

WOODSIDE FIRE PROTECTION DISTRICT

Roadways and Access Includes (Bridges & Gates) Design/Installation Requirements

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January 2026

SCOPE. This standard and guideline provide the minimum requirement necessary for driveways and private roads of any distance. Requirements must comply with California Fire Code Chapter 5, Appendix D, and WFPD local amendments.

When necessary, with the approval of the Fire Code Official, these guidelines may be modified to ensure adequate fire apparatus access and public safety. Some factors that may contribute to modifications include walls, curbs, heritage trees, cliffs along roads and driveways, angle of approach or departure, grade/slope, and the likelihood of future obstructions.

DEFINITIONS

AASHTO HB-17 - American Association of State Highway and Transportation Officials, the 17th Edition Standard for Highway Bridges

ALL-WEATHER - A road or driveway constructed of asphalt, concrete, or other approved driving surface capable of supporting the imposed load of a fire apparatus weighing at least 75,000 pounds during the wet season.

DRIVEWAY - An access road from the public way to a structure that is used for public or private vehicular access, including fire and emergency apparatus or vehicles.

PRIVATE ROAD - An access road that is outside the boundaries of the property and/or servicing 3 or more dwelling units.

All transitions from roadways to driveways or parking lots shall not exceed 10%.

FIRE APPARATUS ACCESS ROADS

Building and Facilities. Approved fire apparatus access roads shall be provided hereafter for every facility, building or position of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

Exceptions:

1. The fire code official is authorized to increase the dimension of 150 feet where any of the following conditions occur:
 - a. The building is equipped throughout with an approved automatic sprinkler system.
 - b. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions and an approved alternative means of fire protection is provided.
 - c. There are not more than two Group R-3 or Group U occupancies.
2. Where approved by the fire code official. Fire apparatus access roads shall be permitted to be exempted or modified for solar photovoltaic power generation facilities.

DRIVEWAYS

Driveway Specifications. Driveways more than 150 feet in length shall be all-weather, provided with an approved turnaround. Driveways more than 350 feet in length shall be all-weather and provided with turnouts nearest the center of the driveway. Driveways with extended lengths shall have turnouts provided as evenly as possible every 350 feet or as approved by the Fire Code Official. Driveways exceeding 1 mile, shall have turnouts provided as evenly as possible every 350 feet or as approved by the Fire Code Official. No grasscrete or similar product allowed.

A single-family residence: All driveways, regardless of length, shall have a minimum unobstructed width of 12 feet and a minimum unobstructed height of 13 feet 6 inches. Driveways with curbs or retaining walls parallel to each other need to be increased to 14 feet wide.

Two or more family residence on separate APN's with a common driveway: Driveways shall have a minimum width of 18 feet measured inside curb to inside curb. If no curbs are present, maintained, all weather, drivable shoulders may be inclusive.

Turnarounds. Driveway turnarounds shall have an outside turning radius of not less than 40 feet. Driveways that connect with a road or roads at more than one point may be considered as having a turnaround if all changes of direction meet the radii requirements for driveway turnarounds. *(See figures below)*

Turnouts. Driveway turnouts shall be an all-weather road surface at least 12 feet wide and minimum 25 feet long. Driveway turnouts shall be located every 350 feet or at the midpoint if the road is 1,000 feet or less. *(See figures below)*

Grades. Driveways with less than 10% grade may be all weather type and will support a minimum of 75,000 lbs. during the wet season. Driveways greater than 10% grade need be a rough grooved concrete or an alternate material approved by WFPD. **NO driveway shall exceed a 16% grade.** All driveway radius turns shall have a 40-foot radius. All transitions from roadways to driveways or parking lots shall not exceed 10% or less ratio. Any deviation from this shall first obtain approval by the AHJ.

Cul-de-sacs, Curves, and 90° Turns. Cul-de-sacs, curves, and 90° turns shall be in accordance with CFC Appendix D. Cul-de-sacs require minimum 40 feet in radius. No obstructions are allowed within the cul-de-sac, such as trees, planters, islands etc.

