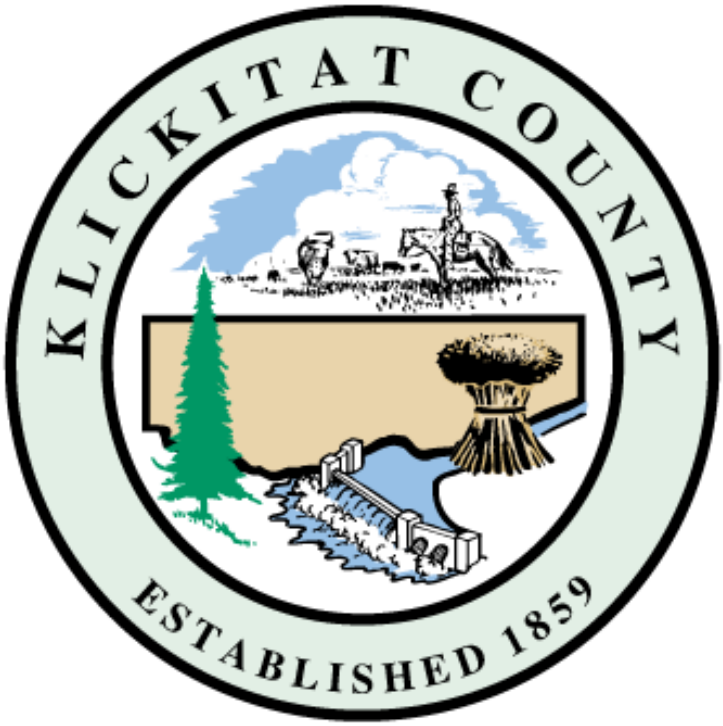
# Title 12 - Klickitat County

# "Transportation Standards"

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# Introduction

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# Chapter 1
# Introduction

## 1.01 Purpose:

The Klickitat County Road Standards shall hereinafter be referred to as the "Standards."

These Standards were developed to promote the public health, safety, and general welfare of the citizens of Klickitat County. They are intended to encourage standardization of road design elements where necessary for consistency and to assure, so far as practical, that motoring, bicycling, equestrian, and pedestrian needs are met.

These Standards cannot provide for all situations. They are intended to assist but not substitute for competent work by design professionals. It is expected that Land Surveyors, Engineers, Developers, Architects, and Contractors will bring to each project the best of their skills from their respective disciplines. These Standards are also not intended to limit any innovative or creative effort, which could result in better quality, better safety, or both. Through Section 2.13 a variance from these Standards may be requested; however, these requests are subject to the acceptance by the County Engineer based on satisfactory evidence that the proposed variance will produce an equivalent outcome.

## 1.02 Scope:

This title is not a textbook or a substitute for engineering knowledge, experience, or judgement. It is intended to aid in deciding those factors needed to intelligently plan design, construct, upgrade, and maintain public and private roads in Klickitat County.

Requirements of the title shall be enforced in the same manner as other Klickitat County Codes including injunctions resulting in work stoppage and noncompliance suits for damages to County roads or rights-of-way.

## 1.03 Applicability:

These Standards shall apply to all new construction of public and private roads and the reconstruction, resurfacing, restoration and rehabilitation of existing roads in Klickitat County. The requirements contained in this title shall apply to all subdivision and development of land in the unincorporated areas under Klickitat County's land use regulatory authority and is consistent with the provisions adopted by the County for the unincorporated urban growth boundaries for the cities of Bingen, White Salmon, and Goldendale.

These standards are pursuant to Title 18 Subdivisions, Title 19 Klickitat County Zoning Ordinance and the International Building and Fire Code. Where these Standards may be inconsistent with the provisions of Title 18 and Title 19, these Standards shall control. These Standards do not apply to State or Federal roads.

Every new utility facility and all planned, non-emergency replacement of existing utility structures within Klickitat County right-of-way shall be governed by the most current version of the policy for "Accommodation of Utilities on Klickitat County Rights-of-Way."

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## 1.04 Definitions

**AASHTO**: American Association of State Highway and Traffic Officials

**Access:** A portion of a driveway or private road that connects from the edge of a County Road extending to edge of the right-of-way.

**ADA:** Americans with Disabilities Act

**Adjacent:** Abutting public roads, streets, right-of-way or easements in which street system improvements are installed or directly connecting to street system improvements through an interest in real property such as an easement.

**Administrator:** When used in this title the Administrator shall mean the County Engineer.

**ADT:** Average Daily Trips. When used as a threshold to determine classification size of private road, ADT shall be based on current and buildout of proposed development that will be or are served by the private road.

**Applicant:** The person, firm, partnership, corporation, or other legal entity that proposes to develop property in unincorporated Klickitat County by submitting an application for any of the activities covered by these Standards.

**Applicant's Engineer:** A professional Engineer licensed in the State of Washington.

**APWA:** American Public Works Association

**Benefit area:** That area which includes all parcels of real property adjacent to street system improvements or likely to require connection to or service by utility system improvements constructed by a developer.

**Berm:** An earthen mound designed to provide visual interest, screen undesirable views, decrease noise or separate incompatible uses.

**Board of County Commissioners (BOCC):** A body of elected officials responsible for overseeing the County's management and administration, representing the County's interests at the State and Federal level, and manage the County's budget and finances.

**Center Line:** The line, marked or unmarked, parallel to and equal distance from the sides of a two-way traffic roadway except where otherwise indicated by painted lines or markers.

**Clear Zone:** The total roadside border area, starting at the edge of the traveled way, available for safe use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a non-recoverable slope, and/or a clear run-out area. The desired width is dependent upon the traffic volumes, design speed and the roadside geometry.

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**Columbia River Gorge National Scenic Area:** A federally designated area of natural and scenic value that receives additional protection and regulations that enhance the scenic, cultural, recreational, and natural resources of the Columbia River Gorge. The National Scenic Area also protects and supports the economy of the Gorge by encouraging sustainable growth in existing urban areas and by allowing future economic development in a manner that is consistent with the above purpose.

**Construction Plans:** The plans, profiles, cross sections, elevations, details, and supplementary specifications, signed by a licensed professional Engineer and accepted by the County Engineer, which show the location, character, dimensions, and details of the work to be performed.

**County:** The jurisdictional boundaries of Klickitat County.

**County Engineer:** When used in this title the County Engineer shall mean The Klickitat County Engineer or authorized representative.

**County road**: A County-maintained roadway or part thereof, outside the limits of incorporated cities which has not been designed as a state highway, that has been accepted by resolution by the BOCC onto the County road system.

**Department:** The Klickitat County Department of Public Works.

**Design Manual:** The most current edition of the "Design Manual Volumes 1 & 2" published by the Washington Department of Transportation.

**Design Speed:** A speed determined for design and correlation of the physical features of a roadway that influence vehicle operation; the maximum safe speed maintainable over a specified section of road when conditions permit design features to govern.

**Developer:** Any person, firm, partnership, association, joint venture, corporation or any other entity who undertakes to improve residential, commercial, or industrial property or to subdivide for the purpose of resale and profit.

**Director:** The Director of Klickitat County Public Works Department.

**Driveway:** A private access way serving between one and four residential dwelling units. See "Residential Driveway" and "Shared Driveway" for additional definitions.

**Easement:** The legal right to use a described piece of land for a particular purpose. It does not include fee ownership, but may restrict the property owner's use of the land. All easements granted pursuant to the requirements of these standards shall be legally recorded with the County Auditor.

**Intersection Sight Distance:** The sight distance required for a vehicle at a stopped position on the minor road or driveway to view an oncoming vehicle traveling at the speed limit on the major road and appearing after the movement has begun, and safely enter or cross the major road.

**Grade:** Rate or percent of slope, either ascending or descending from or along the roadway. It is measured along the centerline of the roadway.

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**IBC:** International Building Code.

**IFC:** International Fire Code.

**In-Fill Development:** The development of a parcel of land in a highly developed area.

**Inspector:** An authorized representative of the Public Works Department assigned to conduct field inspections during various stages of land use development activities to ensure compliance with accepted plans and the Standards of this Title.

**ITE:** Institute of Transportation Engineers.

**KCC:** Klickitat County Code.

**KCPWD:** Klickitat County Public Works Department.

**Land Use Development Activity:** Any land disturbing activity requiring a land use permit or SEPA review from Klickitat County including, but not limited to, short-plats, plat alterations, boundary line adjustments, conditional use permits, and binding site plans.

**Short Plat (Short Subdivision):** A division or redivision of land into four or fewer lots, tract, parcels, sites, or divisions for the purpose of sale, lease, or transfer of ownership.

**Long Plat (Subdivision):** A division or redivision of land into five or more lots, tracts, parcels, sites, or divisions for the purpose of sale, lease, or transfer of ownership.

**Boundary Line Adjustment:** An alteration to parcels for the purpose of adjusting boundary lines which do not create any additional lots, tracts, parcels, sites, or division nor create any lot, tract, parcel site, or division which contains insufficient area and dimension to meet minimum requirements for width and area for a building site.

**Conditional Use Permit:** A permit to grant approval for a specific type of use or activity that, although not a preferred use in a zoning district, may be allowed subject to conditions for construction and/or operation.

**MUTCD:** Manual on Uniform Traffic Control Devices.

**Primitive Roads:** Primitive Roads are a subcategory of local access roads, further defined in RCW 36.75.300.

**Private Roadways:** A road dedicated to exclusive limited use, under control of private individuals, and constructed and maintained by those individuals who benefit from its establishment.

**Private Road A**: A Private Road accessing between 5 and 25 lots or has a cumulative total (proposed and existing) traffic volume greater than or equal to 41 ADT but less than or equal to a 250 ADT.

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**Private Road B:** A Private Road accessing between 26 and 40 lots or has a cumulative total (proposed and existing) traffic volume greater than or equal to 251 ADT but less than or equal to a 400 ADT.

**Private Road C:** A Private Road accessing over 40 lots or has a cumulative total (proposed and existing) traffic volume greater than 400 ADT.

**Public Roadways:** Publicly owned and maintained facility providing access, including the roadway and all other improvements inside the right-of-way.

**Major Arterial Roadway:** See Section 3.03 for definition.

**Major Collector Roadway:** See Section 3.03 for definition.

**Minor Arterial Roadway:** See Section 3.03 for definition.

**Minor Collector Roadway** See Section 3.03 for definition.

**Local Access Roadway:** See Section 3.03 for definition.

**Residential Driveway:** Access that serves an individual lot.

**Right-of-Way:** Land, property, or property interest, usually in a strip, acquired for or devoted to transportation purposes and utilities.

**Road Approach:** A vehicle driving surface that provides a transition between: A County Road and a driveway, a County Road and a private road, a County road and a commercial use, a County Road and an agricultural use, a County Road and a temporary use, or a County Road and a shared-access facility.

**Road Approach Permit:** A permit issued by the BOCC per RCW 36.75.130

**Road Prism:** Any portion of roadway, including but not limited to, road surface, shoulders, cut/fill slopes, culvert, walls, ditches, bridges, signing, etc.

**Rural Area:** Locations within unincorporated Klickitat County that are outside the proximity of incorporated Klickitat County and outside of a platted town.

**SEPA: (**Washington) State Environmental Policy Act

**Shared Driveway:** Access that serves 2-4 Lots or has a cumulative total (proposed and existing) traffic volume greater than or equal to 20 ADT but less than or equal to a 40 ADT.

**Shared-Use Path:** A facility physically separated from motor vehicle traffic by an open space or barrier and typically within the County right-of-way or within an independent right-of-way. Shared-Use Paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users.

**Sidewalk:** That portion of a street or highway, beyond the curb or edge of roadway pavement, that is intended for use by pedestrians, including pedestrians with disabilities.

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**Standard Plans:** Unless otherwise noted, "Standard Plans" shall be referring to Klickitat County Standard Plans shown in Appendix G.

**Standard Specifications:** The most current edition of the "Standard Specifications for Road, Bridge, and Municipal Construction" published by the Washington State Department of Transportation and the Washington State Chapter of American Public Works Association.

**Surveyor:** A professional land surveyor licensed by the State of Washington.

**Traffic Access and Impact Study (TAIS):** A study which assesses the effects that a particular development's traffic will have on the overall transportation network. These studies vary in range of detail and complexity depending on the type, size and location of the development.

**Travel Way:** The portion of the road made for vehicle travel excluding shoulders and auxiliary lanes.

**Trips:** A single or any one-direction vehicle movement with either the origin or destination (exiting or entering) inside the study site, based on the ITE Trip Generation Manual.

**Urban Area:** Locations within a platted town or within close proximity of incorporated Klickitat County.

**Utility: (1)** A privately, publicly, or cooperatively owned line, facility, or system for producing, transmitting, or distributing communications, cable television, power, electricity, light, heat, gas, oil, water, steam, sanitary sewer, storm drainage, or any other similar commodity which directly or indirectly serves the public. **(2)** The privately, publicly, or cooperatively owned company that owns the line, facility, or system.

**Utility Permit:** A permit that Klickitat County issues to a utility provider to construct, install, repair, or maintain utility line, facility, or system located in the County right-of-way.

**Work Within the Right-of-Way Permit:** A permit that Klickitat County issues to an applicant to construct, install, repair or maintain any type of facility other than a utility or access within the County right-of-way.

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# Chapter 2
# General Provisions

## 2.00 General Provisions

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# Chapter 2
# General Provisions

## 2.01 Authority

Chapter 36.80.030, Revised Code of Washington, states in part that, "The County Engineer shall have supervision, under the direction of the BOCC, of establishing, laying out, constructing, altering, improving, repairing, and maintaining all County roads in the County." To this end the County Engineer for Klickitat County shall oversee all design and construction work related to County roads within unincorporated Klickitat County.

The County Engineer will be the final authority in resolving disputes concerning questions of fact in connection with standards for road and bridge construction not directly covered by this title, as set forth in RCW 36.75.020 County roads, County legislative authority as agent of State Standards.

## 2.02 Severability

All sections, subsections, provisions, and portions of these Standards shall be severable, and if any sections, subsection, sentence, clause, phrase, or other portion of these Standards, or its application to any Person is, for any reason declared invalid, illegal or unconstitutional, in whole or in part by any court or agency of competent jurisdiction, such decision shall not affect the validity of the remaining portions here of, and all other sections, subsections, provisions, and portions of these Standards shall remain in full force and effect.

## 2.03 Compliance Required

No lot shall be created or altered except in compliance with the provisions of this title.

## 2.04 Interpretation

The County Engineer of the KCPWD shall review and resolve any questions involving the proper interpretation and application of the provisions contained in Title 12, Transportation Standards. Administrative decisions shall be in keeping with the general purposes in this title as outlined in the Introduction Chapter 1.

## 2.05 Enforcement and Responsibility

The County Engineer of the KCPWD or his/her duly authorized agents shall have the authority and the responsibility to enforce the provisions contained in Title 12, Transportation Standards. No plans or development permits subject to the provisions of this title shall be approved unless such plans conform in all aspects to the applicable provisions of this title.

## 2.06 Maintenance of Minimum Requirements:

No required roadway or fire protection provision existing on or after the effective date of this title shall be reduced in area, dimension, volume, size and condition below the Standards required by this title.

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## 2.07 General References:

The most current editions of the following publications and manuals are approved for use by the County Engineer and may be used to supplement this title when a specific subject is not covered or discussed:

- *Standard Specifications for Road*, *Bridge and Municipal Construction*, as published by the Washington State Department of Transportation (WSDOT)
- *Standard Plans for Road, Bridge and Municipal Construction*, as published by the Washington State Department of Transportation (WSDOT)
- *Manual on Uniform Traffic Control Devices*, as published by the U.S. Department of Transportation, Federal Highway Administration, as amended and approved by the Washington State Department of Transportation (WSDOT), commonly known as the "MUTCD"
- *Local Agency Guidelines,* as Published by the Washington State Department of Transportation (WSDOT), commonly known as the "LAG Manual"
- *Highway Runoff Manual*, as published by Washington State Department of Transportation (WSDOT)
- *Construction Manual*, as published by Washington State Department of Transportation (WSDOT)
- *A Policy on Geometric Design of Highways and Streets*, published by the American Association of Highway and Transportation Officials (AASHTO), commonly known as "The Green Book"
- *Standard Specifications for Highway Bridges*, published by the American Association of Highway and Transportation Officials (AASHTO)
- *Trip Generation Manual*, as published by the Institute of Transportation Engineers (ITE)

The most current editions of the following publications are recognized by the County Engineer as industry authorities and may be consulted on specific subjects not covered or discussed in this Manual or the above supplemental documents:

- *Roadside Design Guide,* published by the American Association of Highway and Transportation Officials (AASHTO)
- *Guidelines for Geometric Design of Low-Volume Roads*, as published by the American Association of Highway and Transportation Officials (AASHTO)
- *Stormwater Management Manual for Eastern Washington* (SWMMEW), as published by the Washington State Department of Ecology (WSDOE)

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## 2.08 Review and Approval

The County will review all land use development applications for general compliance with these Standards. Acceptance by the County does not relieve the developer from final responsibility of insuring all calculations, plans, specifications, constructions, and as-built drawings are in compliance with these Standards as stated in the developer's Engineer's certification provided in accordance with Section 8.02.

## 2.09 Responsibility to Provide Roadway Improvement

A. Any land use development activity which will impact the Level of Service (LOS), safety, or operational efficiency of abutting or serving roadways, or required by other County Code or ordinance to improve such roadways, shall improve those roadways in accordance with these Standards. Additional off-site improvements to roads serving the land use development activity, including but not limited to, signage, turn lanes, vegetation removal and pedestrian facilities may be required based on an analysis of the proposed land use development impacts. The analysis shall be prepared in accordance with Chapter 6.

B. All road improvement requirements for a land use development activity shall be constructed to these Standards prior to the issuance of final approval, unless a performance guarantee is provided as outline in Section 2.12.

## 2.10 Amendments and Revisions

The standards shall be amended as required. The BOCC, following the recommendations of the Director of Public Works and the County Engineer, may consider revisions and/or amendments to this title. The revisions will be adopted by ordinance following a public hearing.

## 2.11 Fees and Penalties

Fees and Penalties shall be assessed in accordance with the current Land Development Fee schedule of Title 2 Section 2.72, as approved by the BOCC.

## 2.12 Performance Guarantee

If for a reason beyond the developer's control the required public and/or private improvements cannot be completed prior to final approval of a land-use development activity, the developer may request a performance guarantee in an amount and with satisfactory surety and conditions providing for and securing to Klickitat County the actual professional services, construction and installation of such improvements within two years of final approval. KCPWD will enforce the guarantee through appropriate legal and equitable remedies. Performance guarantees shall not create any life and/or safety issues with the proposed work being completed at a later time. The performance guarantee shall be prepared in accordance with the KCPWD Performance Guarantee Form, see Appendix A.

A. An assignment of funds or cash shall be provided, and the amount shall be the cost of, including but not limited to, administrative, design and construction costs. The estimated

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costs will be based on the County's cost including prevailing wages and must be reviewed and concurred by the County Engineer. A bond or letter of credit will not be accepted.

B. The amount of the financial guarantee may be reduced during construction proportionally to the amount of work completed, as said work is approved by the KCPWD.

C. The developer is legally and financially responsible for ensuring all roads are constructed in accordance with this code.

D. Failure to comply with these Standards may result in denial of plan, development and/or permit approval, revocation of prior approvals, or legal action for forfeiture of performance guarantee.

## 2.13 Variance from Standards

A. A variance is required for any design or construction deviation from these Standards. The County recognizes that engineering design is an endeavor that examines alternative solutions in real world situations and accordingly, these Standards are not intended to hamper the introduction of new ideas, but are intended to provide predictability.

B. Variances from these Standards may be granted by the County Engineer upon evidence that such variances are in the public interest and that requirements for safety, function, fire protection, transit needs, appearance and maintainability based upon sound engineering and technical judgement are fully met. In the case of a denial of a variance request, the applicant may request a review and reconsideration from the BOCC.

C. Variances from the standards in this title will be considered on a case-by-case basis. Variance requests for land development should be proposed at the preliminary stage and prior to any public hearing. All known variances must be approved prior to approval of the engineering plans for construction. It is the responsibility of the County Engineer to interpret the Standards.

D. Applications for Variances:

   a. A variance application (Appendix B) for proposed variances shall include a specific description of the proposed deviation from the Standards along with any documentation and justification supporting the proposed deviation. Documentation may include, but need not be limited to, a record of successful use by other agencies, or evidence of meeting criteria for quality such as AASHTO standards.

   b. The applicant shall include those sections of the Standards from which the application proposes to deviate.

## 2.14 Land Use Development Activity

A. All land use development activities that access property over private lands, public lands, or road easements managed by other agencies must submit a recorded easement, permit, road maintenance agreement, or other document from the land owners or road/easement managers that specifically address access, maintenance, restrictions and/or limitations.

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These documents and/or agreements shall be presented to the KCPWD prior to final approval. Building permits are not considered a land use development activity.

B. All road improvement requirements for a land use development activity shall be constructed to these Standards prior to the issuance of final approval, unless a performance guarantee is provided, as outlined in Section 2.12.

C. Any land use development activity that has built a transportation facility prior to discussion or approval of a plan submittal to KCPWD may be required to modify the transportation facilities to meet these Standards.

D. Short-Plats (Short Subdivision) and Long-Plat (Subdivision)

   a. All land use developments that are creating a division in property are required to deed, by Statutory Warranty Deed, any portion of a 60-foot right-of-way, being 30' either side of the County Road centerline that the property fronts, if the property fronts a County Road. A perpetual easement (Appendix F) will also be acceptable, but the Statutory Warranty Deed is preferred.

E. Special Use Permits

   a. Requirements for Special Use Permits (as determined by the Klickitat County Planning Department) shall be determined on a case-by-case basis at the discretion of the County Engineer.

F. Boundary Line Adjustments

   a. Any boundary line adjustment that changes the access of any of the lots within the adjustment may be required to improve the facilities for the new access location. These improvements include, but are not limited to, public road improvements, private road improvements and a new access construction.

G. Conditional Use Permits

   a. All land use development activities that require a conditional use permit shall follow the requirements of these Standards and provide on-site parking. This parking shall meet the requirements set forth in the Americans with Disabilities Act (ADA). No parking shall be allowed on County roads. On-site parking, as required, shall not be incorporated in the County right-of-way.

   b. Development Parking in Urban Areas

      i. Parking areas for developments in Urban areas shall have a paved surface. These parking areas shall be large enough to accommodate all traffic entering the project site.

   c. Development Parking in Rural Areas:

      i. Parking areas for developments in rural areas shall have a gravel or earth surface. These parking areas shall be large enough to accommodate all traffic entering the project site.

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ii. If an earth surface is to be used for parking, the applicant is required to identify the area being used for parking, create a plan for vegetation management and fire risk, as well as get a signed letter from the local Fire Chief approving this method in the area where the project is proposed.

## 2.15 Specialized Engineering Services

A. These Standards cannot provide for all situations. It is intended to assist, not substitute for, competent work by design professionals. It is expected that each professional will bring to each project the best of their skills and abilities. These Standards are also not intended to unreasonably limit any innovative or creative effort that could result in the more effective and appropriate combination of design, better safety, or both, provided that minimum standards are maintained. Some of these creative or innovative efforts may be out of KCPWD's area of expertise and may require additional review. This review would be completed by the KCPWD's applicable on-call reviewer at the expense of the applicant, developer, landowner, etc. The expenses for these reviews are detailed in Title 2 Section 2.72 Land Development Fees, as amended. On-call reviewers hired by KCPWD include, but are not limited to, geotechnical review, stormwater review, Traffic Access and Impact Study (TAIS) review, structural review and electrical review.

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# Chapter 3
# Public Roadway Classification and Geometrics

## 3.00 Public Roadway Classification and Geometrics



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# Chapter 3
# Public Roadway Classification and Geometrics

## 3.01 General Provisions

All road construction within the public right-of-way shall be designed by or under the direct supervision of a Civil Engineer licensed in the State of Washington as required by Chapter 8. All drawings and support data submitted to the County for approval must bear his/her seal and signature. The design criteria, as presented, are intended to aid in preparation of plans and specifications and shall be considered as minimum standards.

AASHTO's Policy on Geometric Design of Highway and Streets, current edition, may be substituted for AASHTO's Guidelines for Geometric Design of Low-Volume Roads, current edition by variance, see Section 2.13.

## 3.02 Functional Classification System

A. The first step in the design process is to identify the functional classification of the roadway. The functional classifications of Klickitat County roadways are established as part of these transportation standards and defined further herein. A narrative of the existing and future adjacent land use and environment must accompany the proposal for functional classifications of new facilities. This narrative should include, but not limit itself to, the following items:
    a. Urban or Rural Environment
    b. Proximity to Schools or Parks
    c. Expected Pedestrian and Bicycle Activity
    d. Industrial or Commercial Sites to be Served

B. Existing and future traffic volumes must be documented. The estimated future traffic volumes serve as the design year for the roadway. All interim designs must contribute to the long-range or ultimate roadway design.

C. Roads and highways are most effectively classified by their function, according to the character of service they are intended to provide. The primary functions of roads and highways are to provide mobility and to provide access, and the degree to which these functions are provided is considered an integral part of classifying roads. The functional classification system creates a hierarchy of classified roads.
    a. For example, a freeway provides a high degree of mobility but very limited access, which is available only at interchanges that could be spaced several miles apart. Higher vehicle speeds and volumes are typical of these types of facilities and are, in fact, desirable. On the other hand, a local road within a residential neighborhood provides a high degree of access by way of numerous driveway approaches to adjacent lots, and lower vehicle speeds and volumes are desired. Between these two

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extremes are the remainder of the roads, commonly called the arterial system, which must provide both mobility and access.

b. Roads are grouped into a number of different classifications for administrative, planning, and design purposes. For example, the classifications system can be used for planning for new routes, improvements to existing roads, and planning for area development in concert with the transportation network. It can also be used for providing minimum design standards or criteria to encourage the use of the road as intended.

## 3.03 Functional Classification Definitions

A. Major Arterial Roadways:

a. Major arterials provide service for major traffic movements within the County. They serve major centers of activity and offer intra-area travel between suburban centers, between larger communities, and between major trip generators. Major arterials serve the longest trips and carry the major portion of trips entering and leaving the overall area. They frequently carry important bus routes within urban areas and between urban communities. Typically, they are one of the highest traffic volume corridors in the County. An example of a major arterial would be State Route 97. Traffic volumes commonly range from 7,000 to 40,000 or more vehicles per day in the urban area, and from 1,000 to 10,000 or more vehicles per day in the rural area.

b. The spacing between major arterials usually varies from about 1 mile in highly developed business areas to 5 miles or more in rural areas. Service to abutting land should be subordinate to the provision of travel service to major traffic movements; this service should be incidental to the primary functional responsibility of the road. Major arterials would preferably be located on community and neighborhood boundaries or adjacent to, but not through, major shopping centers, parks and other homogeneous areas.

B. Minor Arterial Roadways:

a. Minor Arterials interconnect with and augment the major arterial system. Minor arterials connect major arterials to collector arterials and small trip generators. They provide service to medium-size trip generators, such as less intensive commercial development, high schools and some junior high/grade schools, warehousing areas, active parks, ball fields and other land uses with similar trip generation potential. They distribute travel to smaller geographic areas and communities than those identified with somewhat lower level of travel mobility than major arterials. An example of a minor arterial would be State Route 197. Traffic volumes commonly range from 4,000 to 15,000 vehicles per day in the urban area, and from 500 to 5,000 vehicles per day in the rural area.

b. Spacing between minor arterials usually varies from less than 1 mile in fully developed areas to about 3 miles or more in rural areas. They provide intra-

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community continuity and are typically a continuous road with a direct rather than a meandering alignment. They may carry local bus routes.

c. Minor arterials allow for more emphasis on land access than the major arterial system. They usually do not penetrate identifiable neighborhoods.

C. Major Collector Roadways:

a. These routes should provide service to larger towns not directly served by highway systems, and to other traffic generators of equivalent inter-County importance, such as schools, shipping points, County parks, major agricultural areas, etc. In addition, these routes should link larger towns and/or cities with routes of higher classification and should serve the more important inter-County travel corridors. Major collectors provide land access service and traffic circulation within residential neighborhoods, commercial, and industrial areas. They may penetrate identifiable residential neighborhoods.

D. Minor Collector Roadways:

A. These routes should be spaced at intervals, consistent with population density, collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road. In addition, these routes should provide service to the remaining smaller communities, and link the locally important traffic generators with their rural heartland.

E. Local Access Roadways:

A. Roads not selected for inclusion in the arterial or collector classes are designated local access roads. They allow access to individual homes, shops, and similar traffic destinations. Direct access to abutting land is essential, for all traffic originates from or is destined to abutting land. Through traffic should be discouraged by appropriate geometric design and/or traffic control devices.

a. Primitive Roads

i. Primitive roads are a subcategory of Local Access Roads, better defined in RCW 36.75.300

## 3.04 Access and Intersections

Public roads shall comply with the access and intersection requirements shown in Chapter 5.

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## 3.05 Road Geometrics

| Classification: | Major Collector | Minor Collector | Local Access |
|---|---|---|---|
| **Access** | As needed with some regulation | As needed with some regulation | As needed with some regulation |
| **Design Speed**[1] | 35 mph to 50 mph | 35 mph to 50 mph | 20 mph to Unposted 50 mph |
| **Maximum Super-elevation** | 4% | 4% | 4% |
| **Minimum Curve Radius** | See Table 3-1 | See Table 3-1 | See Table 3-1 |
| **Maximum Grade** | 14% | 14% | 14% |
| **Typical Cut/Fill Slopes**[2] | 2:1 Cut<br>3:1 Fill | 2:1 Cut<br>3:1 Fill | 2:1 Cut<br>3:1 Fill |
| **Stopping Sight Distance** | See Table 5-1 | See Table 5-1 | See Table 5-1 |
| **Minimum Passing Sight Distance** | See Table 5-4 AASHTO | See Table 5-4 AASHTO | See Table 5-4 AASHTO |
| **Typical Traveled Way**[3] | 12 Feet | 10 Feet | 10 Feet |
| **Typical Roadway Width**[3] | 24 Feet | 20 Feet | 20 Feet |
| **Minimum Right of Way Width** | 60 Feet | 60 Feet | 60 Feet |
| **Minimum Shoulder Width**[4] | 2 Feet | 0 Feet | 0 Feet |
| **Minimum Vertical Clearance** | 16.5 Feet | 16.5 Feet | 16.5 Feet |
| **Clear Zone**[5] | 10-Foot Minimum (Each Side of Road) | 10-Foot Minimum (Each Side of Road) | 10-Foot Minimum (Each Side of Road) |

[1] Design speed is a basis for determining geometric elements and does not imply posted or legally permissible speed.
[2] Typical cut/fill slopes may be reduced or exceeded, see Section 3.08.
[3] Criteria for Federal and State funding may require greater traveled way, roadway and right-of-way widths. Greater widths also may be required for the construction of bike lanes, equestrian trails, and other non-motorized use.
[4] For guardrail installation, shoulders shall be a minimum of 2 feet wider.
[5] This measurement is measured from the edge of traveled way or edge line. This distance is based on roadway design speeds under 35 mph. See WSDOT Design Manual Section 1600.02 for other roadway design speeds.

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## 3.06 Horizontal Alignment

A. The road construction centerline must match as much as possible to the right-of-way centerline, unless otherwise approved by the County Engineer. When widening existing roads, the Engineer is strongly encouraged to provide the additional widening symmetrical about the existing centerline alignment. Road curves should be designed with as large a radius curve as practical, with a minimum radius controlled by the appropriate design speed (see Table 3-1).

**Table 3-1 Minimum Curve Radius**

| Design Speed | Maximum Super-Elevation | Radius (in feet) |
|---|---|---|
| 10 | 4% | 16 |
| 15 | 4% | 42 |
| 20 | 4% | 86 |
| 25 | 4% | 154 |
| 30 | 4% | 250 |
| 35 | 4% | 371 |
| 40 | 4% | 533 |
| 45 | 4% | 711 |
| 50 | 4% | 926 |

## 3.07 Vertical Curvature

**Table 3-2 Minimum Vertical Curvature**

| Design Speed (mph) | Stopping Sight Distance (ft) | Rate of Vertical Curvature, Ka | |
|---|---|---|---|
| | | Calculated | Design |
| 15 | 80 | 3.0 | 3 |
| 20 | 115 | 6.1 | 7 |
| 25 | 155 | 11.1 | 12 |
| 30 | 200 | 18.5 | 19 |
| 35 | 250 | 29.0 | 29 |
| 40 | 305 | 43.1 | 44 |
| 45 | 360 | 60.1 | 61 |
| 50 | 425 | 83.7 | 84 |

Note: Rate of vertical curvature, K, is the length of curve per algebraic difference in intersecting grades.

## 3.08 Maximum Cut/Fill Slopes

A. Fill sections shall be constructed no steeper than 3 H: 1 V and cut slopes shall be no steeper than 2 H: 1 V. Flatter slopes are preferred and will be required if there are indications that the earth is unstable and subject to sliding, sloughing, or erosion. Fills are

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to be constructed using appropriate materials, compaction methods, and construction techniques to ensure stability.

B. The maximum cut and fill slopes may be exceeded, but the applicant is required to provide KCPWD with a geotechnical evaluation. This evaluation shall be completed by an Engineer licensed in the State of Washington approving of slope stability. KCPWD strongly suggests that the evaluation is completed by a Geotechnical Engineer. Geotechnical evaluations are outside the expertise of County personnel. This evaluation shall be reviewed by KCPWD's on-call geotechnical reviewer at the expense of the applicant, see Chapter 2.15 for more details.

C. Side slopes shall be stabilized by grass sod, hydroseeding, by other planting or surfacing materials, or by the use of other material types acceptable by KCPWD. Side slopes may also be flattened to accommodate for utility placement.

## 3.09 Roadway Elements

A. Pavement

   a. Paving and aggregate material for impermeable non-arterial roads shall be in accordance with WSDOT Standard Specifications. Paving for all impermeable roads shall be of a mix design approved by the Engineer.

   b. The pavement design for all non-arterial roads shall be for a 20-year performance period. Design criteria and standards established by AASHTO, WSDOT, the Asphalt Institute, or other nationally recognized organizations may be used to determine paving and aggregate depths and types of materials for the roadway section. Non-destructive testing, falling weight deflectometer or a modulus value established by an Engineer licensed in the State of Washington should be used to determine the material characteristics of the existing soil conditions for the pavement design. KCPWD strongly suggests that the evaluation is completed by a Geotechnical Engineer.

B. Lane Widths

   a. Lane widths shall be in accordance with Section 3.05 for all public roads.

C. Shoulders

   a. Shoulders shall be provided consistent with the requirements of these Standards. Shoulders should provide the following advantages:

      i. Space for vehicles to make emergency stops away from the traveled way.

      ii. Enhanced safety, roadway capacity, and sight distance.

      iii. Lateral clearance from signs, ditches, above-ground utilities, and potential roadside obstacles.

      iv. Structural support for the roadway and storm water is discharged farther from the traveled way.

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v. Improve maintenance operations.

vi. Space for pedestrian use and bicycle use.

vii. Space for occasional encroachment of vehicles (e.g., Mail delivery vehicles) or emergency use.

b. In particular, shoulders are an important and integral part of roadways in rural areas and in areas where curb, gutter, and sidewalk are not provided.

D. Curbs

a. Acceptable curb designs for concrete curb and gutter, and concrete traffic curb can be found in Klickitat County's Standard Plans

E. Pedestrian Impact and Facilities

a. Sidewalks, pedestrian crossings, and shared-use paths, when used, shall conform to design parameters of the Standard Plans in these Standards.

b. Sidewalks:

i. Sidewalk facilities shall be constructed with concrete. Curb ramps and sidewalk facilities shall meet the requirements of the "Americans with Disabilities Act" and conform to the design requirements of the County Engineer. Minimum sidewalk widths are 5 feet. All sidewalks along a County Road shall be constructed with concrete.

c. Shared-Use Paths:

i. Shared-Use Paths are not normally expected within the road right-of-way, except in situations where the facility is part of an adopted plan. The minimum width of a shared-use path is 10 feet. There shall be a 2-foot graded area on each side of the shared-use path. If required by the County, such facility design shall be coordinated with the County Engineer in order to receive specific design direction and parameters. Shared-Use Paths may be built with either asphalt or concrete.

ii. When pedestrian or bicycle facilities are provided as an independently constructed improvement along the frontage of property abutting an existing road, but is not connected to the road, such improvement shall be constructed in accordance with the provisions outlined in this title in a location approved by the County Engineer, as well as meet the requirements of the "Americans with Disabilities Act."

F. Guardrail

a. Evaluations of embankments for guardrail installations shall be in accordance with the WSDOT Design Manual or the AASHTO Roadside Design Guide.

b. Guardrail installation shall conform to WSDOT Design Manual and Standard Plans.

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G. Parking within the Right-of-Way

   a. Parking for land use development activities, when required, shall not incorporate their parking in the County right-of-way.

