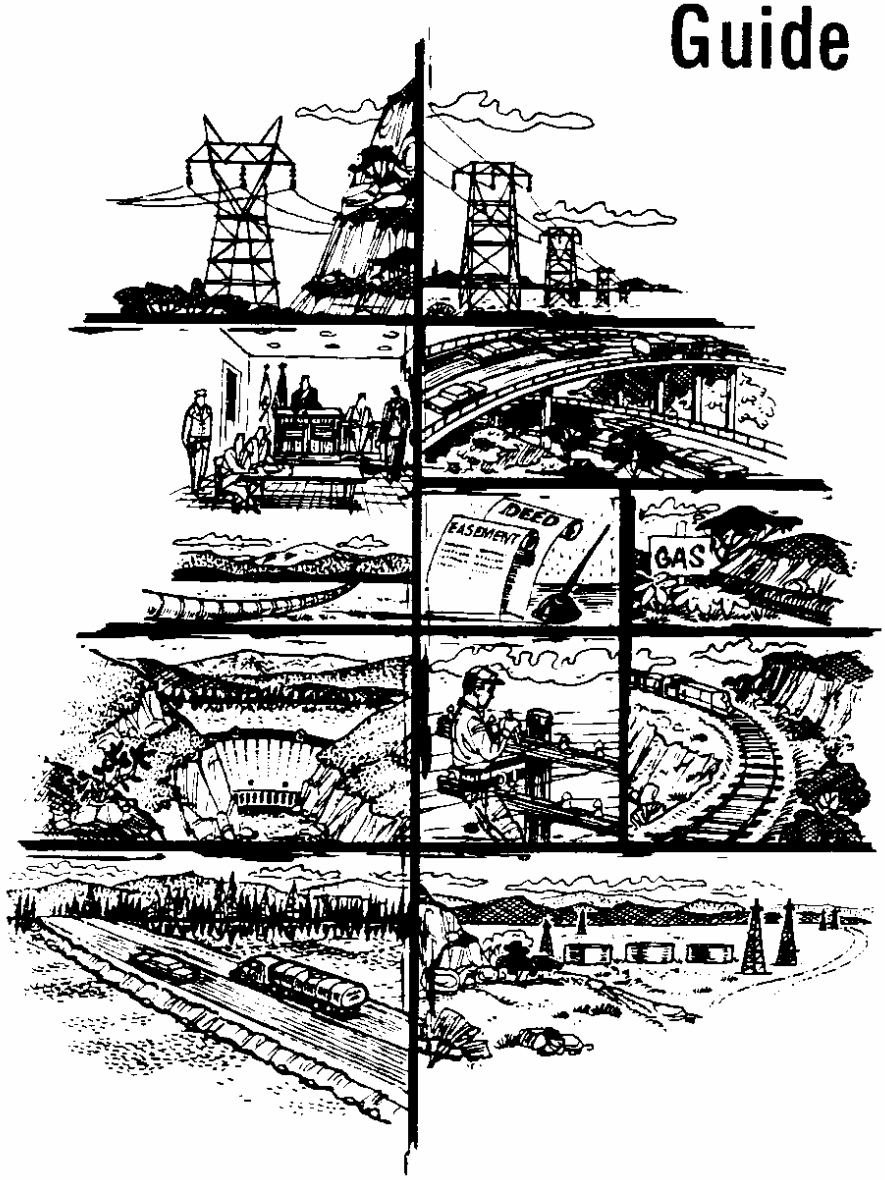
July 1979

Utility Accommodation Guide



STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

JULY 1979

Florida Department of Transportation
Haydon Burns Building, 605 Suwannee Street, Tallahassee, Florida 32304, Telephone (904) 488-8541
Bob Graham
Governor
William N. Rose
Secretary
Division of Road Operations

July 1, 1979

County Utility Administrators
Federal Highway Administration
Florida Public Service Commission
Municipal Utility Administrators
Private and Public Utility Agencies
State Utility Administrators
Utility Liaison Committees

Gentlemen:

FLORIDA DEPARTMENT OF TRANSPORTATION
Utility Accommodation Guide

The Department recognizes the public interest to be best served by permitting the accommodation of appropriate utility facilities both above and under ground level within the limits of road rights of way on the State Maintained Highway System. In so doing, it declares that such joint use of rights of way must be exercised under its permitting authority and that all utility installations must meet reasonable guidelines established to ensure safe and efficient operation and maintenance of the highway facility.

With the full cooperation and assistance of the FLORIDA UTILITIES COORDINATING COMMITTEE, this Guide has been developed to meet the above policy and is now released as an interim publication for the purpose of amending the 1974 Guide in areas affected by changes in State and Federal Regulations. Your office is being furnished an initial supply commensurate with the present need. Additional copies may be obtained from the Central Library, Haydon Burns Building, Tallahassee, at $2.00 each.

Sincerely yours,

Jay W. Brown
Director of Road Operations

JWB : Sc
cc: Distribution “E”
Enclosure

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1. INTENT OF UTILITY ACCOMMODATION GUIDE

This guide is established to regulate the location, manner, installation and adjustment of utility facilities on the State Maintained Highway System and the issuance of permits for such work in the interest of safety and of protection, utilization, and future development of the highways with due consideration given to public service afforded by adequate and economical utility installations as authorized under Chapter 338 of the Florida Statutes and Administrative Rule Chapter 14-46.01. While this guide governs on matters concerning future location, manner and methods for the installation or adjustment and maintenance of utilities on highway right of way, it does not alter current regulations pertaining to authority for their installation nor determination of financial responsibilities for placement or adjustment thereof. Portions of this guide pertaining to controlled access highways conform to and supplement the American Association of State Highways and Transportation Officials' policy entitled, ***A Policy on the Accommodation of Utilities on Freeway Rights of Way*** as adopted on February I5, 1969.

Where the utility has a compensable interest in the land occupied by its facilities and such land is to be jointly owned and/or used for highway and utility purposes, the Department and utility shall agree in writing as to the obligations and responsibilities of each party. In any event, the interest to be acquired by or vested in the highway authority in any portion of the right of way of a highway project to be vacated, used or occupied by utilities or private lines shall be of a nature and extent adequate for the construction, safe operation and maintenance of the highway project. The procedure will be as outlined in the Department's Utility Policy and Procedure Manual.

2. UTILITY PERMIT

A. Utility Permit: A permit must be approved by the Department before any utility is installed on the right of way, whether it is for aerial or underground installations, except as noted in this guide. Permit Form 592-03 may be obtained by the applicant from the local Maintenance Engineer's Office or the District Maintenance Engineer. (Exhibit C)

B. Application:

(1) A sketch, not necessarily to scale, shall accompany each copy of the application reflecting a plan view of the proposed utility installation. This should be a strip drawing not to exceed 8 ½" x 36", folded to a size not to exceed 8 ½" x 14". It shall show the off-set from the centerline to the proposed utility installation, the road right of way and pavement width, distance from edge of pavement to utility, limited access line, and the roadway section and mile

post numbers or the job and station numbers. The drawing must show information such as materials to be used, pipe or conduit size with wall thickness, use of line (power with voltage, gas with maximum allowable operating pressure. etc.) and other pertinent details. One or more typical cross sections as required to adequately reflect the location of the utility shall be shown. All involved utilities must be shown. However, if only aerial facilities requiring no additional poles are involved, then only aerial facilities need be shown on the permit drawing. If overhead or underground facilities involve only one side of the right of way, then only involved utilities on that side of the right of way need to be shown on the permit drawing. In all cases, the applicant shall list all right of way users on the permit form and notify each of them by copy of the permit drawing whether involved or not. The minimum vertical clearance above or below the pavement shall be shown. Additional information such as the location to the nearest town, major road intersection, bridges, railroad crossings and other physical features shall be indicated on the sketch. It is desirable that a simple key map showing the location of this proposed facility be included either on the sketch itself, or as a separate key map sketch to assist all concerned with the general location of the installation.

(2) When the applicant is a corporation or a public body, then the permit must have a corporate seal and be attested to by the corporation secretary or by the empowered public official, unless a waiver of corporate seal and attestation by the secretary or by the empowered public official is on file in the Tallahassee Office as so noted on the permit.

(3) When the applicant is the owner of the utility, which is not a corporation, then his signature must be witnessed by two persons whose signatures must likewise be on the permit. The names of all persons signing the permit application must be typed directly below their signature.

(4) A copy of the permit must be on the job site at all times.

C. Processing:

(1) The applicant will submit four (4) copies of the permit to the Maintenance Engineer in the area in which the work is to be performed, except in the case of installations on construction projects where permits will be submitted directly to the District Utility Engineer unless otherwise directed by the District Engineer.

(2) The District Maintenance Engineer will not give final approval to a permit for a period of seven (7) days, awaiting possible objection to construction. For purposes of expediting the handling of a permit application this seven (7) day period may be shortened by including with the permit application, signed letters of concurrence from the affected right of way users,

(3) Following field review and approval, the local Maintenance Engineer forwards the application to the District Office. One approved copy will be returned to the applicant, one to the Central Office, one to the Maintenance Engineer and one copy retained for the District file.

(4) Where roadway construction is proposed or in progress, the District Utility Engineer will review the permit and indicate his approval based on conformance with the Utility Accommodation Guide and the roadway construction requirements. The District Utility Engineer will notify the applicant of any future proposed construction and resolve those conflicts where possible.

(5) All permit applications involving scenic enhancement areas, attachments to structures, deviations or exceptions to criteria established in these accommodation standards, will be forwarded to the Central Office prior to approval.

(6) Where a permit involves the attachment of a line carrying hazardous transmittants to a structure the application will be referred to the Director of Road Operations for his approval by the State Maintenance Engineer.

(7) The applicant shall notify, in writing, all other right of way users including counties, municipalities and railroads in the right of way at the location of the proposed installation stating his intentions to determine possible objections should the proposed installation affect them. Any objections voiced to the applicant's proposed construction by other right of way users or involved counties, municipalities and railroads must be forwarded to both the applicant and to the applicable District Office within seven (7) days of the applicant's notification letter. Such objections must be specifically defined.

3. REQUIREMENTS FOR PERMITS

A. Installations Requiring Permits:

(1) A permit is required for all underground installations and all overhead lines and crossings except certain service connections as covered in 3.B.

(2) Permits are required for all lines crossing the right of way including those originating from poles outside the right of way. This applies to all crossings including service drops and head or span guys except as covered in 3.B.

(3) Permits are required for all service drops or span guys (a) when it is necessary to place a pole on the right of way on the opposite side of the road where there is not an existing pole line; (b) when it is necessary to place a pole adjacent to a buried cable where the existing

permit does not include a pole line; (c) when it is necessary to place a pole beyond the limits of an existing approved pole line.

(4) Permits are required for all above-ground facilities placed in connection with underground installations when not included in the original permit. This includes marker poles and riser poles, including pole mounted telephone closures for test or splice purposes. These poles and closures should be located in accordance with applicable criteria in Exhibit B.

(5) Permits are required when installing a complete street or highway lighting system including installation on existing poles where existing poles are there by virtue of permit.

(6) A permit is required for the installation of a private or area light on an existing pole within the right of way where the light pattern, which will conform to Highway Lighting Standards, is to be directed toward the pavement.

(7) If a new pole is to be set to accommodate a private or area light, a permit must be obtained regardless of the direction of the light pattern.

(8) Where existing facilities are to be permanently relocated to another location within the right of way, whether caused by a betterment program of the right of way user, or by the Department of Transportation construction, a permit is required to show the new position of the facility involved.

(9) Improvements or betterment requiring a physical change of existing facilities will require a permit. This does not include routine maintenance or minor segments of an existing utility installation. This provision will allow changes in communications cables, transformer capacity wire size of secondary circuits and primary circuits, where less than one (1) mile in length is involved, or other similar changes where there is no change in the basic structure. However, a permit will be required for any alteration or addition to the Utility installation (other than routine service drops or span guys) which will cross a roadway either overhead or underground. Normally, such alterations or additions will not be a basis for requiring relocation of the existing facility.

B. Installations Not Requiring Permits:

(1) A new pole to be placed within an existing permitted pole line.

(2) Service drops or span guys emanating from and/or attached to poles properly covered by an existing permit.

(3) An underground service connection provided that it does not cross the roadway, and trenching is at right angle to the road way. However, notice will be given to the affected Maintenance Engineer prior to construction in all instances.

(4) Temporary relocation as directed by the DOT Resident Engineer during highway construction projects. This will also include new locations as needed for temporary utility service for highway construction projects.

4. ACCOMMODATIONS STANDARDS

A. Basic Requirements:

(1) The basic requirements governing location of utility installations will be as shown in the location criteria (Section 6). The primary concerns in the design and location of utility installations are the protection of the highway facility and the safety of the highway user; and in all cases, full consideration shall be given to sound engineering principles and economic factors.

(2) For the installation of overhead utilities, one side of the right of way is usually reserved for communication lines while the other side is reserved for power lines. In situations where underground and overhead utilities occupy the same side of the roadway, the overhead facility should be placed behind the underground facility in order to provide the maximum clear roadside recovery area possible. In cases where more than one utility proposes an aerial installation on the same side of the highway, a joint-use arrangement must be agreed to by the companies. In cases where the utilities cannot agree, the dispute shall be referred to the Director of Road Operations whose determination shall be final. This does not prohibit a single utility from occupying both sides of the road when there are no objections from other utilities and proper justification is provided to the Department of Transportation and there is only one pole line on each side of the right of way.