PRIVATE ROADWAYS (3 or more residences)

Roadway Specifications. Private roadways serving 3 or more residential occupancies shall be all-weathered with a minimum width of 20 feet and a clear height of 13 feet 6 inches. Roadways shall be designed to accommodate the weight of fire apparatus and the minimum turning radii of not less than 40 feet for fire apparatus. Dead-end roads in excess of 150 feet in length shall be provided with turnarounds as specified by CFC Appendix D, Table D103.4. Access roads exceeding 1 mile in length shall be provided with approved turnaround areas at ½ mile intervals.

Marking of Roads. All road identification signs and supports shall be of noncombustible materials. Signs shall have a minimum 4-inch-high reflective letters with ½ inch stroke on a contrasting 6-inch-high sign. Road identification signage shall be mounted at a height of 7 feet from the road surface to the bottom of the sign.

Marking of Fire Protection Equipment. Fire protection equipment and fire hydrants shall be clearly identified accordance with the Woodside Fire Protection District Guideline, “Water Supplies and Fire Hydrants.” On-site fire hydrants shall not be obstructed.

GENERAL REQUIREMENTS

Surface. All the items in this standard shall meet the requirements for an all-weather road.

Landscape. Landscaping shall not interfere with the required fire apparatus access. Landscaping around road shall provide limited fuel, no ladder fuels, and provide thinning of tree canopy.

Parking. Parking (or any other obstruction) will not be allowed on any of the items in this standard unless additional space is provided and approved.

Fire Lane Signs. Installation and placement of signs and markings and designating fire lanes shall be in accordance with Woodside Fire Protection District Guideline for “Designation and Marking of Fire Lanes.”

Easements. Access improvements (roads, turnarounds and turnouts) that cross property lines shall be recorded with the San Mateo County Tax Assessors Office.

Bridges and elevated surfaces. Where a bridge or an elevated surface is part of the private roadway or driveway, the bridge shall be constructed and maintained in accordance with AASHTO HB-17 and CFC Chapter 5, Section 503.2.6.

Address markers. All buildings shall have a permanently posted address, which shall be placed at each driveway entrance and be visible from both directions of travel along the road. Permanent addresses on new construction and substantial remodels shall be internally or externally illuminated from dusk to dawn. Addresses shall be posted at the beginning of construction and

shall be maintained thereafter. The address shall be visible and legible from the road on which the address is located. Address signs along one-way roads shall be visible from both the intended direction of travel and the opposite direction. Where multiple addresses are required at a single driveway, they shall be mounted on a single post, and additional signs shall be posted at locations where driveways divide. Where a roadway provides access solely to a single commercial or industrial business, the address sign shall be placed at the nearest road intersection providing access to that site.

Timing of Installation. Access roadways and water supply, including the items required by this guideline, shall be provided prior to, and kept in place during the time of construction and thereafter.

BRIDGES

Bridges and elevated surfaces. Where a bridge or an elevated surface is part of the private roadway or driveway, the bridge shall be constructed and maintained in accordance with AASHTO HB-17 and CFC Chapter 5, Section 503.2.6. The bridge shall be designed for a live load sufficient to carry imposed loads of fire apparatus as required by WFPD. The load limit shall be 75,000 lbs. and posted. WFD will mount a green, Type I access sign for fire apparatus access. Bridges shall be weighted by a civil engineer. Documentation shall be provided to WFPD.

GATES

The design for all gates across driveways and private roads shall be approved by the Fire District. Gates shall comply with all the following criteria:

1. A minimum clear, unobstructed width of not less than 12 feet shall be provided for single family residential properties. For multi-family residential and commercial, refer to Appendix D, Table D103.4.
2. Gates shall be of the swinging or sliding type.
3. Gates that have an electric opening shall have a manual override.
4. Gate components shall be always maintained in an operative condition and replaced or repaired when defective.
5. All locking devices shall provide Fire Department access. Electric gates shall have a Knox Box override key switch installed. Location shall be visible and approved by AHJ.
 - a. Key switch shall be obtained through www.knoxbox.com
6. Manual opening gates shall not be locked with a padlock or chain and padlock unless they are capable of being opened by means of forcible entry tools, a Knox padlock is used, or when a Knox Key Box containing keys to the lock is installed at the gate location.
7. All gates obstructing emergency access roadways shall have a sign stating, "Emergency Evacuation Route."
8. Locking device specifications shall be submitted to Woodside Fire District for approval

by the code official. Emergency egress obstructions such as gates, bollards or chains require WFPD access via a KNOX system (key switch, vault, or padlock). Order KNOX devices online at www.knoxbox.com.