H. Roadway Pavement Markings

   a. Pavement marking is required on all County roadways having channelization, consistent with the requirements of the County Engineer. Roadways striping, raised pavement markers or other traffic delineators shall be installed in accordance with the approved plans, the MUTCD, and the Standard Plans.

I. Roadway Permanent Signing

   a. All traffic signs must conform to the MUTCD, as adopted by the State of Washington pursuant to WAC 468-95-010. All traffic signs within the County right-of-way shall be installed in accordance with the requirements of the MUTCD.

   b. The County shall install and maintain all necessary public road name signs, warning signs and regulatory signs. The County will assume maintenance of all public road signs. A developer may install signs on a County road when required for a land use development activity. Signs used for private roads will not be installed or maintained by the County; the maintenance and installation is the responsibility of the applicant, landowner, developer, etc.

J. Clear Zone and Roadside Obstacles

   a. Clear Zone is the total roadside border area starting at the edge of the traveled way available for use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a nonrecoverable slope, and/or a clear run area. A minimum of a 10-foot clear zone measured from the edge line or edge of traveled way shall be in the design of all roads with a design speed of 35mph or less. For roads with design speeds greater than 35 mph, see WSDOT Design Manual Section 1600.02. Non-yielding or non-breakaway structures exceeding six inches in height, rock facings, retaining walls, and any other objects, which may be potential hazards to the traveling public shall be placed with due regard to safety.

   b. Nonessential items, (e.g., decorative items) shall not be placed within the right-of-way. Additionally, no open water facilities, with the exception of ditches and bioswales shall be located within the road right-of-way.

   c. On urban vertical curb roadways with speed limits less than 40 miles per hour, hazardous objects shall be placed as far from the edge of the traveled way or edge line as practical. Such an object shall not be placed on a sidewalk or with the object edge nearest the roadway less than 1.5 feet from the face of the curb. On urban roads with a speed limit of 40 miles per hour or greater, see WSDOT Design Manual Section 1600.02. When sidewalks are constructed or will be constructed in the future, structures shall be placed a minimum distance of 2 feet behind the sidewalk.

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K. Turnarounds

a. A turnaround is required at the end of all County roads. These turnarounds give snow plows and emergency services the ability to turnaround. Any turnaround constructed shall be built to meet the standards shown in the Standard Plans.
b. No parking shall be allowed on turnarounds.
c. Bus Turnaround/Turnout
    i. The need for bus turnouts should be established at the discretion of the County Engineer together with the provider of the bus service, such as a transit agency or school district. Bus turnarounds/turnouts shall be built to meet the standards shown in the Standard Plans. Storm drainage facilities must be included as required by the existing topographic conditions.
d. The maximum gradient within all turnarounds shall be 6% in any direction.

L. Cattle Guards

a. Cattle guards may be installed on public roads upon approval from the County Engineer. Cattle guards shall be permitted by KCPWD. Cattle guards shall meet the requirements of the Standard Plan.
b. Cattle guards are considered a utility and the landowner shall receive a utility permit to install on the County road. This cattle guard shall be installed and maintained by the landowner.
c. If for any reason the land has been removed from the open range area, the cattle guard shall be removed and the section of roadway where the cattle guard was installed shall be reconstructed to match the existing roadway.

M. Utilities

a. The primary purpose of County right-of-way is to serve vehicular and non-motorized travel. In accordance with State law, utility facilities may be accommodated in road right-of-way. Use of the right-of-way by utilities should be planned to minimize interference with traffic using the road. Industry-recognized principles provide for general location and construction of utilities to minimize conflict between the use of the road right-of-way for vehicular and non-motorized travel and for its secondary purpose of providing space for location of utilities. However, all public or private utility installations within the County right-of-way shall conform to the requirements outlined in the policy for "Accommodation of Utilities on Klickitat County Rights-of-Way." New utilities may be required to enter into a franchise agreement, see Chapter 10.

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N. Stormwater

a. All roadways must have an adequate crown or cross-slope to direct water off the roadway. Careful cross-slope design is especially important at the end of horizontal curves with super-elevation and at intersections. It must be recognized that many drainage ditches and culvert headwalls are usually in the clear area, or recovery area, which is an important roadway safety feature. In curb and gutter situations, especially where grades are at or near recommended minimums, the location and designs of inlets becomes very important.

b. All drainage elements associated with the roadway design and construction or draining into or out of the roadway and within the project boundaries shall be designed in accordance with the Stormwater Management Manual for Eastern Washington (SWMMEW) and Chapter 7 of this Title.

## 3.10 Road Haul Agreement

Industrial projects, including but limited to, solar farms, wind farms, cement plants, major construction projects, etc., that require capital improvements or heavy maintenance, determined on a case-by-case basis, may be required to develop and use an approved haul route and enter into a road haul agreement with Klickitat County. When required, the haul route plan must be prepared and submitted to the County Engineer and approved prior to beginning or continuing construction and/or maintenance. The haul route plan shall address routing, hours of operation, signing, flagging and daily maintenance. If the contractor's equipment or suppliers fail to use the designated haul route, the County Engineer may prohibit or limit further work on the development until such time as the requirements of the haul route are complied with. The following procedure is established to implement agreements, inspect haul routes, develop estimates for additional maintenance costs and terminate agreements: excluding agricultural and timber land use development activity

A. The applicant shall apply to KCPWD before commencing any new or expanded hauling operations.

B. The applicant shall prepare and submit their proposed haul route.

C. The applicant and KCPWD shall conduct a joint pre-inspection to determine the existing condition of the road prism for the proposed haul route.

D. KCPWD shall hire a Geotechnical Engineer licensed in the State of Washington to provide an analysis of the haul route at the expense of the applicant.

E. The applicant shall enter into a road haul agreement with the County before commencing or expanding hauling operations.

F. The applicant shall immediately notify the County in writing if any changes in the hauling operation occur.

G. The applicant shall notify the County in writing at the completion of the hauling operation and the County shall conduct a joint post-inspection of the haul route with the applicant.

H. The applicant shall reimburse the County for additional maintenance costs resulting from hauling operations and the County shall terminate the road haul agreement.

## 3.11 Proportionate Share (Pilot Program)

A. Proportionate share fees are charges on new development as an option to help pay for capital improvements to a public roadway(s) that are needed to serve a new development. These fees are collected to improve the transportation system to accommodate the higher traffic volumes added by the development. The proportionate share program is intended to:

   a. Ensure adequate facilities are available to serve new growth; and

   b. To establish standards by which new growth and development pay a proportionate share of the cost of new facilities needed to serve new growth and development.

B. A developer can request, an analysis of the area contributing to the development. This analysis shall include the following:

   a. Cost of the capital improvements, including but limiting to, road widening, stormwater management, and right-of-way acquisition.

   b. The amount of contributing area to the current development as well as to other developable area affected by the potential program.

   c. The maximum density determined by the current zoning on a conservative basis.

C. Once the analysis is complete, a fee calculation must be generated and approved by the BOCC. This fee shall be set forth in writing and mailed to the applicant. These fees will be based on the current analysis and shall not be relied on after a significant time has passed due to changes in project costs.

D. If the fee calculation has been approved by the BOCC and the applicant agrees to pay the proportionate fees with their development, the proportionate share program for the roadway will be established by ordinance for a time period set by the BOCC. This ordinance shall establish a time period for how long proportionate share fees are required to be paid for land use development activities along said road and/or section of roadway. By the end of this time period, the County shall improve the road to meet these Standards.

E. Proportionate share fees shall be based on the following equation:

$$C = X \div Y$$

X = Total Road Improvement Cost
Y = Total Number of Potential New AM/PM Peak Hour Trips at Full Build-Out Using Current Zoning
C = Total Cost of Proportionate Share Fees per New Lot Created with a Land Use Development Activity

All land divisions (i.e., short-plat, long-plat) shall be given one trip credit for existing traffic to the existing lot. Each additional lot created will create 1 new AM/PM Peak Hour Trip.

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F. River Road Example (see Appendix C for visual representation of proposed area)

i. This analysis is only an example analysis and shall not be used for any new project. The road will be required to be re-evaluated and a new proportionate share fee shall be established. An analysis was conducted in 2021 on River Road for the potential of a proportionate share program. At the time of the evaluation, the total cost to improve River Road was $665,704. The total amount of area that was developable at the time was approximately 123.55 acres and was in Suburban Residential zoning. Taking a conservative approach using the current zoning, existing contour data and lot configuration into consideration, it was determined by Klickitat County Public Works that a total of 98 new developable lots could be created. The information above was used in the calculation below for a proposed 4 lot short-plat (costs are rounded):

1. The equation $C = X \div Y$, as shown above, will be used to determine the cost of proportionate share fees per new lot created with a land use development activity.
2. $665,704 ÷ 98 = $6,793 Cost of Proportionate Share per New Lot. For a 4 lot Short-Plat, the total cost of proportionate share fees would be calculated by multiplying the generated proportionate share fee by the number of new lots. A 4 lot Short-Plat is given one trip credit for existing traffic. The equation would be: 3 (new lots) x $6,793 (generated proportionate share fee) = $20,379 in total proportionate share fees for the Short-Plat.

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# Chapter 4
# Private Roadway Classification and Geometrics

## 4.00 Private Roadway Classification and Geometrics



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# Chapter 4
# Private Roadway Classification and Geometrics

## 4.01 General Provisions

A. All new or existing private roadways or driveways being used for access to a land use development activity are required to meet the requirements discussed in this chapter. These requirements are driven by increasing the number of daily trips on roadways. If the number of daily trips on private roadways are not increasing the existing traffic on the roadway, these requirements are not applicable.
B. Private roadways within a proposed plat shall provide access to adjacent properties whenever such provision is reasonable and practical.
C. No private roadway shall result in landlocking of existing or proposed parcels.
D. Any private roadway providing access to 2 lots or more shall be named meeting the standards of Road Name Sign Standard Plan. Road names shall be subject to the approval of the Klickitat County Planning Department.
E. All roads crossing an irrigation ditch or canal shall have a crossing agreement with the ditch owner or irrigation entity.
F. All roads used for access shall have an easement established permanently and recorded with the Klickitat County Auditor.
G. Private Roadways with steep grades or drainage issues may be required to have plans and profiles submitted for review prior to construction. If the road is constructed prior to submittal, modifications to the road may be required to meet these Standards.

## 4.02 Function Classification System

The first step in the design process of a private roadway is to identify the functional classification. The functional classifications of private roadways are established as part of these Standards and defined further herein. All new land use development activities or alterations to existing land use development activities will be evaluated by KCPWD. The results from the evaluation will determine the classification of roadway that is required to be built for the activity. The evaluation by KCPW will include, but not be limited to, the following items:

A. Existing trips on the roadway(s).
B. Projected new trips from development activity on the roadway(s).
C. Potential for future development.
D. Level of Service (LOS).
E. Type of land use development activity (i.e., Residential, Commercial, etc.).
F. The public health, safety, and general welfare of the citizens of Klickitat County.

## 4.03 Functional Classification Definitions

ADT is used as a threshold to determine the functional classifications of private roadways and/or roadway sections. This ADT shall be based on the ultimate build-out of all land, considering current zoning, that will potentially be served by the roadway and/or roadway section. Some

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roadways will have multiple classifications throughout based on what the ADT is on each segment of the roadway.

1) Shared Driveway
    A. A Shared Driveway or section of roadway that is required to meet this standard is for access to 2-4 lots or have an Average Daily Trip (ADT) count less than or equal to 40 trips. These roadways are used to provide a connection from private roads or property to public roads for the smallest of land use activities, or at the end of higher classified private roadways. Shared Driveways are intended for in-fill, one-time Short-Platting or phased platting. In the case of phased platting, the required easement width shall be set aside in the first plat to ensure access for future development.
    B. If a shared driveway has a length exceeding 150 feet, turn-outs shall be constructed every 150 feet, see Turnout Standard Plan.
2) Private Roadway A
    A. A private roadway or section of roadway that is required to meet this standard is for access to 5-25 lots or have an ADT count less than or equal to 250 trips (existing, proposed, and future). These roadways are used to provide a connection from private roads or property to public roads for minor sized land use development activities, and/or part of higher classified private roadways.
3) Private Roadway B
    A. A private roadway or section of roadway that is required to meet this standard is for access to 26-40 lots or have an ADT count less than or equal to 400 trips (existing, proposed, and future). These roadways are used to provide a connection from private roads or property to public roads for moderate sized land use development activities and/or part of higher classified private roadways.
4) Private Roadway C
    A. A private roadway or section of roadway that is required to meet this standard is for access to more than 40 lots or have an ADT count greater than 400 trips (existing, proposed, and future). These roadways are used to provide a connection from private roads or property to public roads for major land use development activities and/or areas.

## 4.04 Access and Intersections

Private roads shall comply with the access and intersection requirements shown in Chapter 5.

## 4.05 Access Easements Widths

Easement widths shall be established based on the existing, new and future potential trips generated. Additional easement width may be required to ensure all road elements and stormwater structures are within the easement. See the following table for minimum required easement widths:

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**Table 4-1 Minimum Easement Widths Based on ADT**

| ≤ 40 ADT | ≤ 250 ADT | ≤ 400 ADT | More than 400 ADT |
|---|---|---|---|
| 34 Feet Total | 40 Feet Total | 60 Feet Total | 60 Feet Total |
| 17 Feet Each Side of C/L | 20 Feet Each Side of C/L | 30 Feet Each Side of C/L | 30 Feet Each Side of C/L |

Note: Though it is a good practice to have the road centered within the easement, the road is not required to be centered in the easement. Though it is not required to be centered, all elements of the road prism are required to be within the easement.

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## 4.06 Table 4-2 Road Geometrics

| Classification: | Shared Driveway | Private Road A | Private Road B | Private Road C |
|---|---|---|---|---|
| **Access** | 2-4 Lots or ≤ 40 ADT | 5-25 Lots or ≤ 250 ADT | 26-40 Lots or ≤ 400 ADT | More Than 40 Lots or 400+ ADT |
| **Design Speed**[1] | 20 mph | 25 mph | 25 mph | 25 mph |
| **Maximum Super-Elevation** | 4% | 4% | 4% | 4% |
| **Minimum Centerline Curve Radius** | 40’ | 85’ | 85’ | 155’ |
| **Maximum Grade** | 14% | 14% | 14% | 14% |
| **Typical Cut/Fill Slopes**[2] | 2:1 Cut<br>3:1 Fill | 2:1 Cut<br>3:1 Fill | 2:1 Cut<br>3:1 Fill | 2:1 Cut<br>3:1 Fill |
| **Stopping Sight Distance** | See Table 5-1 | See Table 5-1 | See Table 5-1 | See Table 5-1 |
| **Minimum Roadway Width** | 14 Feet | 20 Feet | 20 Feet | 24 Feet |
| **Minimum Easement Width**[3] | 34 Feet | 40 Feet | 60 Feet | 60 Feet |
| **Minimum Vertical Clearance** | 16.5 Feet | 16.5 Feet | 16.5 Feet | 16.5 Feet |
| **Minimum Clear Zone**[4] | 10-Foot (Each Side) | 10-Foot (Each Side) | 10-Foot (Each Side) | 10-Foot (Each Side) |
| **Crushed Surfacing Top Course Minimum Depth** | 0.25 Feet Compacted (3 inches) | 0.25 Feet Compacted (3 inches) | 0.25 Feet Compacted (3 inches) | 0.25 Feet Compacted (3 inches) |
| **Crushed Surfacing Base Course Minimum Depth** | 0.75’ Compacted (9 inches) | 0.75’ Compacted (9 inches) | 0.75’ Compacted (9 inches) | 0.75’ Compacted (9 inches) |
| **Minimum Crown Cross-Slope** | 2% | 2% | 2% | 2% |
| **Maximum Rate of Vertical Curvature (K)** | 4 | 8 | 8 | 12 |

[1] Design speed is a basis for determining geometric elements and does not imply posted or legally permissible speed.
[2] Typical cut/fill slopes may be reduced or exceeded, see Section 4.08.
[3] See Table 4-1 Minimum Easement Widths Based on ADT Table above.
[4] This is measurement is measured from the edge of traveled way or edge line. This distance is based on roadway design speed under 35 mph.

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## 4.07 Vertical Curvature

**Table 4-3 Minimum Vertical Curvature**

| Design Speed (mph) | Stopping Sight Distance (ft) | Rate of Vertical Curvature, Ka | |
|---|---|---|---|
| | | Calculated | Design |
| 15 | 80 | 3.0 | 3 |
| 20 | 115 | 6.1 | 7 |
| 25 | 155 | 11.1 | 12 |
| 30 | 200 | 18.5 | 19 |
| 35 | 250 | 29.0 | 29 |
| 40 | 305 | 43.1 | 44 |
| 45 | 360 | 60.1 | 61 |
| 50 | 425 | 83.7 | 84 |

## 4.08 Maximum Cut/Fill Slopes

A. Fill slopes shall be constructed no steeper than 3 H: 1 V and cut slopes shall be no steeper than 2 H: 1V. Flatter slopes are preferred and will be required if there are indications that the earth is unstable and subject to sliding, sloughing, or erosion. Fills are to be constructed using appropriate materials, compaction methods, and construction techniques to ensure stability.

B. The maximum cut and fill slopes may be exceeded, but the applicant is required to provide KCPWD with a geotechnical evaluation. This evaluation shall be completed by an Engineer licensed in the State of Washington approving of slope stability. KCPWD strongly suggests that the evaluation is completed by a Geotechnical Engineer. Geotechnical evaluations are outside the expertise of County personnel. This evaluation shall be reviewed by KCPWD's on-call geotechnical reviewer at the expense of the applicant, see Chapter 2.15 for more details.

C. Side slopes shall be stabilized by grass sod, hydroseeding, by other planting or surfacing materials, or by the use of other material types acceptable to KCPWD. Side slopes may also be flattened to accommodate utility placement.

## 4.09 Horizontal Alignment

A. The road construction centerline should match as much as possible to the easement centerline. When widening existing roads, the Engineer is strongly encouraged to provide the additional widening symmetrical about the existing centerline alignment. Road curves should be designed with as large a radius curve as practical, with a minimum radius controlled by the appropriate design speed (see Table 4-4).

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B. Private roads are designed to have a lower design speed of 20 to 25 mph; curves with a short radius may be tolerated and super-elevation may not be necessary. The design shall conform to the minimum curve radii listed in Table 4-4.

C. On roads where the design may be over 35 mph, horizontal alignment must be carefully evaluated to ensure appropriate alignment. The design shall conform to the minimum curve radii listed in Table 4-4.

D. If heavy trucks recreational vehicles, or commercial traffic is expected, individual evaluation of curve radii shall be evaluated using Auto-Turn software.

**Table 4-4 Minimum Curve Radius**

| Design Speed | Maximum Super-Elevation | Radius (in feet) |
|---|---|---|
| 10 | 4% | 16 |
| 15 | 4% | 42 |
| 20 | 4% | 86 |
| 25 | 4% | 154 |
| 30 | 4% | 250 |
| 35 | 4% | 371 |
| 40 | 4% | 533 |
| 45 | 4% | 711 |
| 50 | 4% | 926 |

## 4.10 Clear Zone

Clear Zone is the total roadside border area starting at the edge of the traveled way available for use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a nonrecoverable slope, and/or a clear run area. A minimum of a 10-foot clear zone on each side of the road shall be in the design of all roads and there shall not be any man-made structures within said easement. This is measured from the edge of traveled way or edge line. This distance is based on roadway design speed under 35 mph.

## 4.11 Turnarounds

A. A turnaround is required for all dead-end private roads or private roads that have other connections that do not meet these Standards from the land use development activity to the nearest access to a County Road. The applicant and/or developer shall provide for a vehicle turnaround, which are typically referred to a “Cul-de-Sac” or “Hammerhead” turnaround. Any turnaround constructed shall be built to meet the standards of the Turnaround Standard Plan.

B. No parking shall be allowed on turnarounds.

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## 4.12 Road Maintenance Agreement

A. All new private roads constructed with a land use development activity for access to more than one lot shall create a "Road Maintenance Agreement" for said private road; all benefited property shall be listed on the agreement.
B. If a land use development activity uses an existing private road for access to the project site and there is an existing road maintenance agreement on the road, all new lots are required to join the agreement.
C. The road maintenance agreement shall have the following statements:
    a. "The road servicing said property is not a County Road and that Klickitat County, State of Washington, has no responsibility or obligation as to the maintenance, construction or repair of said road."
    b. "Now it is hereby stated and established that the current and future landowners of the above lots as they may now exist or hereafter divided shall share on an equal expense and responsibility for the maintenance, repairs, and/or additional construction of *Private Road Name*."

## 4.13 Stormwater

A. All private roadways must have an adequate crown or adequate cross-slope to direct water off the roadway. Careful cross-slope design is especially important at the end of horizontal curves with super-elevation and at intersections. It must be recognized that many drainage ditches and culvert headwalls are usually in the clear area, or recovery area, which is an important roadway safety feature. In curb and gutter situations, especially where grades are at or near recommended minimums, the location and designs of inlets becomes very important.
B. All drainage elements associated with the private roadway design and construction or draining into or out of the roadway and within the project boundaries shall be designed in accordance with the Stormwater Management Manual for Eastern Washington and Chapter 7 of these Standards.

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# Chapter 5
# Access and Intersections

## 5.00 Access and Intersections



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# Chapter 5
# Access and Intersections

## 5.01 Purpose

Intersection location, spacing, and design are fundamental to the management of access and preservation of capacity provided for in the roadway design. The functional classification of each roadway addresses the appropriate level of access control for that roadway. It is the purpose of this section to provide the procedures and standards necessary to protect the public health, safety and welfare, maintain smooth traffic flow, maintain road right-of-way drainage, and protect the functional level of the public roads while meeting state, regional, local, and private transportation needs and interests.

## 5.02 Authority

Pursuant to RCW 36.75.130, local governments are authorized to regulate vehicular access to and from any public road under their respective jurisdiction from or to property adjoining a public road.

## 5.03 Implementation

For all roadway accesses and intersections, the following general design criteria shall apply:

A. No person shall construct any access providing direct movement to or from any road maintained by Klickitat County from or to property adjoining the road without an access permit issued by the KCPWD (See RCW 36.75.130).

B. Access permits shall be issued only in compliance with this chapter and the conditions for approval of the permit.

C. Lots that access easements or rights-of-way controlled by different agencies such as State highways, Forest Service roads, irrigation canals, or railroads will require separate access approvals from those agencies. A copy of the access approval shall be submitted to the KCPWD prior to issuance of the KCPWD's access permit or preliminary approval for any land use development application. The KCPWD cannot grant access to roads or easements it does not control.

D. All access permits for access from a paved County road shall require the installation of an apron that is surfaced with asphalt or concrete prior to approval.

E. Whenever a potential feasible access exists to any property from two or more roads, the KCPWD may refuse access to the higher classified road.

F. Whenever a potential feasible access exists to any property from both a public road and private road easement, the KCPWD may refuse access to the public road.

G. For commercial or industrial access with heavy traffic volumes or a significant number of trips, the KCPWD may require construction of the access as a road intersection. This requirement will be based on a Traffic Access and Impact Study (TAIS) that considers,

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among other factors, intersection spacing, sight distances and traffic volumes. The TAIS shall be completed in conformance with Chapter 6.

H. Access may be required to be constructed prior to final approval of a land use development activity if an issue with sight distance occurs, there is minimal area for the approach to be installed or any other circumstance that may require mitigation.

I. No more than one access shall be granted to an individual parcel or to continuous parcels under the same ownership unless it can be shown that:

1. The additional access would be beneficial to the public traveling the public road; and
2. Allowing only one access would be in conflict with local safety regulations; and
3. The additional access would not be detrimental to public health, safety, and welfare; or
4. The additional access is for agricultural use only and the access location meets spacing and site distance requirements. Any change of use of the agricultural access will require the access to be reevaluated to meet the conditions of these Standards.

J. A geotechnical report may be required prior to approval of a land use development activity to ensure that the County road can be accessed without damaging or diminishing the integrity of the road slopes. KCPWD strongly suggests that the evaluation is completed by a Geotechnical Engineer. This evaluation shall be reviewed by KCPWD's on-call geotechnical reviewer at the expense of the applicant, see Chapter 2.15 for more details.

K. If an access is being granted across adjacent property, the access permit shall be signed by the landowner of the property that the access is being placed on. KCPWD shall not grant access to a parcel across an adjacent parcel without a recorded easement being attached to the permit.

Notwithstanding the requirements of this section, the number and location of driveway approaches and intersections may be more restrictive than described herein if deemed necessary by the County Engineer. The County Engineer shall base the determination on existing and projected traffic volumes and channelization on the existing County road, turning movements generated by the existing and/or proposed project(s), the amount of lot frontage along the road, and other applicable traffic design criteria, as well as other driveway approaches in the vicinity of the proposed access.

In order to minimize the number of conflicts between vehicles entering and exiting the roadway and vehicles traveling along the roadway, the County Engineer is encouraged to exceed the minimum distances between a proposed driveway approach or proposed road intersection and existing intersections and driveway approaches along either side of the roadway.

## 5.04 Obtaining a Permit

A. Persons wishing to apply for direct access to a County road should contact the KCPWD. The KCPWD will require that the applicant fills out and submits a complete road access

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application. The KCPWD may require, but not be limited to, the following items when relevant to the evaluation of an access:

1. Road and/or Driveway Plan and Profile
2. Complete drainage plan of the site that impacts the road right-of-way
3. A land use development plan
4. Property map indicating other access and abutting public roads and streets
5. Proposed access design
6. Recorded easement providing access across adjacent property

B. The KCPWD will evaluate the access permit application upon receiving the permit fee. KCPWD will require that the applicant mark the location of the approach in the field. KCPWD can provide the applicant with materials to mark the location free of cost.

C. The KCPWD will work cooperatively with applicants when determining requirements on access requests. Through this cooperative evaluation process, the KCPWD may determine a variation from the access design standards is necessary due to site limitations or other existing conditions and has the authority to make that decision. However, if the applicant disagrees with the KCPWD's requirement on an access request, the applicant will be required to request a variance to the standards according to Section 2.13.

D. Prior to issuing a denial on an access permit request, the KCPWD shall attempt to resolve the reasons for the denial with the applicant.

E. Any appeals of a denied access permit shall be resolved by evaluation of the County Engineer.

## 5.05 Construction of Access

A. The issued access permit will be provided to the permittee along with the requirements for construction. The permittee will have 6 months from the date of issuance, as shown on the permit, to complete construction of the access and request inspection by the Public Works Department.

B. An extension to the access permit will only be considered if construction of the access has been substantially completed and the extension request is made prior to the permit expiration date. The permittee can request an extension to the KCPWD in writing. The KCPWD will determine if the approach has been substantially completed and determine the length of the extension, if granted.

C. The KCPWD shall inspect the access upon completion of construction to ensure that all terms and conditions of the permit have been met. The KCPWD may request to inspect the access during construction.

D. The construction of the access and its appurtenances as required by the terms and conditions of the permit shall be completed at the expense of the permittee.

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E. It is the responsibility of the permittee to complete the construction of the access according to the terms and conditions of the permit. The KCPWD may order a halt to any unauthorized construction or use.

F. Grading and restoration of an approach beyond the end of the driveway shall be done to provide a smooth, passable, and safe transition for ingress and egress from the County roadway.

G. Adequate construction signing, in conformance with the most current edition of the MUTCD, shall be required during access construction. This may include, but is not limited to, the use of signs, flashers, barricades and flaggers. KCPWD and its duly appointed agents and employees shall be held harmless against any action for personal injury or property damage sustained during construction of the access.

H. When constructing an access that requires the sidewalk to be closed, a traffic control plan shall be submitted.

I. In areas where sidewalk is present, the access shall be designed by an engineer licensed in the State of Washington to endure that ADA requirements are being met.

## 5.06 Use of Access

A. During road construction or maintenance, the KCPWD may determine that it is necessary to reconstruct or relocate an existing access. KCPWD will notify affected landowners prior to performing any work on the access.

B. It is the responsibility of the property owner to ensure that the use of access to the property is not in violation of the section, permit terms and conditions. The terms and conditions of the permit are binding upon all assigns, successor-in-interest and heirs.

C. When there are changes in property use which result in changes in the type of access operation and/or the access is not in conformance with this chapter, the reconstruction, relocation and conformance of the access to this chapter may be required at the expense of the owner.

## 5.07 Illegal Access to the County Road

The property owner will be sent written notice of any illegal access location, or use. The owner will be given 7 days to respond to notification of pending actions. After 7 days, the department may install barriers across or remove any accesses not conforming to this chapter at the expense of the owner, pursuant to RCW 36.75.130

## 5.08 Types of Access Permits

A. Residential Access

   a. A Residential Access Permit is used to permit access to a single parcel of land for residential use. The Residential Access shall be constructed in accordance with the most current version of the Residential Access Standard Plan. Grading and restoration of an access beyond the end of the driveway shall be done to provide a smooth, passable, and safe transition for ingress and egress from the County roadway.

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b. Residential Accesses shall be constructed to meet the minimum spacing requirements from intersections and accesses listed in Tables 5-2 and 5-3.

B. Shared Access

a. A Shared Access Permit is used to permit access to two parcels of land. The Shared Access shall be constructed in accordance with the most current version of the Shared Access Standard Plan. Grading and restoration of an access beyond the end of the driveway shall be done to provide a smooth, passable, and safe transition for ingress and egress from the County roadway.

b. A Shared Access shall be constructed to meet the minimum spacing requirements from intersections and accesses listed in Tables 5-2 and 5-3. In the case where adequate lot frontage is not sufficient to provide the required separation from an intersection or another approach at the shared property line, a Shared Access shall not be used to access both lots.

c. A Shared Access shall only be placed directly on a shared property line and both landowners shall sign the permit, as well as submit a recorded shared access easement for the benefit of both lots. The easement shall encompass all elements relating to the access and roadway up to the point at which the access/road is not being used as a shared access.

d. The length of the Shared Access shall not exceed 125 feet.

C. Intersection Access

a. Intersection Accesses are used to connect a private or county road to a preexisting County Road. The Intersection Access shall be constructed in accordance with the most current version of the Intersection Access Standard Plan.

b. If the Intersection Access is a requirement of land use development activity, the KCPWD will not issue a final acceptance of a land use development activity until the access has been accepted by the KCPWD.

D. Commercial Access

a. A Commercial Access is used to provide access to a parcel or parcels of land for a commercial business, large delivery trucks and/or an abundance of traffic. Commercial uses include, but are not limited to, industrial, multi-family, and energy land use development activities. The Commercial Access shall be constructed in accordance with the most current version of the Commercial Access Standard Plan. Grading and restoration of an access beyond the end of the driveway shall be done to provide a smooth, passable, and safe transition for ingress and egress from the County roadway.

b. Access to commercial or industrial use corner lots shall be located on the lower volume roadway and as close as practicable to the property line most distant from the intersection. Right entering and right exiting conditions may also be required by the County.

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c. Commercial Accesses shall be located a minimum of 125 feet from an intersection, except were physical site conditions and spacing of existing driveway approaches may cause the KCPWD to require another location. The 125 feet is measured from the nearest edge of roadway to the nearest edge of the access. Access to a corner lot with a frontage less than 125 feet in width will be established on a case-by-case basis by the KCPWD and the approach shall be placed at such a location to maximize safety.

d. Commercial Accesses shall be placed directly opposite each other wherever possible. If that is not possible, the separation between the nearest edges of such opposite access points shall be a minimum of 70 feet.

e. The number, location, and size of Commercial Accesses shall be determined by the volume and type of traffic generated by the development, other accesses in the vicinity of the proposed access, the amount of lot frontage along the road, and channelization/traffic control on the road along the lot frontage. When multiple Commercial Accesses to one parcel are permitted, they shall not be less than 125 feet apart, measured from the edge of one access to the nearest edge of the other access.

f. If the Intersection Access is a requirement of land use development activity, the KCPWD will not issue a final acceptance of a land use development activity until the access has been accepted by the KCPWD.

g. Access points for parking and loading areas shall be designed so that backing maneuvers from or onto a Public Road right-of-way will not occur. All vehicles shall enter/exit the property in a forward motion. This is only applicable to commercial access.

E. Agricultural Access

a. An agricultural access is used to provide access from a public roadway to a field or outbuilding(s). These approaches shall not be used for residential or commercial use. The standards for building an Agricultural Access shall be determined on a case-by-case basis by the County Engineer.

F. Temporary Access

a. A Temporary Access is used for undeveloped properties if access is needed for preliminary site construction, logging or other temporary access needs to a parcel of land.

b. Temporary Accesses shall be located such that the required intersection sight distance for the road being accessed is met. In the event intersection sight distance is not achievable, traffic control shall be provided in accordance with the MUTCD whenever the access is in use. KCPWD may also set requirements for traffic control as needed dependent on the type of vehicles entering the County road system (i.e., large trucks may require flaggers even though intersection sight distance is available).

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c. The Temporary Access shall be constructed in accordance with the most current version of the Temporary Access Standard Plan Temporary Access in general shall be gravel, but KCPWD may require paved approaches to avoid damage to the existing roadway edge, or to minimize the tracking of gravel and other debris onto the County road surface.

d. All temporary approach permits shall be fulfilled/completed 6 months from the date that the permit is issued. This date will be provided on the permit by KCPWD. When the requirements of the permit(s) have been completed, the applicant will need to call the KCPWD for an inspection. If the applicant does not call for an inspection and the expiration date has surpassed, KCPWD may remove the approach and restore the County right-of-way at the expense of the landowner.

e. Restoration of the County right-of-way means to restore the County road, shoulder and storm drainage system to the condition they were in prior to construction of the Temporary Access.

f. If the landowner wishes to continue to have an approach in the current temporary approach location, the approach must then be reclassified and built to a permanent approach standard. This can be accomplished by submitting a new road approach permit applicant for the applicable approach type prior to the expiration date. The type of access classification will be determined by the use of property. See the applicable Standard Plan for a better description.

## 5.09 Sight Distance

Sight distance is the length of roadway ahead visible to the driver. The available sight distance on a roadway should be sufficiently long to enable a vehicle traveling at the design speed to avoid colliding with a stationary object in its path. The AASHTO "Green Book" contains a discussion of the factors and assumptions associated with the calculation of stopping, passing, and intersection sight distance. Intersection sight distance must be considered in light of the terrain in which the facility is located and in urban situations to what extent parking is permitted. Stopping Sight Distance (SSD) shall be available throughout all horizontal and vertical curves.

Minimum Stopping Sight Distance shall be designed for wet pavement; the effects of grade shall also be accounted for grades steeper than 3 percent as follows.

**Table 5-1 Stopping Sight Distance (SSD)(Feet)**

| | | ***Downhill Gradient*** | | | | |
|---|---|---|---|---|---|---|
| ***Design Speed*** | ***Minimum SSD*** | ***3%*** | ***6%*** | ***9%*** | ***12%*** | ***14%*** |
| ***20 mph*** | 115 | 116 | 120 | 126 | 132 | 138 |
| ***25 mph*** | 155 | 158 | 165 | 173 | 183 | 192 |
| ***30 mph*** | 200 | 205 | 215 | 227 | 242 | 255 |
| ***35 mph*** | 250 | 257 | 271 | 287 | 308 | 325 |
| ***40 mph*** | 305 | 315 | 333 | 354 | 381 | 404 |
| ***45 mph*** | 360 | 378 | 400 | 427 | 462 | 490 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| ***50 mph*** | 425 | 446 | 474 | 507 | 550 | 585 |

A. For the purpose of assessing Stopping Sight Distance, Klickitat County has maintained an object height of 3.5 feet and a driver's eye height of 3.5 feet.

B. Stopping Sight Distance shall be achieved without the need for additional easements or right-of-way, unless otherwise approved by the County Engineer.

Road Access sight distance shall equal or exceed the minimum Stopping Sight Distance listed above in Table 5-1 for the legal posted speed limit. Sufficient sight distances in each direction along a public road must be provided to permit vehicles to safely enter and exit the roadway.

## 5.10 Sight Distance Triangle

Sight triangles are areas along intersection approach legs and across their included corners. These corners should be clear of obstructions that might block a driver's view potentially conflicting vehicles; these areas are known as clear sight triangles. See the Sight Distance Triangle Standard Plan for the minimum requirements.

## 5.11 Approach Point Location

All accesses shall be constructed the maximum practical distance from an intersection and other accesses. See Table 5-2 for minimum access spacing requirements from other approaches and Table 5-3 for minimum access spacing requirements from intersections.

### Table 5-2 Minimum Access Spacing from Other Accesses*

| | **Minimum Spacing (Feet)**** |
|---|---|
| **Road Classification and Speed** | **All Access Types** |
| Local Road 35 mph or Less | 25 |
| Local Road Greater than 35 mph | 50 |
| Minor Collector 35 mph or Less | 35 |
| Minor Collector Greater than 35 mph | 70 |
| Major Collector 35 mph or Less | 35 |
| Major Collector Greater than 35 mph | 125 |

* These distances are not applicable if the proposed access is directly across from an existing access.

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** Distances shown are measured from the nearest edge of one approach to the nearest edge of the other approach.

