

# Chapter 4

# Driveway Design



## **CHAPTER 4: DRIVEWAY DESIGN STANDARDS**

### **4.1 BASIC DESIGN AND PERMITTING POLICY**

A driveway shall be designed to provide safe ingress and egress to structures and is defined as an access serving  $\leq 20$  Average Daily Trip (ADT's). Driveway policy and permitting shall be managed by Grand County Road and Bridge. These Driveway Design Standards apply to the first 50' of any driveway that accesses any public road measured from the edge of the driving surface.

Driveway's that attach to private roads do not require a permit. The owner may still choose to obtain a driveway permit to ensure the driveway is constructed to County Standards.

If an access serves more than 20 ADT's (up to two single family homes or four multi-family units), it shall be classified as a roadway rather than a driveway and must meet the County's standards and requirements for roadway construction. Trip generations for other types of proposed developments shall use the *ITE Trip Generation Manual* for trip generation. Other acceptable data sources may be used in cases where the *ITE Manual* does not provide the information necessary.

All construction must comply with the Grand County Road and Bridge Standards defined in this chapter. If an Applicant desires to design and construct a driveway in variance to these driveway standards, such variance(s) shall meet the variance criteria shown in this chapter.

Any construction started prior to permit issuance, will result in a fine of \$500.00 to the property owner.

All permits will expire one (1) year from date of issuance. Post inspections of driveways will only occur in the spring, summer or fall months.

### **4.2 DRIVEWAY PERMITS**

#### **4.2.1 PERMIT APPLICATION INSTRUCTIONS**

1. Prior to any driveway construction, a Driveway Permit Application must be submitted and approved by the County.
2. Applicant must mark with wooden lath the centerline of the proposed Driveway for the first 50' prior to submitting application.
3. Applicant's property address must be displayed at the site prior to submitting application.
4. One (1) application must be submitted for each proposed driveway.
5. Applications must be complete, signed and include applicable fees (see Section 4.2.3). Incomplete applications will be denied.
6. A detailed sketch of the work site must accompany the application and must show the placement of the driveway.
7. The application must include Underground Notification Center of Colorado (UNCC) locate ticket number. (To contact UNCC, dial 811 from any phone. This service is at no cost.)

#### **4.2.2 INSPECTION REQUIREMENTS**

1. Once a completed application is received by Grand County Road and Bridge, a site inspection will be conducted within 5 business days.
2. If the site inspection determines that the existing topography is greater than 5%, a driveway profile will be required. If the profile shows that the driveway meets standards, the permit may be issued. If the profile shows that the driveway does not meet standards, a variance may be applied for as defined in this chapter.
3. A copy of the approved permit application shall be available for inspection at the work site at all times.
4. If a Driveway fails the post inspection the property owner has ten (10) calendar days after notification to repair the work site to Grand County Road and Bridge Standards (Chapter 4 Driveway Design Standards) and a re-inspection fee of \$100.00 shall be assessed.
5. Consideration shall be given to placement of construction items such as dumpsters, portable toilets, equipment, building materials, etc. These items shall **not** be placed within a County Right-of-Way.
6. No Certificate of Occupancy will be issued by the Grand County Building Department without an approved post Driveway inspection.
7. Excavated material from the site shall not be stored within the Right-of-Way (ROW) and shall be disposed of properly.

#### **4.2.3 FEES**

Grand County Driveway Permit fee is \$125.00 per application.

Grand County Re-Inspect Fee is \$100.00 for each re-inspection.

Installing Driveway without Permit is \$500.00.

Also see Variance Costs (Section 4.13.4) in this chapter.

#### **4.3 ACCESS DESIGN**

Single family and multi-family residences are allowed one access point onto the County road system unless separated by a minimum separation of 250' (measured centerline to centerline). When a lot can access two different roads, driveway access should always be onto the road with the lowest classification.