(3) Only one pole line will be permitted on each side of the right of way. However, a second pole line to support roadway illumination may be allowed where the need for same is properly documented and provided traffic safety requirements are met.

(4) Scenic enhancement shall be considered on permit applications. The type and size of utility facilities and the manner and extent to which they arc permitted along or within highway right of ways can materially alter the scenic quality, appearance, and view of highway roadsides and adjacent areas. For these reasons additional controls are applicable in certain areas that have been acquired or set aside for their scenic quality. Such areas include scenic strips, overlooks, rest areas, recreation areas, the right of ways of highways adjacent thereto, and the right of ways of sections of highways which pass through public parks arid historic sites. New underground utility installations may be permitted within such lands where they do not require extensive removal or alteration of trees or other natural features visible to the highway user or do not impair the visual quality of the land being traversed. New aerial installations are to be avoided at such locations where there is a feasible and prudent alternative to the use of such lands by the aerial facility. Where this is not the case, they will be considered only where:

(a) Other locations are usually difficult and unreasonably costly, or are more undesirable from the standpoint of visual quality.

(b) Underground is not technically feasible or is unreasonably costly, and

(c) The proposed installation can be made at a location and will employ suitable designs and materials which give adequate attention to the visual qualities of the areas being traversed.

These controls shall also be followed in the location and design of utility installations that are needed for highway purpose, such as continuous highway lighting, or to serve a weight station, rest, or recreation area.

There may be cases of unusual hardship or other extenuating circumstances encountered involving some degree of variance with the provisions of this section. Such cases shall be subject to prior review and concurrence by the Director of Road Operations, and in cases where the described lands were acquired or improved with Federal Aid Highway Funds, the Division Administrator, F.H.W.A. This does not include areas such as national or state forests, etc. except where Federal Highway Funds were used to acquire or improve the above listed areas.

(5) Only single poles will be permitted within the road right of way. Any exception must be amply justified and approved by the Director of Road Operations. Any application for poles larger than twenty-four (24) inches in diameter will be referred to the Central Office prior to approval. When poles such as steel and concrete are used the base must be flush with or below ground. It may be necessary to restrict this type installation where the base is unusually large or the right of way is limited.

(6) Where possible, all longitudinal underground utility facilities should be placed outside of the pavement of main traveled lanes.

(7) Where encasement is used and designed as a pressure vessel, the encasement pipe will have strength equal to or exceeding the carrier pipe; however, where the casing is not a pressure vessel, the casing pipe shall be capable of supporting external loads of 2.200 minimum PSF at thirty (30) inches minimum depth. Gas and liquid petroleum pipelines shall be designed and constructed to conform with 49 CFR, Part 192, ***Transportation of Natural Gas by Pipeline*** or Part 195, ***Transportation of Liquids by Pipeline,*** **as** applicable. The maximum allowable operating pressure of gas mains must be shown on permit applications.

(8) All installations on freeways will be in accordance with the February 15, 1969, AASHTO Policy entitled ***A Policy on the Accommodation of Utilities on Freeway Right of Ways*** and as subsequently modified.

(9) When an emergency condition warrants immediate action by the utility such as a break in a fluid or pressure line or any situation creating a danger to the public

welfare, the utility should proceed immediately with repairs necessary to safeguard the public. The Maintenance Engineer shall be notified as soon as possible. All such final repair work to the Department's facilities must receive approval from the Maintenance Engineer. If it is the type of work that would normally require a permit, then an after-the-fact permit shall be required by the Department. In any case, restoration of right of way will be in accordance with all applicable guidelines.

B. Crossings:

(1) GENERAL: Crossings under existing pavement will usually be made without cutting the pavement. Underground crossings made by methods other than by open cutting and direct burial shall conform to the provisions of the Jacking and Boring Supplement. See Jacking and Boring Supplement, Exhibit II. The proposed means of placing the pipe shall be stated on the permit. Conditions which are generally unsuitable or undesirable for pipeline crossings should be avoided. These include locations in deep cuts, near footings of bridges and retaining walls, across intersections at grade or ramp terminals, at cross drains where flow of water, drift of stream bed may be obstructed, within the basins of an underpass drained by a pump if pipeline carries a liquid or liquefied gas, and in wet or rocky terrain where it will be expensive to provide minimum bury. Clearance requirements for both aerial and underground are shown in location criteria.

(2) LIMITED ACCESS: In expanding areas along limited access freeways it is expected that utilities will normally install distribution or feeder line crossing of freeways, spaced as needed to serve consumers in a general area along either or both sides of a freeway, so as to minimize the need for crossings of a freeway by utility service connections. In areas where utility services are not available within reasonable distance along the side of the freeway where the utility service is needed, crossings of limited access freeways by utility service connections may be permitted. The construction and maintenance of utilities should be accomplished without violation of limited access principles. This will normally require the following:

(a) Underground pipelines crossing between interchanges should be encased between toe of slopes. Casing pipe for flammable gases and fluids will be vented at the right of way line. Welded steel pipe transmitting gas or liquid petroleum may be installed without encasement provided such pipelines conform with 49 CFR, Part 192, **Transportation *of Natural Gas by Pipeline*** or Part 195, ***Transportation of Liquids by Pipeline,*** as applicable. The pipeline shall be designed to withstand internal design pressures and the superimposed loads of the roadway and traffic. All construction and maintenance will be outside the Limited Access Fence. When utilities are placed on completed sections, the Limited Access Fence may be replaced with temporary fencing extending into the toe of slope and enclosing the entire work area.

(b) Underground crossings in interchanges where access to the utility may be gained from the minor road without violation of limited access principles may be installed with only such casing as necessary to preserve the structural integrity of the paving and structure.

(c) All piping must comply with the appropriate regulations, Federal and State, in effect at the time of construction.

(d) Aerial crossings usually may not be accomplished without work inside the limited access facility and therefore, such crossing between interchanges should be minimized. Where necessary to construct an aerial crossing between interchanges on an operational facility, careful planning of the work with regard to the safety of vehicular traffic is mandatory. A comprehensive plan for temporary supports and handling traffic must be presented as part of the application. No temporary supports will be permitted within thirty (30) feet of the main roadway unless placed behind existing guardrail or incorporated within an approved barrier system. Such supports will be permitted only for the minimum time necessary for the performance of the work. Aerial crossings at interchanges where the work may be performed from the minor road will require a traffic handling plan as part of the permit when traffic on the major facility must be interrupted or diverted in order to perform the work. Any request for exception of the foregoing requirements must be fully justified in writing by the applicant. (See Exhibit E for example procedure.)

(3) OTHER SYSTEMS*:* On all high type rural sections and most urban sections:

(a) When casing is used for crossings of flammable gases or fluids, the casing should extend to the toe of the slope and be vented at or outside of the right of way line. Welded steel pipelines transmitting gas or liquid petroleum may be installed without encasement provided such pipeline conforms with 49 CFR, Part 192, ***Transportation of Natural Gas by Pipeline,*** or Part 195, ***Transportation of Liquids by Pipeline,*** as applicable. The pipeline shall be designed to withstand internal design pressures and the superimposed loads of the roadway and traffic.

(b) Casing will be required for crossings of underground utilities where the carrier conduit is of insufficient strength due to composition or depth of cover,

(c) Casing will be required for crossings jacked under existing pavement where the carrier is of composition such that it cannot be jacked.

(d) Where it is necessary to place aerial crossings which will interfere with traffic, careful planning of work with regard to the safety of vehicular traffic is mandatory. No temporary supports will be allowed closer than the minimum clearance under Section 6, unless where incorporated within approved barrier systems. Such temporary construction shall be completed in the minimum time possible as approved in the permit.

(e) Where an applicant wishes to connect any surface or subsurface (storm sewer) drainage to a highway drainage system, the applicant must certify in writing that the quality of waters conveyed by the connection meet all applicable water quality standards as defined in Chapter 17-3, Florida Administrative Code. In the event

the discharge is identified as a contributor, either whole or in part, to a significant source of pollution, the applicant will be required to incorporate such abatement deemed necessary by the Department to bring the discharge into reasonable compliance with State pollution standards or regulations.

(4) PAVEMENT CUTTING:

(a) Open cutting of existing pavement will generally not be allowed, but may be considered under one or more of the following conditions.

Extreme economic hardship
Subsurface obstructions
Extreme high water table
Limited space for jacking pits
Condition of roadway surface - including imminent resurfacing or rebuilding

In any analysis of a request for open cutting, primary considerations will be given to the safety and convenience of the public.

(b) Where open cutting has been permitted, replacement of fill, base and surface will be in accordance with this guide, the latest State of Florida Department of Transportation Specifications and/or special provisions of the permit. Before traffic is to be placed on a cut area, a temporary patch with a smooth all-weather surface must be provided. Refer to Exhibit F.

C. Attachments to Structures: (Exhibit G)

(1) CONDITIONS: Attachments to structures will be generally discouraged but may be considered under one or more of the following conditions:

(a) Denial of attachment would cause an extreme hardship.

(b) Will not create a potential hazard to the public.

(c) Will not affect the integrity of the structure.

(d) Will not adversely affect aesthetics of the structure.

(e) Will not hinder state maintenance operations.

Attachment information shall be furnished as early as possible, preferably along with the alignment package from the District Office to the Central Office.

(2) CRITERIA*:* Where attachments are permitted, the following criteria must be adhered to, unless sufficient justification is presented for deviation:

(a) No maintenance will be accomplished from structure without written approval from the Maintenance Engineer and full compliance with the Department's ***Manual on Traffic Control and Safe Practices***.

(b) Utility must maintain vertical clearance equal to that of the structure.

(c) Utility cables should be in conduit so that maintenance can be accomplished from ends of structures.

(d) Material used for casing and attachments shall be such that it will not require routine maintenance, such as painting, etc. This will include cast iron, galvanized steel, stainless steel, aluminum, concrete, etc.

(e) No consideration will be given to approving pressure lines unless the facilities are designed in accordance with current Federal and State regulations.

(f) All lines carrying hazardous transmittants should be encased throughout the length of the structure. Shut-off valves shall be installed in lines at or near ends of the structure unless segments of the lines can be isolated by other sectionalizing devices within a reasonable distance. When casing is not provided for a pipeline on or in a structure, additional protective measures shall be taken, such as employing a higher factor of safety in the design and construction of the pipeline than would normally be required for cased construction.

(g) All attachments to structures will be reviewed in respect to their contribution to any corrosive damage which would lessen the structural integrity of the structure. The attachment should be effectively isolated from the structure so as not to induce structural damage by corrosion. A copy of the Department's Corrosion Certification Form will be submitted with the permit application. (Exhibit G)

(h) All utilities placed on bridges shall be located between fascia girders to the maximum extent practical.

(i) Approval will be in the District Office based on recommendations by the Central Office. This is with exception that attachments of a line carrying hazardous transmittants will be referred to the Director of Road Operations for approval.

(3) OTHER CONSIDERATIONS:

(a) If other locations are reasonable, attachment to structure will not be allowed.

(b) Each attachment will be considered on its own merits.

(c) The Deputy Design Engineer of Structures will consider special handling of utilities on new structures such as extended caps or locations in sidewalk

and consider the corrosion effects on the structure.

5. SPECIAL REQUIREMENTS FOR INSTALLATION, RESTORATION OF RIGHT OF WAY AND MAINTENANCE OF UTILITY

All State of Florida Department of Transportation properties shall be restored to their original condition as far as practical, in keeping with the State of Florida Department of Transportation Specifications, and in a manner satisfactory to the State of Florida Department of Transportation. The following guidelines are established for this purpose:

A. All necessary signs, flagmen and other safety devices will be used in accordance with the Department's ***Manual on Traffic Control and Safe Practices.***

B. At any and all open cut crossings, a minimum of one-way traffic will be maintained during the daylight hours and two-way traffic at night. All traffic detours should be restricted to the limits of Department of Transportation right of way with necessary flagmen and marking devices. Detour of traffic outside of Department of Transportation right of way will be considered with the approval of local governmental agencies involved. These detours including the traffic control plan will be approved by the Maintenance or Resident Engineer.

C. All side drains, side ditches and storm sewers will be referenced as to grade and location prior to construction.

D. At each open cut crossing the backfill material shall be placed in six (6) inch lifts and tamped to achieve a density equal to or greater than the adjacent undisturbed material. This requirement holds for embankment, subgrade, and base. The density determinations can be made by, the permittee if qualified, or a certified laboratory under the supervision of the permittee's consultant. A copy of all density test reports shall be furnished to the State of Florida Department of Transportation on the job site at the time the tests are made.

E. Two drawings, Exhibit F, show proper replacement when open cut is allowed. In some instances additional paving will be required.

F. Temporary patches will be maintained so as to provide a smooth, all-weather surface at all times. Permanent replacements of the temporary patch shall be made as soon as all other work on the installation is completed and the local Maintenance Engineer will be notified twenty-four (24) hours prior to application of the permanent patch. The permittee will be required to maintain the patch for a period of one (1) year.