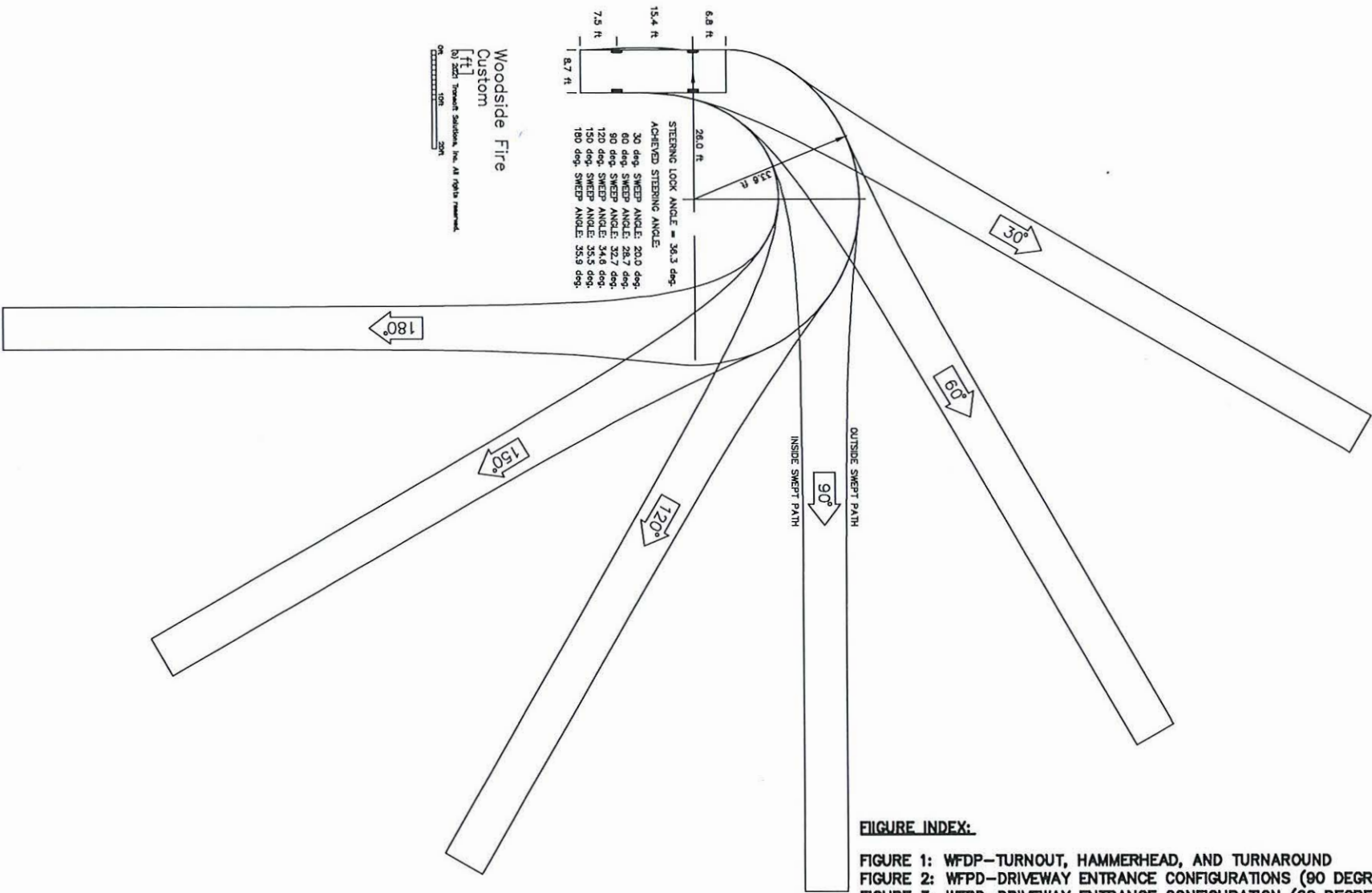
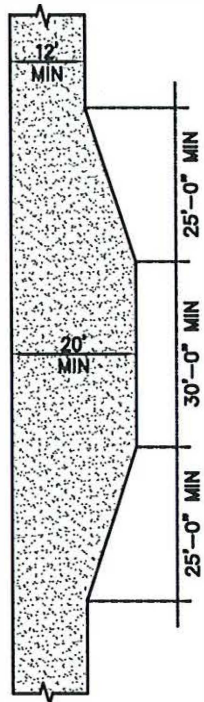