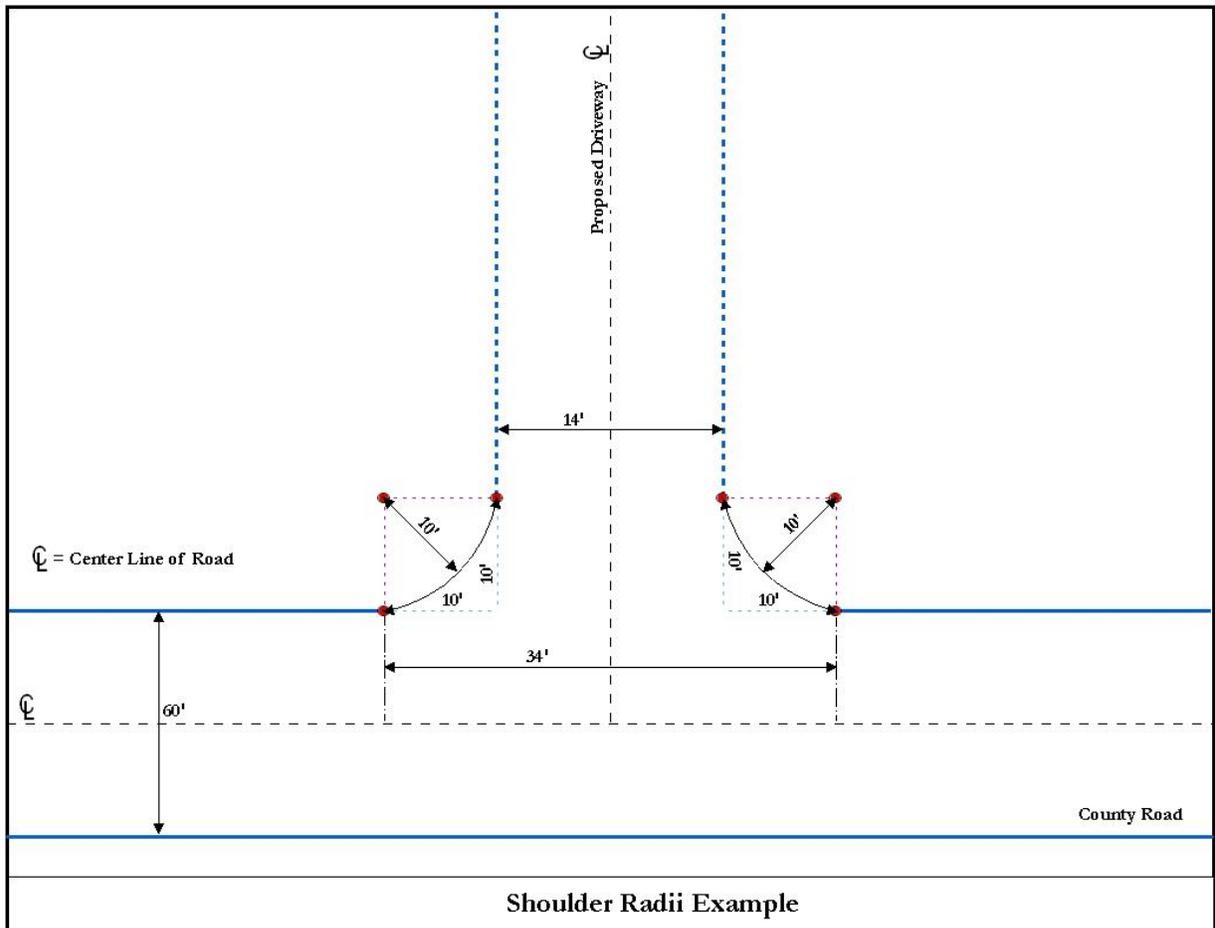
Driveways connecting onto an arterial or major collector are considered a detriment to the safety and capacity of the road, and will require a variance application be submitted to the County for review. Backing onto County roads for access shall not be permitted on arterials or collector roads and is discouraged on other road classification based on site restrictions as shown in this chapter.

Driveways shall not access County Roads if the County Road has a grade greater than 7%.

### 4.3.1 ALIGNMENT

A minimum horizontal curve radius of 35' at centerline is required if a curve falls within the first 50' of the driveway.

The entrance of the driveway shall have an edge of shoulder radii of 10'.

