CHAPTER V
ROAD & BRIDGE STANDARDS & SPECIFICATIONS

SECTION 1. Introduction

a. **Purpose and intent:** The Park County Road and Bridge Standards, hereinafter referred to as "Standards," establishes a uniform road development policy throughout Park County.

The purpose and intent of these Standards is to provide safe and attractive travel corridors, efficient traffic flow, effective maintenance and to protect the public investment in the infrastructure.

Procedures are outlined in these Standards for the design and construction of roads and bridges within Park County. The County may accept other rights-of-way and roads; however, that does not constitute an acceptance of maintenance responsibilities. Acceptance of maintenance responsibilities is at the sole discretion of the Board of County Commissioners.

Except as otherwise provided for in the Park County Development Standards and Regulations, these Standards apply to all roads within the County that are properly established County roads, roads constructed or to be constructed within established County rights-of-way and those roads accessing any division of land created under the Wyoming Real Estate Subdivision Act, W.S. §18-5-301 through 316.

b. **Authority:** The State of Wyoming, by W. S. §24-1-104, "Management and Control of County Roads," authorizes the Board of County Commissioners to administer the County road system including, but not limited to, maintenance, layout, establishment, alterations, vacations, property acquisition and traffic regulations.

W.S. §18-2-101, "General Powers" and §18-3-504, "Powers and Duties" authorizes the Board of County Commissioners to manage the business and concerns of the County in the exercise of its corporate or administrative powers.

W. S. §24-3-101, et seq. outlines the authority and procedures to be followed in the establishment, vacation or alteration of County highways. These Standards are considered minimum and are not intended to replace or to conflict with this nor any other federal or state law or regulation. Should there be a conflict, the more stringent law, regulation or statute shall apply. Wyoming Statute W.S. § 18-5-306 (a)(vii) provides for a county's authority over subdivision roads, and W.S. § 18-5-201, et seq., provides for a county's authority over the use and occupancy of lands.

W.S. § 35-10-401 provides that public highways, including county road rights-of-way, shall not be obstructed, and provides for criminal penalties. W.S. §§ 6-6-301 through 307, prohibits unlawful conduct within governmental facilities, including land under the control of a governmental body. W.S. §§ 24-6-101 through 111,

provides counties with additional authority over access issues related to public highways.

The County Engineer and the Road and Bridge Foremen have been delegated authority by the Board of County Commissioners to enforce these Standards, issue Rights-of-Way permits, hereinafter referred to as "ROW Permit(s)," review plans and conduct inspections. The County Engineer and/or a Road and Bridge Foreman may designate a designee as appropriate to enforce these Standards.

c. Types of Roads: Roads contained in the County-wide circulation system are classified based on the functional use and traffic volumes. Ownership of the road rights-of-way and who has responsibility for maintenance is determined in accordance with state statues, and is controlled by the Board of County Commissioners. Establishment of the road rights-of-way does not guarantee the road is eligible for or maintained by the County.

Examples of road types are as follows:

(1) County owned and maintained roads: Under this category, Park County, through the Board of County Commissioners, in accordance with State Statute has accepted the road rights-of-way and has assumed responsibility for the road maintenance.

(2) County owned roads, but maintained by others: In certain cases, private property owners using County owned roads for access desire a higher level of service than the County provides. In such cases, the County and property owners may reach an agreement assigning maintenance responsibilities to the property owners.

In other cases, County owned roads may be maintained by an adjacent town. Such arrangements have been made when it makes more sense for the town to maintain a portion of a County road because of its location and its connection to town streets in exchange for the County maintaining sections of outlying town roads.

(3) County road rights-of-way not maintained by County: In some instances the County has accepted road rights-of-way but does not routinely maintain the roadway. These rights-of-way are available for the use of the public or reserved for the future needs of the County.

(4) Privately owned and maintained roads: This category includes all roads where the adjacent property owners retain ownership of the road rights-of-way either through a deed, easement or covenants, and they generally hold responsibility for its maintenance. Included are subdivision roads, whether private or available for public travel.

Current road functional classifications include Primary (Arterial), Secondary (Collector), Residential, Local Access and Recreational. Definitions of each category are contained in Chapter V, Section 2.b. of these Standards.

d. Road Numbering: All County roads within Park County are assigned a County road name or number which is used for identification purposes to help speed emergency access by fire and ambulance, and to assist in locating utilities. County road names or numbers do not necessarily mean the roads are established as County roads or are maintained by the County.

e. Application of Standards: All new road and bridge construction, and any upgrading of the existing roads or bridges, commencing after the effective date of these Standards shall adhere to these Standards unless an Administrative Relief is granted in accordance with Chapter V, Section 7, et seq. of these Standards.

f. Upgrading of existing County roads:

(1) Upgrading needed to accommodate new development: Where new development is proposed along existing County roads, the developer's proposal, if required by the County Engineer, shall include an analysis of the projected traffic volumes and impacts, along with information on existing road widths, curves, intersections and drainage. This information shall be reviewed by the County Engineer and recommendations shall be made as to what improvements are necessary to accommodate the ultimate traffic to be generated by the new development.

If requested by the County Engineer, a traffic impact study in accordance with accepted traffic engineering standards shall be submitted by the developer.

These Standards establish maximum traffic volumes for certain classifications of roadways as stated in Table 5-1. If a proposed development will cause these maximum limits to be exceeded on the adjacent roads, the developer shall, subject to "Upgrading existing roads" (h)(1)(a)(ii), be responsible for the cost of improving the affected roads to a classification where the maximum limit is not exceeded. In calculating whether the maximum limits will be exceeded, the projected cumulative traffic volume based on surrounding land uses and approved zoning at ultimate development shall be used, not just counts of existing traffic levels. Refer to Section 7. Administrative Relief from Design and Construction Standards.

Table 5-1 DESIGN CAPACITY FOR CLASSES OF ROADWAYS

CLASSIFICATION	ADT
Primary (Arterial)	>700
Secondary (Collector)	100 - 700
Residential	≥99
Local Access	<99
Recreational	N/A

(2) Upgrading requested by property owners: Upgrading existing substandard roads within a subdivision shall be at the expense of the property owners served by such roads. Upon request of the property owners, the County may assist in the formation of a Local Improvement District as provided by W.S. §18-12-101 et seq.

Completion of the improvements does not in itself constitute acceptance by the County for maintenance.

g. Construction of new roads:

(1) New roads to be built by developers: Where new roads are proposed to be built by a developer, the developer's proposal shall include an analysis of the projected traffic volumes, information on topography, drainage and extent of cuts and fills, along with construction plans and specifications. The road design and construction specifications shall be reviewed and approved by the County Engineer in conjunction with the preliminary plat, or if no plat is required, prior to commencement of construction. The total cost of roads required to serve new development shall be borne by the developer. It shall be the developer's obligation to obtain all necessary rights-of-way, permits, agreements and easements prior to approval of construction plans.

h. Upgrading existing roads:

(1) Design Standards: Any and all publicly traveled roads, whether public or private, requiring upgrading or improvement shall be built in accordance with these Standards.

(a) Serving new developments:

(i) Requirement for upgrading: Existing County roads serving a new development or an area proposed for either platting or re-platting after the effective date of these Standards shall be upgraded to the Standards when one (1) or more of the following conditions occur:

(A) Existing roads which do not meet these Standards for the classification are improved or modified;

(B) Existing roads meet local access standards, but the projected ADT will exceed one hundred (100), thus requiring paving of the roads; and /or

(C) Existing roads meet local access standards, but the projected ADT exceeds the maximum for local access, thus requiring improvement to secondary road status.

(ii) Payment of costs: The developer shall be responsible for all costs incurred to upgrade existing County roads unless approved otherwise by the Board of County Commissioners.

i. Permits for road and bridge construction: Prior to the commencement of construction within the County rights-of-way of any road, bridge, structure or facility, the project proponent shall obtain approval of construction plans and have obtained a County ROW Permit from the County Engineer in accordance with Chapter V, Section 4, et seq., of these Standards. County projects are exempt from obtaining ROW Permits, but are not exempt from complying with these Standards.

j. Establishment, vacation or alteration of County roads: Any party wishing to initiate a road or easement (establishment, vacation or alteration) must conform to the statutory requirements of W.S. §24-3-101, et seq.

SECTION 2. Road and Bridge Design Criteria.

a. Purpose and intent: This section sets forth specific standards for roadway and bridge design in Park County, and is intended for use by design engineers and developers. These Standards establish criteria for roadways in the County to be used by the traveling public, to assure their health, safety and welfare and to assure County resources and funds will not need to be expended to later rectify inadequately designed and constructed facilities.

The basis for design used in these Standards is AASHTO, A Policy on the Geometric Design of Highways and Streets. The basis for construction used in these Standards is the WPWSS (Wyoming Public Works Standard Specifications).

All applicable specifications of agencies or organizations listed in Appendix 24 are made a portion of these Standards by reference, and shall be the latest edition or revised thereof. It is recognized guidelines and standards within various agencies and organizations identified in Appendix 24 may identify options or alternatives to these Standards. These options or alternatives may be incorporated into designs provided they are approved in advance by and at the sole discretion of the County Engineer.

Materials including, but not limited to, culverts, signs and conduits, shall be new unless approved by the County Engineer.

b. Road classification: County roads are classified according to functional classifications. Functional classifications shall be established by the County Engineer and the Road and Bridge Foremen. The County Engineer will determine which classification applies to any given road. Criteria used to design roadways are based on their functional classification and traffic volume.

For planning purposes, Park County uses the following functional classifications:

(1) Primary roads (arterial): They provide a means of intra-county travel. Primary roads should provide for relatively high overall travel speeds with minimum interference to through movements. Typically the average daily traffic (ADT) is greater than seven hundred (700) vehicles per day (VPD).

(2) Secondary roads (collector): Secondary roads serve as collectors of traffic from residential and recreational areas to the primary road system. Secondary roads provide a link between local roads and arterial, and allow for the movement of through traffic in neighborhoods. Secondary roads should be designed so they do not disrupt the activities and land uses they serve. Secondary roads should provide for relatively high overall travel speeds. In addition, access to secondary roads should be designed so as to minimize interruption of traffic flows. Typically the ADT is greater than one hundred (100) VPD but less than seven hundred (700) VPD.

(3) Residential roads: Residential roads are primarily for the use of local residents within the neighborhood and for providing access to the secondary and primary road system. This type of road is for use by property owners, the general public, and service vehicles such as trash

trucks, delivery trucks and snowplows. Typically the ADT is greater than ninety-nine (99) VPD.

(4) Local access roads: Generally, local access roads provide access to private property such as farm, ranch or sparsely populated residential areas. Typically the ADT is less than ninety-nine (99) VPD.

(5) Recreational roads: Recreational roads provide access to few, if any, year round residents.

c. Road design:

(1) Future planning: Prior to the design of a new road, projections of future development and densities, estimates of future traffic volumes and appropriate classifications and design speeds shall be determined if required by the County Engineer. The road classification determines the geometric cross section and maximum sustained grades, while the design speed determines minimum or maximum standards for elements of alignment such as stopping and passing sight distances, radii of curvature, tangent lengths and superelevation transition lengths.

(a) Design period: roadway design shall be based on the projected needs twenty (20) years after construction.

(b) Projected development: Projections of development over the design period shall be based on zoning, existing land use, proximity to developed areas, historic growth and other factors, such as County or Municipal development plans which can be expected to influence development.

(c) Projected traffic volumes: Table 5-2 illustrates traffic generated for various types of development. For example, residential property generates an ADT count of ten (10) trips per unit. These per unit ADT counts are applied to the projected development to generate estimates of the design year traffic volumes. When per unit ADT counts are not listed for a type of development, or an ADT has not been established for a particular category or location by the County Engineer, the design engineer shall use an acceptable reference approved by the County Engineer such as the ITE "Trip Generation Handbook," current edition, to obtain the appropriate ADT count.

(d) Access to subdivisions shall be from roads constructed within dedicated public rights-of-way, private road rights-of-way or recorded perpetual easements. Two (2) points of access into the subdivision shall be provided if the proposed subdivision contains twenty (20) or more lots.

(e) Road rights-of-way shall be provided from the proposed subdivision roads or streets to adjacent or adjoining lands if such easements or rights-of-way would improve access to the potentially developable lands or potentially landlocked lands and would facilitate the development of a coordinated road system developing within the area.

(f) Roads shall be designed and aligned to join with planned or existing roads.

Table 5-2 PER UNIT AVERAGE DAILY TRAFFIC		
TYPE	UNIT	PER UNIT ADT
Residential	Per dwelling unit	10.0
Condominium/Townhouse	Per dwelling unit	7.0
Mobile Home Park	Per mobile home	5.0
Hotel	Per room	9.0
Restaurant	Per 1,000 S.F. gross	90.0
Commercial	Per 1,000 S.F. gross	115.0
Office	Per 1,000 S.F. gross	11.0
Campground	Per space	7.0
RV Park	Per space	7.0
Super Market	Per 1,000 S.F. gross	102.0
Other uses as referenced in the Park County Development Standards and Regulations, Table 2.1, Schedule of Uses		Per Unit ADTs shall be approved by the County Engineer

(2) General design elements:

(a) Design capacities: Table 5-1 presents the range of ADT's anticipated for classes of roadways. If traffic volumes on a particular road exceed the range specified for its functional classification, the road shall be reclassified to the appropriate category. However, roads may carry lower volumes than stated for their functional classification without being reclassified. In such cases, the function of the road rather than traffic volumes will determine design requirements. All road classifications must be approved by the County Engineer.

(b) Design speed: The selection of design speed is influenced principally by the character of terrain, traffic volumes and appropriate range of design speeds for each road classification.

(c) Surfacing requirements: All roads serving areas or subdivision roads expected to carry a traffic volume of one hundred (100) ADT or greater shall be paved. Other roads may have a gravel or paved surface.

(d) Right-of-Way: The minimum right-of-way widths required for each road classification are specified in Table 5-3. Additional rights-of-way may be required for drainage improvements, cuts or fills, intersections, curb returns, snow storage and other road appurtenances.

(e) One-Way roads: One-way roads will not be allowed for the following reasons:

(i) Property owners at the far end of a one-way loop road tend to take short cuts and drive the wrong way to reach their properties, thus increasing the chances for accidents;

(ii) Emergency vehicles must, in certain cases, take a more circuitous route to reach their destinations;

(iii) One-way roads can cause confusion for people not familiar with the area; and

(iv) In winter, snow plowing often reduces the driving surfaces of roads because snow accumulates along the edges. On one-way roads, this reduction may pose a serious safety problem because it hampers access for emergency vehicles and limits the area available for their operation.

(3) Specific design elements:

(a) Alignment: The major considerations in alignment design are safety, grade, profile, road width, design speed, sight distance, topography, drainage and the maneuverability, braking and performance of heavy duty vehicles. Alignment should provide for safe and continuous operation at a uniform design speed. In mountainous areas, consideration should be given to locating the road so that a southern exposure will be obtained wherever possible to avoid drifting of snow. Road layout should bear a logical relationship to existing or platted roads in adjacent properties and to the principles of good engineering practice.

(i) Horizontal alignment:

(A) Stopping sight distance: Horizontal alignment must provide at least the minimum stopping distance of the design speed at all points. This includes visibility at intersections as well as around curves and roadside encroachments. The minimum stopping sight distance is the distance required by the driver of a vehicle traveling at the design speed to bring the vehicle to a stop after an object on the road becomes visible. Stopping sight distance is calculated in accordance with the following formula, or Table 5-5, whichever is greater:

$$D = 1.47Vt + \frac{V^2}{30(f + G)}$$

V= speed in MPH

t= reaction time (2.5 seconds)

G=grade, in percent

f=coefficient of sliding friction with f equaling the following factors based on design speed of roadway, from Table 5-4.

Where an object off the pavement restricts sight distance, the minimum radius of curvature is determined by the stopping sight distance, but in no case will it be less than as specified in Table 5-5.

Table 5-3 SUMMARY MINIMUM OF ROAD DESIGN ELEMENTS

DESIGN ELEMENT	PRIMARY	SECONDARY	RESIDENTIAL	LOCAL ACCESS	RECREATIONAL
Right-of-Way(min)(ft)	80	60	60	60	40
Minimum Recommended Design Speed (mph)	65	60	40	40	30
Number of Lanes	2-4	2	2	2	2
Lane Width (ft)	12	12	12	12	10
Shoulders (ft)	6	4	2	NA	NA
Maximum Sustained Grade	6%	6%	6%	8%	10%
Bridge Width (min)(ft)	36	32	24	24	24
Design Loading	HS20-44	HS20-44	HS20-44	HS20-44	HS20-44
Return Radius (ft)	35	30	25	20	20
Typical Speed Limit	65	55	30	30	30
Cross Slope w/o Super Elevations (%)	4 (max)	4 (max)	4 (max)	2 (min)	2 (min)
Max. Super Elevation (%)	4	4	4	4	4
Minimum Road Grade (%)	0.5	0.5	0.5	0.5	0.5
Maximum Road Grade (%)	6	6	6	6	8
Maximum Grade at Intersection	2% for 400’	2% for 300’	4% for 150’	4% for 100’	4% for 100’
Minimum Pavement Sections: Full Depth HMA Composite (HMA/Crushed Gravel)	 8” N/A	 6” 3”/8”	 6” 3”/6”	 6” NA/6”	 N/A N/A

NOTE: Variations may be approved by County Engineer based on generally accepted engineering practices, references and standards.

Table 5-4 SIDE FRICTION FACTORS	
DESIGN SPEED (MPH)	f (DESIGN CRITERIA: SNOW PACKED)
20-40	0.24
40-50	0.22
50-60	0.21
60-70	0.20

Offset clearance to achieve stopping sight distance on horizontal curves shall be in accordance with current AASHTO Policy. The centerline of the inside lane is used, with the offset distance measured from the centerline of the inside lane to the obstruction.

(B) Passing sight distance: Passing sight distance is the minimum sight distance that must be available to enable the driver of a vehicle to pass another safely and comfortably without interfering with oncoming traffic traveling at the design speed. Two-lane roads should provide adequate passing zones. Required passing sight distance for given design speeds is stated in Table 5-5.

(C) Curvature: Table 5-6 specifies the minimum centerline radius of curvature for specific design speeds. This table is based on speed alone and does not take into consideration sight distance factors. Every effort should be made to exceed the minimum values.

Consistency in design speed and curve radius should be used to avoid surprising the driver. Where changes in the design speed are necessary, the design speed between approach tangents and curves will not change by more than ten (10) MPH. Under no condition will a low speed curve be introduced at the end of a long tangent where high approach speeds are anticipated. Compound curves should be avoided. Reversing curves without an intervening tangent will not be permitted where design speeds exceed twenty-five (25) MPH. The minimum lengths of such tangents are specified in Table 5-6.

(D) Curb returns: Minimum curb returns or pavement rounding radii at intersection corners are as follows:

ROAD CLASS	CURB RETURN RADIUS
Primary road	35 Feet
Secondary Road	30 Feet
Residential Street	25 Feet
Local Access	20 Feet

Additional right-of-way may be required to provide a minimum clear distance for fifteen (15) feet between the curb or edge of pavement and the right-of-way limit.

(E) Intersections: The minimum distance between intersections for various road classifications is as follows:

ROAD CLASS	DISTANCE
Primary Road	1,300 Feet
Secondary Road	600 Feet
Residential Street	300 Feet
Local Access	150 Feet

Distance is measured from the inside edge of each right-of-way.

Table 5-5 MINIMUM STOPPING AND PASSING SIGHT DISTANCE

DESIGN SPEED (MPH)	STOPPING SIGHT DISTANCE (Feet)	PASSING SIGHT DISTANCE (Feet)
15	125	700
20	125	800
25	150	900
30	200	1,100
35	250	1,300
40	325	1,500
45	400	1,650
50	475	1,800
55	550	1,950

(ii) Vertical alignment:

(A) Minimum and maximum grades: Minimum and maximum sustained grades shall be as listed in Table 5-3 except as provided in Item (B) below.

The minimum and maximum design grade should be used infrequently rather than as a value to be used in most cases.

(B) Exceptions to maximum grades: A local access or low volume road may have sections with a maximum grade of ten (10) percent, provided all of the following conditions are met:

(I) The section shall be no longer than five hundred (500) feet;

(II) The section shall have a horizontal radius of fifteen hundred (1,500) feet or greater;

(III) Grades shall not exceed six (6) percent for five hundred (500) feet on either end of the section;

(IV) Curves with a horizontal radius of less than six hundred (600) feet shall not be within five hundred (500) feet on either end of the section; and

(V) Land on each side of the section must be designated permanent open space.

Table 5-6 MINIMUM RADIUS OF CURVATURE

DESIGN SPEED (MPH)	MINIMUM CURVATURE RADIUS (Feet)	MINIMUM TANGENT LENGTHS (Feet)
15	100	50
20	150	75
25	225	100
30	300	150
35	450	200
40	600	250
45	775	250
50	950	250
55	1,200	250

(C) Vertical curves: Vertical curves must be designed to provide adequate stopping and passing sight distance, headlight distance, driver comfort and good drainage.

Minimum lengths of crest vertical curves are controlled by stopping sight distance requirements. The minimum length for sag and crest vertical curves shall be determined by current AASHTO criteria.

Vertical curves that are long and flat may develop poor drainage and should therefore be avoided.

Vertical curves are not required where the algebraic difference in grade is less than two-tenths (0.2) percent (A<0.2).

(D) Sight Distance: The grade line must meet sight distance requirements for the design speed.

(iii) Switchbacks: A switchback is defined as a curve with a delta greater than one hundred twenty (120) degrees and a radius less than one hundred (100) feet.

