

## **I -- Purpose and Authority**

1. A.R.S. § 11-251 authorizes the Boards of Supervisors of the various counties to “lay out, maintain, control and manage” the public roads in unincorporated areas of the county. A.R.S. § 40-283 provides that the Board “may impose restrictions and limitations upon the use of the public roads as it deems best for the public safety or welfare.” A.R.S. § 11-562 provides that the County Engineer, as the agent of the Board of Supervisors, “shall have charge of all highways, other engineering construction and improvements, alterations and repairs to county property.”
2. Case law has held that the use of public rights-of-way for other than its primary intended use is subordinate to the use by the authority that controls the roads.
3. The Navajo County Board of Supervisors, on June 8, 1971, adopted a resolution imposing certain regulations on construction within the public rights-of-way in the unincorporated areas of Navajo County, including the requirement that a permit be obtained from the office of the County Engineer.
4. Changes in the methods of construction and in the liability exposure of the public agency require updating of permit requirements and construction specifications periodically.
5. The purpose of these stipulations and specifications is to consolidate and standardize permit requirements for work within public rights-of-way under the control of Navajo County to ensure adequate protection of legitimate users of public rights-of-way. It is not the intent to supplant any other requirements of Federal, State, or local regulatory agencies or codes, nor those of individual utilities.
6. The specifications detailed herein are intended to serve as the minimum standards for all construction within existing or proposed Navajo County rights-of-way. For work within existing public rights-of-way, the permit issued by the County Engineer’s office shall prescribe which parts of these specifications shall be complied with in the work.
7. Failure to conform with these specifications may be considered a violation of A.R.S. § 28-7053, and subject to the penalties therein specified. Encroachments installed without a permit are subject to removal and restoration of the right-of-way at the owner’s expense.
8. Navajo County may, in certain cases, require the Permit Holder to furnish a performance bond or other financial assurance for major or extensive projects, and/or may accept a financial assurance in lieu of certain testing requirements.

## **II-DEFINITIONS OF TERMS**

- A. ADOT: The Arizona Department of Transportation.
- B. Annual permit: A permit issued to a franchised Utility or Improvement District utility as defined under A.R.S. § 48 for a period of one year which allows the Utility to perform routine or emergency maintenance or repairs to their plant, and install service connections when all of the work will be outside the roadway prism.
- C. Certified Flagger An individual who has been trained and certified by the Arizona Department of Transportation, Arizona LTAP, any Arizona County or Municipal agency, the Federal Highway Administration, the Highway agency of another state, or similar agencies acceptable to the Engineer to control traffic in a construction zone. Individuals certified outside Arizona shall exhibit familiarity with Arizona laws.
- D. Contractor: The licensed Contractor, as listed with the Arizona Registrar of Contractors, who will be performing the actual work within the right-of-way. Also, may be a franchised utility or an Improvement District as defined in A.R.S. § 48.
- E. County Engineer: The Registered Professional Engineer designated by the County Board of Supervisors as its agent in the managing of the public rights-of-way. Also identified as the Superintendent of Streets in A.R.S. § 48
- F. Encroachment: Any construction within the public right-of-way other than the roadway or its appurtenances or use of the public right-of-way other than as specified in A.R.S. § 28-7053.
- G. Engineer: The County Engineer or a designated member of the County Engineer's staff.
- H. Hard Copy: The copy of the permit that states "This copy shall be posted or present on the job site," or similar words. The actual permit as issued by the Engineer.
- I. Inspector: An individual designated by the Engineer to observe and document work being performed in public rights-of-way.
- J. Longitudinal: The direction parallel to the centerline of the right-of-way.
- K. Owner's Engineer: Registrant employed by the Permit Holder to design the encroachment and monitor the construction.

- L. **Permit Holder:**The individual or utility who owns the encroachment or facility that will be constructed in accordance with a permit issued under these regulations.
- M. **Proctor Density** A laboratory method of determining optimum moisture content and target density for field compaction of soils. Typically, refers to tests performed in accordance with ASTM D-698 (AASHTO T-99), commonly known as “Standard Proctor,” or ASTM D-1557 (AASHTO T-180), “Modified Proctor”. Herein referred to as T-99 and T180. The Permit Holder shall select, with the approval of the Engineer, which method of density control shall be used before starting work.
- N. **Registrant:** A properly licensed design professional as defined in A.R.S. § 32 and Title 4, A.A.C. § 30.
- O. **Roadway Appurtenances:** Traffic control devices and signs, ditches and cross road culverts, headwalls, cattleguards, and other facilities and structures owned, installed, and/or maintained by Navajo County for the safety and convenience of the primary users of the right-of-way.
- P. **Roadway Prism:** That area within the public right-of-way between ditch bottoms, i.e., the portion of the right-of-way that affects the movement of traffic and the support of the applied traffic loads.
- Q. **Select Material:** Backfill or embankment soil consisting of native materials which have been processed to remove any particles larger than the least of: passing a four-inch screen, two-thirds of the compacted lift thickness, or one-third of the minimum trench width.
- R. **Slurry:** A mixture of an appropriate aggregate, water and one or two sacks of Portland cement per cubic yard as specified by Navajo County, used as a backfill under paved roads or when controlled density backfill methods are impractical or uneconomical. Seasonal adjustments to the mix design, which may include use of accelerants, altered cement or water content, or changes to the aggregate gradation may be required.
- S. **Specifications:**These construction specifications, and, by reference if not specifically quoted or included, ADOT Standard Specifications for Road and Bridge Construction, current edition. MAG Specifications are NOT acceptable for work in Navajo County rights-of-way unless approved by the County Engineer in advance for specific work items, generally limited to utility details.
- T. **Transverse:** The direction perpendicular to the centerline of the right-of-way.
- U. **Traveled Way:**That portion of the right-of-way normally used by vehicles, including the paved surface (if any) and the shoulder.

