

Clark County, Nevada

Minimum Road Design Standards For Non-Urban Roadways



Department of Public Works

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**NON-URBAN ROAD DESIGN STANDARDS
COUNTY OF CLARK, NEVADA**

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SECTION 1

GENERAL PROVISIONS

Section 1.1 INTRODUCTION

These Standards are for the use of a Developer who is proposing to develop in the Non-Urban areas of the County, and who desires to have the Board accept the Public Improvements constructed with their proposed development included in the County's system of maintained Public Right-Of-Way.

Section 1.2 PURPOSE

The purpose of these Standards is to provide for the regulation of Road Improvements in Non-Urban areas of Clark County that are to be dedicated for the public's use and accepted for maintenance by the County as a result of the County's land use and development process. The use of these Standards is intended to keep the operating cost of maintaining Non-Urban public Roads at a reasonable level, and at the same time, provide for the desired outlying community needs and protection for the public.

Section 1.3 EXCEPTIONS

It is not possible to anticipate all situations that may arise and to prescribe Road Improvement standards applicable to every situation. These Standards are minimum acceptable Road Improvement standards for areas of Clark County under the authority of the Board. Occasionally, the Board or the Director may make exceptions where the application of the Standards is impractical or results in an unreasonable hardship. Procedures for processing a modification request for such an exception are provided in Section 8.2.

SECTION 2

DEFINITIONS & REFERENCE DOCUMENTS

Section 2.1 GENERAL DEFINITIONS

The definitions contained in Section 30.08.030 of the County Code are applicable to these Standards unless they are expressly modified or changed within the definitions set forth in this Section 2.1. The following definitions are controlling for the purposes of these Standards:

1. “Bikeway” is a non-motorized transportation facility for bicycle riding which may be located within the Road Right-Of-Way and shall be part of a non-motorized trail master plan.
2. “County” means that portion of Clark County, Nevada located outside the incorporated cities, both within and surrounding the unincorporated towns.
3. “Cross-Fall” is the difference in elevation of the ends of a chord drawn perpendicular to the direction of travel between opposite edges of the paved way. Its gradient is determined by dividing the difference in elevation between the edges by the horizontal distance between the edges, expressed as a percentage.
4. “Cross-Slope” is the gradient determined by dividing the difference in elevation between the Crown and the edge of the pavement by the horizontal distance from the Crown to the edge of the pavement, expressed as a percentage.
5. “Crown” is the highest part of the Road surface between the pavement edges.
6. “Director” is the Director of Public Works.
7. “Engineer of Work” means a Civil Engineer licensed to practice as a professional engineer in the State of Nevada who has been authorized by the Developer to prepare design plans and construction specifications for Public Improvements.
8. “Equestrian Pathway” is a non-motorized transportation facility for horseback riding which may be located within a Road Right-Of-Way and shall be part of a non-motorized trail master plan.
9. “Floodway” is the main flow area of a watercourse plus the adjacent land areas needed to carry the 100-year flood discharge amount without increasing the water surface elevation of the flood more than one foot at any point.
10. “Highway” See “Road.”

11. "Intersection" is the area embraced within the prolongation of the lateral boundary lines of the Roads for two County Roads which join one another at approximately right angles or as close thereto as possible.
12. "Level of Service" of a Road is a measure of its vehicular capacity. Six levels of service (LOS "A" to LOS "F") are identified in the Highway Capacity Manual. The Level of Service for a particular Road is a measure of speed and travel time, traffic interruptions or restrictions, freedom to maneuver, safety, driver comfort and convenience, and economy.
13. "Nevada Professional Land Surveyor" means a land surveyor licensed to practice as a Professional Land Surveyor by the State of Nevada.
14. "Nevada Registered Professional Engineer" means an engineer licenced to practice as a Professional Engineer by the State of Nevada.
15. "Non-Urban" means property residentially zoned for single family dwellings only and located in one of the following areas of the County: a) Community District 5, as established by Section 30.12.060 of the County Code, including the communities and unincorporated towns of Indian Springs, Mt. Charleston, Searchlight, Bunkerville, Glendale, Moapa, Moapa Valley, Goodsprings, Cal-Nev-Ari, Blue Diamond, Mountain Springs, and Sandy Valley, where the minimum lot size of the property to be developed is ten thousand (10,000) square feet; b) Community Districts 3 and/or 6, as established by Section 30.12.060 of the County Code, located three (3) miles or more (measured radially) beyond the outer boundary of the Bureau of Land Management Disposal Boundary established by the Southern Nevada Public Lands Management Act on April 10, 1997, excluding the unincorporated Town of Laughlin, and where the minimum lot size of the property to be developed is ten thousand (10,000) square feet; or c) Residential Neighborhood Preservation Overlay District ("RNP") within the Urban area, as described in these Standards, where the minimum lot size of the property to be developed is eighteen thousand (18,000) square feet.
16. "Pavement Width" is the specific width of pavement for a Roadway and is measured between the edges of the asphaltic surface above the Roadbed.
17. "Pedestrian Walkway" is a non-motorized transportation facility located within the Road Right-Of-Way and used for the purpose of pedestrian passage and may be a part of a non-motorized trail master plan.
18. "Record Plan" means the final "as built plan" showing the Public Improvements actually constructed and accepted for maintenance by the County.
19. "Right-Of-Way" means a public property acquired by a grant, dedication, prescription, or condemnation and intended to be occupied by a Road, Pedestrian Walkway, non-motorized Trails, water line, sanitary sewer, and/or other public utility or facility.
20. "Road" includes Streets, Avenue, Boulevard, Court and Lane, but not freeways. The terms Street, Road and Highway are used interchangeably and mean a public or private thoroughfare used, or intended to be used, for passage or travel by automobiles, trucks, bicycles, equestrians,

and pedestrians, whether it is designated a Road, Street, Highway or otherwise, and including all the Improvements within the Right-Of-Way, or Easement, or a thoroughfare which has been made public by right of use and which affords the principal means of access to abutting property.

- A. "Minor Arterial Road" means a Road having a width of one hundred feet (100'), or more, located primarily on section lines, used primarily as inter-city or inter-area means of access, as well as functioning in the manner described in Section 5.2 of the Standards.
 - B. "Collector Road" means a Road having a width of eighty feet (80'), located primarily on quarter section lines, used primarily as access to commercial areas, as well as functioning in the manner described in Section 5.2 of the Standards.
 - C. "Curve" or "Curvilinear Road" means a Road deviating from a straight line, where there is an offset of at least twenty feet (20') or greater between the centerline of two (2) straight Road sections.
 - D. "Local Road" means a Road, having a width of not less than sixty feet (60') used primarily to carry local traffic from abutting property to a Collector Road, as well as functioning in the manner described in Section 5.2 of the Standards..
 - E. "Paved Access Road" means any Road paved with a minimum of twenty-four feet (24') of pavement extended from existing pavement to and around all Roads of a development sufficient for traffic to access all parts of the development without being required to travel on unpaved Roads.
 - F. "Private Road" means a Road designated for use by specified property owners, fully maintained by the property owners, and not dedicated to or intended for access by the general public.
23. "Roadway" means that portion of a Road Right-Of-Way intended to accommodate vehicular traffic.
24. "Roadway Grade" is the slope of the longitudinal Road profile generally measured along the centerline, expressed as a percentage. "Shared Driveway" is a driveway shared by more than one property owner and serving more than one legal lot.
25. "Standards" as used herein means the Road Design standards for Non-Urban Roadways, County of Clark, Department of Public Works, current edition as amended from time to time.
26. "Standard Drawings" means Appendix "A" of the Road Design standards for Non-Urban Roadways, County of Clark, Department of Public Works, current edition, and/or the Uniform Standard Drawings for Public Works' Construction Off-Site Improvements, by the Regional Transportation Commission of Southern Nevada.

27. "Street" See "Road."
28. "Trail" is a transportation facility and an element of a non-motorized trail master plan which may be located within the Road Right-Of-Way for the use of pedestrians, equestrians, and bicycles.
29. "Urban" means property located within the Urban Area, as defined in Chapter 30.08 of the County Code, and the unincorporated Town of Laughlin, but excluding the Non-Urban areas described in Section 2.1(15) of these Standards.
30. "Urban Standards" mean the off-site Improvement standards required by Section 30.52.050 of the County Code, including but not limited to the Uniform Standard Drawings for Public Works Construction Off-Site Improvements, Clark County Area, Nevada, as modified by the Clark County Supplement to Uniform Standard Drawings and Specifications, and appendices, the current editions, as amended from time to time, and on file for public review in the County Clerk's Office and in the office of the Clark County Department of Public Works.
31. "Vehicle Trips Per Day" means the number of one-way vehicular trips per day anticipated, estimated, or measured on a Road.

Section 2.2 REFERENCE DOCUMENTS

The minimum Road design standards for any Residential or Commercial Development within Clark County shall comply with the applicable Road design criteria in effect on the date of the Road Improvement construction, including but not limited to the most current edition of the following Road design criteria, as amended from time to time:

1. A Policy of Geometric Design of Highways & Streets, by the American Association of State Highway and Transportation Officials.
2. Americans with Disabilities Act Accessibility Guidelines, by the United States Department of Justice.
3. Bicycle/Pedestrian Element of the Clark County Regional Transportation Plan.
4. Design and Construction Standards for Wastewater Collection Systems, by the Clark County Sanitation District.
5. Development Improvement Standards, Title 30, of the Clark County Code
6. Hydrologic Criteria and Drainage Design Manual, by the Clark County Regional Flood Control District.

7. Manual on Uniform Traffic Control Devices for Streets and Highways, by the Federal Highway Administration, U.S. Department of Transportation.
8. Policies and Procedures Manual of the Clark County Regional Flood Control District.
9. Policies and Procedures Manual of the Regional Transportation Commission of Southern Nevada.
10. Roadside Design Guide, by the American Association of State Highway and Transportation Officials.
11. Standard Plans for Road and Bridge Construction, by the Nevada Department of Transportation, for bridges along County Roads.
12. Standard Specifications for Highway Bridges, by the American Association of State Highway and Transportation Officials.
13. Standard Specifications for Road and Bridge Construction, by the Nevada Department of Transportation.
14. Uniform Design and Construction Standards for Water Distribution Systems, by the Las Vegas Valley Water District.
15. Uniform Standard Drawings for Public Works' Construction Off-Site Improvements, by the Regional Transportation Commission of Southern Nevada.
16. Clark County Supplement to Uniform Standards Drawings and Specifications, by the Department of Public Works, Clark County, Nevada.

SECTION 3

GENERAL POLICY

Section 3.1 PLANS TO BE APPROVED BY THE DIRECTOR

The Developer shall cause public Improvement plans to be prepared by a Nevada Registered Professional Engineer, in accordance with these Standards, the Reference Documents, the plans, profiles, and specifications for the improvement of all Streets and/or Roads, Bikeways, Pedestrian Walkways, Easements, and drainage facilities proposed to be located in Non-Urban areas of the County. The Developer shall obtain the approval of said Improvement plans and specifications from the Director, or the Director's designated representative, and obtain all necessary permits prior to: (i) any encroachment into a public Right-Of-Way, and (ii) commencing construction of any Public Improvements.

