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ACCOMMODATION OF UTILITIES ON COUNTY ROAD RIGHT-OF-WAY

1.00 GENERAL

A. Purpose

The purpose of this ordinance is to establish a county policy to provide administrative, procedural and technical guidance for the installation, replacement, adjustment, relocation and maintenance of all above and below ground utilities which is performed within existing or proposed county road right-of-way subsequent to the adoption of this policy.

Such accommodation of utilities shall place primary emphasis on traffic operation and safety, with utilities accommodated in such a manner as not to materially degrade or adversely affect roadway operation, traffic safety, and structural integrity. It is not the intention of this policy to force utilities to relocate outside the County's public road right-of-way. Utility services are in the public interest and every effort should be made to accommodate utilities as cost effective as possible while maintaining public safety, operational efficiency and structural integrity of the road system.

There are several instances within this policy where the County reserves the right to take action. The County prefers to approach all projects in a cooperative manner and will assert these rights only when necessary.

B. Application

This policy shall apply to all franchises and permits issued pursuant to RCW 80.32.010, RCW 80.36.040 and RCW 36.55, to all public and private utilities, and to all installation, replacement, adjustment, relocation, or maintenance of utilities within the county road right-of-way, including but not limited to electric power, telephone, television, communication, water, gas, all petroleum products, steam, chemicals, sewage, drainage, irrigation and similar pipes, lines or cables.

This policy cannot address all situations and conditions that may be encountered, so Section 14.00 has been included for consideration of variations from this policy.

Specific provisions contained herein may not be appropriate for all locations and existing conditions. This policy is intended to assist, but not substitute for competent work by both design and installation professionals. This policy is not intended to limit any innovative or creative effort that could result in cost savings, better quality or improved safety characteristics.

It shall be the responsibility of any utility owner desiring to install, replace, adjust, relocate, or maintain any of its facilities to ascertain and abide by the requirements and conditions of this policy prior to commencing any physical work within the County road right-of-way.

C. Definition of Terms

Unless otherwise stated, words and phrases used herein shall have the following meanings:

Appurtenances - Ancillary parts of a utility installation such as vents, drains, manholes, and shut-off valves.

As-Built Plans - Drawings which indicate the size and type of material installed and show the actual location and depth below the ground surface directly above the utility installation as installed in the field.

Auxiliary Lane - An auxiliary lane is that portion of the roadway adjoining the traveled way for speed change, turning, storage for turning, weaving, truck climbing, or for other purposes supplementary to the traveled way.

Backfill - Replacement of excavated material with suitable material compacted as specified around and over a pipe, conduit, casing or gallery.

Back Slope - The slope extending from the bottom of ditch to the ground surface away from the roadway.

Bedding - Material placed to provide protection and structural support for pipe, conduit, casing or gallery.

Boring - Installing a utility crossing by drilling a hole laterally underground for placement of a casing and/or a carrier.

Carrier - A pipe directly enclosing a transmitted fluid, gas, powerline, phone line, etc.

Casing - A larger pipe enclosing a carrier for the purpose of providing structural, or other protection, to the carrier and/or to allow for carrier replacement without re-excavation, jacking, or boring.

Coating - A protective material applied to the exterior of a casing or carrier to prevent or reduce abrasion and/or corrosion damage.

Common (or Joint) Trench - The placement of more than one utility in a longitudinal or transverse excavation.

Conduit (or Duct) - an enclosed tubular runway for protecting wires or cables.

Contractor - An entity hired to perform work.

Control Zone - That roadside area as defined by the “Control Zone Distance Table” within the road right-of-way in which placement of utility objects is controlled.

County - Refers to the County Engineer or a designee.

Cover - The thickness of material between the top of the installation and the ground surface directly above the installation.

Direct Burial - The installation of a utility underground by means of plowing or similar means.

Drain - Appurtenances that discharge accumulated liquids from casings and other enclosures.

Emergency – Any condition constituting a clear and present danger to life and property of the general public or a customer, subscriber service interruption, or pollution of the environment.

Encasement - A structural element surrounding a pipe or conduit for the purpose of preventing any physical damage to the pipe or conduit.

Encroachment - Any use of the County road right-of-way and easements for other than road purposes.

Fore Slope - The slope extending from the roadway shoulder into the ditch.

Franchise - An occupancy and use document that is granted by the County for occupancy of road rights-of-way in accordance with RCW 36.55 and RCW 80.32.

Gallery - An underpass for two or more utility lines.

Jacking - Installing a utility crossing by pushing a casing laterally underground and placing a carrier through the casing.

Jetting – The use of an uncontrolled water stream to remove material prior to the insertion of a pipe, conduit or casing.

Location I Objects - Utility objects located within the Control Zone in the following areas:

- ?? Outside of horizontal curves where advisory signed speeds for the curve are 15 MPH or more below the posted speed limit of that section of roadway. The Control Zone distance is established using the posted speed limit of the roadway, not the advisory speed limit.
- ?? Within the turn radius of public grade intersections. Further defined as the quadrant area from the center of the circle connecting the tangents of the edges of the traveled ways.
- ?? Where a barrier, embankment, rock outcropping, ditch, or other roadside feature may direct a vehicle into a utility object.
- ?? Closer than 5 feet horizontal beyond the edge of the usable shoulder.

Location II Objects - All utility objects located within the Control Zone that are not defined as Location I or Location III objects.

Location III Objects - Utility objects that are located outside the Control Zone, or utility objects that are within the Control Zone and are shielded by a barrier, placed in an area normally inaccessible to vehicles, or utilize a breakaway design.

Manhole - An opening in an underground utility system allowing workers, or others, entry for the purpose of making installations, inspections, repairs, connections, cleaning, and testing.

MUTCD - Manual of Uniform Traffic Control Devices

Pavement (or Pavement Section or Pavement Structure) - the combination of sub-base, base course, and surfacing placed on a subgrade to support and distribute the traffic load to the subgrade.

Permit - A document issued under the authority of The Public Works Director or County Engineer providing specific requirements and conditions for proposed utility occupancy at designated locations within Skagit County road right-of-way. Other permits may be required by other agencies. Obtaining a right-of-way occupancy permit does not relieve the utility owner from obtaining other applicable permits.

Pipe - A structural, tubular product designed, tested, and produced for the transmittance of liquids and gases under specific conditions.

Plowing - The direct burial of utility lines by means of a 'plow' type mechanism that breaks the ground, places the utility line at a predetermined depth, and closes the break in the ground.

Pothole – An excavation to locate existing utilities.

Pressure - Internal gage pressure in a pipe in pounds per square inch, gage (psig).

Prism– see Roadway Prism

Private Lines - Privately owned, operated, and maintained utility facilities devoted exclusively to the use of the owner.

Public Lines – Utility facilities owned, operated and maintained by the County and devoted exclusively to the use of the County.

Reconstruction– See Utility Reconstruction.

Relocation - All work necessary to move an object to another location.

Replacement - All work necessary to install a new facility in the place of an existing facility.

Restoration - All work necessary to replace, repair, or otherwise restore the right-of-way and all features contained within to the same or equal condition prior to any change or construction.

Right-of-Way - A general term denoting public land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

Road (or Roadway) - A general term denoting a street, road, or other public way, including auxiliary lanes and shoulders, designated for the purpose of vehicular traffic.

Roadway – see Road.

Roadway Prism(or Prism) – That portion of a constructed road between the toes of the cut or fill slopes including the traveled way, auxiliary lanes, curbs or shoulders, sidewalks, ditches and both cut and fill slopes.

Sleeve - A short casing through a pier, wall or abutment of a roadway structure.

Standard Specification - The most current version of the Standard Specifications for Road, Bridge and Municipal Construction issued by the Washington State Department of Transportation and Washington State Chapter of the American Public Works Association (WSDOT/APWA).

Traffic Control - Necessary provisions to safeguard the general public, as well as all workers, during the construction and maintenance activities performed on utility facilities within the right-of-way.

Traveled Way - The portion of the road designated for the movement of through traffic, exclusive of shoulders, auxiliary lanes, and detour routes.

Trenched - The installation of a utility in an open excavation.

Trenchless - The installation of a utility without breaking the ground or pavement surface, usually accomplished by jacking or boring.