V. Wheel Path: The portion of the traveled way where most vehicles wheels, contact the roadway surface.

### **III -- General Requirements**

April 26, 1999

1. Prior to performing work above, beneath or within a Navajo County Road right-of-way, a permit shall be applied for at the Navajo County Public Works Department. This includes any public road right-of-way or easement, whether or not it is a maintained road. The permit will be issued to the owner of the encroachment. The Contractor who will be performing the work may apply for the permit. The hard copy of the permit shall be available on the job site.
2. For any construction within a right-of-way, the preferred location is the greatest distance away from centerline that is practical. Excavation, construction, and restoration requirements necessarily are more stringent closer to the center of the roadway.
3. The Engineer reserves the right to issue a letter of no objection for certain work in unopened rights-of-way rather than a formal permit when it is in the best interests of the County.
4. Signs, including but not necessarily limited to, business and personal advertising, real estate, and political campaign signs, are NOT permitted within the public right-of-way, and are subject to immediate removal when observed by county personnel.
5. All work within road rights-of-way, including any landscaping work or driveway construction between the edge of the traveled roadway and the easement or property line, shall be performed by a licensed, bonded, and insured Contractor, or a franchised or Improvement District utility. A property owner may install a driveway culvert, construct a driveway or install minor landscaping materials for his/her own single family residence.
6. When a major part of the work is in the road right-of-way, the Contractor shall hold a Contractor's license of a grade and type acceptable to the Engineer. When work in the right-of-way is minor or incidental to the main effort on a residential lot, any Contractor licensed for the particular work may perform the work in the right-of-way. Examples of minor work in the right-of-way include installation of short-side utility service(s) to a single family residence, installation of a driveway and culvert as part of the construction of a single family residence, and landscaping of the area outside the roadway prism. All road crossings, whether bored or open cut, shall be made by a Licensed Contractor or a qualified crew from the local utility.
7. All utility work within the right-of-way shall adhere to the requirements of the approved project plans and utility specifications and/or the current county construction specifications.
8. The Permit Holder shall ensure compliance with all applicable Federal, State, and Local laws, including but not limited to, OSHA, EPA, and utility protection (Blue Stake) requirements. Work shall be done in conformance with the current edition of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction as modified herein, except as approved in advance by the Engineer.
9. Navajo County reserves the right to periodically or continuously inspect the work as it affects the road right-of-way, reduce or eliminate requirements and stipulations, and close the permit when all work and punch list items are finished. The specific involvement of the Inspector shall be to ensure compliance with the permit requirements and specifications as related to the road right-of-

way, to ensure that the public convenience and safety are maintained, and to serve as the primary point of contact between the Engineer and the permit holder. The presence or absence of an inspector does not relieve the permit holder from any of the permit provisions. The Inspector will not be responsible for technical inspection of the permitted work, but only for the compliance with the permit requirements. The Inspector may reject any portion of the work and require replacement of work that does not conform with these specifications.

10. A single point of contact, and at least one alternate, shall be designated in writing by the permit holder prior to the start of work. These contact persons may be employees of the Permit Holder, or of the Contractor, at the discretion of the Permit Holder. At least one contact person shall be available, in person or by radio or telephone, within 15 minutes of the job site whenever there is any work in progress on the job. The Inspector is the single point of contact with Navajo County, and is available by cell phone or radio from any of the Navajo County Public Works offices during working hours.
11. If the Permit Holder elects to work more than a forty-hour week, other than on an emergency basis, then work inspected after forty hours shall be considered as overtime. The Engineer reserves the right to inspect such planned work and the Permit Holder shall reimburse Navajo County for actual cost of inspection which includes wages at time-and-one-half (double time on Sundays and holidays) and mileage.
12. Permit Holder shall locate sufficient property corner pins along the right-of-way of each road included in the permit to assure themselves work is done in the proper location. Navajo County is not responsible for incorrectly located work.
13. Permit Holders and/or Contractors shall submit acceptable proof of insurance with the permit application or shall maintain on file an annual certificate of insurance proving coverage that is satisfactory to the County Engineer. All utilities shall maintain on file a current certificate of insurance listing Navajo County as an additional named insured.
14. The Engineer may, at any time during the period of construction, waive specific compliance with any of these conditions provided Permit Holder and/or Contractor have exhibited reasonable conformance with their intent, and may reduce the frequency or intensity of inspection. Conversely, the Engineer reserves the right to impose additional or more stringent requirements when deemed necessary. Implementation of any such changes is at the sole discretion of the Engineer, on a case-by-case basis.
15. Major changes to the approved construction plans will require submission of revised plans to the Engineer. Such revised plans shall be received in the Holbrook office at least three working days prior to the intended start date of the revised work, and may be submitted in a digital form compatible with AutoCAD. Minor changes may be approved by the Inspector on the job, or, at the Inspector's discretion, may be referred to the Engineer. All changes shall be reflected on the "As-Built" drawings submitted at the close of the project. Major changes include, but may not be limited to:
  - a) Changes of desired location:
    - i to opposite side of road
    - ii into roadway prism