The original Improvement plans, when approved, shall be on file or imaged by the Department of Public Works and kept as a public record in accordance with the Nevada Revised Statutes.

Prior to construction, or while the construction is active, the Improvement plans may be released to the Engineer of Work for plan changes. The Engineer of Work shall review the proposed changes with the Department of Public Works before the original plans are released. The original plans shall not be changed and no proposed plan changes shall be constructed until approved by the County.

Section 3.2 RECORD PLAN

At the completion of construction, the Engineer of Work shall cause to be prepared and submitted for the approval of the Director, or the Director's authorized representative, a Record Plan showing the actual Public Improvement constructed. Said Record Plan shall be certified by a Nevada Professional Land Surveyor in accordance with the Nevada Revised Statutes and the Clark County Development Code and it will become a part of the public record and will be known as the Record Plan.

Section 3.3 PAYMENT FOR IMPROVEMENT COSTS

All Improvements required by these Standards shall be constructed and installed by the Developer at its sole cost and expense, unless expressly specified in writing by the Board that the County will share the expense.

Section 3.4 IMPROVEMENT OF EXISTING ROADWAYS

Where land abutting an existing substandard Road is to be developed, the Developer shall dedicate any necessary additional Right-Of-Way required and improve such Road, including adding or modifying any required traffic control devices and/or drainage facilities, to a standard that will conform to these Standards and any other standards required by the County Code, except as otherwise provided by County ordinance.

Where the development of land requires the improvement of a substandard Roadway or drainage facilities located outside the limits of the proposed development, all such required off-site facilities shall be improved to meet these Standards.

Where removal or relocation of existing utilities, structures, trees or plantings, etc., are necessary for a Developer to construct Roadway Improvements within the public Right-Of-Way, arrangements and permits for removal or relocation shall be made by the Developer with all concerned or affected agencies or private parties prior to commencing any work within the public Right-Of-Way. Clark County shall not be held responsible for any such costs or damages to private property.

Section 3.5 TECHNICAL IMPACT EVALUATION PLANS & STUDIES

The Developer may be required to provide a Drainage Impact Analysis and Traffic Impact Analysis to properly assess and evaluate the potential impacts of a proposed land development and impact mitigation plans where appropriate. All such analyses and mitigation plans shall be prepared in accordance with the requirements of the Clark County Supplement to Uniform Standard Drawings and Specifications as referenced in Section 2.2 of the Standards. Clark County shall not be held responsible for any such mitigation costs or expenses.

SECTION 4

REQUIRED PUBLIC ROAD RIGHTS-OF-WAY

Section 4.1 MINIMUM RIGHT-OF-WAY WIDTH

The minimum width of Right-Of-Way for a Non-Urban public Road shall be sixty feet (60') wide and must accommodate a twelve-foot (12') wide paved travel lane in each direction, an eight-foot (8') wide shoulder on the outer or low side of said travel lanes, a two-foot (2') wide corridor for the location of traffic control devices abutting the outer edge of each shoulder, and adequate drainage facilities within and abutting the boundary lines of the Right-Of-Way. When additional lanes of traffic or other additional public Improvements are warranted, the Right-Of-Way width shall be increased by the additional required public Improvement width.

Section 4.2 DEDICATION OF RIGHT-OF-WAY

Prior to the issuance of a building permit, Right-Of-Way dedication documents are required to be executed for any public Road for which sufficient Right-Of-Way dedication has not been previously conveyed to the County within the property limits of the development.

Section 4.3 OTHER RIGHT-OF-WAY DIMENSIONAL REQUIREMENTS

The following Right-Of-Way widths shall be dedicated or granted to the County in accordance with the functional classification of the Road and as required to accommodate the necessary Road Improvements for all proposed developments in the Non-Urban areas of the County:

1. One-hundred-twenty feet (120') along township and range lines.
2. One-hundred feet (100') along section lines.
3. Eighty feet (80') along quarter section lines.
4. Sixty feet (60') for all other public Non-Urban Roadways.
5. Forty feet (40') for all Private Roads serving as access to more than one lot. Such a Private Road may be an Easement and shall terminate in a Cul-De-Sac having a minimum radius of forty-five feet (45').
6. Twenty feet (20'), or less, for private driveway Easements serving as access to only one lot, private driveway Easements need not terminate in a Cul-De-Sac.

SECTION 5

REQUIRED NON-URBAN ROAD IMPROVEMENTS

Section 5.1 ROAD IMPROVEMENT DESIGN VARIATIONS

In the Non-Urban areas of Clark County, the following Road functional classifications and design standards will apply:

- (a) All Roads that are on the exterior boundary of a Non-Urban area located within the Urban area, as described in these Standards, shall at a minimum be developed pursuant to the Urban Standards, as defined in Section 2.1(30) of these Standards.
- (b) The Local Roads located within, and not on the exterior boundary of, a Non-Urban area located within the Urban area, as described in these Standards, shall at a minimum be developed pursuant to these Standards. Collector and Minor Arterial Roads that are within a Non-Urban area located within the Urban area, as described in these Standards, shall at a minimum be developed as Collector and Arterial Streets, as defined in Chapter 30.08 of the County Code, pursuant to the Urban Standards, as defined in Section 2.1(30) of these Standards.
- (c) In all other Non-Urban areas of the County, as defined in Section 2.1(15) of these Standards, these Standards at a minimum shall apply.

Section 5.2 ROAD FUNCTIONAL CLASSIFICATIONS

In Clark County there are three (3) functional classifications of Non-Urban Roads, they are as follows:

- 1) Local Road - primarily for direct access to abutting land and secondarily for local traffic movement. The facilities are designed to limit through-traffic. In residential areas, pedestrian and vehicular traffic may both utilize the same paved section. To maintain the rural character of the area, street lighting will not be provided except at Roadway Intersections. Access to public lands and trail systems may be afforded via Local Roads. No parking for those accessing the public lands and Trails will be provided in residential areas.
- 2) Collector Road- provide for traffic movement between Local Roads and the Minor Arterial system. The facilities on Collectors are primarily devoted to through-traffic movement with limited pedestrian access by sidewalks provided. Street lighting shall be provided at all Intersections where driver or pedestrian safety can be enhanced. Buffering to abutting properties is considered as important as the through-traffic movements. No direct access to abutting properties will be permitted unless the property would otherwise become landlocked.

- 3) Minor Arterial Road- primarily for through-traffic and secondarily for access to commercial properties at Minor Arterial Intersections or within one-quarter mile of such an Intersection. Pedestrian use, if part of an access or non-motorized trail system, will be clearly separated from the travel lanes. Buffering of Minor Arterial Roads is a primary consideration. Street lighting standards are the same as for Collector Roads, except in commercial areas where access to abutting properties requires a high degree of lighting for the safety of the pedestrian. In commercial areas, access to the abutting land uses (including pedestrian and non-motorized vehicular transportation) is a primary consideration, but does not take precedence over the through-traffic movement. On-Street parking is restricted on all Minor Arterial Roadways.

Section 5.3 TRANSITIONAL IMPROVEMENTS

Urban Street Improvements shall transition to Non-Urban Road Improvements using pavement lane reduction markings, in accordance with the lane reduction transitional requirements of Section 3B-8 of the Manual on Uniform Traffic Control Devices for Streets and Highways as referenced in Section 2.2 of the Standards, to guide traffic at points where the Pavement Width changes to a lesser number of through lanes. No-passing markings shall be used to prohibit passing in the direction of the convergence throughout the transitional area. The minimum length of transition for a lane reduction shall be computed by the formula $L=WS$, where “L” equals the transitional length in feet, “W” equals the offset distance in feet, and “S” equals the design speed value provided by the Director in miles per hour.

Non-Urban Road Improvements shall transition to Urban Street Improvements within a transitional expansion length of one hundred feet (100') or greater.

All other transitional Road Improvement requirements shall be installed in accordance with the requirements of Part III of the said Manual on Uniform Traffic Control Devices for Streets and Highways. All transitional Road Improvements shall be constructed in a manner acceptable to Clark County.

SECTION 6

NON-URBAN ROAD DESIGN STANDARDS

Section 6.1 MINIMUM ROAD REQUIREMENTS

- 1) The Standard Drawings for Non-Urban Road designs are attached as Appendix "A."
- 2) The horizontal alignment of a Road centerline with a reverse Curve shall be designed with a tangent length of not less than one hundred feet (100') separating the end of the first Curve and the beginning of the second Curve.
- 3) The minimum horizontal and curvilinear alignment of a Road shall be designed in accordance with the criteria recommended in the policy of Geometric Design of Highways and Streets published by the American Association of State Highway and Transportation Officials.
- 4) A vertical curve shall be provided between adjoining grade lines when the algebraic difference between the first grade value and the second grade value is equal to one percent (1%) or more.
- 5) Longitudinal Road profile grades shall be not less than five tenths of a percent (0.50%) nor more than six percent (6%) unless specifically approved by the Director.
- 6) The stopping or braking sight distance for vertical curves shall be designed in accordance with the criteria recommended in the policy of Geometric Design of Highways and Streets published by the American Association of State Highway and Transportation Officials.
- 7) Proposed Roads shall align and connect with existing Roads of record and/or Shared Driveways. All Intersections of Roads, or Shared Driveways, which are not in alignment shall have a centerline offset of a no less than one hundred and twenty-five feet (125').
- 8) All Road and/or Shared Driveway Intersections shall intersect at a ninety degree (90°) angle or as near to ninety degrees (90°) as practicable.
- 9) The edge of pavement radius at an Intersection shall be forty feet (40') or greater.
- 10) To assure a quality of life in rural areas, all Roadway classifications will be designed to operate at LOS "C" value, or better.
- 11) To accommodate efficient long trips, Collector and Minor Arterial shall be designed to provide an average traffic flow speed of 35 mph, or higher.
- 12) To provide safer Local Roads, design features shall be incorporated that will discourage speeding through any residential neighborhood.