True Line and Grade - A reasonably straight line between specific points.

Usable Shoulder - That portion of the roadway extending beyond the edge of the traveled way, or auxiliary lanes, that can be used when a driver makes an emergency or parking stop. The usable shoulder is the average width being used as a shoulder along a section of roadway, exclusive of intermittent widened areas, but not to exceed 10 feet in width.

Utility Object - Utility objects are defined for the purpose of the Control Zone Guidelines portion of this utility policy as utility facilities that exist above ground and are located within county road right-of-way.

Utility Reconstruction - Where more than 50% of the poles or towers within any mile are replaced. Periodic pole or tower replacement is not included in this definition.

Vent - An appurtenance to discharge accumulated gases from casings or other enclosures.

Window - An opening, typically rectangular in shape, cut in the pavement to allow potholing.

2.00 GENERAL CONDITIONS AND REQUIREMENTS

A. Location Within the Right-of-Way on New Roads

Utilities to be located within the right-of-way on new roads shall be located as indicated below. Alternatively, and where feasible, utilities such as gas, power, telephone and cable television may use a common or joint trench in accordance with utility industry standards. Where existing utilities or storm drains are in place, new utilities shall conform to these requirements as near as practical and yet be compatible with any existing installations. All utilities shall be buried at least 30 inches below finished grade and the minimum cover in ditches shall be 30 inches below flow line grade. Exceptions may be approved when necessary to meet special requirements or restrictions.

1. Gas and Water Lines
 - a. Shoulder and ditch sections – If practical, outside of the ditch line; otherwise in the shoulder and three feet from the edge of the traveled lane or pavement edge.
 - b. Curb and gutter sections – At 1.5 feet back of the curb. Mains and service connections to all lots shall be completed prior to the placing of surfacing materials.
 - c. Designated side of centerline – Gas south and west; water north and east.
2. Sanitary Sewers – Five feet either side of centerlines; depth to be approved by the Engineer. Laterals shall be installed to the right-of-way line plus one and one-half feet per foot of depth of stub outs exceeding four feet in depth.
3. Gravity Systems – Sanitary sewers and storm sewers gravity systems shall have precedent over other utility systems.
4. Electrical utilities, power, telephone, and cable television – These utilities shall be placed underground, on either side of the road, at a depth of at least 30 inches.

All utilities, including service crossings, shall be installed or relocated prior to the start of road construction if planned road cuts and fills are 18 inches or less from the original ground and the location of the road elements can be clearly indicated in advance. Otherwise, the utilities, including service connections, shall be installed or relocated after the subgrade has been completed but before surfacing material have been placed.

B. Location Within the Right-of-Way on Existing County Roads and in Unopened County Right-of-Way

1. Utility installations shall be located to accommodate future roadway improvements and to permit access for servicing such installations with minimum interference to roadway traffic.

All utility owners shall make specific inquiries concerning long-range county road improvement plans in order to minimize the inconvenience to the Utility customer and road user in the event future road improvements (on existing or new alignment) would require adjustment or relocation of the utility.

2. Utility locations shall comply with Control Zone Guidelines (Section 13.00). Permits will not normally be issued for proposed installations which do not comply with these guidelines, and compliance with these guidelines is the sole responsibility of the utility owner.
3. Longitudinal installations shall be located as near as practical to the right-of-way line and on uniform alignment. Deviations for geologic, topographic or other reasons shall be reviewed on a case by case basis.
4. Above ground utilities and their appurtenances shall be set as near as practical to the right-of-way line.
5. Utility line crossings of a road shall be at right angles to the road centerline to the extent feasible and practical. Crossings shall be made on a true line and grade.
6. Installations that are required for a road purpose, such as street lighting or traffic signals, are to be located and designed in accordance with this policy.
7. The County reserves the right to restrict the number of utility service connections and require the placement of one or more distribution lines. The County's decision to restrict the number of service connections shall be based on sound engineering practice and/or aesthetic considerations.
8. Where existing utilities or storm drains are in place, new utilities shall conform to this policy as nearly as practical, yet be compatible with the existing installations.
9. Gravity systems, whether sanitary sewer or storm drainage, shall have precedence over other systems in planning and installation except where a non-gravity system has already been installed under a previously approved permit.

10. Notwithstanding other provisions, underground systems shall be located at least 4 feet away from road centerline and where they will not otherwise disturb existing survey monuments.

C. General Design

1. Utility Owner Responsibility

The utility owner shall be responsible for the design of the utility facility that is being proposed. This responsibility, in addition to the integrity of the proposed utility facility, shall include provisions for public safety during the course of construction as well as full consideration of traffic safety and traffic accident potential for the life of the installation.

In the case of proposed attachment to existing bridges and structures, the utility owner shall be responsible to provide adequate information to the County so that the structure's ability to carry the additional load may be evaluated.

2. Review of Plans

The County shall review the utility owner's plans with respect to the following:

- a. location
- b. the manner in which the utility facility is to be installed, and
- c. measures to be taken to preserve safe and free flow of traffic, structural integrity of the roadway structure, ease of future road maintenance and appearance of the roadway.

No work may commence until the County's review is completed, all differences and questions resolved, and a written permit is issued to the utility owner.

3. Provisions for Facility Expansion

For new installations or adjustment of existing utilities, provisions (such as service stubs) shall be made for known or planned expansion of the utility facilities, particularly those located underground or attached to bridges or other structures within the right-of-way.

4. Granting of a franchise or permit shall not imply or be construed to mean the county shall be responsible for the design, construction, or operation of the facility or for public safety during its installation, operation and maintenance.

D. Standards and Codes

All utility installations shall be designed in accordance with the standards, codes, and regulations applicable to the type of utility. The methods of installation and restoration and materials used shall conform to the codes and standards set by the County, government regulations, and by the industry.

E. Adjustment of Existing Utilities for County Road Work

1. Existing utilities on County road right-of-way shall be either removed or relocated when road work by the County would cause the existing utility to conflict with County standards. All such removal or relocation shall be at the sole expense of the utility owner, (unless otherwise specified in a current franchise agreement) and all work must be accomplished under the same permitting process as for new installations.
2. The County will provide the 6-year Transportation Improvement Plan to major franchise holders. However, all utility owners required to relocate their utilities because of a County road project will be notified during the design of said project. Relocation of the utility shall be completed prior to the scheduled start of the project unless other written arrangements are made with the County. Any and all costs associated with failure to move the utility in a timely fashion shall be reimbursed by the utility owner.
3. When work on County roads is required because of the impact of a private project or projects, the costs of relocating an existing utility to comply with County standards are the responsibility of the developer(s) whose project(s) necessitate(s) compliance with this policy. This is not intended to prevent the developer(s) from making financial arrangements with an appropriate utility owner to accomplish relocation.
4. Notwithstanding reinforcement or other protection, the utility owner shall be responsible for the security of each existing utility within a road construction zone. Where there are unusual utility hazards or where heavy construction equipment will be used, the utility owner shall provide adequate temporary protection. In replacing the roadway, the design should give due consideration to the protection of previously existing utilities in the roadway section without sacrificing the geometry of roadway design.

F. Construction

1. Notification of Start of Construction

Any developers, utilities, or others intending to trench in an existing or proposed County roadway shall notify the County Public Works Department not less than five working days prior to beginning the work. This notification shall include:

- ?? General type of work (trench, push, pole setting or replacement)
- ?? Road name & address
- ?? Permit Number
- ?? Location of the work (shoulder, in road, which side of road, etc.)
- ?? Date when work is expected to be completed

Notification may be mail, telephone, electronic mail (e-mail) or fax.

Failure to notify may necessitate testing or retesting of those aspects of the installation which affect the County roadway at the expense of the developer or utility owner. Furthermore, the work may be suspended pending satisfactory test results.

2. Inspections

If during construction, permit requirements are not being adhered to and written notification to the utility owner has not corrected the deficiencies, the County reserves the right to assign a County inspector or another independent inspector who will work with the utility owner's or developer's inspector to insure that all permit requirements are completed. All inspection costs incurred by the County will be reimbursed by the utility owner at the County's actual cost.