(A) Use of switchbacks: Switchbacks will not be allowed on primary or secondary roadways. On residential, local access, low volume or primitive roadways when other alternatives may cause significant adverse impacts, the use of switchbacks may be allowed on a case-by-case basis with approval from the County Engineer.

(B) Minimum standards: Switchbacks shall be designed for speeds of not more than ten (10) to fifteen (15) MPH. Maximum centerline grades within twenty-five (25) feet of a switchback curve and throughout the curve shall not exceed four (4) percent. Curve widening shall be in accordance with Chapter V, Section 2.c(3)(b)(vii) of these Standards. Minimum centerline radius of the curve will be fifty (50) feet. Adequate area for snow storage shall be provided.

(iv) Alignment coordination: When vertical and horizontal curves are superimposed, the superelevation may cause distortion in the outer pavement edges. Where this may be the case, edge of pavement profiles shall be plotted and smooth curves introduced to remove any irregularities. Sharp horizontal curves should not be introduced at or near a pronounced summit or sag.

(b) Geometric cross sections:

(i) Typical sections: A typical cross section is shown on Figure 5-1.

(ii) Travel lane width: The minimum travel lane widths are provided in Table 5-3.

(iii) Crown slope: On undivided roads in tangent alignment, the high point of the crown will be centered on the

pavement and the pavement sloped toward the edges on a uniform grade. In mountainous terrain, unpaved roads will be sloped toward the cut side of the road on a three (3) percent slope to alleviate surface erosions. On divided multi-lane roads on tangent alignment, each travel way will have a uniform cross slope with the high point at the edge nearest the median.

(iv) Superelevation: To account for snow and ice conditions which occur frequently in Park County, the maximum superelevation will be limited to four (4) percent (see Table 5-3). The axis of rotation of undivided roadways is usually the centerline. For curves following long, level tangents, the axis of rotation may be taken at the inside edge of the pavement, with approval from the County Engineer.

(v) Superelevation transition: Superelevation transition is the progression of the roadway from the normal crown section to a fully superelevated section. To meet the requirements of safety and comfort, the length required to effect the transition should be adequate for the likely travel speeds. Suggested minimum tangent lengths are given in Table 5-6. It is recommended that sixty (60) percent to eighty (80) percent of the superelevation runoff be on the tangent.

(vi) Spiral curves: Where the alignment includes spiral curves, superelevation is applied entirely on the easement curve.

(vii) Curve widening: Curves will be widened on the inside radius in accordance with the current AASHTO criteria.

(viii) Cul-de-sacs and turnarounds: Using cul-de-sacs should be avoided. Where cul-de-sacs are the only alternative, turnarounds shall be provided. An alternative to the bulb type turnaround is the use of a hammerhead turnaround. Hammerhead turnarounds will only be allowed when, in the opinion of the County Engineer, a standard cul-de-sac is not practical. Figures 5-2 through 5-4 illustrate acceptable cul-de-sac and hammerhead configurations. Other configurations may be approved by the County Engineer. Whenever possible, roadway systems shall provide at least two (2) access points to lots platted for development.

The maximum length of roads ending in turnarounds shall be one thousand (1,000) feet. Adequate snow storage shall be provided to keep turnarounds clear. Dead end roads which do not have turnarounds are not allowed.

(c) Structural sections: Structural sections shall be designated for all new roads, driveways or roads being upgraded due to increased

traffic. Pavement designs shall be in accordance with currently acceptable design procedures and must be approved by the County Engineer. Approved procedures include, but are not limited to, WYPWSS, AASHTO, and the Asphalt Institute. In any case, the minimum pavement thicknesses listed in Table 5-3 must be adhered to.

(d) Side Slopes: Any slope designed steeper than four-to-one (4:1) shall be certified for stability by a registered engineer qualified in soils analysis. Where heavy snowfall is expected, flatter slopes in cuts on the southern side of the roadway should be used to provide maximum exposure to the sun. Flatter slopes should be used wherever possible to reduce erosion, to decrease maintenance costs, to facilitate plant growth and to provide safer operations.

Transition slopes shall be provided between adjoining cuts and fills, and shall be designed for pleasing appearance. Where cut or fill slopes intersect the original ground surface, the cross section shall be rounded to blend the slope into the natural ground surface.

Note: Table 5-9 Maximum Permissible Velocities has been moved and now follows Chapter V, Section 2.c.(3)(e)(i)(D).

Where the side slopes of the original ground approach one and one-half-to-one (1.5:1), the embankment shall be contained with a suitable retaining wall to avoid long fill slopes. Side slopes in rock will be based on the stability of the formation.

Benching of side slopes should be used sparingly and only where justified by sound engineering reasons, including the following:

(i) To stabilize material where benching is more economical than flattening;
(ii) To intercept drainage in long and deep cuts; and/or
(iii) To intercept and store loose material.

(e) Drainage:

(i) General: The primary objective of drainage design is protection of the County roads and property while minimizing the possible flood damage to surrounding properties and structures. Water flowing in a roadside ditch shall be diverted away from the road as quickly as possible. Design Events shall be one (1) hour duration, twenty-five (25) year frequency.

Culverts under all roads shall be designed to accommodate a twenty-five (25) year frequency storm runoff utilizing the maximum available head. The maximum available head shall be determined by the

uppermost ponding elevation chosen to prevent flood damage to upstream properties.

Inlets and other facilities draining the road surface shall accommodate the twenty-five (25) year frequency storm runoff. All roads shall remain free of ponding. At least one (1) travel lane shall remain open during a one hundred (100) year design storm.

All drainage installations shall be designed to permit free, unobstructed passage of debris and silt or provide for their deflection and/or collection at a point upstream that will not create an expensive maintenance problem. Settlement basins shall be provided when a silting problem exists downstream. Modification of natural channels or transferring runoff from one basin to another is not permitted except where no reasonable alternative exists and where the proposal has been reviewed and approved by the County Engineer.

A recurring problem on Park County roads is ice build-up in winter. Drainage design shall anticipate areas of potential ice build-up. Additional design considerations may be required in these areas.

The developer/contractor is responsible for obtaining and complying with all applicable local, state and federal permits.

(A) Storm runoff estimates: The following methods may be used for estimating peak flows:

(I) Runoff from stream flow records;

(II) HEC-1Computer Program from the Corp of Engineers;

(III) "Streamflows in Wyoming", H.W. Lowman, U.S. Geological Survey, Water Resources Investigation Report 88-4045;

(IV) The Rational Method, as follows:

$$Q=CIA$$

Where

Q=runoff in cubic feet/second

C=coefficient of runoff (see Table 5-7)

I=average intensity of rainfall in inch/hour for a duration of the time of concentration

A=drainage area in acres

The rational method should be used only on areas of less than ten (10) acres;

(V) Tabular method as per Technical Release MO55 from the Engineering Division of the U.S. Department of Agriculture; or

(VI) SCS Method; or

(VII) Other methods, if approved by County Engineer

Table 5-7 CO-EFFICIENT OF RUNOFF	
TYPE OF SERVICE	VALUE OF C=RAINFALL
Roofs	0.97
Pavements	
Concrete or Asphalt	0.97
Gravel, from clean loose to clayey and compact	0.60
Earth Surfaces	
Sand, from uniform grain size, no fines, to well graded, Some clay or silt:	
Bare	0.60
Light Vegetation	0.45
Dense Vegetation	0.35
Clay, from course sandy or silty, to pure colloidal clays	
Bare	0.70
Light Vegetation	0.50
Dense Vegetation	0.40

(B) Culverts: Culverts shall be located at each natural draw or water course as conditions warrant to prevent excessive accumulation of flow in roadside ditches or along the toe of slopes. Draws and water courses shall be cleared of debris for a distance of one hundred (100) feet upstream from all culvert inlets.

Inverts at the inlet shall be slightly elevated above the normal flow line in steep or natural draws to avoid plugging by debris. Inlets shall not be elevated in those instances where ponding or accumulation of backwater would be objectionable (stagnation, irrigation ditches, etc.).

The culvert shall slope downward in the direction of natural flow and be designed to be self-cleaning. The outlet shall be designed not to discharge on unprotected fills or unstable material or at adverse angles to streams or open

channels. Head-wall(s), rip-rap or other approved means of protection are required at inlets and/or outlets where erosion might occur.

Velocities of flow in culverts shall be calculated using acceptable design charts or formulas. Where the Manning Equation is used, the following "n" values will apply (see Table 5-8)

Reinforced Concrete Pipe (RCP) shall be used for all installations which cross a County road or are within a County right-of-way.

Corrugated metal pipe (CMP) may be used for driveway crossings.

Alternative materials, including PVC, HDPE, etc., may be approved by the County Engineer provided supporting documentation and justification addresses load analysis, corrosion protection, erosion/abrasive resistance and soil characteristics such as ph. Plastic type pipe will not be allowed where there exists a reasonable expectation of vegetation burning.

Minimum diameter for round pipe shall be eighteen (18) inches. Arch pipe openings, at a minimum shall be equivalent to an eighteen (18) inch round pipe.

Table 5-8 MANNING EQUATION OF "n" VALUES

MATERIAL	MANNING EQUATION "n" VALUES
Corrugated Steel Pipe	0.027
Reinforced Concrete Pipe	0.013
Concrete	0.013 to 0.020
Asphalt	0.016

When a battery of pipes is used, a clear spacing of one-half (½) the pipe diameter (one (1) foot minimum, four (4) foot maximum) must be provided between pipes. Maximum and minimum cover, pipe metal gauge and strength classification shall be as specified on culverts.

Manholes shall be used for cleanouts. Cleanout access shall be provided at least every two hundred (200) feet for pipes twenty-four (24) inches in diameter or less, and at least every four

hundred (400) feet for larger pipes. Cleanout access shall also be provided at each angle point and at each change in grade.

(C) Open channels and ditches: Channels and ditches shall be designed to avoid roadside safety hazards. The minimum flowline slope shall be one (1.0) percent. Maximum slopes shall be controlled by the maximum permissible velocities given in Table 5-9.

Manning's equation shall be used to estimate velocities.

$$V = 1.486 \frac{R - S^{1/2}}{n}$$

where
V=velocity of flow in channel in feet per second
n=roughness coefficient (Table 5-9)
R=hydraulic radius in feet per foot

Where the channel is comprised of a combination of the materials given in Table 5-9, the maximum permissible velocity elected should prevent undue scouring of the finer materials.

(D) Subsurface drainage: Subgrades subject to poor drainage, underground seepage or a high water table shall be adequately drained for roadbed stabilization. Drains shall be installed to prevent the high ground water level from coming within four (4) feet of the roadway pavement. Perforated pipe shall be used to carry away collected water. Other drainage systems may be approved by the County Engineer. French drains which contain no pipe are unacceptable.

Table 5-9 MAXIMUM PERMISSIBLE VELOCITIES

CHANNEL MATERIAL	"n"	VELOCITY (ft/sec)
Lines or well established grass	.05	5
Bunched grasses with exposed soil	.04	3
Fine sand or silt	.02	1
All other bare soils	.03	2

(ii) Subdivision Drainage Facilities:

(A) Runoff: Runoff from a project site after construction shall not exceed the level of runoff which occurred prior to construction. Any runoff

in excess of pre-construction levels shall be detained on-site and infiltrated or evaporated. The entire drainage area upstream from the project site up to a minimum of two hundred (200) acres shall be considered when determining runoff quantities, whether or not the two hundred (200) acre area is part of the project site.

(B) The applicant shall prepare a drainage plan and report addressing the historic and developed flows from the proposed development. The report and drainage plans shall, at a minimum, provide a written graphical representation of the project pre and post development. At a minimum, the drainage plan and report shall address the following:

(I) Historic vs. developed flows for the one hundred (100) year and twenty-five (25) year events.

(II) Developed flows must be shown going to a defined drainage capable of handling the developed flows on site.

(III) Irrigation flows must be considered separately from stormwater flows.

(IV) All calculations used in the report, including detention/retention requirements, control structure requirements, all hydrology and hydraulics, pipe, ditch and conveyance calculations.

(V) Topography (historic and developed) of the proposed development and the drainage basin.

(VI) Construction plans showing all necessary information for the construction and maintenance of the facilities required to implement the drainage plan improvements.

(C) Design of Drainage Improvements: Drainage improvements shall be designed and constructed in accordance with current professional standards. In addition, the following design requirements may be required to be met and documented.

(I) Detention and retention: Detention systems shall be designed to store the difference between the developed volume and the historic volume of runoff

during the twenty-five (25) year event. Discharge from the detention system will be at twenty-five (25) year historic rates. Retention systems shall be designed to store the entire twenty-five (25) year twenty-four (24) hour event from the developed site.

(II) Culvert Sizing: Culverts shall be sized to handle the anticipated quantity and debris flows anticipated for the drainage. Consideration should be given to erosion, scour, flow velocity and the culvert capacity and maintenance. Head-wall(s), wing-wall(s) and/or flared end sections may be required.

(III) Ditch and Open Channel Sizing: Ditches shall be sized to handle the anticipated quantity and debris flows anticipated for the drainage. Consideration should be given to erosion, scour the flow velocity and the ditch capacity and maintenance.

(IV) Gravel Trenches: Gravel trenches shall be designed to store the entire volume in excess of historic rates of runoff, and to allow this runoff to percolate into the soil. In designing gravel trenches, the assumption shall be made that gravel has twenty percent (20%) priority. The percolation rate of the soil shall not be slower than sixty (60) minutes per inch.

(V) Facility capacity and maintenance.

(VI) Storm Flow Routing: As required to a defined and acceptable drainage way.

(VII) Other Methods: Other methods for controlling runoff may be approved or required by the County Engineer.

(D) Required Improvements: Approval of any final plat shall include the requirement drainage improvements be constructed in accordance with these Standards. The improvements shall be included as part of the subdivision improvement agreement and any financial guarantee.

(E) Responsibility: All drainage detention, retention, filtration and facilities including, but not limited to, culverts or evaporation areas are the responsibility of, and shall be maintained by, the subdivision and/or the Homeowner's Association.

(4) Payment of costs for road construction:

(a) Developer responsibility: Any and all costs of new road construction in new developments are the responsibility of the developer. The developer is also responsible for the design, rights-of-way acquisition and construction of the new roads, whether public or private, according to these Standards.

(b) Payback agreements: During the approval process for a proposed development, the developer may be required to construct a new road or to make improvements to an existing road which also benefits future developments. The Board of County Commissioners may establish a plan of compensation to the original developer whereby subsequent beneficiaries pay a fair share for the use of future benefiting developments. The Board of County Commissioners shall determine the equitable distribution of benefits and costs.

d. Bridge design:

(1) Design standards for bridges: Bridges shall conform to AASHTO Standard Specifications for Highway Bridges, latest edition. The design loading requirements shall conform, at a minimum, to AASHTO HS20-44 specifications. Plans and a design report shall be prepared by a Wyoming licensed structural engineer and shall be submitted to the County Engineer for review and approval prior to construction. Clear deck width, at a minimum, must accommodate the full width of the travel lanes of approach roads, as indicated in Table 5-3.

The waterway area shall accommodate a one hundred (100) year frequency storm, unless otherwise specified by the County Engineer. Where flood studies from the U.S. Army Corps of Engineers or the Federal Emergency Management Agency are available, bridges shall be designed to accommodate the "Standard Project Flood". A minimum of two (2) foot of freeboard is required. Additional freeboard shall be required when debris laden flows are anticipated.

(2) Payment of bridge construction costs: If the design of the roadway serving a new development requires construction of new bridges or upgrading of existing bridges, the developer shall be required to pay the cost of such construction. Where construction of a bridge benefits future developments or cures a safety hazard affecting more than the proposed development, the Board of County Commissioners may establish a plan of compensation to the original developer whereby other beneficiaries pay a fair share for use of the bridge.

e. Traffic safety:

(1) Traffic control devices: All signs, striping, markers, delineators, signals and other traffic control devices shall conform to the requirements of the Manual on Uniform Traffic Control Devices, latest edition, hereinafter referred to as the MUTCD, published by the U.S. Department of Transportation, Federal Highway Administration. In new developments, all required street sign names, speed limit signs, stop signs and other traffic control devices shall be paid for by the developer, and installed by

the County unless otherwise approved by the County Engineer. Non-standard signs or other traffic control devices are subject to rigid control and approval by the County Engineer shall be obtained for their use. All signing and striping plans shall be submitted to the County Engineer for approval.

(2) Signs within subdivisions, except for road name signs, are to be maintained by the developer or homeowners.

(3) Sight distance triangle:

(a) Determining dimensions and location of sight distance triangles: For safety and visibility purposes, a sight distance triangle shall be maintained at street intersections and where driveways intersect streets. The distances along the legs of the sight distance triangle shall be measured from the corner or intersection point along the rights-of-way lines or along the edge of the driving surface for driveways as shown in Figure 5-11. Where a road right-of-way is wider than normal or varies in width because it has been expanded to include cut and fill slopes or drainage improvements, the line along which the legs of the sight distance triangle are measured shall be parallel to the roadway at normal right-of-way width for the type of road under consideration.

No landscape materials, earth berm, signs, structures or other visual obstructions shall be allowed between two and one-half (2½) feet and six (6) feet above the surface within the sight triangle. This regulation is not intended to prohibit the planting of trees or retention of existing trees in the sight distance triangle, if they are pruned so branches are higher than six (6) feet.

(b) Incorporating requirements for sight distance triangles into subdivision design: Developers shall incorporate the requirement for maintenance of a sight distance triangle at street intersections and intersections of driveways with streets in the design of subdivisions submitted for County review after the effective date of these Standards.

(c) Enforcing requirement when Building/Zoning Permits are issued.

(i) Where a Building/Zoning Permit is filed for property which is unplatted or was platted prior to the effective date of these Standards, no Building/Zoning Permit shall be issued for a structure which interferes with maintenance of a sight distance triangle unless application of the requirement would result in peculiar and exceptional practical difficulties to, or exceptional and undue hardship upon, the individual proposing development of the property. The County Engineer shall have authority to waive the requirement for maintenance of a sight distance triangle for such property only when an administrative relief does not create or compound a safety problem or concern.

(ii) Where an Application for Building/Zoning Permit is filed for property which was platted or re-platted after the effective date of these Standards, no Building/Zoning Permit shall be issued for any structure which would interfere with the maintenance of a sight distance triangle required by these Standards.

(d) Property owners shall be responsible for maintaining sight distance triangles free of visual obstructions for the portion of a triangle which falls within the boundaries of their property. When the County Engineer receives a complaint concerning visual obstructions at a particular intersection or other locations, the County Engineer shall be responsible for inspecting the intersection and for taking the following measures:

(i) Determine whether the visual obstruction is on public property, then request the appropriate jurisdiction remove the obstruction. If the obstruction is in the County right-of-way, the County may remove the obstruction.

(ii) If the visual obstruction is on private property, notifying the property owner of the requirement that visual obstructions must be removed within thirty (30) days except as follows:

(A) The obstruction is a permanent structure which was built prior to the effective date of these Standards, as long as it does not create a hazardous condition; or

(B) Where the obstruction is caused by the natural or historic topography of the property and not by earthwork undertaken by the current property owner or his immediate predecessors, the property owner shall not be required to regrade his property in order to remove the obstruction.

If the property owner does not comply within thirty (30) days, further enforcement action shall be taken as provided in Chapter V, Section 8 of these Standards.

f. Driveways and parking areas:

(1) Requirement for ROW permit: Whenever a property owner, developer, contractor or other individual proposes to connect a driveway or parking area to a public roadway, they must obtain a ROW Permit from the County Engineer prior to commencing construction. The submittal requirements and procedure for obtaining ROW Permits are stated in Chapter V, Section 4 of these Standards.

(2) Standards for driveway design: A driveway is an access for vehicles providing a connection from a public or private roadway to either individual parcels, residences, multiple residences, commercial businesses, recreational, institutional or industrial land uses or a combination of land uses. An access way serving a ranch or farm and any associated residence, regardless of length, shall be considered a driveway, and shall meet only such standards as are necessary for public health and safety.

Maintenance of driveways, including but not limited to culverts, drainages and surfacing shall be the responsibility of the property owner.

This Standard shall only apply to that portion of the residential driveway that is within two hundred (200) feet of the centerline of the public roadway.

Access to uses, including multiple residences, commercial business, recreational, institution, industrial or a combination of land uses, shall conform to Table 5-10 and these Standards.

The actual location, width and construction requirements are dependent on the use of the driveway(s), including circular and/or multiple accesses and will be reviewed and approved by the County Engineer during the ROW Permit process.

(a) Location of driveways relative to intersections: Driveways shall be placed so the following minimum distances are maintained to any street intersection, including a T-intersection on the opposite side of the street from a property where a driveway is proposed.
    (i) Where the driveway connects to a local access or low volume road, a minimum distance of fifty (50) feet from curve return to curve return shall be maintained.
    (ii) Where a driveway connects to a collector or larger road, a minimum distance consisting of the left turn stacking distance plus twenty (20) feet as measured from curve return to curve return shall be maintained. The left turn stacking distance shall be determined by the County Engineer based on available data from an acceptable traffic study.

(b) Spacing of driveways: Driveway openings shall be separated by at least thirty (30) feet as measured from curve return to curve return, or else shall be combined. More spacing may be required for traffic safety and proper traffic operation.

(c) Shared driveways: Developers or property owners proposing the use of shared driveways shall record an easement defining the location of the driveway and either a covenant or deed restriction requiring construction of the driveway at the location.

(d) Driveway widths: The dimensions of driveway widths, openings~~,~~ and radii shall be as shown in Table 5-10.