Section 6.2 GENERAL DESIGN REQUIREMENTS

- 1) The data and requirements specified in Appendix "A" are minimums and are subject to modification as a result of the impact mitigation plan(s) that may be developed for the proposed land development and when compliance to a Technical Impact Analysis is required.
- 2) Road patterns shall be planned for the most advantageous land use and to accommodate drainage of the proposed development, as well as, drainage for adjoining upstream and downstream properties, and should conform as nearly as possible to the natural contour of the land to minimize cuts and fills.
- 3) Drainage Impact Analyses and Traffic Impact Analyses are to be prepared by a Nevada Registered Professional Engineer in accordance with the Clark County Supplement to Uniform Standard Drawings and Specifications, by the Department of Public Works, Clark County, Nevada, when such study or studies are required.
- 4) Additional Right-Of-Way width may be required to accommodate side slopes, drainage structures, turning lanes, sight distances, and other required Improvements.
- 5) Intersection sight distance shall have priority over all other standards and shall be achieved within the standard Right-Of-Way width.
- 6) A residential Cul-De-Sac is a dead-end Road which provides access to adjacent residential property. Residential Cul-De-Sacs shall be constructed in accordance with the Uniform Standard Drawings for Public Works' Construction Off-Site Improvements, by the Regional Transportation Commission of Southern Nevada.
- 7) When an internal residential Roadway of a land development is proposed to temporarily dead-end, it shall end in a temporary Cul-De-Sac, unless its length is two-hundred feet (200') or less, in which case no temporary Cul-De-Sac will be required.
- 8) A complete and accurate survey of the land boundaries for any land to be divided, developed, or improved shall be made by a Nevada Professional Land Surveyor in accordance with Nevada Revised Statute Chapter 278 and the Standards of Practice and Principles of Land Surveying as defined by the Nevada Revised Statutes Chapter 625.
- 9) Survey monuments are to be set by a Nevada Professional Land Surveyor at all Right-Of-Way control points and at reference points when a control point may be subject to future disturbance. Survey monuments shall be set in conformance with the Uniform Standard Drawings for Public Works' Construction Off-Site Improvements, by the Regional Transportation Commission of Southern Nevada, and the Clark County Supplement to Uniform Standard Drawings and Specifications, by the Department of Public Works, Clark County, Nevada.

SECTION 7

NON-MOTORIZED TRAILS & PEDESTRIAN WALKWAYS

Section 7.1 NON-MOTORIZED TRAILS

This section of the Standards has been prepared to meet the expressed popularity of bicycling, horseback riding, and hiking within the County. The inclusion of non-motorized trail options in the Standards should not be interpreted as a comprehensive Trails program, but it does provide an opportunity for the communities served by these Standards with the flexibility to develop such a program to be approved by the Board.

Bikeways, Equestrian (horseback riding) Pathways, and pedestrian (pleasure walking or hiking) Trails may be desired uses of the public Right-Of-Way in the Non-Urban areas of Clark County. These optional uses in many cases are compatible with the public's transportation needs within the Non-Urban areas of the County. Therefore, the Standards show transportation and possible non-motorized Trail options with suggested treatments needed to mitigate conflicts if the application for such non-motorized Trail is first approved and permitted by the County. Standard Drawing Number N 206.6 in Appendix "A" of these Standards details the optional shared uses of non-motorized Trails within Non-Urban rights-of-way of Clark County.

Section 7.2 PEDESTRIAN WALKWAYS

Pedestrian Walkways in the form of an asphaltic concrete Pedestrian Walkway shall be provided to all schools located two miles or less from a new Residential Development, unless school bus service is provided to said development. Pedestrian Walkways shall be provided to the nearest school bus stop for all new Residential Developments and within all Commercial Developments to the nearest commercial parking lot.

SECTION 8

MODIFICATIONS

Section 8.1 PERFORMANCE SPECIFICATIONS FOR DESIGN STANDARDS

The ultimate criteria for the satisfactory design of public Road Improvements in Clark County is for the public Road Improvement to meet the user's expectations of a public Road, while still meeting the necessary safety and maintenance requirements. Additionally, Clark County has adopted minimum specifications for many of the public Road Improvements constructed within the County's public rights-of-way. The performance-based design specifications of these public Road Improvements are noted on the Standard Drawings contained in Appendix "A" and have been developed to support the Minimum Non-Urban Road Design Standards of Clark County contained in this document.

The term "performance-based design specification" means a supplemental standard that articulates the reason(s) for having a minimum Road Improvement design standard and includes the public's expectation being served by such standard. As an example, Clark County has a Road design standard that requires Paved Access Road sections to have a minimum width of twenty-four feet (24'). The appropriate performance specification that would compliment this minimum design standard is: To assure adequate vehicular access to all private properties, especially in the event of an emergency, all Roadway classifications shall accommodate at least one travel lane in each direction and such Roadway shall be of sufficient width to allow two standard sized fire engines or school buses, whichever is larger, to pass each other while maintaining two feet (2') of clearance on the sides and four feet (4') of separation between each vehicle.

The design considerations for Local, Collector, and Minor Arterial Road Improvements located within the outlying Non-Urban areas of unincorporated Clark County (Category "c" of Section 5.1 of the Standards) and the Local Road Improvements within the Residential Neighborhood Preservation Overlay Districts (Category "b" of Section 5.1 of the Standards) shall be designed in accordance with the design guidelines of the Clark County Supplement to Uniform Standard Drawings and Specifications, by the Department of Public Works, Clark County, Nevada; and, the Minimum Road Design Standards for Non-Urban Roadways, County of Clark Department of Public Works; and the following Performance-Based Specifications:

1. **Access to Private Properties and Lane Width Specification:**

To assure adequate vehicular access to all private properties, especially in the event of an emergency, all Roadway classifications shall accommodate at least one travel lane in each direction and such Roadway shall be of sufficient width to allow two standard sized fire engines or school buses, whichever is larger, to pass each other while maintaining two feet (2') of clearance on the sides and four feet (4') of separation between each vehicle.

2. **Through and Turn Lane Specification:**

To assure that each through and turning lane will contain sufficient room for all vehicles, the minimum lane width for all Roadway classifications shall be large enough to safely accommodate a standard fire engine with adequate clearance distances on each side of the vehicle.

3. **Cross Slope and Surface Grade Specification:**

To assure that when water falls on an asphalt pavement, it will drain away, and to assure that pavement surfaces will be dry most of the time, the cross slope on all Roadway pavements will not be less than two percent (2%) and any surface grade parallel to the centerline shall be greater than five tenths of one percent (0.5%).

4. **Vertical Grade Specification:**

To assure that all motor vehicles are able to achieve the minimum speed of twenty-five miles per hour (25 mph) on all inclined Roadway segments where the speed limit is not otherwise posted lower, the maximum grade for any Roadway classification shall not exceed six percent (6 %) unless specifically approved by the Director in mountainous communities.

5. **Turning Radii Specification:**

In order to prevent opposing traffic conflicts, turning radii shall be large enough to allow turning movements by the largest expected vehicle in a manner so as to not encroach into any opposing through or turning lanes.

6. **Pedestrian Specification:**

To assure adequate access for all school children from each residence in all Residential Developments, pedestrian access shall be provided to the nearest school bus stop or school building with such pedestrian access facilities accessible to all persons.

7. **Street Name Sign Specification:**

To assure that through motorists, pedestrians, and strangers are able to easily find their destination, all street name signs shall be visible at night.

8. **Shoulder Specification:**

To assure that motor vehicles can be safely serviced along a Roadway in an emergency, an eight-foot (8') wide shoulder shall be provided on each side of the determined minimum Pavement Width.

9. **Drainage Specification:**

To prevent the overflow of surface drainage into the travelway of any Roadway section, an open channel or storm drain system shall be provided along the side of all Roadway classifications.

10. **10-Year Storm Specification:**

To assure emergency vehicular access at all times, the discharge amount for a 10-year storm that flows in the Roadway section must provide at least one dry lane in each direction on all Collector and Minor Arterial Roadways.

11. **Storm Flow Depth Specification:**

To assure access and safety for emergency personnel, the maximum depth of a storm flow that crosses any Roadway section shall not exceed two feet (2').

Section 8.2 THE APPEAL PROCESS

The public Improvement design standards described in the Uniform Standard Drawings for Public Works' Construction Off-Site Improvements, by the Regional Transportation Commission of Southern Nevada, and contained in Title 30 of the County Code have been developed to address the Road infrastructure needs of unincorporated Clark County based upon conditions that exist within its Urban areas. This alternative design standard document is for the design of Non-Urban Road Improvements located outside the Urban and urbanizing areas and within Non-Urban areas of Clark County as defined in Section 2.1 of the Standards. Additionally, said alternative public Improvement design standards have been established by the use of the performance-based design specifications described in Section 8.1 of this document.

Prior to the Board granting an appeal or a deviation from the adopted Standards, the Developer shall provide a technical report, study or analysis, prepared by a Nevada Registered Professional Engineer, to be submitted to and approved by the Department of Public Works. Such report, study or analysis must demonstrate that there are special circumstances affecting the Improvement standard in question, that the requested deviation will satisfy the appropriate performance specification(s), and that the proposed use of the alternative Improvement standards will not be materially detrimental to the public welfare, or injurious to other persons or property within the immediate area.

A Developer proposing an alternative Standard must do so in accordance with the performance specifications set forth in Section 8.1 of the Standards, which has been rejected by the Department of Public Works, may appeal the determination of the Department of Public Works. An appeal of the Department of Public Works recommendation concerning the use of the alternative Improvement standard may be filed with the Current Planning Division on the forms provided. An application to appeal a Public Works recommendation shall reference the specific standard of the Non-Urban Road Design Standards for which the appeal is being filed and shall be accompanied by the appropriate filing fee required in Chapter 30.80 within Title 30 of the County Code. Said appeal may only be granted by the Board.

All applications for an appeal, which would result in a deviation from the adopted Non-Urban Road Design Standard, shall be heard in a public hearing. The Board shall not approve such an application unless the applicant demonstrates that the use of the alternative Improvement standard will:

1. Result in lower maintenance costs to the entity for Improvements constructed pursuant to the alternative Improvement standard than for Improvements constructed in accordance with the adopted Non-Urban Road Design Standards; and
2. Provide Improvements that are compatible with those constructed by adjacent developments; and
3. Improve air quality; and
4. Enhance the overall character of the area without causing adverse impacts to be created by the development upon adjacent properties, and the general public.