- iii into pavement
  - b) Changes to proposed traffic control plan or methods
  - c) Changes backfill or restoration materials.
  - d) Any changes to culvert or drainage facilities other than substituting an equivalent arched culvert for a round pipe culvert.
- 16.** Permit Holder shall be responsible for and warranty any and all repairs to the roadway should any work done under the permit fail.
- 17.** Work begun within a road right-of-way without a permit being issued is subject to removal of the encroachment and restoration of the right-of-way at the expense of the owner of the encroachment, and may subject the owner of the encroachment to liability for damages to other users of the right-of-way. Repeated violations may result in civil or criminal penalties and/or the posting of a bond or other surety.
- 18.** The County Engineer requires plans and specifications for any right-of-way encroachments to be signed and sealed by an appropriate Registrant. Navajo County may waive this requirement for small projects with adequate justification from the applicant. All work in the right-of-way shall be performed under the supervision of a Professional Engineer.
- 19.** Navajo County reserves the right to require the use of specific types or sizes of equipment and construction methods for any portion of the work within the public right-of-way when such is deemed in the best interests of protection of public health, safety, and welfare. This particularly includes, but may not be limited to, the backfill and restoration operations and traffic protection and control.
- 20.** Asphalt patches in roadway pavement shall be compacted with power rollers of sufficient weight for the thickness of the applied lift. Vibratory plate compactors are acceptable only for small isolated patches inaccessible to small rollers, and their use shall be approved in advance by the Engineer.
- 21.** Permit Holder shall ensure that copies of all required test reports are transmitted through the Owner's Engineer to the Engineer on a timely basis. Compaction test reports shall be received by the Engineer not later than the next working day after the test is performed. Late test reports shall constitute grounds for the Engineer to require more stringent construction requirements, or suspend operations under the permit.
- 22.** Failure to provide proper traffic control may result in the issuance of an immediate STOP WORK order and/or revocation of the permit.

1. The Permit Holder shall notify homeowners in advance of work in front of their property that extends beyond one working day. Notice may be by letter, personal contact, or “Door Knob Hangers”, etc.
2. The Permit Holder shall have notice of total road closures and partial closures if required by the Engineer announced on the local radio stations 24 to 48 hours in advance of the start of work. Notice shall give location and duration of travel restrictions and suggested detours to use.
3. The Permit Holder shall notify Navajo County before removing or obscuring any traffic control device, including signs, pavement markings or signals. Replacement of such devices shall be as directed by and under the supervision of the Engineer.
4. The Permit Holder SHALL notify affected utilities, local authorities, emergency service providers, etc., as appropriate, two working days prior to commencing construction.
5. The Permit Holder shall notify the Navajo County Sheriff’s Dispatch upon the installation and/or removal of any road closures, or lane closures on major roads. The Holbrook number may be used at any time to contact dispatch.

Holbrook	524-4050
Winslow	289-6860
Heber	535-4611
Show Low-Pinetop	532-6060
Emergencies	<b>911</b>

6. The Permit Holder shall notify the Navajo County Public Works Department at least two working days prior to the start of any work under either an annual or one-time right-of-way use permit or before the pre-construction meeting for major projects. Emergency utility repairs are exempt from the advance notice requirement, but notice shall be given as soon as practical of any work within the right-of-way. This includes calling the Public Works Department or Sheriff’s Dispatch during non working hours while the emergency repair crews are in route to or at the scene of the emergency.

520-532-6026  
520-289-6839  
520-524-4406

## V - MAIL BOXES

### **NAVAJO COUNTY REGULATION FOR THE ACCOMMODATION OF MAILBOXES AND NEWSPAPER DELIVERY BOXES ON PUBLIC HIGHWAY RIGHT-OF-WAY**

No mailbox or newspaper delivery box (hereafter referred to as mailbox) will be allowed to exist on Navajo County's rights-of-way if it interferes with the safety of the traveling public or the function, maintenance, or operation of the highway system. A mailbox installation that does not conform to the provisions of this regulation is an unauthorized encroachment under A.R.S. §28-7053.

The location and construction of mailboxes shall conform to the rules and regulations of the U.S. Postal Service as well as to standards established by the Navajo County Public Works Department. Standards for the location and construction of mailboxes are available from:

Navajo County Public Works Department  
P.O. Box 668, 100 East Carter Road  
Holbrook, AZ 86025  
(520)524-4100

A mailbox installation that conforms to the following criteria will be considered acceptable unless in the judgment of the County Engineer, the installation interferes with the safety of the traveling public or the function, maintenance, or operation of the highway system.

#### **LOCATION:**



No mailbox will be permitted where access is obtained from the lanes of a freeway or where access is otherwise prohibited by law or regulation.



Mailboxes shall be located on the right-hand side of the roadway in the direction of the delivery route except on one-way streets where they may be placed on the left-hand side. The bottom of the box shall be set at an elevation established by the U.S. Postal Service, usually between 1 m and 1.2 m (39"-48") above the roadway surface. The roadside face of the box shall be offset from the edge of the traveled way a minimum distance of the greater of the following: a) 2.4 m (8') (where no paved shoulder exists and shoulder cross-slope is 13% or flatter) or, b) the width of the all-weather shoulder present plus 200 mm to 300 mm (8"-12").



Exceptions to the lateral placement criteria above will exist on residential streets and certain designated rural roads where the Public Works Department deems it in the public interest to permit lesser clearances or to require greater clearances. On curbed streets, the roadside face of the mailbox shall be set back from the face of the curb a distance between 150 mm (6") and 300 mm (12"). On residential streets without curbs or all-weather shoulders and that carry low-traffic volumes operating at low speeds, the roadside face of a mailbox shall be offset between 200 mm (8") to 300 mm (12") behind the edge of pavement.



On very low-volume rural roads with low-operating speeds, the Public Works Department may find it acceptable to offset mailboxes a minimum of 2 m (7') from the traveled ways and under some low-volume, low-speed conditions may find clearances as low as 0.8 m (30") acceptable.



Where a mailbox is located at a driveway entrance, it shall be placed on the far side of the driveway in the direction of the delivery route.