3.00 FRANCHISE POLICY

Any utility owner working within a County road right-of-way for an accumulated distance of 1,200 feet or more, or anticipates working within the County road right-of-way for an accumulated distance of 1,200 feet or more in any 12-month period, must secure a utility franchise from the Board of Skagit County Commissioners. The County reserves the right to require a franchise for the owner of any utility that presents an ongoing hazard to public safety.

- A. The first priority for use of County right-of-way is for County roadway. Placement of utilities within the County right-of-way shall be considered so long as the structural integrity and traffic requirements (i.e. to provide safe, efficient, and convenient passage for motor vehicles, pedestrians, and other traffic) of the roadway are not impaired.
- B. Aesthetics shall be a consideration. As a matter of policy, undergrounding of electric utilities, cable television, and telephone shall be strongly encouraged, particularly in an urban development.

- C. Utilities to be located within the County road right-of-way shall be constructed in accordance with this policy and in compliance with the Skagit County Road Standards.
- D. Franchise holders are not exempt from obtaining right-of-way occupancy permits or any other permits required for the work being performed.

4.00 PERMITS

A. General Requirements

Unless otherwise exempted, a written permit shall be required for occupancy of road right-of-way by any utility facility (public or private; franchised or unfranchised). No facility shall be used for other than the purpose stated in the permit, or supporting franchise, unless written approval is granted by the County. Permit applications are available at the Skagit County Public Works office. Permits will be issued in the name of the utility owner, not the contractor installing the utility. Other permits may be required by other agencies. Obtaining a right-of-way occupancy permit does not relieve the utility owner from obtaining other applicable permits. All utility installations for new development, including both on-site and off-site work, shall require a permit.

No work may commence prior to permit approval by the County.

B. Permit Procedure

1. All permit applications shall be submitted to the Skagit County Department of Public Works on a standard Skagit County form.

The applicant shall include the following information:

- a. Agreement to all pertinent provisions of this policy and to such special conditions as the County may deem appropriate;
- b. General description of the facilities to be installed such as size, type, nature, operating pressure, transmittant and extent of installation;
- c. Three sets of construction plans. The plans shall conform to the following requirements:
 - 1) Plans shall be detailed as necessary to provide an accurate representation of the proposed work. Large or sensitive projects may require engineered drawings.
 - 2) Plans shall show all locations and depths of the facilities, and shall be accurately dimensioned from known reference lines (roadway centerline, county right-of-way line, etc.). Deviations in depth of cover and/or other locational standards shall be shown on the drawings.

- 3) All permit applications for placement and replacement of utility poles and other structures above grade shall conform to Skagit County Control Zone Guidelines (see Section 13). Individual poles/structures being replaced within the control zone may not be required to conform to the Control Zone Guidelines if relocating the pole/structure would cause relocation of a large segment of the installation or create other inordinate burdens on the utility owner. In such cases, the utility owner shall indemnify and hold harmless Skagit County for all liability for personal or property damage resulting from the granting of a variance from the Control Zone Guidelines.
 - d. A summarization of the effect the installation will have on the aesthetics of the road right-of-way and visible natural features (as discussed in Section 12.00) may be required.
2. The applicant may be required to stake the actual location of the facility in field for viewing during the permit approval process.
3. All requests for exceptions to these Standards shall be noted in the permit applications and will be processed in accordance with Section 14.00 of this policy.
4. Following permit approval, changes to the location or type of installation must be submitted and approved prior to construction. Revised plans shall accompany the location change proposal. Minor field adjustments to the location or installation due to unforeseen conditions will not necessarily require a new permit, however, the field adjustment shall be discussed with the representative who issued the permit. If a new permit is required due to conditions encountered during construction, the required review for the new permit will be given high priority by the County.
5. The County reserves the right to require utility owners to provide a complete set of as-built plans to the County within 60 days of completing the installation.
6. Other permits may be required by Skagit County and other agencies.

C. Restoration

By law (RCW 36.55.060) all franchise holders are liable to the County for all of the following costs:

1. Restoring the county road to an acceptable condition after utility installation, and
2. Removing and/or relocating utility installations when road work of any kind requires such removal or relocation, whether or not such requirements are included in the permit.

Skagit County holds all utility owners, whether franchised or not franchised, liable for restoration of the county road and relocation of the utility as described above.

D. Insurance and Bonding

1. All work performed within the County right-of-way must be completed by the utility owner or by a contractor who is licensed, bonded and insured to work within Skagit County. The County requires that the entity performing the work have general liability insurance of at least \$1,000,000.
2. All work performed by contractors within County right-of-way must be covered by a performance bond equal to 120 percent of the actual contract amount.
3. The County reserves the right to require the utility owner to carry continuous liability insurance for installations that present an ongoing hazard to public safety.

E. Exemptions

Certain utility work within the County road right-of-way that does not involve the breaking of pavement, shoulders or sidewalks will not require a permit. The exemption from obtaining a permit does not relieve the utility from complying with all other provisions of this policy such as proper traffic control and prompt repairing of any disturbance to the right-of-way.

Examples of permit exempt work would be routine maintenance, making of service connections to existing electric utility, telephone or cable television pedestals, service connections to existing water or gas mains, replacement of defective parts, adjustment of components and work on overhead lines or service drops.

This exemption will be cancelled and normal utility permits will be required for any utility or its contractors that fail to use proper traffic control devices, adequately restore any disturbances to the right-of-way, performs work in any manner that may endanger the public, or damages any other utility's installation or the County's road improvements.

5.00 UNDERGROUND UTILITIES - Specific Requirements

A. Location and Alignment

1. Crossings

- a. All crossings of paved roadways will be jacked or bored. All crossings are to conform with minimum cover requirements. Access pits for jacking and boring shall be located a minimum of 4 feet outside the edge of traveled roadway. Exceptions will be handled in accordance with Section 4.00-B.4 and/or Section 14.00.
- b. For all crossings, the angle of crossing should be as near a right angle to the road centerline as practical. Lesser angles may be permitted based upon evaluation of practical alternatives.
- c. Crossings should avoid deep cuts, footings of bridges and retaining walls, wet or rocky terrain or locations where roadway drainage would be affected.

2. Longitudinal Installations

Longitudinal installations shall run parallel to the roadway and lie as near as practical to the roadway right-of-way line. Any longitudinal installation which will fall within the roadway prism shall be considered a deviation from this policy requiring specific written approval. Any request for such a deviation must demonstrate that:

- a. The installation will not adversely affect the design, construction, stability, structural integrity, traffic safety or operation of the present (or proposed) road facility, and
- b. Failure to grant the deviation will create an undue hardship or financial burden on the utility owner by reason of terrain, geology, or environmental damage along the roadside.

3. Where irregular shaped portions of the right-of-way extend beyond the normal right-of-way limits, variances in the location from the right-of-way line may be allowed as necessary to maintain a reasonably uniform alignment.

B. Cover and Separation

- a. The cover over the underground utility shall be not less than 30 inches within the roadway prism and not less than 24 inches outside the roadway prism. Cover shall be measured from the actual surface point above the installation within the road right-of-way including ditch bottoms, except that a lesser cover may be permitted where the utility is installed into solid rock.
- b. Where less than the minimum cover is necessary to avoid obstacles, the utility shall either be rerouted or protected with a casing, concrete slab, or other method approved by the County.
- c. Sanitary sewer and water lines shall be separated in accordance with Department of Ecology guidelines.
- d. Cover for utilities carrying flammable, corrosive, expansive, energized, or unstable transmittants shall not be reduced below the safety limits specified in the appropriate industry standards and specifications.

C. Encasement

1. Casings shall be required for roadway crossings where local features, embankment materials, construction methods, or other conditions indicate any possible damage could occur to the protective coating during installation. Casings shall also be used where required by the appropriate industry standards and specifications.
2. Casings may be required for the following conditions:
 - a. To expedite the insertion, removal, replacement, or maintenance of a carrier line crossing, or other locations, where it is necessary to avoid open trench construction.
 - b. As protection for carrier lines from external loads, or shock, either during or after construction of a road.
 - c. As a means of conveying leaking fluids or gases away from the area directly beneath the traveled way to a suitable point of discharge.
 - d. Jacked or bored installations of coated carrier lines unless assurance is provided to the County that there will be no damage to the protective coating.
3. Casing pipes shall extend a minimum of six feet beyond the toe of fill slopes, back of roadway ditch, or outside of curb.

