPECIFICATIONS MAY BE FOUND IN THE VDOT ROAD AND BRIDGE SPECIFICATIONS.

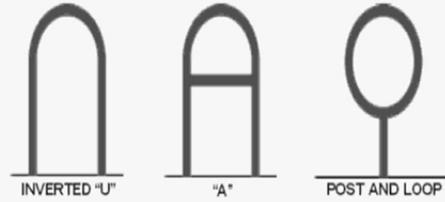
ROAD EDGE DELINEATOR	PLATE NO.	STD. NO.
	5-39	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

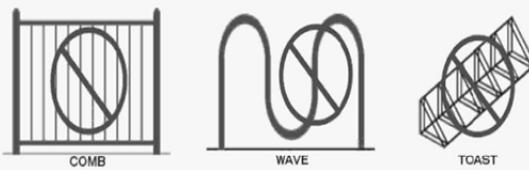
Supports frame in two places:



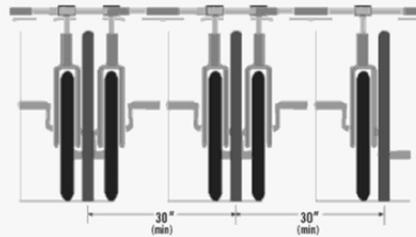
Appropriate designs:



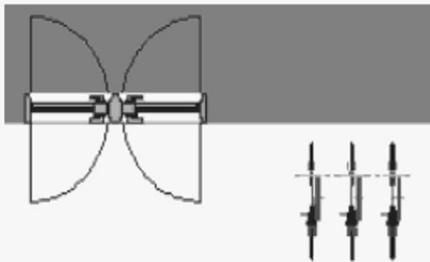
Inappropriate designs:



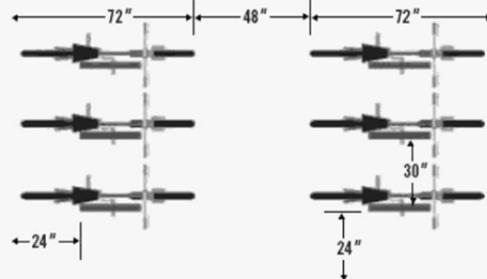
Adequate spacing between racks:



Bicycle racks at building entrances:



Adequate spacing between rows of racks:



NOT TO SCALE

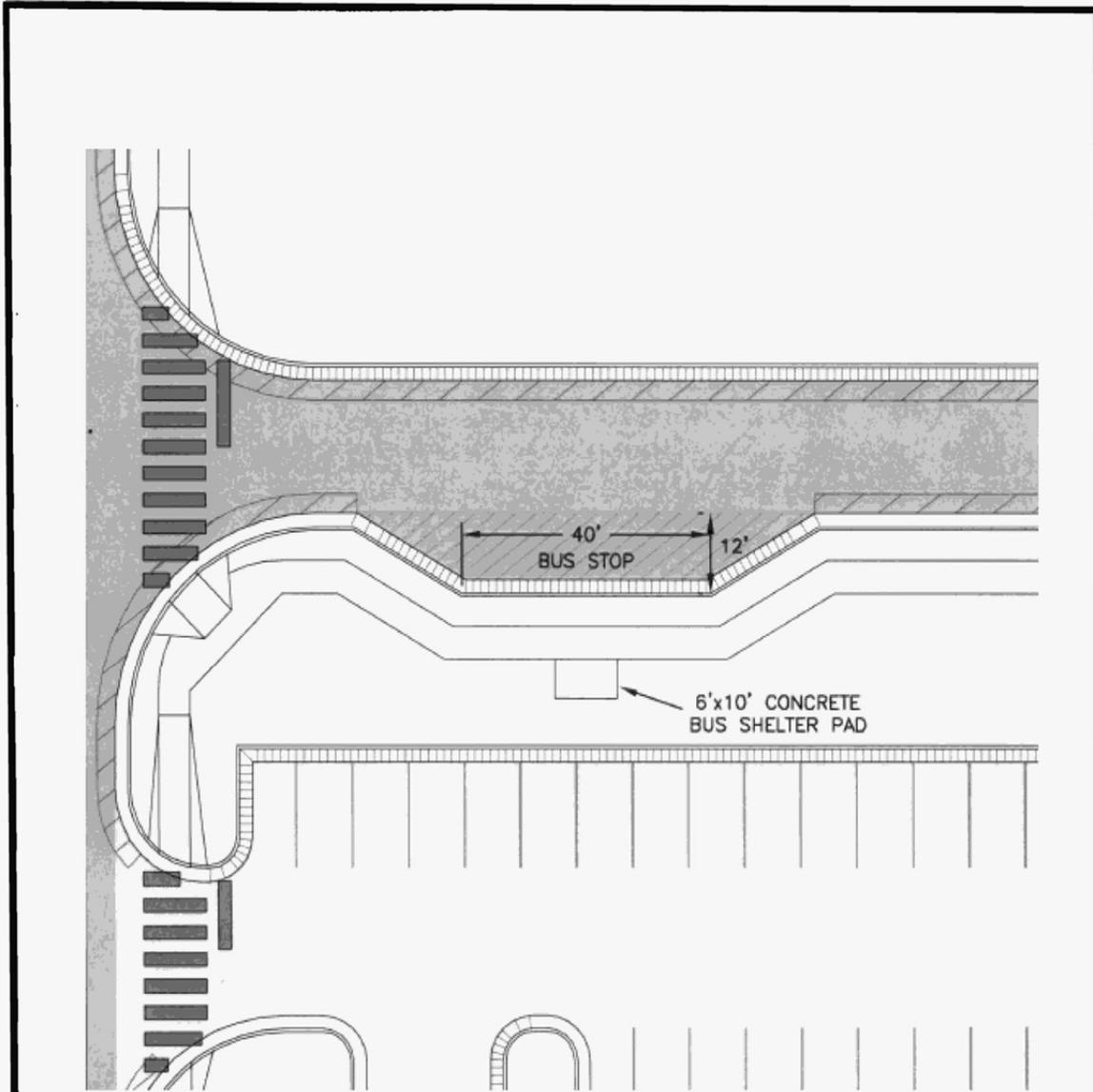
BIKE RACK STANDARDS

PLATE NO.

STD. NO.

5-40

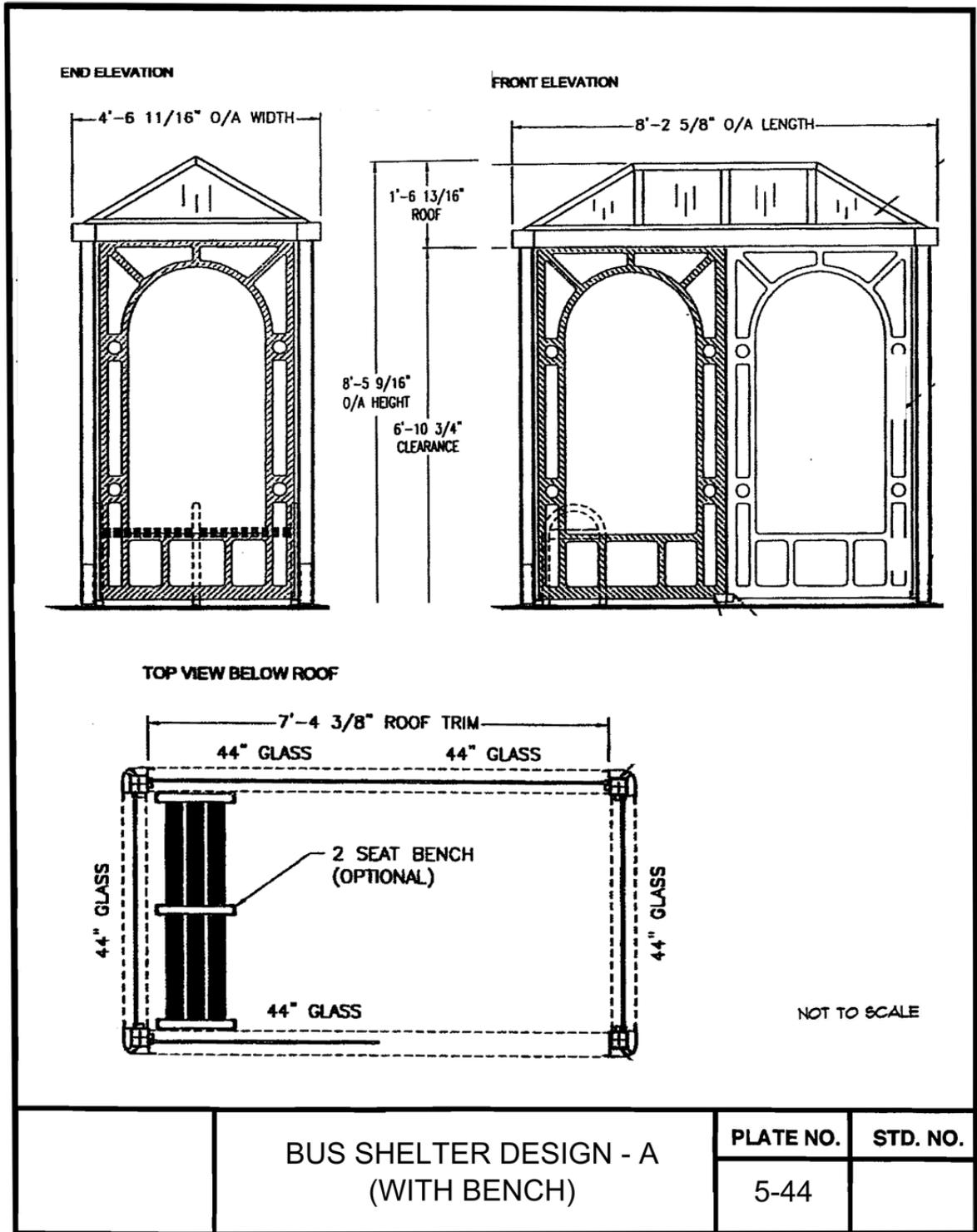
ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



NOT TO SCALE

BUS STOP STANDARDS	PLATE NO.	STD. NO.
	5-43	

ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS



ARTICLE 5 – STREETS, PARKING AND DRIVEWAYS