Where a mailbox is located at an intersecting road, it shall be located a minimum of 30 m (100') beyond the center of the intersecting road in the direction of the delivery route. This distance shall be increased to 60 m (200') when the average daily traffic on the intersecting road exceeds 400 vehicles per day.



Where a mailbox is installed in the vicinity of an existing guardrail, it shall be placed behind the guardrail.

## **STRUCTURE:**



Mailboxes shall be of light sheet metal or plastic construction conforming to the requirements of the U.S. Postal Service. Newspaper delivery boxes shall be of light sheet metal or plastic construction of minimum dimensions suitable for holding a newspaper.



No more than two (2) mailboxes may be mounted on a support structure unless the support structure and mailbox arrangement have been shown to be safe by crash testing. However, lightweight newspaper boxes may be mounted below the mailbox on the side of the mailbox support.



Mailbox supports shall not be set in concrete unless the support design has been shown to be safe by crash tests when so installed.



A single 100 mm (4") x 100 mm (4") diameter wooden post or a metal post with a strength no greater than a 50 mm (2") diameter standard strength steel pipe (schedule 40) and embedded no more than 600 mm (24") into the ground will be acceptable as a mailbox support. A metal post shall not be fitted with an anchor plate, but it may have an anti-twist device that extends no more than 250 mm (10") below the ground surface.



The post-to-box attachment details should be of sufficient strength to prevent the box from separating from the post top if the installation is struck by a vehicle. (Figures 7 through 13 on pages 13 to 20 show acceptable attachment details and mailbox support assemblies. The exact support hardware dimensions and design may vary, such as having a two-piece platform bracket, or alternative slot and hole locations. The product must result in a satisfactory attachment of the mailbox to the post, and all components must fit together properly.



The minimum spacing between the centers of support posts shall be three-fourths the height of the posts above the groundline.

#### **SHOULDER AND PARKING AREA CONSTRUCTION:**



It will be the responsibility of the postal patron to inform the Public Works Department of any new or existing mailbox installation where shoulder construction is inadequate to permit all-weather vehicular access to the mailbox.

#### **REMOVAL OF NONCONFORMING OR UNSAFE MAILBOXES:**



Any mailbox that is found to violate the intent of this regulation shall be removed by the postal patron upon notification by the Public Works Department. At the discretion of the County Engineer, based on an assessment of hazard to the public, the patron will be granted not less than 24 hours nor more than 30 days to remove an unacceptable mailbox. After the specified removal period has expired, the unacceptable mailbox will be removed by the Public Works Department at the postal patron's expense.

**SUGGESTED GUIDELINES FOR  
LATERAL PLACEMENT OF MAILBOXES**

**Table 1**

<b>Highway Type and Traffic Conditions</b>	<b>Width of All-Weather surface of Turnout or Available Shoulder at Mailbox - Meters</b>		<b>Distance Roadside Face of Mailbox is to be Offset Behind Edge of Turnout or Usable Shoulder - Millimeters</b>	
	<b>Preferred</b>	<b>Minimum</b>	<b>Preferred</b>	<b>Minimum</b>
<b>Rural highway ADT over 10,000 vpd</b>	<b>™ 3.6</b>	<b>3.0</b>	<b>200 to 300 8" to 12"</b>	<b>0</b>
<b>Rural highway ADT = 1,500 to 10,000 vpd</b>	<b>3.6</b>	<b>2.4</b>		
<b>Rural highway ADT = 100 to 1,500 vpd</b>	<b>3.0</b>	<b>2.4</b>		
<b>Rural road ADT under 100 vpd</b>	<b>2.4</b>	<b>1.8</b>		<b>200* 8"</b>
<b>Residential street without curb or all-weather shoulder</b>	<b>1.8</b>	<b>0</b>		

<b>Curbed residential street</b>	<b>Not applicable</b>	<b>200 to 300 Behind Traffic Face of Curb</b>	
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ADT = Average Daily Traffic

vpd = Vehicles  
Per Day

\* If a turnout is provided, this may be reduced to zero.

C:\TEMP\Specs...wpd

1. Mail box installation shall be in conformance with US Postal Service requirements and shall require a permit if the installation is within the roadway prism as herein defined. Mailboxes shall be installed in a configuration, manner, and location that does not constitute a traffic hazard. Navajo County reserves the right to reject and remove at owners' expense any mail box installation that interferes with the safe use of the roadway.
  
2. Mail boxes within the roadway prism shall be installed in accordance with USPS Form 4056, and the AASHTO "A Guide for Erecting Mailboxes on Highways" Mailbox supports shall not exceed the strength of a 4" X 4" wood post, a 2" standard strength steel pipe, or 2 Lb/Ft steel "U" post embedded 2' in the ground. Mail box supports shall not be set in concrete, and the mail box should not separate from the support upon vehicle impact.

## **VI - DRIVEWAY, CULVERTS, AND LANDSCAPING**

1. Installation of heated driveways, sidewalks, or other landscape features within the public right-of-way shall be specifically identified on the permit application. Use of glycol or other toxic or hazardous materials in such systems shall not be permitted within the public right-of-way. Neither Navajo County, its Contractors or agents, nor other Permit holders or their Contractors shall be liable for replacement of any such features that are installed contrary to the requirements of the installation permits or without a permit.
2. New or restored driveway pavement shall conform with the established road grade, and shall not extend above the plane of the extended roadway crown within the roadway prism.
3. Driveway culverts shall be at least 18" diameter or equivalent arched corrugate metal pipe. Larger sizes may be required when local drainage conditions warrant. Smaller sizes or other materials are not acceptable unless approved in advance by the Engineer. Arched, or "squashed" or "flat-bottom" pipe shall be installed with the flatter side down, and in such a manner as to remove any bow or curvature of the pipe.