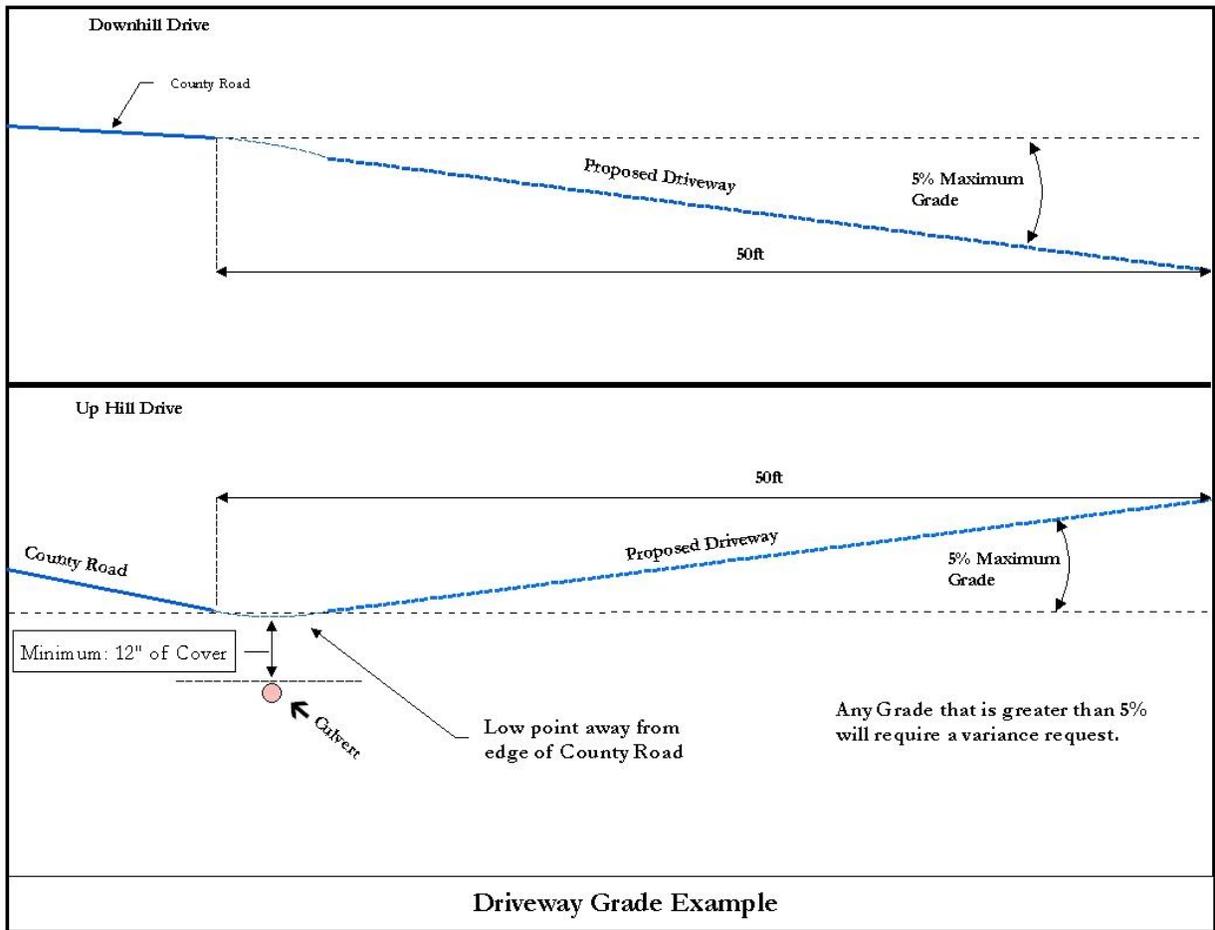


### 4.3.2 ENTRANCE GRADES

Entrance grades shall be a maximum of 5% within the first 50'.

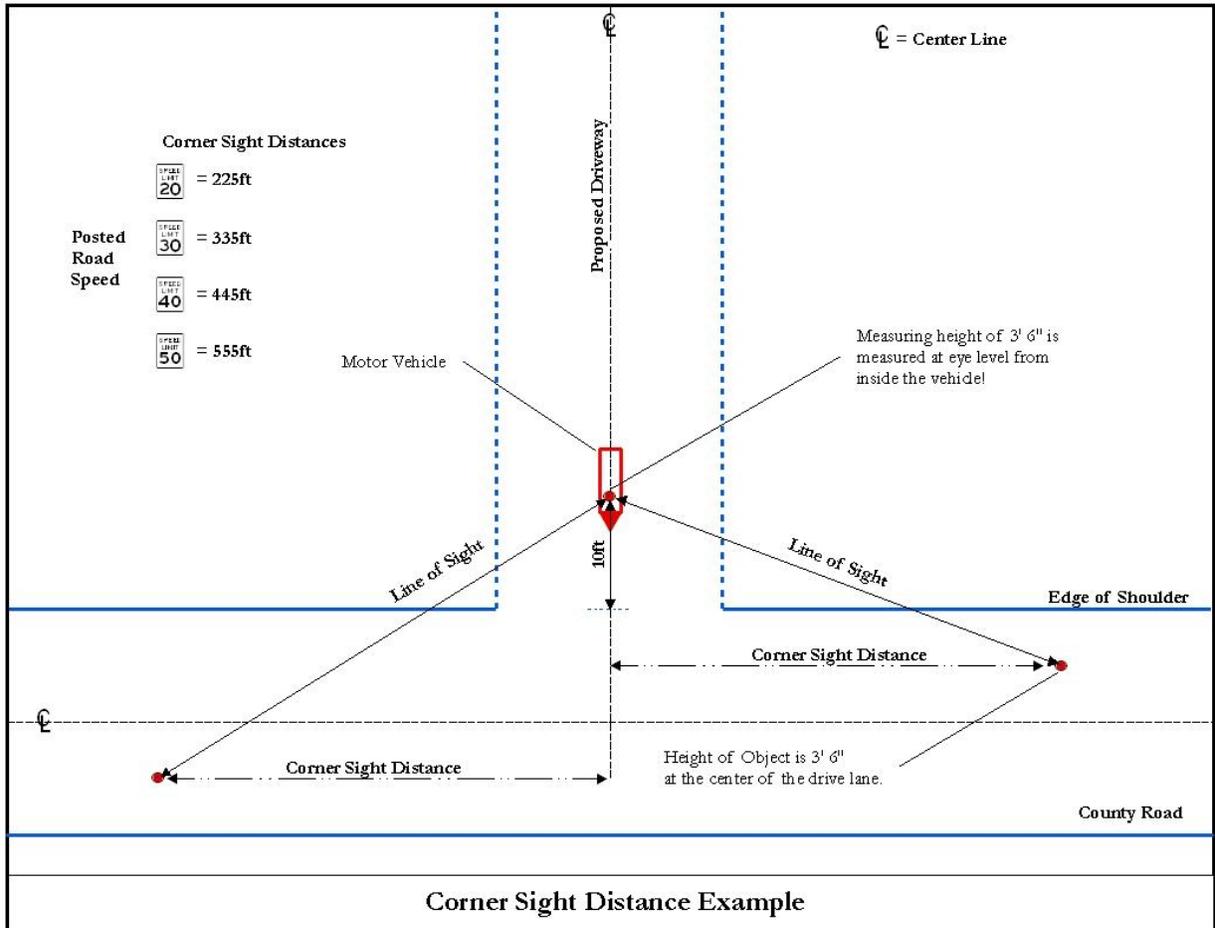
No driveway shall be built to allow the flow of water from a driveway onto an adjoining road.