4. Other than for necessary vents and/or drains, casing pipes shall be sealed at both ends.
5. Casing pipes shall be designed to support the roadway loads plus any surcharge loads thereon and, as a minimum, shall be equal to the structural requirements for road drainage facilities. Casings shall be composed of materials of sufficient durability to withstand any conditions to which they may normally be exposed.

D. Uncased Carriers

1. The carrier pipe shall conform to the material and design requirements of the appropriate utility industry and governmental standards and specifications.
2. The carrier pipe shall be designed to support the load of the road, plus surcharge loads thereon, when the pipe is operated under all ranges of pressure from maximum internal to zero pressure.
3. Suitable bridging, concrete slabs, or other appropriate measures as approved by the County shall be used to protect existing carriers when shallow bury or location makes them vulnerable to damage from road construction or maintenance operations.
4. Existing carriers may remain in place without further protective measures if they are of adequate depth and do not conflict with road construction or maintenance, and provided that the utility owner and the County mutually agree that the lines are, and will likely remain, structurally sound and operationally safe.

E. Appurtenances

All appurtenances which project more than six inches above the surrounding ground shall be installed in accordance with the Control Zone Guidelines presented in Section 13.00.

1. Vents

Vents shall be required for casings, tunnels, and galleries enclosing carriers of fuel where required by federal safety standards. Vent standpipes should be located and constructed so as not to interfere with maintenance of the road nor to be concealed by existing vegetation in the immediate vicinity of the installation.

2. Drains

Drains shall be required for casings, tunnels, or galleries enclosing carriers of liquid, liquefied gas or heavy gas. Drains for carriers of hazardous materials

shall be directed to natural or artificial holding areas that will prevent potential surface or ground water contamination. Drains for carriers of water and other non-hazardous materials may be directed into the roadway ditch or natural water course at locations approved by the County. The drain outfall shall not be used as a wasteway for routine purging of the carrier unless specifically authorized by the County.

3. Location Markers

Location markers and emergency information should be used when required by applicable state and federal standards.

4. Manholes

Manholes should be designed and located in a manner that will cause the least interference to other utilities or future road expansion. Where practical, installations in the payment or shoulders should be avoided.

5. Above-Ground Appurtenances

Unless otherwise approved by the County, all above-ground appurtenances that may constitute a roadside obstacle for vehicular traffic shall be located outside the control zone. If the appurtenance is located within the control zone, said appurtenance shall be:

- a. Relocated to another place within the right-of-way,
- b. Converted to a break-away design,
- c. Crash-protected, or
- b. Relocated off the road right-of-way.

Actions (a), (b), and (c) must be approved by the County as a condition of permit approval.

F. Individual Service Lines

1. Individual service lines (except for septic tank effluent and side sewer lines) shall:

- a. Be placed a minimum of 30 inches below finished grade within the roadway prism and a minimum of 24 inches below finished grade outside the roadway prism.

- b. Use road right-of-way only as necessary to make side connections so that the length of individual service lines within the County road right-of-way is minimized.
2. Septic tank effluent and side sewer lines shall:
 - a. Have a minimum inside diameter of 2 inches.
 - b. Be encased in cast or ductile iron pipe of larger diameter.
 - c. Be placed with a minimum of 4 feet of cover from the lowest roadside feature (i.e. bottom of ditch), with a maximum of 10 degrees of deflection from a perpendicular line to road centerline, and extend to outside the right-of-way line. Private easements shall be used for installation parallel to the roadway.
 - d. Be jacked or bored under the roadway unless otherwise approved by the County.
 - e. The County reserves the right to require utility owners to provide a complete set of as-built plans to the County within 60 days of completing the installation.

G. Installation

Installations shall ensure traffic safety and preservation of the roadway structure. Unless otherwise provided in the approved permit, construction shall be in accordance with the following controls:

1. Trenched Construction and Backfill:
 - a. Pavement Removal and Restoration

The County recognizes that occasionally it will be necessary to place utilities within the roadway prism using trenched construction. All County roads that are excavated or damaged as a result of any such utility improvements shall be fully restored by the utility owner.

Prior to excavation, the asphalt shall be cut adjacent to the excavation to avoid unnecessary damage to the surrounding asphalt during excavation. Backfill material and placement shall comply with Section 5.00 G. 1. c. below. Surface repair shall be completed according to the following requirements:

- 1) Prior to patching, all asphalt edges shall be square cut to a vertical plane using appropriate machinery. The cut edge shall be at least 1 foot outside the edge of the excavation.
- 2) All asphalt pavement edges shall be cleaned and coated with an approved asphalt emulsion.
- 3) Restoration of an asphalt concrete pavement shall match the existing pavement section or shall match the standard section as specified in the Skagit County Road Standards, whichever is greater. All crushed surfacing material shall meet WSDOT Standard Specification 9-03.9(3). All asphalt concrete shall comply with WSDOT Standard Specifications (including composition and placement) for Class B asphalt concrete. The finished patch shall have a minimal crown to allow for traffic compaction of the new asphalt concrete.

Portland cement concrete pavement shall be restored consistent with Section 5-05 of WSDOT/APWA Standard Specifications.

Traffic lanes affected by the trenching shall be replaced in half lane increments so that there are no joints in the wheel tracks.

- 4) All joints between the patch and the existing pavement shall be sealed on the surface with hot tar. The hot tar seal shall then be sprinkled with clean sand.
- 5) The pavement repair shall have a design life at least as great as the existing pavement surrounding the patch.

b. Trench Widths

Trenches within the roadway prism shall be as narrow as feasible to permit the installation of the pipe or conduit and allow sufficient room to properly compact the bedding and backfill material. The side slopes and shoring (if necessary) shall comply with the Department of Labor and Industries Safety Code.

- c. The pipe or carrier shall be installed and the trench backfilled in a manner assuring no deformation of the pipe will occur.

If bedding material is required, the bedding material shall consist of granular material conforming to WSDOT standard specification 9-03.15

or 9-03.16 for bedding material for rigid and flexible pipe, respectively. It shall be graded to provide uniform support of the pipe or carrier. Unsuitable soils and rock ledges shall be excavated from the bedding zone and replaced with suitable material.

Backfill shall be placed in two stages:

?? Sidefill to the level of the top of the pipe, then

?? Overfill to the former grade surface.

Backfill shall consist of County-approved granular material conforming to WSDOT standard specification 9-03.10 for gravel base placed in lifts no thicker than 8 inches (loose thickness). Each lift is to be uniformly compacted by mechanical tamping. Backfill within the roadway prism and within 2 feet of the bottom of the pavement section shall be compacted to at least 95% of maximum dry density as determined by AASHTO Method T 180-96. Backfill more than 2 feet below the bottom of the pavement section shall be compacted to at least 90 percent. Backfill outside the roadway prism shall be compacted to a state comparable to the surrounding soil unless otherwise indicated by the County. Compaction by saturation, ponding or other water settling technique is not permitted.

At least 24 hours prior to placing any surfacing materials on the roadway (unless other advance arrangements are made with the County), it shall be the responsibility of the utility owner to provide density test reports by a qualified soils laboratory. A minimum of one test shall be taken every 300 lineal feet of trench and every 1.5 feet vertically unless otherwise specified by the County.

2. Jacking or Boring

Trenchless construction is required for utilities crossing under roads paved with bituminous surface treatment, asphalt concrete, or Portland cement concrete.

- a. Pipelines crossing under a road shall be installed using a technique (such as jacking or boring) which has been approved by the County. Jetting under roadways shall not be permitted.
- b. The length of trenchless construction shall extend a minimum of 4 feet from edge of traveled roadway.

3. Overbreaks, unused holes, or abandoned casings shall be backfilled as directed by the County.

3. Direct Burial/Plowing

Direct burial of communication and electrical lines on, or adjacent to, existing roads may be allowed by the County provided that the structural integrity of the roadway is not impaired.

4. One Call System

Utility facilities shall be located and identified in accordance with Title 19 RCW, Chapter 19.122, sections 19.122.010 through 19.122.900 (Washington State One Call System).