1. Contractor shall provide adequate sanitary facilities on the job site for use of the workers. The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his employees as required to comply with the requirements of the State and local boards of health, or of other bodies or tribunals having jurisdiction.
2. Trenching operations shall be conducted under the immediate supervision of an OSHA certified Competent Person or a Registered Professional (Civil or Geotechnical) Engineer, who shall have full authority to immediately stop the work until an unsafe trench condition is corrected. Navajo County reserves the right to immediately stop-order trenching operations in the right-of-way if the trench is or becomes unsafe, regardless of depth, or if the Contractor does not have a Competent Person on the job site when a trench exceeds 4 feet in depth.
2. Maximum open trench limits for non working hours are 50 feet with lighted barricades and bright orange nylon or plastic fencing surrounding the trench, unless otherwise indicated on the signed permit. Specific individual variations within a project will be considered on an individual case-by-case basis.
3. Orange or bright yellow-green shirts, vests, or jackets and all appropriate personal protective equipment, including reflective materials when working during periods of limited visibility, shall be used by all workers working within the Right-of-Way during the construction time period. Nomex vests and/or shirts are available in the appropriate colors for operations which require fire resistant or non-spark-generating clothing.
4. A Traffic Control Plan (TCP), in conformance with Part VI, *The Manual of Uniform Traffic Control Devices*, shall be submitted to the Engineer for approval, not less than 3 working days prior to any work being started. A copy of the approved TCP shall be available on the job site at all times when work is in progress.
5. Permit Holder shall ensure that at least two certified flaggers are present and working when work equipment is within the roadway prism and when equipment is entering, exiting, or working in roadway. For short periods of time not to exceed ten (10) minutes out of any one hour when working on low volume roadways, ONE of the required flaggers may be relieved by an uncertified person if the flaggers are in visual contact and have direct radio communications. Except in an emergency where the public safety is immediately endangered, flaggers shall be equipped with a STOP/SLOW sign on a 72" staff.
6. Flaggers other than uniformed police officers shall not direct traffic to operate contrary to any visible regulatory signs. For example, if there is a STOP sign at a flagged intersection, traffic must stop even when moving under flagger control. Requests to remove or obscure regulatory signs shall be included in the TCP and approved by the Engineer in advance.
7. Control of traffic takes precedence over all other construction operations in the right-of-way, and is especially important during any emergency situation. If one lane of traffic is obstructed by construction equipment, materials, or operations, flaggers will be in place and working at all times.

If there are not sufficient workers available to flag traffic and perform the construction operations, work shall stop and substitute flaggers shall be provided until adequate flaggers are present, and all signs are in place and visible to traffic. Sufficient flaggers shall be available to provide continuous flagging during the work operations that require flagging.

- 8.** Flagging and traffic control set-up shall proceed from the least restrictive (the flagger or road closure) and shall be removed in the reverse order.
- 9.** All personnel setting up or removing traffic controls shall be protected with at least one vehicle with flashing lights between them and the approaching traffic.
- 10.** No blasting shall be accomplished within the right-of-way unless approved by County Engineer, local authorities, and done by an appropriately licensed blasting Contractor. Requests for approval for blasting shall be submitted, IN WRITING, not later than one working day prior to the intended start date of any blasting.
- 11.** Blasting within 1000 ft. of a road right-of-way shall be coordinated with the Engineer to ensure proper warning of motorists. Blasting zones shall have such additional warning signs as are required in Section VI, MUTCD.
- 12.** Roads may be closed during non-working hours only with the prior approval of the Engineer. Adequate lighting, detour signing and maintenance, changeable message signs, and advance notice to users of the roadway shall be provided by the permit holder. In certain exceptional cases when one lane of a road must remain closed during non-working hours, the Engineer MAY approve posting the roadway for one-way traffic with proper advance notice and appropriate signs. Flaggers may be required to be on site twenty-four hours per day, with adequate flood lighting of their positions, when one-way traffic or an overnight road closure is in effect.

**VIII -- Temporary Facilities and Maintenance of Work Area** April 26, 1999

1. No processing of soil will occur on the traveled portion of road rights-of-way without written approval of the Engineer in advance.
2. STOP and YIELD signs that are removed or obscured by construction activities shall be replaced with ones mounted on a temporary support as directed by the Inspector during periods when flaggers are not present. Permanent replacement of STOP or YIELD signs shall be under, the direct supervision of the Engineer.
3. Disposal or processing of soils on private property shall only occur with the written permission of the property owner. If such disposal is in excess of fifty (50) cubic yards or within a wash or flood plain, a copy of the approved grading plan and permits shall be attached to the written approval.
4. Trenching spoil shall be removed from the traveled portion of road rights-of-way prior to the end of each work day in order to restore unobstructed two-way traffic. If this is not practical, then traffic control shall be established in accordance with a traffic control plan prepared in accordance with the MUTCD and approved by the Engineer.
5. Proper temporary ditching shall be provided to carry storm water away from the work area, as dictated by the weather conditions, without creating erosion or sedimentation conditions downstream of the project. Erosion barriers may be required if conditions warrant. Drainage facilities shall be restored on a daily basis when the National Weather Service forecast indicates a 50% or greater chance of precipitation within the next seventy-two hours, without regard to the timing of other work on the project including scheduled cleanup and restoration, or whenever any work is in progress within the right-of-way between November 1 and March 1.
6. All paved surfaces shall be power swept and/or washed clean at the end of each work day, or as appropriate for conditions. Surface shall be sufficiently clean to preclude dust formation or muddy or slippery conditions.
7. Unpaved roads in the work area shall be bladed with a road grader at least once each week to maintain the roadway so that it is passable to any passenger vehicle during the duration of the work included in the permit, and as necessary to eliminate ruts, large bumps, mud or mud holes. Back dragging with a bucket is not an acceptable substitute.
8. If permitted work is not completed before winter, twenty-four hours per day, winter maintenance, including snow removal and ice control, are the responsibility of the permit holder. Permit holder shall provide snow removal and ice control equipment with operators working on site within two hours after being notified of the need by the Navajo County Public Works Department.
9. During cold months when snow or ice conditions occur, it shall be the responsibility of the permit holder to ensure that permitted work does not interfere with public snow removal and ice control operations.