A low point shall be constructed between the proposed driveway and County Road. This low point shall drain to the proposed driveway culvert.



### 4.3.3 SIGHT DISTANCE

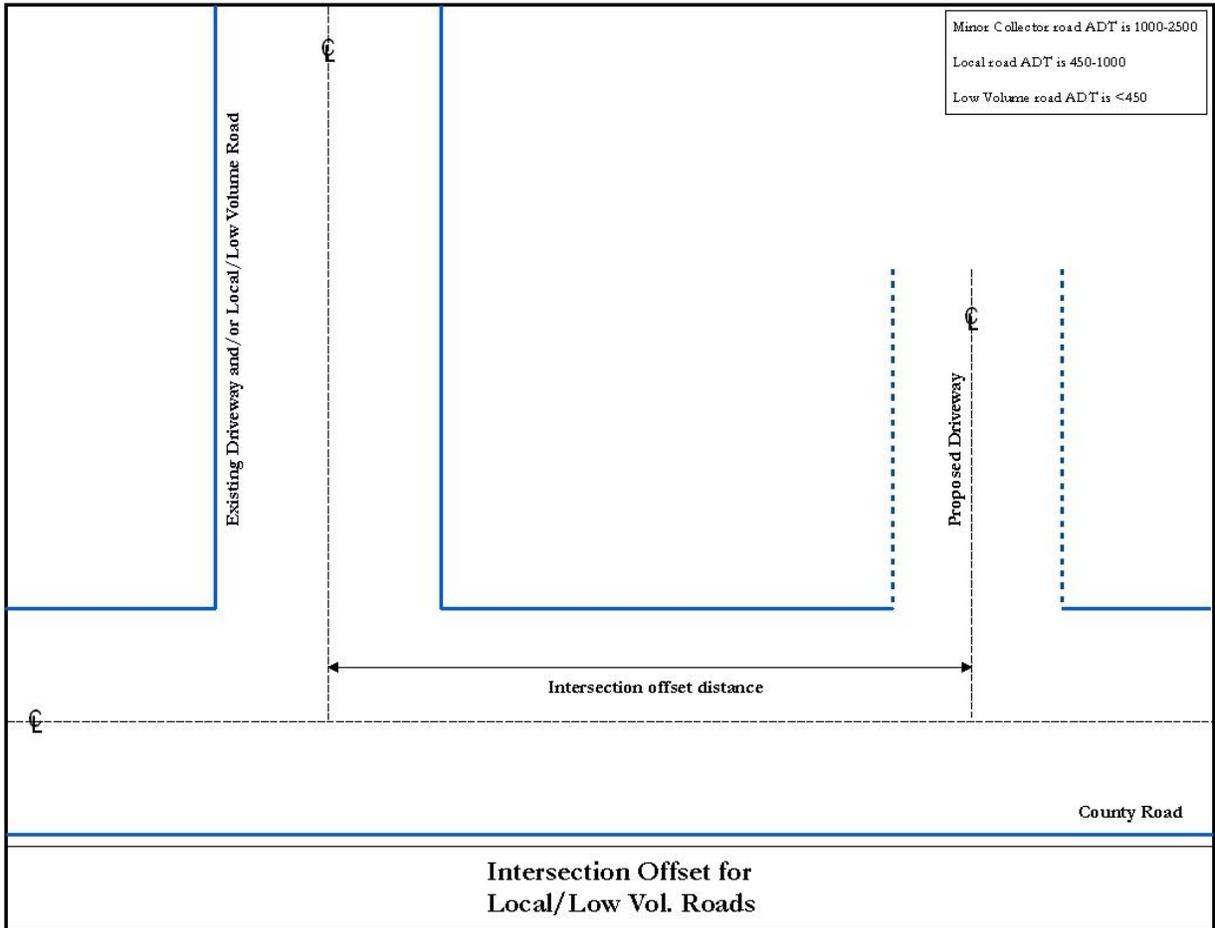
The access design shall provide a minimum corner sight distance as shown in the following example.