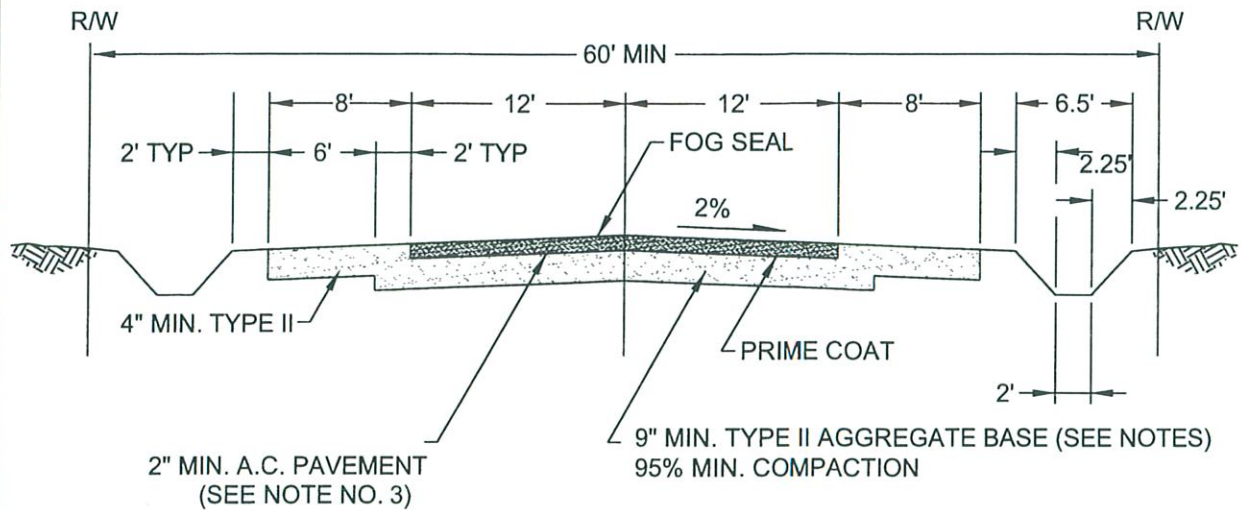
NON-URBAN ROAD DESIGN STANDARDS COUNTY OF CLARK

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STANDARD DRAWINGS

DRAWING NUMBER	DESCRIPTION
N 206.1	Typical Cross Section for Non-Urban Road w/ Ditch on Both Sides
N 206.2	Typical Cross Section for Non-Urban Road w/ Ditch on One Side Only
N 206.3	Typical Cross Section for Non-Urban Road w/o Ditches on Either Side
N 206.4	Typical Cross Section for Non-Urban Road in Non Attainment Area
N 206.5	Optional Shoulder Treatment Detail for Non-Urban Roads
N 206.6	Typical Bikeway and Pedestrian Walkway Detail for Non-Urban Roads
N 206.7	Typical Driveway Culvert and Crossing Detail for Non-Urban Roads
N 244.1	Typical Pavement Marking Detail for Non-Urban Roads
N 244.2	Typical Centerline Pavement Marking Detail for Non-Urban Roads
N 244.3	Typical Lane and Edge Line Pavement Marking Detail for Non-Urban Roads
N 246.1	Typical Non-Urban Intersection Detail w/ Left-Turn Lane
N 246.2	Typical Intersection Drainage Detail w/ Underground Storm Drain
N 250.1	Typical Face Copy for Street Name Signs on Non-Urban Roads
N 250.2	Typical Advance Street Name Advisory Sign for Non-Urban Roads
N 314.1	Typical Wooden Pole (Safety) Street Light Assembly Detail
N 627.1	Typical Roadside Sign Location and Installation Detail



NOTES:

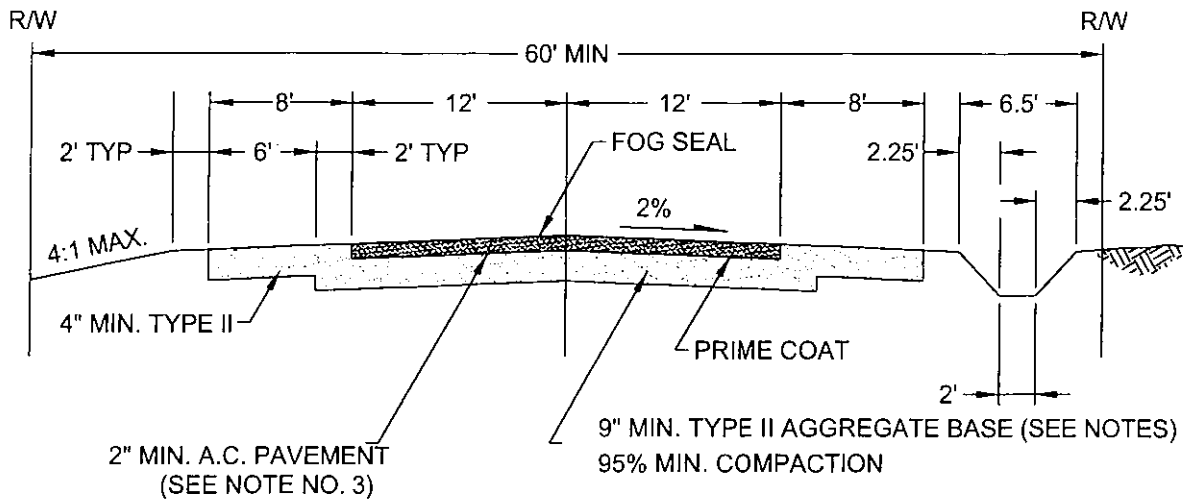
1. COMPACTION OF AGGREGATE BASE AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS".
2. STRUCTURAL SECTION SHOWN IS BASED ON A SUBGRADE "R" VALUE OF 20. OTHER STRUCTURAL SECTIONS MAY BE APPROVED IF BASED ON ENGINEERING ANALYSIS BASED ON "R" OR "CBR" VALUES DETERMINED BY SOIL TESTING. IN NO CASE SHALL THE A.C. THICKNESS BE LESS THAN THAT SHOWN, NOR SHALL THE BASE BE LESS THAN 4".
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 5" MIN. A.C. THICKNESS FOR TRUCK HAUL ROUTES
4. LONGITUDINAL ROADWAY GRADE SHALL BE A MINIMUM OF 0.5% AND SHALL NOT EXCEED 12%.
5. MAXIMUM DEPTH OF STORM FLOW CROSSING A ROAD SHALL NOT EXCEED TWO (2) FEET

PERFORMANCE SPECIFICATIONS

1. ACCESS TO PRIVATE PROPERTIES AND LANE WIDTH STANDARD
2. THROUGH AND TURN LANE STANDARD
3. CROSS SLOPE AND SURFACE GRADE STANDARD
4. VERTICAL GRADE STANDARD
9. DRAINAGE STANDARD
10. TEN YEAR STORM STANDARD
11. STORM FLOW DEPTH STANDARD

NOTE: FOR DESCRIPTION OF THE ABOVE STANDARDS, REFER TO SECTION 8.1 OF THE "MINIMUM ROAD DESIGN STANDARDS FOR NON-URBAN ROADWAYS".

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
302	AGGREGATE BASE COURSES	NON-URBAN ROAD TYPICAL CROSS-SECTION DITCH ON BOTH SIDES		
401	PLANTMIX BITUMINOUS PAVEMENTS			
406	PRIME COAT			
407	FOG SEAL			
		DATE 12-19-00	DWG. NO. N 206.1	SHEET 1 OF 1



NOTES:

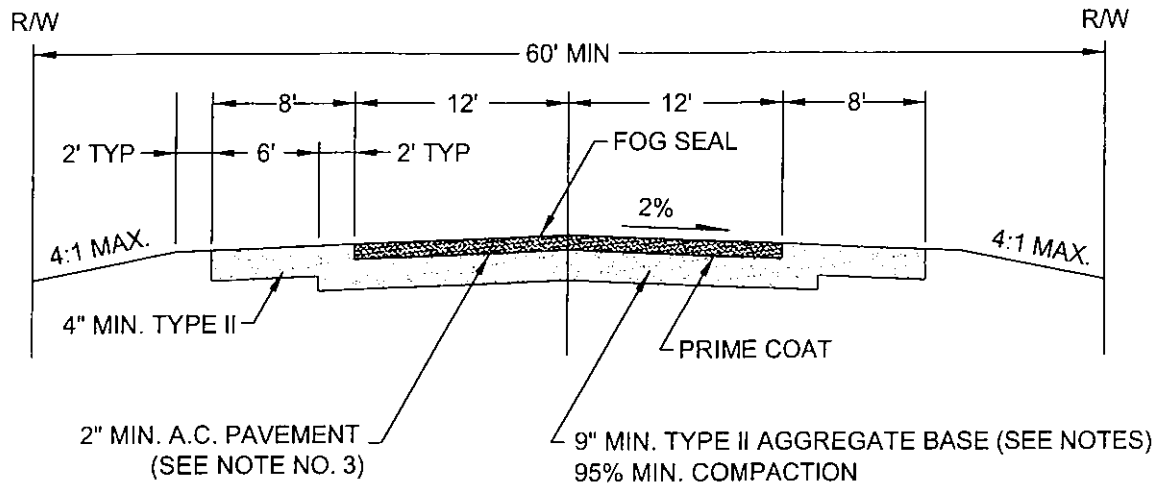
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SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA	
302	AGGREGATE BASE COURSES	NON-URBAN ROAD TYPICAL CROSS-SECTION DITCH ON ONE SIDE	
401	PLANTMIX BITUMINOUS PAVEMENTS		
406	PRIME COAT		
407	FOG SEAL		
		DATE 12-19-00	DWG. NO. N 206.2
		SHEET 1 OF 1	



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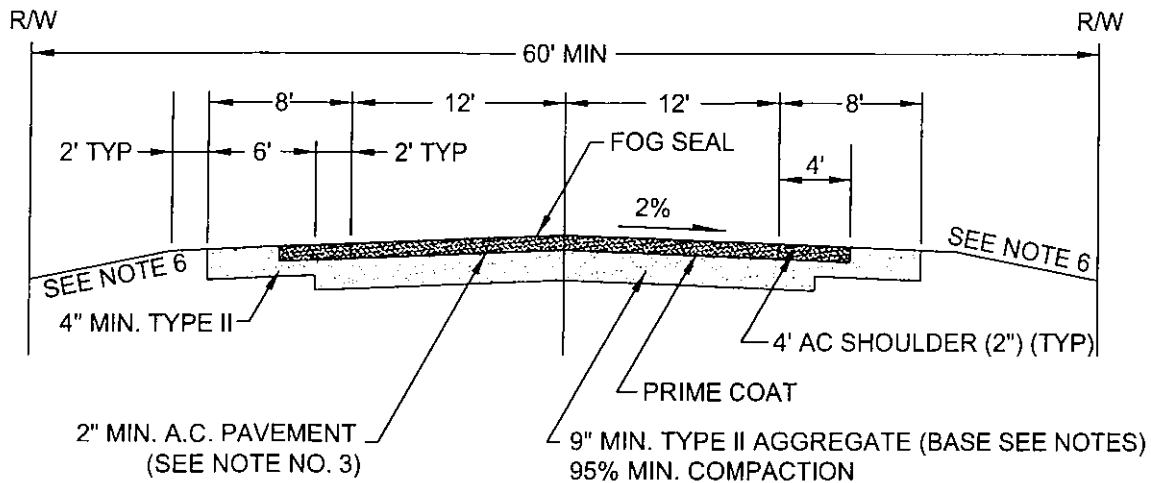
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PERFORMANCE SPECIFICATIONS

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2. THROUGH AND TURN LANE STANDARD
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NOTE: FOR DESCRIPTION OF THE ABOVE STANDARDS, REFER TO SECTION 8.1 OF THE "MINIMUM ROAD DESIGN STANDARDS FOR NON-URBAN ROADWAYS".