FIGURE INDEX:

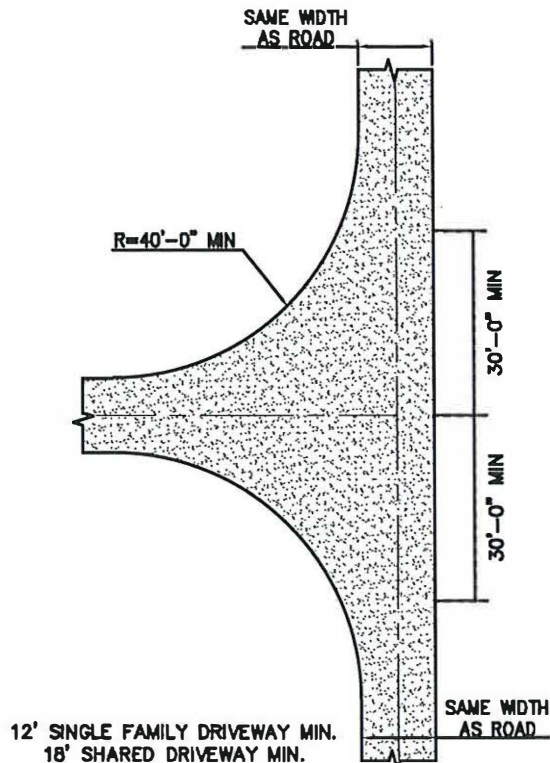
- FIGURE 1: WFPD—TURNOUT, HAMMERHEAD, AND TURNAROUND
- FIGURE 2: WFPD—DRIVEWAY ENTRANCE CONFIGURATIONS (90 DEGREE)
- FIGURE 3: WFPD—DRIVEWAY ENTRANCE CONFIGURATION (60 DEGREE)
- FIGURE 4: WFPD—DRIVEWAY ENTRANCE CONFIGURATION (30 DEGREE)



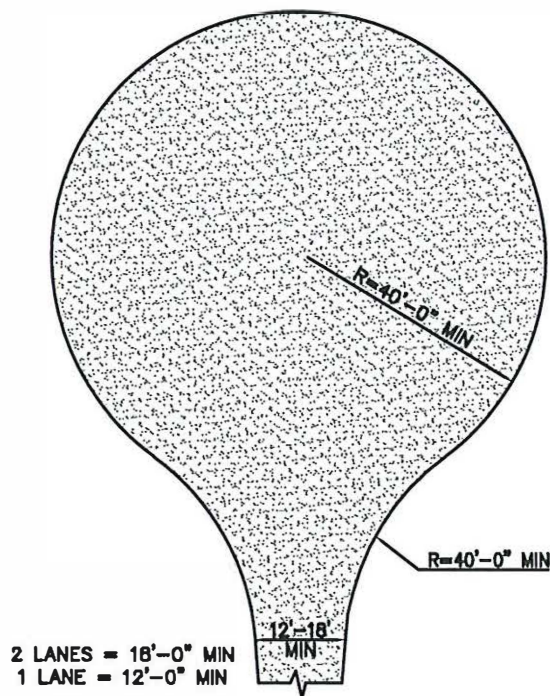
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TURNOUT
N.T.S.



HAMMERHEAD/TEE
N.T.S.