6.00 FINAL UTILITY ADJUSTMENT TO FINISH GRADE

- A. All utility covers that are located on proposed asphalt roadways shall be temporarily placed at subgrade elevation prior to placing base material.
- B. Final adjustment of all covers and access entries shall be made following final paving by:
 - 1. Saw-cutting or neat-line jack hammering of the pavement around lids and covers. Opening should not be larger than 12 inches beyond the perimeter of the cover.
 - 2. Removing frame, surfacing courses, and base material; adding raising bricks; replacing frame and cover to finish grade.
 - 3. Placing compacted fill to 6 inches below the top of the asphalt concrete.
 - 4. Filling the remaining 6 inches with asphalt concrete complying with WSDOT Specifications (including composition and placement) for Class G asphalt concrete.

7.00 INSTALLATIONS ON ROADWAY BRIDGES AND STRUCTURES

Attachment of utility lines to a roadway structure (including bridges) may be allowed where such attachment conforms to sound engineering considerations for:

- ?? Preserving the roadway structure and its safe operation
- ?? Maintenance
- ?? Appearance

The attachment shall be in accordance with the following:

1. Each proposed attachment shall be considered on its individual merits and shall be separately designed to ensure compatibility with the appearance of the structure.
2. The attachment of a utility will only be considered when the structure in question has been adequately designed to support the additional load and can accommodate a utility facility without compromising roadway features and ease of maintenance.
3. Utilities shall not inhibit access to any portion of the structure. Access to the structure needs to be maintained at all times for painting, repair, and maintenance.
4. Manholes and other utility access panels shall not be permitted within the roadway portion of the structure.
5. Attachment of a utility to a pipeline structure carrying a hazardous transmittant shall be avoided where possible.
6. The utility attachment shall not reduce the under or over clearance of a structure where such clearance is critical.
7. The preferred location for utility attachments is beneath the structure's deck or floor, between the girders or beams within a cell or at an elevation above the lowest portion of the superstructure steel or masonry. Attachment to the outside of a structure should be avoided when there are reasonable alternatives.
8. Utility mountings shall be of a type that will not create noise resulting from vibration.

9. Any hole created in a structure abutment shall be of the minimum size necessary to accommodate the utility line, and shall be sleeved and sealed to prevent any leakage of water or backfill material.
10. The utility line at the back of the abutment shall curve or angle out to the outside edge of the roadbed area in as short a distance as is operationally practical.
11. Communication and electrical power line attachments shall be suitably insulated, grounded, and carried in protective conduit or pipe from the point of exit from the ground to the point of reentry. Carrier and casing pipe shall be suitably insulated from electric power line attachments.
12. The utility owner shall be responsible for restoration and repair of any portion of a structure or roadway that has been disturbed by the utility installation or use.

8.00 RIGHT-OF-WAY USE RESTORATION REQUIREMENTS

A. General

1. Existing drainage ditches, culverts, etc., shall be kept clean at all times. Temporary diversion of any drainage system will not be permitted without the written consent of the County. Any drainage culvert, catch basin, manhole, or other drainage structure disturbed by excavation shall be replaced with new material or repaired to the satisfaction of the County. Temporary Erosion/Sedimentation Control measures shall be employed to protect adjacent property and storm drain facilities.
2. A gravel shoulder disturbed by excavation shall be shaped to its original configuration. All backfill shall be compacted as described in Section 5.00 G. 1. c. above. All shoulders shall be sloped to drain away from the paved surface. The surface of the shoulder shall be finished with a minimum of 2 inches of compacted crushed gravel meeting WSDOT Standard Specification 9-03.9(3) for crushed surfacing top course.
3. No excess or unsuitable material shall be wasted on County right-of-way.
4. Street surfaces shall be cleaned at the end of each day's operation with a power broom or other approved means.
5. Maximum amount of open trench on streets shall be 400 lineal feet. At the end of each day, all trenches must be backfilled or covered with steel plates and barricaded with flashing warning lights to prevent people, animals or vehicles from falling into the trench.
6. Final cleanup, including complete restoration of shoulders, cleaning of ditches, culverts and catch basins, and removal of loose material from back slopes of ditches shall not exceed 1500 lineal feet behind excavation operations or as required by the County.

B. Final Cleanup and Restoration

In addition to restoration of the roadway, as described above, the responsible utility owner shall care for adjacent areas in compliance with Section 1-04.11 "Final Cleanup" and 8-01 "Erosion Control" in the WSDOT/APWA Specifications. In particular:

1. Streets and roadways shall be cleaned and swept both during and after the installation work.

2. Disturbed soils shall be final graded, seeded, and mulched after installation of the utility. In limited areas, seeding and mulching by hand, or sod placement using approved methods, will be acceptable.
3. Ditches lined with erodible soil and subject to rapid flows may require erosion control methods such as seeding, jute matting, netting, or placement of sod or rock lining.
4. Any silting of downstream drainage facilities, including ditches or pipe and catch basins, which results from the utility installation shall be cleaned out and the site restored to a stable condition as part of the site cleanup.
5. Damaged existing storm drainage facilities and roadside features shall be replaced with new materials by the permit holder.

C. Maintenance Work

1. If the utility owner intends to use chemical sprays to control or kill weeds and brush, prior approval must be granted on an annual basis by the County. The County may limit or restrict the types, amounts, and timing of applications. The utility owner shall be responsible for any drift of the spray that contacts vegetation on private property.

All chemicals must be approved by both State and Federal regulatory agencies and all applicators must be licensed with the State of Washington and abide by all state regulations.

2. Refuse and debris resulting from periodic maintenance of a utility shall be removed from County right-of-way.

D. Unsatisfactory Restoration

Unsatisfactory restoration work (either for initial construction or for periodic maintenance) shall be promptly redone by the utility owner. If necessary, unsatisfactory restoration work may be redone by the County or by private contractor and billed to the utility owner.

9.00 MISCELLANEOUS PROVISIONS

A. Drainage

Care shall be taken during utility installations to avoid disturbing existing drainage facilities. Underground utility facilities shall be backfilled with pervious materials and outlets shall be provided for entrapped water. Underdrains should be provided where necessary.

B. Traffic Control and Public Safety

Traffic controls, detours, and maintenance for all utility work shall conform to the current MUTCD (Manual on Uniform Traffic Control Devices for Streets and Highways).

1. All construction and maintenance operations shall be planned to keep interference with traffic to an absolute minimum. On heavily traveled roads, construction operations that interfere with traffic shall not be allowed during periods of peak traffic flow. Work shall be planned so that obstruction of intersecting streets, road approaches and other access points is held to a minimum.
2. One lane of traffic shall remain open at all times and shall be attended by flaggers with appropriate construction signing provided. The road shall be restored to two-way traffic at the end of each working day. Applications for total road closures must be filed with the County Public Works Department at least 21 working days prior to the anticipated closure.
3. If, in the opinion of the County, weather conditions deteriorate to the point where the traveled roadways are unsafe for the public, or detrimental to the restoration of the roadway, excavation shall cease immediately and cleanup shall be promptly accomplished.
4. Adequate provision shall be made to safeguard any open excavation. This will include barricades, lights, flaggers, and other protective devices as necessary.
5. Any material stored along County right-of-way must be placed a minimum of ten feet from the traveled roadway and adequate provision shall be made to warn the public of such stored materials including barricades, lights, flaggers and other protective devices as necessary.

C. Repairs

1. All utility facilities shall be kept in a good state of repair. All maintenance operations, unless otherwise excepted from requiring a permit, shall be carried out with advance approval and in the form required by the County.
2. The storage of materials on through roadways shall not be allowed. Parking of vehicles on through roadways shall be kept to a minimum, and suitable traffic control shall be provided.
3. If emergency repairs to the utility are required, such repairs shall be undertaken and notice shall be given to the County immediately. Approval as to the manner of repair shall be secured from the County as soon as possible.
4. The utility owner shall confine its operations as much as possible to the untraveled portion of the right-of-way and shall exercise caution to protect the traveling public during such repairs.
5. All temporary traffic control devices such as flaggers, warning lights, barricades, and signs shall be employed in accordance with the current MUTCD.