## 5.12 Intersections

The spacing of intersections, both public and private, is critical to maintaining roadway traffic flow and can reduce vehicular and pedestrian conflicts while helping to avoid traffic accidents. As a general rule, spacing at intersections shall be a minimum of 75 feet from another intersection. This distance is measured from the nearest edge of the traveled way or edge line to the nearest edge of the approach.

### Table 5-3 Minimum Access Spacing from Intersections*

| Road Classification | Minimum Spacing (Feet)** |
|---|---|
| Local Road | 75 |
| Minor Collector | 150 |
| Major Collector/Arterials | 300 |

* Unless otherwise required in Section 5.08.
** Distances shown are measured from the nearest edge of traveled way or edge line to the nearest edge of the approach.

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# Chapter 6
# Traffic Access and Impact Study

## 6.00 Traffic Access and Impact Analysis



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# Chapter 6
# Traffic Access and Impact Study

## 6.01 Purpose

A Traffic Access and Impact Study (TAIS) is a specialized study of the impacts that development will have on the transportation system. The TAIS is an integral part of the environmental review process and specifically analyzes the generation, distribution, assignment and to identify the need for any improvements to a transportation system to reduce congestion, maintain and improve safety, and provide site access and impact mitigation associated with the project. The TAIS should start in the earliest planning stages of a project, including site selection. The TAIS shall be undertaken in advance of the submittal of an application.

The purpose of a Traffic Access and Impact Study is to:

1. To assess the impacts a particular development will have on the County and regional road network;
2. To determine what provisions or mitigation is needed for safe and efficient site access, mobility and traffic flows including on-site and off-site;
3. To document purpose, procedures, assumptions, findings, conclusions, and recommendations of the study, and
4. To establish whether the development will meet the County's level of service standards
5. To create to the extent possible, uniform requirements for submittals by applicants.

## 6.02 Authority

The County Engineer/Public Works Director, or designee, shall be responsible for implementing and enforcing this chapter, which may include, but not limited to, such subjects as the contents and scope of the TAIS, the methodologies to be used in preparing the TAIS, and the nature and extent of the improvement(s) necessary to mitigate the traffic impacts caused by a proposed development.

## 6.03 Traffic Access and Impact Study – When Required

**A.** A Traffic Access and Impact Study shall be required for all development applications in which the proposed development is projected to have an impact upon any affected transportation corridor or intersection. A TAIS shall be required for all developments that will generate more than 25 peak hour vehicle trips and/or 250 Average Daily Trips (ADT). The applicant shall submit a trip generation and distribution worksheet, see Appendix E.

B. The TAIS shall be prepared by and/or under the supervision of an Engineer licensed in the State of Washington who specializes in traffic.

C. The TAIS shall be based on traffic counts obtained within twelve (12) months of the fully complete date of the development application as determined by the Klickitat County Planning Department. The traffic counts shall reflect representative traffic conditions within transportation corridors and at intersections.

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D. The Public Works Director/County Engineer reserves the right to require a developer to provide data and/or analysis as part of a particular TAIS, where the Public Works Director/County Engineer determines that additional information or analysis is required to implement the standards and requirements contained in this section.

E. The Traffic Access and Impact Study evaluation shall be completed prior to:

   a. Issuance of administrative approval/denial of the project if SEPA review is not a requirement of the project; or

   b. Issuance of the DNS, MDNS, or DS if SEPA review is a requirement of the project; or

   c. Issuance of the staff report to the hearings examiner if there is a hearing before the hearing examiner and SEPA review is not a requirement of the project.

F. Development permits for phased developments shall have the TAIS completed for the entire project. A developer may elect to have the TAIS undertaken for less than the entire project if and only if:

   a. The director agrees to such limited evaluation; and

   b. Each phase shall include all of the infrastructure to service that phase; and

   c. There is a written note included in the preliminary approval for such phased development that the TAIS is limited only to the specific phases for which approval has been provided.

G. The County may undertake an independent TAIS to confirm or revise the results of the developer's TAIS at the expense of the developer, see Section 2.15.

H. The County may reserve capacity on its transportation facilities for future developments considered high priority by the County.

## 6.04 Traffic Access and Impact Study – Small Projects

**A.** Developments between 10 and 24 AM/PM peak hour trips and/or between 100 and 249 ADT will work with KCPWD to determine what offsite mitigation (if any) will be required for the project.

## 6.05 Peak Traffic Hours

For traffic analysis, the AM & PM peak hour conditions shall be used. In most cases peak hours are assumed to be similar to those on adjacent streets.

## 6.06 Level of Service

Level of Service (LOS) is a term used to qualitatively describe the operating conditions of a roadway based on factors such as speed, travel time, maneuverability, delay, and safety. The level of service of a facility is designated with a letter, A to F, with A representing the best operating conditions and F the worst. As part of these Standards, the BOCC has adopted the

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minimum acceptable Level of Service as LOS D for traffic at Klickitat County Intersections and County Roads.

## 6.07 Report Certification

All traffic access and impact studies shall be prepared by or under the direct supervision of an Engineer licensed in the State of Washington whom specializes in traffic. The licensed Engineer shall certify the TAIS document by providing a signature and seal of approval.

## 6.08 Traffic Access and Impact Study Scope

To establish the scope of the TAIS, the developer shall follow the Public Works Department TAIS guidelines and shall provide a preliminary, limited scope analysis documenting the estimated trip generation and distribution for the proposed development application. KCPWD will review and adjust, if necessary, this information for use in establishing the analysis locations for the TAIS. The TAIS shall, at a minimum, provide the following information for the identified study locations:

A. Number of peak hour trips generated by the development according to the ITE trip generation manual or other method approved by the KCPWD;

B. Anticipated trip distribution;

C. Measurement of the intersection sight distances for the proposed site access location(s) and compare that value to the required sight distance needed for the posted for the speed limit;

D. The current calculated level of service of all impacted transportation facilities;

E. The future calculated level of service of all impacted transportation facilities, as identified by the County incorporating traffic volumes from the proposed development at the full build-out year with a growth factor of two percent;

F. Any proposed mitigation;

G. The future calculated level of service of all impacted transportation facilities with and without the incorporation of the proposed development traffic volumes at the full build-out year; and

H. Any adverse effects or safety hazard that are created or worsened by trips generated by the development and the effect these trips have on the structural integrity of the transportation facilities.

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# Chapter 7
# Stormwater Management Standards

## 7.00 Stormwater Management Standards



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# Chapter 7
# Stormwater Management Standards

## 7.01 Purpose

This chapter establishes stormwater standards and guidelines for use in Klickitat County. They will be used by the developers and others who will create stormwater runoff through land-disturbing activities. The purpose of this chapter will be met through the following:

A. Adopting the Stormwater Management Manual for Eastern Washington (SWMMEW) as now and hereafter amended, for use with Klickitat County.

B. Prevent accelerated soil erosion and control stormwater runoff resulting from land disturbing activities both during and after construction through the use of Best Management Practices (BMPs).

C. Eliminate the need for costly maintenance and repairs to roads, embankments, ditches, streams, wetlands, and stormwater control facilities due to inadequate soil erosion and stormwater runoff control.

D. Reduce stormwater runoff rates and volumes, soil erosion, sediment, and nonpoint source pollution from development and redevelopment through stormwater BMPs.

E. Provide long-term responsibility for and maintenance of stormwater BMPs.

F. Protect the conditions of State (and U.S.) water for all reasonable public uses and ecological functions.

G. Facilitate compliance with State and Federal standards and permits by owners of construction sites, developments, and permanent stormwater BMPs within Klickitat County.

## 7.02 Specifications

All stormwater facilities shall be designed in accordance with the most current edition of the SWMMEW and the current edition of the WSDOT Hydraulics Manual, utilizing the manual with the most restrictive specifications where requirements are duplicated.

## 7.03 Exemptions

Projects exempt from requirements listed in this chapter include the exemptions and partial exemptions listed in the current edition of the SWMMEW.

## 7.04 General Requirements

The following Core Elements shall be implemented in accordance with the SWMMEW:

A. Core Element #1: Prepare a Stormwater Site Plan prior to final plat approval that will be reviewed for completeness by KCPWD according to all of the applicable core elements herein listed.

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B. Core Element #2: Construction Stormwater Pollution Prevention. Prepare a construction Stormwater Pollution Prevention Plan that is appropriate for the site and the season during which construction activities will take place.

C. Core Element #3: Source Control of Pollution. Apply all known, available and reasonable source control BMPs. Operational and structural source control BMPs shall be selected, designed and maintained according to the SWMMEW.

D. Core Element #4: Preservation of Natural Drainage Systems. Preserve natural drainage systems to the extent possible on the site.

E. Core Element #5: Runoff Treatment. Projects that result in five thousand square feet or more of new pollutant-generating surfaces shall design, size, construct, operate and maintain runoff treatment at the site.

F. Core Element #6: Flow Control. Projects that result in ten thousand square feet or more of new impervious surfaces shall design, size, operate and maintain stormwater flow control facilities at the site.

G. Core Element #7: Operation and Maintenance. Projects that utilize physical or structural BMPs shall prepare an operation and maintenance plan prepared in accordance with the SWMMEW.

H. Core Element #8: Local Requirements. Projects shall meet any additional requirements that are listed herein or as required by KCPWD.

I. All stormwater facilities utilizing conveyance systems and/or natural dispersion areas shall have protective easements established over these systems and areas.

To determine if your project required a stormwater plan, or to determine what elements are required to be included in your stormwater plan, refer to Figure 7-1.

## 7.05 Submittal Requirements

Since stormwater management requirements are dependent on how much impervious surface will result from the project, calculate how much impervious surface will be created. If the impervious surfaces (roofs, patios, parking areas, etc.) are unknown, assume each lot will develop 3,800 square feet of impervious surfaces (not including roadways). Once the impervious surfaces have been calculated, the flow chart can be used to determine if a drainage report is required and what elements would be required if a stormwater plan is required.

When a stormwater plan is required, the size of the project's submittal and details required will vary based on the project's particulars. Development projects usually consist of three types:

1. All stormwater facilities required for the complete build-out of the development will be constructed on-site prior to the plat approval.
2. Some stormwater facilities will be constructed prior to plat approval (required for impervious surface being constructed prior to plat approval such as the construction of private development roads) and other stormwater facilities will be constructed in the future when impervious surfaces on individual lots are developed.

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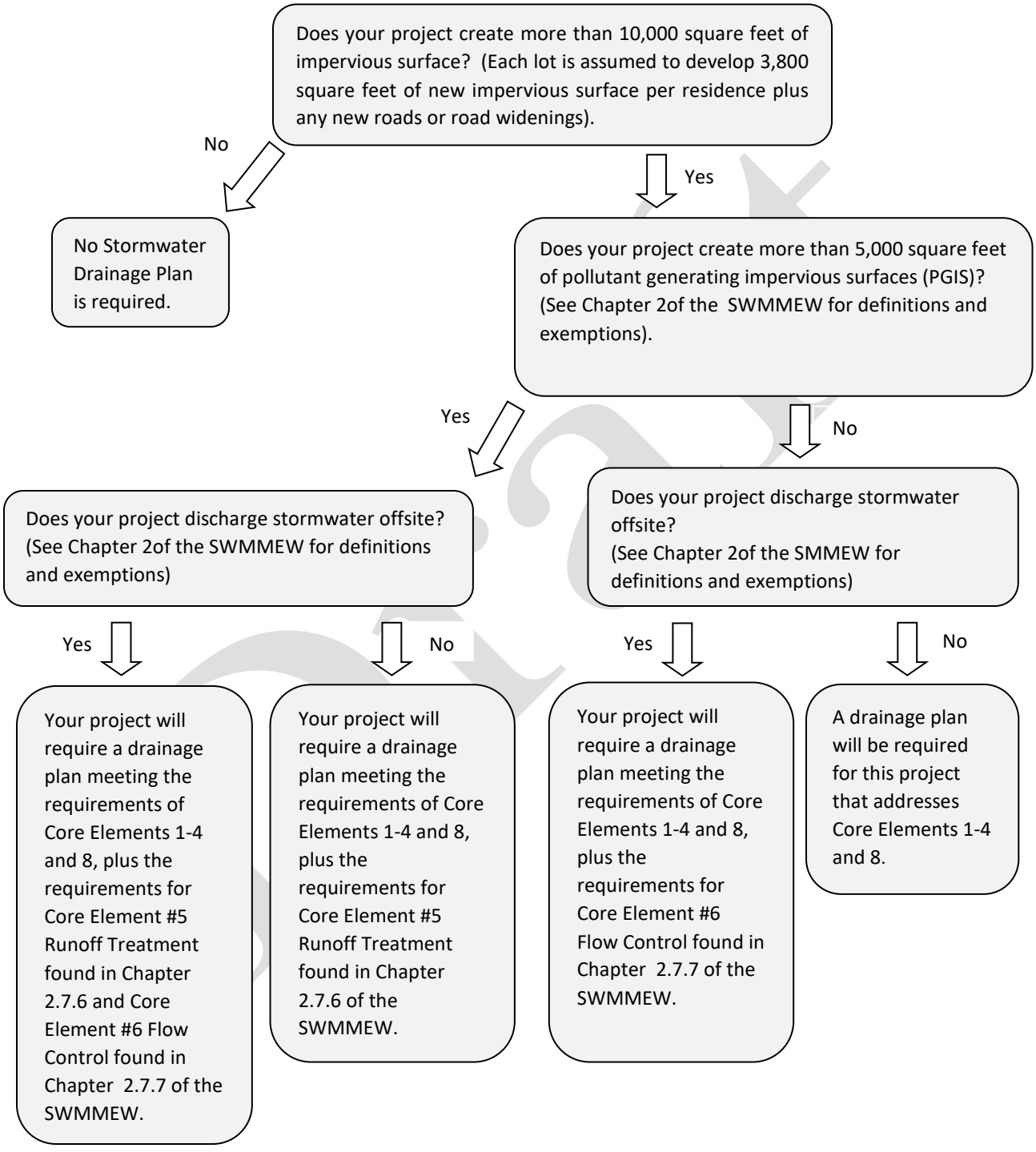
3. All stormwater facilities will be constructed in the future as impervious surfaces are developed on individual lots.

**Figure 7-1 - Project Sizing Flow Chart**



For projects that fall under type 2 and 3 where stormwater facilities will be constructed in the future, the stormwater plan shall include options for stormwater management that can be utilized by future lot developers to meet the requirements of the stormwater plan. This shall include appropriate details, sizing charts (for example, if infiltration trenches are proposed, include a chart that details the required length of trench to be constructed based on the square feet of impervious surface constructed), maintenance details and all Engineering required for the future developer to construct the facilities. In this case, exact locations of facilities may not be known, so Core Element #2 (Construction Stormwater Pollution Prevention Plan) may not include exact locations of Construction BMPs, but BMPs appropriate for the particular site and the season during which construction activities will take place will need to be listed and detailed.

Stormwater site plans and reports shall be prepared by, or under the direction of an Engineer, licensed in the State of Washington and shall bear the stamp of that Engineer on all plans, reports and calculations.

**Stormwater Site Plans shall include, at a minimum, the following information:**

- ☐ Name, address and telephone number of the applicant.
- ☐ Name, address and telephone number of the person preparing the plan(s).
- ☐ Parcel number(s) and/or Lot number(s).
- ☐ Scale Bar and North Arrow.
- ☐ Legend for all symbols used.
- ☐ Vicinity map of sufficient clarity to locate the property, drainage basins, and receiving water bodies.
- ☐ Property boundaries, dimensions and area.
- ☐ Contour lines and elevations from best available source at an interval that is appropriate for the project site.
- ☐ Adjoining roadways.
- ☐ Existing stormwater facilities, structures and drainage courses.
- ☐ Acreage and outline of all drainage basins used in sizing of stormwater facilities.
- ☐ Show existing routes and/or proposed construction and future stormwater flows including all discharge points.
- ☐ Show significant geographical features.
- ☐ Show sensitive/critical areas (streams, wetlands, lakes, steep slopes, etc.).
- ☐ Show established buffers, significant trees, and natural vegetation easements.
- ☐ Location of known wells, underground storage tanks and septic tanks.
- ☐ Proposed drainage facilities, type and location.
- ☐ Existing and proposed structures and other impervious surfaces such as driveways, patios, greenhouses, barns, etc.
- ☐ Existing and proposed utilities.

Stormwater site plans shall be submitted on 11” x 17” sheets at a minimum printed scale of 1” = 40’. If full size plans are submitted they shall be at a scale of 1” = 20’.

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**Stormwater report shall follow the outline below:**

1. **Title Page**
   - ☐ Project Name
   - ☐ Location of the Project.
   - ☐ Report preparer's name and firm.
   - ☐ Project applicant's name.
   - ☐ Stamped by Engineer Licensed in the State of Washington
2. **Table of Contents**
   A. Include all sections of the report, tables, figures, and appendices.
3. **Section A: Project Overview**
   A. Provide details on the project's site location, including a vicinity map and description of the overall scope of work for the whole project (not just the stormwater elements).
4. **Section B: Existing Conditions Summary**
   A. Discuss the existing site conditions and layout as observed during the inspection of the site by the designer. Include a discussion of the existing drainage patterns, existing drainage structures (bridges, culverts, conveyance systems, etc.) and current operational conditions of each.
   B. Discuss how the project will impact or be impacted by any current drainage patterns or structures. This section should describe and confirm what is shown on the maps and site plans as well as note any features that may influence the design.
   C. Describe soil that is present on site and describe any soils testing that was performed.
   D. Describe existing utilities and any impacts that would result from the construction of the project.
5. **Section C: Proposed Improvements Summary**
   A. Describe the project and what stormwater improvements will be made. List existing and proposed impervious surfaces and Pollutant Generating Impervious Surface (PGIS). Describe each of the systems or structures (ditches, conveyances systems, culverts, ponds, infiltration facilities, detention/retention facilities, dispersion areas, etc.) that are proposed and the location of each installation (if known). Describe any government approvals or permits that would be required to complete the project stormwater improvements.
6. **Section D: Applicable Core Elements**
   A. For each of the following core elements, discuss if they apply to the specific project, what will be done with the project to meet the requirement of each applicable core element and give details on types of improvements and BMPs will be used for each:
      i. Core Element #1 – Preparation of a stormwater site plan.

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ii. Core Element #2 – Construction Stormwater Pollution Prevention

iii. Core Element #3 – Source Control of Pollution

iv. Core Element #4 – Preservation of Natural Drainage Systems

v. Core Element #5 – Runoff Treatment

vi. Core Element #6 – Flow Control

vii. Core Element #7 – Operations and Maintenance

viii. Core Element #8 – Local Requirements

**7. Section E: Downstream Analysis**

A. Perform a downstream analysis of the project according to Appendix 3A of the SWMMEW.

**8. Section F: Hydrologic and Hydraulic Analysis**

A. When Hydrologic and hydraulic design calculation are required, summarize the methodologies used, software used, and other data sources utilized. This section should summarize the results and the calculation should be included in the appendices. Designers should use a table to summarize calculations for clarity where there are multiple drainage basins being evaluated. The following should also be included:

- ☐ Precipitation depths for each design storm used.
- ☐ Summary of curve numbers, ground cover coefficients, area and peak flow rates for each contributing drainage basin and each design storm event.

**9. Section G: Preservation of Natural Drainage Systems**

A. Describe how natural drainage systems will be preserved during the construction and implementation of stormwater improvements.

**10. Section H: Collection and Conveyance System**

A. Describe all collection and conveyance systems for the project (when applicable). Include a summary of the hydraulic analysis and sizing calculations. The calculations should be included in the appendices.

B. Culverts shall be designed and sized per Chapter 3 of the WSDOT Hydraulics Manual for the 25-year and 100-year storm events.

C. Storm Drainage systems shall be designed per the WSDOT Hydraulic Manual.

D. Culverts that cross under County Roads and County Road intersections shall have a minimum diameter of eighteen (18) inches and be constructed from corrugated metal pipe, reinforced concrete pipe or other type approved by the County Engineer. All crossings in natural drainage courses or streams shall be sized by a licensed Engineer in the State of Washington. All internal development roads shall treat and handle all stormwater within the development.

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E. All drainage facilities installed within the County Rights-of-Way must be of the type and nature approved by the County for ease of maintenance by the County. All stormwater facilities within the development and outside of the County Rights-of-Way shall be maintained by the owner, developer or homeowner's association.

F. This section should include enough supporting information to allow reviewers to completely and independently duplicate the process through the original design.

**11. Section I: Runoff Treatment**

A. Describe the runoff treatment being utilized on the project (when applicable). Describe what BMPs will be utilized and their locations. Include a summary of how much PGIS is being treated and how much PGIS is required to be treated. Summarize any sizing calculations being utilized.

B. If infiltration BMPs (Infiltration Ponds, Infiltration Trenches, Drywells, etc.) are being utilized, field and laboratory testing methods (as outline in section 6.3.3 of the SWMMEW) shall be utilized for the determination of infiltration rates for each infiltration site location. Presumptive infiltration rates shall not be used.

**12. Section J: Flow Control**

A. Describe the methods being utilized for flow control on the project (when applicable). Summarize all sizing calculations utilized in the design of flow control devices and structures. Include a discharge rating table that summarizes time, stage and discharge rates for each storm event through each discharge structure.

B. If infiltration BMPs (infiltration ponds, Infiltration Trenches, Drywells, etc.) are being utilized, field and laboratory testing methods (as outlined in section 6.3.3 of the SWMMEW) shall be utilized for the determination of infiltration rates for each infiltration site location. Presumptive infiltration rates shall not be used.

C. If a pond is being constructed, a detailed, scalable topographical grading plan shall be included in the site plans. Enough details including cross-sections, elevations and dimension shall be included to allow reviewers to calculate volumes and provide inspectors details for final inspection of the facility once constructed.

D. This section should include enough supporting information to allow reviewers to completely and independently duplicate the process used through the original design.

**13. Section K: Appendices – Include the following (if applicable) in the appendices:**

☐ Stormwater Site Plans
☐ Structure Notes and Details
☐ Drainage Profile Sheets
☐ Roadway cross-sections and profiles (scaling for cross-sections shall be a minimum of 1" = 10' vertical and 1" = 10' horizontal when printed on 11" x 17" sheets. Scaling for profiles shall be a minimum of 1" = 10' vertical and 1" = 100' horizontal when printed on 11" x 17" sheets).

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- ☐ Miscellaneous Contract Plan Sheets
- ☐ Environmental Documentation
- ☐ Source Control BMPs
- ☐ Operation and Maintenance Details for each BMP
- ☐ NRCS Soils Resource Report and Maps
- ☐ Infiltration / Soils Test Report
- ☐ Conveyance System / Structure Calculation
- ☐ Stormwater Drainage Basin Maps / Area Calculations
- ☐ Hydrologic / Hydraulic Calculations, Hydrographs and Isopluvials
- ☐ Downstream Analysis (if calculations are required)

### 7.06 Review and Acceptance

The completed stormwater plan, supporting reports and calculations will be reviewed for completeness by KCPWD. If for any reason a stormwater plan is submitted multiple times and is still not accepted by KCPWD, after the third iteration of the report, KCPWD will schedule a meeting to discuss the report with the applicant. For stormwater plans that are unique or outside the expertise of County personnel, the plan may be passed on for review by a third-party expert Engineering firm employed by KCPWD, see Section 2.15 for more details. Once KCPWD deems the stormwater plans complete and are accepted, the plan shall be recorded with the final plat.

The review and acceptance of the stormwater plan, supporting report and calculations shall not relieve the developer, owner and/or designer of liability for errors or omissions in the design and sizing of stormwater drainage facilities.

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# Chapter 8
# Construction Plan Format

## 8.00 Construction Plan Format



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# Chapter 8
# Construction Plan Format

## 8.01 General

When construction plans are required as a condition of a short-plat, subdivision, conditional use permit, SEPA, other projects or by these standards, plans for the proposed improvements shall be prepared, meeting all of the requirements in these Standards. Failure to provide the requirements set out in this chapter shall constitute an incomplete application and shall not be accepted for review. The plans shall be signed, sealed, and submitted by the applicant's Engineer to the KCPWD for review. Final plans and profile drawings must be accepted by the Engineer prior to the start of construction and recording of the development. The applicant's Engineer shall be a registered Engineer, licensed in the State of Washington.

## 8.02 Certification

A. All construction plans, drainage reports, soil reports and pavement designs shall be prepared by, or under the direction of a Civil Engineer, licensed in the State of Washington, and shall be reviewed for the minimum requirements set forth herein. The Engineer should be aware that whenever unusual or serious problems are anticipated in conjunction with a proposed construction project, additional information and analysis beyond the minimum requirements of these specifications and criteria would be required.

B. Construction plans submitted for review and comment must include the following statement on the cover sheet:

   a. "These construction plans for (name of subdivision, development, or project) were prepared by me (or under my direct supervision) in accordance with the requirements of the Klickitat County Road Standards."

   b. The statement shall be signed and stamped by the licensed Civil Engineer who prepared or directed preparation of the construction plans, including the name of the firm, Engineer and the date signed.

C. Unless otherwise identified or noted, all construction plan submittals are assumed to comply with the provisions of these standards. Failure to follow prescribed procedures may result in return of submittals, additional review fees, or both.

D. Klickitat County shall not be responsible for the accuracy and adequacy of the design or dimensions and elevations on the plans. Klickitat County, through the acceptance of the construction plan, assumes no responsibility for the completeness and/or accuracy of the construction plan. The cover sheet shall bear the following statement:

   a. "The Engineer who has prepared these plans, by execution and/or seal hereof does hereby affirm responsibility to the County, as a beneficiary of said Engineer's work, for any errors and omissions contained in these plans, and approval of these plans by the Department of Public Works shall not relieve the Engineer who has prepared these plans of any such responsibility."

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## 8.03 Submittal Procedure

A. The first submittal shall consist of two complete sets of preliminary plans. Plans shall be two full-size (22" X 34") sets and one half-size (11" x 17") submitted at plat application. The plans shall consist of a conceptual plan and profiles plan, proposed cross section and conceptual stormwater plan as required in Chapter 7.

B. The second submittal shall consist of two complete full sets of final plans together with a grading plan and profile plans, final stormwater plan, construction details, temporary erosion and sediment control plan or SWPPP, and any supporting documents such as stormwater calculation, geotechnical reports, environmental studies and traffic access and impact analysis. The plans shall be signed and stamped by the developer's Engineer. The developer's engineer shall be a Civil Engineer licensed in the State of Washington. Review fees, as currently adopted and applicable, shall be paid by the developer prior to acceptance of the plans.

C. If corrections are required, the KCPWD will respond with a comment letter outlining the required updates to the plans. Subsequent submittals shall also contain two complete sets of full-sized plans and other supporting information, if correction is required. When all corrections have been made to the KCPWD's satisfaction, the plans will be accepted by KCPWD.

D. Any revisions to approved plans shall be submitted for approval prior to construction. Revisions shall be stamped and signed by the developer's engineer. Proposed revisions shall be indicated on a copy of the original approved construction plans. The proposed revision shall be clearly shown by strikeout of text, cross-out of items, and/or clouding as appropriate, and by posting the drawing revision block. If the proposed revisions are to the satisfaction of the KCPWD, the revised set of plans will be accepted.

## 8.04 Plan Elements

- ☐ Title Block to Include:
  - ☐ Project Name
  - ☐ County Assigned Project Number
  - ☐ Sheet Number
  - ☐ Section, Township, and Range
  - ☐ Road Name
  - ☐ Designed By:
  - ☐ Drawn by:`
  - ☐ Checked by:

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- ☐ Legend
- ☐ North Arrow
- ☐ Scale Bar (Horizontal 1” = 20’ (full-size) or 1” = 40’ (half-size)
- ☐ Section and Lot Lines
- ☐ Project Engineer’s Stamp (Signed and Dated)
- ☐ Vicinity Map
- ☐ All topographic features within right-of way limits or future rights of-way limits and sufficient area beyond to resolve questions of setback, slope, drainage, access onto abutting property, and road continuations
- ☐ Cross sections for all proposed new roads and widening of existing roads
- ☐ Road alignments and centerline stationing, including the chord bearings and distances of the centerline of the road and alignments
- ☐ Curve data including radius, delta, arc length, chord bearing, chord distance, and semi-tangent on all horizontal lines
- ☐ Identification of all existing roads, adjoining roads, and newly constructed roads for access, or in the general area of the subdivision, including the designation whether the road is private or public
- ☐ Edge of pavement and width
- ☐ Sidewalk locations and width
- ☐ Easement type, width and ownership
- ☐ All proposed and existing utilities
- ☐ Existing and proposed drainage features, indicating direction of flow, type of each drainage channel, pipe, and structures
- ☐ Size, invert in, invert out, rim elevations, station of structures and offsets for all drainage facilities
- ☐ Temporary and permanent erosion control
- ☐ Soil test pit locations
- ☐ Existing drain fields
- ☐ Traffic control signing and signal layout
- ☐ Other data necessary for the specific project

## 8.05 Profile Elements

- ☐ Original ground line along center line, edge of pavement, ditch flow line or arrows, 25-foot stations through super-elevation, and at significant ground breaks and topographic features with accuracy to within 0.1 feet on unpaved surfaces and 0.02 feet on paved surfaces. When a road extends to the perimeter of the project, ground lines shall be extended at least 300 feet to show any changes in contour which might affect the profile of the proposed road

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- ☐ Existing and proposed road, sewer, water and storm drainage profiles with stationing to show stationing of points of curve, tangent, and inner section of vertical curves, with elevation to 0.01 feet
- ☐ Values for grade and length of vertical curve shall be shown with the profiles on a numbered grid
- ☐ Super-elevation data, if required, to include diagrams and calculations shall be required and included for roadways of 25 miles per hour design speed or more.
- ☐ Vertical scale of 1" = 10'(full-size) or 1" = 20' (half-size).

## 8.06 Roadway Section Elements

- ☐ Type of road and sub-grade soil
- ☐ Widths of roadway, shoulders, sidewalks/paths, ditches and right-of-way
- ☐ Depth of gravel base, crushed surfacing, and/or hard surface
- ☐ Slope of crown, shoulder and ditch design
- ☐ Slope of cut and fill sections
- ☐ A separate, full-width roadway typical section for each road or portion of road having a different section, labeled with appropriate stationing (i.e., Sta. 15+00 to Sta. 18+29)
- ☐ Location of existing and proposed utilities
- ☐ All other data necessary for a specific project

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# Chapter 9
# Bridges and Walls

## 9.00 Bridges and Walls



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# Chapter 9
# Private Bridges and Walls

## 9.01 Private Bridge General Provisions

A. Except as specified below, bridges on private roads shall be designed and constructed to meet the minimum requirements set forth in the latest edition, including all interim addenda, of the AASHTO LRFD (Load Resistance Factor Design) Bridge Design Specifications and the WSDOT Bridge Design Manual, in that order of precedence. Plans and structural computation shall be submitted and accepted by the County Engineer before construction begins.

B. Designers of private bridges are encouraged to schedule a pre-design meeting with the Planning Department and KCPWD to discuss design proposals.

C. All bridges shall be designed on a case-by-case basis under the direction of an Engineer licensed in the State of Washington. KCPWD strongly suggests that the bridge is designed by a Structural Engineer. Structural plans are outside the expertise of County personnel. The plan shall be passed on for review by a third-party engineering firm employed by Klickitat County, see Chapter 2.15 for more details.

D. Public bridge design and construction requirements for new public bridges, an are not covered by

## 9.02 Private Bridge General Requirements

A. General

   a. Bridge design proposals shall address the elements listed below, as a minimum, for review by the County Engineer.

   b. The County Engineer may direct that other design criteria, such as the bridge rehabilitation criteria set forth in the WSDOT Local Agency Guidelines, be applied under appropriate circumstances.

B. Approach railings and transitions shall be made structurally continuous with bridge railings and shall meet specifications from AASHTO and/or per WSDOT Standard Plans.

C. Overhead vertical clearances for motor traffic on the traveled way or under an overpass shall be the minimum requirements listed in Section 9.04. Vertical clearance for bridges over railroad tracks shall comply with the minimum vertical clearance required by AASHTO and/or per WSDOT Standard Plans. Negotiations with the railroad company concerning necessary clearances and bridge span shall be required.

## 9.03 Private Bridge Design Criteria

A. The construction, reconstruction, or rehabilitation of private bridges will necessitate submittal of the following items to KCPWD:

   a. Design Calculations

   b. Load rating analysis and report per AASHTO LFRD Bridge Design Specifications.

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c. Hydraulic Report
d. Scour Analysis
e. Material Certification of the Major Load Bearing Members
f. Pile Driving and Drill Shaft Construction Records
g. Plans of Record (As-Built Plans)

B. The construction, reconstruction, or rehabilitation of private bridges will necessitate the KCPWD approval of the following:

a. Bridge Type and Layout
b. Foundation Type
c. Size and Shape of the Hydraulic Opening
d. Vertical Clearance Between the Superstructure and the Design Water Surface
e. Pier and Abutment Locations
f. Roadway Cross-Section
g. Bridge Traffic Barrier and Approach Guardrail Type
h. Aesthetic Treatments
i. Expansion Joints

**C.** Bridge studies, design reports, design calculations and plans shall be stamped and signed by an Engineer licensed in the State of Washington.

## 9.04 Private Bridge Geometrics

| | **Private*** |
|---|---|
| | |
| **Minimum Curb-to-Curb Width** | 15 Feet** |
| **Design Load** | HS-20 |
| **Minimum Vertical Clearance** | 14 Feet*** |
| **Wearing Surface** | Asphalt/Concrete/Running Boards |

* One-lane bridge specifications per AASHTO Guidelines for Geometric Design of Low-Volume Roads.
** One-lane bridges shall have pull-offs at each end where drivers can wait for traffic on the bridge to clear.
*** Additional clearance may be required by County Engineer or by a Railroad Company.

## 9.05 Structural Walls

A. Wall installation in the public right-of-way will be discouraged, and every effort should be made by the design Engineer to grade the property in such a way as to avoid the installation of walls. If a wall is determined to be necessary, consideration shall be given to the design and placement of the wall to maximize the clear area, including placement of the wall outside of the right-of-way on private property. Any wall constructed within the

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roadway clear area shall have the appropriate barrier protection provided as determined by the Engineer.

B. For heights over 4 feet or when soil is unstable, a structural wall of acceptable design shall be used and calculations shall be submitted to the KCPWD for approval. A soils investigation and report prepared by an Engineer licensed in the State of Washington may be required by the KCPWD if soil conditions are questionable.

C. Structural design reports, design calculations and plans shall be stamped and signed by an Engineer licensed in the State of Washington.

D. Structural plans are outside the expertise of County personnel. The plan shall be passed on for review by a third-party expert engineering firm employed by Klickitat County, see Chapter 2.15 for more details.

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# Chapter 10
# Franchise Agreements and Utilities

## 10.00 Franchise Agreements and Utilities



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# Chapter 10
# Franchise Agreements and Utilities

## 10.01 Franchise Agreements

Pursuant to the authority provided in RCW 36.55 and in accordance with Klickitat County's "Accommodation of Utilities on County Road Right-of-Way" policy, BOCC may grant a non-exclusive franchise to use the right-of way of county roads for the construction and maintenance of waterworks, gas pipes, telephone, telegraph, and electric light lines, sewers and any other such facilities and right to build and maintain tramroads and railway roads upon county roads. To apply for a franchise, complete the application and submit to the address listed on the application form along with the required fee, as set forth in Title 2 Section 2.72 Land Development Fees of Klickitat County Code. Refer to the "Accommodation of Utilities on County Road Right-of-Way" policy, as amended, to determine whether or not a franchise is required.

## 10.02 Utility Accommodation Policy

A. The primary purpose of County road right-of-way is to serve vehicular and non-motorized travel. In accordance with State law, utility facilities may be accommodated in road right-of-way. Use of the right-of-way by utilities should be planned to minimize interference with traffic using the road. Industry-recognized principles provide for general location and construction of utilities to minimize conflict between the use of the road right-of-way for vehicular and non-motorized travel and for its secondary purpose of providing space for location of utilities. However, all public or private utility installations within the County road right-of-way shall conform to the requirements outlined in Klickitat County's policy for "Accommodation of Utilities on County Road Right-of-Way" policy, as amended.

B. It will be the Engineer's responsibility to coordinate with all utilities to see that the utilities are located in accordance with KCPWD's adopted standards, and that the installation work is coordinated with the road construction work.

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# Chapter 11
# County Rights-of-Way

## 11.00 County Rights-of-Way



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# Chapter 11
# County Rights-of-Way

## 11.01 Vacation of County Roads (RCW 36.87)

A. Resolution to Vacate

   a. When a County road or any part thereof is considered unnecessary, the BOCC by resolution entered upon its minutes, may declare its intention to vacate and abandon the same or any portion thereof and shall direct the County Engineer to report upon such vacation and abandonment.

B. County Road Frontage Owners' Petition – Fee

   a. Owners of the majority of the frontage on any County road or portion thereof may petition the County legislative authority to vacate and abandon the same or any portion thereof. The petition must show the land owned by each petitioner and set forth that such County road is unnecessary as part of the County road system and that the public will be benefited by its vacation and abandonment. The County will require a road vacation fee to be paid in advance to cover the cost of expenses incurred in the examination, report, and proceedings pertaining to the petition as defined in the Land Development Fee schedule of Title 2 Section 2.72, as amended.