G. Shoring will be required to conform with OSHA requirements where necessary to protect existing pavement.

H. All excavated material in excess of the quantity required for backfill in Department of Transportation right of ways shall be hauled by the permittee at his cost

and expense, a maximum distance of three (3) miles from the trench excavation and stockpiled in those areas as directed by the State of Florida Department of Transportation. All unusable material shall be disposed of at the permittee's expense and not placed within the limits of the State of Florida Department of Transportation Right of Way unless so directed by the State of Florida Department of Transportation Engineers.

I. All correspondence regarding construction procedures will be handled directly with the permittee and not through their consultants, contractor or subcontractor.

J. At such locations where Department of Transportation signs and reflectors will interfere with proposed construction, the permittee will notify the Maintenance or Resident Engineer forty-eight (48) hours in advance of starting work. All signs and reflectors will be removed or relocated by Department of Transportation forces. Any signs or reflectors damaged, destroyed, removed, or relocated will be replaced by the State of Florida Department of Transportation at the expense of the permittee.

K. All trees and/or shrubbery damaged or disturbed during construction shall be replaced by the permittee at his expense as directed by the Maintenance or Resident Engineer. Any that have been planted by property owners shall be removed and replaced to the satisfaction of the Maintenance or Resident Engineer. All debris shall be removed by the permittee at his expense.

L. Grassing and mulching operations are to begin within a maximum of three (3) weeks after an utility installation except in cases of front and back slopes which should be done immediately after installations are completed. All requirements regarding grassing and mulching will be in accordance with the Department of Transportation Specifications. Any yards or part of right of way in front of private property that has a grass mat will be resodded with like sod, or otherwise, to the satisfaction of the Maintenance or Resident Engineer. Permittee shall maintain that portion of the right of way affected by the permit installation until acceptable vegetation is established.

M. The indescriminate cutting or disfiguring of trees of any scenic value shall not be permitted. This includes other methods such as herbicides. The necessary trimming or cutting of trees by utility companies in the interest of public safety or continuity of utility service shall not be considered indescriminate where such utilities cannot bypass the obstruction without violating the clear roadside policy.

6. LOCATION CRITERIA FOR UTILITIES (Exhibits B & D)

A. Interstate or Other Limited Access Facilities:

(1) LIGHT POLES- At least thirty (30) feet from edge of through lane, eighteen (18) feet from edge of auxiliary lane. Poles permitted to within twenty (20) feet from edge of through lane provided frangible base is used. Poles with frangible bases may be located fourteen (14) feet minimum from edge of auxiliary lane. Light poles may be placed four (4) feet behind guardrail where guardrail is justified for other reasons. Not

permitted in median except where incorporated with an approved barrier system.

(2) UTILITY POLES - Not in median. Not installed longitudinally within the control of access lines. At interchanges, poles to be placed within projected right of way of the minor road and no closer than thirty (30) feet from edge of auxiliary lane (ramp). At least thirty (30) feet beyond the edge of the shoulder of the through lane of Limited Access facility.

(3) PARALLEL (UNDERGROUND)-

(4) CROSSING (AERIAL) - Twenty-four (24) feet minimum vertical clearance. Other governmental agencies or codes may require a greater clearance for certain voltages. The greater clearance required prevails as the rule. No poles or structures will be permitted within right of way of the main travel way.

(5) CROSSING (UNDERGROU\D) - Minimum vertical clearance forty-eight (48) inches below pavement and thirty (30) inches below ground including ditch grade. After pavement has been constructed, no open cuts will be allowed. Where a high pressure gas or volatile fuel line is located under a highway bridge, additional protection may be necessary. The type of additional protection may vary depending upon circumstances and each individual case will be analyzed on its own merits. (See Jacking and Boring Supplement - Exhibit H)

B. Other Facilities: - Fifty (5O) M.P.H. or Greater

(1) LIGHT POLES - At least thirty (30) feet from edge of through lane and eighteen (18) feet from edge of auxiliary lane. Poles permitted to within twenty (20) feet from edge of through lane provided frangible base is used. Poles with frangible base may be located fourteen (14) feet minimum from edge of auxiliary lane. Light poles may be placed four (4) feet behind guardrail where guardrail is justified for other reasons. Poles permitted in median if thirty (30) feet clearance from pole to edge of pavement or where located behind an approved barrier. When right of way is not available for minimum offsets specified above, each case will be considered on an individual basis.

(2) UTILITY POLES - At least thirty (30) feet from edge of through lane or eighteen (18) feet from edge of auxiliary lane. Normally six and one half (6½) feet inside right of way line when beyond the clear recovery area; otherwise, as close as practical to the right of way line without causing encroachments on private property or safety code violations. When right of way is not available for minimum offsets specified above, each case will be considered on an individual basis.

Poles not permitted in median except for temporary construction. Such temporary construction shall be completed in minimum time and an approved barrier system must be provided where poles encroach within the clear recovery area

(3) PARALLEL (UNDERGROUND) - Minimum vertical clearance thirty-six (36)

inches below top of pavement and thirty (30) inches minimum cover below existing ground except for gas lines, which should be thirty-six (36) inches below ground. In rural areas normally not between edge of pavement and toe of slope and as near right of way line as practical. Minimum depth requirement can vary if utility is buried under sidewalk or bike path.

(4) CROSSING (AERIAL) - Eighteen (18) feet minimum vertical clearance. Other governmental agencies or codes may require a greater clearance for certain voltages. The greater clearance required prevails as the rule.

(5) CROSSING (UNDERGROUND)- Minimum vertical clearance thirty-six (*36)* inches below pavement and thirty (30) inches below ground line including ditch grade. (See Jacking and Boring Supplement - Exhibit H)

C. Other Facilities: - Forty-five (45) M.P.H. or Less (Without Curb and Gutter)

(1) LIGHT POLES - At least eighteen (18) feet from edge of through lane or fourteen (14) feet from edge of auxiliary lane. Light poles may be placed four (4) feet behind guardrail where guardrail is justified for other reasons. When right of way is not available for minimum offsets specified above, each case will be considered on an individual basis.

(2) UTILITY POLES - At least eighteen (18) feet from edge of through lane or fourteen (14) feet from edge of auxiliary lane. Normally six and one half (6½) feet inside right of way line when beyond the clear recovery area; otherwise, as close as practical to the right of way line without causing encroachments on private property or safety code violations. When right of way is not available for minimum offsets specified above, each case will be considered on an individual basis.

Poles not permitted in median except for temporary construction. Such temporary construction shall be completed in minimum time and an approved barrier system must be provided where poles encroach within the clear recovery area.

(3) PARALLEL (UNDERGROUND) - Minimum vertical clearance thirty-six (36) inches below top of pavement and thirty (30) inches minimum cover below existing ground except for gas lines, which should be thirty-six (36) inches below ground. In rural areas normally not between edge of pavement and toe of slope and as near the right of way as practical. Minimum depth requirement can vary if utility is buried under sidewalk or bike path.

(4) CROSSING (AERIAL) - Eighteen (18) feet minimum vertical clearance. Other governmental agencies or codes may require a greater clearance for certain voltages. The greater clearance required prevails as the rule.

(5) CROSSING (UNDERGROUND) - Minimum vertical clearance thirty-six (36) inches below pavement and thirty (30) inches below ground line including ditch grade.

(See Jacking and Boring Supplement - Exhibit H)

D. Municipal Construction: - Forty-five (45) MPH. or Less (Curb and Gutter)

(1) LIGHT POLES - Four (4) feet from face of curb minimum. On projects where the four (4) minimum offset would place the utility or other obstruction in substantial conflict with the sidewalk or when light poles would create an unreasonable conflict with requirements of the National Safety Code and other alternatives are deemed impractical, the minimum may be reduced to two and one-half (½) feet from face of curb. Each case where this deviation is proposed must be supported on an individual basis.

(2) UTILITY POLES - Not in median**.** Four (4) feet from face of curb minimum. On projects where the four (4) foot minimum offset would place the utility or other obstruction in substantial conflict with the sidewalk or when utility poles would create an unreasonable conflict with requirements of the National Safety Code and other alternatives are deemed impractical, the minimum may be reduced to two and one-half (2½) feet from face of curb. Each case where this deviation is proposed must be supported on an individual basis.

(3) PARALLEL (UNDERGROUND) - Minimum vertical clearance thirty-six (36) inches below top of the pavement and thirty (30) inches minimum cover below existing ground for gas lines, which should be thirty-six (36) inches below ground. Not closer than two (2) feet behind curb and as near right of way as practical. Minimum depth requirement can vary if utility is buried under sidewalk or bike path.

(4) CROSSING (AERIAL) - Eighteen (18) feet minimum vertical clearance. Other governmental agencies or codes may require a greater clearance for certain voltages. The greater clearance required prevails as the rule.

(5) CROSSING (UNDERGROUND) - Minimum vertical clearance thirty-six (36) inches below pavement and thirty (3O) inches below ground line including ditch grade. (See Jacking and Boring Supplement - Exhibit H)

7. GENERAL REQUIREMENTS

A. Devices such as signal-strain poles, fire hydrants, telephone load pedestals, and other items whose construction and size would cause extensive damage to a vehicle if struck are to be located according to the standards for utility poles.

B. For the purpose of this guide, frangible base poles will be accepted if in accordance with the Department Index Numbers 17500 and 17501, including later revisions.

C. On projects where the four (4) foot minimum offset would place the utility or other obstruction in substantial conflict with the sidewalk and, in the case of power poles, would create an unreasonable conflict with requirements of the Safety Code and other

alternatives are deemed impractical, the minimum may be reduced to two and one-half (2½) feet from face of curb. Each case where this deviation is proposed must be supported on an individual basis and approved by the Central Office and by FHWA if on any project constructed or improved with Federal Aid Funds.

D. Where possible, excavation will not be allowed within eight (8) feet of the edge of the pavement. See Jacking and Boring Supplement for exceptions. (Exhibit H)

E. All utilities shall comply with appropriate regulations, Federal and State, in effect at the time of construction.

F. These criteria shall not be applied to a minor segment of an existing utility installation in such manner as to result in misalignment of the installation or adjustment of the entire installation.

G. The roadside clearances for above ground utility facilities shall be consistent with those clearances applicable to other roadside obstacles on the type of highway involved, reflecting good engineering and economic considerations.

H. Where feasible and practical, luminaries should be attached to utility poles which otherwise meet the offset criteria, thereby eliminating unnecessary numbers of poles along highway facilities.

I. Manholes shall be outside the traveled lanes, to the greatest extent possible, preferably in the median. The manhole ring, cover, and pad must support the traffic for the area where it is being constructed.

J**.** Underground lines that are abandoned will be removed if right of way is required for other utilities.

K**.** All maintenance activities are required to meet this guide for safety and right of way restoration.

L. The installation, operation and maintenance of the proposed facility will be accomplished in accordance with the American Association of State Highway and Transportation Officials ***A Policy on the Accommodation of Utilities on Freeway Right of Ways*** as adopted on February 15, 1969. In accordance, therewith, the applicant agrees that access for the installation and the servicing of its facilities will be limited to access via (a) frontage roads where provided, (b) nearby or adjacent public roads and streets or (c) trails along or near the highway right of way lines, connecting only to an intersecting road, from any one or all of which entry may be made to the outer portion of the highway right of way.

M. Appurtenances

(1) Should be aesthetically acceptable and in compliance with industry

standards.

(2) Shall be placed so as to provide minimum interference to the traveling public and DOT maintenance operations.

(3) Must not conflict with other existing facilities.

N. If any utility relocation is necessary to provide entrance to the roadway from adjacent property, the relocation expense should be borne by the secondary permittee and he shall not interfere with the rights granted any prior permittee. If a dispute arises, then the relocation expense should be considered a matter between the property owner and the prior permittee. In the case of an appeal, the final location will be determined by the Department after consultation with the Public Service Commission.

O. With the exception of utility poles and single pole mounted appurtenances mounted 15 feet or higher above the ground, appurtenances larger than 8 cubic feet must have their location and size in cubic feet shown on the permit.

P. Underground appurtenances less than 30 feet from the edge of pavement, excluding those considered not in traffic areas in curb and gutter sections, shall be designed to carry traffic. Those located in non-traffic areas in curb and gutter sections and those located greater than 30 feet from the edge of pavement shall be designed to support the Department's maintenance equipment. The minimum wheel load underground appurtenances should be designed for is H-20 Loading. This in no way guarantees the utility company that these appurtenances will not be subject to greater loads.

Q. Permits requesting installation of above ground appurtenances up to 80 cubic feet and any size underground appurtenance, which meet the guidelines may be approved at the District level. Those above ground appurtenances larger than 80 cubic feet or deviating from these guidelines shall be submitted through proper channels to the State Maintenance Office for approval.

EXHIBIT A

DEFINITION OF TERMS

Auxiliary Lane - The portion of the roadway adjoining the traveled way for parking, access ramps, speed changes, turning, storage for turning weaving, truck climbing or other purposes supplementary to through traffic movement.

Conduit - An enclosure for protecting wires and cables.

Contractor - The individual, firm or company, contracting with the Department for performance of work or furnishing materials.