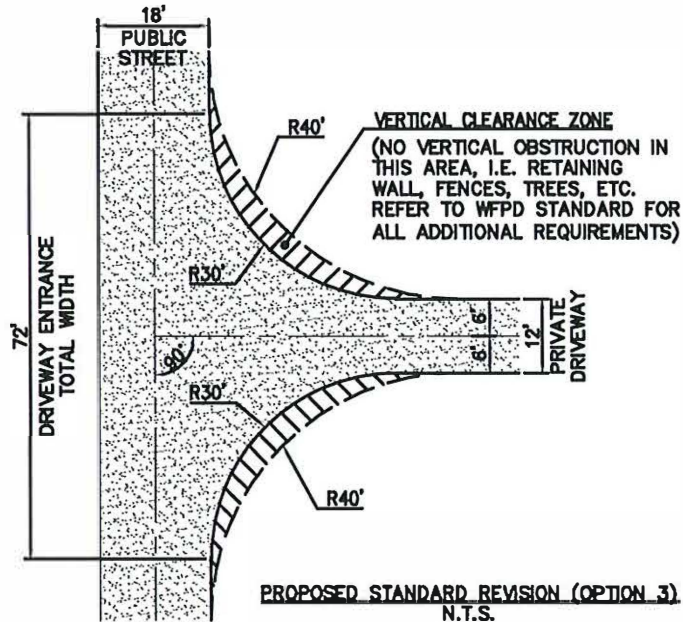
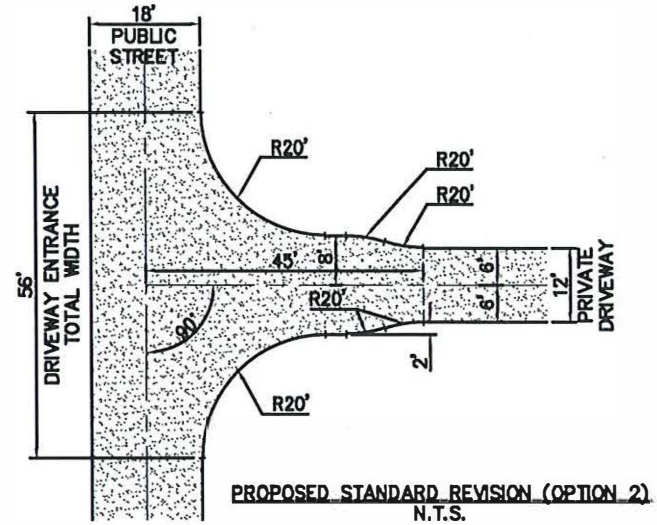
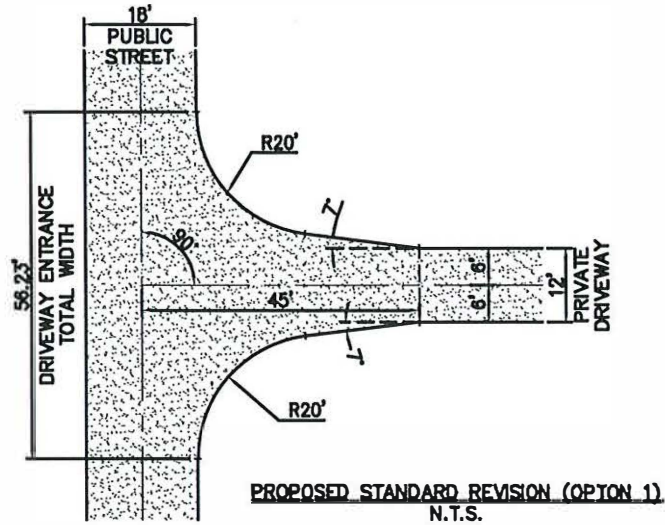


TURNAROUND
N.T.S.

FIGURE 1: WFPD-TURNOUT, HAMMERHEAD, AND TURNAROUND



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NOTES:

DIMENSIONS AS SHOWN IN ALL FIGURES ARE THE MINIMUM REQUIREMENTS, WITHOUT EXCEPTION, FROM THE WOODSIDE FIRE PROTECTION DISTRICT (WFPD).