Table 5-10 DRIVEWAY/CLEAR ACCESS SURFACE WIDTHS		
TYPE OF SERVICE	MINIMUM DRIVEWAY	RETURN RADIUS MAXIMUM
Commercial/Other	20 feet	*
Field Entrance	10 feet	10 feet
Individual Residence	10 feet	10 feet
Duplex or Multiple Residences	18 feet	10 feet
Multi-family	18 feet	10 feet

* To be determined at time of site plan review

Note: Actual driveway widths shall be provided on ROW Permit and shall be approved by County Engineer or designee prior to construction.

(e) Driveway grades: Driveways shall have a maximum grade of eight (8) percent, and shall provide a reasonable transition in terms of grade between the driveway and the roadway it joins over a distance of not less than twenty-five (25) feet. For single family residences and duplexes located on lots having difficult terrain, driveway grades may exceed eight (8) percent as long as approved by the County Engineer.

(f) Vehicle turnarounds: All driveways exiting onto roadways with average daily counts greater than five hundred (500) VPD shall be designed to avoid vehicles having to back onto the roadway when exiting.

(g) Surfacing of driveways: Driveways serving single family residences or duplexes may be either graveled or paved. Where a driveway is to be graveled, the surface shall be constructed of six (6) inches of crushed road base compacted to ninety-five (95) percent standard proctor. Where a driveway is to be paved, the surface shall be constructed with a minimum of six (6) inches of crushed road base compacted to ninety-five (95) percent and two (2) inches of asphalt. Driveways serving multi-family residences or commercial uses shall be designed in accordance with Chapter V, Section 2 of these Standards.

(h) Provisions for drainage: Driveway design shall make adequate provision for drainage and prevention of erosion. All driveways shall have minimum eighteen (18) inch diameter culverts to handle roadside drainage unless otherwise approved by the County Engineer.

(i) Minimum sight distance: Driveway shall be designed and located to provide a minimum sight distance clear of all obstructions, natural or man-made, for at least two hundred (200) feet in either direction on local access roads and four hundred (400) feet on collector roads. See Figure 5-11.

(j) Driveway Access Approach to Public Road: Driveways shall be constructed to access perpendicularly to the public road. If perpendicular access to the public road is not feasible, then a request for waiver of the perpendicular requirement shall be

submitted in writing to the County Engineer for review and approval.

(3) Standards for parking areas

(a) Parking area grades: Parking areas shall have a maximum grade of four (4) percent, and a minimum grade of (1) percent to facilitate drainage.

(b) Surfacing of parking areas: All parking areas shall be constructed with a minimum of six (6) inches of crushed road base compacted to ninety-five (95) percent standard proctor. Paving of two (2) inches of asphalt will generally be required when fifteen (15) or more parking spots are established for commercial or industrial facilities. Due to the frequency of use and specific function, the design and construction of parking lots comprised of fifteen (15) or more parking spaces shall be approved by the County Engineer.

(c) Provision for drainage in parking areas: Parking area design shall make adequate provision for drainage and prevention of erosion.

(d) Placement of parking areas on fill: If a parking area is to be placed on fill, the fill used shall be suitable material as specified by a registered geotechnical engineer. The fill shall be compacted to ninety-five (95) percent standard proctor with slopes at no more than three-to-one (3:1) and protected to prevent erosion. Parking areas on fill may be designed using retaining walls as an alternative in accordance with the County's Zoning Regulations, and approved by the County Engineer.

g. Landscaping: Whenever roadway or bridge construction results in earth disturbance, revegetation and reforestation is required and shall be completed during the first planting season after construction. Native or similar horticultural material shall be used. All areas disturbed by construction operations not otherwise covered by structures or pavement must be seeded, fertilized, mulched, planted and otherwise treated to provide an established stand of vegetation in accordance with WPWSS Standards. Cut and fill slopes must be treated to prevent erosion. Areas not disturbed by construction shall be left in their present vegetative state, except the thinning of trees may be required.

SECTION 3: Road and Bridge Construction Specifications

a. Purpose and intent: This section sets forth specific standards for roadway and bridge construction in Park County, and is intended for use by developers, property owners, contractors, utilities and others engaging in construction of new roads, upgrading of existing roads, building of bridges and other construction activities within the County road rights-of-way.

b. Construction of roads:

(1) Permits required for road construction: Whenever road construction within County Road rights-of-way results in earth disturbance, the individual responsible for the construction must obtain an approved ROW Permit from the County Engineer's office prior to commencing construction. The submittal requirements and procedure for obtaining ROW Permits are stated in Chapter V, Section 4 of these Standards.

(2) Construction testing: Quality control supervision of the construction shall be done by the developer's engineer at no expense to the County. The County Engineer shall be permitted access to the construction site at all times to make spot checks of quality control. Any additional testing or corrective work deemed necessary shall be done within the time determined by the County Engineer at no expense to Park County.

(a) Sampling of materials: Samples for preliminary approval or production control may be submitted by the producer to the developer's engineer. The developer's engineer shall use an appropriate ASTM or AASHTO procedure to determine the acceptability or rejection of the sample.

(b) Periodic inspection during construction: The County Engineer may conduct periodic inspections during construction to assure compliance with approved construction plans. The County Engineer may establish specific checkpoints when inspections must be conducted and approvals granted before construction is continued. The contractor or developer shall contact the County Engineer twenty-four (24) hours in advance of any required inspections.

(c) Final inspection: Upon completion of construction and prior to County approval of the completed work, copies of the "As-Built" plans, concrete cylinder test reports, compaction test reports and other test data shall be delivered to the County Engineer. In addition, a certification shall be given by the developer's engineer that construction has been completed in conformance with the approved construction plans and standards and specifications. The County Engineer may conduct an inspection to determine if the construction meets County Standards. If the inspection discloses any work, in whole or in part, as unsatisfactory, the County Engineer shall give the developer's engineer the necessary instructions for correction, and the contractor shall comply with and execute such instructions. At the discretion of the County Engineer, the County may withhold the granting of future Building/Zoning Permits or ROW Permits until such time corrective work is completed.

(3) Site preparation:

(a) Utilities protection: The developer or contractor shall at all times take proper precautions to assure the protection of utilities, service lines or other public or private installations, and shall be responsible for the repair of any damage. The developer or contractor shall notify One-Call of Wyoming not less than a minimum of two (2) full business days before excavation begins so the utility company can locate the services. Refer to W.S. §37-12-301 thru 305.

(b) Clearing and grubbing: All large rocks, brush debris, structures and all other unsuitable material shall be cleared to a depth of at least twelve (12) inches below subgrade or as approved by the County Engineer and replaced with suitable material. Locating

suitable disposal sites shall be the responsibility of the contractor or developer, subject to County approval. Trees, except those designated to be saved, and all stumps shall be removed to a depth of at least eighteen (18) inches below the finished subgrade elevation. All trees designated to be saved shall be protected during clearing and subsequent construction operations. Suitable material removed from the excavation may be used in so far as practical, in the formation of embankments, backfilling and for other such purposes.

(4) Structural embankment construction: Embankment construction consists of constructing roadway embankments, including preparation of the areas upon which they are placed, constructing dikes within or outside the rights-of-way, placing and compacting of approved material within roadway areas where unsuitable material has been removed and placing and compacting of embankment material in holes, pits and other depressions within the roadway area. Only approved materials shall be used in the construction of embankment and backfills.

(a) Benching: When an embankment is placed and compacted on slopes steeper than four-to-one (4:1), the roadway shall be continuously benched over those areas. A bench is required at vertical intervals of ten (10) feet maximum. Benching shall be well keyed and where practical, a minimum of eight (8) feet wide. Each horizontal cut shall begin at the intersection of the original ground and the vertical sides of the previous cuts. Material thus cut out shall be recompacted along with the new embankment material at the contractor's expense.

(b) Compaction: Minimum compaction shall be ninety-five (95) percent of the maximum dry density at ± two (2) percent of the optimum moisture content as determined by ASTM D-698.

(c) Rip-rap: Where embankments encroach on stream channels or lakes, calculations of the flows or wave action shall be made and submitted to the County. Based on these calculations, the developer's engineer shall determine the appropriate size rip-rap, and this rip-rap shall be placed along the toe of the slope to protect the embankments against erosion from water action. Rip-rap shall be placed where the potential exists for erosion. The developer's engineer shall provide documentation supporting the size of rip-rap selected.

(d) Prohibited materials: Car bodies, waste concrete and asphalt waste products, organic, wet, frozen or other unsuitable materials shall not be used for any structural embankment construction.

(5) Trench excavation: Trenches shall be excavated so pipes can be laid straight at uniform grade, without dips or humps, between the terminal elevations shown on the drawings.

(a) Trench widths: Trenches shall be excavated to a width which will provide adequate working space and side clearances for proper pipe installation, jointing and embedment and compaction. Minimum trench widths at or below an elevation six (6) inches

above the top of installed pipe shall not be less than outside diameter (OD) plus twenty-four (24) inches. All excavations to be in compliance with OSHA regulations.

(b) Excavation below pipe subgrade: Except where otherwise required, pipe trenches shall be excavated below the under-side of the pipe as shown in Figure 5-6 to provide for the installation of granular bedding material.

(c) Bedding material: Approved bedding shall be used for all pipe installations or as specified on the plans.

(d) Placement and compaction: Bedding material shall be spread, compacted and the surface graded to provide a uniform and continuous support beneath the pipe at all points between bell holes or pipe joints.

After each pipe has been graded, aligned and placed in final position on the bedding material and shoved home, sufficient pipe embedment material shall be deposited and compacted under and around each side of the pipe and back of the bell or end to hold the pipe in proper position and alignment during subsequent pipe jointing and embedment operations. Bedding material shall be deposited and compacted uniformly and simultaneously on each side of the pipe to prevent lateral displacement.

Approved bedding shall be compacted to a minimum of six (6) inches above the top of the pipe in all areas where compacted back fill is specified.

Whenever crushed rock is used as bedding for thirty-six (36) inch and larger pipe, the portion above the bottom of the pipe shall be vibrated with a mechanical vibratory compactor during placement to ensure all spaces beneath the pipe are filled.

(e) Backfill over concrete: All backfill over concrete shall conform to the following requirements.

(i) Initial Backfill: To aid curing, no more than eight (8) inches of loose backfill shall be placed over concrete after the concrete has reached its initial set.

(ii) Final backfill: Additional backfill shall not be placed over arch encasements or blocking until the concrete has been in place at least fourteen (14) days or until the concrete has reached eighty (80) percent of its ultimate design strength.

(f) Compacted backfill: Compacted backfill may consist of job excavated material, finely divided and free from debris, organic material, cinders or other corrosive material, and stones larger than three (3) inches in greatest dimension. Masses of moist, stiff clay shall not be used. Job excavated materials shall be placed in uniform layers not exceeding eight (8) inches in uncompacted thickness. The method of compaction and the equipment used

shall be appropriate for the material to be compacted, and shall not transmit damaging shocks to the pipe. Job excavated material shall be compacted to ninety-five (95) percent of the maximum dry density at ± two (2) percent of optimum moisture content as determined by ASTM D-698. Compacted backfill is required for the full depth and width of the trench above the bedding material within all rights-of-way and easements.

(6) Culverts for driveway crossings: This section covers corrugated metal pipe culverts used for driveway crossing.

Culvert sizing shall be in accordance with Chapter V, Section 2.c.(3)(e) of these standards and regulations. Corrugated metal pipe shall be furnished and installed with all jointing materials, accessories and appurtenances as indicated on the drawings and as specified.

(a) Material: Materials used for driveway crossings shall conform to the applicable. WPWSS for Storm Drains and Culverts

(i) Circular pipe: Corrugated metal pipe shall be galvanized and corrugations may be annular or spiral with annular ends, as shown in Figure 5-7.

(ii) Coupling bands: All field joints in corrugated metal pipe shall be made with coupling bands, fabricated from the same material as the pipe. Coupling bands for field joints in corrugated metal pipe for all culverts shall be the pipe manufacturer's standard coupling band type.

(iii) End sections: Flared metal end sections shall be provided on all culverts unless otherwise specified by the County Engineer. The end sections shall be fabricated from sixteen (16) gauge galvanized sheet metal for thirty (30) inch diameter and smaller pipe, fourteen (14) gauge for thirty-six (36) inch through forty-eight (48) inch, and twelve (12) gauge galvanized sheet metal for fifty-four (54) inch diameter and larger pipe. The end sections shall be provided with a rolled reinforced edge and a galvanized top finish plate.

(b) Handling: Pipe, couplings and accessories will be handled in a manner that will ensure installation in sound, undamaged condition. Equipment, tools and methods used in unloading, reloading, hauling and laying pipe will be such that the pipe is not damaged.

(c) Cleaning: The interior of the pipe and any couplings shall be thoroughly cleaned of all foreign matter before being installed. Before jointing, all joint contact surfaces shall be wire-brushed, if necessary, wiped clean, and kept clean until jointing is completed.

(d) Installation:

(i) Installation requirements: Corrugated metal pipe shall be laid true to the grade required by the drawings, and shall be installed in accordance with the following requirements.

(A) Pipe: The pipe shall be installed in accordance with the details indicated on Figures 5-6 and 5-7 and the applicable portions of Chapter V, Section 3. The pipe shall be protected from lateral displacement by means of an approved bedding material as specified for trench backfill. The minimum cover for corrugated metal pipe is twelve (12) inches.

(B) Couplings: Sections of the corrugated metal pipe shall be joined together using metal coupling bands, centered on the joint, with the pipe sections as close together as possible. Each coupling band shall be bolted in place and tightened sufficiently to ensure a tight joint and to form a continuous conduit capable of resisting all stresses.

(C) Flared end sections: The end sections shall be attached to the culvert by threaded rod and connecting lug.

(D) Rip-rap: If required, culverts shall have a rip-rap bed of ten (10) feet by ten (10) feet at the inlet and outlet for erosion control. The rip-rap shall consist of hard, dense, sound, rough fractured stone as nearly cubic as practical and a minimum d_{50} = 18". Slab type stones and flaking rock shall not be used. Alternate rip-rap size may be approved by County Engineer provided developer's engineer provides supporting documentation or reference for a different size rip-rap.

(ii) Use of culverts at access point to roads: Driveways or road connections to a County road shall not be constructed in such a way as to impede the normal flow of drainage in roadside ditches, culverts, underdrains, bridges or other drainage works, or to cause such drainage to flow onto or across the driving surface of a County road. In the event such an impediment results in damage to a County road, the Road and Bridge Department will remove the impediment and bill the property owner for the costs of repairs to the road, including labor, equipment and materials.

In certain instances, a culvert may not be required by virtue of the topography. This shall be determined during the ROW Permit process.

(7) Borrow: In the event sufficient suitable fill material is not obtainable within the limits of the project to provide all the embankment required, the contractor shall furnish such additional fill material (borrow) to complete

the designated embankment. Borrow shall be an acceptable type of embankment material selected by and approved by the County Engineer and developer's engineer before being placed.

(8) Sub-grade: The bottom of the excavation for the road section, or top of the fill, shall be known as the sub-grade and shall conform to the lines, grades and cross sections shown on the approved plans.

Prior to the road being excavated, all service cuts shall be tested to see if the backfill meets density requirements. If deficient, they shall be re-compacted and brought up to the density specified.

After excavation and embankment is completed and the sub-grade brought to final grade, it shall be rolled with a rubber-tire, sheep foot roller or other compaction equipment as required to bring the sub-grade to the required density and stability. All soils shall be compacted to a minimum of ninety-five (95) percent of standard proctor maximum dry density as determined by ASTM D-698. The minimum moisture content shall not be less than two (2) percent below "Standard Optimum Moisture." Additional wetting may be required when the minimum water requirement is not sufficient to produce a stable condition in the sub-grade soil.

No sub-base or base shall be placed on soft, spongy, frozen or unstable sub-grade which is considered unsuitable by the County Engineer.

Should the finished sub-grade not be compacted under the oversight of a developer's engineer, heavy construction equipment or loaded trucks (over 50,000 lbs. tandem) shall be driven over the finished sub-grade and deflections noted. Soft and yielding material and portions of the sub-grade which show deflection shall be scarified and re-rolled, or shall be removed and replaced with approved sub-grade material, then placed and compacted as specified herein. Sub-grade shall not be approved for further road construction until it is uniformly stable and unyielding. The County Engineer or designated representative shall be present to inspect the proof rolling operation.

(9) Sub-base construction, as necessary by design:

(a) Materials: Sub-base material shall be composed of granular material consisting essentially of sand, gravel, rock, slag, disintegrated granite or a combination of such materials. The coarse portions of the material shall be sound fragments of the crushed or uncrushed materials enumerated above. Supplied material shall be a well-graded mixture containing sufficient soil mortar, crushed dust or other proper quality binding material which, when placed and compacted in the roadway structure, shall result in a firm, stable foundation. Material composed of uniform size particles, or which contains pockets of excessively fine or excessively coarse material shall not be acceptable for use.

The material need not be crushed, but shall be graded within the following limits:

Table 5-11 SIEVES	
STANDARD SIZE OF SIEVE	% BY WEIGHT PASSING SIEVE
2 ½"	100%
2"	95% - 100%
No. 4	30% - 60%
No. 200	5% - 15%
Liquid Limit	35% Maximum
Plasticity Index	6% Maximum

(b) General: The specifications presented in this subsection are performance oriented. The objective in setting forth these specifications is to achieve an acceptable quality of roadway structures.

(c) Random tests: The County Engineer may order random tests of materials used in the County to verify compliance with material specifications. Any and all materials used to construct public and private improvements that are not from a certified source, or are from a certified source and fails one (1) or more random material tests, shall be subject to complete removal. The extent of the material to be removed shall be at the discretion of the County Engineer.

(d) Use of materials not listed: Materials listed in this subsection and provided with a set of specifications are those deemed to be the primary structural materials commonly or typically used in public and private improvements. Alternative materials for construction may be proposed for use, except where expressly prohibited. Decisions on acceptability of alternative materials shall be made by the County Engineer.

(e) Construction: The construction of sub-base shall consist of furnishing and placing approved sub-base material to form a stable foundation on which to construct base course, in conformity with the lines, grades and typical cross sections shown on the plans. In addition, sub-base material shall be used to replace unsuitable foundation materials at locations shown on the plans, or as directed by the County Engineer.

Each layer of material shall be placed and spread so after compaction it shall conform to the width and crown of the typical cross sections. The wetting of sub-base layers shall be done with sprinkling equipment of a type which ensures uniform and controlled distribution of the water. All wetting shall be done by uniformly sprinkling each layer of material being placed with only that amount of water needed to obtain maximum density of the material.

Travel may be allowed over sub-base to assist in compaction of the material. Mixing and blading of the sub-base material on the road shall be required if the material is spotty and non-uniform. However, blading shall be held to a minimum in order to avoid the floating of the heavier rock particles to the surface.

(10) Crushed road base course:

(a) Crushed road base course specifications: Placement of crushed road base material shall conform to the lines, grades, cross sections and thickness shown on the approved plans. Crushed road base material shall conform to WPWSS Grading "H" or "W" Specifications. Use of Grading "H" is preferred, when available. When placed and compacted, it shall result in a firm, dense, unyielding foundation.

(b) Compaction of crushed road base course: Crushed road base material shall be deposited and spread without particle segregation in loose layers not to exceed eight (8) inches in depth or, when compacted, the layer shall have a thickness not to exceed six (6) inches. The material shall be compacted to at least ninety-five (95) percent of the maximum dry density as determined by ASTM D-698 and the moisture content must be no more than ± two (2) percent of the optimum. Rolling equipment shall consist of one (1) or more of the following: rubber tired roller or flat wheel steel roller.

Crushed road base course shall not be placed upon a soft, spongy, frozen sub-grade or sub-base.

(c) Wetting operations: The wetting of sub-base layers shall be done with sprinkling equipment of a type which ensures uniform and controlled distribution of the water. All wetting shall be done by uniformly sprinkling each layer of material being placed with only that amount of water needed to obtain maximum density of the material.

(11) Trenching, backfilling and reconstruction of road surfaces: The method used in trenching for underground utilities and for backfilling trenches shall comply with these Standards and the WPWSS requirements for Trench Excavation. Jetting of backfill is not permitted within County rights-of-way.

Upon completion of installation, the roadway shall be repaired or reconstructed as required Standards for sub-base preparation, base course material thickness and compaction and final surfacing so as to restore the roadway to current construction standards for that type of road.

(a) Gravel roads: Suitable material excavated from trenches may be used for backfill, subject to approval of the County Engineer. At no time shall contaminated, wet, soggy, frozen or other unsuitable material be used as backfill. If proper backfill is not available at the site, suitable material shall be imported and unsuitable material removed from the site. Compacted backfill shall extend to the sub-grade of the road or to natural ground.

(b) Paved roads: Following approval by the County Engineer, all cuts made in asphalt or concrete surfacing shall be made mechanically, cutting a horizontal and vertical line, and shall be cut twelve (12) inches wider than the edges of the trench or the damaged area. The final pavement cut shall not be made until immediately prior to patching. All excavations made in paved roads shall be completely restored as soon as possible, but in no case longer than thirty (30) days after backfill is completed

In the event weather conditions preclude restoration by a hot mix asphalt pavement, temporary repairs may be made by tamping and rolling into place a cold mix asphalt. Such cold mix patches shall be removed and replaced by a permanent hot mix asphalt pavement as weather and availability of materials permit. Permanent hot mix patches shall be no less than four (4) inches in thickness, or not less than the thickness of the existing pavement, plus one (1) inch adjacent to the excavation, whichever is thicker. Permanent patches shall be installed in accordance with Figure 5-5.