D. Striping Replacement

All traffic striping and walkway delineation disturbed during construction shall be replaced. Temporary striping shall be used on a limited basis.

E. As-Built Plans

The County reserves the right to require utility owners to provide a complete set of as-built plans to the County within 60 days of completing the installation.

10.00 CDF (CONTROL DENSITY FILL)

The County may require CDF for backfilling trenches within the traveled roadway in lieu of gravel base backfill material in situations where even a minor amount of trench settlement cannot be tolerated such as installation of transverse trenches on arterial roads.

A. General

CDF shall be a mixture of Portland cement, fly ash, aggregates, water, and admixtures proportioned to provide a non-segregating, self-consolidating and free-flowing material which will result in a hardened, dense, non-settling and excavatable fill.

B. Specific Applications

CDF shall be used as fill above utilities wherever non-settling backfill is required.

C. Material Description

CDF shall be a mixture of Portland cement, fly ash, aggregates, water, and admixtures that have been batched and mixed in accordance with Section 6-02.3 of the WSDOT/APWA specifications. Materials are as follows-

- | | | |
|----|-----------------|-----------------------------------|
| 1. | Portland Cement | AASHTO M 85 or
WSDOT/APWA 9-01 |
| 2. | Fly Ash | Class F |
| 3. | Aggregates | WSDOT/APWA 9-03.1(2)B |
| 4. | Water | WSDOT/APWA 9-25 |
| 5. | Admixtures | WSDOT/APWA 9-23.6 |

D. Proportions

CDF shall be used in the following proportions for 1 cubic yard. Batch weights may vary depending on specific weights of aggregates.

Max. gallons of Mixing Water per cubic yard	50
Lbs. of Cement per cubic yard	50
Lbs. of Fly Ash per cubic yard	250

Lbs. of Dry Aggregate per cubic yard, Class 1 or 2
Sand as per WSDOT/APWA 9-03.1(2)B

3200

CDF shall be batched to provide a flowing, non-segregating mix, with a slump between 6" and 8 ".

E. Placement

1. CDF shall be discharged from the mixer by any reasonable means (which does not segregate the material) into the area to be filled. The CDF shall be brought up uniformly to the elevation shown on the plans.
2. CDF shall not be placed on frozen ground.
3. CDF patching, mixing, and placing may be started if weather conditions are favorable. At the time of placement, CDF must have a temperature of at least 40°F. Mixing and placement shall stop when the temperature is 38°F or less and falling. Placement may resume when the temperature is at 34°F and rising. Each filling stage shall be as continuous as practical.
4. Trench sections to be filled with CDF shall be contained at either end of the trench section by bulkheads or earth fills.
5. The Contractor shall place the CDF to within 4 inches of the base of pavement. The pavement section shall then be placed over the CDF in accordance with Section 5.00 G. 1. a. above.
6. The Contractor shall provide steel plates to span the utility trenches and prevent traffic contact with the CDF for at least 24 hours after placement or until the CDF is hard enough to prevent rutting by construction equipment or traffic.

F. Compaction

For flowing CDF, compaction is not necessary for placement. The Contractor may, as an option, adjust the water content to obtain a 0 to 1" maximum slump mixture if the material is to be compacted in lifts not to exceed 6". Compaction will be accomplished by use of a hand vibratory plate.

11.00 OVERHEAD UTILITIES - Specific Requirements

Power and Communication Lines

1. Single pole construction and joint use of the pole is generally desirable and should be used whenever feasible.
2. The vertical clearance for overhead power and communication lines above the road and the lateral and vertical clearance from bridges shall meet or exceed the State Department of Labor and Industries "Electrical Construction Code" or the National Electrical Safety Code.
 - a. The minimum height of a road crossing shall be measured from the lowest portion of the line crossing the road.
 - b. The minimum height of longitudinal lines shall be measured from the lowest portion of the line to the ground line.
 - c. All clearances shall be at State Electrical Construction Code temperature and loading standards, and comply with all other requirements of that code.
3. Unless otherwise approved by the County, all above-ground appurtenances constituting a roadside obstacle for vehicular traffic shall be located outside the control zone. If the appurtenance is located within the control zone, said obstacle must be:
 - a. Relocated to another place within the right-of-way,
 - b. Converted to a break-away design,
 - c. Crash-protected, or
 - d. Relocated to another location off the road right-of-way.

Actions (a), (b) and (c) must be approved by the County as a condition of permit approval.
4. Guy wires to ground anchors and stub poles shall not be placed between a pole and the traveled way unless approved by the County.
5. Locations of poles shall be compatible with driveways, intersections and other roadway features, they shall not interfere with sight distance, roadway signing,

traffic signals, culverts, etc. To the greatest extent possible, utilities shall share facilities so that a minimum number of poles are needed.

6. Where irregular shaped portions of the right-of-way extend beyond the normal right-of-way limits, variances in the location from the right-of-way line shall be allowed as necessary to maintain a reasonably uniform alignment.

12.00 AESTHETIC AND SCENIC CONSIDERATIONS

- A. No new installations of overhead communication, power, or other utility shall be permitted within county-designated areas of scenic beauty. When practical utilities should be undergrounded on rights-of-way through or adjacent to the following:
- ?? scenic strips
 - ?? viewpoints
 - ?? rest areas
 - ?? recreation areas
 - ?? public parks
 - ?? historic sites

Exceptions to 12.00A are as provided in section 12.00B below.

- B. Overhead utility installations may be permitted in those areas listed in the preceding section A only when the following conditions exist:
1. Other utility locations are not available, are not technically feasible. are unreasonably costly, or are less desirable from the standpoint of visual quality; and
 2. The location, design, and materials of the proposed installation will adequately protect the visual qualities of the area being traversed.

13.00 CONTROL ZONE GUIDELINES

These guidelines are intended to provide direction as to when and how utilities may use the County public road right-of-way. It is not the intention of these guidelines to force utilities to relocate outside the road right-of-way.

These guidelines are in accordance with the American Association of State Highway and Transportation Officials (AASHTO); National Research Council; the Federal Highway Administration (FHWA); and the WSDOT.

A. Application

Utilities and appurtenances installed within Skagit County road right-of-way shall comply with these guidelines. The utility owner is solely responsible to install the utility in compliance with these guidelines.

Application of the Control Zone Guidelines can be separated into two general categories:

1. New Installations or Reconstruction of Utility Facilities

Locate all utility objects outside the Control Zone unless the facilities are covered by a variance (see Section 13.00.B), or are Location III objects.

2. Roadway Project involving Safety Improvements

- a. The utility owner will be required to adjust utility objects identified as being in a Location I area to qualify as Location II or Location III objects for the improved roadway facility. These objects should be adjusted in advance of or incidental to the construction project.
- b. Utility objects within the Control Zone will require adjustment or shielding to the same extent that the County adjusts or shields County owned objects within the Control Zone.
- c. The County will notify the Utilities of upcoming roadway improvement projects as early as possible. As the project is developed, the utility owner will be advised of the tentatively scheduled project advertising date and of those utility objects requiring relocation.

B. Variance

1. It is recognized that conditions may arise which make it impractical to comply with the Control Zone Guidelines. Variances may be allowed when justified by suitable engineering studies considering traffic safety. The utility owner shall indemnify and hold harmless Skagit County for all liability for personal or property damage resulting from the granting of a variance from these guidelines. The County may require continuous liability insurance if the installation is a potential threat to public safety.

Examples of conditions which may result in a variance include, but are not limited to, the following:

- a. The County right-of-way is not adequate to accommodate utility objects outside the Control Zone; and/or
- b. Short segments of utility facilities that, due to terrain or other features, may not be located in full compliance with the Control Zone Guidelines.

In these situations, a variance, if adequately supported, may be granted by the County to allow utility objects to remain or to be installed within the Control Zone.

2. Any variance request must include, as a minimum, the following support data:
 - a. The reason why the facility should not be located as Location III or outside the Control Zone.
 - b. An alternate installation location outside the Control Zone or right-of-way can be extremely difficult, with problems of installation and/or unreasonable costs. Describe alternatives that were considered and include a detailed cost comparison.
 - c. The history of the utility objects including vehicle-hits, if any.
 - d. Picture and typical cross sections. Cross sections shall include location of proposed and/or existing utility objects with reference to edge of the traveled way.
 - e. Address use of the alternate countermeasures as listed in 13.00.B.3 below.
3. Alternate countermeasures that may be appropriate for reducing or eliminating non-traversable utility objects within the Control Zone are:
 - a. Placing utility line underground.