Driving Lane - Any traffic lane, through or auxiliary.

Inspector - An authorized representative of the Maintenance or Resident Engineer.

Maintenance Engineer - Department of Transportation Maintenance Engineer named in Paragraph Six of the Utility Permit.

Manhole - An opening in an underground system which workmen or others may enter for the purpose of making installations, inspections, repairs, connections and tests.

Median - The portion of a divided highway or street separating the traveled ways for traffic moving in opposite directions.

Permittee - The individual firm, company, or governmental agency identified as the permittee on the Utility Permit.

Relocation - Shall mean the adjustment of utility facilities required by the highway project, such as removing and reinstalling the facility, including necessary rights-of-way, on new location, moving or rearranging existing facilities or changing the type of facility, including any necessary safety and protective measures. It shall also mean constructing a replacement facility functionally equal to the existing facility, where necessary for continuous operation of the utility service, the project economy, or sequence of highway construction.

Resident Engineer - Department of Transportation Resident Engineer named in Paragraph Six of the Utility Permit.

Right of Way - A general term denoting land, property, or interest therein usually in a strip, acquired for or devoted to transportation purposes. For permit purposes, the land which the Department has title to, or right of use, for the road and its structures and appurtenances, and for material pits furnished or to be furnished by the Department.

Travel Way - The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

Utility - Shall mean and include all privately, publicly or cooperatively owned lines, facilities and systems for producing, transmitting or distributing communications, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water not connected with highway drainage, and other similar commodities, including publicly owned fire and police signal systems and street lighting systems, which directly or indirectly serve the public or any part thereof. The term “utility” shall also mean the utility company, inclusive of and wholly owned or controlled subsidiary.

Utilities Facilities - Means and includes all privately, or publicly or cooperatively owned lines, facilities and systems for producing, transmitting or distributing communications, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water not connected with highway drainage, and other similar commodities, including fire and police signal systems and street lighting systems, which directly or indirectly serve the public or any part thereof.

RULES

OF THE

DEPARTMENT OF TRANSPORTATION

CHAPTER 14-46

RAILROADS/UTILITIES INSTALLATION OR ADJUSTMENT

14-46.01 Utilities Installation or Adjustment.

(1) PURPOSE – This policy is established to regulate the location and manner for installation and adjustment of utility facilities on the State Highway System in the interest of safety and protection, utilization, and future development of the highways with due consideration given to public service afforded by adequate and economical utility installations and the issuance of permits.

(2) AUTHORIZATION BY THE DEPARTMENT REQUIRED - No person shall enter upon the right of wav of any state road to construct, alter, or relocate any utility installation without prior authorization by the Department except as noted in the Department's *Utility Accommodation Guide.*

(3) PERMITS TO BE ISSUED — Permits for the construction, operation, and maintenance of utilities upon the right of way of any road on a state maintained system will be issued in conformity with the Department's Utility Accommodation Guide.

(4) REIMBURSEMENT CONDITIONS — (other than Interstate)

(a) There will be no reimbursement for adjustment or removal of existing utilities where utilities are located on public rights of way or other areas dedicated for public use.

(b) The utilities will be reimbursed for relocating or adjusting their facilities where they are located on property in which they hold a compensable interest.

5) Reimbursement Conditions (Interstate)

(a) If the relocation of utility facilities is required by construction of a project on the Federal Aid Interstate System, and the cost of such project is financed by the federal government to the extent of 90% under the Federal Highway Act, then in that event the Department will reimburse the expense of utility relocation in accordance with the Federal Highway Administration Federal Aid- Highway Program Manual Volume 1, Chapter 4, Section 4.

Specific Authority 20.05(5), 338.17(1) FS. Law Implemented 338.17, 338.19, 339.05 FS. (Authorizing Implementation of Federal-Aid Highway Program Manual, Volume 1, Chapter 4, Section 4), History – New 5-13-70, Amended 8-10-78.

EXHIBIT C

FORM 352-03
4-89

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

UTILITY PERMIT
(In compliance with Chapter 338, Florida Statutes)

DATE _____ PERMIT NUMBER _____

SUBJECT: Section _____ State Road _____ County _____

PERMITTEE _____

ADDRESS _____ Telephone Number _____

Requesting permission from the State of Florida Department of Transportation, hereinafter called the Department, to construct, operate and maintain _____

_____

from MP Station _____ to MP Station _____

1. Proposed work is within corporate limits of a municipality. Yes ( ) No ( )
   Name of Municipality _____
2. Applicant declares that prior to filing this application he has ascertained the location of all existing utilities, both aerial and underground and the accurate locations are shown on the sketches.
   A letter or notification was mailed on _____ to the following utilities/municipalities.
   _____
   _____
   _____
   _____
3. Interstate right-of-way is involved. Yes ( ) No ( )
4. It is expressly stipulated that this permit is a license for permissive use only and that the placing of facilities upon public property pursuant to this permit shall not operate to create or vest any property right in said holder.
5. **Whenever it is determined by the Department that it is necessary for the construction, repair, improvement, maintenance, safe and efficient operation, alteration, or relocation of all, or any portion of such highway, or that it is necessary for the construction, modification, or safe and efficient operation and maintenance of any public transportation facility, any and all facilities shall be immediately removed from said highway or reset or relocated thereon as required by the Department, all at the expense of the permittee unless reimbursement is authorized.**
6. All work shall meet Department standards and be performed under the supervision of _____ Maintenance or Resident Engineer located at _____ Florida, Telephone Number _____
7. All materials and equipment shall be subject to inspection by the Maintenance or Resident Engineer.
8. All Department property shall be restored to its original condition as far as practical, in keeping with Department specifications, and in a manner satisfactory to the Department.
9. All installations shall conform to the Department's Utility Accommodation Guide in effect the date permit is approved.
10. A sketch covering details of this installation shall be made a part of this permit.
11. The permittee shall commence actual construction in good faith within _____ days from the day of said permit approval and shall be completed within _____ days. If the beginning date is more than 60 days from date of permit approval, then permittee must review the permit with the D.O.T. Maintenance Engineer to make sure no changes have occurred in the highway that would affect the permitted construction.
12. The construction and maintenance of such utility shall not interfere with the property and rights of a prior permittee.
13. Special conditions: _____
    _____
    _____
    _____
14. Special instructions: _____
    _____
    _____
    _____
15. It is understood and agreed that the rights and privileges herein set out are granted only to the extent of the State's right, title and interest in the land to be entered upon and used by the holder, and the holder will, at all times, assume all risk of and indemnify, defend, and save harmless the State of Florida and the Department from and against any and all loss, damage, cost or expense arising in any manner on account of the exercise or attempted exercises by said holder for the aforesaid rights and privileges.
16. During construction, all safety regulations of the Department shall be observed and the holder must take measure, including placing and display of safety devices, that may be necessary in order to safely conduct the public through the project area in accordance with the Department's Manual on Traffic Controls and Safe Practices for Street and Highway Construction, Maintenance and Utility Operations.
17. The office of the Engineer designated in paragraph six (6) shall be notified twenty-four (24) hours prior to starting work and again immediately upon completion of work.
18. In case of non compliance with the Department's requirements in effect as of the approved date of this permit, this permit is void and the facility will have to be brought into compliance or removed from the R/W at no cost to the Department.

Submitted by: _____
Permittee

_____
Signature and Title

Place Corporate Seal

_____
Attested

*Waiver of Corporate Seal on File with General Counsel, State of Florida Department of Transportation, Tallahassee, Florida.
Yes ( ) No ( )
Roadway Construction is proposed or underway. Yes ( ) Job No. _____ No ( )
Proposed Installation is in accordance with the Department's Utility Accommodation Guide. Yes ( ) No ( )

Recommended for approval _____ Title _____ Date _____

Approved by _____
District Permit Engineer or Authorized Representative

LOCATION CRITERIA FOR UTILITIES

HIGHWAY TYPE	CLEAR RECOVERY AREA	LIGHT POLES	UTILITY POLES	PARALLEL UNDERGROUND	CROSSING AERIAL	CROSSING UNDERGROUND
* INTERSTATE OR OTHER LIMITED ACCESS FACILITIES	30' min from edge of through lane, 18' min from edge of auxiliary lane	Not generally in median. Outside clear recovery area or frangible base 20' from edge of through lane and 14' min from edge of auxiliary lane or behind approved barrier that is justified for other reasons	Not in median. Not within R/W of main travel ways at interchanges, poles to be placed within the projected right of way at toe minus 10ft and no closer than 30' from edge of auxiliary lane (ramp). Outside clear recovery area for the crossroad. At least 30' from edge of shoulder of through lane of limited access facility	Normally Not Permitted	24' min vertical clearance	Min vertical clearance 48" below pave and 36" below ground line including ditch grade. After the pave has been constructed open cuts will be allowed where a high pressure gas or volatile fuel line is located under a highway bridge, additional protection may be necessary. The type of additional protection may vary depending upon circumstances and each individual case will be analyzed on its own merits (See Jacking and Boring Supplement)
OTHER FACILITIES WITH SPEEDS OF 50 MPH OR GREATER	30' min from edge of through lane, 18' min from edge of auxiliary lane.	Outside clear recovery area or frangible base 20' from through lane and 14' min from edge of auxiliary lane or behind approved barrier that is justified for other reasons	Outside clear recovery area. Normally 6½' inside R/W when beyond clear recovery area, otherwise as close as practical to R/W line. Poles not permitted in median except for temporary construction. Temporary construction shall be completed in min time and an approved barrier system must be provided when within the clear recovery area.	Min vertical clearance 36" below top of pave and 30" min cover below existing ground, except for gas lines, which should be 36" below ground in rural areas normally not between edge of pave and toe of slope and as near R/W line as practical. Min depth requirement can vary if utility is buried under sidewalk or bike path	18' min vertical clearance	Min vertical clearance 36" below pave and 30" below ground line including ditch grade See Jacking and Boring Supplement
OTHER FACILITIES WITH SPEEDS OF 45 MPH OR LESS (WITHOUT CURB AND GUTTER)	18' where R/W permits or 14' min from edge of both through and auxiliary lanes	18' from edge of through lanes or 14' from edge of auxiliary lane for both frangible and non-frangible base or behind approved barrier that is justified for other reasons	18' from edge of through lane or 14' from edge of auxiliary lane. Normally 6½' inside R/W when beyond clear recovery area, otherwise as close as practical to R/W line. Poles not permitted in median except for temporary construction. Temporary construction shall be completed in min time and an approved barrier system must be provided when within the clear recovery area	Min vertical clearance 36" below top of pave and 30" min cover below existing ground, except for gas lines, which should be 36" below ground in rural areas normally not between edge of pave and toe of slope and as near R/W line as practical. Min depth requirement can vary if utility is buried under sidewalk or bike path.	18' min vertical clearance	Min vertical clearance 36" below pave and 30" below ground line including ditch grade See Jacking and Boring Supplement
MUNICIPAL SPEEDS OF 45 MPH OR LESS (CURB AND GUTTER)	4' from face of curb. Ø	4' from face of curb Ø	Not in median. 4' from face of curb at min Ø	Min vertical clearance 36" below top of pave and 30" min cover below existing ground, except for gas lines, which should be 36" below ground. Not closer than two (2) feet behind curb and as near right of way line as practical. Min depth requirement can vary if utility is buried under sidewalk or bike path	18' min vertical clearance	Min vertical clearance 36" below pave and 30" below ground line including ditch grade See Jacking and Boring Supplement

* The installation, operation and maintenance of proposed facility will be accomplished in accordance with the American Association of State Highway Officials' Policy on the Accommodation of Utilities on Freeway Right of Ways" as adopted on February 15, 1959. In accordance, therewith, the applicant agrees that access for the installation and the servicing of its facilities will be limited to access via (a) frontage roads where provided, (b) nearby or adjacent public roads and streets or (c) trails along or near the highway right of way lines, connecting only to an intersecting road, from any one or all of which entry may be made to the outer portion of the highway right of way.

An auxiliary lane is the portion of the roadway adjoining the traveled way for parking, speed changes, turning, storage for loading, weaving, truck climbing, or other purposes supplementary to through traffic movement. Ramps are considered to be auxiliary lanes.

Driving lane is any traffic lane, through or auxiliary.

Ø On projects where the 4' min offset would place the utility or other obstruction in sub-standard conflict with the sidewalk or when utility poles would create an unreasonable conflict with requirements of the National Safety Codes and other alternatives are deemed impractical, the minimum may be reduced to 2½' from the face of curb in which case this deviation is proposed must be supported.

EXHIBIT D

EXHIBIT E

EXAMPLE PROCEDURE

METHOD OF STRINGING CONDUCTORS AND TRAFFIC HANDLING
FOR CROSSING INTERSTATE, EXPRESSWAY OR MAJOR ROADWAYS
REQUIRING THE USE OF BUCKET TRUCKS INSIDE THE RIGHT-OF-WAY

The following procedure will be used for stringing conductors across Interstates, Expressways or Major Highways (either divided or undivided) where the weight of the conductors will safely permit the use of bucket trucks to pass and hold the conductors across and above the roadway, and protect the motoring public during the operation.