- 10.** Trench plates shall not be left in place past the close of the working day when the US Weather Service predict snow or ice before the next working day.

## **XI -- Trenching And Backfill Requirements**

April 26, 1999

1. Boring is the preferred method of crossing paved areas. Where boring is unfeasible and open cut trenches are used, surfaces shall be restored in conformance with this section.
2. Remove all trees, shrubs, other landscaping materials, and debris in the right-of-way within five feet of the trench and as necessary for construction of trench. Remove from the job site all rocks dug out of trench and within construction path unless the homeowner requests in writing they be moved to their property.
3. Trenches located within the roadway prism - ditch bottom to ditch bottom - shall be compacted or treated as described below. Trenches located in area from ditch bottom to outside right-of-way line shall be compacted to 90%, but with no compaction reporting required. However, Navajo County reserves the right to have Permit Holder submit compaction test report(s) on suspect trench compaction anywhere within the right-of-way.
4. Trenches located within five (5) feet of the downstream end of cross-road culverts shall be compacted to 100% in 12" lifts, 15 feet each side of CMP and the surface protected with at least a 9 inch thickness of rip-rap ( $D_{50} = 6$  inches) on an appropriate geotextile, 5 feet perpendicular on each side of culvert opening by five feet (5') away from the opening. As an alternative, slurry may be used in the trench five feet either side of the culvert.
5. Trench bedding, shading, and backfill shall conform with the Permit Holder's plans and specifications for all work within roadway prism, where such plans and specifications have been previously submitted to the Engineer for review and approval. Where such plans and specifications have not been approved, work within the roadway prism shall be performed in accordance with Items 6 through 11 below. Compaction testing and reporting shall be as described in Item 7B below.
6. Bedding, shading, backfill and aggregate materials shall be consistent within a job. Variation between individual deliveries of material shall be kept to a minimum, and all materials used shall conform with gradation and mix designs approved by the Engineer for the job. Noticeable changes between loads of a material or in the compaction characteristics of the in-place materials may delay approval or result in rejection of the permitted work until new laboratory tests can be completed, submitted and approved. Permit holder shall submit to the Engineer copies of all test reports in conformance with the schedules listed in a project.
7. Longitudinal trenches beneath a paved area and within three feet of the edge of the pavement or in a wheel path shall be backfilled as follows:
  - A. Compact shading material to 95% (or to 90% if sand) minimum six inches (6") over line.
  - B. Compact select backfill to 90% T-180 density, or 95% of T-99 density. Submit at least one compaction report every 200 feet for each 8 inch lift when the trench is filled by lifts, or every 200 feet at random elevations when the trench is backfilled diagonally.
  - C. Compact to 98% of T-180 or 102% of T-99 density an 8 inch lift of AB Class-2 to the bottom-of-asphalt elevation of the road. Submit certified compaction report for each lift

every 200 feet. Ditches and fill slopes shall be brought to finished grade with select native materials and compacted.

- D. The pavement shall be saw cut and removed back an additional twelve inches on the centerline side from disturbed subgrade or to a minimum of three feet from the edge, the existing aggregate base moistened and compacted to 95% T-180 density or 102% of T-99 density and the pavement replaced one inch thicker than the existing pavement, or three-and-one-half inches thickness, whichever is greater. Placement of Asphaltic Concrete Pavement 4" thick or greater shall be in two or more lifts.
  - E. At Permit Holder's option a County-approved, seasonally appropriate slurry or lean concrete may be installed from finished shading material to bottom of SURFACE MATERIAL elevation. Surface shall be restored as described above.
- 8.** All transverse trenches beneath a paved area shall be backfilled in the same manner as Paragraph 7 above except that at least one compaction test shall be performed on each lift of the backfill, regardless of the length of the crossing.
- 9.** Longitudinal trenches beneath a paved area and within one foot of the center of a lane or the centerline of the road shall be backfilled as follows:
- A. Compact shading material to 95% (or to 90% if sand) minimum six inches (6") over line.
  - B. Compact select backfill to 95% of T-99 density. Submit at least one compaction report every 200 feet for each 12 inch lift when the trench is filled by lifts, or every 200 feet at random elevations when the trench is backfilled diagonally.
  - C. Compact to 95% of T-180 density or 100% of T-99 density an 8 inch lift of AB Class-2 to the bottom-of-asphalt elevation of the road. Submit certified compaction report for each lift every 200 feet. Ditches and fill slopes shall be brought to finished grade with select native materials and compacted.
  - D. The pavement shall be saw cut and removed back an additional twelve inches on each side of the trench from disturbed subgrade or to a minimum of three feet wide, the existing aggregate base moistened and compacted to 95% T-180 density or 100% T-99 density and the pavement replaced at least one inch thicker than the existing pavement, or three-and-one-half inches thickness, whichever is greater.
  - E. At Permit Holder's option and with advance approval from the Engineer, trench may be compacted to 100% T-180 density, and pavement replaced to the thickness of existing pavement.
  - F. At Permit Holder's option, a County-approved, seasonally appropriate slurry or lean concrete may be installed from finished shading material to bottom of SURFACE MATERIAL elevation. Surface shall be restored as described above..
- 10.** Longitudinal trenches located within the roadway prism, as defined in Item 3, but outside of any paved area shall be backfilled as follows:
- A. Compact shading material to 95% (or to 90% if sand) minimum six inches (6") over line.
  - B. Compact select backfill to 95% T-99 density. Submit at least one compaction report every 200 feet for each 12 inch lift when the trench is filled by lifts, or every 200 feet at random elevations when the trench is backfilled diagonally.