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
302	AGGREGATE BASE COURSES	NON-URBAN ROAD TYPICAL CROSS-SECTION NO DITCH EITHER SIDE		
401	PLANTMIX BITUMINOUS PAVEMENTS			
406	PRIME COAT			
407	FOG SEAL			
		DATE 12-19-00	DWG. NO. N 206.3	SHEET 1 OF 1



NOTES:

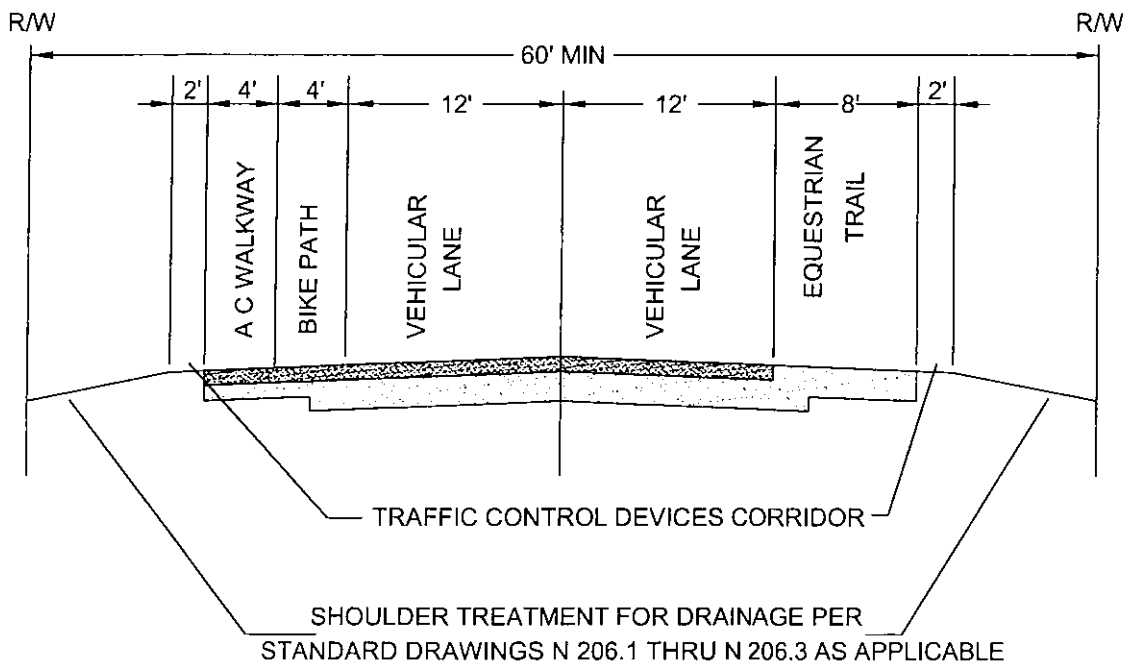
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5. MAXIMUM DEPTH OF STORM FLOW CROSSING A ROAD SHALL NOT EXCEED TWO (2) FEET
6. DRAINAGE PER STANDARD DRAWINGS N 206.1 THRU N 206.3 AS APPLICABLE

PERFORMANCE SPECIFICATIONS

1. ACCESS TO PRIVATE PROPERTIES AND LANE WIDTH STANDARD
2. THROUGH AND TURN LANE STANDARD
3. CROSS SLOPE AND SURFACE GRADE STANDARD
4. VERTICAL GRADE STANDARD
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SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
302	AGGREGATE BASE COURSES	NON-URBAN ROAD TYPICAL CROSS-SECTION NON ATTAINMENT AREAS		
401	PLANTMIX BITUMINOUS PAVEMENTS			
406	PRIME COAT			
407	FOG SEAL			
		DATE 12-19-00	DWG. NO. N 206.4	SHEET 1 OF 1

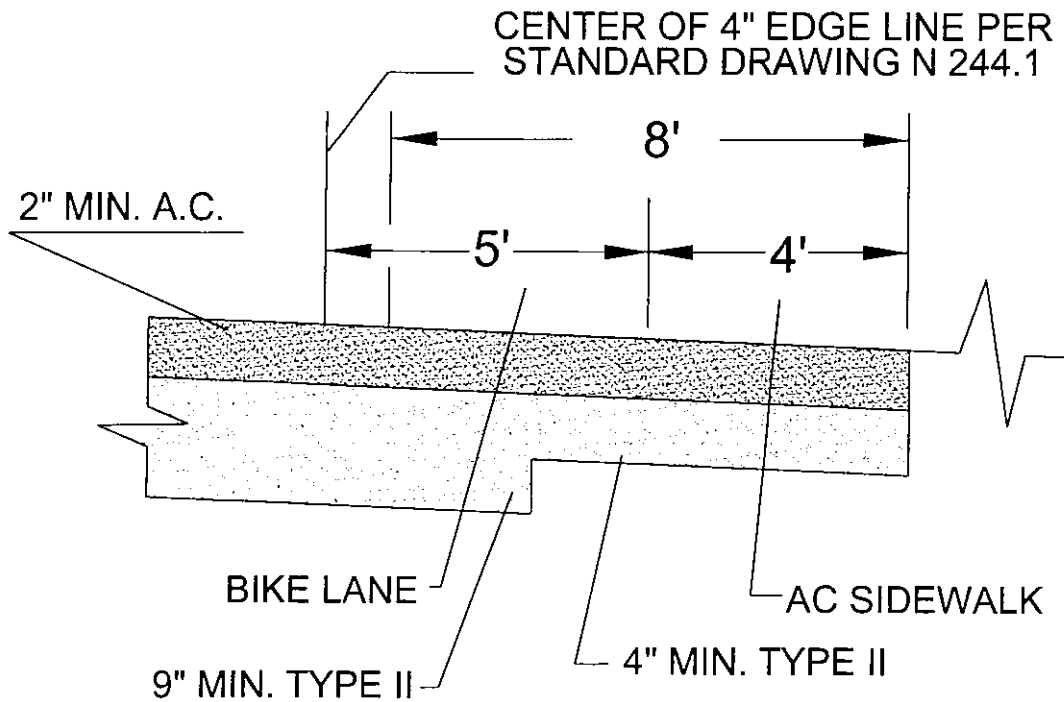


PERFORMANCE SPECIFICATIONS

8. SHOULDER STANDARD

NOTE: FOR DESCRIPTION OF THE ABOVE STANDARDS, REFER TO SECTION 8.1 OF THE "MINIMUM ROAD DESIGN STANDARDS FOR NON-URBAN ROADWAYS".

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
302	AGGREGATE BASE COURSES	NON-URBAN ROAD OPTIONAL SHOULDER TREATMENT DETAIL		
401	PLANTMIX BITUMINOUS PAVEMENTS			
406	PRIME COAT			
407	FOG SEAL			
		DATE 12-19-00	DWG. NO. N 206.5	SHEET 1 OF 1

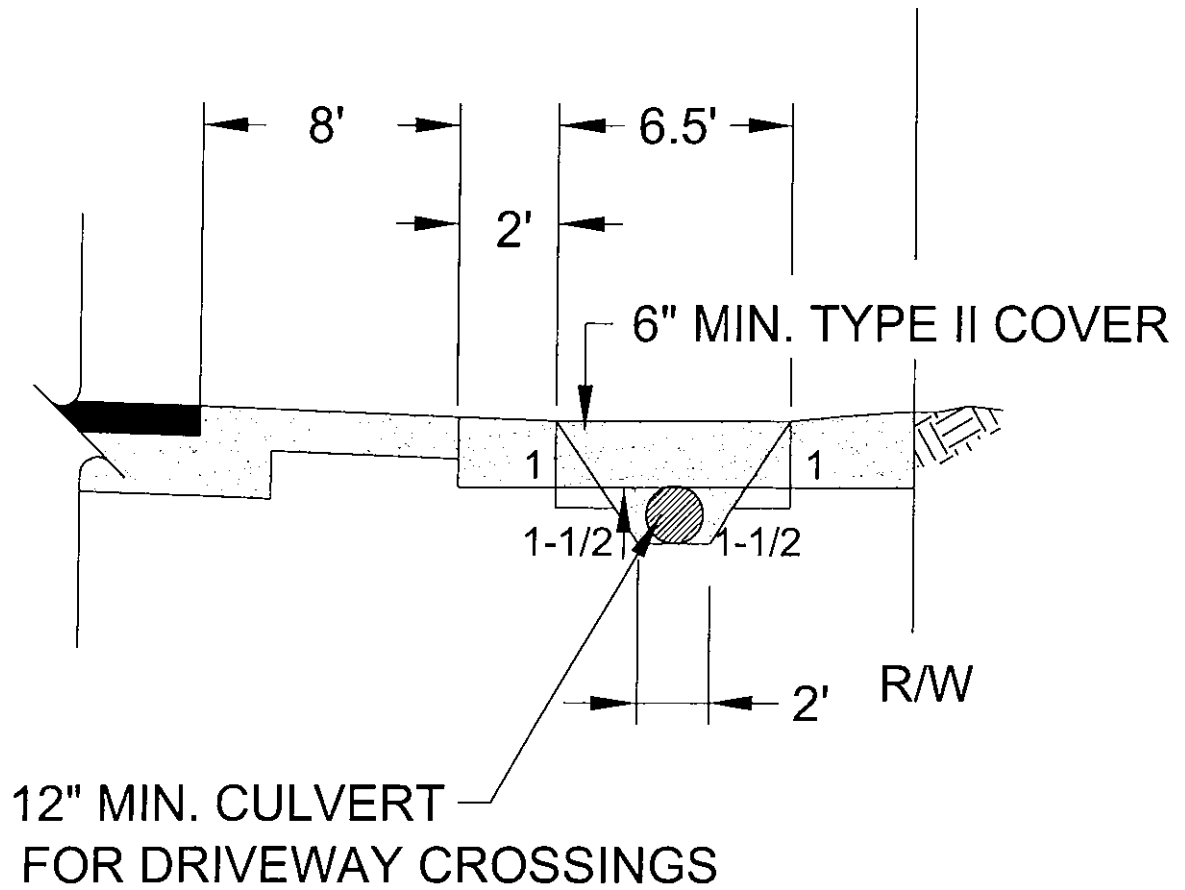


PERFORMANCE SPECIFICATIONS

- 3. CROSS SLOPE AND SURFACE GRADE STANDARD
- 6. PEDESTRIAN STANDARD

NOTE: FOR DESCRIPTION OF THE ABOVE STANDARDS, REFER TO SECTION 8.1 OF THE "MINIMUM ROAD DESIGN STANDARDS FOR NON-URBAN ROADWAYS".