No work of any type, in connection with the construction of this project, will begin prior to notification of the Local Department of Transportation Maintenance Office or Resident Engineer and the Local Florida Highway Patrol Office having jurisdiction of the area involved.

The method of installation in coordination with the Local Maintenance or Resident Engineer and Florida Highway Patrol is as follows:

I. In accordance with the Department of Transportation ***Manual on Traffic Control and Safe Practices*** warning signs shall be placed at appropriate distances each side of work area based upon the speed of the roadway involved and recommendations of the Maintenance or Resident Engineer.

2. Flagmen will be posted to warn on-coming motorists during the entire crossing operation.

3. Two aerial bucket trucks will be used to make this crossing without any anticipated interruption to traffic in either direction. This operation will be accomplished in two stages in the following manner:

Phase I - South Bound Lane - We proposed to position one bucket truck, “Truck A”, on the grass shoulder on the west side of the south bound lane and one bucket truck, “Truck B”, in the center of the median strip between the two traffic lanes. A pull or bull rope will be pulled from the structure west of the right-of-way line to bucket Truck A. The man in this bucket will coil sufficient rope in this bucket to reach across the south bound lane. This bucket will be raised and swung over the south bound lane where the rope will be passed to bucket Truck B. The buckets of both trucks will then be raised to the maximum vertical position and a sufficient length of rope will be coiled in the bucket of Truck B to reach across the north bound lane. Truck B will maintain its position while maintaining maximum

clearance over the roadway while Truck A moves to the nearest southerly interchange and moves around to the north bound lane and assumes position 2 on the grass shoulder on the east side of the north bound lane.

Phase II - North Bound Lane - The same procedure as described above will be used in this phase with the buckets of both trucks being brought together and the rope passed to Truck A. The bucket of Truck B will then be returned to its maximum vertical height to maintain maximum clearance over the roadway while the bucket of Truck A is swung to pass the rope to the structure outside the east right-of-way line. The rope will be placed in sheaves on Truck B and the structures on each side of the roadway and stretched to sag condition.

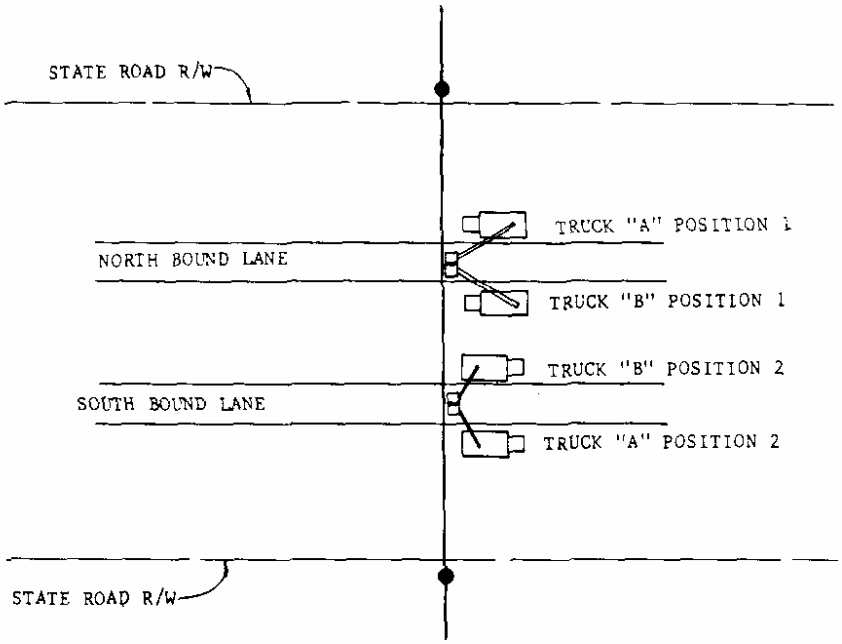
One conductor and another rope will then be pulled, under tension through the sheaves, across the roadway. The second rope will be used to pull the second conductor and another rope across the roadway. This same procedure will be repeated until all conductors have been pulled-in. The conductors will then be pulled to proper tension and tied off at structures on each side of the roadway. After all the conductors have been pulled-in secured the bucket trucks, flagmen and warning signs will be removed from the roadway.

4. The time required to pull-in each conductor is anticipated to be approximately one hour. The entire crossing should be completed in less than three (3) days. At no time will either the pulling ropes or the conductor be less than twenty-five (25) feet above the roadway. The conductors will not be energized during this construction.

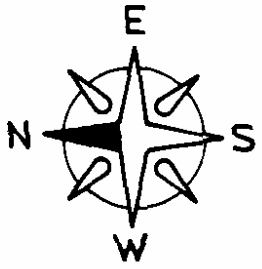
The right of way or limited access fences will be grounded in accordance with the Department’s requirements as set forth in paragraph 550-4.7 Electrical Grounds.

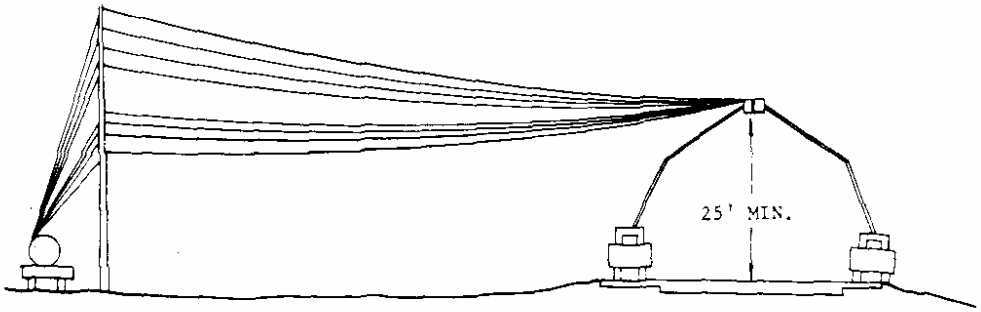
EXAMPLE PROCEDURE

EXHIBIT E (CONT'D)



PLAN VIEW





SECTION VIEW

METHOD OF STRINGING-CONDUCTORS AND TRAFFIC HANDLING FOR CROSSING INTERSTATE, EXPRESSWAY OR MAJOR ROADWAYS REQUIRING THE USE OF GUARD POLES INSIDE THE RIGHT-OF-WAY

This procedure shall be followed for all crossings of high voltage lines crossing over Interstate, Expressways or Major Divided Roadways where the size and weight of a single or bundled conductor would prohibit the use of bucket trucks for reasons of safety. The use of Guard Pole structures, in this procedure, is not to facilitate the stringing of conductors, but for the protection of the motoring public. By specification these phase conductors are not permitted to be pulled along the ground or across the arm of the guard structure because of possible surface abrasions which would render the conductor defective for use in high voltage operations. The use of these guard structures is absolutely necessary to protect the motoring public in the event a mechanical failure occurs and the conductor should fall during the installation. The guard structures are installed to intercept the conductor in the event of such a failure and also to eliminate the necessity of completely stopping traffic during the actual stringing operation.

The use of bucket trucks for this operation is not practical from a safety standpoint because in the event of a failure in the equipment or wire the conductor in falling across the bucket or boom arm or running through the sheves attached to the bucket would either turn the truck over or snap the arm, dropping both the arm and bucket as well as the conductor onto the roadway. The bucket truck and boom arm are designed to handle a vertical load, but will not withstand a transverse load imposed by a falling conductor.

No work of any type in connection with the construction of this project will begin prior to notification to the Local Maintenance or Resident Engineer's Office of the Department of Transportation and the local Florida Highway Patrol Office having jurisdiction in the area involved.

The method of installation, in coordination with the local Maintenance or Resident Engineer and Florida Highway Patrol, is as follows:

1. In accordance with the Department of Transportation ***Manual on Traffic Control and Safe Practices,*** warning signs shall be placed at appropriate distances each side of work area, based upon the speed of the roadway and recommendations of the Maintenance or Resident Engineer.

2. Flag persons will be posted to warn and slow motorist during any performance of work within the roadway.

3. Guard Pole Structures, of the single pole "Y" type, two or three pole "H" type (see attached sketch) will be installed on each side of the roadway outside the roadway

recovery area (20 or 30 feet from edge of pavement of through lane depending upon design speed of highway). Depending upon the width of roadway, number, size and weight of conductors, guard poles of the same type described above will be installed in the median. Guard Rails, of the type used by the Department of Transportation, will be installed on each side of the structure in the median. These guard rails shall be of the rigid barrier type. Guard rails will not be installed for structures outside the roadway recovery area unless specifically required by the Department of Transportation.

4. The stringing of conductors will be accomplished in the following manner, without any anticipated interruption to traffic in either direction:

Phase I - South or West Bound Lane - We propose to position one bucket truck, “Truck A‘‘ on the grass shoulder on the West or North side of the traffic lane and one bucket truck “Truck B” on the grass shoulder on the East or South side of traffic lane in median. A pull or bull rope will be pulled from the structure West or North of the right-of-way line to “Bucket Truck A”. The man in this bucket will coil sufficient rope in this bucket to reach across the traffic lanes. This bucket will be raised and swung over the traffic lanes meeting bucket from “Bucket Truck B” over the center of the lanes. The buckets of both trucks will then be raised to maximum vertical position and a sufficient length of rope coiled into the bucket to reach across the North or East Bound Lane. “Truck A” will maintain its position, maintaining maximum clearance over roadway as “Truck B” then moves to position 2, as indicated on sketch. “Truck B” will maintain maximum clearance over roadway as “Truck A” moves through the nearest interchange to the North or East Bound Lane and assumes position 2, as indicated on sketch.

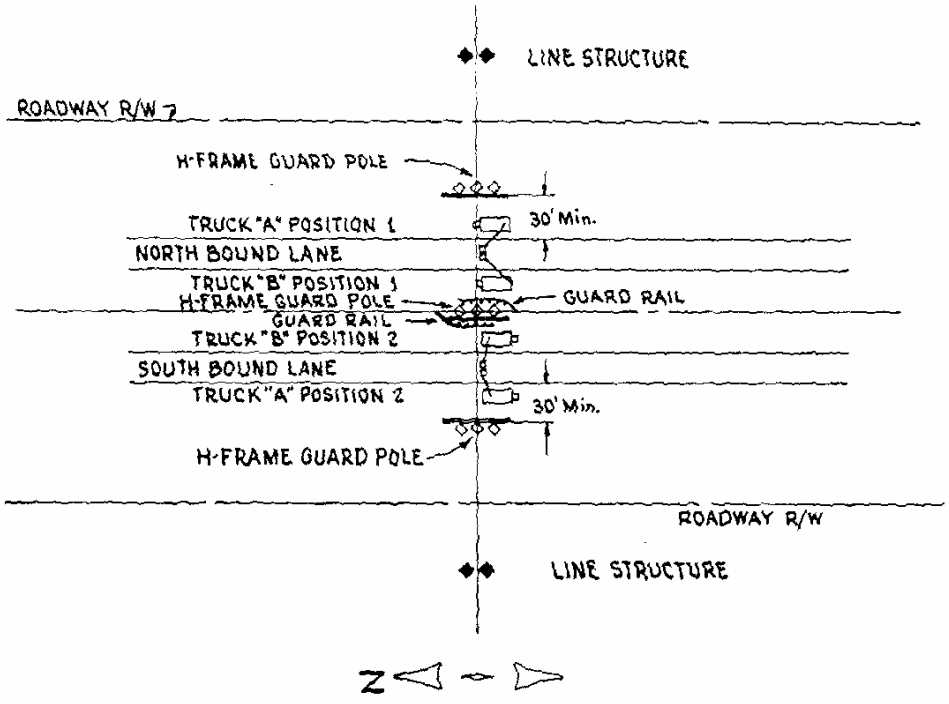
Phase II - North or East Bound Lane - The same procedure as described in Phase I will be followed in passing the pullrope across the roadway. The buckets will be brought together over the roadway and the rope passed from “Truck B” to “Truck A”. The bucket of “Truck A” then swings to the East or South to pass the pull rope to the structure outside the East or South right-of-way. The pullrope is attached to a steel pullcable which is pulled across to the pulling rig. The phase conductor or bundle of conductors and another pullrope are attached to the steel cable and pulled in under tension. The conductor is then tied off until all conductors have been pulled through using the same procedure. When all conductors have been pulled-in the conductors are pulled to the proper tension and are clipped-in and conductors secured. The bucket trucks are removed from the roadway upon completion of the pulling in of the conductors. After the conductors have been clipped-in and secured, the guard poles and guard rails will be removed, the holes refilled and sod replaced, signs removed and flagpersons relieved.

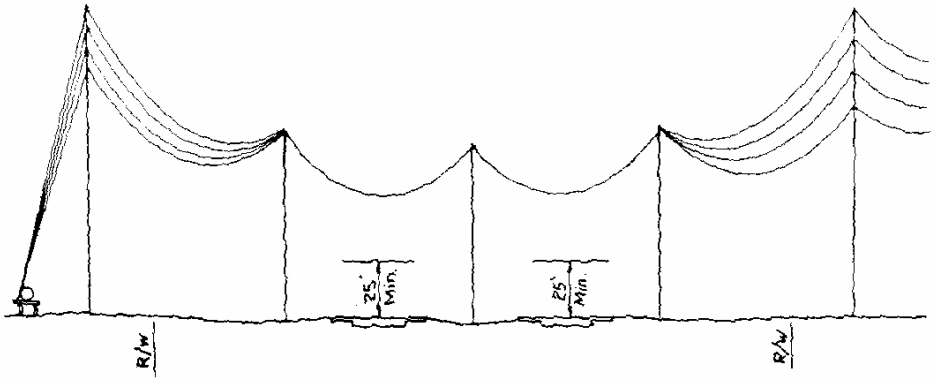
5. Roadway fences, if any, will be grounded in accordance with the Department’s requirements as set forth in paragraph 550-4.7 Electrical Grounds.