Damaged pavement shall be repaired by appropriate methods as approved by the County Engineer. In general, cracks shall be filled with an approved crack filler and chip sealed. An overlay with pavement fabric, the full width of the paved surface, shall be required in those instances where, in the opinion of the County Engineer, the ride quality, safety or appearance of the finished roadway has been impaired. Sub-grade failures caused by the permitee's operation of heavy equipment shall be rectified by reconstructing the pavement sub-grade layers, replacing the sub-base, crushed base and paving.

The County Engineer shall use the following criteria in evaluating the requirements of an overlay:

(i) Four (4) or more cuts are made within a one thousand (1,000) foot section;

(ii) There is no more than ± three-eighths (3/8) inch deviation in the roadway surface in a ten (10) foot span; or

(iii) Construction traffic has caused rutting, raveling or shoving of the existing pavement surface.

d. Bituminous materials:

(1) General: The intent of this section is to specify materials and methods to be used for the construction, overlaying, seal coating and pavement rejuvenating of roads, parking lots, walks and other miscellaneous work. The work covered shall include general requirements applicable to aggregate base course pavements of the plant mix type, bituminous prime coat, bituminous tack coat, rejuvenating applications and asphalt concrete overlay.

All workmanship, materials, and methods of preparation and construction shall be in accordance with specifications in these and WPWSS requirements for Plant Mix Pavements and in conformity with the lines, grades, depths, quantity requirements and the typical cross section shown on the plans or as directed by the County Engineer.

(2) Hot mix plant asphalt pavement: All pavement shall be hot mix asphalt pavement of the plant mix type unless otherwise approved in writing by the County Engineer.

(a) Hot plant mix asphalt pavement: This material shall consist of a mixture of aggregate, filler (if required) and asphalt cement. The job mix formula or mix design shall meet the grading requirements of WPWSS for Aggregates, Plant Mix Pavements

(i) The job mix formula shall be submitted for review and approval a minimum of seven (7) days prior to placing mix on the project. The mix design shall be performed using either the Marshall or Hveem Procedures as outlined in the Asphalt Institute, Mix Design Methods for Asphalt Concrete (MS-2), current edition.

(ii) An additive may be used to meet the requirement for index of Retained Strength, if necessary. Such additives may be hydrated lime, Type I Portland cement or anti-stripping agent as identified in WYPWSS, Specifications for Plant Mix Pavement.

(iii) After the formula is established, all mix furnished shall conform to it within the following range of tolerances.

(b) All commercial testing and laboratory work necessary to establish the job mix formula and all testing necessary to assure conformance of materials and workmanship to the requirements of the specifications throughout the construction period shall be performed at the developer's expense. Two (2) copies of all test reports shall be submitted directly to the County Engineer.

(3) Tack coat: When tack coat is specified on the approved plans or required by the County Engineer, all materials, application and construction shall be in accordance with the WPWSS requirements for Bituminious Materials and Tack Coats. The type of bituminous material, cover aggregate and rates of application shall be as shown on the approved construction plans.

(4) Seal coat: When seal coat is required, all materials and construction shall be in accordance with the WPWSS requirements for Bituminous Materials and Seal Coats. The type of bituminous material, cover aggregate and rates of application shall be as shown on the approved construction plans.

(5) Grinding: Grinding shall consist of "milling", "grinding" or "cold planing" the existing pavement surface to establish a new surface profile and cross section in preparation for a bituminous overlay. After grinding, the surface shall have a grooved or ridged finish, uniform and resistant to raveling or traffic displacement. This textured surface shall have grooves of one-fourth (¼) inch plus or minus one-eighth (1/8) inch. The existing surface to be ground shall include bituminous pavement, concrete utility patches and a very small amount of concrete pavement.

Grinding around utility castings to the depth of cut shall be included in the area of the pavement surface ground. The contractor may choose to remove the entire existing bituminous pavement around the castings where grinding is not completed and replace it with bituminous surface course, placed and compacted in three (3) inch lifts. The contractor shall vertically cut the limits of the area to be patched, mechanically compact the existing base course and prime the bottom and vertical edges before backfilling.

The contractor shall remove the cuttings immediately behind the grinding machine. The removed material shall be disposed of as approved by the County Engineer.

The grinding and cleaning equipment shall utilize a watering system for dust control.

e. Bituminous construction requirements:

(1) General conditions: Bituminous plant mix pavement construction shall meet the WPWSS requirements for Plant Mix Pavements.

f. Roads built on unstable ground: Where conditions require a road be constructed on unstable ground (i.e. soft, soggy or otherwise unstable or unsuitable ground) a special geotechnical investigation and pavement design shall be required by the County Engineer.

g. As-built record drawings: Prior to granting construction acceptance, as-built drawings are required on all construction. As-built drawings shall include revision blocks, as necessary, and shall be signed and sealed by a Wyoming Professional Engineer. The as-built drawings will be field checked by the County Engineer.

Should the County Engineer determine the as-built drawings do not correctly represent constructed field data, the as-built drawings will be returned for verification and correction.

As-built drawings shall include, but not be limited to, the following information:

(1) Plan:

(a) Property and/or rights-of-way lines, easement and/or tracts. Type and dimension of easement or tract clearly labeled: property lines and rights-of-way lines dimensioned;

(b) Lots and blocks shown and numbered;

(c) All drainage facilities, including culverts, detention, retention areas, drainage channels and erosion controls to be shown;

(d) Survey lines and stations, based on centerline stationing. Stationing equated to flow-line at bubbles, cul-de-sacs, horizontal curves and other departures from normal road cross-section, and two hundred (200) feet from all intersections;

(e) Road and road names, including road width;

(f) Match-lines referring to next sheets of design;

(g) Station and elevation (flow-line) of all curb returns, horizontal P.C.s, P.T.s, etc., also the high or low point on all vertical curves;

(h) Directional flow arrows on each side of the road;
(i) Curb return radius, existing and proposed;
(j) Complete horizontal curve data, radius, delta, length, tan, cord, cord bearing.
(k) Centerline stations of all intersecting roads;
(l) Survey line ties to section corners and quarter corners;
(m) Handicap and mid-block ramp locations;
(n) All storm sewer laterals, mains or trunk lines shall be tied to perpendicular off the centerline;
(o) Storm sewer manholes, numbered and stationed;
(p) Inlets numbered and stationed;
(q) Size, type of pipe, slope and footage noted between all manholes, appurtenances and inlets;
(r) Benchmark description with elevations;
(s) Mailbox locations;
(t) Revegation Plan; and
(u) Traffic control and sign plan.

(2) Profile:

(a) Existing ground profile (dotted or dashed) and labeled;
(b) All as-built elevations shall be centerline, flow-line or invert of pipe; top pipe is acceptable for existing utilities;
(c) Centerline or flow-line stationing continuous for entire length of road project with centerline station of all intersecting roads;
(d) Existing improvements in the profile shall include, but not be limited to, sidewalks, curbs and gutters, with certified as-built grades and elevations;
(e) Existing and proposed utilities including, but not limited to, water, gas, telephone, storm sewer, sanitary sewer, irrigation ditches, electric, structures, cable, conduits and under-drains where crossed with grades and elevations;
(f) Invert elevations at all stubs;
(g) Station and elevation of all horizontal P.C., P.T., etc.;
(h) Station and elevation of grade breaks;
(i) As-built construction, including stations and elevations (vertical curves, with VPI, VPC and VP high and low point, not the middle ordinate;
(j) Curb return profiles;
(k) Storm sewer manholes numbered, stationed, rim elevations and invert elevations (E., W., N., and S.) and dimensioned offset from centerline;
(l) Size, type of pipe, footage and slope (in Percent) of storm sewer between manholes and inlets; and
(m) Match-lines indicating references to next sheets.

(3) Details: Details of special conditions and construction shall be as-built.

h. Landscaping installations: Earth-cuts, embankment slopes and all other areas where the ground cover has been disturbed during the course of road construction shall be well revegetated and reforested equal to or better than conditions existing prior to construction. Landscaping material shall be installed in accordance with

plans approved as part of any ROW permit and/or approved construction plans, and shall be fertilized, mulched, watered and otherwise treated to provide an established stand of vegetation by the end of the first full growing season after completion of construction. All Landscaping shall conform to these Standards and the WPWSS requirements for Landscaping.

i. Specification by reference: All applicable specifications of agencies or organizations listed in Appendix 24 are made a portion of these Standards and Specifications by reference, and shall be the latest edition or revision thereof.

SECTION 4: Right-of-Way (ROW) Permits

a. Purpose and intent: A ROW Permit shall be obtained whenever a developer, contractor, property owner, utility company or other individual proposes to install utility lines or culverts or do any work in County road rights-of-way. ROW Permits are required to assure the method of installation meets the specifications in these Standards, provide for the safety of the public, follow generally accepted engineering practices and adequate re-vegetation of disturbed areas outside the roadway is done. They are also intended to assure adequate reconstruction and/or repair of any damage caused to County roads or road rights-of-way.

Road cuts are discouraged by Park County on paved roadways. All paved roadways shall be bored unless a bore would create an unsafe or hazardous condition. If, after the contractor attempts a bore, and the bore is shown to be physically impossible using standard boring techniques, the County Engineer may allow an open cut. Open cuts will only be allowed when the County Engineer determines that a bore is impossible based on a field inspection of the bore location.

If an open cut is allowed, the contractor, at his own expense, shall meet the following minimum criteria:

(1) Submit a Traffic Control Plan for approval;
(2) Install and maintain all traffic control devices prior to the start of and during construction;
(3) Work continuously to complete the work as expeditiously as possible;
(4) Trench backfill shall be made with WPWSS Grading "W" crushed base compacted to ninety-five (95) percent Standard Proctor at ± two (2) percent of optimum moisture in accordance with ASTM D-698 or with an approved lean concrete slurry. Compaction by flooding the trench shall not be allowed; and
(5) Any other requirements deemed necessary by the County Engineer and the Road and Bridge Foremen.

b. Surety: Before issuance of a ROW Permit, the County Engineer may require the applicant to post surety, in the form of a bond, letter of credit, cashier's check or other approved form, in an amount sufficient to complete the project or restore the construction area. The estimated costs shall be costs for the County to complete the project, including all legal and administrative costs.

Criteria to be used in determining whether a surety will be required may include, but is not limited to:

(1) Estimated cost of the project. If the project's estimated costs are less than seven hundred fifty dollars ($750.00), generally a surety will not be required;
(2) Location of the proposed work. If the work involves cutting or disturbing a paved roadway, a surety may be required; and
(3) Past experience with the contractor/developer.

Except for emergencies, if the work and installation are not completed as stated and in accordance with these Standards determined by the County Engineer, the County shall give written notice of the defects to the permitee at least thirty (30) days prior to the expiration date of any bond. The notice shall also state the bond will be called unless satisfactory corrective work is done within twenty (20) days of the notice. If satisfactory corrective work is not done within the required time limit, the work shall be in default and the County shall call the bond. In an emergency, the contractor shall make modifications immediately to protect the health, safety and welfare of the public.

To maintain a reasonable uniform road surface appearance, the County Engineer may require a chip seal over the area of disturbance plus ten (10) feet on either side. Should this be required and the contractor is unable to chip the area due to weather or other causes, the contractor may bond the work or a cost shall be determined by the County Engineer and invoiced to the contractor upon completion of the chip surfacing by the County.

c. Submittal requirements for ROW permits: Applications for ROW Permits shall be submitted to the County Engineer for review and action. Approval shall be granted only if the proposed work meets the purpose, intent and specifications in these Standards, and any required fees have been paid.

Approval of a ROW Permit may be accompanied by any conditions deemed reasonable by the County Engineer to assure protection of health, safety and welfare of the public, the protection of public facilities and compliance with these Standards.

Applications for ROW Permits shall be submitted at least four (4) business days prior to planned commencement of construction for minor installations, which may include, but not be limited to, mailbox and turnout installations, driveways and minor utility work.

Twenty (20) business days prior for major installations, which may include utility and irrigation installations and subdivision access(es), applications for ROW Permits shall be submitted.

ROW permits will not be issued more than sixty (60) business days in advance of any installation. Construction shall not commence without an approved ROW Permit.

Consideration shall be given to how the proposed installation affects County road maintenance and improvement programs.

Approval shall be granted only if the proposed installation meets these Standards, the required fees paid and surety posted, if required.

The ROW Permit must be signed by the County Engineer and a Road and Bridge Foreman for approval.

The following information, including specific dimensions for lengths, widths and relative locations must be submitted with any application for a ROW Permit, unless specific items are waived by the County Engineer as unnecessary:

(1) Fee as required by resolution of the Board of County Commissioners;
(2) Completed permit form;
(3) Permit submittal requirements:
    (a) For minor installations, sketch plan showing the following:
        (i) Location of any excavations using dashed lines;
        (ii) Location of road and road rights-of-way;
        (iii) Location of any driveways;
        (iv) Existing structures, if any; and
        (v) Proposed structures, including any garages;
    (b) For major installations, construction plans and specifications
        (i) All required items as outlined for minor installations;
        (ii) Evidence of legal access, easements, etc;
        (iii) Construction schedule: As part of its approval of any permit, the County Engineer shall review and approve a construction schedule. The approved schedule shall not be changed after the permit is issued without the written consent of the County Engineer; and
        (iv) Traffic Control Plan, in conformance with the MUTCD.
(4) Additional permit requirements: In addition to the requirements listed above, the following may also be required in the permit application for a ROW Permit. At a minimum, a site plan showing the following information:
    (a) Well location, if any;
    (b) Septic system location, if any;
    (c) Location of property lines;
    (d) Location of required setbacks and their dimensions;
    (e) Location of proposed driveways, accesses and their grades;
    (f) Parking areas, see Chapter V, Section 2.f. of these Standards;
    (g) Location and size of drainage culverts, if applicable;
    (h) Mailbox locations;
    (i) Location and size of trees and shrubs within one hundred (100) feet of the proposed point of access;
    (j) Surety covering the cost of reconstruction and/or repair of damage caused to County road or road rights-of-way;
    (k) Pre and post construction photos as required; and
    (l) Revegetation plan.

d. Supervision of right-of-way work: The permittee shall at all times conduct work within County rights-of-way so as to avoid obstruction and hazard to the traveling public and in conformance with the approved Traffic Control Plan. Materials

and/or equipment necessary for construction shall not be stored in the County rights-of-way at any time unless approved in advance by the County Engineer. The roadway and roadside area where work has been performed shall be thoroughly cleared of all debris and extraneous material, and shall be restored to a condition equal to or better than the original when construction is concluded.

e. Inspection and testing of work: Adequate inspections to assure compliance with these Standards are required. It is the responsibility of the permittee to contact the County Engineer at least three (3) business days in advance of any required inspections. In progress inspections of all elements of work will eliminate the need for extensive post testing. At least one (1) inspection at the conclusion of construction is required. In making this inspection, the County Engineer or a Road and Bridge Foreman shall check for compliance with these Standards and approved plans and permits, any damage to public facilities and for adequate cleanup of roadway surfaces and the rights-of-way.

   Any work or material which does not conform to these Standards, pavement failures or broken asphalt, damaged signs or fencing and remaining debris either in the roadway or adjacent property, or improper drainage shall be brought to the attention of the permittee. Any work in which untested or unaccepted materials are used shall be ordered removed and replaced at the permittee's expense. Any required corrective work shall be made at the permittee's expense and shall be done to the satisfaction of the County Engineer. If immediate corrections are not made, further construction shall be stopped.

   In determining whether or not the work done by a permittee is acceptable, the County Engineer will consult with the Road and Bridge Department. If a determination is made that testing is required, the number and location of the tests shall be determined by the County Engineer. If the County Engineer determines testing by an independent lab is necessary, the cost of such testing shall be paid by the permittee.

f. Responsibility for rework: The permittee shall be fully responsible for the maintenance and correction of any faulty construction, including unstable road cuts and chuck holes developed during the construction period and for a period of two (2) years following the final inspection of the work. All deficiencies shall be resolved to the satisfaction of the County Engineer at the property owner's and/or permitee's expense. Failure to do so could be cause to deny acceptance and denial of future permits.

g. Guarantee period for rights-of-way work: The permittee shall be responsible for a period of two (2) years after completion of work for any maintenance or repair necessary to keep the roadway in an acceptable condition.

h. Construction specifications and schedule for work within the County rights-of-way: All work undertaken within the County road rights-of-way shall conform to these Standards, and to approved plans and specifications. In issuing a ROW Permit, the County Engineer shall also review, and if acceptable, approve a Construction Schedule and Traffic Control Plan. The approved construction plans, specifications and schedule cannot be changed without the approval of the County Engineer, except in emergency situations.

i. Road Closure Procedure: Road closures are not permitted unless justified on the basis of overall benefit to the general public. Requests for road closures shall be specified on the permit form submitted by the applicant, and no road closures shall be undertaken unless approved as part of the ROW Permit issued by the County Engineer. All requests for ANY road closure shall be submitted in written format (Temporary Road Closure Application) as outlined by event type further described below. Road closures are only permitted between the hours of 8:00 a.m. and 5:00 p.m. unless otherwise authorized by the County Engineer. At a minimum, the following information shall be submitted with the request for closure:

(1) Simple Event Closure (Closure for non-complicated event – less than eight (8) hours in a single day):
   (a) Temporary Road Closure Application to be submitted a minimum of ten (10) business days prior to the anticipated need for the closure;
   (b) A completed ROW Permit Application;
   (c) Traffic control plan conforming to the requirements of the MUTCD, to include a detour plan (if necessary) or plan to maintain access for local residents, school buses, postal delivery vehicles and all emergency services (including but not limited to Sheriff's Department, local Police Department(s), Fire Districts, Search & Rescue and Highway Patrol);
   (d) Reason and time frame of the anticipated closure, including a sketch plan / diagram of work to be completed;
   (e) List of names and phone numbers of responsible persons (at least two (2)); and
   (f) Proof of Liability Insurance in the amount of one million dollars ($1,000,000.00). A copy of liability insurance to be on file in Public Works Office.

(2) Complex Event Closure (Closure for complicated event – more than 8 hours and/or multiple days):
   (a) Temporary Road Closure Application to be submitted a minimum of twenty (20) business days prior to the anticipated need for the closure;
   (b) All items as outlined in "Simple Event Closure"; and
   (c) Detailed schedule of closure times and locations including when closure will be suspended each day during construction period (special conditions apply to overnight and weekend/holiday closures - closure of intersections must be avoided whenever possible and are not permitted for overnight or weekend/holiday closures).

Except in an emergency, contractors may only close roads after obtaining approval from the County Engineer. The extent, time of closure(s), location of closure(s) and frequency of closure(s) is at the discretion of the County Engineer.

The contractor shall furnish, erect and maintain at their own expense all necessary barricades, suitable and sufficient flashers, signs and any other items necessary to ensure safe road closure procedures. All traffic control devices shall conform to the MUTCD, current edition. Contractors shall also provide, when necessary and

determined by the County Engineer, a sufficient number of certified flagmen and take necessary precautions for the protection of the work and safety of the public around their construction operations. Details shall be provided in the traffic control plan.

The contractor may be required to place notification of the pending closure in the news media and/or at appropriate locations along the route to be closed a minimum of five (5) business days prior to the initial road closure. The contractor shall be responsible for notifying any local residents of the closure. Park County shall notify all appropriate school districts, postal offices, utilities and emergency services including, but not limited to County Sheriff's Department, local police departments, fire districts, Search & Rescue and state highway patrol office.

The contractor is responsible for returning the road to a safe and passable condition prior to re-opening the road, including overnight and weekend/holiday openings. Permanent repairs shall be completed according to the requirements of the ROW Permit and these Standards. Should the closure need to be extended beyond the approved closure time, advance notification is required and must be approved by the County Engineer. Upon completion of the project and reopening of the road, the contractor is responsible for the prompt removal of all signs, barricades, etc. and notification to the County Engineer.

Road closures that extend beyond the permitted period and not previously approved by the County Engineer will be in violation of these Standards. It may also be reported to the Board of County Commissioners for review and appropriate additional actions.

j. Emergencies: If a true emergency exists where time is not available to follow the procedures for obtaining a ROW Permit or for making modifications to the approved plans, specifications and schedule, a contractor may, after receipt of approval by the County Engineer or a Road and Bridge Foreman, proceed with the work. Within twenty-four (24) hours, the applicant shall submit an application for a ROW Permit.

k. Expiration of Permits: ROW Permits are for work to be completed within twelve (12) months of requested start date, or a new ROW Permit must be obtained. All work authorized by each ROW Permit issued by the County Engineer under the provisions of these Standards shall expire if the work is not substantially begun within six (6) months from the date of the permit. If the construction of work authorized by the permit is suspended or abandoned for a period of six (6) months at any time after the work is begun, a new ROW Permit shall be required before such work can be resumed, or an extension may be allowed provided no changes in the original approved plans and specifications have been made or required by the County Engineer.

Any permittee holding an unexpired ROW Permit may apply for an extension of the time within which work may begin under the permit if the permittee is unable to begin work within the time required by this section for good cause and the cause is acceptable to the County Engineer.

Permits expire when the end of the approved construction schedule is reached and must be renewed in advance to prevent the County from calling any bond or financial guarantee posted by the permittee.

l. Posting of ROW Permits: ROW Permits shall be available on the job site.

m. Protection of public safety and convenience: The permittee shall at all times conduct work to ensure the least possible obstruction and hazard to the traveling public. The permittee shall provide for the safety and convenience of the residents along roads where work is being done, and for the protection of persons and property at all times. Adequate warning signs, barricades, lighting, flags and other devices as specified in the MUTCD, and as approved by the County Engineer, shall be provided, maintained~~,~~ and paid for by the permittee. Certified flagmen shall be posted to guide the traveling public where only one (1) traffic lane remains open, or through otherwise unsafe operations.