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
302	AGGREGATE BASE COURSES	NON-URBAN ROAD TYPICAL BIKE PATH AND SIDEWALK DETAIL		
401	PLANTMIX BITUMINOUS PAVEMENTS			
406	PRIME COAT			
407	FOG SEAL			
		DATE 12-19-00	DWG. NO. N 206.6	SHEET 1 OF 1

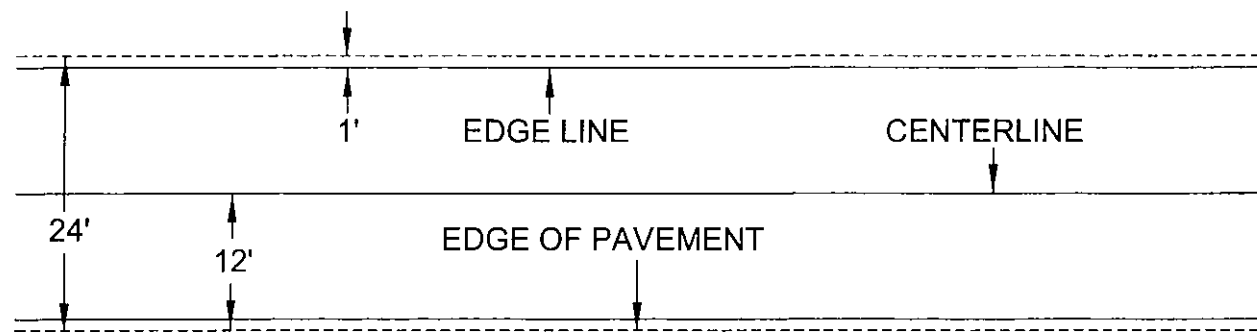


PERFORMANCE SPECIFICATIONS

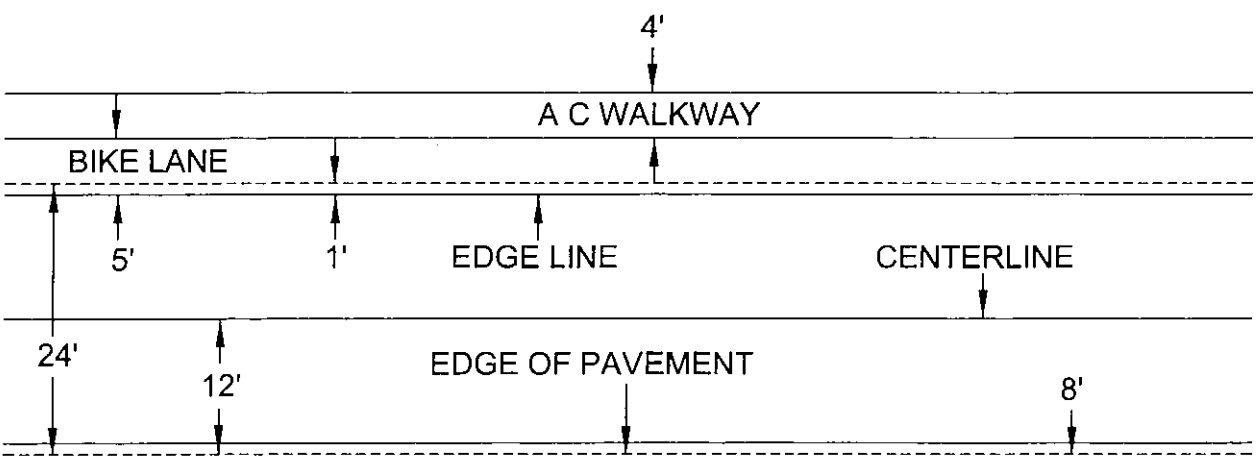
9. DRAINAGE STANDARD

NOTE: FOR DESCRIPTION OF THE ABOVE STANDARDS, REFER TO SECTION 8.1 OF THE "MINIMUM ROAD DESIGN STANDARDS FOR NON-URBAN ROADWAYS".

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
209	DRAIN BACKFILL	NON-URBAN ROAD TYPICAL DRIVEWAY CULVERT AND CROSSING DETAIL		
601	PIPE CULVERTS			
603	REINFORCED CONCRETE PIPE			
		DATE 12-19-00	DWG. NO. N 206.7	SHEET 1 OF 1



PLAN VIEW

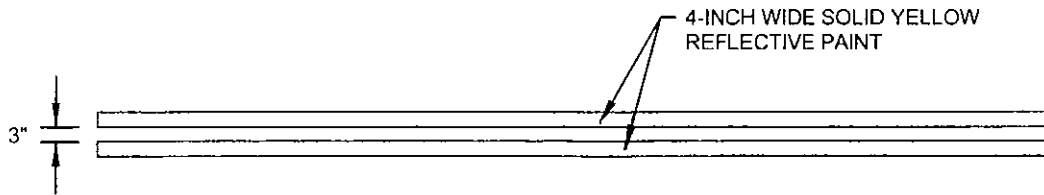


PLAN VIEW

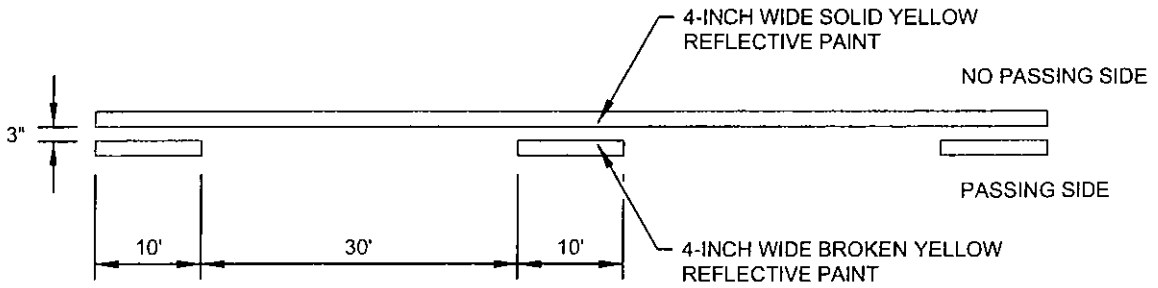
SHOULDER

NOTE : STRIPING SHALL BE PER MUTCD

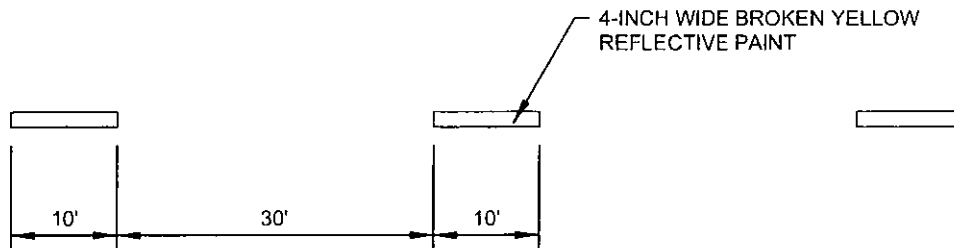
SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA	
633	PAVEMENT MARKERS	NON-URBAN ROAD TYPICAL PAVEMENT MARKING DETAIL	
714	PAINT AND PAVEMENT MARKINGS		
		DATE 12-19-00	DWG. NO. N 244.1
		SHEET 1 OF 1	



TYPE 1 CENTERLINE

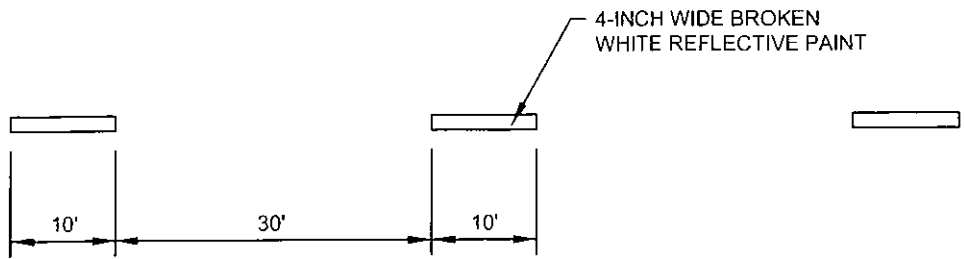


TYPE 2 CENTERLINE



TYPE 3 CENTERLINE

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
628	PAINTING TRAFFIC STRIPING			
		NON-URBAN ROAD TYPICAL CENTERLINE PAVEMENT MARKING DETAIL		
		DATE 12-19-00	DWG. NO. N 244.2	SHEET 1 OF 1

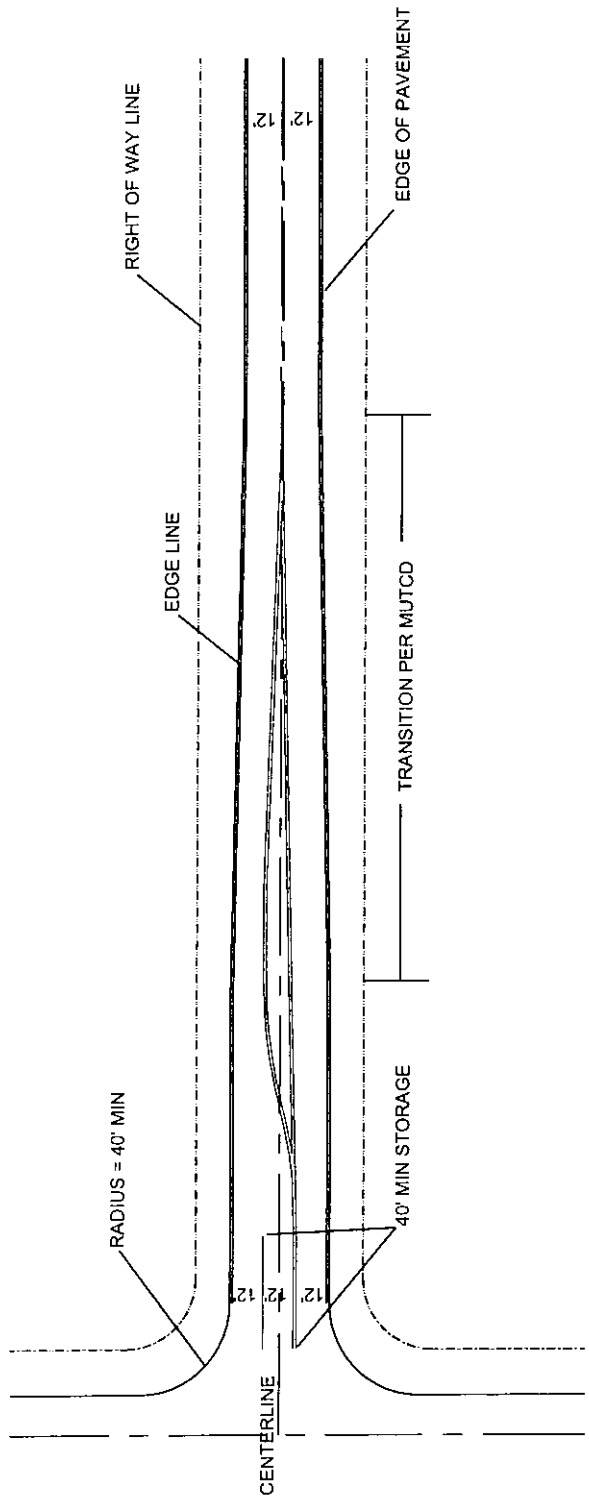


LANE LINE



EDGE LINE

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA	
628	PAINTING TRAFFIC STRIPING	NON-URBAN ROAD TYPICAL LANE AND EDGE LINE PAVEMENT MARKING DETAIL	
DATE 12-19-00		DWG. NO. N 244.3	SHEET 1 OF 1