- C. Compact to 100% T-99 density an 8 inch lift of AB Class-2 and a 4 inch lift of AB Class-6 to the finished elevation of the road. Submit certified compaction report for each lift every 200 feet. Ditches and fill slopes shall be brought to finished grade with select native materials and compacted.
  - D. At Permit Holder's option, County-approved slurry mix may be installed from finished shading material to bottom of SURFACE MATERIAL elevation. Slurry may be brought to surface as a temporary measure, but shall be removed prior to replacement of surface material. Surface shall be restored as described above. Slurry used as backfill in drainage areas or ditches shall not be placed above the previously existing top of the grade.
- 11.** Transverse trenches in unpaved areas shall be treated as follows:
- A. Shading material shall be in accordance with Item 6A above.
  - B. Compact select backfill to 95% and submit compaction report for each of the 12 inch lifts. Diagonal backfill compaction methods are not permitted without prior approval by Engineer.
  - C. Compact new 8" AB Class-2 lift to 100%, submit compaction report for each lift.
  - D. Replace aggregate surface (Class 6) as appropriate. See 7C above.
  - E. At Permit Holder's option, County-approved slurry mix may be installed from finished shading material to bottom of Surface Material elevation, using manual tamping or internal vibrators for lifts of 12" or less, and internal vibration for lifts greater than 12" thick. Surface shall be restored as described above.
- 12.** For individual excavations in the roadway prism (from ditch bottom to ditch bottom) for manholes, sewer, water or gas service connections, etc., the following shall apply:
- A. Compact shading material to 95% (or to 90% if sand) over utility line.
  - B. Compact select backfill to 95% T-180 density on each lift above the shading material and submit certified compaction report for each lift accomplished within the road prism. Lifts greater than one foot thick will be tested every foot. Backfill of such excavations shall proceed approximately level across the entire excavation.
  - C. Replace Base and Surface materials as described in 7-C, D above. Cold mix may be used as a temporary patch in paved roads until hot mix can be installed.
- 13.** Trenches and individual excavations within primitive or non-maintained county roads will be in accordance with the above, or as agreed in advance by the Engineer and the Permit Holder.
- 14.** Open cut trenches across roads shall be open to traffic at the close of business each work day. Steel plates, if used, shall be "wedged" in place with cold-mix asphaltic concrete, and shall be removed within three days after the trench is backfilled. Lighted "**BUMP**" signs shall be installed in both directions and included on the Traffic Control Plan.
- 15.** Submit slurry mix design for Engineer's approval. Slurry shall be used from the top of the shading over the utility line up to the bottom of the AC layer. Slurry may be brought up to finished surface temporarily to allow for efficiency in the construction and restoration operations. County reserves

the right to require the installation of aggregate base in accordance with Items 7C or 8C above if conditions require. Pavement or surface material shall be replaced according to 7D above.

- 16.** County reserves the right to require cold mix temporary patches in place of or in addition to slurry if conditions require, and to limit seasonal usage of trench plates.
- 17.** Slurry or lean concrete mix designs shall include mix proportions, compressive strength, and slump recommendations. Seasonal adjustment of mix design should account for cold weather, varying wait times at the job site, the mass or volume of the material in place, drainage conditions, and allowable additives including additional water at the job site.
- 18.** Shading material shall be a minimum of 6 inches over utility line piping, or as specified by the utility, whichever is greater. When utility line is in the road prism outside of the surfaced area, and bury is less than 36 inches, a concrete cap or slurry will be required up to the surface elevation until the bury depth is back to 36 inches under the existing road surface.
- 19.** Utility lines shall have at least 36 inches cover under all surfaces within the right-of-way, in conformance with the agreements reached among the members of the Navajo County Utility Coordination Committee, unless excavation is in rock and a slurry or concrete protective cap is used. Concrete or slurry shall be continuous in the area where there is less than 36 inches cover, or such other extra protection as is previously approved by the Engineer shall be provided. In no case will a utility line have less than 24 inches of cover. The Engineer may require additional cover or depth of bury when anticipated or potential road or drainage improvements indicate the need for greater depth.