#### 4.3.4 INTERSECTION OFFSET

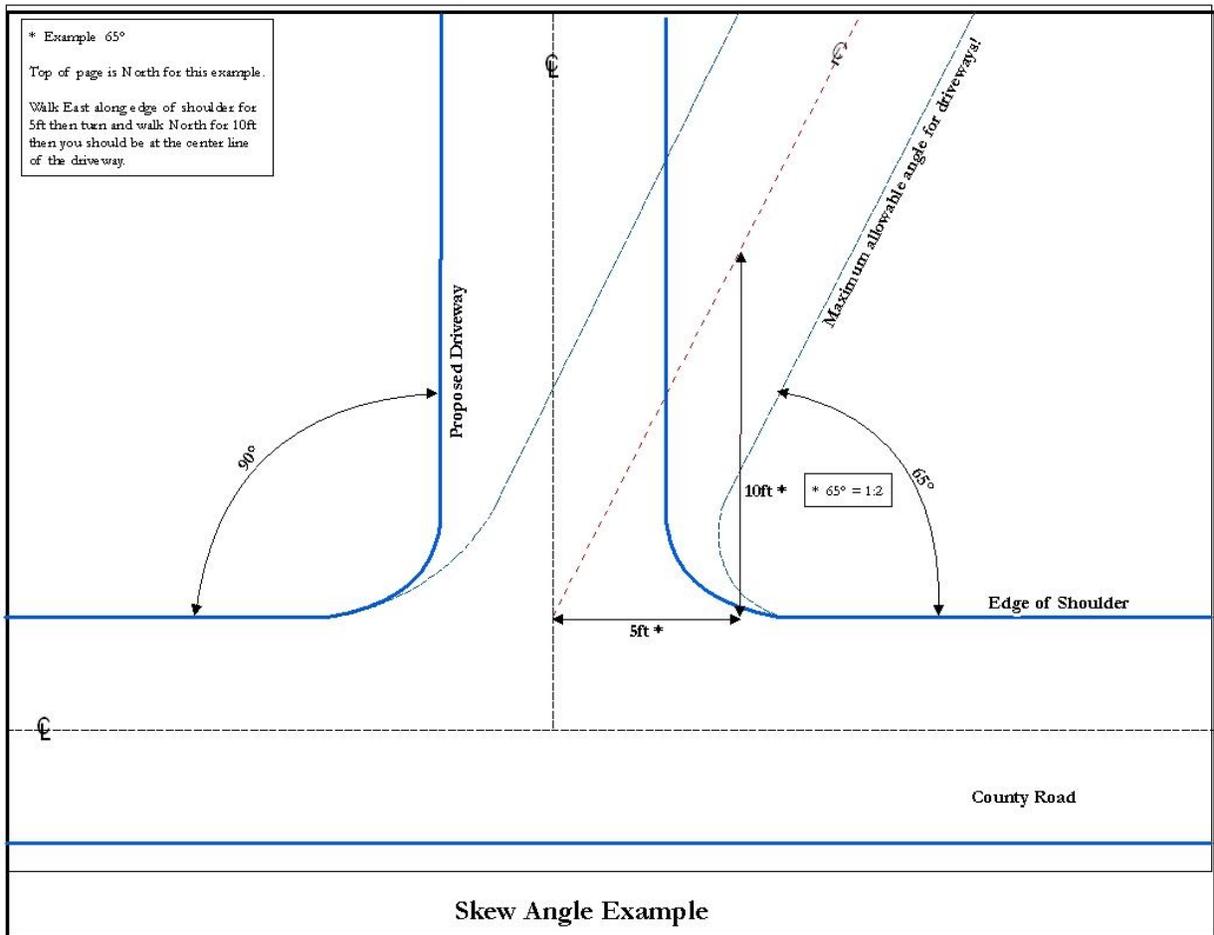
Proposed driveways on Local/Low Volume roads shall be separated a minimum of 50' from adjacent driveways and 125' from Local/Low Volume roads.

Proposed driveways on Minor Collector roads shall be separated a minimum of 100' from adjacent driveways, 125' from a Local/Low Volume road and 200' from a Minor Collector.