PERFORMANCE SPECIFICATIONS

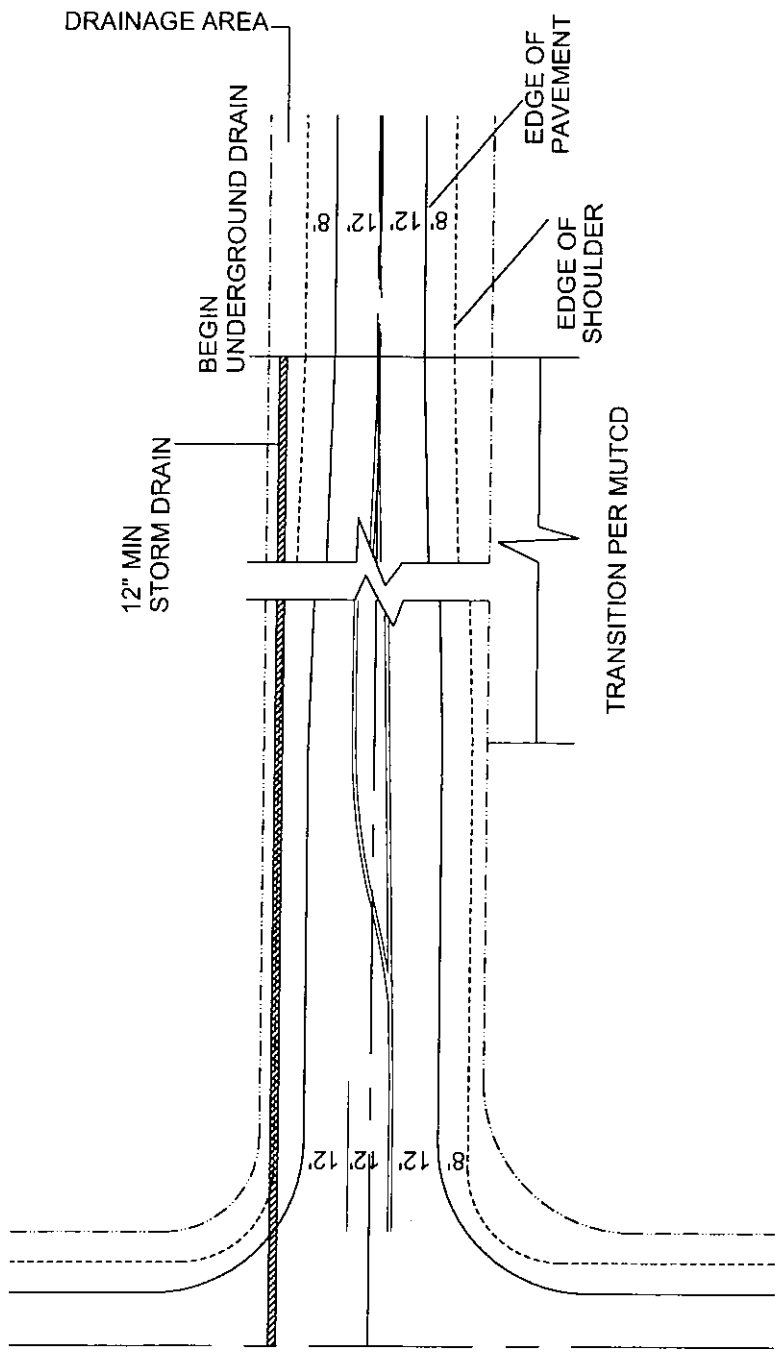
5. TURNING RADII STANDARD

NOTE: FOR DESCRIPTION OF THE ABOVE STANDARDS, REFER TO SECTION 8.1 OF THE "MINIMUM ROAD DESIGN STANDARDS FOR NON-URBAN ROADWAYS".

SPECIFICATION REFERENCE	
633	PAVEMENT MARKERS
714	PAINT AND PAVEMENT MARKINGS

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

NON-URBAN ROAD
TYPICAL INTERSECTION DETAIL
WITH LEFT-TURN-LANE



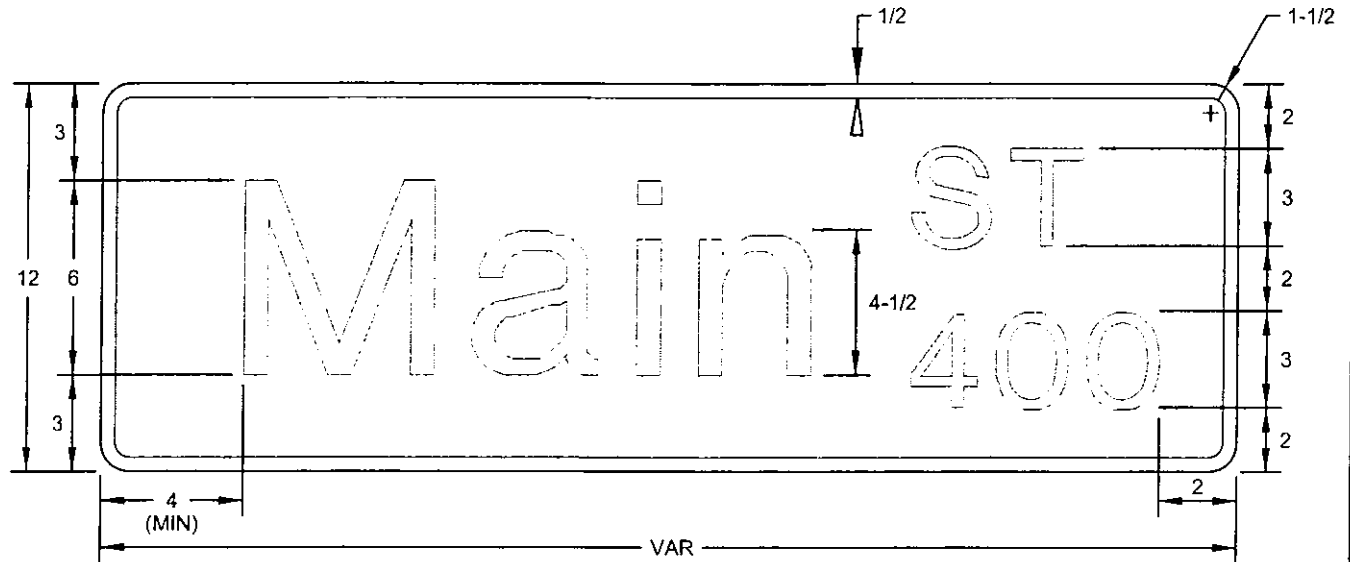
NOTE : TYPICAL UNDERGROUND DRAIN

PERFORMANCE SPECIFICATIONS

9. DRAINAGE STANDARD

NOTE: FOR DESCRIPTION OF THE ABOVE STANDARDS, REFER TO SECTION 8.1 OF THE "MINIMUM ROAD DESIGN STANDARDS FOR NON-URBAN ROADWAYS".

SPECIFICATION REFERENCE		UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA	
209	DRAIN BACKFILL	NON-URBAN ROAD TYPICAL INTERSECTION DRAINAGE DETAIL WITH UNDERGROUND STORM DRAIN	
601	PIPE CULVERTS		
603	REINFORCED CONCRETE PIPES		
		DATE 12-19-00	DWG. NO. N 246.2
		SHEET 1 OF 1	



NOTE:

1. SIGN SHALL BE WHITE LETTERS AND NUMBERS ON GREEN BACKGROUND. CUT-OUT LETTERS AND NUMBERS ARE NOT ACCEPTABLE (EXCEPT FOR THE BLOCK NUMBER).
2. REFLECTIVE SHEETING MATERIAL SHALL BE CLASS 6.
3. PRIMARY COPY OF 12" SIGNS SHALL BE 6" SERIES 'C' UPPERCASE WITH 4 1/2' SERIES 'C' LOWERCASE; ORDINAL, SUFFIX AND BLOCK NUMBER SHALL BE 3" SERIES 'C' UPPERCASE.
4. THE SIGN SHALL HAVE A MINIMUM LENGTH OF 30". WHERE EXTRA LENGTH IS REQUIRED, IT SHALL BE PROVIDED IN 6" INCREMENTS. GROUND MOUNTED SIGNS SHALL HAVE A MAXIMUM LENGTH OF 42".
5. 12" SIGNS SHALL HAVE A 1/2" WHITE BORDER AT THE EDGE.
6. SIGN BLANKS SHALL HAVE ROUNDED CORNERS.