If, in the opinion of the County Engineer or Road and Bridge Foremen, an unsafe condition exists, or the contractor is not in conformance with the approved traffic control plan, the County Engineer may suspend ALL operations until the situation is corrected. If the contractor does not remedy the situation immediately, the County Engineer may correct the problem and bill the contractor for any expenses incurred.

(1) Construction procedures for rights-of-way work: The permittee shall plan rights-of-way work so it does not create safety hazards or maintenance problems, render portions of rights-of-way unusable for future road improvement or obstruct major floodways.

(2) Compliance with safety standards: The permittee's operations shall conform to the applicable requirements established by the Federal Occupational Safety and Health Act (OSHA), and any other applicable laws or regulations.

(3) Staging of installations: Staging of projects may be required by the County Engineer to produce the least disruption possible for the traveling public. A permit for any subsequent stages may not be issued until the prior stage has satisfactorily progressed or has been completed.

n. ROW Permit work suspension or revocation: The County Engineer or Road and Bridge Foremen may suspend or revoke any permit, in writing, issued under the provisions of these Standards whenever the permit is issued in error or on the basis of incorrect information supplied by the applicant, or when the applicant is not in compliance with the permit conditions or a hazard is created which would pose a threat to the health, safety and welfare of the public.

Should the ROW Permit be revoked or suspended, all work shall be suspended until a new permit or work under the revoked or suspended permit is authorized by the County Engineer. The County Engineer may remove any hazard or work determined not to be in compliance with permit conditions. Any cost incurred by the County shall be billed to the applicant.

SECTION 5. Road Establishment

a. Road Establishment: There are several subdivision roads and existing roads within Park County which are not County roads. In State Statue WS §24-3-101,

et seq, there is a process to be followed to petition the County to establish a non-County road as a County road. The Board of County Commissioners may, at their sole discretion, grant or deny establishment of these roads. Any road petitioned shall be brought up to current County Standards prior to requesting the road be established as a County road.

b. Acceptance procedure for roads constructed by developers: The Park County Development Standards and Regulations require developers to construct roads necessary to serve approved subdivisions and developments. These roads shall be built to County Standards. The developer may propose to build either public or private roads, and the County may require that roads be offered for dedication to the public.

SECTION 6. Miscellaneous Policies

a. Snow removal policy: It is the County's policy to plow after an accumulation of at least four (4) inches of snow.

Snow removal operations will start early enough to allow for the necessary snow removal on the main school bus routes prior to the scheduled bus runs.

During major snow storms, snow removal operations will concentrate on keeping the main traveled roads open during normal school/working hours. Driveway approaches and mail box pull-outs may be plowed only after the road system has been plowed and clean up operations can commence. Driveway entrances are generally the responsibility of the property owner with possible exception to emergency situations.

Snow removal operations will not be conducted between the hours of 9:00 p.m. and 4:00 a.m. for any reason except a life threatening emergency. Snow removal operations utilize the following priority system (see Table 5-12):

Table 5-12 SNOW REMOVAL OPERATION PRIORITY SCHEDULE

ROAD CLASSIFICATION	PRIORITY
Primary/Arterial	1
Secondary/Collector	2
Residential	3
Local Access	4
Recreational	5

Exceptions to this priority system include school bus routes and emergency access requirements. It is the County's policy to provide snow removal operation in a consistent and economical manner on County roads.

The County does not provide snow removal operation on private roads, except in emergency conditions.

The County may move a vehicle that causes an obstruction to a County road so the vehicle does not cause such obstruction. The County is not responsible for any damage caused to the vehicle.

b. Mailbox policy:

(1) All mailbox installations shall require the approval of the U.S. Postal Service, and the County Engineer. All mailbox installations shall conform to the requirements shown on Figures 5-9 and 5-10. Any deviations from these requirements shall be reviewed and approved by the County Engineer and the Postmaster.

(2) Mailboxes shall have pullouts constructed as a joint project of the box holder, Park County and the U.S. Postal Service. All mailboxes and turnouts must be designed, constructed and installed in conformance with all applicable sections of these Standards, including but not limited to requirements to obtain a ROW Permit, sight triangle and distance restrictions and traffic safety requirements.

(a) Box holders may remove and replace their existing mailboxes and stands at their own expense, provided the design of their structure is not deemed a safety hazard by the U.S. Postal Service or the County Engineer and the required ROW Permit is acquired.

(b) When Park County has a road reconstruction, repair or upgrade project, the Road and Bridge Foremen will be responsible for pullout construction, notification of box holders and scheduling of construction. This does not apply to subdivision mailboxes within the subdivision.

(3) A mailbox damaged by the impact of plowed snow or ice shall be replaced or repaired by the mailbox owner and at the owner's expense. When a mailbox is hit by a plow and damaged, it will be replaced by the County.

c. Fence policy: Park County does not install or maintain fences along its rights-of-way. Should a property owner wish to install a fence along the County rights-of-way, the fence must be installed in accordance with these Standards. Maintenance of the fence shall be the responsibility of the property owner. Generally, fences are to be installed beyond the County rights-of-way. If a property owner requests fence to be installed within the County rights-of-way system, per W.S. §11-28-105, the Board of County Commissioners shall consider the request and recommendations of the County Engineer and/or Road and Bridge Foremen and may authorize the construction. The Board of County Commissioners shall be responsible for determination if owner or County shall be responsible for payment.

(1) Standards:

(a) All fences within County rights-of-way shall be installed in accordance with WYDOT Standard Specifications, Section 607. Any deviations from these WYDOT Standard Specifications must be reviewed and approved by the County Engineer and the Road & Bridge Foremen.

(b) All fences within County rights-of-way shall be designed, constructed and installed in conformance with all applicable sections of these Standards, including but not limited to,

requirements to obtain a ROW Permit, sight triangle and distance restrictions and traffic safety requirements.

d. Cattle guard policy: Park County maintains existing cattle guards on the County Road System. If a property owner requests a new cattle guard within the County road rights-of-way system, the Board of County Commissioners, per W.S. §11-28-105, shall consider the request and recommendations of the County Engineer and/or Road and Bridge Foremen and may authorize the installation. The Board of County Commissioners shall be responsible for determination if owner or County shall be responsible for payment. The property owner is responsible for all fencing to connect to the new cattle guard.

(1) Standards:

(a) All cattle guard installations shall conform to the requirements shown on Figures 5-12, 5-13, 5-14 and 5-15. Any deviations from these Standards must be reviewed and approved by the County Engineer and Road & Bridge Foremen.

(b) All cattle guard installations must be designed, constructed and installed in conformance with all applicable sections of these Standards, including but not limited to, requirements to obtain a ROW Permit and traffic safety requirements.

e. Irrigation facility policy: Park County recognizes the need and importance of irrigation facilities. However, these facilities may create hazards or be detrimental to the purpose and function of the County road system. It is therefore the policy of Park County to locate irrigation facilities outside of County rights-of-way whenever possible.

(1) Irrigation facilities within County road rights-of-way: Irrigation facilities which must be within the County rights-of-way shall be constructed to reduce impacts to the road system and eliminate hazards to the traveling public.

At a minimum, the following practices shall not be allowed within the County rights-of-way:

(a) New supply and waste ditches;

(b) New diversion structures; or

(c) Open or unlined channels.

Park County will work cooperatively with irrigators to resolve conflicts with new and existing facilities.

(2) Irrigation facilities within subdivisions: Subdivision irrigation improvements shall conform to the requirements of the State Engineer's Office and any applicable irrigation district or ditch company. Construction Plans for all irrigation facilities required for the development shall be submitted with all other construction plans.

f. Utility company facilities: Park County recognizes the need and importance of public utility facilities to be placed within the County rights-of-way. These facilities may create hazards or be detrimental to the purpose and function of the County road system. It is therefore the policy of Park County to locate these facilities in accordance with the following standards.

(1) Standards: All utilities shall be installed in accordance with the plans and specifications approved by the utility owner and the County Engineer. Where applicable, the plans for installation must bear the name, seal and signature of a registered Wyoming Professional Engineer responsible for their preparations. The alignment of all utilities within County rights-of-way and major floodways is subject to approval by the County Engineer. All alignments of utilities within special flood hazard areas must have a floodplain permit.

(a) Underground utilities: All accesses to underground utilities from the road surface (e.g. manholes, vaults) shall be of heavy duty construction made of cast iron, capable of safely supporting anticipated maintenance equipment and vehicular traffic and a minimum AASHTO HS-20 loading. No aluminum castings will be allowed. Concrete collars in conformance with the WPWSS standard drawings are required.

All valves, manholes, vaults or other appurtenant structures located within the rights-of-way shall not interfere with the County's use of the rights-of-way and shall be buried a minimum of twelve (12) inches, except in paved areas. In paved areas, these appurtenant structures shall conform to the finished grade of the road.

Seep plugs shall be installed in trenches used for underground utilities at no less than five hundred (500) foot intervals if the possibility exists that the surrounding water table will be lowered and this will have an adverse effect on surrounding wells and vegetation dependant on the water table elevation.

All non-metallic facilities shall have tracer wire installed with the facility. Minimum wire shall be #12AWG, solid copper.

Park County accepts no responsibility for facilities not adequately marked or buried.

(b) Aboveground utilities: All aboveground utilities shall be located and installed so as not to cause unnecessary obstruction to pedestrian and vehicular traffic or damage to the utility itself. No pole or structure above ground shall be placed within a pedestrian walkway nor set closer than twelve (12) feet to the shoulder of any County road. A lesser distance, however, may be allowed if insufficiently cleared right-of-way is available to meet this minimum distance. In no case will a pole, guy and/or anchor be permitted within twelve (12) feet of the shoulder of a County road except light and traffic control poles with breakaway bases. Overhead lines shall be permitted to sag under worst anticipated conditions no lower than eighteen (18) feet above the roadway and shall preferably be no closer than twenty-three (23) feet.

(c) Utilities in major floodways: All utilities within or adjacent to major floodways shall comply with the Park County Floodplain Regulations and other applicable floodplain regulations and shall be located and installed in a manner that will prevent objectionable damage such as land erosion, water pollution or flood diversions.

(d) Changes affecting utilities: Future changes to County roads may require the relocation or removal of utility installations. For minor changes, the affected utility company shall complete the relocation or removal within thirty (30) days after notification by the County Engineer. For major utility relocation projects involving extensive design and securing of contracts or material orders, the affected utility company shall complete the relocation or removal within ninety (90) days, or a time frame as mutually agreed upon, with approval from the County Engineer of the final design. To avoid the necessity for such changes, utility companies are encouraged to locate their facilities consistent with future plans for County roadways. Any removal and/or relocation of utilities within the County rights-of-way shall be the expense of the Utility.

g. Survey monument policy: Park County recognizes the need to allow access to survey monuments within County road rights-of-way. In some cases access to these monuments may cause damage to the road surface and become a maintenance problem and hazard to the public. It is therefore the desire of Park County to coordinate with the surveying community to provide the access and to repair the pavement around the monuments.

h. Rural road naming and addressing policy

(1) Statement of Purpose: It is the purpose of these Standards to promote the public health, safety and general welfare, and to provide for a coordinated and uniform road naming and addressing system within Park County:

(a) To protect human life and health;

(b) To optimize the response for emergency services, such as fire, ambulance, rescue and relief efforts undertaken at the expense of the general public;

(c) To apply to all addressing within the jurisdiction of Park County, including but not limited to, state, county, public and private roads and easements; and

(d) The following Wyoming Statutes are incorporated herein by reference: W.S. §§ 1-1-120; 18-2-101; 18-3-504; 18-5-201 through 208; 16-9-101 through 108' 24-1-104; 35-9-401 through 406.

All residences on a single parcel of property shall submit an application for an address with the appropriate fee and shall have a County assigned address. Other facilities, such as barns, trailers, commercial structures and other facilities, may be required to be addressed.

(3) Definitions. Unless specifically defined below, words or phrases used in these Standards shall be interpreted so as to give them the meaning they have in common usage and to give these Standards the most reasonable application. The following definitions are specific to this section.

(a) County Road: A right-of-way established according to state statute within the jurisdiction of Park County.

(b) Public Road: A road right-of-way or easement dedicated or established for the use of the general public.

(c) Private Road: A roadway for the use of an individual or particular group of individuals.

(d) Subdivision Road: A road right-of-way or easement dedicated or established through the subdivision process.

(e) State Highway: A right-of-way established according to statute by the State of Wyoming, under the jurisdiction of the State of Wyoming.

(f) City Street: A right-of-way established according to state statute and municipal code, under the jurisdiction of a town or city.

(g) Existing Address: A number assigned, recorded and/or used which was issued by the County or fire district.

(h) New Address: An address number yet to be assigned and recorded by the County.

(i) Residence: A house or facility/establishment which may be any structure, such as a building, or temporary, such as a trailer, which is occupied/lived-in for some continuance of time on a parcel of property.

(3) General Provisions:

(a) A formal written procedure follows, as outlined in Sections (4) (Application) and (5) (Process) below.

(b) Land to which these Standards apply. These Standards shall apply to all areas within the jurisdiction of Park County.

(c) Basis for establishing. To provide for a uniform coordinated rural addressing system for Park County. Park County uses a mileage-based system for addressing, which means addresses are assigned from a known point, usually the beginning of the road.

(d) Designation of addressing responsibility. The Public Works Department, under the direction of the County Engineer, shall be responsible for the implementation of these Standards.

(e) The duties shall include, but not be limited to, implementation and enforcement of these Standards.

(f) Address Review Committee. An Address Review Committee will be comprised, at a minimum, of members from the following agencies:

Park County Engineer's Office	Park County Sheriff's Office
City of Cody	City of Powell
Town of Meeteetse	

Fire Districts, including: Clark, Cody, Powell and Meeteetse.

(g) Road name signs. It is neither the desire nor the intent of the County, through its addressing policy, to differentiate between public and private roads, nor to imply a right of ingress or egress. Generally, the following sign conventions will be followed:

(i) County Roads - Formally established County roads will be marked with a County Route Marker, MUTCD designation M1-6. County road names or numbers do not necessarily mean the roads are established as County roads or are maintained by the County.

(ii) Other Named Roads - Other named roads, public, private, subdivision, etc., will be marked with a Street Name Sign, MUTCD designation D3.

Requests for signs with additional wording such as "Private Road", "Private Drive" or other private signs will be denied by the County. This does not preclude the property owner, at his expense, from installing these signs on private property. Such signs shall be installed outside of any County or public rights-of-way and may not be attached to the road name sign or signpost.

(h) Interpretation. In the interpretation of these Standards, all provisions shall be:

(i) Considered as minimum requirements;

(ii) Liberally construed in favor of the governing body; and

(iii) Deemed neither to limit nor repeal any other powers granted under state statute.

(i) Warning and disclaimer of liability. The degree of protection required by these Standards is considered reasonable for regulatory purposes. These Standards shall not create liability on the part of Park County, any officer or employee thereof for any damages that result from reliance on these Standards or any administrative decision lawfully made thereunder.

(4) Application

(a) Application for an address. Application for an address shall be made on forms furnished by Public Works.

(5) Process

(a) Application review. Upon receipt of a Request for an Address form, Public Works will review for the following:

(i) Legal access;

(A) Proof of legal access may be required to be furnished by the applicant.

(ii) Property ownership;

(iii) If address location is on a currently named road - proceed to (5)(b) below; and

(v) If a private road name will be required - proceed to (5)(c) below.

(b) New address location on a currently named road.

(i) Public Works shall provide the applicant with an approved marker and instruct the applicant to place the marker at the location of the proposed driveway; and

(ii) Public Works shall determine an address for the location based on location of applicant placed marker.

(c) Address location on a road requiring a road name. A road shall be named in the following cases:

(i) New address is the third address located on a particular access;

(ii) Increased development is anticipated to be located on a particular access that may result in three (3) or more addresses off of a known road;

(iii) Any road that in the opinion of any member of the Address Review Committee should have a new road name; and

(iv) Once it is determined a new road name is required, the following procedure shall be followed:

(A) The County reviews the property ownership on adjacent properties to the road in question;

(B) The property owners are contacted in writing and given the opportunity to nominate names for consideration;

(C) Once submitted, the Address Review Committee reviews the nominations;

(I) Any conflicts or perceived conflicts between proposed road names and existing road names, which are already established in Park County, will not be allowed. All names not disqualified through the review process will be submitted to the landowners so they have a chance to vote.

(II) If the landowners cannot agree, the County Engineer will assign a road name.

(D) Once a road name is accepted, all the affected landowners will be notified outlining the new road name and corresponding new addresses. A copy is sent to emergency services, utility companies, county offices, postal service, etc.; and

(E) The County sign technician is notified for installation of the new road sign and address markers.

(d) Modification of an existing address. If Public Works or a member of the Address Review Committee determines a modification of an existing address is needed, Public Works will initiate a change following the procedures outlined in Sections (b) and (c) above.

(e) Assignment of road name(s) and address(es). Once the Applicant and Public Works have complied with the requirements of these Standards, Public Works will assign an address, and if required, a road name.

(f) Notification of address. Once a road name and an address are determined, Public Works will notify the applicant and appropriate agencies.

(g) Correction of self-assigned address. When an unauthorized address is discovered, Public Works shall notify the property owner of the violation and initiate the process in accordance with these Standards to correct the address.

(5) Minimum fees

(a)	Street name sign	$ 150.00
(b)	Address marker - new address	$ 150.00
(c)	Replacement marker - worn out naturally	$ 0.00
(d)	Replacement marker - other causes	$ 50.00
(e)	Correction of self-assigned address	$ 250.00
(f)	Failure to properly mark driveway	$ 50.00 plus mileage
(g)	Change by applicant of driveway location or address marker	$ 150.00

(h) Exception to charges:

(i) County or Agency required changes

(A) New subdivisions will obligate developers to pay for street name signs.

(6) Enforcement

(a) No address number(s) shall be released until all required County permits have been issued.

(b) No address number(s) shall be released until all costs have been received.

SECTION 7. Administrative Relief from Design and Construction Standards: Whenever there are practical difficulties involved in carrying out the provisions of these Standards, the County Engineer may approve Administrative Relief. Relief from the design criteria and construction specifications contained in these Standards may be granted by the County Engineer under the following circumstances.

a. The practical difficulties arising from application of these regulations are significant or create exceptional and undue hardship upon an applicant, provided the conditions of Section 7.d. below are met.

b. If an individual is proposing to construct a low volume or local access road and the application of these Standards would result, in the opinion of the County Engineer, in excessive cut and fill slopes, visual scarring or other environmental damage, Administrative Relief in road design standards may be granted if granting the Administrative Relief will result in lessened environmental damage, and the conditions in Chapter V, Section 7.d. of these Standards are met.

c. If documentation is provided including, but not limited to, technical references from recognized professional organizations, or significant changes to standards adopted by reference in Appendix 24 offer options to these Standards, Relief may be granted by the County Engineer. Further, if it is determined at the sole discretion of the County Engineer the option is an improvement or viable alternative which maintains the same level of care and safety intended by these Standards, Administrative Relief may be granted.

d. Administrative Relief from the difficulties or hardships described in Chapter V, Sections 7.a. and b. of these Standards may be granted provided Relief will not result in substantial detriment to public health, safety and welfare, or

substantial impairment of the road design and construction standards. Prior to taking action, the County Engineer and the Road and Bridge Foremen shall review the request for an Administrative Relief and, if necessary, refer any request for Administrative Relief to the appropriate fire district, the Sheriff's Department and other interested agencies for comment. The County Engineer shall make a determination on whether or not an Administrative Relief request should be granted.

In reviewing such requests, the County Engineer shall, at a minimum, consider the following:

(1) The effect of using a lesser standard of public health and safety including the ability of emergency vehicles to gain access using roads built to a lesser standard;
(2) The severity of the terrain crossed by the road alignment;
(3) The availability of alternative alignments where the same or more stringent road standards could be met with the same or less environmental damage;
(4) The length of road segments which will be built to a lesser standard; and
(5) Future maintenance requirements, including, but not limited to, snow removal.

Costs may be included in the review of an Administrative Relief request, but shall not supersede public health, safety and welfare or substantial impairment of the road design and construction standards. If costs are considered, the County Engineer shall consider the initial and long term costs. The applicant shall provide all cost data requested by the County Engineer, as required, to provide a complete cost analysis.

If an applicant does not agree with the determination made by the County Engineer, the applicant may appeal the decision to the Board of County Commissioners.

SECTION 8. Enforcement of Design and Construction Standards

a. Organization and enforcement: The County Engineer is authorized and directed to enforce all provisions of these Standards. The County Engineer may appoint the Road & Bridge Foremen, construction inspector or other related technical officer or inspector or other employee to act as an authorized representative.

Whenever any work is being done contrary to the provisions of these Standards, the County Engineer may order the work stopped by a written notice which shall be served on any persons engaged in the doing or causing of such work to be done, and any such persons shall forthwith stop such work until authorized by the County Engineer to proceed.

b. Liability: Park County, or its authorized representative~~,~~ charged with the enforcement of these Standards, acting in good faith and without malice in the discharge of duties set forth herein shall not be rendered liable for any damage that may accrue to persons or property as a result of any act or by reason of any act or omission in the discharge of such duties.