- b. Increasing the lateral offset of utility objects from the traveled way.
- c. Placing utilities behind existing protective devices such as berms and guardrail.
- d. Locating utilities to an inaccessible area such as toward, or on, the top of cut slopes.
- e. Reducing the number of utility objects through joint use, increased span lengths, and/or placing utility objects on only one side of the road.
- f. Installing protective devices, such as berms, guardrail, traffic barriers, or impact attenuators.
- g. Using a breakaway design.

C. Criteria

The Control Zone distance varies according to the posted speed, traffic volumes, and side slopes of the roadway. This Control Zone distance is measured in feet normal to the roadway, beginning at the edge of the traveled way and extending outward perpendicular to the traveled way.

The Control Zone distance can be determined using the Control Zone Distance Table and the following criteria:

1. Fill Sections or Cut Sections with no ditch
 - ?? The Control Zone distance is read directly from the table based on posted speed or operating speed (if known), average daily traffic (ADT), and slope.
 - ?? The “Recovery Area” formula, in lieu of the table, is used only when the fill section slope is 3H: 1V or steeper. If the fill height is also greater than 10 feet, consult the Guidelines for Embankment Barrier Chart (WSDOT). If embankment barrier is not recommended, the Control Zone is the Shoulder Width plus the Horizontal Distance.

See Figure No. 13-1.

2. Ditch Sections with fore slopes 4H:1V or flatter.
 - ?? The Control Zone distance is the greater of:

- a. The Control Zone distance for a 10H:1V cut section based on speed and ADT, or
- b. 5 feet horizontal beyond the beginning of the back slope.

See Figure No. 13-2.

3. Ditch Sections with fore slopes 3H:1V or steeper, and back slopes steeper than - 3H:1V.

?? The Control Zone distance is established at 10 feet horizontal beyond the beginning of the back slope.

See Figure No. 13-3.

4. Ditch Sections with fore slopes 3H:1V or steeper, and back slopes not steeper than 3H:1V. The Control Zone distance is the distance established using the recovery area formula.

See Figure No. 13-4.

5. Auxiliary Lanes

The Control Zone is either the distance from the traveled way obtained from the table based on posted speed or operating speed (if known), ADT, and slope, or ten feet from the edge of the auxiliary lane, whichever is furthest. Where curb exists, the Control Zone is 2 feet beyond the face of curb for speed zones of 35 mph and less.

**FIGURE 13-1
CONTROL ZONE DISTANCE TABLE**

Posted Speed MPH	Average Daily Traffic	Cut Section (+ slope) (Horizontal to Vertical)						Fill Section (- slope) (Horizontal to Vertical)					
		3:1	4:1	5:1	6:1	8:1	10:1	3:1	4:1	5:1	6:1	8:1	10:1
35 or less	(See Note Below)							(See Note Below)					
40	Under 250	10	10	10	10	10	10	*	13	12	11	11	10
	251-800	11	11	11	11	11	11	*	14	14	13	12	11
	801-2000	12	12	12	12	12	12	*	16	15	14	13	12
	2001-6000	14	14	14	14	14	14	*	17	17	16	15	14
	Over 6000	15	15	15	15	15	15	*	19	18	17	16	15
45	Under 250	11	11	11	11	11	11	*	16	14	13	12	11
	251-800	12	12	13	13	13	13	*	18	16	14	14	13
	801-2000	13	13	14	14	14	14	*	20	17	16	15	14
	2001-6000	15	15	16	16	16	16	*	22	19	17	17	16
	Over 6000	16	16	17	17	17	17	*	24	21	19	18	17
50	Under 250	11	12	13	13	13	13	*	19	16	15	13	13
	251-800	13	14	14	15	15	15	*	22	18	17	15	15
	801-2000	14	15	16	17	17	17	*	24	20	18	17	17
	2001-6000	16	17	17	18	18	18	*	27	22	20	18	18
	Over 6000	17	18	19	20	20	20	*	29	24	22	20	20
55	Under 250	12	14	15	16	16	17	*	25	21	19	17	17
	251-800	14	16	17	18	18	19	*	28	23	21	20	19
	801-2000	15	17	19	20	20	21	*	31	26	23	22	21
	2001-6000	17	19	21	22	22	23	*	34	29	26	24	23
	Over 6000	18	21	23	24	24	25	*	37	31	28	26	25
60	Under 250	13	16	17	18	19	19	*	30	25	23	21	20
	251-800	15	18	20	20	21	22	*	34	28	26	23	23
	801-2000	17	20	22	22	23	24	*	37	31	28	26	25
	2001-6000	18	22	24	25	26	27	*	41	34	31	29	28
	Over 6000	20	24	26	27	28	29	*	45	37	34	31	30
70	Under 250	16	19	21	21	23	23	*	36	29	27	25	24
	251-800	18	22	23	23	26	26	*	41	33	31	28	27
	801-2000	20	24	26	27	28	29	*	45	37	34	31	30
	2001-6000	22	27	29	29	31	32	*	50	40	38	34	33
	Over 6000	24	29	31	32	34	35	*	54	44	41	37	36

Note:

?? When the posted speed is 35 MPH or less, the Control Zone distance is established at 10 feet, or 2 feet beyond the face of curb in urban areas.

?? When the Fill Section slope is 3H:1V or steeper, the Control Zone distance is called the recovery area and is calculated using the Recovery Area Formula (see next page).

FIGURE 13-1
CONTROL ZONE DISTANCE TABLE
(continued)

$$\text{Recovery Area} = SW + HD + (CZD - SW)$$

Where SW = Shoulder Width
 HD = Horizontal Distance
 CZD =Control Zone Distance (from Table)

The basic philosophy behind the Recovery Area Formula is that a vehicle can traverse a 3H:1V slope but cannot recover (control steering) and therefore, the formula does not allow a credit toward the recovery area for the horizontal distance. The follow diagrams are intended to clarify the use of the Recovery Area Formula.

EXAMPLES

Use of Control Zone Table and Criteria

1. CUT SECTION — NO DITCH

Conditions: Speed 45 mph
Traffic 1900 ADT
Slope 4H:1V

Criteria: Item 1, Read directly from CZD Table.

Control Zone: 13 feet

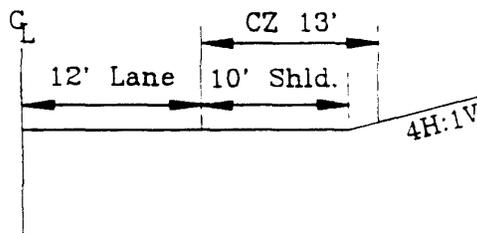


FIGURE 13-1

2. CUT SECTION — WITH DITCH (fore slope 4H:1V or flatter)

Conditions: Speed 55 mph
Traffic 4200 ADT
Fore Slope 4H:1V

Criteria: Item 2, Greater of
(1) CZ 10H:1V Cut Section, 23 feet
(2) 5' Horz. beyond beginning of back slope, 22 feet

Control Zone: 23 feet

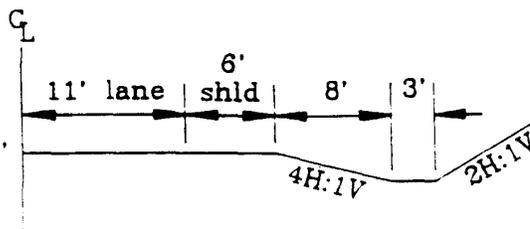


FIGURE 13-2

3. CUT SECTION — WITH DITCH (fore slope 3H:1V or steeper, and back slope steeper than 3H:1V)

Conditions: N/A

Criteria: Item 3, CZ 10' beyond beginning of back slope.