PERFORMANCE SPECIFICATIONS

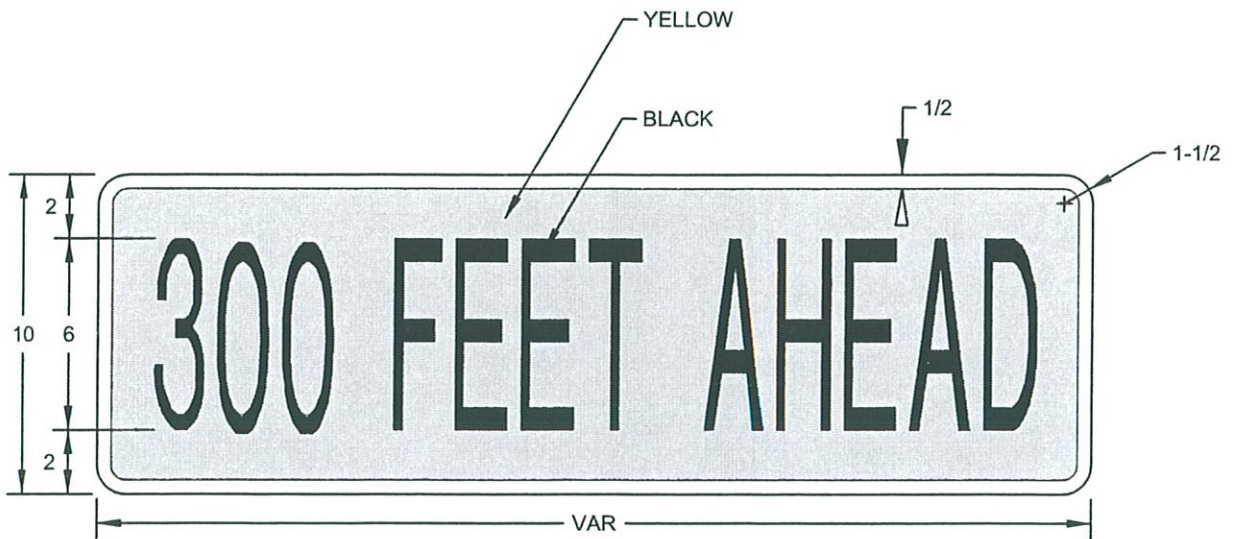
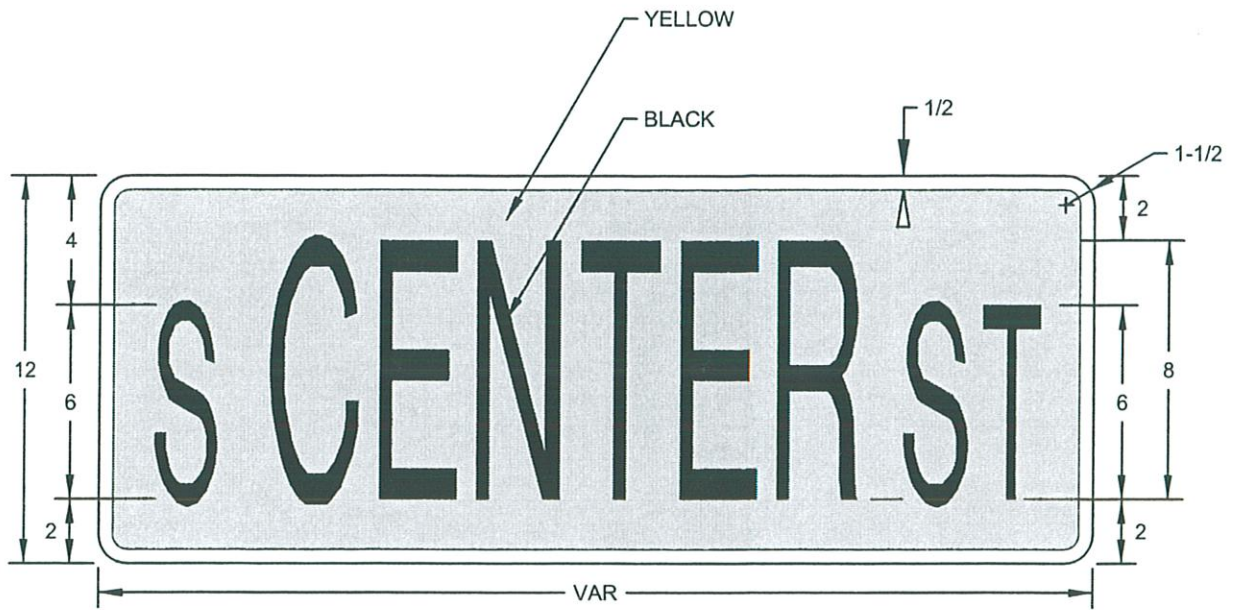
7. Street Name Sign Standard

SPECIFICATION REFERENCE

631	STREET NAME SIGNS
716	SIGN MATERIALS

**UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA**

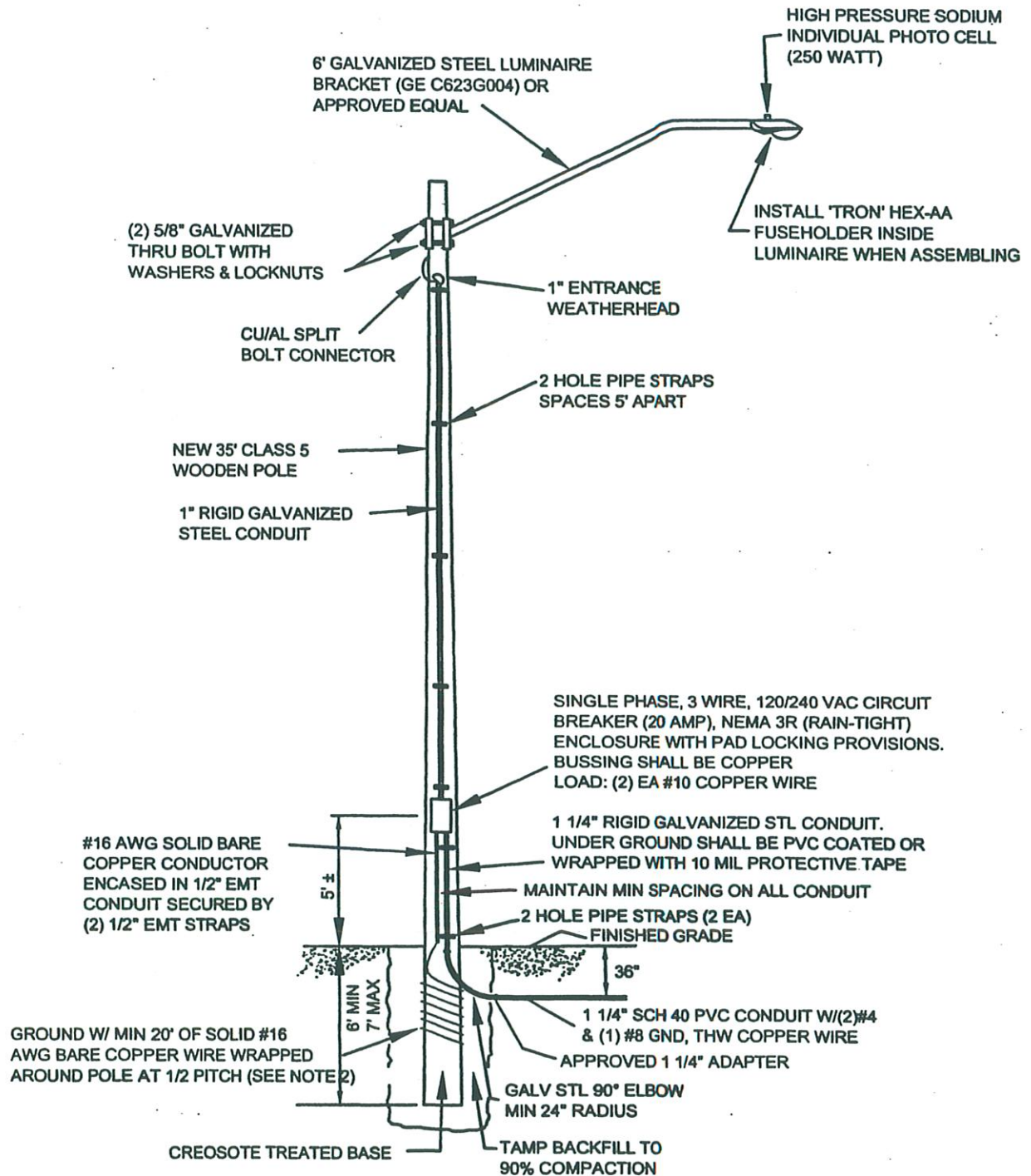
NON-URBAN ROAD
TYPICAL STREET NAME SIGN
FACE COPY



NOTE:

1. LOCATION TO BE DETERMINED BY ADVISORY BOARD
2. TO BE USED ON ROADWAYS WITH A POSTED SPEED LIMIT OF 45 MILES PER HOUR OR GREATER.
3. TO BE PLACED 300 FEET IN ADVANCE OF ALL MAJOR ROADWAY CROSSINGS

PERFORMANCE SPECIFICATIONS	7. Street Name Sign Standard									
SPECIFICATION REFERENCE	UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA									
<table border="1"> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> </table>								NON-URBAN ROAD ADVANCE STREET NAME ADVISORY SIGN		
	DATE 12-19-00	DWG. NO. N 250.2	SHEET 1 OF 1							

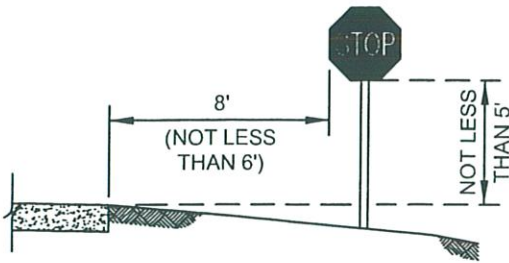


NOTES:

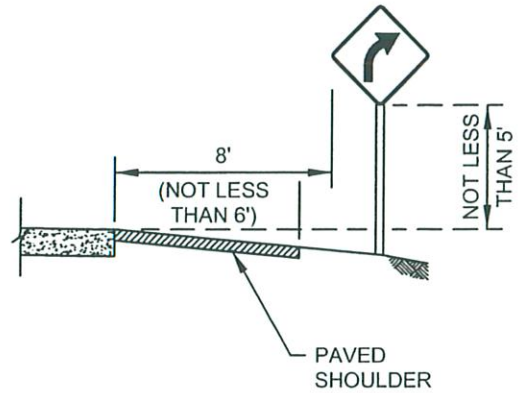
1. STREET LIGHT TO BE LOCATED AT INTERSECTIONS WITH HEAVY TURN MOVEMENTS AS DETERMINED BY TRAFFIC STUDY OR COUNTY ENGINEER'S RECOMMENDATION
2. ALL WIRES TO BE COPPER AND ALL CONDUIT FITTINGS TO BE WATER TIGHT
3. WITH COUNTY ENGINEER'S APPROVAL, AN 8' x 5/8" COPPER CLAD GROUNDING ROD MAY BE USED

SPECIFICATION REFERENCE	UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA		
	NON-URBAN ROAD WOODEN POLE (SAFETY) STREET LIGHT ASSEMBLY		
	DATE 12-19-00	DWG. NO. N 314.1	SHEET 1 OF 1

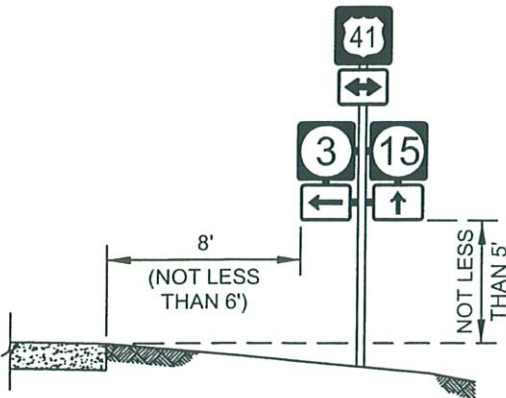
ROADSIDE SIGN
NON-URBAN DISTRICT



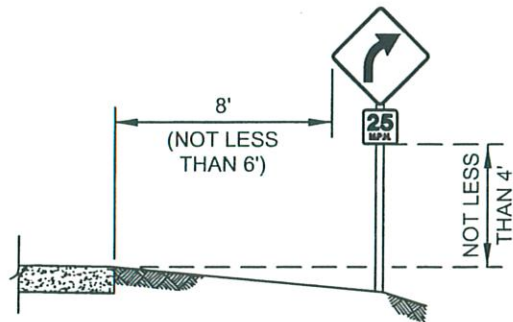
ROADSIDE SIGN
NON-URBAN DISTRICT



ROADSIDE ASSEMBLY
NON-URBAN DISTRICT



WARNING SIGN WITH ADVISORY SPEED PLATE
NON-URBAN DISTRICT



SPECIFICATION REFERENCE

**UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA**

NON-URBAN ROAD
TYPICAL HEIGHT AND LATERAL
LOCATION OF SIGNS