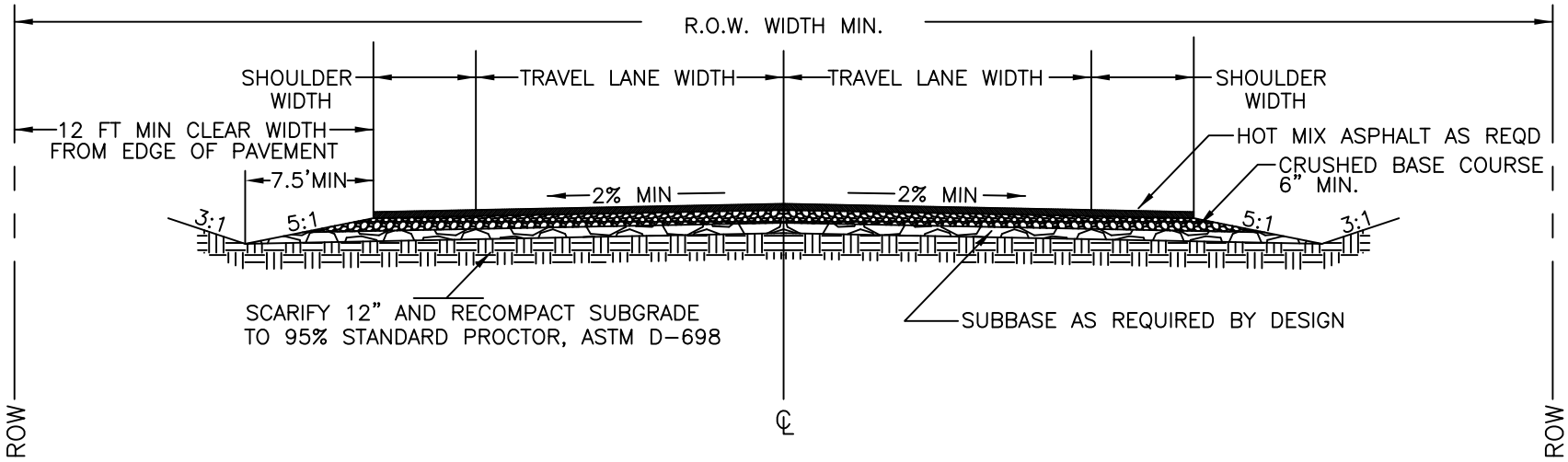
c. Violations: It shall be unlawful for any person, firm or corporation to construct, enlarge, alter, repair, move, improve, remove, excavate, convert or demolish any public improvements or common facilities or permit the same to be done in violation of these Standards. Contractors who violate these Standards shall be subject to denial of future ROW Permits.

APPENDIX 24

STANDARDS ADOPTED BY REFERENCE

AAN	American Association of Nurserymen
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AI	Asphalt Institute
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
APWA	American Public Works Association
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASLA	American Society of Landscape Architects
ASTM	American Society for Testing and Materials
ATTSA	American Traffic Safety Services Association
AWWA	American Water Works Association
AWSE	American Welding Society Code
CUHP	Colorado Urban Hydrograph Procedure
DIP	Ductile Iron Pipe
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
IMSA	International Municipal Signal Association
ISO	Insurance Services Office
ITE	Institute of Transportation Engineers
MUTCD	Manual on Uniform Traffic Control Devices
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NOAA	National Oceanic and Atmosphere Administration
OSHA	Occupational Safety and Health Act
SCS	Soil Conservation Service
UL	Underwriters Laboratories, Inc.
USDA	United States Department of Agriculture
UD&FCD	Urban Drainage and Flood Control District
USGS	United States Geological Survey
WPWSS	Wyoming Public Works Standard Specifications
WYDOT	Wyoming Department of Transportation

FIGURE 5-1
TYPICAL ROAD SECTION



MINIMUM ROAD SECTION PROPERTIES (REFERENCE TABLE 5-3)

CLASSIFICATION	ADT	R.O.W. WIDTH FT MIN.	NO. LANES	TRAVEL LANE WIDTH FT	SHOULDER WIDTH FT	SECTION MINIMUMS	
						FULL DEPTH HMA IN	CRUSHED BASE/HMA IN
PRIMARY(ARTERIAL)	> 700	80'	2	12'	6'	8"	DESIGN REQ'D
SECONDARY(COLLECTOR)	100-700	60'	2	12'	4'	6"	8"/3"
RESIDENTIAL	≥ 99	60'	2	12'	2'	6"	6"/3"
LOCAL ACCESS	< 99	60'	2	12'	2'	N/A	6"/N/A
RECREATIONAL	N/A	40'	2	10'	N/A	N/A	6"/N/A

NOTES:
ADDITIONAL ROW MAY BE REQUIRED TO PROVIDE A MINIMUM CLEAR DISTANCE OF TWELVE (12) FEET. FROM EDGE OF PAVEMENT TO ROW LINE.

PAVEMENT SECTION AS PER APPROVED PAVEMENT DESIGN OR MINIMUM SECTION PER TABLE 5-3.

PARK COUNTY
ROAD & BRIDGE STANDARDS
STANDARD DRAWINGS

ISSUED:8-10-10
REVISED:2-23-10

DRAWING NO.:
5-1

FIGURE 5-2
TYPICAL CUL-DE-SAC

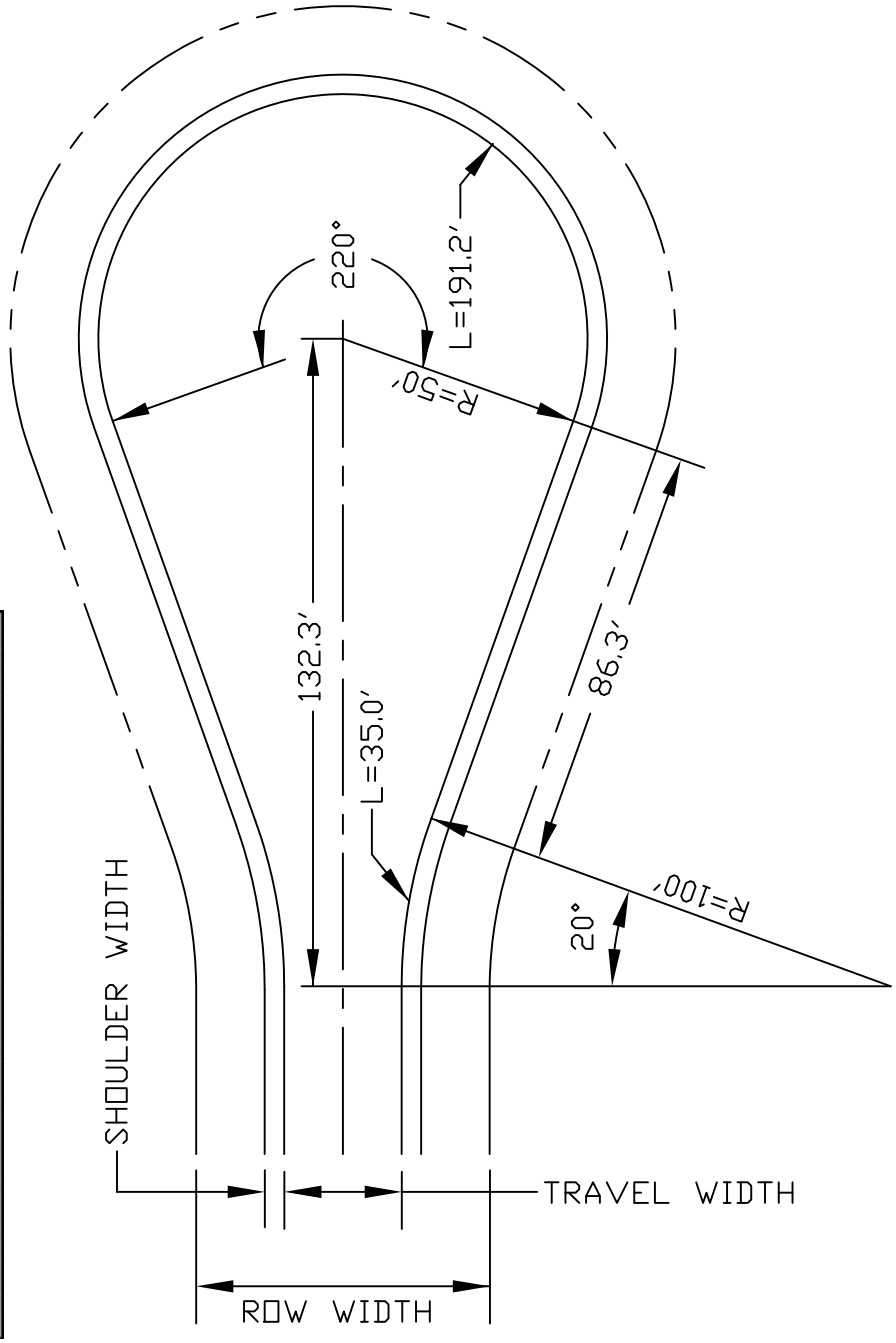
CLASSIFICATION	ADT	ROW WIDTH	TRAVEL WIDTH	SHOULDER WIDTH	PAVEMENT REQUIRED
PRIMARY	> 700	80	24	6	YES
SECONDARY	100-700	60	24	4	YES
RESIDENTIAL	≥ 99	60	24	2	BY DESIGN
LOCAL ACCESS	< 99	60	24	2	N/A
RECREATIONAL	N/A	40	20	N/A	N/A

NOTES:

ADDITIONAL ROW MAY BE REQUIRED TO PROVIDE A MINIMUM CLEAR DISTANCE OF TWELVE(12) FROM EDGE OF PAVEMENT TO ROW LINE.

PAVEMENT SECTION AS PER APPROVED PAVEMENT DESIGN OR MINIMUM SECTION PER TABLE 5-3

OFFSET CUL-DE-SAC MAY BE CONSTRUCTED OPPOSITE HAND IF DESIRED



PARK COUNTY
ROAD & BRIDGE STANDARDS
STANDARD DRAWINGS

ISSUED:8-10-10
REVISED:2-23-10

DRAWING NO.:
5-2

FIGURE 5-3
OFFSET CUL-DE-SAC

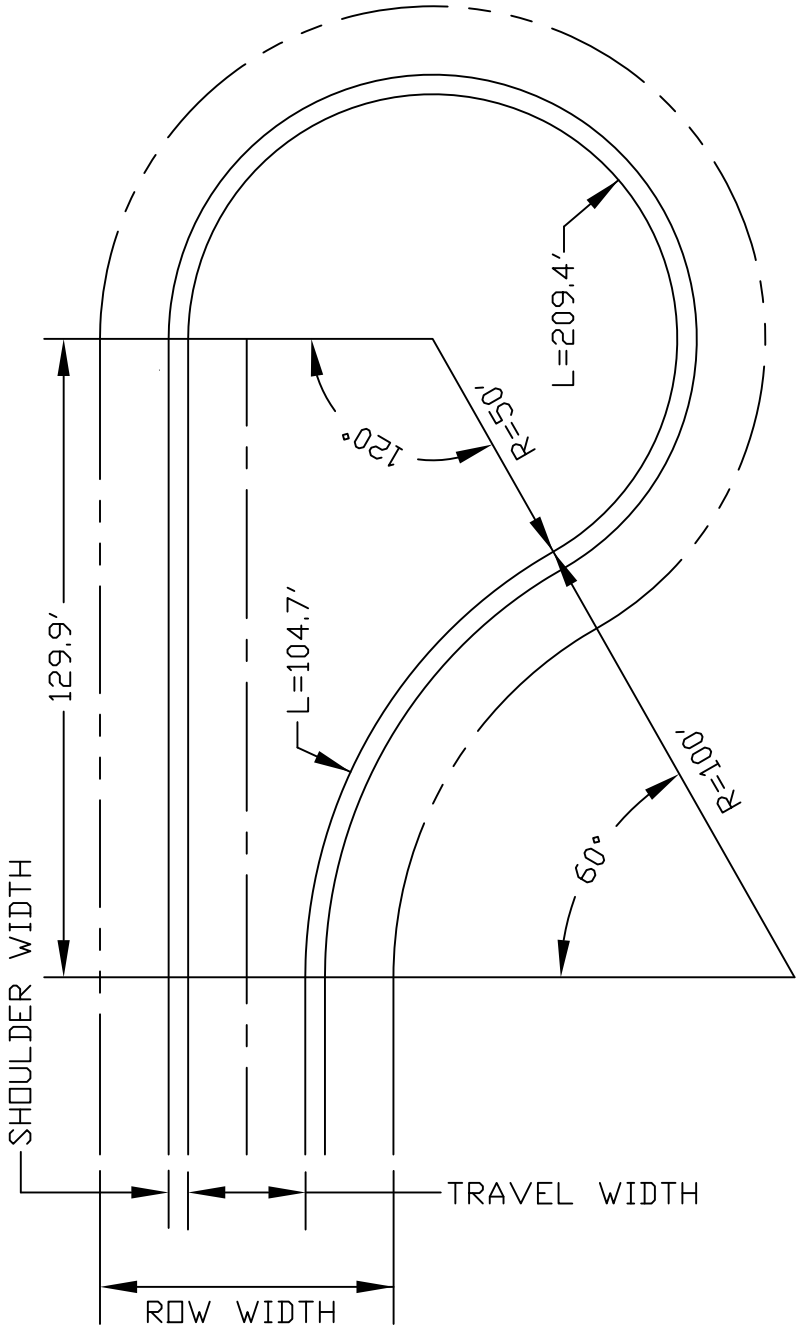
CLASSIFICATION	ADT	ROW WIDTH	TRAVEL WIDTH	SHOULDER WIDTH	PAVEMENT REQUIRED
PRIMARY	> 700	80	24	6	YES
SECONDARY	100-700	60	24	4	YES
RESIDENTIAL	≥ 99	60	24	2	BY DESIGN
LOCAL ACCESS	< 99	60	24	2	N/A
RECREATIONAL	N/A	40	20	N/A	N/A

NOTES:

ADDITIONAL ROW MAY BE REQUIRED TO PROVIDE A MINIMUM CLEAR DISTANCE OF TWELVE(12) FROM EDGE OF PAVEMENT TO ROW LINE.

PAVEMENT SECTION AS PER APPROVED PAVEMENT DESIGN OR MINIMUM SECTION PER TABLE 5-3

OFFSET CUL-DE-SAC MAY BE CONSTRUCTED OPPOSITE HAND IF DESIRED

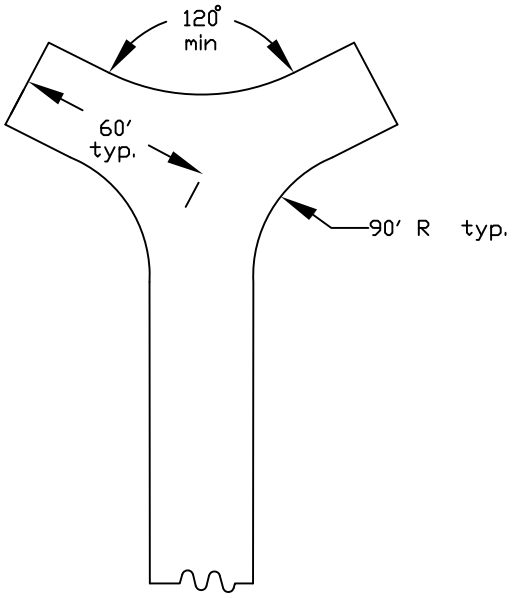


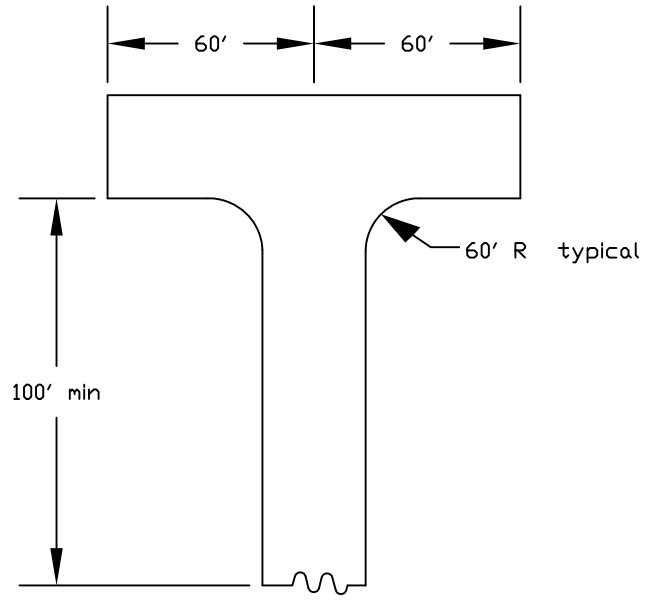
PARK COUNTY
ROAD & BRIDGE STANDARDS
STANDARD DRAWINGS

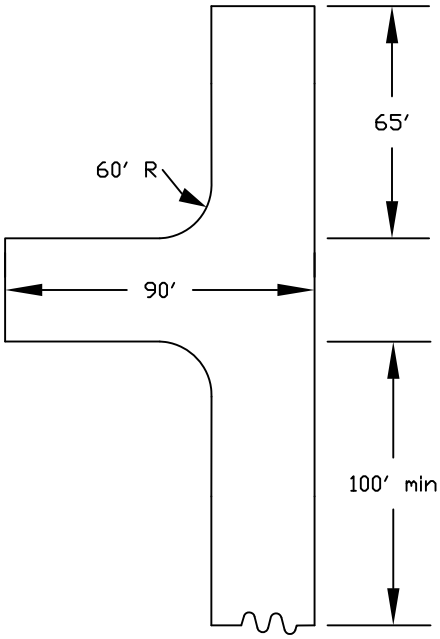
ISSUED:8-10-10
REVISED:2-23-10

DRAWING NO.:
5-3

FIGURE 5-4
HAMMERHEAD DESIGNS



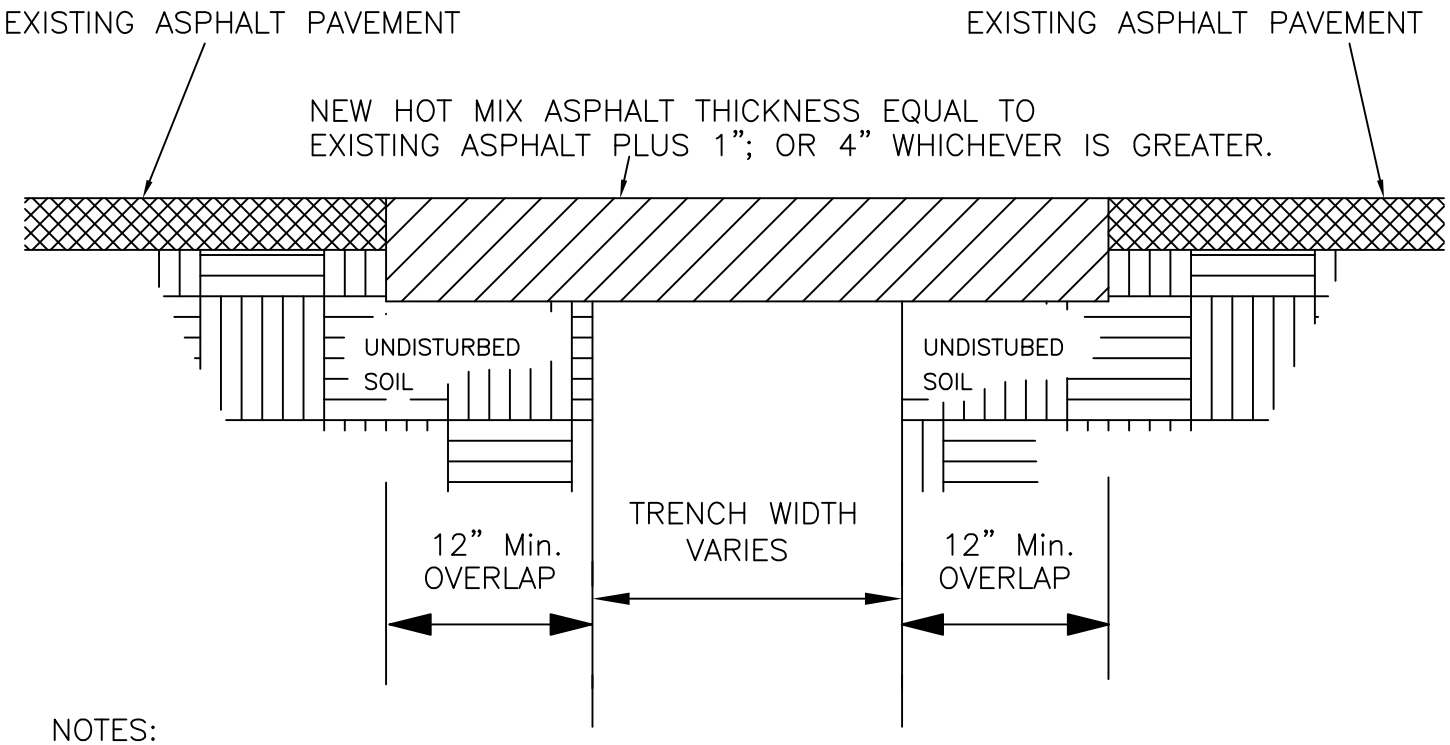




ROAD WAY WIDTH IN HAMMERHEAD SHALL AT A MINIMUM MATCH THE ROADWAY WIDTH WITH SHOULDERS OF THE TYPICAL ROAD SECTION.