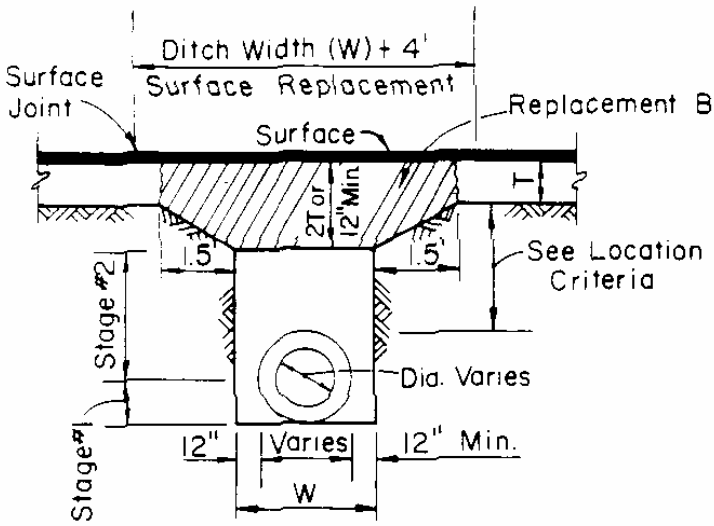
6. The time required to install guard poles, guard rails, pull-in conductors, tension and clip-in conductors, remove guard poles, guard rails, fill holes and replace sod will vary from three to seven days depending upon the type, size, weight and number of conductors in a bundle for each phase.

EXAMPLE PROCEDURE

EXHIBIT E (CONT'D)







REPLACEMENT OF FLEXIBLE PAVEMENT FOR PERMITTED PAVEMENT CUT

DENSITY PROCEDURES:

The backfill for the first and second stages shall be placed in 6" layers (compacted thickness) and shall be compacted to 100% of maximum density as determined by AASHTO T-99.

Stage #1

The permittee shall provide adequate compacted fill beneath the haunches of the pipe, using mechanical tamps suitable for this purpose. This compaction applies to the material placed beneath the haunches of the pipe and above any bedding required.

Stage #2

The permittee shall obtain a well-compacted bed and fill along the sides of the pipe and to a point indicating the top of sub-grade material.

General Notes:

Base and backfill materials shall be either of the same type and composition as the materials removed, or of equal or greater structural adequacy. Materials contaminated with deleterious substances during excavation shall not be used.

Replaced base material over ditch shall be twice the thickness of the original base.

Base material shall be placed in two or three layers and each layer thoroughly rolled or tamped to the specified density.

Asphalt concrete pavement joints shall be mechanically sawed.

Surface treated pavement joints shall be lapped and feathered.

Surface material will be consistent with the existing surface.

LIMEROCK, SAND-CLAY, SHELL, ETC. BASES:

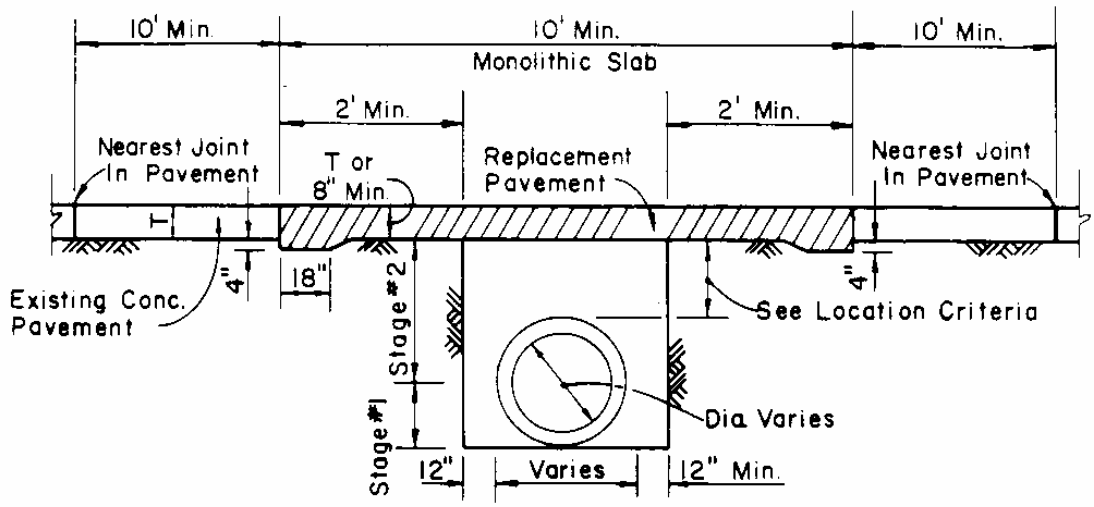
6" Layers Compacted Thickness Density Requirements:

98% Under Roadway

95% Outside the Traveled Roadway, Such as Intersections, Crossovers, Turnouts, etc.

95% Shoulder Pavement

Method AASHTO T-180



REPLACEMENT OF CONCRETE PAVEMENT FOR PERMITTED PAVEMENT CUT

DENSITY PROCEDURES:

The backfill for the first and second stages shall be placed in 6" layers (compacted thickness) and shall be compacted to 100% of maximum density as determined by AASHTO T-99.

Stage #1

The permittee shall provide adequate compacted fill beneath the haunches of the pipe, using mechanical tamps suitable for this purpose. This compaction applies to the material placed beneath the haunches of the pipe and above any bedding required.

Stage #2

The permittee shall obtain a well-compacted bed and fill along the sides of the pipe and to a point indicating the bottom of replacement pavement.

General Notes:

1. 3000 lbs./sq. in. concrete, by use of High Early Strenth Cement, to be used for replacement, or other approved high strength, fast set materials.
2. Concrete pavement joints shall be mechanically sawed to conform with adjoining slabs.
3. Backfill materials shall be either of the same type and composition as the materials removed, or of equal or greater structural adequacy. Materials contaminated with deleterious substances during excavation shall not be used.

EXHIBIT G

BRIDGE ATTACHMENT SUPPLEMENT

CORROSION CERTIFICATION GUIDELINES

Listed below are guidelines to assist in the proper design of bridge attachments regarding corrosion certification. These basic criteria are used to minimize the amount of corrosion interference resulting from the attachment of utilities to bridge structures.

The use of these guidelines and completion of the attached form "Corrosion Certification Information Form" is required to expedite the handling of the permit request. The Corrosion Certification Information Form must be submitted with the permit request.

1. Provide a dielectric barrier between the utility and bridge structure which will insulate them electrically. This can be accomplished by using a non-metallic material for mounting hardware, encasing the utility in non-metallic pipe or providing a coating or wrapping such as neoprene between the utility and the mounting hardware. Additional precautions shall be taken by avoiding contact between metal components in the bridge and metal inserts and anchor bolts. Where a pipe or utility is mounted on saddles and guides to allow for movement, additional provisions should be made to compensate for wear. All contact between disimilar metals should be avoided.

2. The installation of insulating joints in the utility in the ground on each end of the bridge structure will help reduce the possibility of corrosion interference. Electrical test leads installed on each side of an insulated joint will provide the necessary means for periodic testing.

3. One utility shall not have electrical continuity with another in any of the sections attached to the bridge. Individual isolation will allow for correction of future problems which might occur and will expedite periodic maintenance checks and tests.

4. Where the utility passes through any part of the concrete bridge structure into the soil or water, provisions shall be made to separate the contact area. This can be accomplished by installing a non-metallic sleeve through the concrete or by wrapping the utility with a mastic or neoprene material. Consideration should be given to separating the utility and concrete in buried thrust blocks.

5. Selection of the proper materials is extremely important. Corrosion resistant material such as stainless steel or galvanizing for mounting hardware is recommended. It is the responsibility of each utility to install and maintain its facilities and not create undue maintenance problems for other utilities or the bridge structure. Such conditions as rust streaks, discoloration and deterioration can be eliminated through proper material selection.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

UTILITY ACCOMMODATION PERMIT

CORROSION CERTIFICATION INFORMATION FORM

DATE: _____ PERMIT NO: _____
SUBJECT: Job No. _____ COUNTY: _____
STATE ROAD NO. _____ SECTION _____ BRIDGE NO. _____

PERMITTEE NAME: _____

ADDRESS: _____

UTILITY. Size and type_____

Weight per foot (in operation) _____

Coating material _____

CORROSION CONTROL CHECKLIST:

(1)	Insulated from bridge?	Yes _____	No _____
(2)	Insulated from other utilities?	Yes _____	No _____
(3)	Insulating joints both ends	Yes _____	No _____
(4)	Electrical test leads on insulating joints?	Yes _____	No _____
(5)	Provided dialectric barrier between utility and concrete?	Yes _____	No _____
(6)	Has any form of cathodic protection been planned for the underground portion of the utility?	Yes _____	No _____
(7)	Closest cathodic protection system	_____	Miles

COMMENTS: _____

Submitted by: _____ Date: _____

Signature and Title: _____ Date: _____

EXHIBIT H

JACKING AND BORING SUPPLEMENT

TO THE UTILITY ACCOMMODATION GUIDE

EXHIBIT H

JACKING AND BORING SUPPLEMENT
TABLE OF CONTENTS

1. INTRODUCTION

A. Purpose:

The purpose of this supplement is to expand and standardize the guidelines pertaining to underground utility crossings by methods other than open cutting as presently outlined in the Utility Accommodation Guide.

The guidelines contained herein are intended solely to prevent unnecessary failures and to provide sufficient detail to insure uniform application of the guidelines statewide.

B. Scope:

The guidelines set forth in this supplement are to regulate and control all aspects of underground utility crossings by jacking, driving, pushing, boring, tunneling, pulling, or combination thereof and other methods except open cutting or trenching. The guidelines established herein to provide such regulation and control are not intended to provide complete step by step instructions for a proper underground crossing operation. These guidelines do, however, specify a wide range of procedural precautions necessary to insure that the very basic, essential aspects of a proper crossing operation are adequately controlled. Such aspects were determined by a consensus of Department and industry input. In all cases the ultimate success or failure of a crossing will depend upon the experience and skill of the permittee or his contractor. Further, the wide range of possibilities concerning job site conditions, economics, and future technological improvements dictate that this supplement be used as a guide. However, strict adherence shall be required under specifically covered conditions outlined in this guide. Under conditions not specifically covered and other mitigating circumstances where a mutually agreeable solution cannot be worked out at the local or District level, questions concerning the contents of this supplement should be referred to the Tallahassee Office for final resolution.

Adherence to the guidelines contained herein, or the Department's approval of any aspect of any crossing operation covered by this supplement, shall in no way relieve the permittee of his ultimate responsibility for the satisfactory completion of the work authorized by the utility permit.

C. Definitions and Terms:

Wherever in this supplement or other documents pertaining to it, the following terms appear, their intent and meaning shall, unless specifically stated otherwise, be interpreted as follows:

(1) Department - State of Florida Department of Transportation.

(2) Maintenance Engineer - Department of Transportation Maintenance Engineer named in paragraph six of the utility permit.

(3) Inspector - An authorized representative of the Maintenance Engineer.

(4) Permittee - The individual, firm, company, or governmental agency identified as the permittee on the utility permit.

(5) Contractor - The individual, firm, or company, contracting with the permittee for performance of work authorized by the utility permit.

(6) Sub-Contractor - The individual, firm or company, contracting with the contractor, as previously defined, for performance of work authorized by the utility permit.

(7) Major Crossing - Pipe crossings greater than eight inches in outside diameter crossings under limited access facilities, crossings requiring well point dewatering; and other crossings of an unusual and difficult nature as determined by the Maintenance Engineer on an individual basis.

(8) Actual Crossing Operation - That phase of the work authorized by the utility permit, when the casing or uncased carrier pipe is being placed within the physical limits prescribed to determine the required casing length as set forth in Section 2-A-2, page 40. Specifically, not to include preliminary work such as jacking pit construction, equipment set-up, etc.

2. MATERIAL - All materials used in the execution of work authorized by the utility permit.

A. Encasement material, to include uncased carrier pipe.

(1) Composition and strength - All casings shall conform to the appropriate strength and composition requirements set forth in the main body of the Utility Accommodation Guide and to the following additional requirements.

(a) Must be chemically compatible with any material it is to transport or otherwise contact.

(b) Unless otherwise tested and approved by the Department prior to beginning work, all encasement pipes or uncased carrier pipes shall be new and of round, smooth wall, leakproof construction. Used pipe in good condition may be used if approved by the Maintenance Engineer prior to beginning work.

(c) The use of casings (not encased carriers) with wrapped protective coverings will not be allowed.