Control Zone: 19 feet

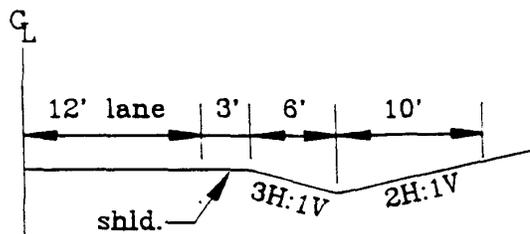


FIGURE 13-3

EXAMPLES

Use of Control Zone Table and Criteria

(continued)

4. CUT SECTION — WITH DITCH (fore slope 3H:1V or steeper, and back slope not steeper than 3H:1V)

Conditions: Speed 40 mph
 Traffic 3000 ADT
 Fore Slope 2H:1V
 Back Slope 4H:1V

Criteria: Item 4, Use Recovery Area Formula

Control Zone: * 20 feet (See page 36)
 $(6')+(6')+(14'-6')=20'$

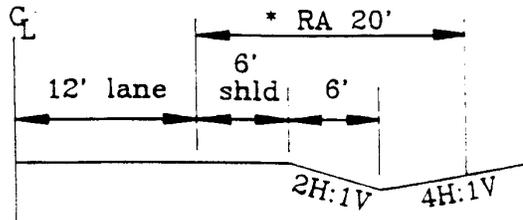


FIGURE 13-4

5. FILL SECTION

Conditions: Speed 50 mph
 Traffic 320 ADT
 Slope 6H:1V

Criteria: Item 1, Read directly from Table

Control Zone: 17 feet

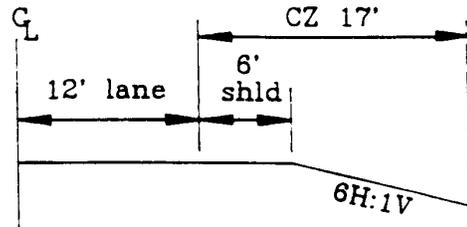


FIGURE 13-5

6. FILL SECTION (slope 3H:1V or steeper)

Conditions: Speed 40 mph
 Traffic 3000 ADT
 Slope 3H:1V

Criteria: Item 1, Slope 3H:1V—use Recovery Area Formula

Control Zone: * 28 feet (See page 36)
 $(8')+(12')+(16'-8')= 28'$

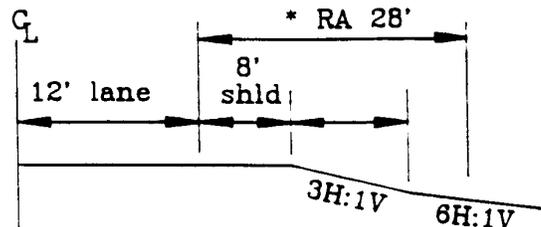


FIGURE 13-6

UTILITY DESIGN CONSIDERATIONS

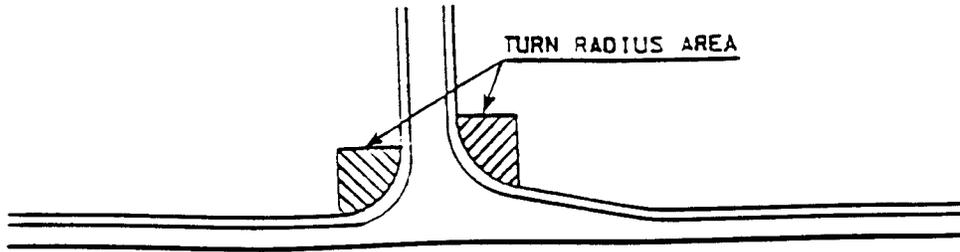


Figure 13-7
(See 13.00.D.2)

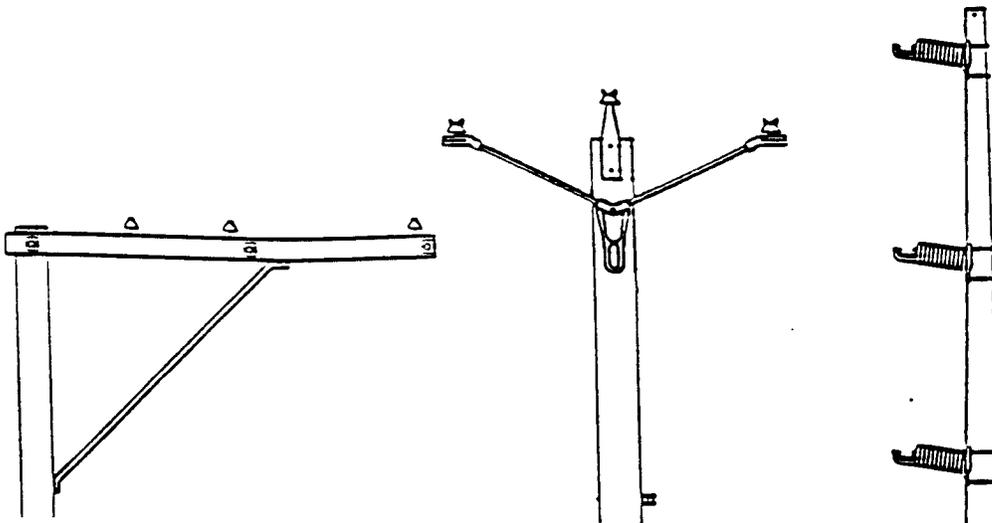


Figure 13-8
(See 13.00.D.5)

A. Utility Design Considerations

The following items are provided as a guide to the utility industry for consideration during design and maintenance of their facilities.

1. Horizontal Curves -- If it is not necessary, do not place utility objects on the outside of horizontal curves.
2. Public Grade Intersection -- If possible, design the facility to place utility objects outside the turn radius area of Public Grade Intersections. If this is not possible, the facility should be placed outside of the control zone. See Figure 13-7.
3. Placement of Utility Objects behind Guardrail -- Allow a minimum of 3.5 feet from face of guardrail to face of utility object. This allows the guardrail to function properly by acting like a tension ribbon if struck.
4. Service Poles -- Place service poles on owner's property, not County right-of-way. Consideration should be given to placing the service pole as far as practical from the road right-of-way, at least outside the control zone.
5. Pole Design -- Where control zone requirements within the road right-of-way are tight, consideration should be given to alternative pole designs. The purpose of the alternative designs is to allow construction at or close to the right-of-way line. See Figure 13-8.
6. Guy Poles & Guy Wires - Guy poles and/or wires are not to be installed between the pole line and road lane unless the guy pole/wire is outside the control zone. Consideration should be given to utilizing breakaway designs on guy poles within the control zone.
7. Utility Location Markers -- Markers used to identify or protect utility facilities, such as a telephone pedestal, may not be larger than a 4 x 4 wood post unless drilled to accommodate breakaway. Solid markers, such as concrete, may not be used. Telephone pedestals that meet the breakaway criteria are acceptable to be placed within the control zone.
8. Cutting and Trimming Trees and Brush -- Mutual benefits can be achieved through clearing trees and brush to the County's right-of-way line:
 - a. Allows installation of the utility facility at/or close to the right-of-way line.

- b. Provides better access to the utility for construction and maintenance of their facility.
- c. Improves safety by removing trees, which in themselves may be a hazard, and also opens up the roadway to increased sunlight.

For aesthetics and other reasons as listed above, it is often preferred that the trees be removed flush with the ground rather than topped or trimmed. Prior to cutting or trimming trees and brush, the utility owner should coordinate and receive approval from the County.

14.00 DEVIATION FROM POLICY

Except as provided for elsewhere in this policy, deviation from this policy may only be granted by the County. The decision to grant, deny, or modify the proposed deviation shall consider the following criteria:

- ?? The deviation will achieve the intended result with a comparable or superior design and a better quality of finished product.
- ?? The deviation will not adversely affect safety and/or operation.
- ?? The deviation will not adversely affect maintainability.
- ?? The deviation will result in a pleasing appearance.

Those proposing such deviations will be required to complete a Standard Deviation Form, #F-1 and submit it to the County. The applicant shall identify the project in which the deviation is being requested and shall present supporting information that would justify the deviation being requested in terms of the above criteria.

Deviations must be approved prior to issuing the permit. When the need for a deviation arises during construction, construction shall be delayed until the proposed deviation and supporting information is reviewed and evaluated by the County.