	PARK COUNTY ROAD & BRIDGE STANDARDS STANDARD DRAWINGS	ISSUED:8-10-10 REVISED: DRAWING NO.: 5-4

FIGURE 5-5
TYPICAL ASPHALT ROADWAY PATCH



NOTES:

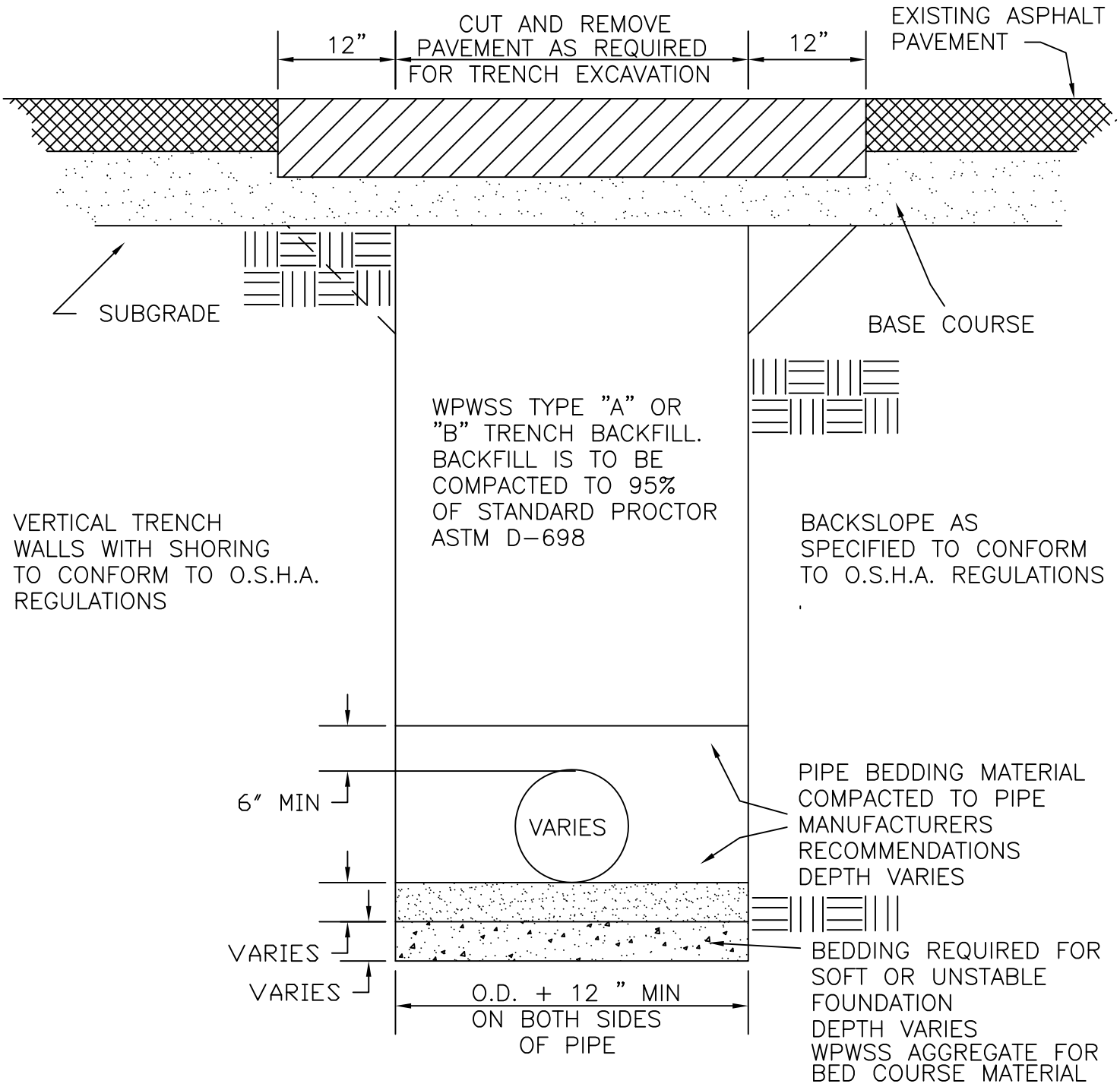
1. ALL PAVEMENT EDGES SHALL BE SAWCUT ENTIRE DEPTH OF ASPHALT. ALL SAWCUTS SHALL BE IN NEAT AND STRAIGHT LINES.

2. ALL EXISTING ASPHALT EDGES SHALL BE CLEANED AND TACKED PRIOR TO INSTALLATION OF THE NEW HOT MIX BITUMINOUS PATCH.

3. THIS PATCH STANDARD APPLIES TO ALL PAVED SURFACES. FOR THE PURPOSES OF THESE STANDARDS, PAVED SURFACES ARE DEFINED AS BEING ANY IMPROVED SURFACE NOT COMMONLY MAINTAINED WITH A ROAD GRADER. PAVED SURFACES SHALL INCLUDE, BUT NOT BE LIMITED TO CHIP SEALS AND ASPHALTIC CONCRETE SURFACES.

4. NEW HOT BITUMINOUS PAVEMENT SHALL BE INSTALLED IN MAXIMUM 3" LIFTS.

FIGURE 5-6
TYPICAL TRENCH DETAIL



PARK COUNTY
ROAD & BRIDGE STANDARDS
STANDARD DRAWINGS

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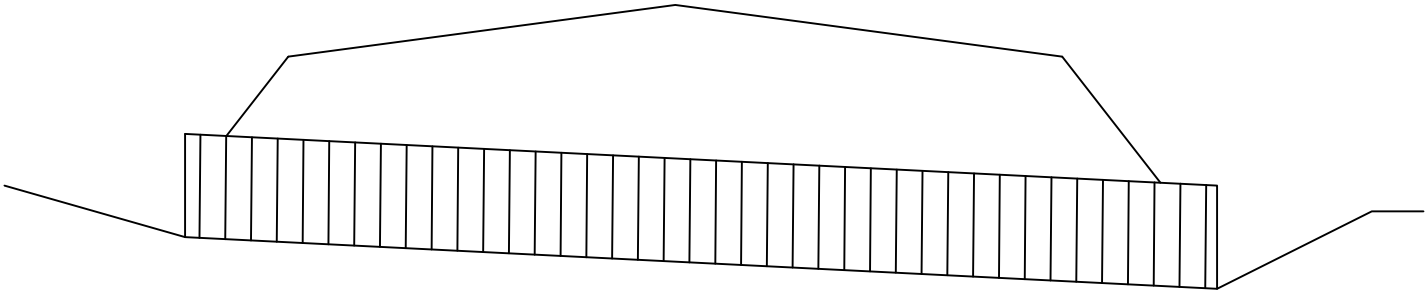
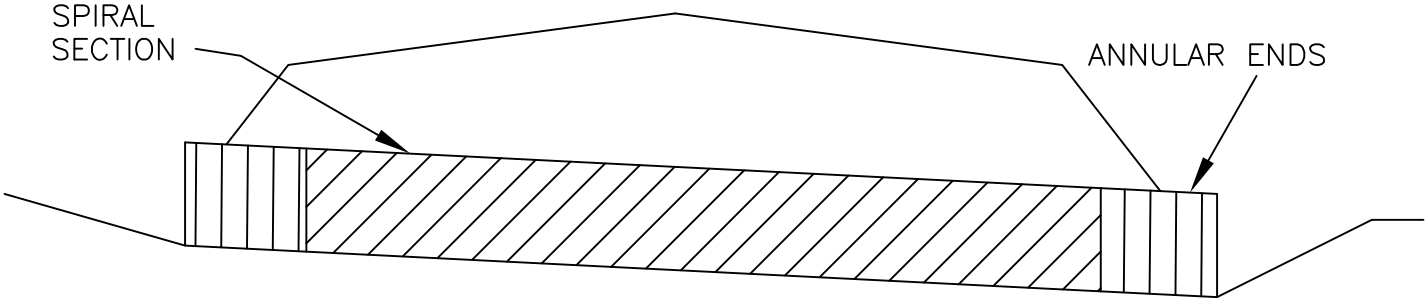
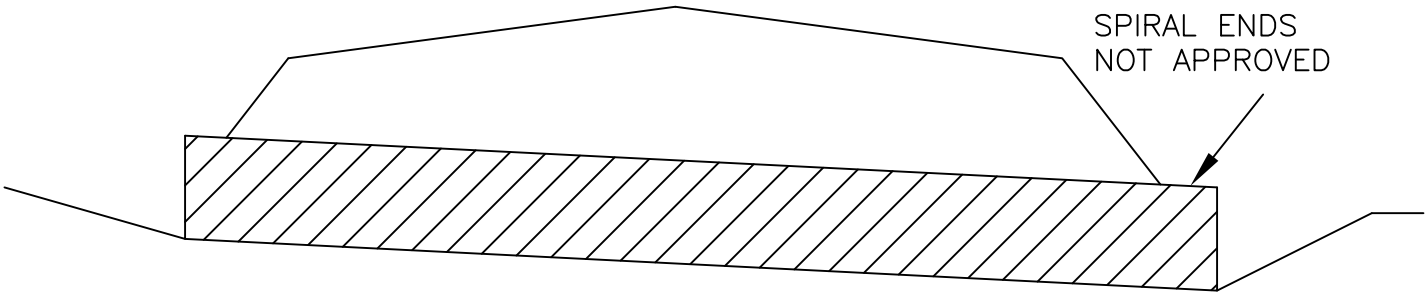
FIGURE 5-7
EXAMPLES OF TYPICAL CULVERT APPLICATION



ACCEPTABLE ANNULAR CULVERT



ACCEPTABLE SPIRAL CULVERT WITH ANNULAR ENDS



UNNACEPTABLE SPIRAL CULVERT

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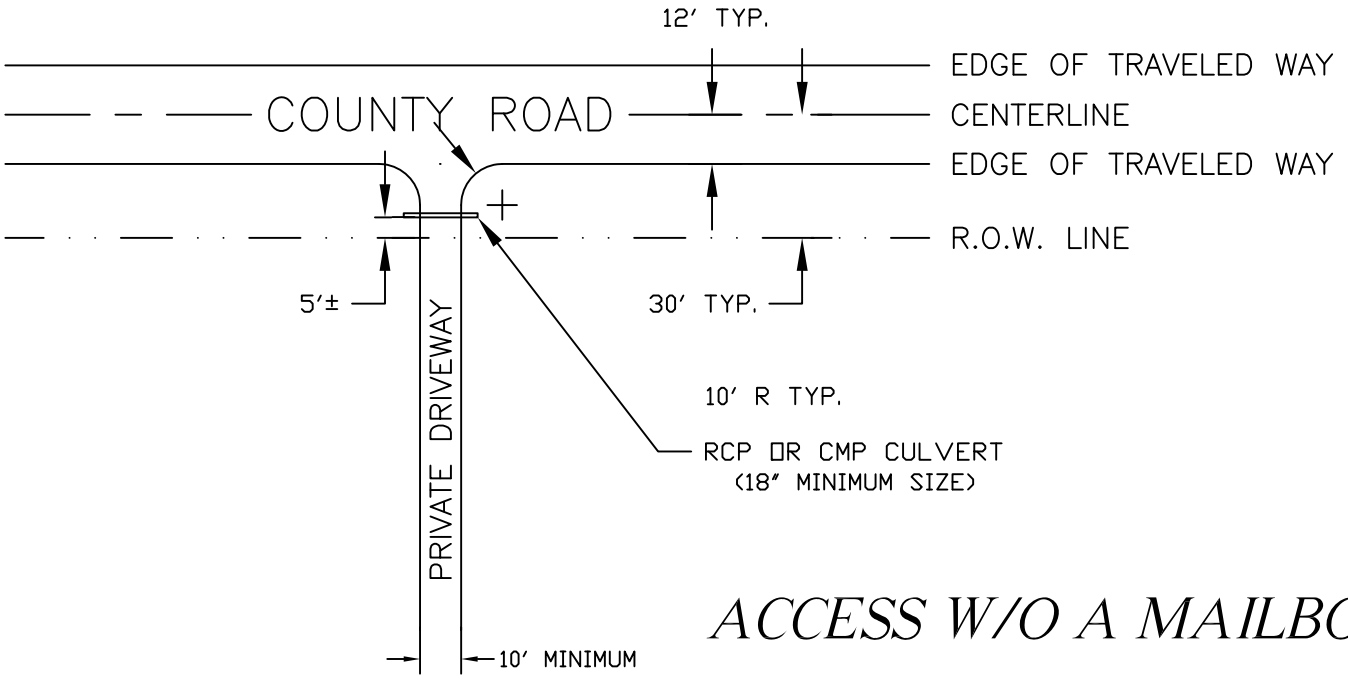
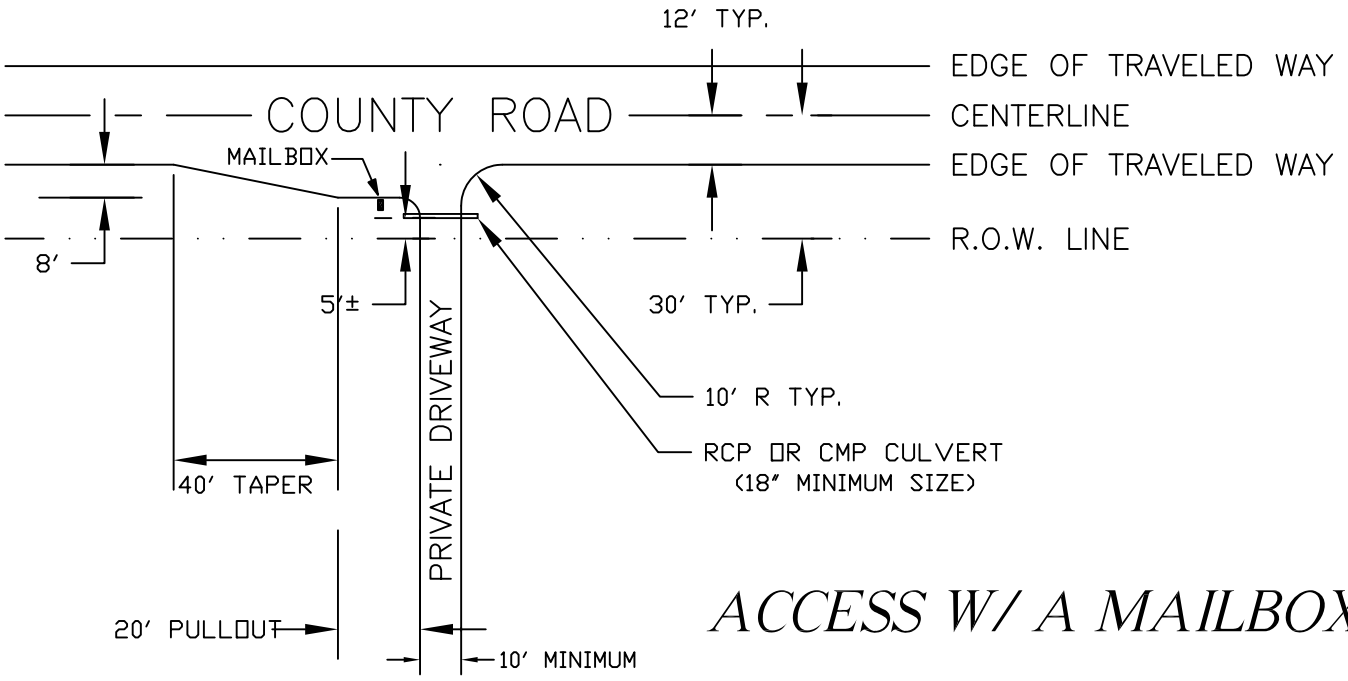
FIGURE 5-8
TYPICAL RESIDENTIAL ACCESS



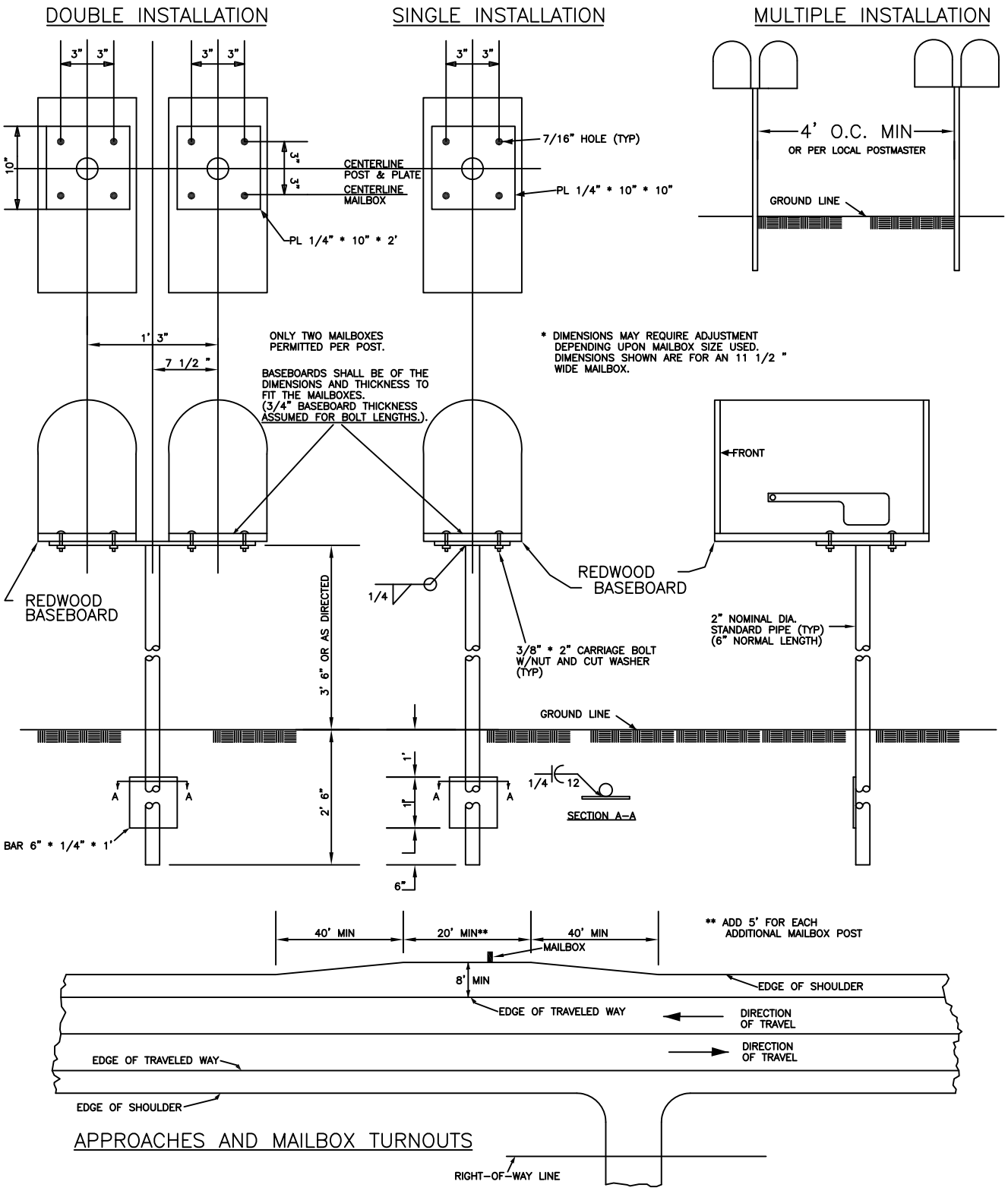
ACCESS W/O A MAILBOX



ACCESS W/ A MAILBOX

	PARK COUNTY ROAD & BRIDGE STANDARDS STANDARD DRAWINGS	ISSUED:8–10–10 REVISED: DRAWING NO.: 5-8

FIGURE 5-9
MAILBOX POSTS AND TURNOUTS



PARK COUNTY
ROAD & BRIDGE STANDARDS
STANDARD DRAWINGS

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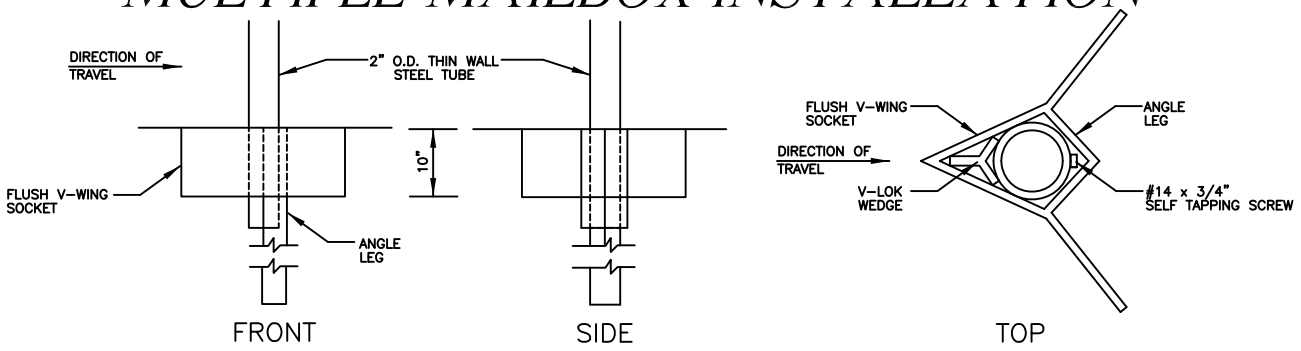
FIGURE 5-10
MULTIPLE MAILBOX INSTALLATION