C. County Road Frontage Owners' Petition – Action on Petition

   a. On the filing of the petition and fee and on being satisfied that the petition has been signed by petitioners residing in the vicinity of the County road or portion thereof, the BOCC shall direct the County Engineer to report upon such vacation and abandonment.

D. Engineer's Report

   a. When directed by the BOCC the County Engineer shall examine any County road or portion thereof proposed to be vacated and abandoned and report his or her opinion as to whether the County road should be vacated and abandoned, whether the same is in use or has been in use, the condition of the road, whether it will be advisable to preserve it for the County road system in the future, whether the public will be benefited by the vacation and abandonment, and all other facts, matters, and things which will be of importance to the BOCC and also file his or her cost bill.

E. Notice of Hearing on Report

   a. Notice of hearing upon the report for vacation and abandonment of a County road shall be published at least once a week for two consecutive weeks preceding the date fixed for the hearing, in the County official newspaper and a copy of the notice shall be posted for a least 20 days preceding the date fixed for hearing at each terminus of the County road or portion there of proposed to be vacated or abandoned.

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F. Hearing

a. On the day fixed for the hearing, the County legislative authority shall proceed to consider the report of the County Engineer, together with any evidence for or objection against such vacation and abandonment. If the County road is found useful as a part of the County road system it shall not be vacated but if it is not useful and the public will be benefited by the vacation, the County legislative authority may vacate the road or any portion thereof. Its decision shall be entered into the minutes of the hearing.

b. As an alternative, the County legislative authority may appoint a hearing officer to conduct a public hearing to consider the report of the Engineer and to take testimony and evidence relating to the proposed vacation. Following the hearing, the hearing officer shall prepare a record of the proceedings and a recommendation to the County legislative authority concerning the proposed vacation. Their decision shall be made at a regular or special public meeting of the County legislative authority.

G. Expense of Proceeding

a. If the County legislative authority has required the petitioners to pay a fee upon completion of the hearing, it shall certify all costs and expenses incurred in the proceedings to the County treasurer and, regardless of its final decision, the County legislative authority shall recover all such costs and expenses from the cash deposit and release any balance to the petitioners.

H. Majority Vote Required

a. No County road shall be vacated and abandoned except by majority vote of the BOCC properly entered, or by operation of law, or judgement of a court of competent jurisdiction.

I. Vacation of Road Unopened for Five Years – Exception

a. Any County road, or part thereof, which remains unopen for public use for a period of five years after the order is made or authority granted for opening it, shall be thereby vacated, and the authority for building it barred by lapse of time; PROVIDED, That this section shall not apply to any highway, road, street, alley, or other public place dedicated as such in any plat, whether the land included in such plat is within or outside the limits of an incorporated city or town, or to any land conveyed by deed to the state or to any County, city, or town for highways, roads, streets, alleys, or any other public places.

J. Classification of Roads for Which Public Expenditures Made – Compensation of County

a. The BOCC may, by ordinance, classify all County roads for which public expenditures were made in the acquisition, improvement or maintenance of the same, according to the type and amount of expenditures made and the nature of the County's property interest in the road; and may require persons benefiting from the

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vacation of County roads within some or all of the said classes to compensate the County as a condition precedent to the vacation thereof.

K. Classification of Roads for Which No Public Expenditures Made – Compensation of County

   a. The BOCC may, by ordinance separately classify County roads for which no public expenditures have been made in the acquisition, improvement or maintenance of the same, according to the nature of the County's property interest in the road; and may require persons benefiting from the vacation of County roads within some or all of the said class to compensate the County as a condition precedent to the vacation thereof.

L. Appraised Value as Basis for Compensation – Appraisal Costs

   a. Any ordinance adopted pursuant to this chapter may require that compensation for the vacation of County roads within particular classes shall equal all or a percentage of the appraised values of the vacated road as of the effect date of the vacation. In determining the appropriate compensation for the road or right-of-way, the BOCC may adjust the appraised value to reflect the value of the transfer of liability or risk, the increased value to the public in property taxes, the avoided costs for management or maintenance, and any limits on development or future public benefit. Costs of County appraisals of roads pursuant to such ordinances shall be deemed expenses incurred in vacation proceedings, and shall be paid by the applicant.

M. Vacation of Roads Abutting Bodies of Water – When Authorized

   a. No County shall vacate a County road or part thereof which abuts on a body of salt or freshwater unless:

      1. The purpose of the vacation is to enable any public authority to acquire the vacated property for port purposes, boat moorage or launching sites, or for park, viewpoint, recreational, educational, or other public purposes;

      2. The property is zoned for industrial uses.

N. Retention of Easement for Public Utilities and Services

   a. Whenever a County road or any portion thereof is vacated the legislative body may include in the resolution authorizing the vacation a provision that the County retain an easement in respect to the vacated land for the construction, repair, and maintenance of public utilities and services which at the time the resolution is adopted are authorized or are physically located on a portion of the land being vacated: PROVIDED, That the legislative body shall not convey such easement to any public utility or other entity or person but may convey a permit or franchise to a public utility to effectuate the intent of this section. The term "Public Utility" as used in this section shall include utilities owned, operated, or maintained by every gas company, electrical company, telephone company, telegraph company, and water company whether or not such company is privately owned or owned by a governmental entity.

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## 11.02 County Right-of-Way Donation

This process is for individuals interested in donating right of way for an existing public road in the county's current road system. All costs associated with right of way donations shall be the responsibility of the applicant. All research, warranty deeds and excise tax document preparation shall be the responsibility of the applicant.

A. Right-of-Way Donation Process:

   a. The applicant is required to complete the Right-of-Way Donation Form (Appendix D).

   b. Once received by KCPWD, the application will be reviewed and processed by staff. If the application is approved, the applicant will be required to submit a draft Right-of-Way Statutory Warranty Deed, including the parcel number and acreage for review.

   c. Once received by KCPWD, the Statutory Warranty Deed will be reviewed and processed by staff. Once the Warranty Deed is approved, the applicant will need to supply the completed Real Estate Excise Tax Affidavit (REET) forms. When completing this form, the applicant should use WAC 458-61A-205 (4) as the reason to claim a fee exemption (Box 7 on the form). The minimum fee shall apply and a check, made out to the Klickitat County Treasurer for the minimum fee shall be submitted with the form to Public Works.

   d. The applicant shall submit a check, made out to the Klickitat County Auditor, for the amount required to record the Warranty Deed. The applicant is responsible for determining the amount required to record the Warranty Deed. The applicant shall contact the Auditor's office to determine the required document format and fees.

   e. Once the Statutory Warranty Deed and REET forms are approved, KCPWD will prepare a resolution and the right-of-way donation will be scheduled to request the BOCC to accept the donation.

   f. Once accepted, the REET forms will be verified and sent along with a check from the applicant to the County Treasurer. The Statutory Warranty Deed will be submitted with a check from the applicant to the County Auditor for recording.

## 11.03 County Road Establishment

There are six methods to establish County roads. The following is written to assist the citizens of Klickitat County in applying for establishment of new county roads and does not constitute legal advice. This does not guarantee that the roads will become County roads

A. By Subdivision Plat:

   a. During the subdivision platting process, an applicant or the County may determine to create a County road. The road dedication process is described in the County Subdivision Ordinance.

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b. In general, public hearings must be held and roads must be built to one of several standards. The dedications must be accepted by the Board of County Commissioners (BOCC) and the road constructed to the required standard before the road becomes a County road.

B. By County Maintenance:
   a. RCW 36.75.070 states "… which have been used as public highways for a period of not less than seven years, where they have been worked and kept up at the expense of the public, or County roads."
   b. The process may be initiated by anyone with standing to sue. Standing to sue means that a party has sufficient stake in an otherwise justifiable controversy to obtain judicial resolution of that controversy (Black's Law Dictionary). The application would be to the Superior Court and would probably necessitate the hiring of an attorney. Determination is usually made in a Court of Law.

C. By Use:
   a. RCW 36.75.080 states that "all public highways … which have been used as public highways for a period of not less than ten years are county roads. Provided, that no duty to maintain such public highway nor any liability for any injury or damage for failure to maintain such public highway or any road signs thereon shall attach to the County until the same shall have been adopted as a part of the County road system by resolution of the BOCC.
   b. This process of establishment is similar to that above and generally is determined in a Court of Law.

D. By Conveyance:
   a. Road right-of-way can be conveyed from the State Department of Transportation to the County and the road established by a resolution of the BOCC.

E. By Board Initiation:
   a. RCW 36.81.010 permits the BOCC to "declare its intention to establish any county road in the County and declare that it is a public necessity and direct the County Engineer to report upon such project." This process is used for instances where there are not enough freeholders on a road to meet the requirements of RCW 36.81.020.
   b. This option is possible, but somebody must convince the BOCC to state by resolution the above. Once the BOCC acts on the resolution, the Engineer must make a report and public hearings are held. If the BOCC, upon public hearings, find "the proposed County road is a public necessity and practicable", it may be established, subject to right-of-way acquisition and other determined conditions.

F. By Freeholders' Petition – Bond:
   a. RCW 36.81.020 establishes the method that permits "ten or more freeholders . . . petition the BOCC for establishment ..."
   b. A petition by 10 or more freeholders needs to be presented to the BOCC along with general course and terminal points. The petition must be accompanied by a bond of $300.00 payable to the County.
   c. The BOCC will then "declare its intention to establish" and follow the above proceedings.

Draft

# Chapter 12
# Road Naming and Rural Addressing

## 12.00 Road Naming and Rural Addressing



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# Chapter 12
# Road Naming and Rural Addressing

## 12.01 Purpose

The procedures set forth in this chapter are for establishing and maintaining a uniform policy in Klickitat County for naming and renaming of roads and assignment of rural addresses. It is the intent of Klickitat County to use these procedures to promote the public health, safety and welfare of the citizens of Klickitat County.

## 12.02 Required Review and Action for Road Naming

Klickitat County shall review and take appropriate action on all road naming and renaming when:

A. Any existing public road is named or renamed;
B. Any public road is established, except when new public roads will have names established within the provisions of the Klickitat County Zoning and Subdivision Ordinance;
C. Any private road is named or renamed. A private road will require a name for addressing purposes;
D. An appeal to a road name or rename is received.

## 12.03 Application

A. An application to name or rename a road shall be submitted to the Klickitat County Planning Department and shall include at a minimum the following:
    a. Name of Applicant
    b. Location of the Roadway by Description and Map
    c. Legal Status (i.e., Ownership of Road)
    d. Existing Road Name (if known)
    e. Proposed Road Name
    f. Reason for Request
B. The application may be submitted by any of the following applicants:
    a. The property owner(s) or person(s) living along the road.
    b. Any public or semi-public agency whose function is affected by road names.
    c. The following County Departments:
        i. BOCC
        ii. Planning Department
        iii. Public Works Department
        iv. Sheriff's Office
C. The proposed road name must comply with the following standards.
    a. Name limited to a maximum of fifteen letters and three words including spaces; excluding the suffix directional indicator, i.e. North, South, East and West and the road type, i.e. Rd., Ln., Dr., etc. The main title of the road name shall not be abbreviated (e.g. Mountain, not Mt. or Mount).

Draft

b. No duplication with other existing road names within the county, including the incorporated areas of the county. Variations of the same name with a different road designation shall not be allowed (e.g. Maple Avenue; Maple Street).
c. No similar sounding or confusing names. Names of similar pronunciation and/or spelling shall be avoided (e.g. Maple Chase Road and Maple Trace Road or Brier Lane and Briar Lane).
d. Road names shall use words with common spelling and pronunciation. Only letters of the alphabet and blank spaces may be used in road names. Road names shall not contain punctuation, accents, symbols or special characters.
e. Road names shall not use corporate trade names unless coincidental.
f. Road names shall not include obscene, racial and/or derogatory terms.
g. Numbers shall not be used in road names except for those used in county, state and federal road systems.
h. Where road names are proposed for changes every effort will be made to maintain historical road names.

## 12.04 Processing Road Name Applications

The Klickitat County Planning Department shall have the responsibility for processing and maintaining applications for road naming and renaming. The applicant shall be responsible for the following:

1. Verify legal status, i.e. ownership of road;
2. Provide an assessor's parcel map showing the location of the road;
3. Contact the county planning department with the proposed road name;
4. Provide consensus of a road name from a majority of the property owners abutting the road.

The Klickitat County Planning Department will be responsible for the following:

1. Checking the proposed road name(s) for duplication or similarity with existing road names;
2. Assist applicant or other affected person(s) to find alternate names when required;
3. Contact the property owners who have access to the road and have them vote on the road names to gain consensus.
4. Perform a field check if necessary;
5. Notify appropriate departments and agencies if they are affected by the road, i.e., name change or new name:
   a. Klickitat County Assessor’s Office
   b. Klickitat County Public Works Department
   c. Cities
   d. Emergency Services
   e. Sheriff's Office

* If consensus is met among the property owners, the road shall be officially named;
* If consensus of the name cannot be met among the owners abutting the road, the Klickitat County planning director shall determine the name of the road.

Draft

## 12.05 Road Name Appeal Process

Residents or owners of property along a named and/or renamed road may appeal the assigned road name by providing a deposit of funds accompanying the appeal in an adequate amount to cover the costs of the following:

A. All costs for preparation and publishing of required legal hearing notices;
B. Costs associated with preparation of required data for the public hearing;
C. Costs required to revise, change and install road name signs as applicable;
D. Costs associated with notification to emergency responders, public and private utilities, assessor's office, road department and others as required.

## 12.06 Notification of Road Naming

The Klickitat County planning department shall notify the original applicant of final decisions rendered on naming or renaming of a road. Copies of final decision and any related maps approving new or renamed road shall be sent by the planning department to the following:

A. Klickitat County Assessor's Office;
B. Klickitat County Public Works Department;
C. Emergency Services, including Fire Districts and Ambulance Responders;
D. Sheriff's Office.

## 12.07 Address Assignment Program

A. Addressing shall be assigned per Resolutions 09286A, 10986, 09286, 08887, 08885, 01288 and 00586.
B. An address is assigned to a building at the point where the driveway accesses off any given road. Once two or more addresses are required for any given point, the private road must be named and the addresses will be assigned from the private road. An address may need to be changed if another building or residence is built and uses the private road that once served as a private driveway.
C. The addressing in the unincorporated rural areas of the county follows a standard of fifty numbers per mile on each side of the road (a number approximately every one hundred four feet on each side of the road). Addressing within the communities of the incorporated cities are based on a standard of a number every twenty-five feet. The standard for address assignment is odd numbers on the north and west sides of the road, and even numbers on the south and east sides of the roads. The assignment of addresses in some communities do not follow the above odd/even procedures; in those cases, any newly assigned address shall correspond with the accepted existing addresses in the given community.

## 12.08 Address Assignment

The Klickitat County Planning Department shall have the responsibility for processing address applications for all property located in unincorporated Klickitat County.

Draft

## 12.09 Rural Address Application

A. An application for a rural address shall be submitted to the Klickitat County planning department and shall include the following:
   1. Name of applicant;
   2. Location of property for which an address is to be assigned;
   3. Name of the road or roads abutting the property for which an address is to be assigned;
   4. Location of access point (driveway) from which the address is being assigned;
   5. Any adjacent addresses and their driveway location;
   6. The applicant shall attach flagging to the driveway or access point where the address to be assigned. The applicant shall place flagging in a location that is readily visible.

B. The application may be submitted by any of the following applicants:
   1. The property owner(s) or person(s) living along the road;
   2. Any public or semipublic agency whose function is affected by road names;
   3. Klickitat County:
      i. Board of County Commissioners
      ii. Planning Department
      iii. Public Works Department
      iv. Assessor's Office
      v. Sheriff's Office

## 12.10 Assignment Process

The Klickitat County planning department shall perform the following functions:

A. Process the completed application for address assignment;
B. Verify property location and appropriate access road;
C. Within seven working days of receiving the application, county staff will record a point where your address is located, and determine the appropriate address;
D. Assign an address number which conforms to the established numbering system recognizing the following standards:
   1. Buildings located predominantly on the north or west side of a road shall end in an odd number.
   2. Buildings located predominantly on the south or east side of a road shall end in an even number.
   3. The assignment of addresses in some communities do not follow the above odd/even procedures; in those cases, any newly assigned address shall correspond with the existing addresses in the given community;
E. County staff will contact the applicant of their new address;
F. The applicant shall install the appropriate assigned address number at the point where the driveway accesses the road, and in such a manner and location that are readily visible by emergency responders;
G. The address signage shall be installed according to Uniform Building Code (UBC) requirements, and shall be posted by the time of occupation.

Draft

# Appendix A
# Performance Guarantee Form

Draft

# Assignment of Funds

Klickitat County Application Number: _____

At the direction of _____, as Principal, _____, as Financial Institution, is holding funds in the amount of $ _____ in Account Number _____.

The purpose of this Assignment is to secure the completion and approval of the following requirements.

Please check all applicable boxes.

Individual sections must be secured separately.

## Development Engineering

| | | | |
|---|---|---|---|
| | Signs* | | Public Roadway Construction* |
| | Private Roadway Construction* | | Construction Approach* |
| | Pave Public Road* | | Temporary Approach* |
| | Sidewalks* | | Other* |

* These requirements must be secured separately.

If you checked other, please explain: _____

_____

The requirements will be met, or the work performed in accordance with the applicable County ordinance(s), approvals, permits, mitigation and/or approved plans.

The Principal is developing a certain parcel(s) of land in unincorporated Klickitat County known as

_____

on the following parcel numbers: _____

We have been instructed by the Principal that these funds are to be used for the sole purpose described above. In the event said Principal fails to complete said requirements within the required time limits and to the satisfaction of Klickitat County said funds will be made available to Klickitat County.

Failure of the Financial Institution to hold the required amount until released by Klickitat County will bind the Financial Institution for the amount owed, and for legal fees and costs necessary to enforce collection of the Assignment.

This obligation shall remain in full force and effect until a written release is received from Klickitat County. Klickitat County may proceed with immediate collection of the funds upon expiration of the permit or at Klickitat County's discretion.

The Financial Institution agrees that these funds will be paid to Klickitat County within 10 days of receiving written notice that Klickitat County has determined that the necessary requirements have not been satisfactorily performed. The Financial Institution shall have no duty or right to evaluate the correctness or appropriateness of such notice or determination by Klickitat County and shall not interplead or in any manner delay said payment of funds to Klickitat County. Any unexpended funds shall be returned to the Principal upon completion of the necessary requirements.

The obligations of the Financial Institution and Principal shall not be discharged and shall remain in effect in the event of any extension of time for the Principal's performance of the agreement or of any amendment of approved plans used for construction of the project. The Financial Institution hereby waives notice of any such extensions or amendments.

The Principal's obligation to perform the work or pay fees and other amounts is not limited to the amount of this Assignment of Funds.

If this project becomes part of an incorporated area, Klickitat County may transfer its rights and obligations under this Assignment of Funds to any successor jurisdiction without notice to the Principal or Financial Institution.

This guarantee creates an obligation on the part of the principal/surety to Klickitat County and is not transferable except through the posting of a replacement guarantee. It is the responsibility of the principal to ensure this obligation is transferred prior to sale or transfer of this project or underlying property.

If this financial guarantee is collected for any reason, Klickitat County will not accept subsequent financial guarantees from the above-named Principal.

Dated this _____ day of _____, 20_____.

| **Principal** | **Financial Institution** |
|---|---|
| Name of Company | Name of Financial Institution |
| Name of Principal | Name of Financial Institution Officer |
| Street Address | Street Address |
| City, State Zip | City, State Zip |
| Phone | Phone |
| Signature of Principal | Signature of Financial Institution Officer |

STATE OF WASHINGTON )
) ss.
County of Pierce )

On this day personally appeared before me _____, to me known to be the **Financial Institution Officer** described in and who executed the within and foregoing instrument and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this _____ day of _____, _____.

_____
NOTARY PUBLIC in and for the State of Washington

Residing in: _____

Commission Expires: _____

*Only original signatures will be accepted. Do not email this form.*

# Appendix B
# Variance Form

Draft

# Variance Request Form
***for***
***Engineering Design Standards***

This form must be filled out by the applicant's Engineer for consideration to vary from the Klickitat County's design standards and requirement for engineering design. Please be aware the Klickitat County design standards and requirements are minimum requirements. These requirements are considered by the County as fair, reasonable, and promote public safety. The applicant is obliged to convince County staff this request is necessary, justifiable, and will not reduce public safety.

| Project Name:<br>(DRT application name) | Application Fee: $ |
|---|---|

| Describe Variance Request: |
|---|
| |

1. Engineer: Name: _____
   Agency Name (if applicable): _____
   Mailing Address: _____
   Phone No. (day number): _____

2. Owner: Name: _____
   Agency Name (if applicable) _____
   Mailing Address: _____
   Phone (day number): _____

3. Location: Assessor's Parcel No.: _____
   Property Address: _____

   Legal Description: _____
   _____

4. State Development Standard being altered:

| |
|---|
| |

5. State why this is being requested:

6. Specify how the altered development standard will or will not affect public safety:

7. Has the applicant considered other options, if so, discuss these option(s) considered:

8. Will this request impact other county facilities? If yes, please explain:

9. Will this request impact County or private maintenance operations?

10. What environmental impacts will this request generate?

11. If granted, would it impact future development? Please be specific:

12. List reports, supporting documents and attachments accompanying this request necessary to further address concerns and issues:

| | **APPROVE** | **DENY** | **DATE** |
|---|---|---|---|
| COUNTY ENGINEER RECOMMENDATION: | | | |
| BOARD OF COUNTY COMMISSIONER'S DECISION: | | | |

Conditions (if applicable):

_____

_____

_____

_____

_____

_____

_____

IN WITNESS WHEREOF, the parties here to have signed this ___ day of _____ 2023.

ATTEST:

Clerk of the Board

_____
In and for the County of Klickitat,
State of Washington

APPROVED AS TO FORM:

_____
Klickitat County Prosecuting Attorney

BOARD OF COUNTY COMMISIONSERS
Klickitat County, Washington

_____
_____, Chairman

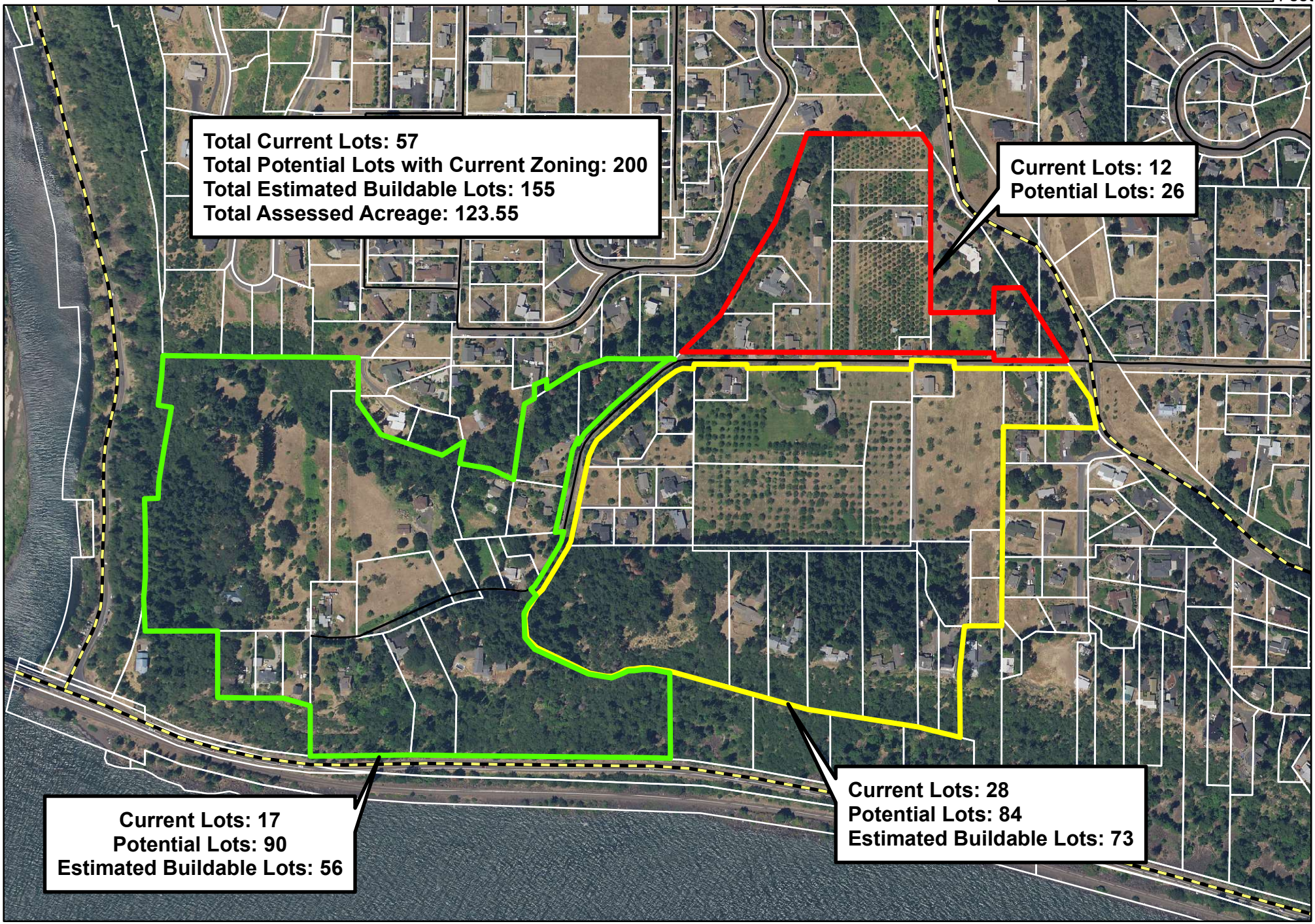
_____
_____, Commissioner

_____
_____, Commissioner

# Appendix C
# River Road Example

Draft

# Title 12 River Road Parcel Total Potential (2021 Analysis)



# Appendix D
# Right-of-Way
# Donation Form

Draft

KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

228 W. MAIN ST., MS-CH 19, GOLDENDALE WASHINGTON 98620 • FAX 509 773-5713 • VOICE 509 773-4616
GORDON J. KELSEY; PE: PUBLIC WORKS DIRECTOR

# Request to donate Right of Way to Klickitat County

This process is for individuals interested in donating right of way for an existing public road in the county's current road system. All costs associated with right of way donations shall be the responsibility of the applicant. All research, warranty deed and excise tax document preparation shall be the responsibility of the applicant.

1. Name(s) of legal owners:
   _____
2. Reason for the Right of Way donation:
   _____
   _____
   _____
   _____
3. What Public Road is this Right of Way for:_____
4. What is the Parcel Number of the land being donated:_____
5. The applicant shall use the Klickitat County mapping system to provide a map highlighting the land to be donated.

( http://imap.klickitatcounty.org )

_____ _____
Signature Mailing Address

_____ _____
Telephone Number City, State, Zip Code

_____
Email Address

_____
Public Works will review and process your request.

KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

228 W. MAIN ST., MS-CH 19, GOLDENDALE WASHINGTON 98620 • FAX 509 773-5713 • VOICE 509 773-4616
GORDON J. KELSEY; PE: PUBLIC WORKS DIRECTOR

# Guidelines for donating Right of Way to Klickitat County

This process is for individuals interested in donating right of way for an existing public road in the county's current road system. All costs associated with right of way donations shall be the responsibility of the applicant. All research, warranty deed and excise tax document preparation shall be the responsibility of the applicant.

## What you need to do:

1. First, complete the attached Right of Way donation form and a map from the Klickitat County mapping system that shows the road and parcel effected by this land donation. The printed map should show the land proposed for donation.
2. If your application is approved you will need to supply a draft Right of Way Warranty Deed, including acreage of right of way, for review.
3. Once the Warranty Deed is approved you will need to supply the completed Real Estate Excise Tax Affidavit forms. When completing this form the applicant should use WAC 458-61A-205 (4) as the reason to claim a fee exemption (Box 7 on the form). The minimum fee shall apply and a check, made out to the Klickitat County Treasurer for the minimum fee shall be submitted with the form to Public Works.
4. The applicant shall submit a check, made out to the Klickitat County Auditor, for the amount required to record the Warranty Deed. The applicant is responsible to determine the amount required to record the Warranty Deed. The applicant shall contact the Auditor's office to determine the required document format and fees (Auditor's phone number: 509-773-4001).

## What Public Works Does

- Review and Process your application and notify you of the next steps.
- Review all existing documents to determine if any can be used to describe that portion of the road, evaluate the need for a survey of the road.
- Review the applicant's draft Warranty Deed.
- Review and sign the Real Estate Excise Tax (REET) Affidavit.
- Prepare a Resolution and schedule an agenda item to request that the Board of County Commissioners accept the donated Right of Way.

- Once the Right of Way is accepted by the County Commissioners:
    - Verify the Warranty Deed and Real Estate Excise Tax Affidavit form with the County Assessor.
    - Submit the REET form and check to the County Treasurer.
    - Submit the Warranty Deed and check for recording to the County Auditor.
    - File the original documents in the appropriate Road file (in the vault).
    - Provide a copy of the change to GIS for mapping update.

---

# Appendix E
# Trip Generation and Distribution Work Sheet

Draft

# Klickitat County Traffic Scoping Worksheet

## PROJECT INFORMATION

Project Title:_____ Date: _____

Applicant Name:_____ Telephone Number:_____

Project Description: _____ Year of Occupancy:_____

Project Location: _____ Parcel Size:_____

Proposed Number of Access Point(s): _____ Existing Number of Access Point(s):_____

| Land Use | Quantity | ITE Land Use Code | Average Daily Trips | AM Peak Hour Trips* | PM Peak Hour Trips* |
|---|---|---|---|---|---|
| Existing Use(s) | | | | | |
| | | | | | |
| | | | | | |
| Proposed Use(s) | | | | | |
| | | | | | |
| | | | | | |
| **Net New Trips** | | | | | |

* The peak hour project trips shall be rounded to the nearest tenth.
* The project trips shall be estimated using the ITE's *Trip Generation Manual,* current edition.
* Trip generation regression equations shall be used when the $R^2$ value is 0.70 or greater.
* For land uses that do not exist within the ITE's *Trip Generation Manual*, current edition, actual field data shall be collected from three facilities that have similar characteristics to the proposal.
* For all single-family units and offices and specialty retail centers smaller than 30,000 SF, use ITE's *Trip Generation Manual,* current edition, average rate.

Identify all intersections that will be affected by the new project peak hour trips:

1._____ 5. _____

2._____ 6. _____

3._____ 7. _____

4._____ 8. _____

**Office Use Only**

**TAIS Required ☐ No Further Work Required ☐**

*Checklist (Please make sure you have included the following information):*

☐ Completed Worksheet ☐ Attach Site Plan ☐ Attach Trip Distribution

☐ Mail or hand deliver to 115 W. Court St., MS-303, Goldendale, WA, 98620 or e-mail to: kcpublicworks@klickitatcounty.org

# Appendix F
# Perpetual Easement

Draft

**Return Address:**
Klickitat County Road Dept.
228 W. Main St., MS-CH 19
Goldendale, WA. 98620

# PERPETUAL EASEMENT

The **GRANTOR**, _____, as _____, in consideration of $_____ (_____and 00/100 Dollars), mutual benefits and other considerations in hand paid, does hereby grant, convey and warrant to Klickitat County to have and to hold forever, the sole, exclusive, continuous, permanent and PERPETUAL right, permit and easement for the lands hereinafter described for any and all purposes and uses embraced by or incidental to the construction, operations, maintenance and/or improvement of any and all roads, streets, or highways or any other facilities which may be necessary or convenient for public purposes. This conveyance is hereby declared and agreed to be inclusive of but limited to:

1. A full, free and exclusive right of way through the above-mentioned portions of lands hereinafter described;

2. The exclusive right to grant permits, licenses, and/or franchises including but not limited to those contemplated by RCW 47.32.110, RCW 47.32.150 and RCW 47.44, within, upon, or above the above-mentioned portion of lands hereinafter described;

3. The right to exercise any and all police powers which Klickitat County, through the Public Works Department, may determine to be necessary or convenient to the exercise of the easements hereby conveyed.

The **GRANTOR** on behalf of themselves and their successors or assigns, covenants and agrees to make no use of the underlying reversion or make any use of the below described land that would interfere with the roadway remaining assessable at all times or impede the COUNTYS ability for continuous maintenance without first securing, in writing, the consent of the Klickitat County Public Works Department. Prohibited use includes: erection of fences or structures, installation of landscaping, plantings, trees or any fixed objects. Existing trees on the below described land, if removed after execution of this easement, will be decked on the Grantor's property for their sole use. No additional payment shall be made for existing merchantable, marketable or ornamental trees or shrubs.

The lands which the **GRANTOR** convey to the **GRANTEE** upon the terms and conditions hereinabove contained, situated in the County of Klickitat, State of Washington, are described as follows:

All those portions of the following described right of way falling within the hereinafter described Parcel "_____" located in Section __, Township __ North, Range __ East, W.M.

*****Insert full legal description of easement*****

**ASSESSOR'S PARCEL #** __-__-____-____/__

DRAFT

***Insert Parent Parcel Legal Description***

**SUBJECT to** easements and other encumbrances of record.

The lands hereinafter described contain an area of ____ acres, more or less, which consist of ____ acres of new right of way, and _____ acres of existing right of way, the specific details concerning all of which are to be found within that certain map of definite location, now of record and on file in the office of the County Engineer at Goldendale and bearing a date of _____.

Dated this _____ day of _____, 20___.

**GRANTOR(s):**

_____

STATE OF _____ )
)ss
COUNTY OF _____ )

On this day personally appeared before me _____
_____to me known to be the individual(s) described in and who executed the within and foregoing instrument, and acknowledge that _____ signed the same as _____ free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal this _____ day of _____,_____. .

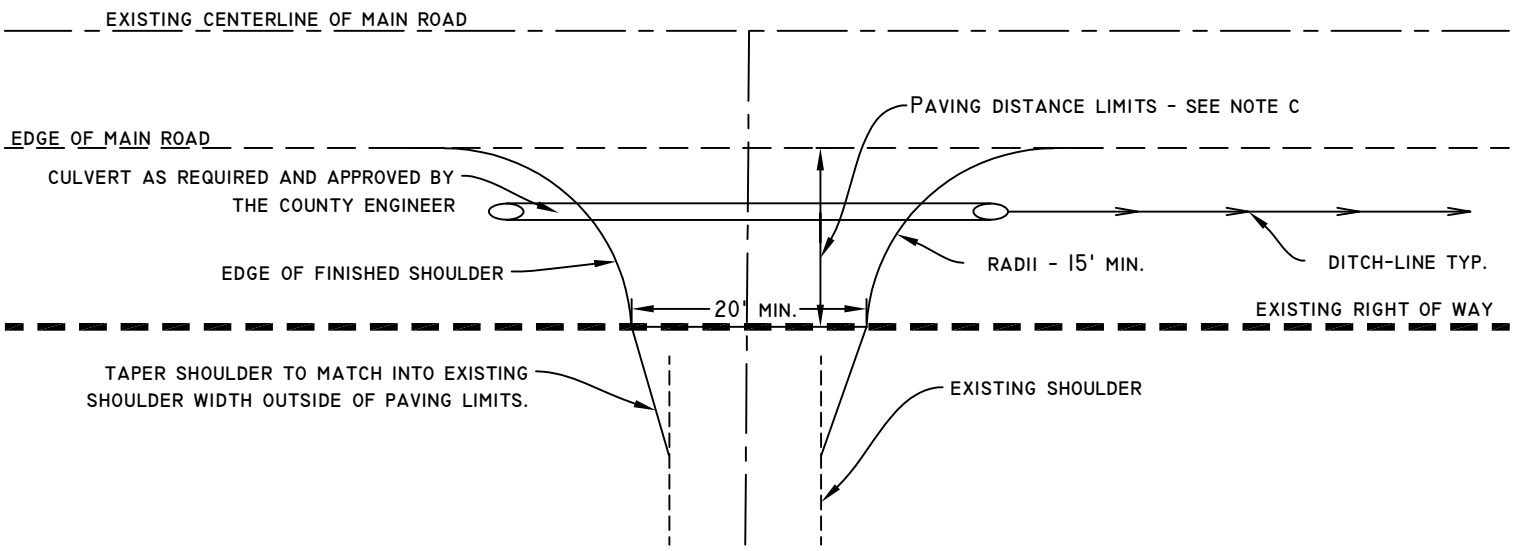
_____
Notary Public In and For the
State of _____, Residing
at_____
My Commission Expires _____

DRAFT

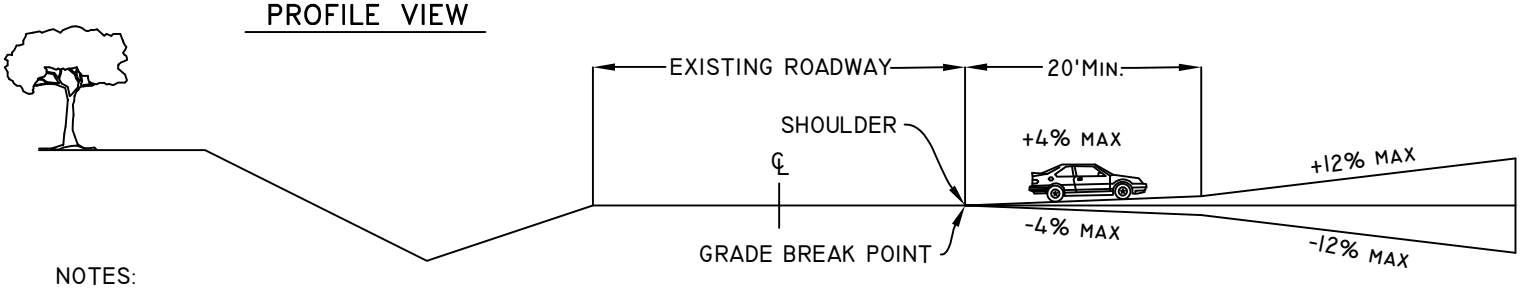
# Appendix G
# Standard Plans

Draft

## PLAN VIEW




## PROFILE VIEW




NOTES:

A. WHEN THE EXISTING MAIN ROAD HAS A PAVED SURFACE, AN ASPHALT OR CONCRETE SURFACE SHALL BE INSTALLED ON THE APRON OF THE APPROACH.