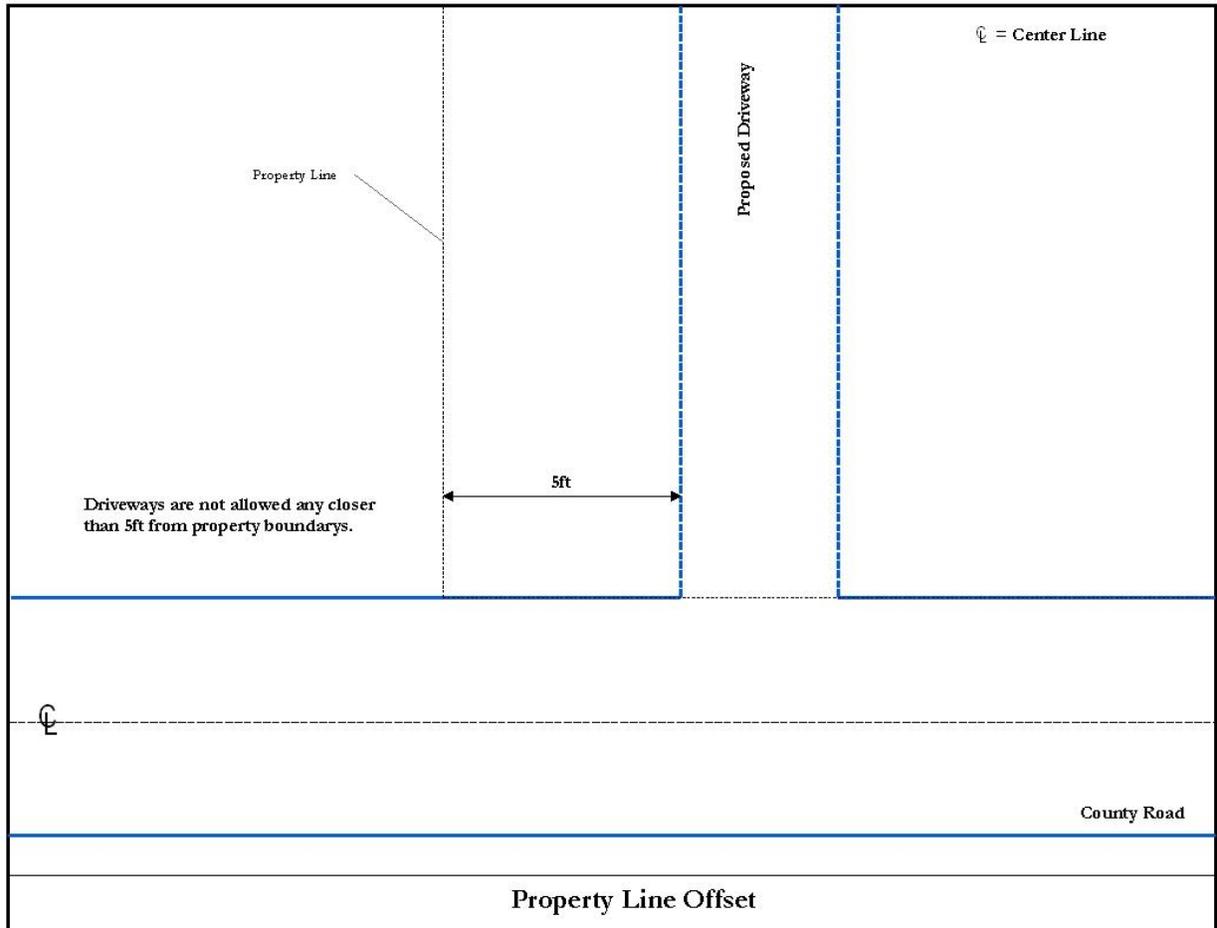
### 4.3.5 SKEW ANGLE

Driveway connections shall intersect existing roads at 90°. Where this is not possible, the maximum skew angle allowed is 65°.



### 4.3.6 PROPERTY LINE OFFSET

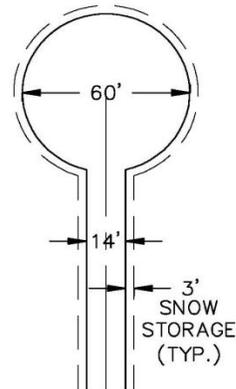
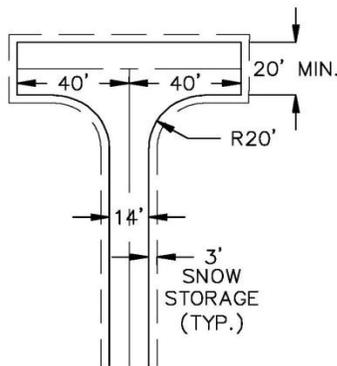
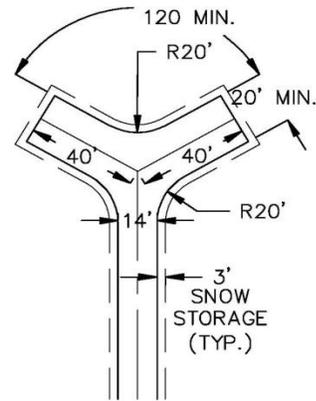
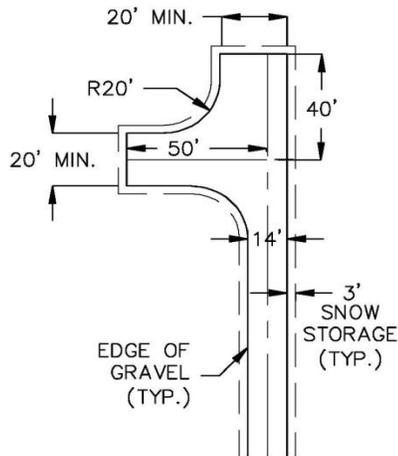
All edges of driveways shall be a minimum of five feet (5') from the adjacent property line.



#### 4.4 RECOMMENDED ADDITIONAL DESIGN PARAMETERS

Driveway design shall accommodate emergency vehicle access. Emergency access for large vehicles may be restricted if proper widening, overhead clearances, and surfacing are not considered in the design. Unless otherwise required by any County land use process, after the first 50' the following is **recommended** for all driveways:

1. A minimum horizontal curve radius of 35' at centerline.
2. A maximum grade of ten percent (10%) on straight sections and a maximum grade of eight percent (8%) for curves with radius of  $\leq 50'$  at centerline.
3. If the length of the driveway exceeds 200', a turn-around shall be provided in accordance with these examples.



4. When a horizontal curve turns greater than 120° the maximum centerline grade within 25' and through this section will not exceed six percent (6%).

## 4.5 STRUCTURES

All driveways that utilize a bridge or box culvert to cross a waterway shall be designed and signed by a Colorado Licensed Professional Engineer and shall conform to the AASHTO Standard Specifications for Highway Bridges.

## 4.6 CULVERTS

A driveway culvert shall be installed during initial driveway construction. The property owner shall be responsible for the maintenance and replacement of their driveway culvert.

In certain instances, a culvert may not be required by virtue of topography. In that event, the driveway permit will indicate that a culvert is not required. A waiver for culvert installation does not constitute a waiver of the permit fee, inspections or any other requirements for the driveway.