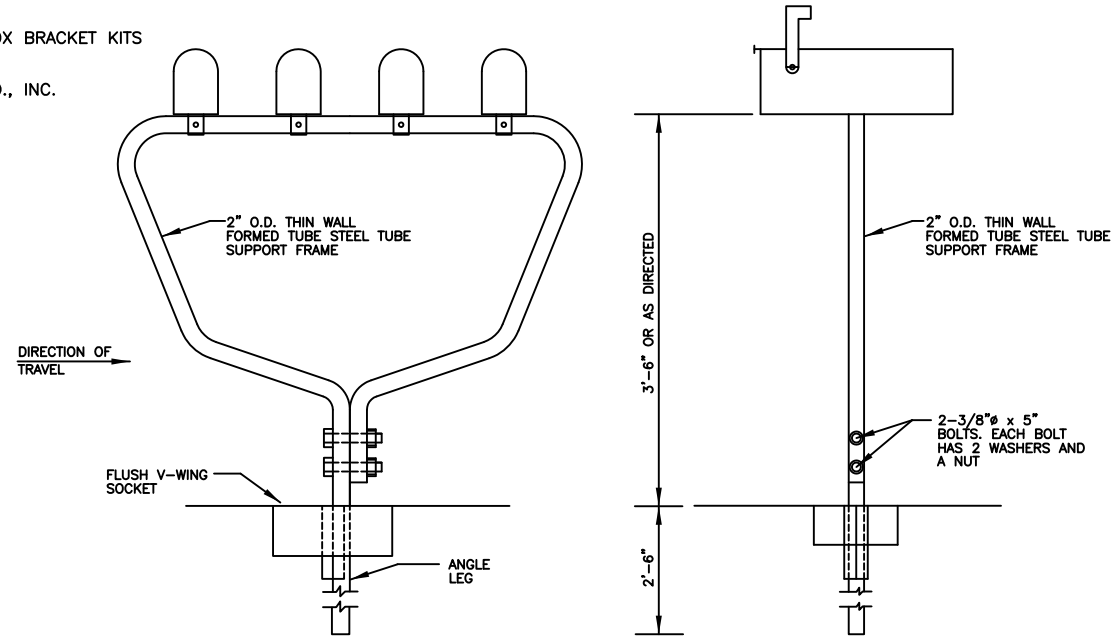
V-LOCK TYPE SUPPORT

TYPICAL INSTALLATION – TRAFFIC & PARKING CONTROL CO., INC OR EQUIVELANT (TAPCO)

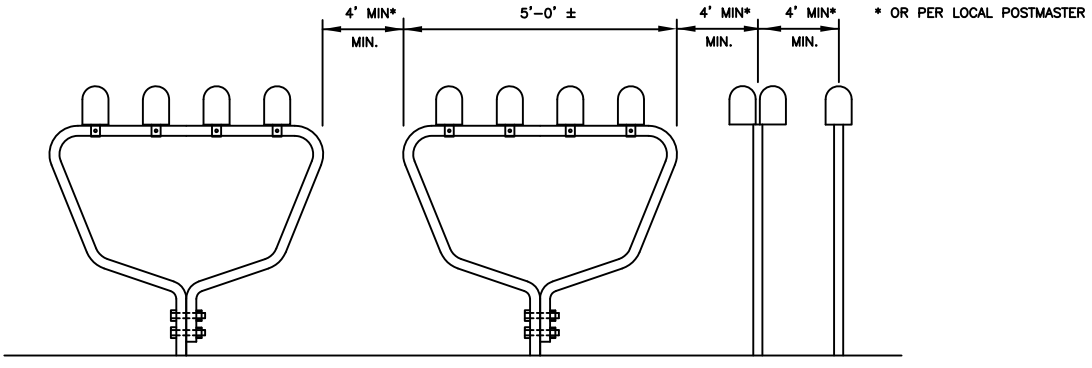
20-M2 MULTIPLE LARGE MAILBOX SUPPORT KIT:

2" OD 14 GA. FORMED POST
20-VR3 V-LOCK SOCKET
SW-1 WEDGE
FOUR MBB-M (MULTIPLE) MAILBOX BRACKET KITS

TRAFFIC & PARKING CONTROL CO., INC.
5100 W BROWN DEER ROAD
BROWN DEER, WI 53223
PHONE: 1.262.814.7000
TOLL FREE PHONE 800.236.0112
QUICK LINK INFO@TAPCONET.COM



MULTIPLE MAILBOX MOUNT



SUPPORT SPACING

PARK COUNTY
ROAD & BRIDGE STANDARDS
STANDARD DRAWINGS

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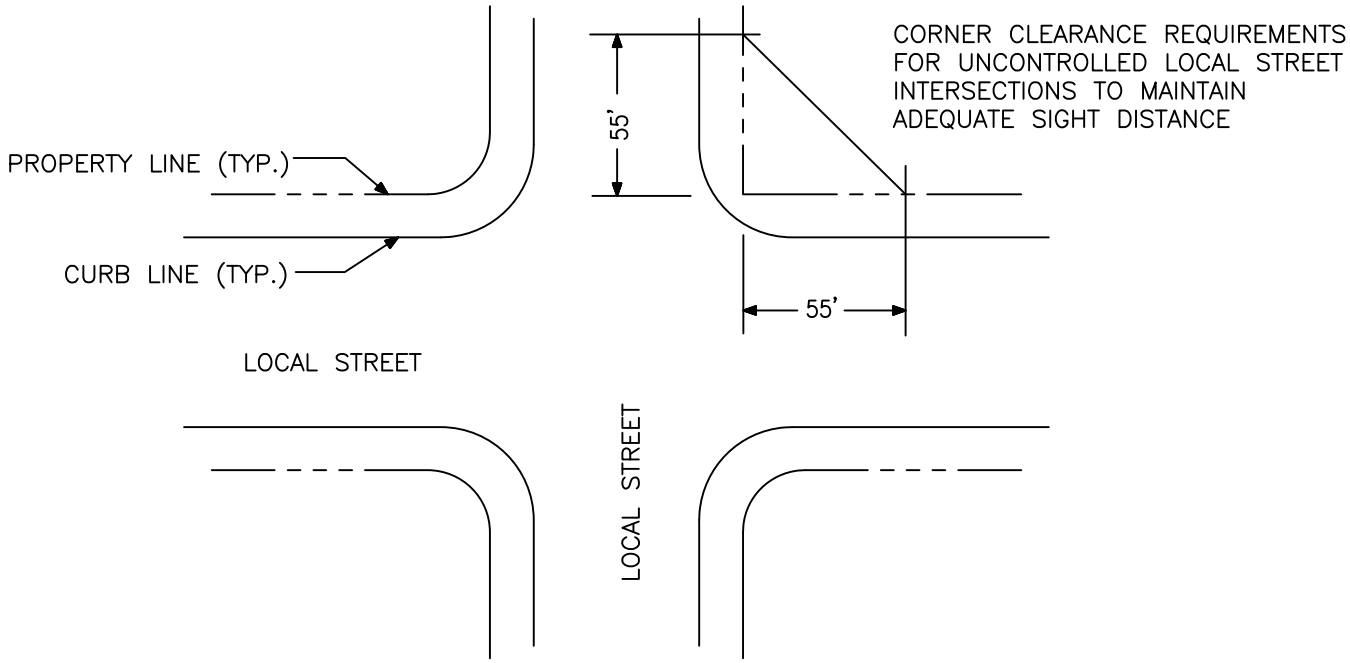
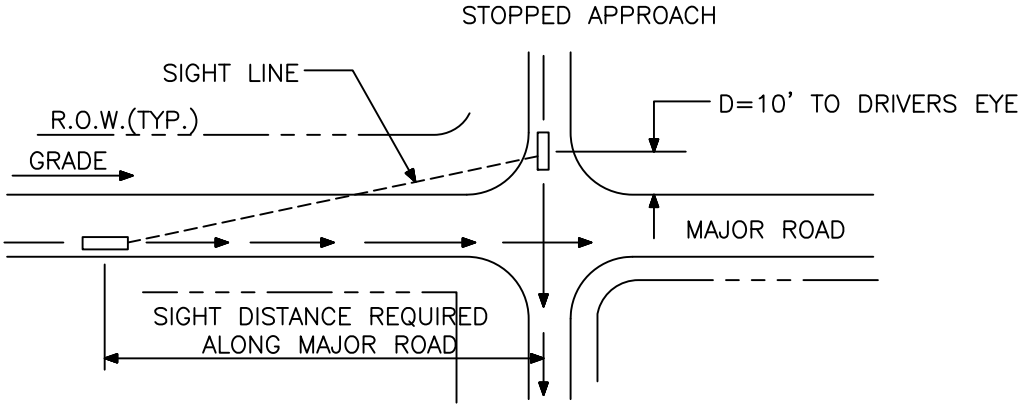
5-10

FIGURE 5-11
SIGHT DISTANCE





DESIGN SPEED OF THRU ROADWAY (MPH)	MINIMUM SIGHT DISTANCE FOR STOPPED VEHICLE (FT.)	GRADE CORRECTION DISTANCE (FT.)				
		SPEED	UPGRADE TO		FOR DOWNGRADES	
			3%	6%	3%	6%
25	250	25	0	−10	+10	+20
30	300	30	0	−10	+10	+20
35	350	35	−10	−15	+10	+25
40	400	40	−10	−20	+10	+30
45	450	45	−15	−25	+15	+40

PARK COUNTY
ROAD & BRIDGE STANDARDS
STANDARD DRAWINGS

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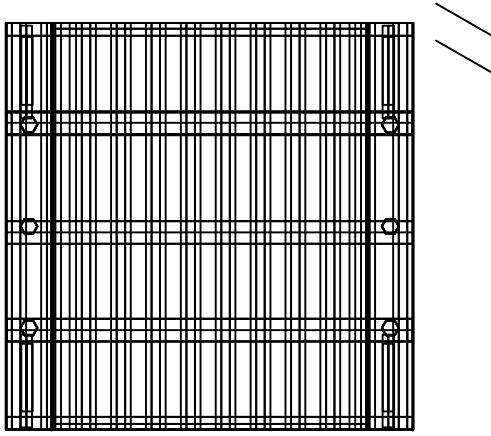
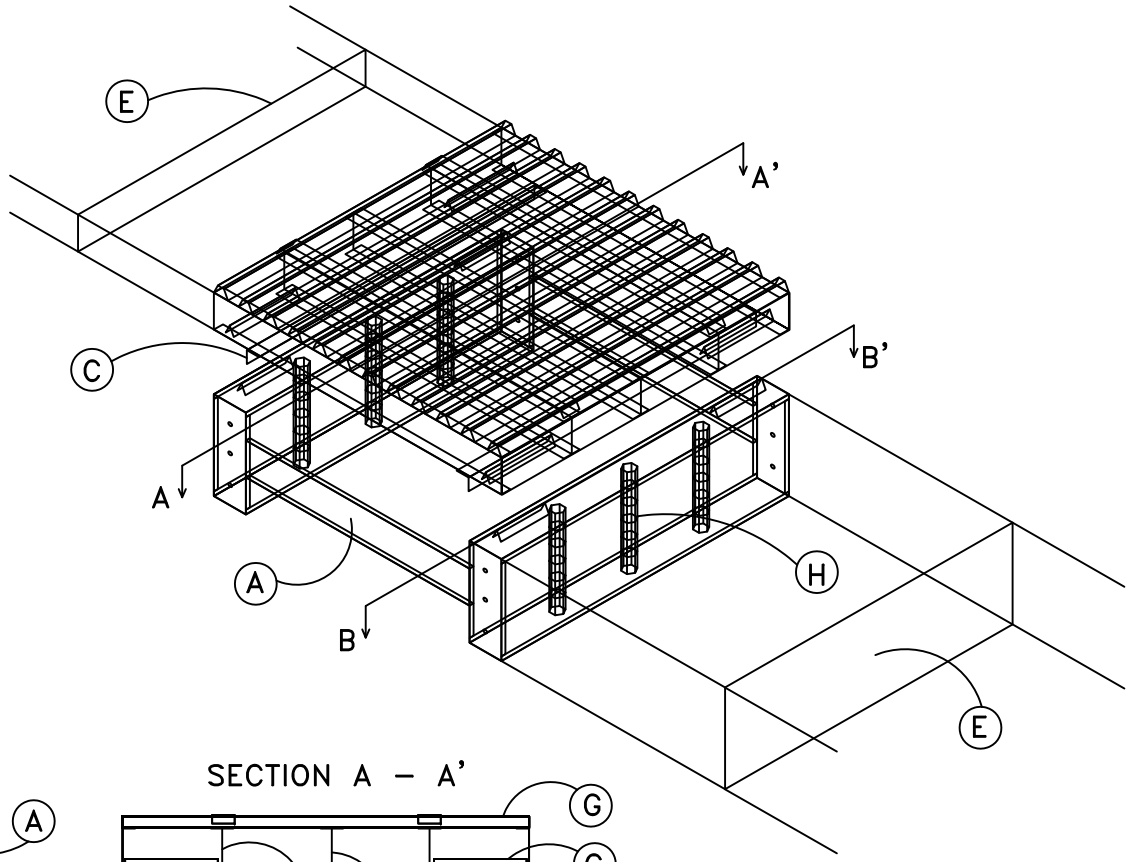
DRAWING NO.:

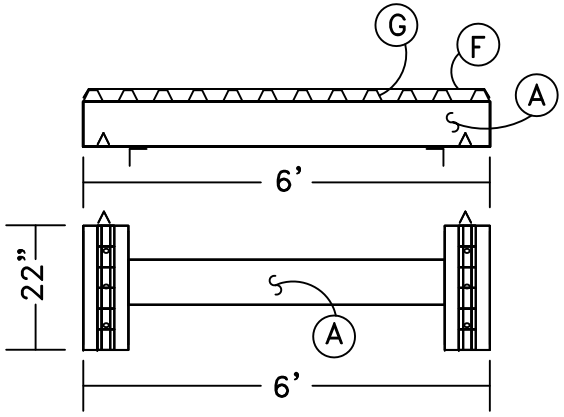
5−11

FIGURE 5-12
STANDARD TYPE "A" CATTLEGUARD

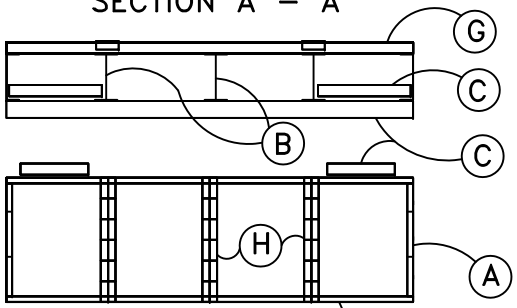


PLAN VIEW





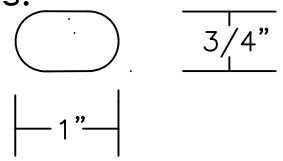
SECTION A – A'



SECTION B – B'

CONNECTION SPECS:
100% WELD
LH 7018 CONTINUOUS
FEED WIRE.

HOLES:



PARK COUNTY
ROAD & BRIDGE STANDARDS
STANDARD DRAWINGS

ISSUED: 8-10-10
REVISED:

DRAWING NO.:
5-12

FIGURE 5-13

MATERIALS LIST FOR STANDARD TYPE "A" CATTLEGUARD
(MATERIALS FOR A 6' SECTION)

PART	DESCRIPTION	AISC DESIGNATION	LENGTH	QTY.
A	STRUCTURAL CHANNEL 8" x 2–1/4" x 11.5 lbs.	C 8 x 11.5	21.5" 6'	12 24
B	WIDE FLANGE BEAM 8" x 4" x 13 lbs.	W 8 x 13	6'	9
C	STRUCTURAL ANGLE 3" x 3" x 1/4" x 4.9 lbs.	L 3 x 3 x 1/4	6' 17.5" 12"	6 12 12
D	BAR ANGLE 2" x 1–1/2" x 3/16"		20'	3
E	PLATE 10 GA. (7/16") 21" WIDE 8–1/2" WIDE		6' 6'	6 6
F	PLATE 12 GA. (3/8") 4" WIDE		6'–4"	6
G	ROLL FORMED OPEN FACE RAIL (7 GA., A572 GRADE 50 STEEL)		6'	36
H	PIPE SUPPORT 3" DIA.		21.5"	18

PARK COUNTY
ROAD & BRIDGE STANDARDS
STANDARD DRAWINGS

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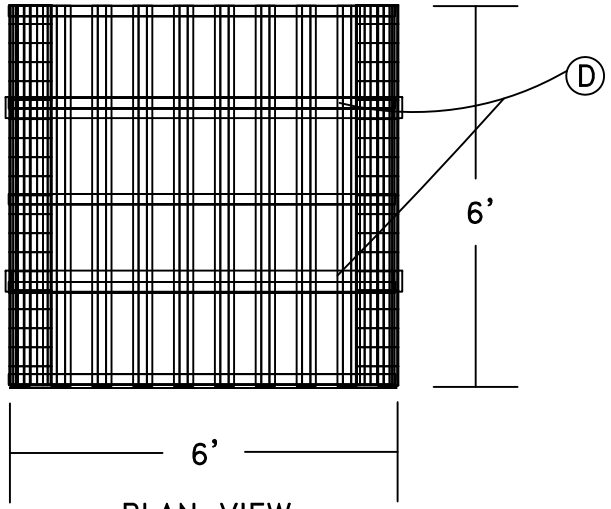
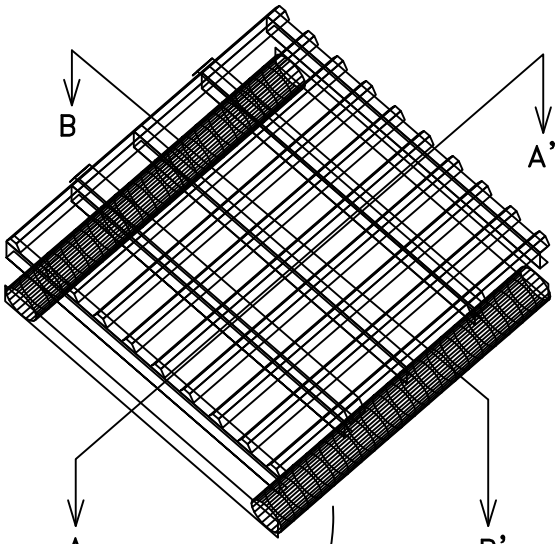
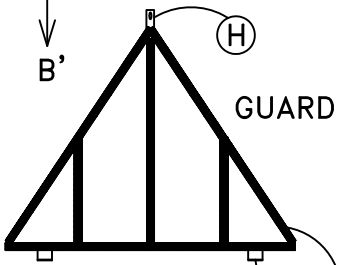
5–13

FIGURE 5-14
STANDARD TYPE "B" CATTLEGUARD

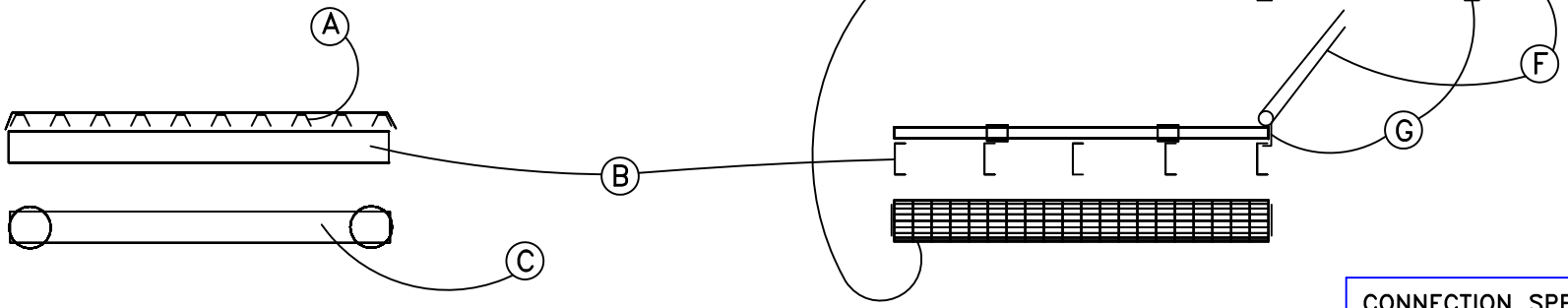


PLAN VIEW





GUARD WING



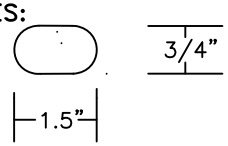
SECTION B – B'

SECTION A – A'

NOTE: WHEN A 12 OR 18 FOOT SECTION IS REQUIRE,
PART E – 8" STEEL PIPE SHALL BE ONE SOLID PIECE OF PIPE.

CONNECTION SPECS:
100% WELD
LH 7018 CONTINUOUS
FEED WIRE.

HOLES:



PARK COUNTY
ROAD & BRIDGE STANDARDS
STANDARD DRAWINGS

DRAWING NO.: 5-14

REVISED:

ISSUED: 8-10-10

FIGURE 5-15

MATERIALS LIST FOR STANDARD TYPE "B" CATTLEGUARD

(MATERIALS FOR A 6' SECTION)

PART	DESCRIPTION	AISC DESIGNATION	LENGTH	QTY.
A	ROLL FORMED OPEN FACE RAIL (7 GA., A572 GRADE 50 STEEL)		6'	30
B	STRUCTURAL CHANNEL 6" x 2-1/8" x13 lbs.	C 6 x 13	6'	15
C	PLATE 10 GA. (7/16") 6" WIDE		6'	6
D	PLATE 12 GA. (3/8") 4" WIDE		6'-4"	6
E	STEEL PIPE (EXTRA STRONG) 8" DIAMETER (0.500 Wall Thickness)		6'	6
F	ANGLE - 2" x 2" x 1/4" (GUARD WINGS)	L 2 x 2 x 1/4	6'-2" 6'-10" 5'-2" 2'-7"	4 2 2 4
G	PLATE 12 GA. (3/8") 4" WIDE - SIZED TO ENGAGE CHANNEL FLANGE			4
H	PLATE - 12 GA. (3/8") 4" x 4" WITH SLOTTED HOLE			2

NOTE: MATERIAL LIST SHOWN IS FOR A SIX FOOT SECTION. WHEN A 12 OR 18 FOOT SECTION IS REQUIRED, PART E - 8" STEEL PIPE SHALL BE ONE SOLID PIECE OF PIPE.