(d) All steel casings shall conform to the following minimum thickness requirements:

2. MATERIAL (Cont'd.)

Nominal outside diameter-inches	Minimum wall thickness-inches
3/4"	0.113"
1"	0.133"
1 1/4"	0.140"
1 1/2"	0.145"
2"	0.154"
4"	0.188"
6"	0.188"
8"	0.188"
10"	0.188"
12"	0.188"
24"	0.250"
30"	0.312"
36"	0.375"
42" and greater	0.500"

Minimum thicknesses for pipe diameters not shown shall be the same as required for the next larger size listed above.

(e) ***Plastic Pipe*** - Plastic pipe may be installed by jacking & boring except for use as pressurized carrier pipes containing gases or fluids.

Closed end jacking of plastic pipe, or open end jacking without an auger for continuous cleanout of the bore as the jacking progresses, will not be allowed.

Plastic pipe must meet or exceed the following strength and composition standards:

PVC (Polyvinyl - Chloride)	ASTM D 1785
PE (Polyethylene)	ASTM D 2447
PE (Polyethylene) For gas pipes over 3½" dia.	ASTM D 2513
PB (Polybutylene)	ASTM D 2662
CAB (Cellulose Acetate Butyrate)	ASTM D 1503
ABS (Acrylonitrile - Butadiene - Styrene)	ASTM D 1527
RTRP (Reinforced Thermosetting Resin Pipe)	ASTM D 2996, or D 2997

An air pressure test for leaks shall be conducted in the presence of the Maintenance Engineer or his representative immediately upon completion of each crossing at a minimum test pressure of 20 psi. Why Telephone or T.V.

2. MATERIAL (Cont'd)

Either of the two test methods outlined below will be satisfactory.

1. Standard twenty-four hour pressure test with recording chart.

2. Pressure test utilizing a DRAGNET type leak detecting device, or other equivalent testing equipment capable of detecting pressure drops of one-half psi. Length of test to be as recommended by the testing equipment manufacturer for the conditions of the particular job.

Immediately following the pressure test, the results shall be furnished to the Department of Transportation representative on the job and recorded in the Underground Crossing Log in the space provided.

Leaking pipes that cannot be repaired to meet pressure test are to be filled with concrete by pressure grouting, or other approved means, and abandoned if in the opinion of the Maintenance Engineer the leaks are potentially damaging to the roadway.

(2) Length - Casings and uncased carrier pipes shall be of sufficient length to extend under all pavements and in no case shall the end of the casing be closer than 4 ft. from the pavement edge including paved shoulders, or *2* ft. from back of curb plus additional length as necessary to extend to the excavated slopes of the jacking and receiving pits. Slope requirements are detailed in Section 5D, on page 50. The ends of casings under limited access facilities and all casings for flammable materials shall be no closer to the pavement edge (including paved shoulders) than the toe of the front slope. Casings may be required to extend to the R/W limits or frontage roads to provide for maintenance access on limited access facilities where periodic maintenance activities on the utility are expected.

This requirement is in accordance with the *AASHTO* - ***A Policy on the Accommodation of Utilities on Freeway Right of Way***, as adopted on February 15, 1969. Casings shall also extend beyond pavement areas that are to be widened in the near future when proposal of such widening is supported by a design study.

(3) Joints and Couplings

(a) Steel Pipe

1. Couplings - Couplings shall be tight, tack welded if necessary, and sufficiently rigid (no noticeable movement in joint) to prevent misalignment during driving or pushing operation. Tack welding of couplings is only required where necessary to insure the integrity of the joint.

2. Welded Joints - Joint welds shall be made in a neat workmanlike manner, shall be air tight and continuous over the entire circumference of the pipe, and shall increase the outside diameter by no more than ¾" total.

(b) Plastic Pipe

1. Couplings - Plastic pipe couplings shall meet or exceed all applicable ASTM strength and composition standards for the particular type pipe being used.

2. Joints - Plastic pipe joints shall be made in accordance with applicable ASTM Standards. In all cases, the joints shall be made sufficiently strong to withstand the stresses of jacking, with joints completely set and cured prior to placement of the pipe.

Coupling thickness shall be such that the overall casing diameter is increased by no more than 3/4'' total. All couplings shall be leakproof.

B. Drilling Fluids:

If drilling fluids are used to lubricate the auger and facilitate the removal of cuttings, they shall consist of a mixture of water and gel-forming colloidal material such as bentonite, or a polymer-surfactant mixture producing a slurry of custard-like consistency.

Plain water may be used if appropriate under the conditions outlined in Section 5F. 2. page 54.

C. Shoring and Bracing Material:

Materials used for sheeting, sheet piling, cribbing, bracing, shoring and underpinning shall be in good serviceable condition, and timbers shall be sound, free from large or loose knots and of proper dimensions, as required by the Occupational Safety and Health Administration regulations.

3. EQUIPMENT

A. General:

In keeping with the overall objective of this guide, this section is intended to set forth guidelines in the area of equipment solely to prevent unnecessary stoppages and subsequent damage to the roadway.

All equipment used in the execution of work covered under the utility permit shall have the built-in capacity, stability and necessary safety features required to fully comply with the specifications and requirements of this guide without showing evidence

of undue stress or failure.

It shall be the responsibility of the permittee to assure that the equipment to be used in the crossing operation is in sound operating condition. Backup equipment may be required where job site conditions indicate that severe damage to the roadway or a hazardous condition may result in the event of an equipment breakdown and where the condition of the equipment to be used indicates that routine component replacement or repair will likely be necessary during the crossing.

(1) Auger power units - Power units providing rotational force to the cutting head and/or the auger used to remove spoil material as the bore progresses. May also provide power for jacks used to push the casing.

(a) Power units shall be in proper operating condition and shall have sufficient power to satisfactorily complete the proposed crossing according to the manufacturers' recommendations.

(2) Augers - Screw-type steel drive tubes or shafts with one male end and one female end for coupling and welded steel flighting (threads).

(a) Auger shafts shall be straight and otherwise undamaged.

(b) Flighting shall be undamaged and securely welded to the body of the auger shaft and be continuous with no gaps from end to end of each auger section.

(3) Cutting Heads - Boring attachment fastened to leading end of first auger section equipped with special teeth, bits, blades, chippers or cutters used to cut or chip away rock or hard soils in advance of auger.

(a) Cutting heads shall be undamaged and have no missing or broken teeth or bits.

(b) Pinned or hinged wing cutters must be constructed in such a manner as to insure overboring does not exceed limits specified in Section 5E. 3. page 51 of this guide.

(4) Auger tracks - Supports boring machine and provides line and grade control.

(a) Tracks shall be straight and otherwise undamaged with 10 broken welds.

(b) Tracks shall be constructed so as to remain rigid at joints and allow no appreciable flexing as power unit passes.

(5) Jacks - Hydraulic, mechanical, or manual power units providing horizontal thrust for pushing casing or carrier pipe. Shall have sufficient power to satisfactorily complete the proposed crossing according to the manufacturers' recommendations.

(a) Hydraulic - Shall be in sound operating condition. Hoses shall not be cracked or split: all couplings and fittings shall be tight and entire system reasonably free from leaks. Hydraulic cylinder rods should be clean and smooth to prevent damage to cylinder seals.

(b) Mechanical - Includes manual and power drivers, rachet type jacks, winch and pulley systems.

All mechanical jacking systems shall be in sound operating condition with no broken welds, excessively worn parts, broken teeth, badly bent or otherwise misaligned components. All ropes, cables, clamps and other non-mechanical but essential items shall be in sound condition and replaced immediately when the need is apparent.

(c) Other - Devices or systems for providing horizontal thrust other than those previously defined in the preceding sections shall not be used unless approved for use by the Department prior to commencement of work. Consideration for approval will be made on an individual basis for each properly permitted crossing. The proposed device or system will be evaluated prior to approval or rejection on its' potential ability to complete the crossing satisfactorily without undue stoppage and to maintain line and grade within the tolerances prescribed by the particular conditions of the job.

Jetting or water sluicing methods, jetting with compressed air, or boring or tunneling devices with vibrating type heads that do not provide positive control of line and grade shall not be allowed.

(6) Anchors and Braces - Jacking base or deadman used to provide a rigid base from which the horizontal thrusting from the jacking unit is transferred to the casing.

The jacking base or deadman must be sufficiently strong to withstand the pressures generated by the jacking unit throughout the jacking operation without appreciable movement or deformation.

(7) Dewatering Equipment - Equipment used to evacuate ground and surface water from jacking and receiving pit areas and along path of proposed bore.

(a) Pump - Shall be in proper operating condition and of sufficient capacity to satisfactorily dewater the pit and bore areas under the conditions of the particular job.

(b) Header line **-** Collector pipe connecting pump with individual swing joints, risers and well points in a well point dewatering system. Header line shall be straight, free from large dents, kinks, or cracks and sufficient in size to pass anticipated

flow.

(c) Swing joints or half swings - Hoses or pipes that connect individual well points and risers to header line. Swing joints shall be undamaged and feature a workable stop cock or equivalent device for controlling air intrusion into the system.

(d) Risers - Pipes connecting well points to swing joints. Should be reasonably straight and otherwise undamaged.

(e) Well points - Connect to bottom end of riser pipe. Perforated and screened to draw water from surrounding area without allowing the intrusion of soil. Well points must be undamaged and screens clear and unclogged.

(8) Other Equipment - Any equipment used on the job that has not been defined and covered previously in this Section must be in proper working order and otherwise conform to the requirements as outlined under Equipment - General, at the beginning of the section.

4. PERSONNEL REQUIREMENTS

A. A responsible representative of the permittee must be present at all times during the actual crossing operation on “Major Crossings”. A responsible representative as specified herein is defined as a person experienced in the type of work being performed and who has the authority to represent the permittee in a routine decision making capacity concerning the manner and method of carrying out the work authorized by the utility permit.

B. The permittee or his contractor shall have a sufficient number of competent workers on the job at all times to insure the crossing is made in a timely and otherwise satisfactory manner. Adequate personnel for carrying out all phases of the actual crossing operation (where applicable: boring machine operator: qualified welder(s) for joining additional casing sections: crane or lift operator for removing spoil material; and laborers as necessary for various related tasks) must be on the job site at the beginning of work. A competent and experienced supervisor representing the contractor that is thoroughly familiar with the equipment and type work to be performed, must be in direct charge and control of the operation at all times. In all cases the supervisor must be continually present at the job site during the actual crossing operation.

C. As stated in the utility permit, the office of the Maintenance Engineer must be notified 24 hours in advance of starting work. In addition, the actual crossing operation shall not begin except as allowed by part D of this section until the Maintenance Engineer or his representative is present at the job site and agrees that proper preparations for the crossing have been made. The Maintenance Engineer’s approval for beginning the crossing shall in no way relieve the permittee of the ultimate responsibility for the satisfactory completion of the work as authorized by the utility permit.

The Maintenance Engineer or his representative must be present on the job site at all times during the actual crossing operation on “Major Crossings”, or where plastic pipe is used.

D. It shall be the responsibility of the Department to provide inspection personnel at such times as appropriate without causing undue hardship by reason of delay to the permittee or his contractor. It is necessary that the permittee or his contractor and the Maintenance Engineer or his representative carefully select a mutually convenient time for the crossing operation to begin in order to avoid schedule conflicts.

When either of the parties involved requests a deviation from the agreed on schedule, they must be willing to make reasonable concessions in working out a revised schedule.

If the permittee or his contractor fails to begin the crossing at the agreed time, the Maintenance Engineers’ prior commitments may dictate that the operation not be started at the contractor’s next earliest convenience but rather at the next mutually convenient time.

On the other hand, the permittee or his contractor shall not be required to delay the operation beyond the agreed starting time if the Department fails to have its representative present at that time and has not suggested a schedule revision sufficiently in advance.

To avoid undue hardship on either party, reasonable and mutual cooperation should be exercised where starting times are concerned. If one party fails to meet the agreed schedule, the other party is expected to consider a delayed start if the crossing can be completed during daylight hours in keeping with the requirements of Section 5F., page 54.

5. PROCEDURE

A. Erection or installation of appropriate safety and warning devices in accordance with the Department of Transportation’s ***Manual on Traffic Control and Safe Practices*** shall be completed prior to beginning work.

B. Subsurface Soil and Drainage investigation

In general, the greatest influences on the success or failure of an underground crossing are the existing subsurface soil and water conditions. To correctly plan individual crossing procedures such as dewatering, use of cutting heads, positioning of auger within the casing, and to accurately locate potential problem areas, an adequate subsurface investigation must be made by the permittee or his contractor.

Prior to beginning work on “Major Crossings”, the permittee or his contractor must submit to the Maintenance Engineer a report of subsurface soil and ground water

conditions as they exist in the area of the jacking pits and along the path of the proposed crossing. The purpose of the report is to insure that the subsurface conditions are known to the permittee and/or his contractor and his proposed crossing procedure is based on factual information.

The report must be in writing and contain:

(1) General classification of soils along path of proposed crossing.

(2) Ground water elevation(s) along path of proposed crossing.

(3) Location of underground utilities or obstructions discovered during the investigation that were not shown, or were shown inaccurately on the utility permit sketch.