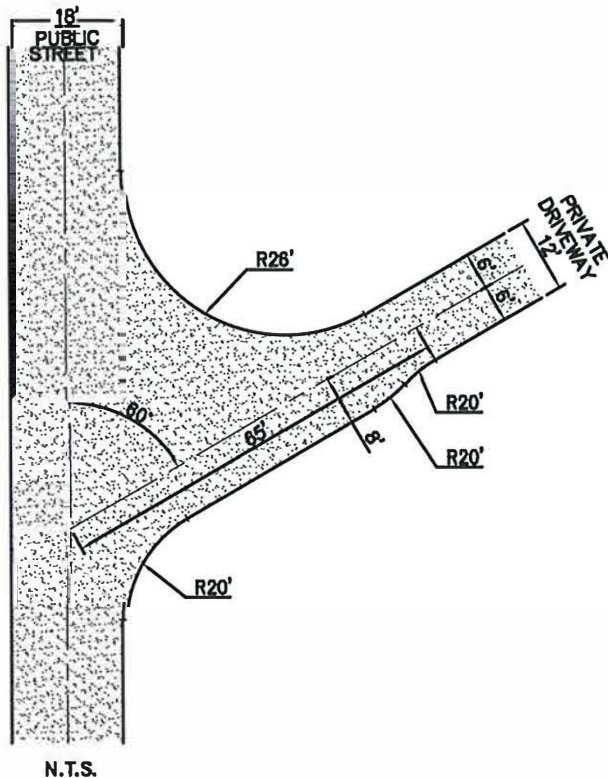
APPROACHING ANGLE SHALL NOT EXCEED 15% DIFFERENCE IN SLOPE, AND PROVIDE A MINIMUM 20-FOOT VERTICAL CURVE. ANY DEVIATION FROM THE ABOVE SHALL BE DEMONSTRATED BY ENGINEERING DRAWING / ANALYSIS THAT MINIMUM 3-INCH VERTICAL CLEARANCE IS ACHIEVED USING WFPD STANDARD FIRE TRUCK.

ANY VARIATION MUST BE REVIEWED AND APPROVED BY THE WFPD. THE WIDTH OF THE DRIVEWAY ENTRANCE CAN BE REDUCED PROVIDED THAT ALTERNATIVE DIMENSIONS/CONFIGURATIONS CAN BE DEMONSTRATED TO ACCOMMODATE THE FIRE TRUCK ACCESS USING INDUSTRY STANDARD DESIGN SOFTWARE SUCH AS "AUTOTURN" OR "VEHICLE TRACKING IN AUTODESK CIVIL 3D."



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FIGURE 2: WFPD-DRIVEWAY ENTRANCE CONFIGURATIONS (90 DEGREE)



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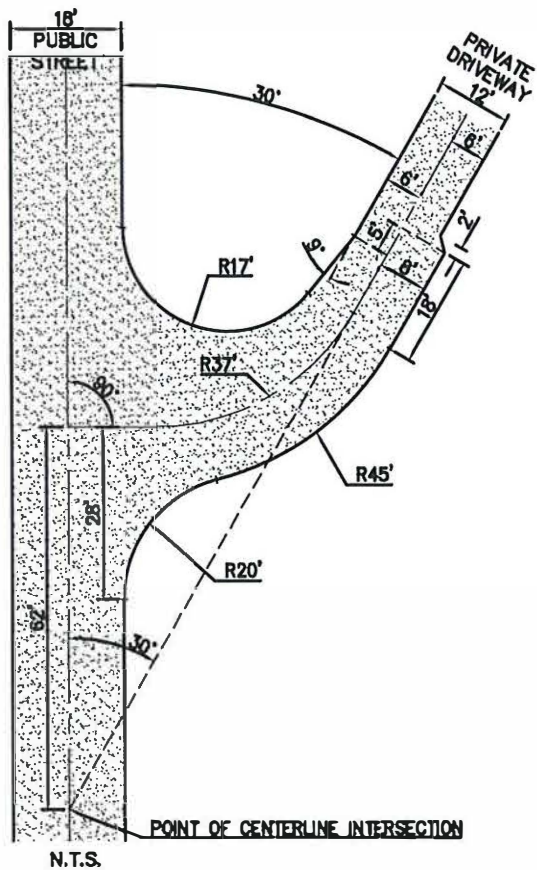
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FIGURE 3: WFPD-DRIVEWAY ENTRANCE CONFIGURATION (60 DEGREE)



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FIGURE 4: WFPD-DRIVEWAY ENTRANCE CONFIGURATION (30 DEGREE)