1. Permit Holder shall video the entire length of the project before starting work. This should be done in coordination with the Inspector. Video shall clearly identify roadway features, including, but not necessarily limited to, condition of surface, culverts, signs. Special attention should be given to any existing damage or deterioration. This video shall be available to Inspector at the time of the final inspection.
2. All driveways and culverts shall be replaced to their original condition or better. Culvert pipes removed for utility installation shall be replaced with new 18" diameter pipe unless Navajo County approves a different size in writing. Navajo County may, at its option, furnish 18" diameter or equivalent culvert pipe to replace existing undersize culverts at the time the existing pipe is removed and also may restore all or portions of the drainage system with its own crews.
3. Street signs, traffic signs, delineator posts, mail boxes, etc., removed for construction purposes shall be re-installed by the contractor in their same location. Those posts/signs damaged during their removal or by Contractor's operations shall be replaced with new posts/signs at no cost to Navajo County. If the Contractor cannot, for any reason, reinstall signs in their precise same location, Navajo County will reinstall the sign at Permit Holder's expense.
4. Cleanup and restoration shall follow construction activities as soon as possible after the primary construction is complete. The Engineer reserves the right to limit the elapsed time and/or distance between the actual construction work and cleanup/restoration when conditions warrant. At no time shall the Contractor have more than two acres of disturbed area, nor shall cleanup and restoration be delayed longer than one month or lag sufficiently behind the primary construction to cause restoration to be performed in the following year. (An area one mile long by sixteen feet wide is two acres.)
5. Restore all existing ditches to their original location and condition. Ensure they provide the same flow characteristics as existed prior to the construction. Damaged culverts shall be straightened or replaced as necessary, regardless of the cause or origin of the damage.
6. Cuts in pavement shall be patched to match existing or with cold mix as soon as possible. Cold mix may be used for temporary patches only, which shall be excavated and replaced with hot mix prior to the completion of the job. Exceptions to this may be authorized when the existing pavement is road mix or cold mix. Saw cutting the "Tee-top" should be delayed until the cuts are prepared for final patching. Hot mix asphalt shall be used for all permanent pavement restoration using a mix which has been approved in advance by the Engineer. See appendix B.
7. Pavement replacement shall be to the same standards as new or overlay pavement construction on county roads, including, but not limited to, the requirements for submitting a mix design for approval, weather limitations on pavement placement, and construction methods, equipment, and tolerances. All pavement replacement shall be true to line and grade, and shall not deviate more than 0.01' from the approved profile, nor more than one-eighth inch from a ten-foot straight edge. The crown (cross-slope) shall be 2% or shall match the adjacent pavement unless otherwise approved by the Engineer.

8. Asphalt replacement shall be with a locally available hot-mix asphaltic (HMA) concrete produced in compliance with ADOT Section 406, 409, or 416, or Navajo County specifications. Mix may be an off-the-shelf or stock mix design. For larger jobs, Permit Holder shall submit mix design for Navajo County approval prior to first using the mix on the job. Permit Holder may obtain the HMA from any supplier or multiple suppliers, but shall not use more than one supplier for any contiguous work. See Appendix B.
9. When work is along the edge of paved roads within the shoulder or foreslope and the pavement is cut, broken off, etc., in the course of the work, the remaining pavement edge shall be saw cut 2 feet from the damaged area and removed, the exposed aggregate base compacted to 100%, and hot mix installed to meet the existing pavement edge and thickness. Length of the cut shall be at least five feet (5 ft.) each side past the affected area.
10. Pavements with chip seals will have new chip seal placed by Navajo County following completion of the permit work. Costs of chip seal replacement shall be borne on a sliding scale basis dependent upon the age of the chip seal and the extent of the disruption of the surface.
11. Return work area to a clean, smooth grade in original condition or better. Fences, light fixtures, shrubbery, and other vertical landscaping materials that may pose a hazard to traffic or maintenance operations within the road right-of-way will not be replaced without prior written approval from the Engineer.
12. Roadway surface shall be restored to equal or better condition than that existing prior to the construction, without a dip or bump at the patched section.
13. Marker posts shall be installed as per utility specification. Utility marker posts shall be off-set when their required location is in or near the bottom of any drainage ditch. Such posts shall be marked with the off-set distance to actual pipe location. Marker post locations are subject to county approval.
14. Restoration of undeveloped, unmaintained, or primitive roads shall be in accordance with the specific requirements which shall be established at the time the permit is issued.
15. Shoulders and roadside ditches shall be restored with a road grader prior to final acceptance and permit closure. Ditch shaping with a backhoe or loader bucket is not sufficient for final restoration.
16. In certain cases, Navajo County may, at its sole option, restore ditches, driveway culverts, and/or shoulders with its own personnel and equipment when it is deemed in the best interest of the public. This does not relieve the permit holder from any requirements for trench restoration or from the responsibility for repairs if the permitted work fails.
17. Navajo County may, at its sole option, require the restoration of certain paved or high traffic roads on an accelerated schedule separate from other parts of the same project, may limit the time that

a specific road may be obstructed or closed, and may require the work be terminated and surfaces restored prior to holidays or other high traffic periods.

- 18.** Pavement replacement shall be to the same standards as new or overlay pavement construction on county roads, including, but not limited to, the requirements for submitting a mix design for approval, weather limitations on pavement placement, and construction methods, equipment, and tolerances. All pavement replacement shall be true to line and grade, and shall not deviate more than 0.01' from the approved profile, nor more than one-eighth inch from a ten-foot straight edge. The crown (cross-slope) shall be 2% or shall match the adjacent pavement unless otherwise approved by the Engineer.
- 19.** Testing is not generally required for small jobs, such as isolated service line crossings, but Navajo County reserves the right to require testing for specifications compliance on larger jobs and whenever conditions warrant. Testing of asphalt materials includes, but may not be limited to, gradation verification of the cold- or hot-feed aggregate, extractions to determine actual oil content, field density measurements, and coring of the finished work to verify thickness and material properties. See Appendix A.
- 20.** The minimum pavement replacement width for transverse trenches or longitudinal trenches in the interior of a pavement section is 3 ft. Patches along the edge of a lane shall be at least 3 ft. wide. Patches shall not occur within 3 feet of a pavement edge or joint, in a visible wheel path, or at a marked "Stop-bar" at an intersection. In such cases, the additional pavement shall be removed and the entire area patched as one unit at the permit holder's expense.
- 21.** All longitudinal patches and transverse patches eight feet or wider shall be placed with a paving machine unless otherwise approved in advance by the Engineer.
- 22.** All gouges, scrapes, cuts, and/or cracks in the paved surface shall be repaired by the method approved in advance by the Engineer. Any such damage greater than 1/2" deep, or 1" wide shall be repaired by sawcutting around the area to a minimum dimension of 3', removing the damaged pavement, applying a tack material (ADOT 404) to the edges, and placing and compacting an HMA patch.