B. PROPOSED ROADS MUST INTERSECT ONE ANOTHER AT 90 - DEGREE ANGLES OR AS CLOSE TO 90 DEGREES AS TOPOGRAPHY PERMITS. IF 90 DEGREES IS NOT POSSIBLE, THE SKEW ANGLE SHALL NOT VARY MORE THAN 30 DEGREES FROM RIGHT ANGLES (60 DEGREE MINIMUM).

C. PAVING DISTANCE LIMITS - PAVING DISTANCE LIMITS SHALL BE A MINIMUM OF 6'.

D. ALL FILL SLOPES AND IN-SLOPES SHALL BE 3H:1V OR FLATTER.

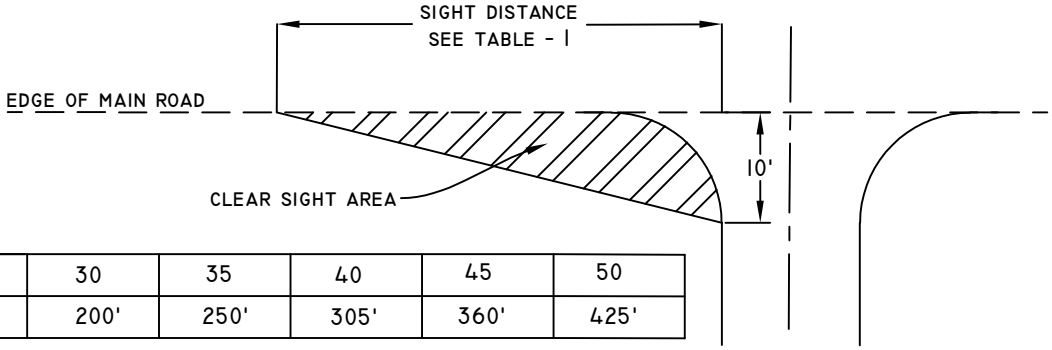



TABLE 1

| POSTED SPEED LIMIT (MPH) | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|
| SIGHT DISTANCE | 155' | 200' | 250' | 305' | 360' | 425' |

WSDOT EXHIBIT 1340-3

SITE DISTANCE DIAGRAM

NOT TO SCALE

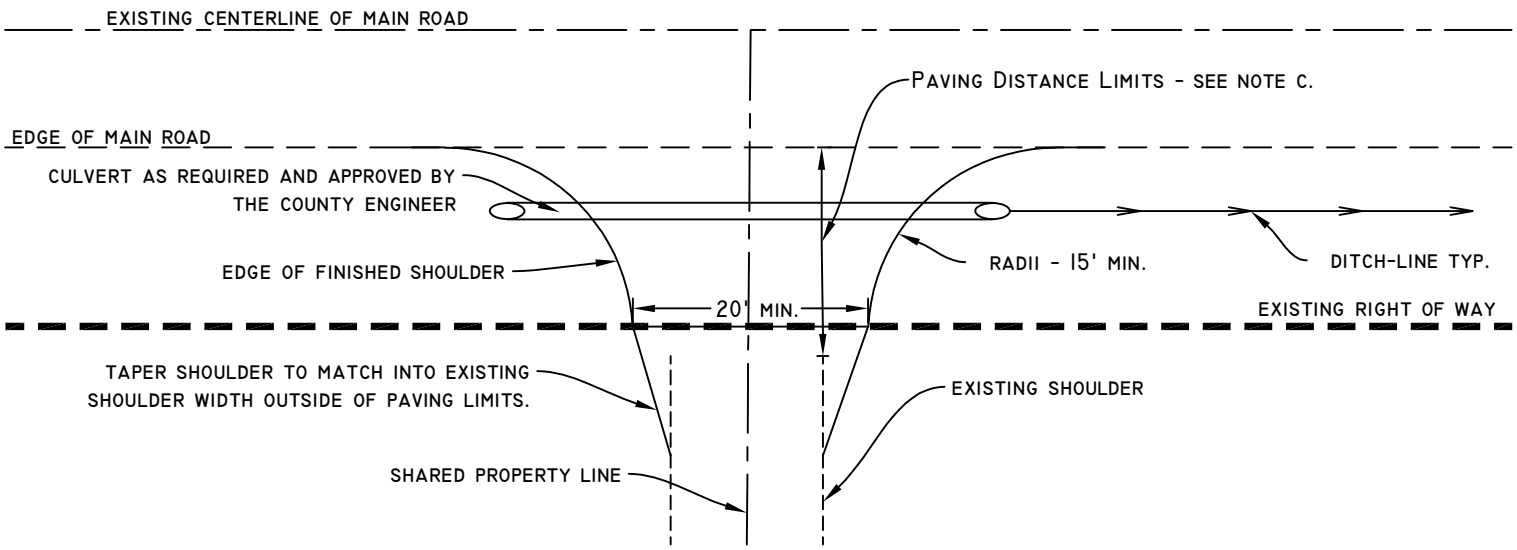
# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

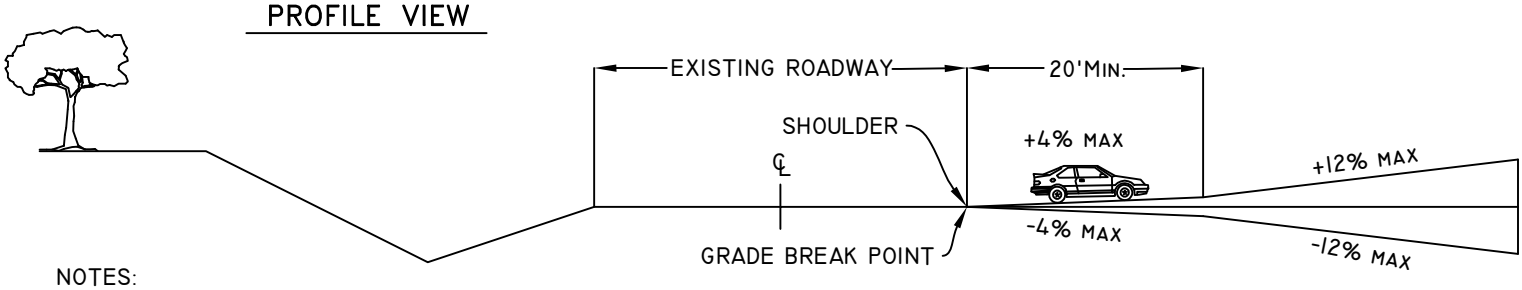
# RESIDENTIAL ACCESS

| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| Kevin L. Leis | NTS/ 1=1 | 1-2-18 | 6-2-21 |
| FILE NAME: T:\STANDARD PLANS\Standard Intersection & Approach Drawings\Residential Approach\ Residential Approach Drawing TS-7 | | CHECKED: SETH S. | REVISED BY: Nathen E. |

## PLAN VIEW




## PROFILE VIEW




NOTES:

A. WHEN THE EXISTING MAIN ROAD HAS A PAVED SURFACE, AN ASPHALT OR CONCRETE SURFACE SHALL BE INSTALLED ON THE APRON OF THE APPROACH.

B. THE DESIRABLE INTERSECTION ANGLE IS 90 DEGREES, WITH A MINIMUM OF 85 DEGREES AND A MAXIMUM OF 95 DEGREES ALLOWED. IF GRADE AND/OR TOPOGRAPHY DOES NOT PERMIT, A MINIMUM OF 75 DEGREES TO A MAXIMUM OF 105 DEGREES IS ALLOWED IF THE INSIDE RADIUS IS INCREASE TO AT LEAST 30'

C. PAVING DISTANCE LIMITS - PAVING DISTANCE LIMITS SHALL BE A MINIMUM OF 6'.

D. ALL FILL SLOPES AND IN-SLOPES SHALL BE 3H:1V OR FLATTER.

E. A SHARED APPROACH SHALL ONLY BE PLACED DIRECTLY ON A SHARED PROPERTY LINE AND BOTH LANDOWNERS SHALL SIGN THE APPROACH PERMIT.

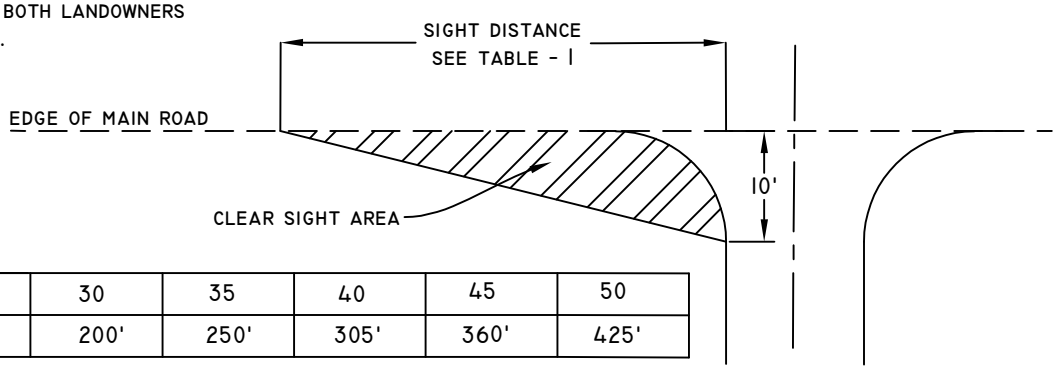



TABLE 1

| POSTED SPEED LIMIT (MPH) | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|
| SIGHT DISTANCE | 155' | 200' | 250' | 305' | 360' | 425' |

WSDOT EXHIBIT 1340-3

SITE DISTANCE DIAGRAM

NOT TO SCALE

# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

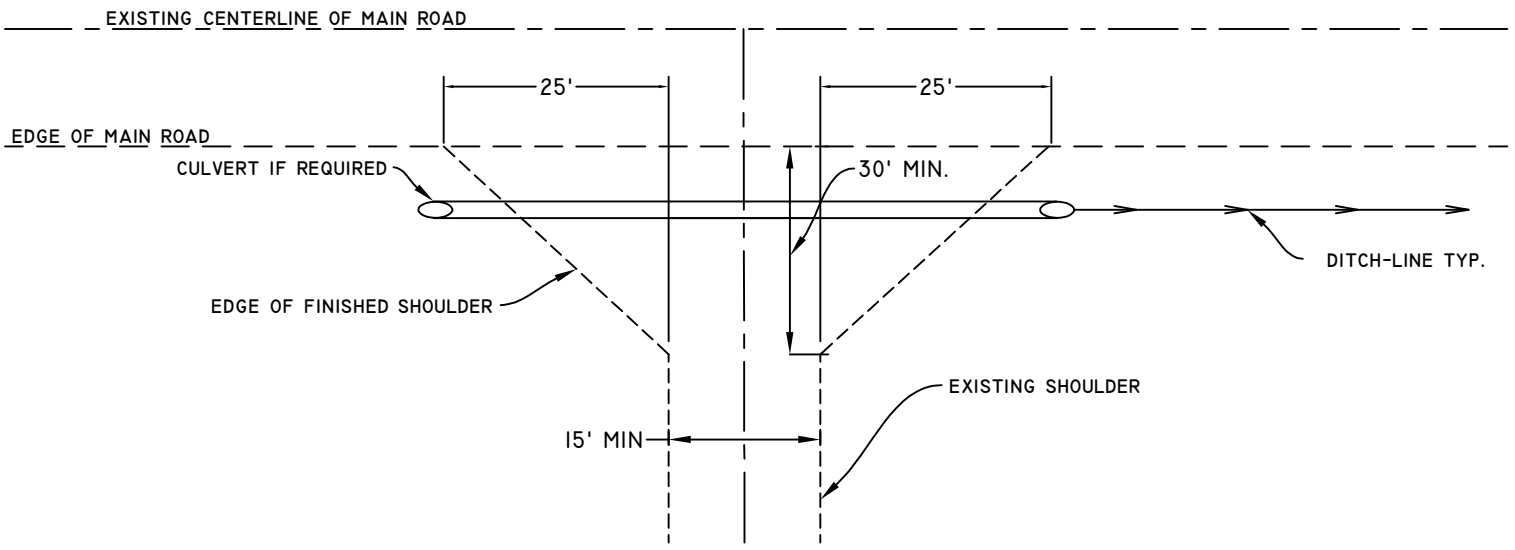
GORDON J. KELSEY STATE OF WASHINGTON 35662 REGISTERED PROFESSIONAL ENGINEER

EXPIRES 7-30-21

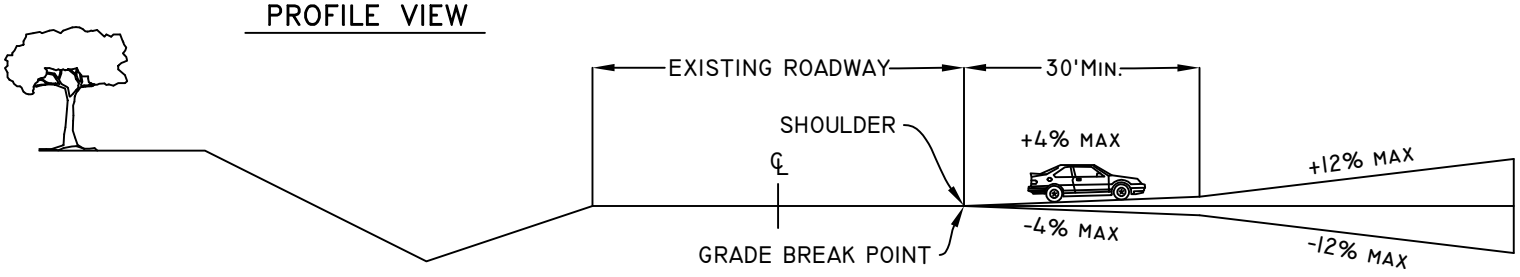
# SHARED ACCESS

| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| Nathen E. | NTS/ 1=1 | 6-2-21 | |
| FILE NAME | | CHECKED | REVISED BY |
| T:\STANDARD PLANS\Standard Intersection & Approach Drawings\Residential Approach\ Residential Approach Drawing TS-7 | | SETH S. | |

## PLAN VIEW




## PROFILE VIEW




NOTES:

A. ALL FILL SLOPES AND IN-SLOPES SHALL BE 3H:1V OR FLATTER.
B. PROPOSED ROADS MUST INTERSECT ONE ANOTHER AT 90 - DEGREE ANGLES OR AS CLOSE TO 90 DEGREES AS TOPOGRAPHY PERMITS. IF 90 DEGREES IS NOT POSSIBLE, THE SKEW ANGLE SHALL NOT VARY MORE THAN 30 DEGREES FROM RIGHT ANGLES (60 DEGREE MINIMUM).
C. ROCK IS REQUIRED TO BE CLEAN PIT RUN OR 2" GRAVEL WITH AN 8" MINIMUM DEPTH. GEOTEXTILE FABRIC FOR SUBGRADE REINFORCEMENT MAY BE REQUIRED.

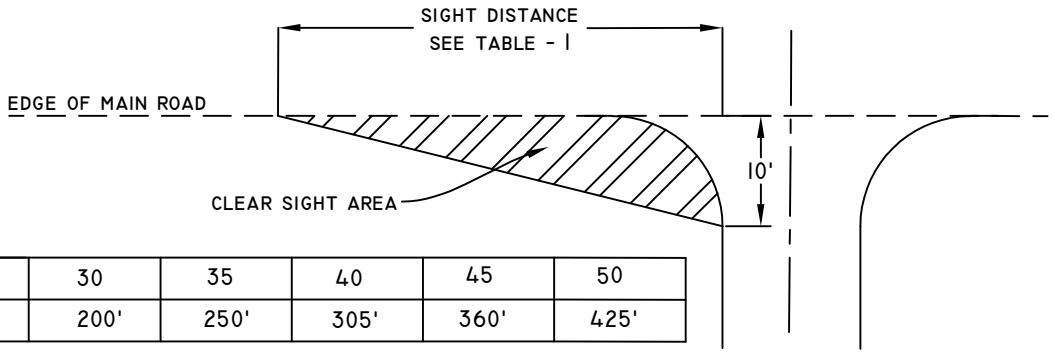



TABLE 1

| POSTED SPEED LIMIT (MPH) | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|
| SIGHT DISTANCE | 155' | 200' | 250' | 305' | 360' | 425' |

WSDOT EXHIBIT 1340-3

## SITE DISTANCE DIAGRAM

NOT TO SCALE

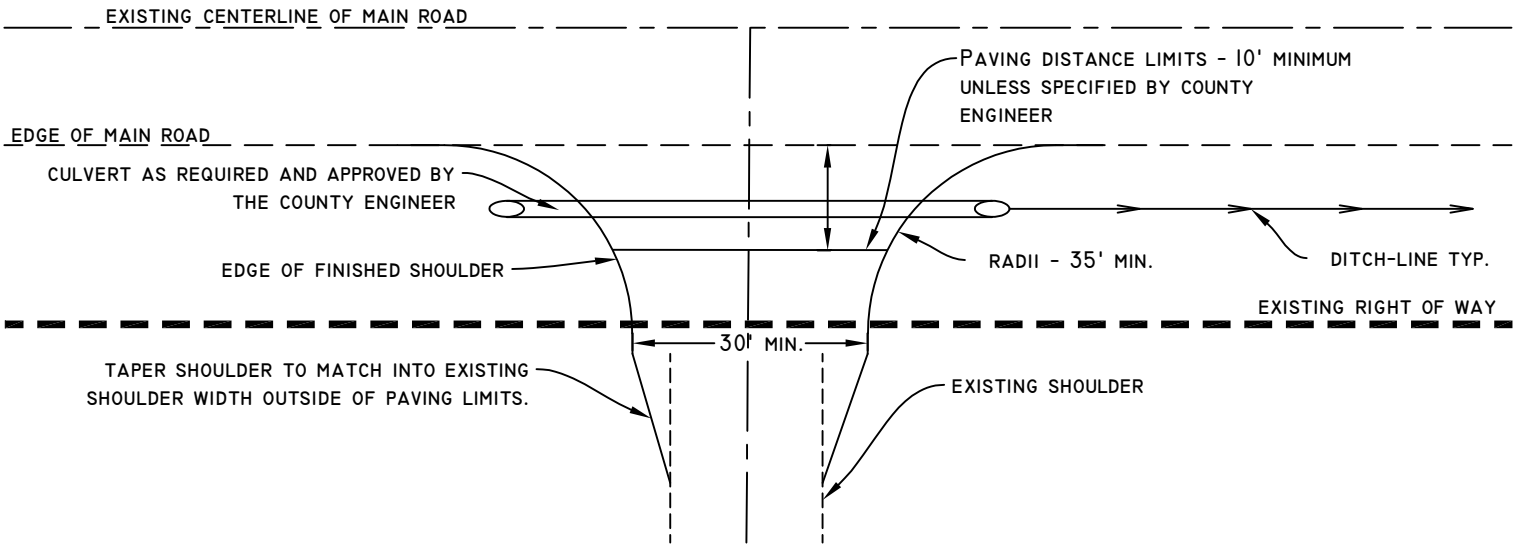
# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

TEMPORARY CONSTRUCTION ACCESS

| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| Nathen E. | NTS/ 1=1 | 6-2-21 | |
| FILE NAME: T:\STANDARD PLANS\Standard Intersection & Approach Drawings\Residential Approach\ Residential Approach Drawing TS-7 | | CHECKED: SETH S. | REVISED BY |

## PLAN VIEW




*COMMERCIAL - MEANING APPROACH WILL BE PROVIDING ACCESS TO A COMMERCIAL BUSINESS, FOR LARGE DELIVERY TRUCKS AND/OR AN ABUNDANCE OF TRAFFIC. FOR OTHER APPLICATIONS PLEASE SEE INTERSECTION DETAIL.

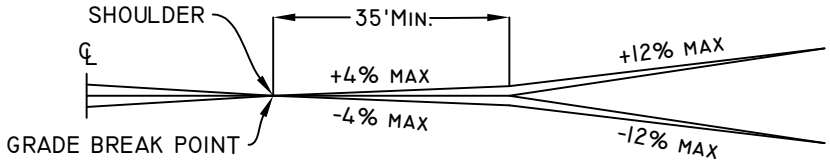
NOTES:

A. WHEN THE EXISTING MAIN ROAD HAS A PAVED SURFACE, AN ASPHALT OR CONCRETE SURFACE SHALL BE INSTALLED ON THE APRON OF THE APPROACH.

B. PROPOSED ROADS MUST INTERSECT ONE ANOTHER AT 90 - DEGREE ANGLES OR AS CLOSE TO 90 DEGREES AS TOPOGRAPHY PERMITS. IF 90 DEGREES IS NOT POSSIBLE, THE SKEW ANGLE SHALL NOT VARY MORE THAN 30 DEGREES FROM RIGHT ANGLES (60 DEGREE MINIMUM).

C. ALL FILL SLOPES AND IN-SLOPES SHALL BE 3H:1V OR FLATTER.

## PROFILE VIEW



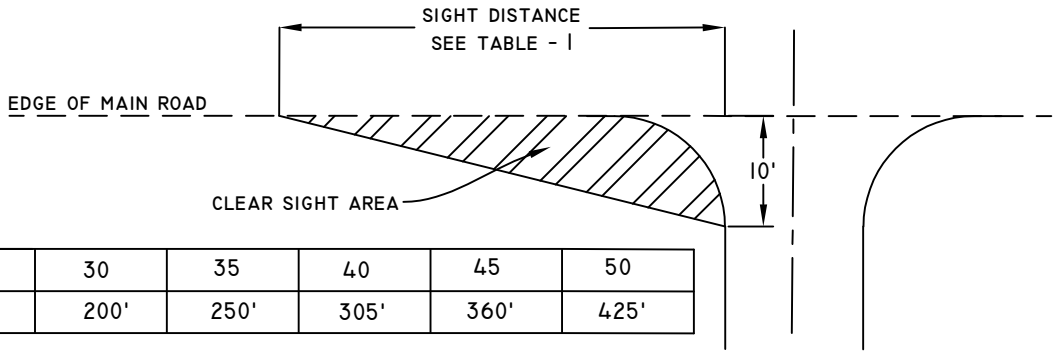




TABLE 1

| POSTED SPEED LIMIT (MPH) | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|
| SIGHT DISTANCE | 155' | 200' | 250' | 305' | 360' | 425' |

WSDOT EXHIBIT 1340-3

SITE DISTANCE DIAGRAM

NOT TO SCALE

# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

# COMMERICAL ACCESS

| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| Kevin L. Leis | NTS/ 1=1 | 1-2-18 | 4/14/2023 |
| FILE NAME: T:\STANDARD PLANS\STANDARD INTERSECTION & APPROACH DRAWINGS\COMMERCIAL APPROACH\COMMERCIAL APPROACH DRAWING TS-8 | | CHECKED: SETH S. | REVISED BY: Kristina D. |

## PLAN VIEW

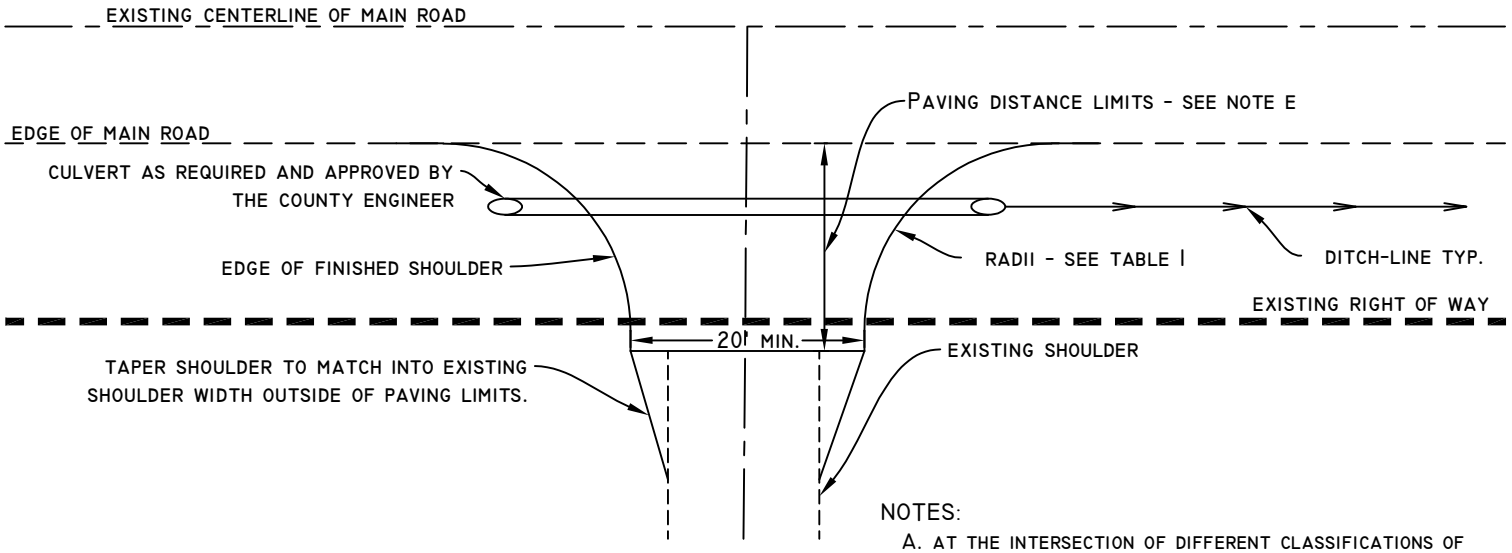



TABLE I

| ROAD CLASSIFICATION | CURB LINE RADII | DISTANCE BETWEEN ROADS |
|---|---|---|
| LOCAL ROAD - LOCAL ROAD INTERSECTION | 25' | 125' |
| LOCAL ROAD - ARTERIAL INTERSECTION | 25' - 30' | 250' |
| ARTERIAL - ARTERIAL INTERSECTION | 35' - 45' | 1320' |

NOTES:

A. AT THE INTERSECTION OF DIFFERENT CLASSIFICATIONS OF ROADS THE CENTERLINE SLOPE AND TYPICAL CROSS SECTION OF THE HIGHER CLASSIFIED ROAD SHOULD BE CARRIED THROUGH THE INTERSECTION WITH THE LOWER CLASSIFICATION ROAD MATCHING IN A MANNER WHICH WILL NOT INTERFERE WITH THE SMOOTH MOVEMENT OF TRAFFIC IN THE TRAVEL LANES OF THE HIGHER CLASSIFIED ROAD.

B. WHERE TWO ROADS OF THE SAME CLASSIFICATION INTERSECT, THE CENTERLINE GRADE SHALL BE MATCHED AT THE CENTER OF THE INTERSECTION WITH CROSS SLOPES VARYING THROUGH THE INTERSECTION TO ALLOW DRAINAGE.

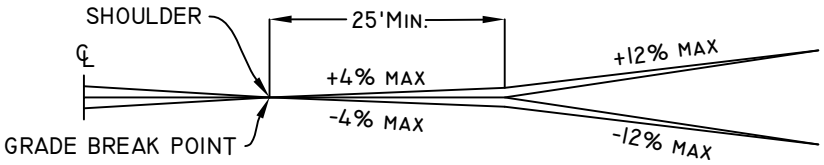
C. WHEN THE EXISTING MAIN ROAD HAS A PAVED SURFACE, AN ASPHALT OR CONCRETE SURFACE WILL BE USED ON THE APRON OF THE INTERSECTING ROAD WAY.

D. PROPOSED ROADS MUST INTERSECT ONE ANOTHER AT 90 - DEGREE ANGLES OR AS CLOSE TO 90 DEGREES AS TOPOGRAPHY PERMITS. IF 90 DEGREES IS NOT POSSIBLE, THE SKEW ANGLE SHALL NOT VARY MORE THAN 30 DEGREES FROM RIGHT ANGLES (60 DEGREE MINIMUM).

E. PAVING DISTANCE LIMITS - FOR ROADS SERVING 4 OR FEWER LOTS THE PAVING DISTANCE LIMITS SHALL BE 6' AND FOR ROADS SERVING MORE THAN 4 LOTS THE PAVING DISTANCE LIMITS SHALL BE EQUAL TO THE LENGTH OF THE RADII. MINIMUM ROAD WIDTH SHALL BE EQUAL TO THE LENGTH OF THE RADII.

F. ALL FILL SLOPES AND IN-SLOPES SHALL BE 3H:1V OR FLATTER.

## PROFILE VIEW



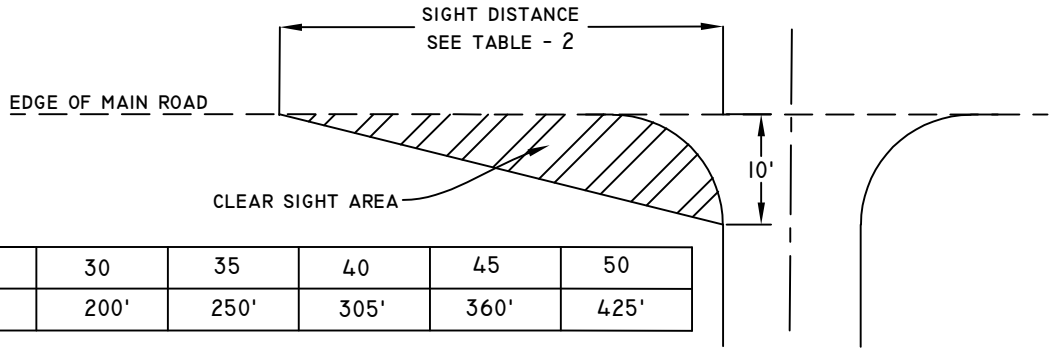




TABLE 2

| POSTED SPEED LIMIT (MPH) | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|
| SIGHT DISTANCE | 155' | 200' | 250' | 305' | 360' | 425' |

WSDOT EXHIBIT 1340-3

NOT TO SCALE

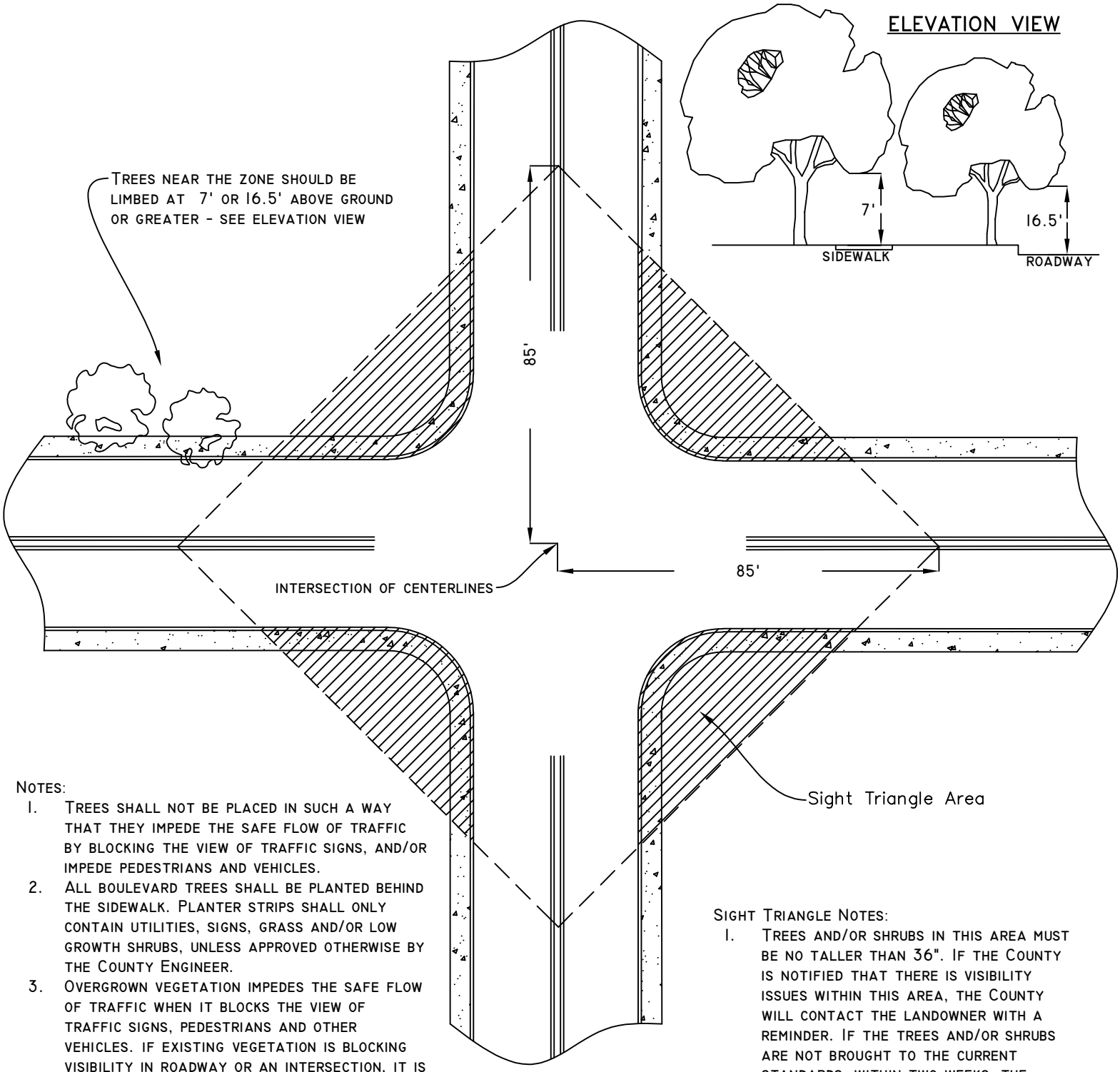
SITE DISTANCE DIAGRAM

# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

# INTERSECTION ACCESS

| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| Kevin L. Leis | NTS/ 1=1 | 2-1-17 | 1/25/2023 |
| FILE NAME: T:\STANDARD PLANS\STANDARD INTERSECTION & APPROACH DRAWINGS\STANDARD INTERSECTION\STANDARD INTERSECTION DRAWINGS TS-11 | | CHECKED: SETH S. | REVISED BY: Kristina D. |




NOTES:

1. TREES SHALL NOT BE PLACED IN SUCH A WAY THAT THEY IMPEDE THE SAFE FLOW OF TRAFFIC BY BLOCKING THE VIEW OF TRAFFIC SIGNS, AND/OR IMPEDE PEDESTRIANS AND VEHICLES.
2. ALL BOULEVARD TREES SHALL BE PLANTED BEHIND THE SIDEWALK. PLANTER STRIPS SHALL ONLY CONTAIN UTILITIES, SIGNS, GRASS AND/OR LOW GROWTH SHRUBS, UNLESS APPROVED OTHERWISE BY THE COUNTY ENGINEER.
3. OVERGROWN VEGETATION IMPEDES THE SAFE FLOW OF TRAFFIC WHEN IT BLOCKS THE VIEW OF TRAFFIC SIGNS, PEDESTRIANS AND OTHER VEHICLES. IF EXISTING VEGETATION IS BLOCKING VISIBILITY IN ROADWAY OR AN INTERSECTION, IT IS LANDOWNERS RESPONSIBILITY TO TRIM THE VEGETATION - SEE ELEVATION VIEW.
4. TREE LIMBS OVER ROADWAYS MUST BE LIMBED UP TO 16.5' MINIMUM.
5. TREE LIMBS OVER SIDEWALKS MUST BE LIMED UP TO 7' MINIMUM.

SIGHT TRIANGLE NOTES:

1. TREES AND/OR SHRUBS IN THIS AREA MUST BE NO TALLER THAN 36". IF THE COUNTY IS NOTIFIED THAT THERE IS VISIBILITY ISSUES WITHIN THIS AREA, THE COUNTY WILL CONTACT THE LANDOWNER WITH A REMINDER. IF THE TREES AND/OR SHRUBS ARE NOT BROUGHT TO THE CURRENT STANDARDS, WITHIN TWO WEEKS, THE COUNTY WILL TRIM THEM AT THE LANDOWNERS EXPENSE.

# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

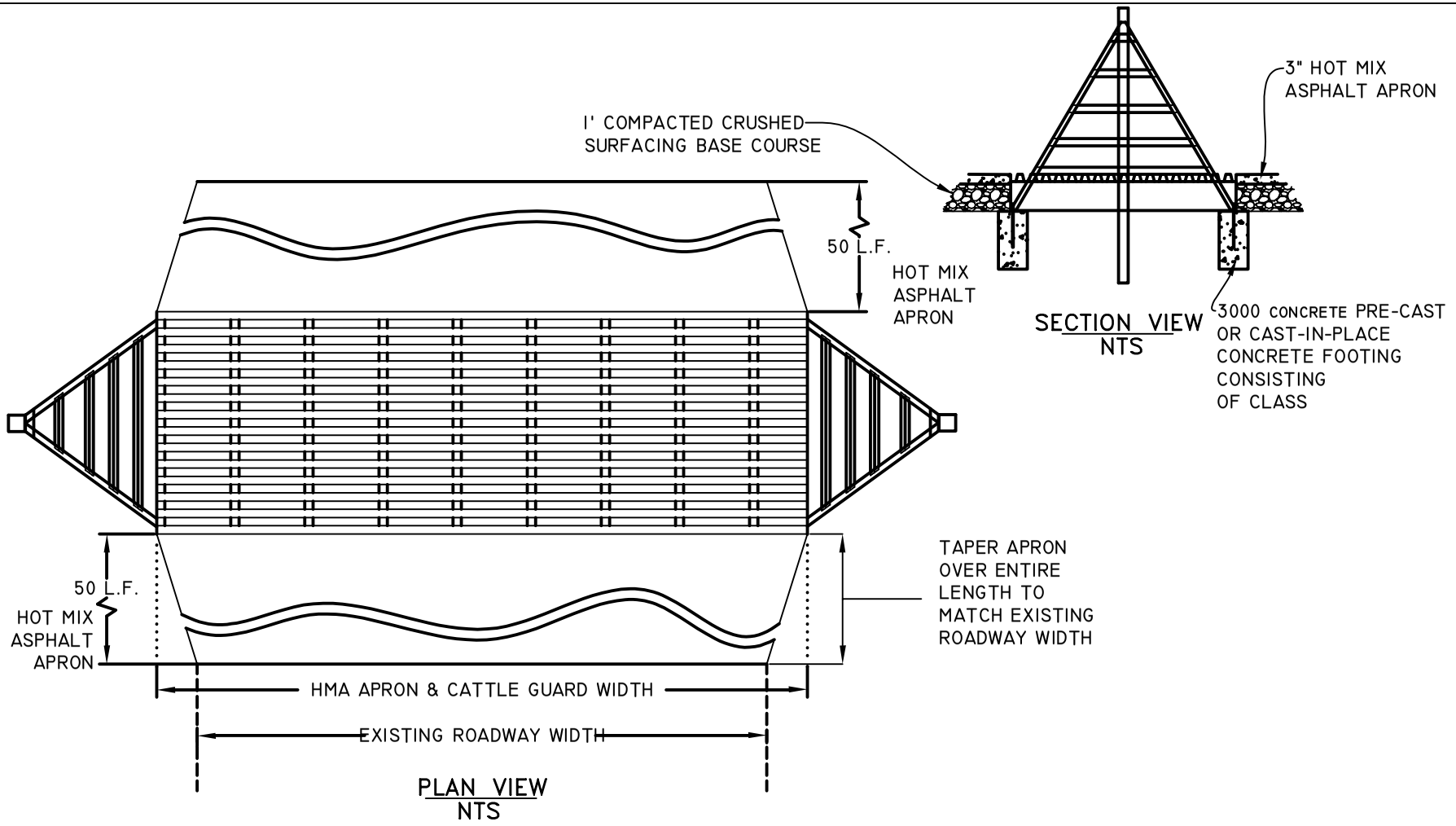
# SIGHT TRIANGLE

| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| KRISTINA D. | NTS/ 1=1 | 1/10/2023 | |
| FILE NAME | | CHECKED | REVISED BY |
| T:\Standard Plans\Sight Triangle | | SETH S | |

# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

# CATTLE GUARD




NOTES:

1. CATTLE GUARD TO BE BUILT TO HL-93 SPECIFICATIONS. PRIOR TO CONSTRUCTION THE APPLICANT SHALL SUBMIT A CATALOG CUT OF THE MANUFACTURE GATE MEETING HL-93 SPECIFICATIONS TO KLICKITAT COUNTY PUBLIC WORKS FOR APPROVAL.
2. FOOTINGS AND WALLS SHALL BE CLASS 3000 CONCRETE AND THE FORMING WILL BE INSPECTED BY THE COUNTY BEFORE POURING.
3. 50' APPROACH APRONS SHALL CONSIST OF 3 IN. OF HOT MIX ASPHALT. BASE SHALL BE 1 FT. OF CRUSHED SURFACING BASE COURSE COMPACTED TO MEET 95% DENSITY.
4. THE CATTLE GUARD SHALL BE INSTALLED TO THE LINE AND GRADE OF THE EXISTING ROADWAY AND SHALL CAUSE NO INTERRUPTION OF, OR INTERFERENCE WITH, ROADWAY DRAINAGE AND THE GRILL SHALL BE INSTALLED PERPENDICULAR TO THE TRAVELED WAY.
5. THE MAINTENANCE OF THE CATTLE GUARD IS THE RESPONSIBILITY OF THE PROPERTY OWNER OR LEASE HOLDER BENEFITED BY THE CATTLE GUARD.
6. SHOULD RECONSTRUCTION OF THE ROAD BE NECESSARY, THE COST TO MODIFY EXISTING CATTLE GUARD WILL BE AT THE OWNERS EXPENSE. IN THE EVENT THAT ARRANGEMENTS HAVE NOT BEEN MADE TO MODIFY THE EXISTING CATTLE GUARD PRIOR TO THE RECONSTRUCTION OF THE ROAD THE COUNTY RESERVES THE RIGHT TO REMOVE THE CATTLE GUARD. THE REPLACEMENT OF THE CATTLE GUARD SHALL BE AT THE OWNER'S EXPENSE.
7. IF THE EXISTING ROAD IS 13 FT. WIDE OR LESS, THEN A 14 FT. CATTLE GUARD AND APRON ARE REQUIRED.
8. IF THE EXISTING ROAD IS WIDER THAN 13 FT. THEN THE CATTLE GUARD AND APRON SHALL BE EQUAL TO THE WIDTH OF THE EXISTING ROAD PLUS 2 FT.

| FILE NAME | DRAWN | PLOTTING SCALE | DATE | CHECKED | REVISED BY | REVISED |
|---|---|---|---|---|---|---|
| T:\Standard Plans\Cattle Guard | JARED B | NTS/ 1=1 | 2/8/2017 | SETH S. | KRISTINA D. | 8/25/2021 |

KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

# STANDARD SIDEWALK DETAIL

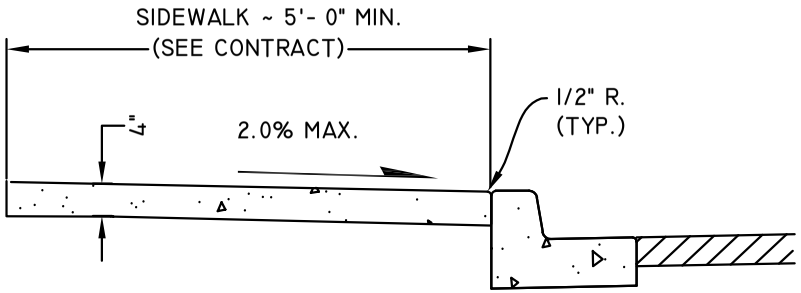
| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| Kevin L. Leis | NTS/ 1=1 | 5/17/2016 | 10/13/2021 |

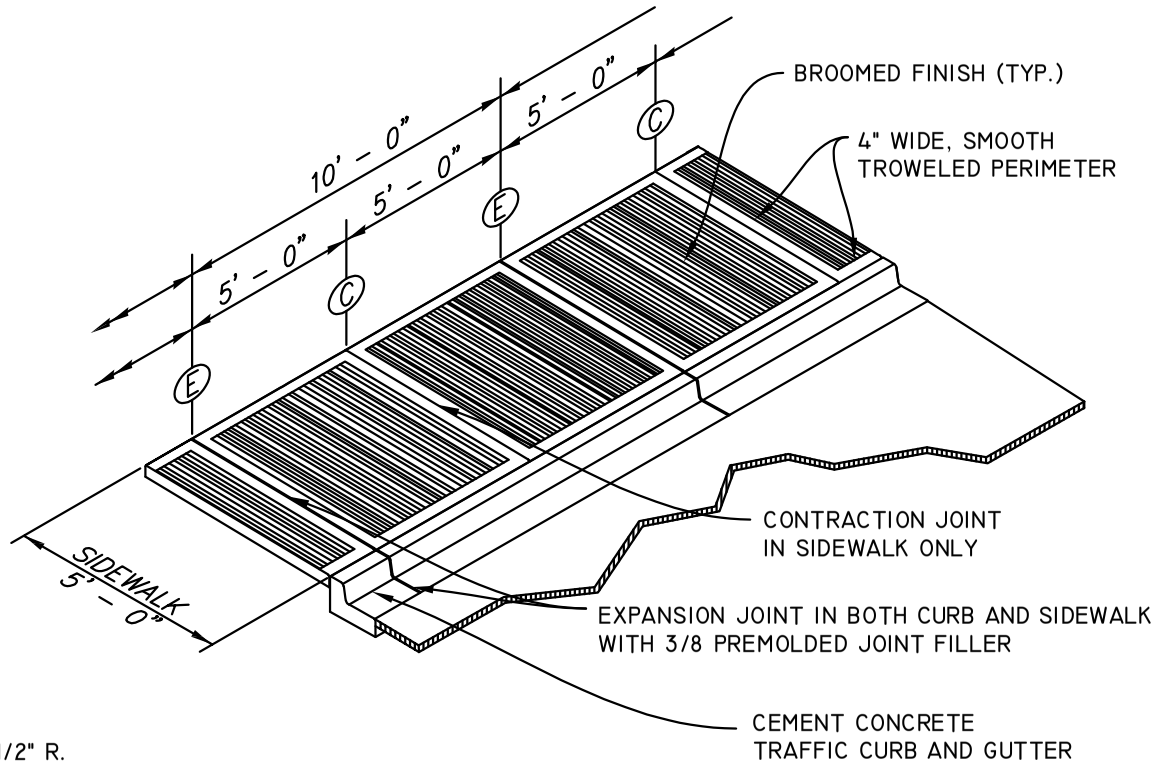
| FILE NAME | CHECKED | REVISED BY |
|---|---|---|
| T:\Standard Plans\New Sidewalk Standard Design | Seth S. | KRISTINA D. |

NOTES:

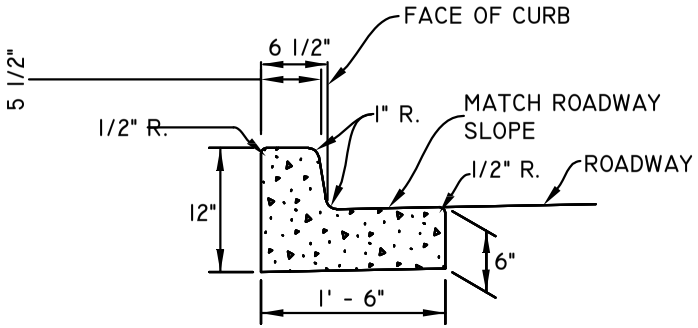
1. GRATING, ACCESS COVERS, JUNCTION BOXES, CABLE VAULTS, PULL BOXES AND OTHER APPURTENANCES WITHIN THE SIDEWALK MUST HAVE SLOP RESISTANT SURFACES, BE FLUSH WITH SURFACE, AND MATCH GRADE OF THE SIDEWALK.
2. ALL CONCRETE SHALL BE AIR ENTRAINED CONCRETE CLASS 3000.

## SIDEWALK DETAIL

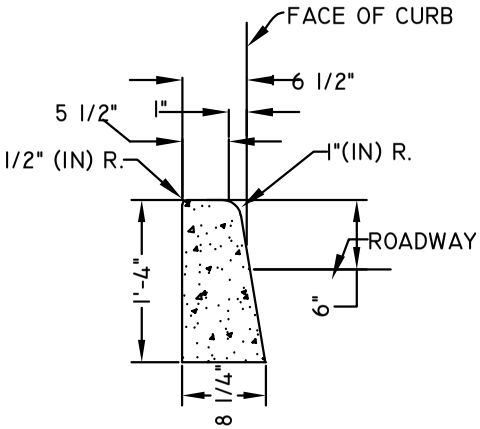



## ISOMETRIC VIEW

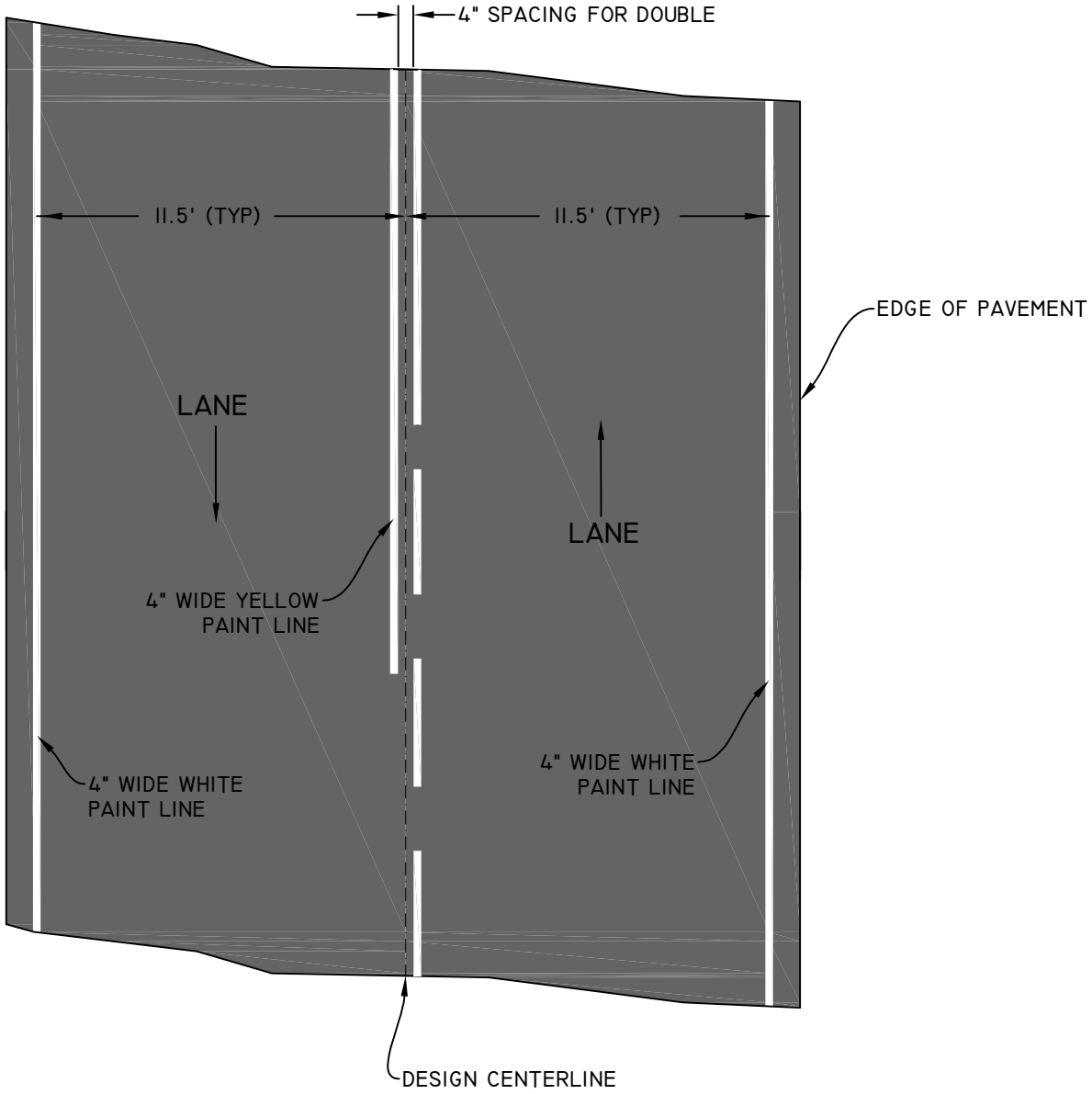



## CEMENT CONC. CURB AND GUTTER DETAIL




## CEMENT CONCRETE TRAFFIC CURB

NTS




PAINT LINE TYPICAL
NTS

NOTES:

1. YELLOW AND WHITE PAINT SHALL COMPLY WITH THE SPECIFICATIONS FOR LOW VOLATILE ORGANIC COMPOUND (VOV) SOLVENT PAINT.
2. LANE WIDTH WILL VARY DEPENDING ON THE ROADWAY. MARK AS DIRECTED BY THE ENGINEER OR AS INDICATED IN THE CONTRACT PROVISIONS.

# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

# PAINT LINE DETAILS

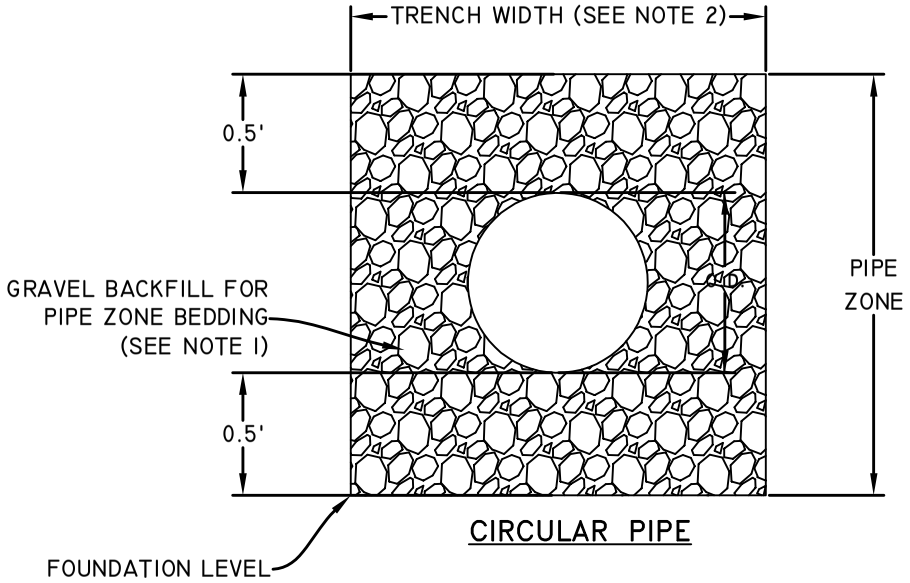
| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| SETH S. | NTS/ 1=1 | 3/30/2017 | 10/13/2021 |
| FILE NAME | | CHECKED | REVISED BY |
| T:\Standard Plans\Paint Line Details | | JEFF H. | KRISTINA D. |

KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

PIPE ZONE BEDDING AND BACKFILL

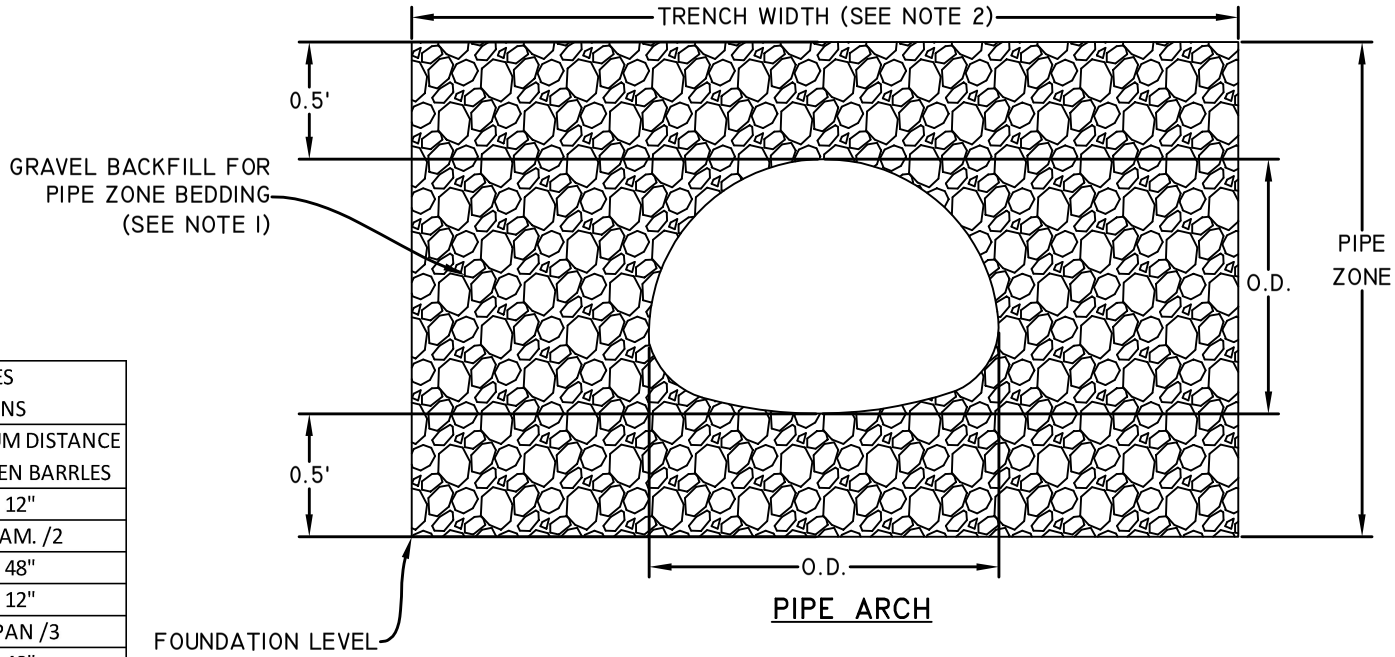
| FILE NAME | DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|---|
| T:\Standard Plan\Pipe Zone Bedding-Backfill | Kevin L. Leis | NTS/ 1=1 | 1/2/18 | 09/01/2021 |
| CHECKED | Seth S. | REVISED BY | KRISTINA D. | |




CIRCULAR PIPE

NOTES:

1. SEE STANDARD SPECIFICATIONS SECTION 9-03.12(3) FOR GRAVEL BACKFILL FOR PIPE ZONE BEDDING.
2. SEE STANDARD SPECIFICATIONS SECTION 2-09.4 FOR MEASUREMENT OF TRENCH WIDTH.




PIPE ARCH

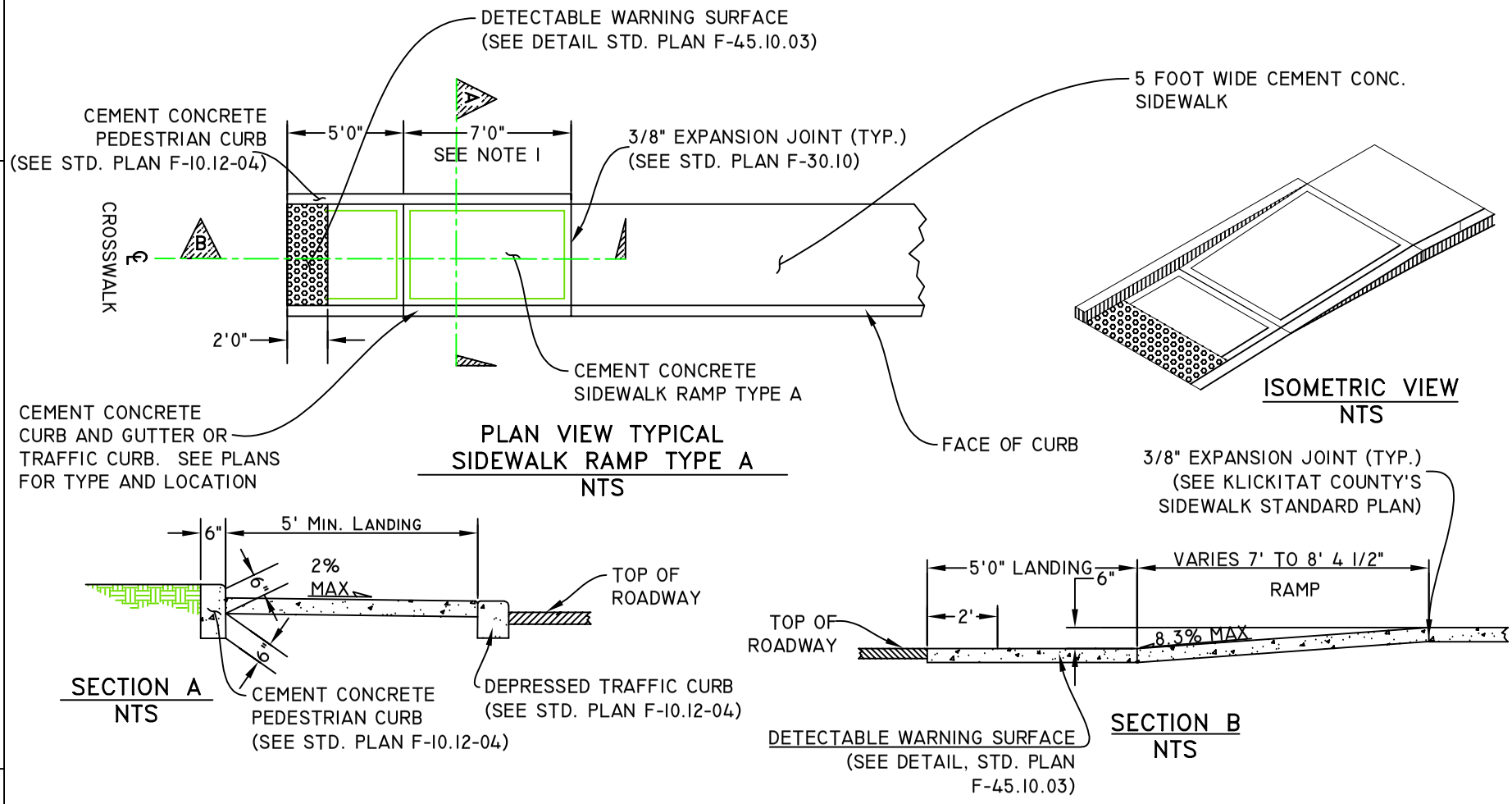
| CLEARANCE BETWEEN PIPES FOR MULTIPLE INSTALLATIONS | | |
|---|---|---|
| PIPE | SIZE | MINIMUM DISTANCE BETWEEN BARRLES |
| CIRCULAR PIPE (DIAMETER) | 12" TO 24" | 12" |
| | 30" TO 96" | DIAM. /2 |
| | 102" TO 180" | 48" |
| PIPE ARCH (SPAN) METAL ONLY | 18" TO 36" | 12" |
| | 43" TO 142" | SPAN /3 |
| | 148" TO 200" | 48" |

PIPE ZONE BEDDING AND BACKFILL
NTS

# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

# SIDEWALK RAMP TYPE A




NOTES:

1. THE MAXIMUM ALLOWABLE RAMP SLOPE IS 12H:1V (8.34% GRADE). TO ACHIEVE THIS SLOPE THE LENGTH CAN BE CHASED UP TO 15 FEET. THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) DOES NOT ACCEPT SIDEWALK RAMPS WITH SLOPES STEEPER THAN 12H:1V. FLATTER RAMPS ARE PERMISSIBLE. FIELD VERIFY THE FORMS BEFORE POURING CONCRETE.
2. TO THE MAXIMUM EXTENT FEASIBLE, THE RAMP CROSS SLOPE SHALL NOT EXCEED 2%.
3. THE BOTTOM OF THE RAMP SHALL HAVE A LEVEL AREA (NOT IN EXCESS OF 2% IN ANY DIRECTION), 4' X 4'.
4. THE BID ITEM "CEMENT CONC. SIDEWALK RAMP TYPE A" DOES NOT INCLUDE THE ADJACENT TRAFFIC CURB, THE SIDEWALK, OR THE CEMENT CONC. PEDESTRIAN CURB.
5. IF THE SIDEWALK RAMP IS BEING INSTALLED IN AN EXISTING SIDEWALK, THE REMOVAL OF THAT PORTION OF EXISTING SIDEWALK WHERE THE RAMP IS BEING INSTALLED SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE NEW SIDEWALK RAMP. REQUIRED SAW CUTTING SHALL BE INCLUDED IN "SAW CUT PAVEMENT", PER L.F.
6. SEE STANDARD PLANS F-10.12-04 FOR CURB DETAILS.
7. SEE KLICKITAT COUNTY'S SIDEWALK STANDARD PLAN.
8. GRATING, ACCESS COVERS, JUNCTION BOXES, CABLE VAULTS, PULL BOXES AND OTHER APPURTENANCES WITHIN THE SIDEWALK MUST HAVE SLIP RESISTANT SURFACES, BE FLUSH WITH SURFACE, AND MATCH GRADE OF THE SIDEWALK.
9. ALL CONCRETE SHALL BE AIR ENTRAINED CONCRETE CLASS 300.

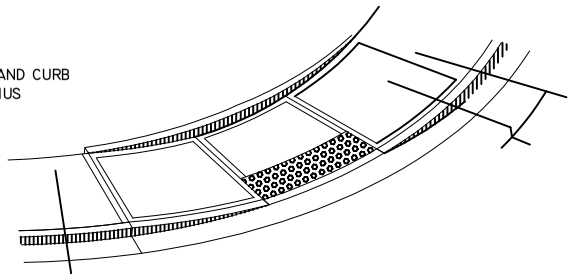
| FILE NAME | DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|---|
| T:\Standard Plans\Sidewalk Ramp Type A | SETH S | NTS/ 1=1 | 5/18/2011 | 03/31/2022 |
| CHECKED | | | | REVISED BY |
| JEFF H | | | | KRISTINA D. |

# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

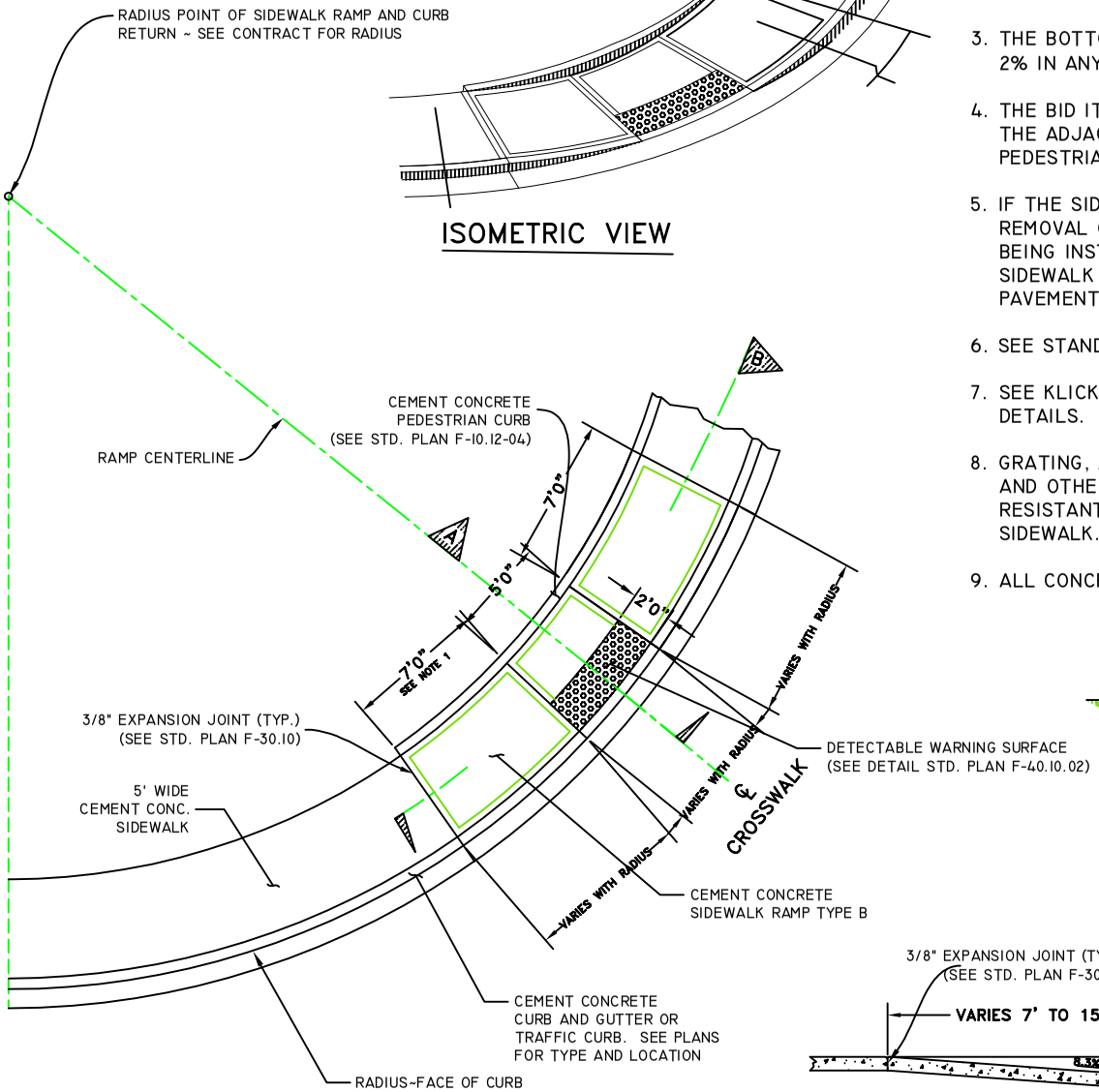
STANDARD PLAN

# SIDEWALK RAMP TYPE B

| FILE NAME | DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|---|
| T:\Standard Plans\Sidewalk Ramp Type B | SETH S | NTS/ 1=1 | 5/18/2011 | 03/31/2022 |
| | CHECKED | | | REVISED BY |
| | JEFF H | | | KRISTINA D. |



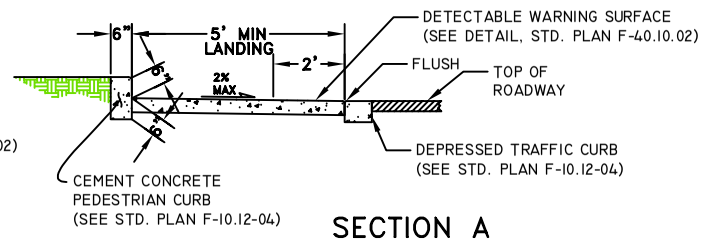
ISOMETRIC VIEW



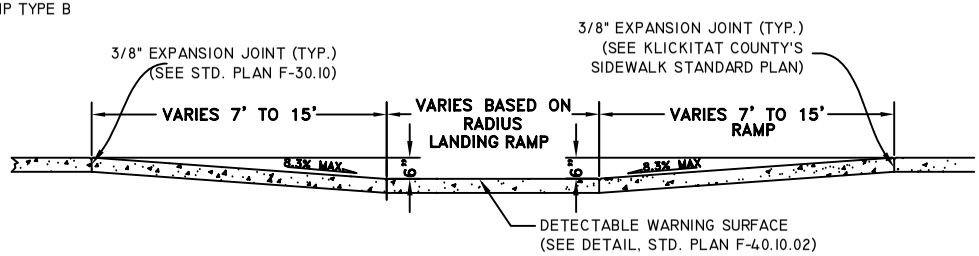

PLAN VIEW
TYPICAL SIDEWALK RAMP TYPE B

NOTES:

1. THE MAXIMUM ALLOWABLE RAMP SLOPE IS 12H:1V (8.34% GRADE). TO ACHIEVE THIS SLOPE THE LENGTH CAN BE CHASED UP TO 15 FEET. THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) DOES NOT ACCEPT SIDEWALK RAMPS WITH SLOPES STEEPER THAN 12H:1V. FLATTER RAMPS ARE PERMISSIBLE. FIELD VERIFY THE FORMS BEFORE POURING CONCRETE.
2. TO THE MAXIMUM EXTENT FEASIBLE, THE RAMP CROSS SLOPE SHALL NOT EXCEED 2%.
3. THE BOTTOM OF THE RAMP SHALL HAVE A LEVEL AREA (NOT IN EXCESS OF 2% IN ANY DIRECTION), MINIMUM 4' X 4'.
4. THE BID ITEM "CEMENT CONC. SIDEWALK RAMP TYPE B" DOES NOT INCLUDE THE ADJACENT TRAFFIC CURB, THE SIDEWALK, OR THE CEMENT CONC. PEDESTRIAN CURB.
5. IF THE SIDEWALK RAMP IS BEING INSTALLED IN AN EXISTING SIDEWALK, THE REMOVAL OF THAT PORTION OF EXISTING SIDEWALK WHERE THE RAMP IS BEING INSTALLED SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE NEW SIDEWALK RAMP. REQUIRED SAW CUTTING SHALL BE INCLUDED IN "SAW CUT PAVEMENT", PER L.F.
6. SEE STANDARD PLANS F-10.12-04 FOR CURB DETAILS.
7. SEE KLICKITAT COUNTY'S SIDEWALK STANDARD PLAN FOR JOINT AND FINISH DETAILS.
8. GRATING, ACCESS COVERS, JUNCTION BOXES, CABLE VAULTS, PULL BOXES AND OTHER APPURTENANCES WITHIN THE SIDEWALK MUST HAVE SLIP RESISTANT SURFACES, BE FLUSH WITH SURFACE, AND MATCH GRADE OF THE SIDEWALK.
9. ALL CONCRETE SHALL BE AIR ENTRAINED CONCRETE CLASS 300.