The minimum driveway culvert size is 15". A culvert capacity analysis may be required by the Grand County Road and Bridge Department. Unless a variance is granted by the Road and Bridge Department and/or the County Engineer, the proposed driveway culvert size shall be equal to or larger than all existing upstream culverts.

Driveway connections to any road shall not be constructed in such a way as to impede the normal flow across the driving surface of the County Road or in roadside ditches, culverts, under drains, bridges or other drainage works. In the event that such an impediment results in damage to any of the items listed above, Grand County Road and Bridge may remove the impediment and bill the property owner for the costs of repairs, including labor, equipment and material.

Installation of a concrete pan in place of a culvert will be considered on a case-by-case basis and shall require a detailed design prior to review and approval by the Road and Bridge Department and/or the County Engineer.

The type of culvert installed is subject to the Road and Bridge Department approval. High Density Polyethylene (HDPE) culverts exceeding 24" and HDPE flared end sections shall not be allowed. Corrugated Metal Pipe (CMP) shall be a minimum of 16 gauge, for pipes exceeding 24" see the CDOT M&S Standards for minimum gauge. Reinforced concrete pipe (RCP), HDPE and CMP pipes shall meet all applicable and current ASTM and AASHTO Standards.

## 4.7 CULVERT INSTALLATION

Culverts shall be installed in accordance with the following requirements:

1. The installation shall meet CDOT M&S Standards and CDOT Highway Specifications.
2. The minimum cover shall be 12" (measured from top of pipe to final grade of driveway). If minimum cover cannot be met, a variance, with an alternative design shall be submitted with the following information:
  - a. Evidence that the roadside ditch capacity is not compromised (drainage calculations may be required).
  - b. Evidence that existing conditions do not allow for proper culvert cover.

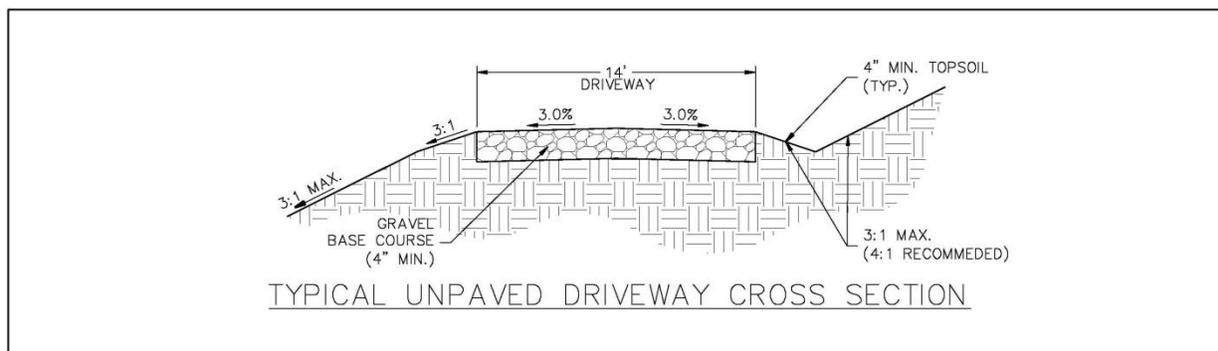
3. The installation of multiple pipes will require spacing of ½ the diameter (1' min. and 4' maximum) between pipes.
4. Driveway culverts must be constructed with a 1% minimum flowline grade, with no vertical or horizontal bends. If bends are proposed a cleanout access will be required.
5. Class 1 bedding shall be used for all culverts, unless suitable material is available and approved by a geotechnical engineer. Minimum bedding depth below culverts is 4" in soil and 12" in rock. In addition, HDPE pipe requires that bedding material be uniformly placed, tamped and compacted to 12" above top of pipe.
6. Compacted backfill shall be required for the full depth of the trench above the bedding in the following locations:
  - a. Beneath driveways, parking areas, road or other surface construction or structures.
  - b. Driveway and parking area shoulder.
  - c. Beneath fills or embankments.

Compacted backfill shall consist of job-excavated material, finely divided and free from debris, organic material, cinders or other corrosive material, and stones larger than 3" in greatest dimensions; moist, stiff clay shall not be used. Job excavated materials shall be placed in uniform layers not exceeding 8" in uncompacted thickness. The method of compaction and the equipment used shall not transmit damaging shocks to the pipe. Suitable material excavated from the trench may be used for backfill subject to approval of the Grand County Road and Bridge Department. At no time shall contaminated, wet, soggy, frozen or other unsuitable material be allowed as backfill. If proper backfill material is not at the excavation site, suitable material must be brought in and unsuitable material (i.e. organics, topsoil) removed from the site. Backfill shall extend to the subgrade of the road or to natural ground.

#### 4.8 SURFACING

All driveways shall be surfaced with a minimum four inches (4") of Class 6 (CDOT) base material and have a minimum gravel surface width of 14' (20' maximum). When applicable, it is recommended that a geotechnical engineer provide recommendations for minimum surface depths to accommodate heavy truck access (i.e. fire trucks).

Driveway entrance width shall be minimized whenever possible.



## **4.9 RETAINING WALLS**

Retaining walls (including gabion baskets) are not allowed within the County Right-of-Way without an approved variance. In no case, shall the County maintain any retaining wall(s) within the County Right-of-Way.