SECTION A




SECTION B

NTS

KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

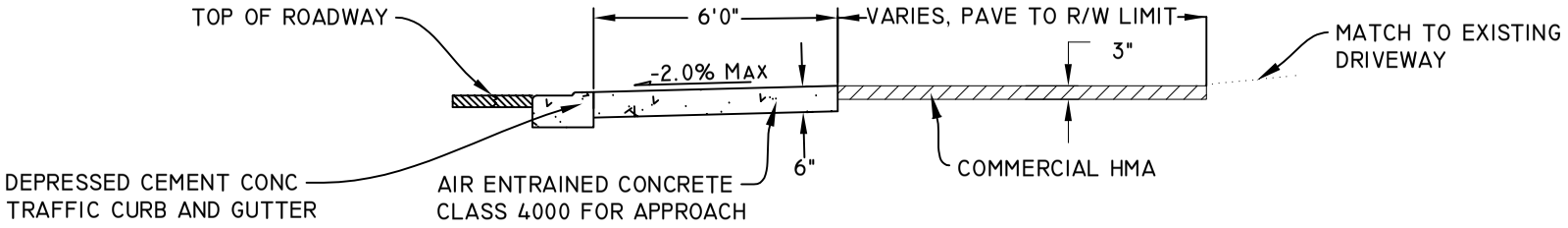
STANDARD CONCRETE DRIVEWAY DESIGN

| FILE NAME | DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|---|
| T:\Standard Plans\Standard Concrete Driveway Design | Kevin L. Leis | NTS/ 1=1 | 5/17/2016 | 03/31/2022 |
| | CHECKED | | | REVISED BY |
| | Seth S. | | | KRISTINA D. |

PLAN VIEW

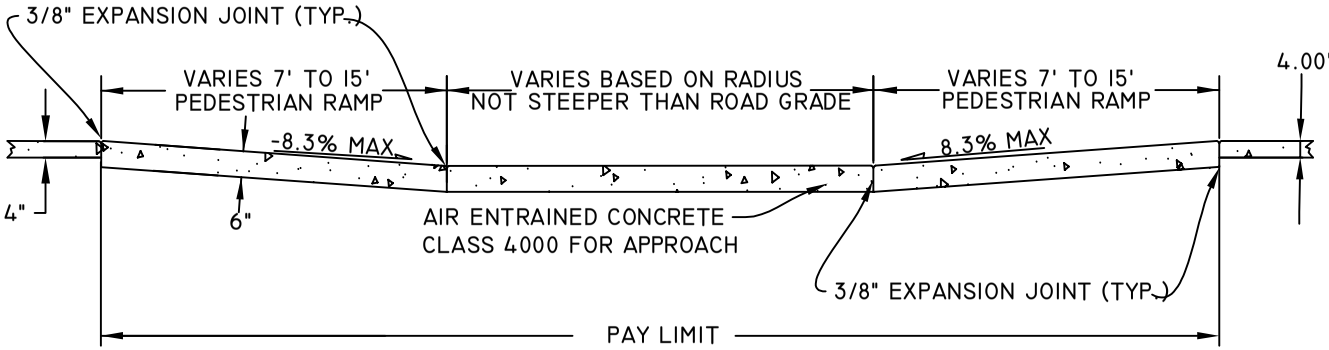
## CONCRETE DRIVEWAY ENTRANCE

NTS



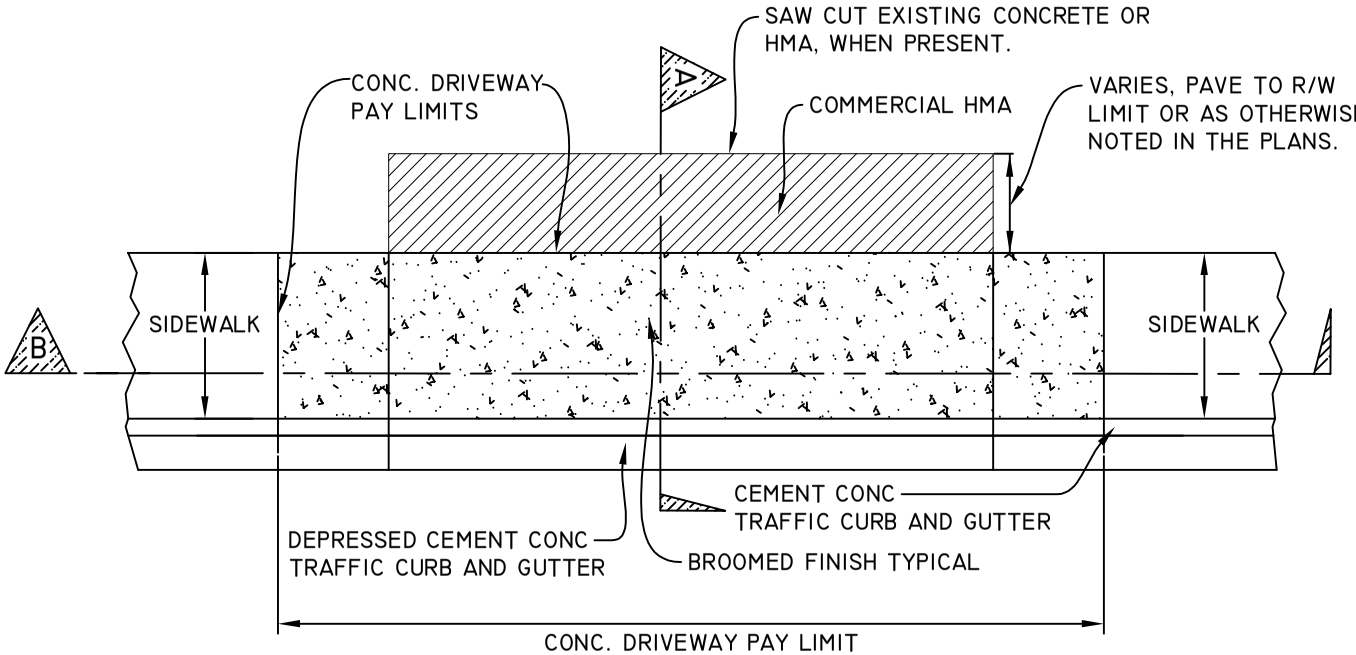

## SECTION A

NTS



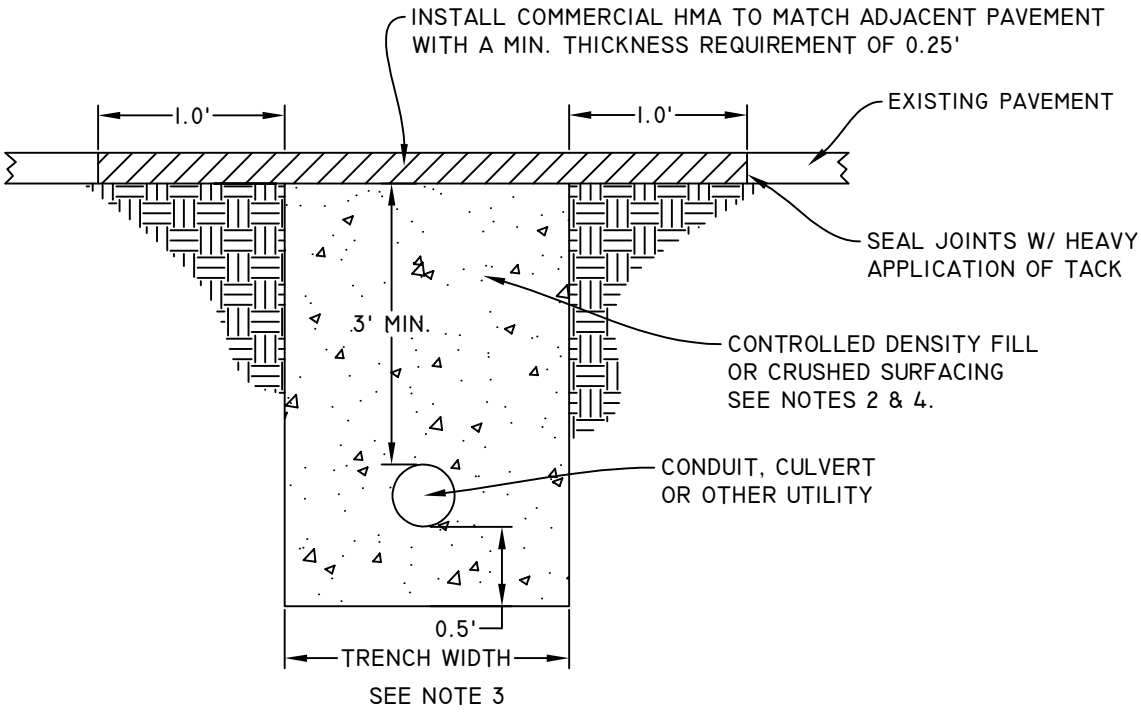

## SECTION B

NTS




NOTES:

1. THE MAXIMUM ALLOWABLE SIDEWALK RAMP SLOPE IS 12H:1V (8.3% GRADE). TO ACHIEVE THIS SLOPE THE LENGTH CAN BE CHASED UP TO 15 FEET. SLOPES STEEPER THAN 12H:1V WILL NOT BE ACCEPTED. FLATTER RAMPS ARE PERMISSIBLE. FIELD VERIFY THE FORMS BEFORE POURING CONCRETE.
2. TO THE MAXIMUM EXTENT FEASIBLE, THE RAMP CROSS SLOPE SHALL NOT EXCEED 2%.
3. THE UNIT BID ITEM "CEMENT CONC. DRIVEWAY ENTRANCE" DOES NOT INCLUDE THE ADJACENT CURB OR SIDEWALK.
4. SAW-CUT EXISTING CONC. OR HMA, WHEN PRESENT, AT BACK OF CONCRETE APRON.




NOTES:

1. CONDUIT SHALL BE PLACED ON A STABLE COMPACT FOUNDATION.

2. ALL BACKFILL MATERIAL SHALL BE PLACED AND MECHANICALLY COMPACTED IN 6" LIFTS TO 95% DENSITY

3. TRENCH WIDTH FOR CONDUIT, CULVERT, OR OTHER UTILITY WILL BE BASED ON THE FOLLOWING CALCULATIONS:
   CONDUIT, CULVERT, OR OTHER UTILITY UP TO 12"DIA. TRENCH WIDTH= I.D.+24"
   CONDUIT, CULVERT, OR OTHER UTILITY 12"DIA. TO 18"DIA. TRENCH WIDTH= I.D.+30"
   CONDUIT, CULVERT, OR OTHER UTILITY 18"DIA. AND OVER TRENCH WIDTH= (1.5xI.D.)+18"

4. CONTROLLED DENSITY FILL WILL BE REQUIRED FOR BACKFILL IF THE MINIMUM REQUIREMENTS FOR COMPACTION AND TRENCH WIDTH ARE NOT MET AS LISTED ABOVE.

5. THE OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR OF THE ROADWAY DUE TO SETTLEMENT,RAVELING, EROSION AND ECT. FOR A PERIOD OF ONE YEAR AFTER INSTALLATION

6. LOCATE TAPE IS TO BE PLACED ONE FOOT ABOVE CONDUIT.

7. WHEN PUSHED OR BORED, LOCATE TAPE IS TO BE PLACED ONE FOOT ABOVE EXPOSED CONDUIT.

8. FOR DEVIATIONS FROM THE ABOVE INSTALLATION METHODS, CONTACT THE KLICKITAT COUNTY PUBLIC WORKS @ (509)773-4616, (800)583-8074.

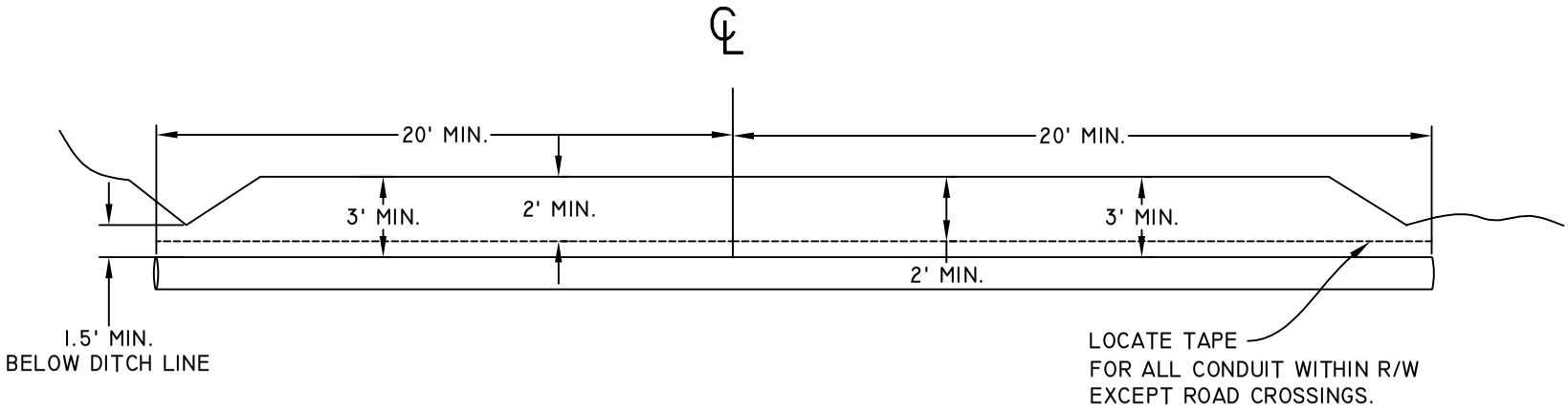
# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

# T-PATCH DETAIL

| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| WADE O. | NTS | 8/23/2013 | 03/31/2022 |
| FILE NAME | | CHECKED | REVISED BY |
| T:\Standard Plans\T-Patch | | SETH S. | KRISTINA D. |

# TYPICAL CONDUIT INSTALLATION




NOTES:

1. CONDUIT SHALL BE PLACED ON A STABLE COMPACT FOUNDATION.
2. ALL BACKFILL MATERIAL SHALL BE PLACED AND MECHANICALLY COMPACTED IN 6" LIFTS TO 95% DENSITY.
3. THE OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR OF THE ROADWAY DUE TO SETTLEMENT, RAVELING, EROSION AND ETC. FOR A PERIOD OF ONE YEAR AFTER INSTALLATION.
4. LOCATE TAPE IS TO BE PLACED 12" ABOVE CONDUIT.
5. WHEN PUSHED OR BORED, LOCATE TAPE IS TO BE PLACED 12" ABOVE EXPOSED CONDUIT.
6. FOR DEVIATIONS FROM THE ABOVE INSTALLATION METHODS, CONTACT THE KLICKITAT COUNTY PUBLIC WORKS @ (509)773-4616, (800)583-8074.

KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

TYPICAL CONDUIT INSTALLATION

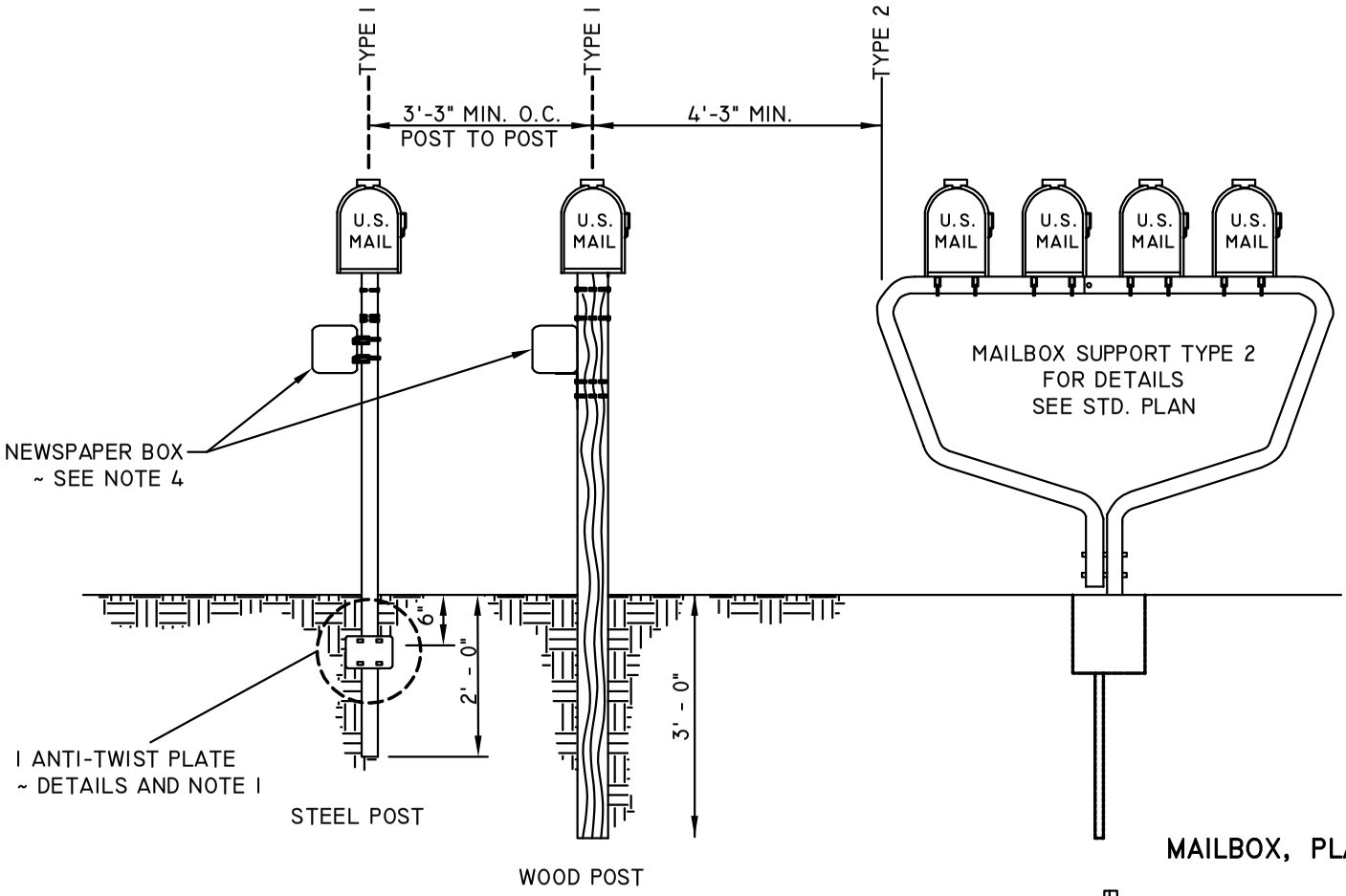
| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| WADE O. | NTS | 8/27/2013 | 2/07/2022 |

| FILE NAME | CHECKED | REVISED BY |
|---|---|---|
| T:\Standard Plans\Typical Conduit Installation | SETH S. | KRISTINA D. |

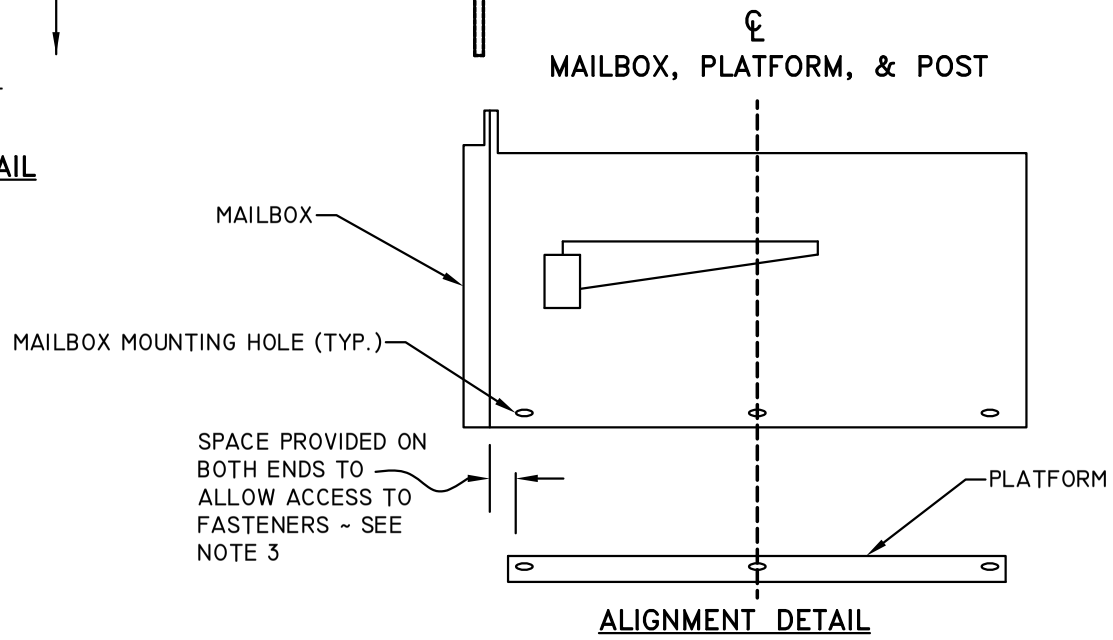
KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

# SUPPORT TYPE 1-2




POST PLACEMENT DETAIL




ALIGNMENT DETAIL

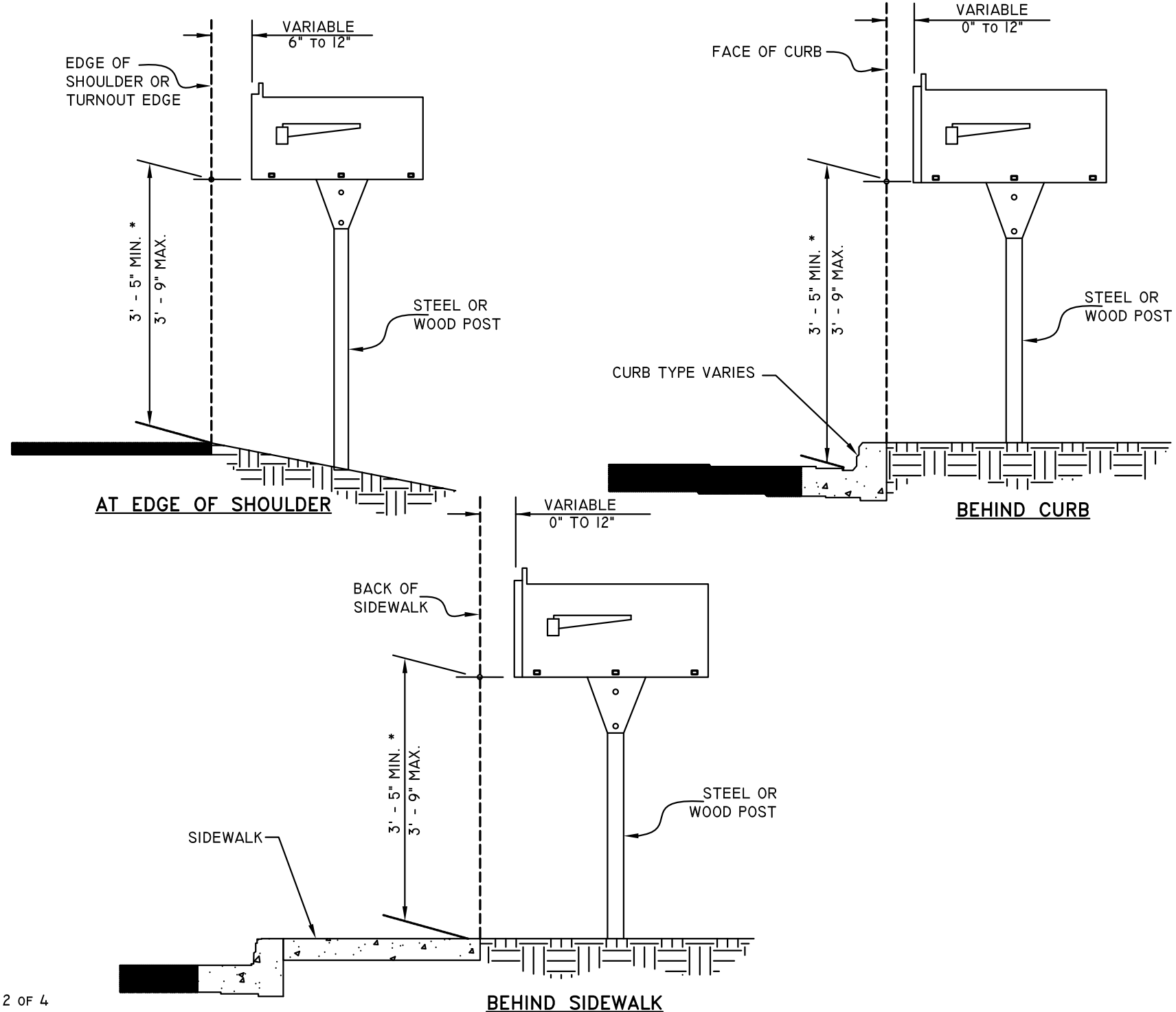
| FILE NAME | DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|---|
| T:\Standard Plans\Mailbox Support Type 1-2 | JARED B. | NTS/ 1=1 | 3/15/2018 | 03/17/2022 |
| | CHECKED | | | REVISED BY |
| | SETH S. | | | KRISTINA D. |

KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

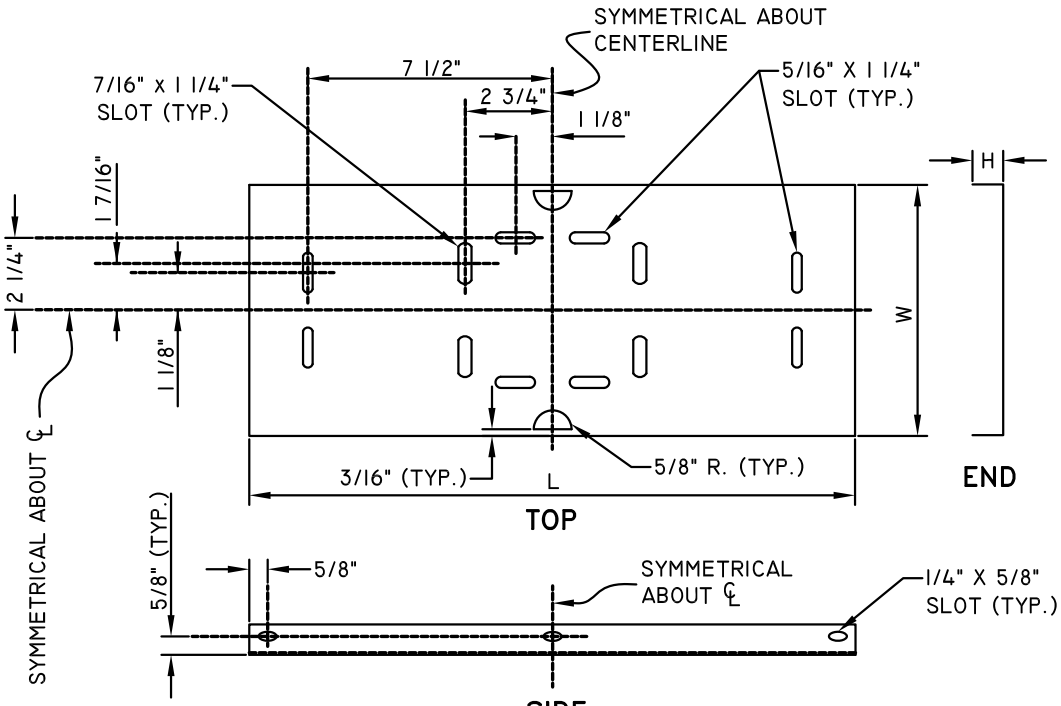
STANDARD PLAN

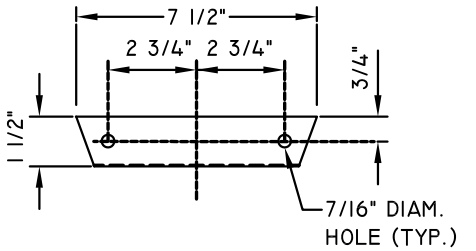
# SUPPORT TYPE 1-2

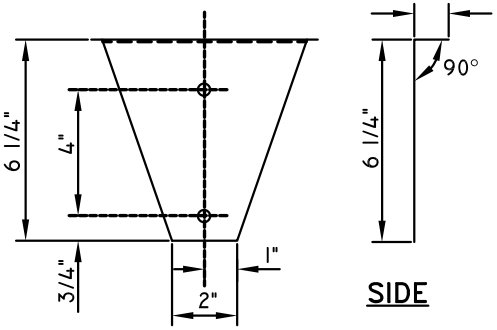
| FILE NAME | DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|---|
| T:\Standard Plans\Mailbox Support Type 1-2 | JARED B. | NTS/ 1=1 | 3/15/2018 | 03/17/2022 |
| | CHECKED: SETH S. | | | REVISED BY: KRISTINA D. |

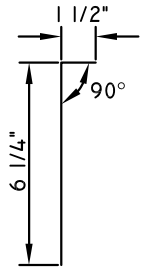


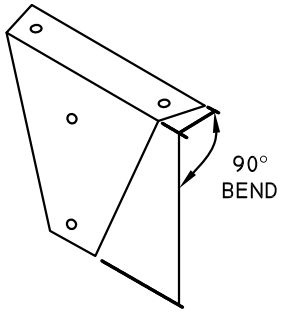
| MAILBOX & PLATFORM DIMENSIONS | | | | | | |
|---|---|---|---|---|---|---|
| SIZE | MAILBOX DIMENSIONS | | | PLATFORM DIMENSIONS | | |
| | L | W | H | L | W | H |
| 1 | 19" | 6 1/2" | 8 1/2" | 17" | 6" | 1" |
| 1A | 21" | 8" | 10 1/2" | 19" | 7 1/2" | 1" |
| 2 | 24" | 11 1/2" | 13 1/2" | 21" | 11" | 1" |

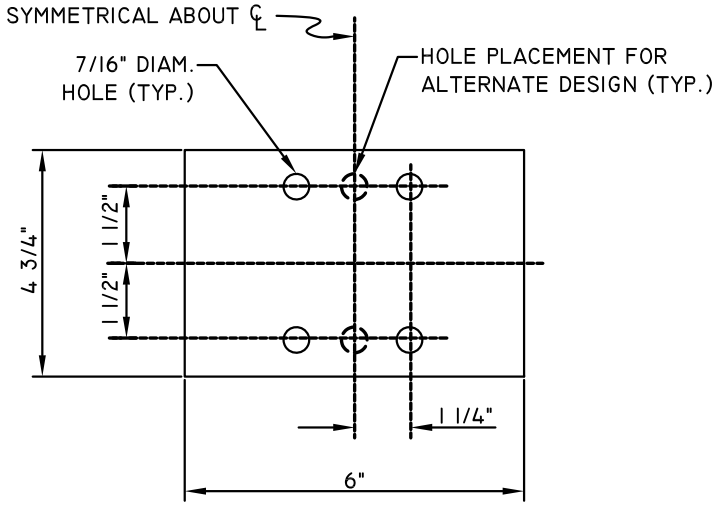



KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

# SUPPORT TYPE 1-2

| FILE NAME | DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|---|
| T:\Standard Plans\Mailbox Support Type 1-2 | JARED B. | NTS/ 1=1 | 3/15/2018 | 03/17/2022 |
| CHECKED | SETH S. | REVISED BY | KRISTINA D. | |

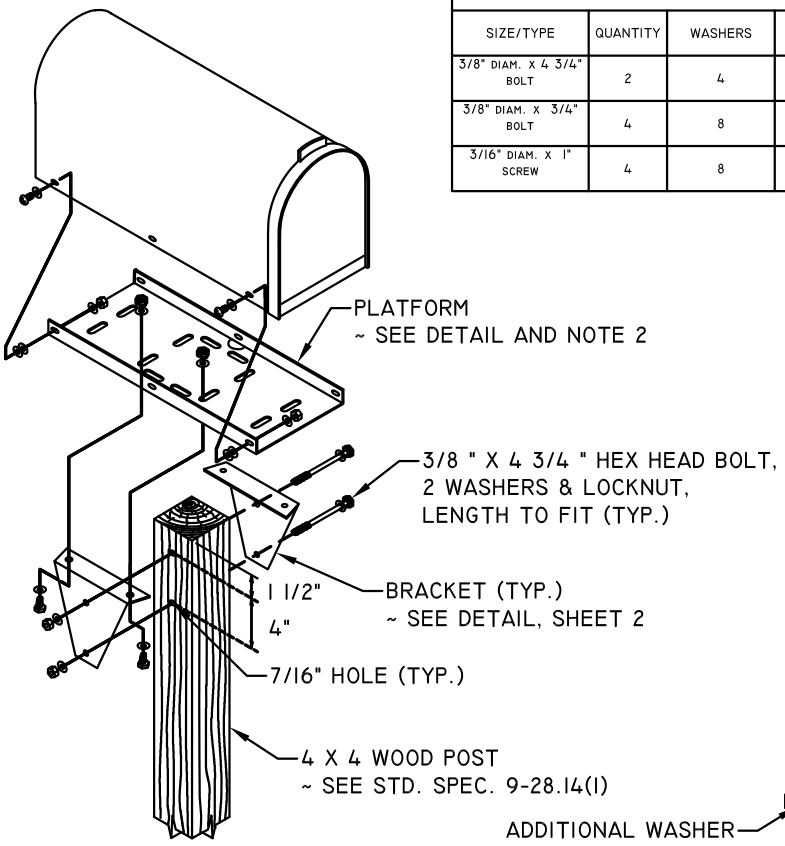
KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

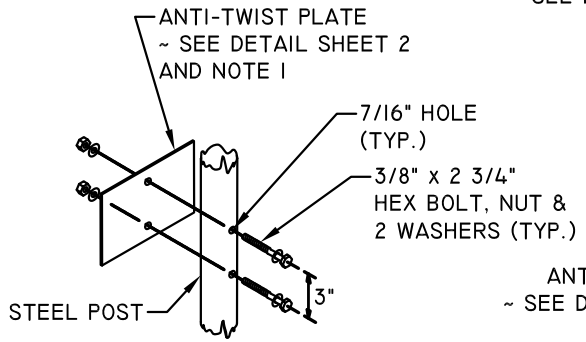
# MAILBOX SUPPORT TYPE 1

| WOOD POST FASTENERS | | | |
|---|---|---|---|
| SIZE/TYPE | QUANTITY | WASHERS | LOCKNUTS |
| 3/8" DIAM. X 4 3/4" BOLT | 2 | 4 | 2 |
| 3/8" DIAM. X 3/4" BOLT | 4 | 8 | 4 |
| 3/16" DIAM. X 1" SCREW | 4 | 8 | 4 |

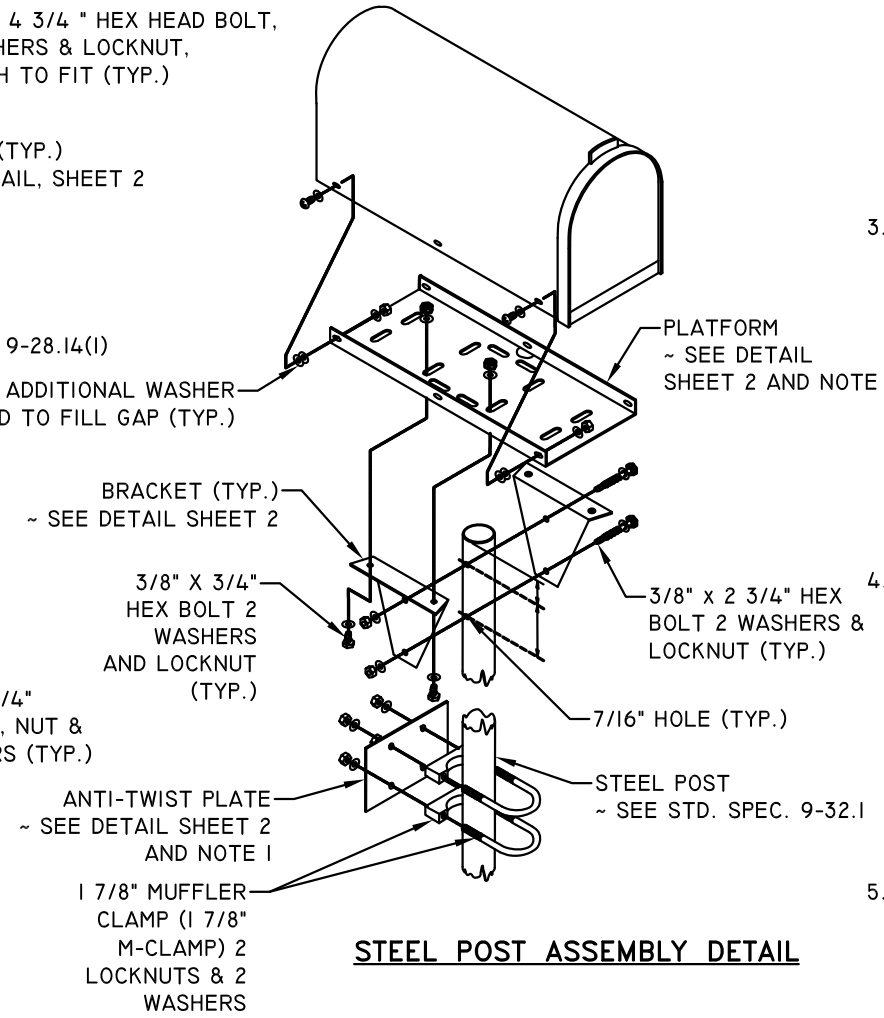
| STEEL POST FASTENERS | | | |
|---|---|---|---|
| SIZE/TYPE | SIZE/TYPE | SIZE/TYPE | SIZE/TYPE |
| 3/8" DIAM. X 2 3/4" BOLT | 2 | 4 | 2 |
| 3/8" DIAM. X 3/4" BOLT | 4 | 8 | 4 |
| 3/16" DIAM. X 1" SCREW | 4 | 8 | 4 |
| 1 7/8" M-CLAMP | 2 | 4 | 4 |




## WOOD POST ASSEMBLY DETAIL




## ALTERNATE ANTI-TWIST PLATE DESIGN




## STEEL POST ASSEMBLY DETAIL

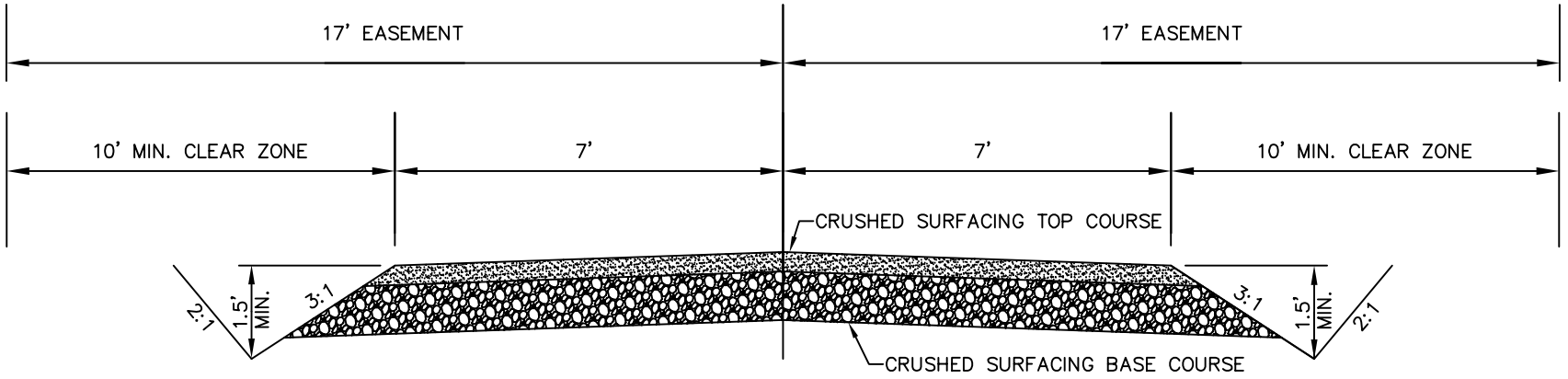
NOTES

1. A SOCKET AND WEDGE ANCHORING SYSTEM THAT MEETS THE NCHRP 350 CRASH TEST CRITERIA MAY BE SUBSTITUTED IN LIEU OF THE ANTI-TWIST PLATE DESIGNS SHOWN. ANTI-TWIST PLATES ARE NOT REQUIRED FOR WOOD POST INSTALLATIONS.
2. THE PLATFORM DESIGN SHOWN ON THIS PLAN FEATURES SLOTS THAT ACCOMMODATE SEVERAL TYPES OF MAILBOX SUPPORTS; ONLY THOSE SLOTS NECESSARY FOR ASSEMBLING THE TYPE BEING INSTALLED ARE REQUIRED. AN ADJUSTABLE PLATFORM MAY BE USED IN LIEU OF THIS DESIGN, BUT IT MUST FIT THE BRACKET DESIGN SHOWN ON THIS PLAN. BRACKETS ARE REQUIRED FOR ALL SINGLE-POST INSTALLATIONS. FIELD DRILLING MAY BE NECESSARY.
3. CENTER THE MAILBOX ON THE PLATFORM TO ENSURE SPACE FOR THE MAILBOX DOOR TO OPEN AND TO ALLOW SPACE FOR INSTALLING THE FASTENERS (SEE ALIGNMENT DETAIL, SHEET 2). SPACING OF MAILBOX MOUNTING HOLES VARIES AMONG MANUFACTURERS. ATTACHMENT OF THE MAILBOX TO THE PLATFORM MAY REQUIRE DRILLING ADDITIONAL HOLES THROUGH THE MAILBOX TO FIT THE PLATFORM.
4. ATTACH A NEWSPAPER BOX TO A STEEL POST WITH TWO 1 $\frac{7}{8}$" MUFFLER CLAMPS SPACED 4" APART. FIELD DRILL $\frac{7}{16}$" HOLES IN THE NEWSPAPER BOX TO FIT. USE 2 $\frac{1}{2}$" X $\frac{1}{4}$" LAG BOLTS TO ATTACH NEWSPAPER BOXES TO WOOD POSTS. NEWSPAPER BOXES MUST NOT EXTEND BEYOND THE FRONT OF THE MAILBOX WHEN THE MAILBOX DOOR IS CLOSED.
5. A TYPE 2 SUPPORT (SEE PAGE 1 OF 4) IS REQUIRED WHEN 2 OR MORE MAILBOXES ARE TO BE INSTALLED ON ONE SUPPORT.

| FILE NAME | DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|---|
| T:\Standard Plans\Mailbox Support Type 1 | JARED B. | NTS/ 1=1 | 3/2/2018 | 03/17/2022 |
| CHECKED | SETH S. | REVISED BY | KRISTINA D. | |

# ROADWAY DESIGN STANDARDS

## ROADWAY CLASSIFICATION: SHARED DRIVEWAY
## ACCESS TO 2–4 LOTS OR LESS THAN OR EQUAL TO 40 ADT




### Design Criteria

| | |
|---|---|
| DESIGN SPEED | 20 M.P.H |
| MAXIMUM ROAD GRADE | 12% |
| MINIMUM ROAD GRADE | 0.5% |
| MINIMUM SURFACING WIDTH | 14' |
| EASEMENT WIDTH | 34' MIN. |
| ROAD WAY GEOMETRICS | PER AASHTO AND WSDOT STD. |
| MINIMUM REQUIRED: | |
| CRUSHED SURFACING TOP COURSE | 0.25' COMPACTED DEPTH |
| CRUSHED SURFACING BASE COURSE | 0.75' COMPACTED DEPTH |
| VERTICAL CLEARANCE | 16.5' |
| MINIMUM CROWN CROSS–SLOPE | 2.0% |
| MAXIMUM SUPERELEVATED CROSS–SLOPE | 4.0% |
| MINIMUM HORIZONTAL CURVE RADII | 40' |
| MAXIMUM RATE OF VERTICAL CURVATURE (K) | 4 |

NOTES:

- CLEAR ZONE DISTANCE SHOWN APPLIES TO ROADS WITH A POSTED SPEED OF 35 MPH OR LESS.
- THE ROAD SECTION MAY BE CROSS–SLOPED ONE DIRECTION TO ACCOMMODATE FOR EXISTING TOPOGRAPHY OR THE DRAINAGE DESIGN.
- THE USE OF ROADSIDE AREAS FOR ALTERNATIVE DRAINAGE FACILITIES (BIORETENTION, BIOFILTRATION, DISPERSION, ETC) IS ENCOURAGED BUT MAY REQUIRE ADDITIONAL EASEMENT WIDTH.
- NO STRUCTURES SHALL BE WITHIN THE CLEAR ZONE.
- CRUSHED SURFACING SHALL MEET GRADATION REQUIREMENTS OF THE STANDARD SPECIFICATION 9–03.9 (3).

KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

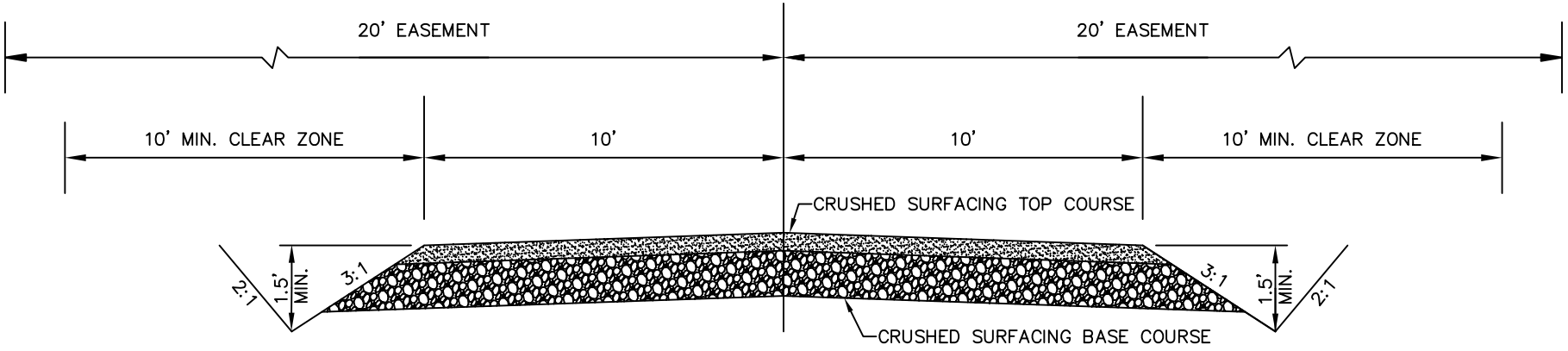
STANDARD PLAN

SHARED DRIVEWAY

| FILE NAME | DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|---|
| T:\STANDARD PLANS\ | NATHEN E. | NTS/ 1=1 | 1/12/2023 | |
| CHECKED | | | | REVISED BY |
| SETH S. | | | | |

# ROADWAY DESIGN STANDARDS

## ROADWAY CLASSIFICATION: PRIVATE ROAD A
## ACCESS TO 5–25 LOTS OR GREATER THAN OR EQUAL TO 41 ADT BUT LESS THAN OR EQUAL TO 250 ADT




### Design Criteria

| | |
|---|---|
| DESIGN SPEED | 25 M.P.H |
| MAXIMUM ROAD GRADE | 12% |
| MINIMUM ROAD GRADE | 0.5% |
| MINIMUM SURFACING WIDTH | 20' |
| EASEMENT WIDTH | 40' MIN. |
| ROAD WAY GEOMETRICS | PER AASHTO AND WSDOT STD. |
| MINIMUM REQUIRED: | |
| CRUSHED SURFACING TOP COURSE | 0.25' COMPACTED DEPTH |
| CRUSHED SURFACING BASE COURSE | 0.75' COMPACTED DEPTH |
| VERTICAL CLEARANCE | 16.5' |
| MINIMUM CROWN CROSS–SLOPE | 2.0% |
| MAXIMUM SUPERELEVATED CROSS–SLOPE | 4.0% |
| MINIMUM HORIZONTAL CURVE RADII | 85' |
| MAXIMUM RATE OF VERTICAL CURVATURE (K) | 8 |

NOTES:

- CLEAR ZONE DISTANCE SHOWN APPLIES TO ROADS WITH A POSTED SPEED OF 35 MPH OR LESS.
- THE ROAD SECTION MAY BE CROSS–SLOPED ONE DIRECTION TO ACCOMMODATE FOR EXISTING TOPOGRAPHY OR THE DRAINAGE DESIGN.
- THE USE OF ROADSIDE AREAS FOR ALTERNATIVE DRAINAGE FACILITIES (BIORETENTION, BIOFILTRATION, DISPERSION, ETC) IS ENCOURAGED BUT MAY REQUIRE ADDITIONAL EASEMENT WIDTH.
- NO STRUCTURES SHALL BE WITHIN THE CLEAR ZONE.
- CRUSHED SURFACING SHALL MEET GRADATION REQUIREMENTS OF THE STANDARD SPECIFICATION 9–03.9 (3).

KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

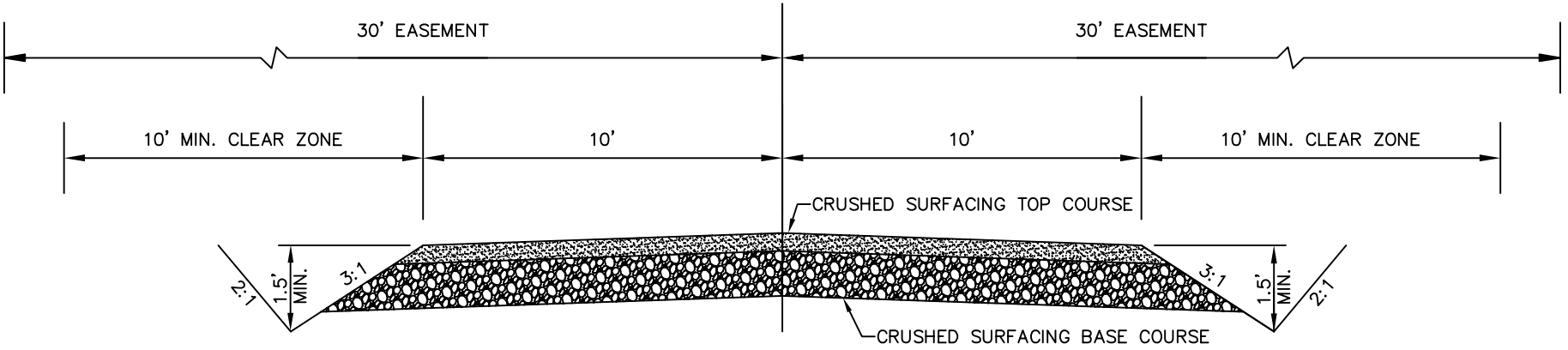
STANDARD PLAN

PRIVATE ROAD A

| FILE NAME | DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|---|
| T:\STANDARD PLANS\ | NATHEN E. | NTS/ 1=1 | 1/12/2023 | |
| CHECKED | | | | REVISED BY |
| SETH S. | | | | |

# ROADWAY DESIGN STANDARDS

## ROADWAY CLASSIFICATION: PRIVATE ROAD B
## ACCESS TO 26–40 LOTS OR GREATER THAN OR EQUAL TO 251 ADT BUT LESS THAN OR EQUAL TO 400 ADT




### Design Criteria

| | |
|---|---|
| DESIGN SPEED | 25 M.P.H |
| MAXIMUM ROAD GRADE | 12% |
| MINIMUM ROAD GRADE | 0.5% |
| MINIMUM SURFACING WIDTH | 20' |
| EASEMENT WIDTH | 60' MIN. |
| ROAD WAY GEOMETRICS | PER AASHTO AND WSDOT STD. |
| MINIMUM REQUIRED: | |
| CRUSHED SURFACING TOP COURSE | 0.25' COMPACTED DEPTH |
| CRUSHED SURFACING BASE COURSE | 0.75' COMPACTED DEPTH |
| VERTICAL CLEARANCE | 16.5' |
| MINIMUM CROWN CROSS–SLOPE | 2.0% |
| MAXIMUM SUPERELEVATED CROSS–SLOPE | 4.0% |
| MINIMUM HORIZONTAL CURVE RADII | 85' |
| MAXIMUM RATE OF VERTICAL CURVATURE (K) | 8 |

NOTES:

- CLEAR ZONE DISTANCE SHOWN APPLIES TO ROADS WITH A POSTED SPEED OF 35 MPH OR LESS.
- THE ROAD SECTION MAY BE CROSS–SLOPED ONE DIRECTION TO ACCOMMODATE FOR EXISTING TOPOGRAPHY OR THE DRAINAGE DESIGN.
- THE USE OF ROADSIDE AREAS FOR ALTERNATIVE DRAINAGE FACILITIES (BIORETENTION, BIOFILTRATION, DISPERSION, ETC) IS ENCOURAGED BUT MAY REQUIRE ADDITIONAL EASEMENT WIDTH.
- NO STRUCTURES SHALL BE WITHIN THE CLEAR ZONE.
- CRUSHED SURFACING SHALL MEET GRADATION REQUIREMENTS OF THE STANDARD SPECIFICATION 9–03.9 (3).

KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

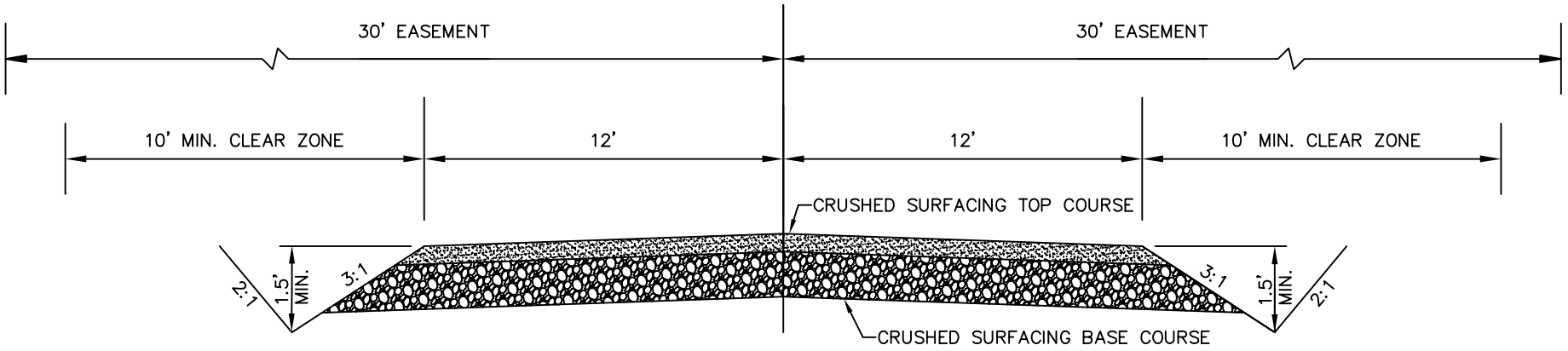
PRIVATE ROAD B

| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| NATHEN E. | NTS/ 1=1 | 1/12/2023 | |
| CHECKED | | | REVISED BY |
| SETH S. | | | |

FILE NAME: T:\STANDARD PLANS\

# ROADWAY DESIGN STANDARDS

## ROADWAY CLASSIFICATION: PRIVATE ROAD C
## ACCESS TO MORE THAN 40 LOTS OR GREATER THAN 400 ADT




### Design Criteria

| | |
|---|---|
| DESIGN SPEED | 25 M.P.H |
| MAXIMUM ROAD GRADE | 12% |
| MINIMUM ROAD GRADE | 0.5% |
| MINIMUM SURFACING WIDTH | 24' |
| EASEMENT WIDTH | 60' MIN. |
| ROAD WAY GEOMETRICS | PER AASHTO AND WSDOT STD. |
| MINIMUM REQUIRED: | |
| CRUSHED SURFACING TOP COURSE | 0.25' COMPACTED DEPTH |
| CRUSHED SURFACING BASE COURSE | 0.75' COMPACTED DEPTH |
| VERTICAL CLEARANCE | 16.5' |
| MINIMUM CROWN CROSS-SLOPE | 2.0% |
| MAXIMUM SUPERELEVATED CROSS-SLOPE | 4.0% |
| MINIMUM HORIZONTAL CURVE RADII | 155' |
| MAXIMUM RATE OF VERTICAL CURVATURE (K) | 12 |

NOTES:

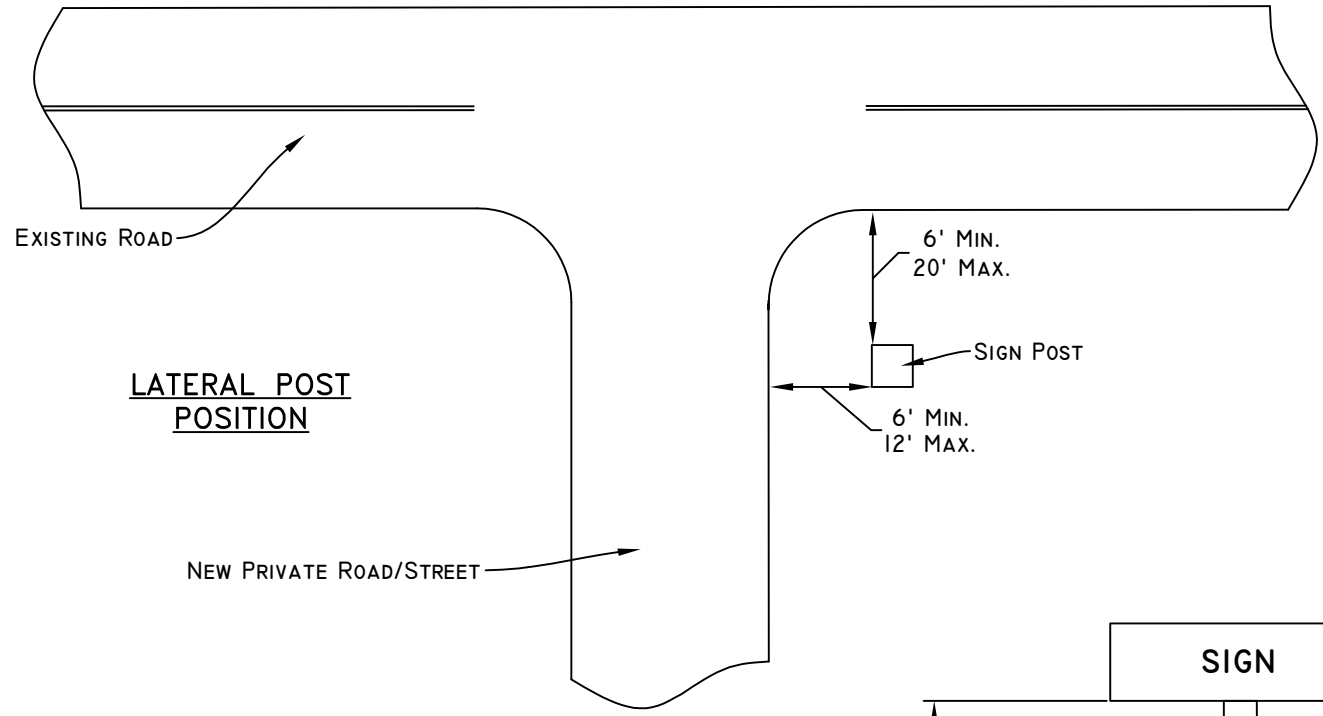
- CLEAR ZONE DISTANCE SHOWN APPLIES TO ROADS WITH A POSTED SPEED OF 35 MPH OR LESS.
- THE ROAD SECTION MAY BE CROSS-SLOPED ONE DIRECTION TO ACCOMMODATE FOR EXISTING TOPOGRAPHY OR THE DRAINAGE DESIGN.
- THE USE OF ROADSIDE AREAS FOR ALTERNATIVE DRAINAGE FACILITIES (BIORETENTION, BIOFILTRATION, DISPERSION, ETC) IS ENCOURAGED BUT MAY REQUIRE ADDITIONAL EASEMENT WIDTH.
- NO STRUCTURES SHALL BE WITHIN THE CLEAR ZONE.
- CRUSHED SURFACING SHALL MEET GRADATION REQUIREMENTS OF THE STANDARD SPECIFICATION 9-03.9 (3).

KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

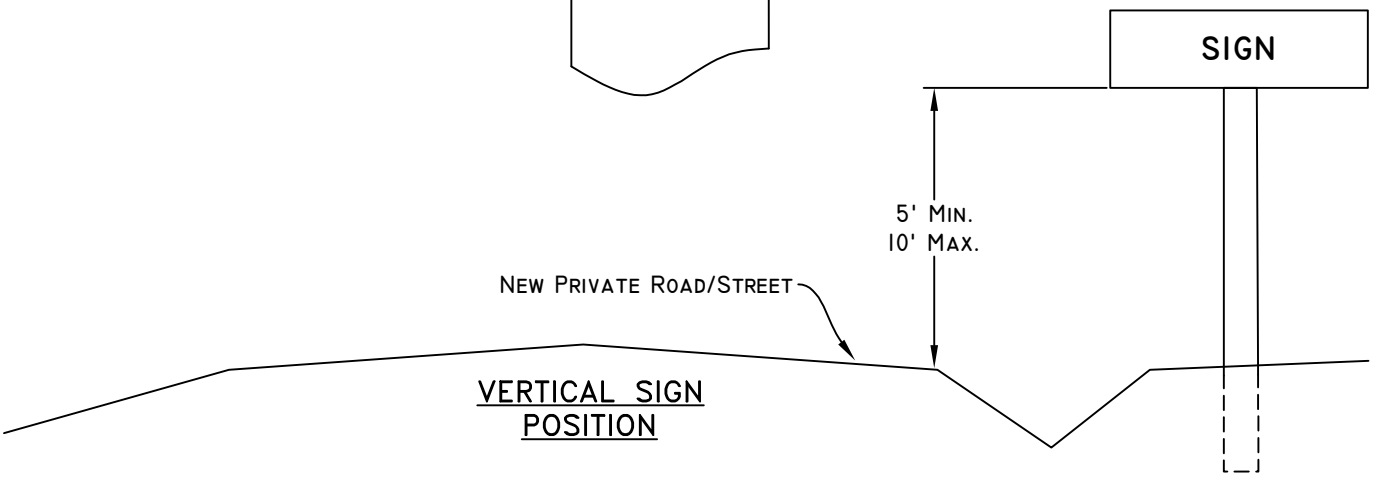
STANDARD PLAN

PRIVATE ROAD C

| FILE NAME | DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|---|
| T:\STANDARD PLANS\ | NATHEN E. | NTS/ 1=1 | 1/12/2023 | |
| | CHECKED | | | REVISED BY |
| | SETH S. | | | |



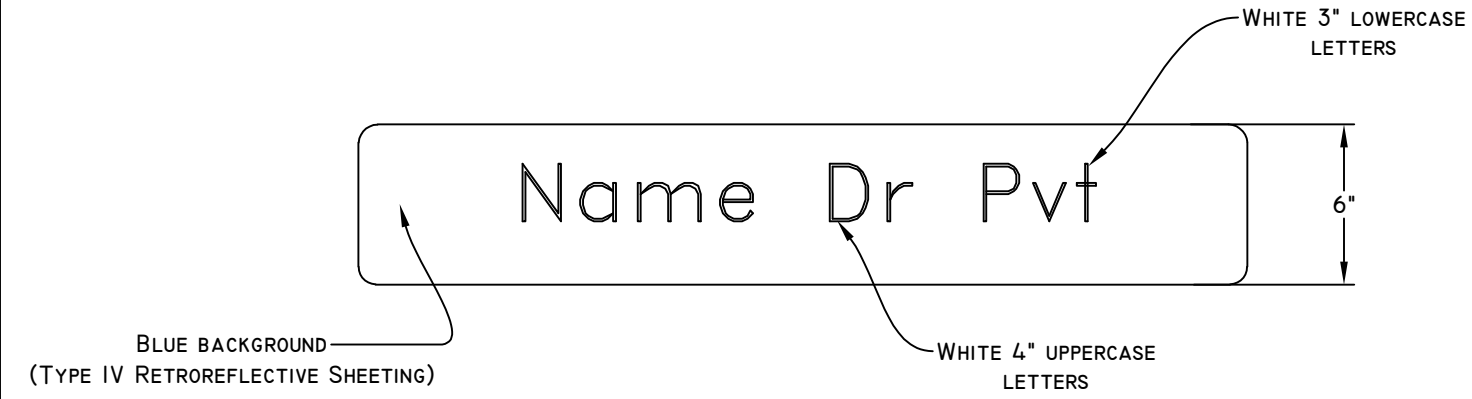

LATERAL POST POSITION




VERTICAL SIGN POSITION

NOTES:

1. SIGN SHALL BE MOUNTED ON A 4"X4" PRESSURE TREATED POST.
2. ROAD NAME MUST BE LISTED ON BOTH SIDES OF THE SIGN PLAQUE.
3. FOR A PUBLIC ROAD/STREET NAME SIGN, CONTACT COUNTY ENGINEER FOR REQUIREMENTS.

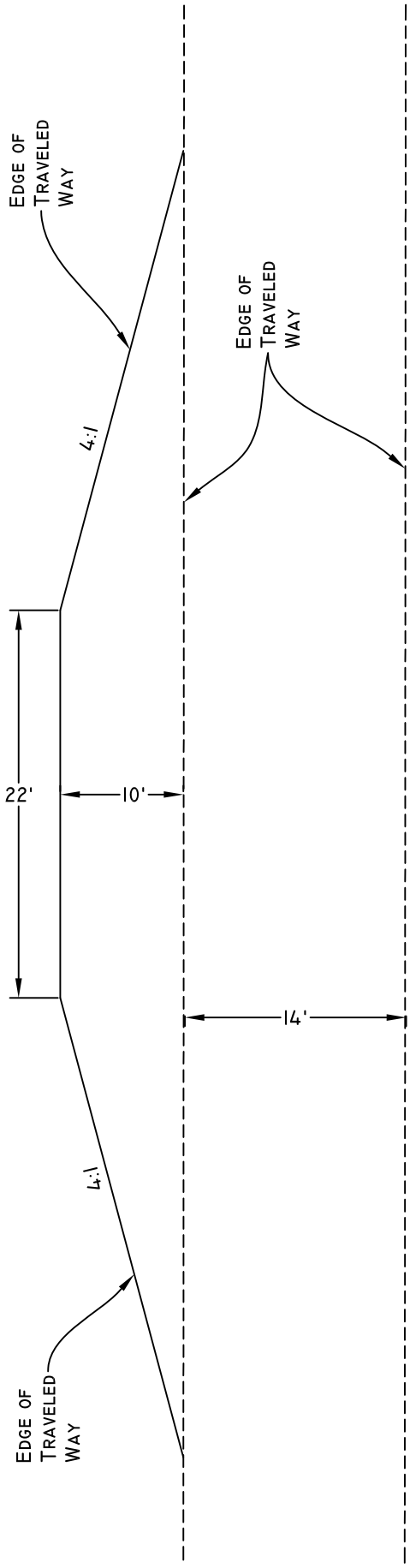



# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

## STANDARD PLAN

## PRIVATE ROAD/STREET NAME SIGN

| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| KRISTINA D. | NTS/ 1=1 | 1/10/2023 | |
| FILE NAME | | CHECKED | REVISED BY |
| T:\Standard Plans\Private Road/Name Sign | | SETH S | |




TURNOUTS FOR SHARED USE DRIVEWAY

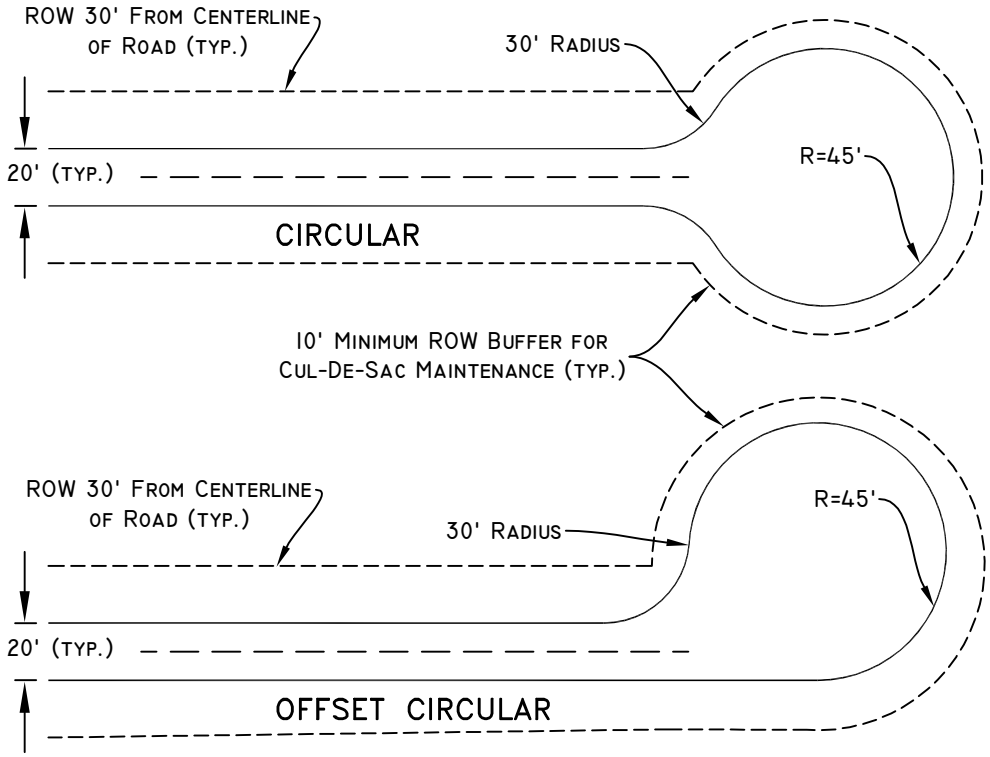
NTS

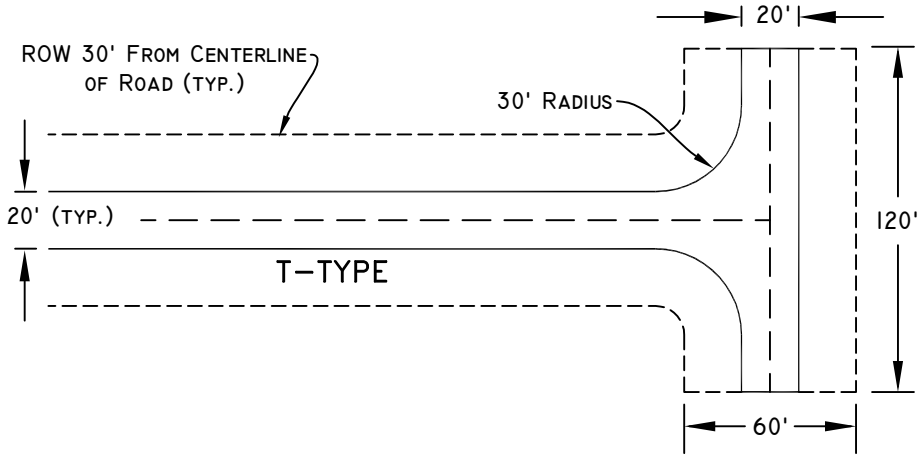
# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

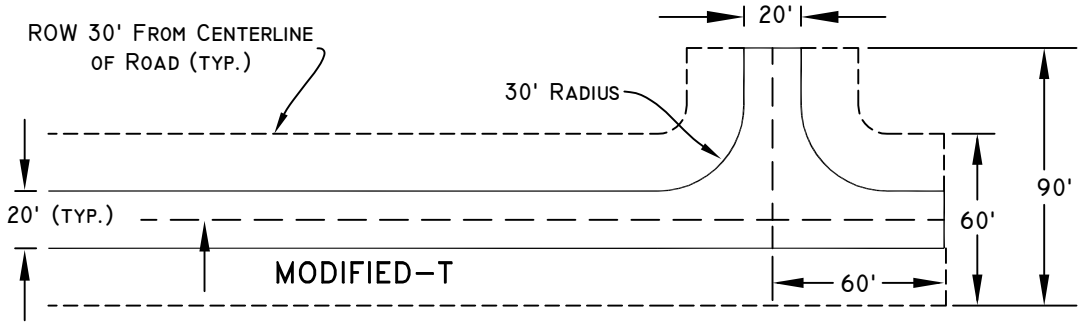
STANDARD PLAN

TURNOUTS FOR SHARED USE DRIVEWAY

| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| SETH S. | NTS/ 1=1 | 1/30/2018 | 1/30/2023 |
| FILE NAME: T:\Standard Plans\2021 Updated\Turnoutsforharedusedriveways | | CHECKED: SETH S. | REVISED BY: KRISTINA D. |




NTS

# KLICKITAT COUNTY
PUBLIC WORKS DEPARTMENT

STANDARD PLAN

## CUL-DE-SAC TURNAROUND FOR FIRE ACCESS

| DRAWN | PLOTTING SCALE | DATE | REVISED |
|---|---|---|---|
| SETH S. | NTS/ 1=1 | 1/30/2018 | 1/30/2023 |
| FILE NAME: T:\Standard Plans\Standard Intersection & Approach Drawings | | CHECKED: SETH S. | REVISED BY: KRISTINA D. |