All retaining walls shall be less than 4' in height and shall be no steeper than 1:1. A minimum bench of 4' at 8:1 shall be required when the use of multiple retaining walls in sequence is proposed (measured from the top of wall to the bottom of the next wall). Retaining walls that do not meet the above requirements shall be signed and stamped by a Colorado Licensed Professional Engineer and require a building permit.

## **4.10 SLOPES**

The maximum cut/fill slope requirement is 2:1 (horizontal: vertical). Slopes steeper than 2:1 shall require a submittal for approval by the County with the following data supplied by a Colorado Licensed Professional Engineer:

- a. A slope stability analysis
- b. Soil profile
- c. Erosion control and turf reinforcing design
- d. Detailed list of seeding and mulching materials
- e. Implementation plan – including time frame to completion

Slopes steeper than 3:1 shall be treated with an approved rolled erosion control product. Drainage ways including culverts and roadside ditches with side slopes exceeding 4:1 shall be treated with an approved rolled erosion control product and/or slope protection.

## **4.11 REVEGETATION, EROSION AND SEDIMENT CONTROL**

In drainage ways where flows are considered erosive by the Grand County Road and Bridge Department and/or the County Engineer, the installation of angular riprap may be required at the outlet of the driveway culvert.

Inlet and outlet protection (i.e. straw wattles) shall be installed at all driveway culverts and shall not be removed until all disturbed areas have been revegetated.

Vehicle Tracking Control may be required by the Grand County Road and Bridge Department and/or the County Engineer on a case-by-case basis. It is the landowner's responsibility to ensure that vehicles do not track dirt, mud, etc. onto the adjoining road surface and that the adjoining road is cleaned on a daily basis if needed.

Permanent revegetation is required on all disturbed areas that are either at finished grade or expected to remain dormant for a period longer than one year. Permanent seeding shall consist of an appropriate native perennial cover crop as recommended by the Natural Resources Conservation Service (NRCS) office in Kremmling (970-724-3456), or approved equal by the County Engineer.

Reference *East Grand Water Quality Board Erosion and Sediment Control for Construction Activities Guidance Handbook* for erosion and sediment control Best Management Practices (BMPs). Additional BMPs should be considered as site characteristics dictate (i.e. rock check dams, perimeter protection, etc.).

## **4.12 SNOW STORAGE**

Snow storage for driveways shall be provided onsite. Driveway intersections should be designed and constructed with gradual side slopes when intersecting a County Roadway to allow for sufficient on-site snow storage. **It is unlawful to push snow onto a County Road under C.R.S. § 43.5.301.**

## **4.13 VARIANCE**

### **4.13.1 VARIANCE REQUEST**

If an applicant desires to design and construct a driveway in variance to these standards, such variance(s) shall be specified in a detailed letter addressed to Grand County Road and Bridge. The variance request(s) shall consist of:

- a) Name
- b) Mailing & Property Address
- c) Phone number
- d) E-mail address (optional)
- e) A detailed sketch of the work site showing the placement of the proposed driveway
- f) Identification of the driveway standards to be waived or varied
- g) Identification of the alternative design for driveway
- h) A detailed letter requesting the variance and addressing the items in 4.13.2
- i) Letter of recommendation or denial from Grand County Emergency Medical Services (EMS) and Fire department are required. (Any recommendation or denial by EMS or the Fire department will be recorded with the property if variance is approved)
- j) Variance fees as shown in this chapter

Variance requests may be required to be signed and stamped by a Colorado Licensed Professional Engineer. Grand County Road & Bridge staff will notify the applicant if this is required.

### **4.13.2 VARIANCE REVIEW**

Variations from the driveway standards contained in these regulations shall be reviewed by Grand County Road & Bridge and/or the County Engineer. Once a review of the variance request has been completed, Grand County staff and/or the County Engineer will determine if the variance will be approved. The following circumstances will be considered:

- a) Where, by reason of exceptional situations or conditions, the strict application of these driveway standards would result in peculiar practical difficulties, undue hardship upon an individual or would result in excessive cut and fill slopes, visual scarring, or other environmental damage.
- b) A variance from the difficulties or hardship may be granted provided relief will not result in substantial detriment to public health, safety and welfare, substantial impairment of the driveway design or the granting of any special privilege or use.

#### **4.13.3 VARIANCE APPEAL**

Any applicant who has been denied a variance by Grand County Road and Bridge staff and/or the County Engineer may present their appeal to the Board of County Commissioners (BOCC). The appeal process is as follows:

- a) Letter of request to Grand County Road and Bridge asking to be placed on the BOCC agenda to appeal the decision to the original variance request.
- b) Grand County Road and Bridge will schedule a time before the BOCC.
- c) Applicant will be notified of time and date to present their appeal to the BOCC.
- d) All documents presented to the Grand County Road and Bridge at the time of the original variance will be presented to the BOCC.

All decisions made by the BOCC shall be final.

#### **4.13.4 VARIANCE COSTS**

Once it has been determined by Grand County Road and Bridge and/or the County Engineer that a variance will be required any and all cost associated with the variance are required to be paid for by the applicant including County Engineer Fees as applicable. A deposit of \$420.00 for all variance(s) requests shall be provided at the time the variance is requested. Variance cost will not exceed \$1000.00.