(4) Invert elevation(s) of proposed bore.

(5) Jacking and receiving pit floor elevation(s).

(6) Profile drawing showing roadway cross section and subsurface conditions along path of proposed bore, with pertinent information clearly labeled and dimensioned.

Where elevations are called for, vertical distances or assumed datum elevations may be used.

(7) Project identification and testing log.

(a) Utility permit number, and location of project.

(b) Name of person collecting data, firm employed by, position with firm.

(c) Dates and times of ground water observations including the time and date the test hole was made.

(d) Equipment used.

(e) Comments and pertinent information not shown in body of report, including any information concerning the subsequent design of a dewatering system that might not have any other effect on the proposed crossing procedure. For example, a thin but impervious layer of clay that would have little or no effect on the jacking procedure itself, could indicate a perched water table that would certainly have to be considered in the design of a dewatering system.

The purpose of the subsurface investigation report must be considered foremost in collecting the required data. The detailed classification of soils necessary for most engineering purposes would be difficult to interpret and relate to the job at hand

from a boring contractor's view-point. Therefore, rather than utilizing one of the several formal soil classification systems currently in use, the data should be separated into broad categories of materials that have a direct and clear bearing on what procedure should be followed on an individual crossing.

In general, the subsurface materials should be separated into the following categories:

(1) Rock

(2) Hard-pan, clays, hard sand-clays

(3) Stable, cohesive soils (other than those above)

(4) Loose, unstable soils

Any sod not falling clearly into one of the preceding categories should be described in sufficient detail to indicate its possible influence on the proposed crossing.

The determination of ground water levels is an important aspect of a sub-surface investigation. Saturated soil conditions along the path of a proposed crossing dictate a crossing procedure quite different from that of a crossing through dry materials. Every effort should be made therefore, to secure accurate and complete water table information.

The method of obtaining the required data will vary depending upon the type of highway facility and the nature of the utility involved; for example, for small diameter crossings under rural two lane roads where soil conditions are not subject to great variation, a test hole on either side of the pavement made with a post hole digger or hand auger might be sufficient. The other extreme would be a large diameter bore under a multilane facility in an urbanized curb and gutter section where the possibility of a damaging and possibly hazardous failure due to unknown subsurface problems requires that considerably more effort be made in the subsurface investigation. Core borings through the pavement slightly offset from the proposed bore might be in order. The corings would be spaced at intervals dictated by sound local practice that will produce an accurate profile of subsurface conditions.

Corings through pavement would be unnecessary in areas known to have no significant soil variations; however, when pavement coring is in order it shall be done by qualified persons with appropriate equipment with the test holes properly refilled and patched at the end of each day's operation. If dewatering is required, (see following section) one test hole on either side of the pavement and in median areas where applicable, shall be cased for use as piezometers to monitor ground water levels during the actual crossing. The casings will be allowed to protrude above ground only when adequately delineated and while work is in progress.

Prior to conducting a subsurface investigation, the proposed means of obtaining the required data on limited access facilities and corings through any paved area must be approved in advance by the Maintenance Engineer or his designated representative.

If the subsurface conditions are known to the permittee or his contractor by previous work done in the immediate area, the information can be recorded in the subsurface investigation report with no physical testing required.

If the permittee or his contractor is not adequately equipped or experienced to satisfactorily meet the requirements of this section, or if preceding subsurface investigation reports as submitted for previous jobs proved to be significantly inaccurate, the Maintenance Engineer may require that the subsurface investigation and report be done by the permittee's choice of reputable soils engineering firms experienced in the type of work herein required.

C. Dewatering - Evacuation of ground and surface water from jacking and receiving pits and from path of proposed crossing.

Where the ground water level is above the invert of the proposed crossing, or above the floor level of the jacking pits, some means of reducing the water level to below the jacking pit floors and the invert of the proposed crossing must be designed, installed and in operation prior to beginning the crossing as follows.

(1) On all ''Major Crossings'' except where rock is present throughout the length of the bore and no likelihood of sand pockets exists.

(2) On a crossing not otherwise classified as major, where the existing ground water level and particular soil type involved indicates that dewatering is necessary to prevent excessive flowback of spoil material as the jacking progresses.

Dewatering may not be necessary in an area where the soil involved has a very high clay content and exhibits stable cohesive characteristics even when saturated. The jacking and receiving pits however, must be kept dry except in special cases where dewatering is not reasonably possible and remote powered hydraulic equipment is used to make the crossing underwater.

When dewatering is necessary, a plan showing the proposed method must be submitted to the Maintenance Engineer prior to beginning work. It must be in writing and should be included with the subsurface investigation report.

The dewatering report shall contain where appropriate.

(1) Type of proposed dewatering system

(a) Well point system

1. Pump size and capacity
2. Header size
3. Riser lengths
4. Well point installation method, jetting or driving
5. Discharge point, route and destination of discharge
   Example: ground water to be pumped into storm sewer system on east side of SR 99, discharging into outfall ditch 300' south.

(b) Trash pump

1. Pump size
2. Proposed location
3. Sump hole design
   Example **-** 2' x 2' x 1' deep, gravel filled
4. Discharge point, route and destination of discharge

(c) Berms for surface run-off protection

I. Type construction - sand bags, earth, other
2. Location and dimensions
3. Anticipated effects of run-off diversion
   Example: Ditch block with water to run-off on adjoining property. Anticipated flow should be light - no erosion damage likely.

(2) Plan and profile drawing of area to be dewatered, showing:

(a) Location on plan view of pumps, headers, well points, berms, sump holes, discharge points and their relationship to the roadway, jacking pits and path of proposed crossing.

(b) Elevations or depths on profile view of same features and equipment as above.

(3) Project identification and system design information.

(a) Utility permit no., and location of project.

(b) Name of person who designed the proposed dewatering system, firm employed by, position with firm.

(c) Data upon which design was based.

1. Subsurface investigation is previously required.
2. Previous experience in same area.

3. Other, describe.

(d) Party responsible for operation and maintaining the proposed system.

(e) Comments and pertinent information not otherwise given.

The importance of a properly functioning dewatering system cannot be over emphasized. If the permittee or his contractor does not possess the experience and expertise necessary to properly design, operate and maintain dewatering system as dictated by individual project conditions, the Maintenance Engineer may require that the system be designed and/or operated by the permittee's choice of reputable firms specializing in dewatering operations.

Dewatering systems shall be in conformance with all applicable Federal, State, County and local pollution control and environmental protection regulations.

D. Jacking Pits - Excavated areas from which jacking and receiving operations are accomplished.

(1) Jacking Pit Excavation - Pit excavation shall be no closer than four feet from the roadway or shoulder pavement edge, or two feet from back of curb, whichever is applicable. Pits on limited access facilities shall be no closer to the pavement edge than the toe of the front slope.

The pit dimensions shall be large enough to provide a safe, adequate working area with slopes no steeper than:

1/2:1	in hard pan, clay or hard sand-clays
1:1	in stable cohesive soils
2:1	in loose unstable soils

Slopes shall extend from proposed casing invert elevation to existing ground level. Slopes are not required in solid rock.

In lieu of constructing slopes as above, the pit walls may be shored, sheeted, braced or otherwise supported by means of sufficient strength to protect the employees and inspectors working within them. Any such shoring, sheeting, or bracing shall conform to construction requirements as set forth by the Federal Department of Labor, Occupational Safety and Health Administration.

(2) Pit floor stabilization - Where necessary to insure a solid, stable base for boring machinery, some means of stabilizing the pit floor must be provided. Stabilizing may vary depending upon job site conditions, from timber supports under tracks, addition of clean sand or gravel to pit floor, or in some cases the construction of concrete slabs on the pit floor. All stabilizing materials other than sand, gravel and like materials must

be removed upon completion of the project.

E. Equipment Set-Up:

(1) Aligning and leveling of auger tracks - To properly control line and grade during the crossing operation, it is imperative that the jacking unit tracks be rigidly set to the predetermined level and alignment requirements of the job. Control should be insured by the use of appropriate engineering instruments.

(2) Auger and casing section lengths should be determined prior to beginning the crossing operation to insure that the leading end of the first casing section will not be under, or within three feet of, any Roadway Pavement when the crossing operation is halted to join new auger and casing sections. As an exception, in areas where jacking pit space is restricted by narrow Department of Transportation right-of-way, or obstructions and will not allow continuous operations under paved areas as stipulated in this section, all preparations for adding additional casing and augers should be made prior to stopping under the pavement and the joint made as quickly as possible.

Crossings made by closed end jacking method or crossings made in materials other than loose unstable soils, are not subject to the provisions of this section.

(3) Methods of reducing skin friction - Friction between the outer surface of the casing and the surrounding soil may be reduced by increasing the diameter of the casing hole by no more than 3/4 inch greater than outside diameter of the casing itself. This may be accomplished as follows:

(a) Overboring - Use of a cutting head with an overall diameter of no more than 3/4 inch greater than the casing diameter. Maximum diameter includes wing cutters which must be securely blocked to limit the overall diameter in order to meet this requirement.

(b) Use of bands, couplings, collars or welds will be allowed, providing the casing diameter is increased by no more than 3/4 inch. Any such device or method used shall be rigidly affixed and shall in no way weaken the leading edge of the casing. Collars and couplings used to reduce skin friction on steel pipe must be welded in place when cutting heads are used, eliminating the possibility of the cutting head unscrewing or dislodging the collar or coupling during the operation.

(c) The use of grease on the outer surface of the casing to reduce skin friction is also acceptable.

Flaring of the casing end will be allowed provided that the original casing diameter is exceeded by no more than 3/4 inch.

Any cuts, tears, or cracks made to facilitate flaring shall be repaired and reinforced by welding to insure that the strength of the flared section is equal to or

greater than the original section.

The use of a misaligned, undersized auger to cut an oversized hole is prohibited.

(4) Relationship between auger or cutting head to leading end of first casing section.

The leading end of the first casing section shall be straight cut at 90° to the centerline of the casing and the distance between the back of the cutting head or leading edge of the first bare auger section, to the leading end of the casing shall be as follows under the appropriate soil condition.

(a) Rock - On crossings made through solid rock, where the cutting head must precede the casing, the space between the back of the cutting head and the end of the casing shall be limited to the clearance necessary to allow the cutting head to function without coming in contact with the end of the casing. In areas where sand pockets may be encountered the cutting head must be constructed so that it can be retracted into the casing, to within the limits specified in this section for the particular material encountered.

(b) Hard pan, clay, bard sand-clay and stable cohesive soils - As in rock, the cutting head should normally precede the casing but the type cutting head used must allow no more than 2 inches between the back of the head and the leading end of the casing. Cutting heads with cylindrical, pointed chippers designed for use in solid rock shall not be used.

(c) Loose unstable soil - The distance between the leading end of the first auger section and the leading end of the casing shall be as necessary to maintain a solid plug of spoil material inside the forward portion of the casing. For casing diameters 8 inches or greater, the minimum space between the leading end of the auger, or cutting head as allowed below, and the leading end of the casing shall be no less than one-half the casing diameter. However, the setback shall be increased if necessary to prevent undue flowback of the spoil material. No setback is required for casing diameters less than 8 inches.

Cutting heads may be used only where the subsurface investigation report or other reliable information indicates the likelihood of encountering a very hard soil strata, rock, or other obstructions such as tree stumps; and it is determined prior to beginning work that the area of difficulty may be passed by the use of an appropriate cutting head. The cutting head shall remain inside the casing as outlined above except during the passage of such obstructions.

On large diameter jacked crossings where cleanout of the bore is accomplished by special digging machinery or by hand, the distance between the leading end of the casing and the actual cleanout operation shall be no less than that

necessary to insure that voids will not form around the outside of the casing. The use of tunnel liners will be allowed only where the installation method and soil conditions insure that voids will not be formed around the outside of the liner during installation.

(5) Auger size and spacing - The leading auger section used in conjunction with a cutting head must be full-sized having an outside diameter not less than the inside diameter of the casing less the amount needed to provide the minimum working clearance necessary. In no case shall the auger diameter be less than 1/2 inch smaller than the inside casing diameter unless some other positive means of restricting the movement of the cutting head as previously required is assured.

Less than full-sized augers that are large enough to remove spoil satisfactorily will be allowed when the auger is not used in conjunction with a cutting head and is to remain within the casing at all times, except as follows:

Full-sized augers required:

Crossing Conditions		Minimum Length in Feet of Full-Sized Auger from Leading End of Casing
Rock		*0
hard-pan, clay, hard sand-clay	(dry)	*0
	(wet)	20
Stable cohesive soils	(dry)	0
	(wet)	20
Loose unstable soils	(dry)	20
	(wet)	40

Crossings requiring dewatering are to be considered as wet in the above table.

*Full-sized augers are not required if lateral movement of the cutting head has been otherwise restricted in a satisfactory manner.

(6) Steel shelving - Steel shelving welded inside the casing at the leading end to prevent undue flowback of spoil material, must be approved by the Maintenance Engineer prior to use.

The casing, auger and cutting head requirements specified for the most restrictive condition to be encountered shall govern the set-up procedure for a particular crossing.

F. Crossing Operation:

The actual crossing operation shall be accomplished during daylight hours and shall not begin after the hour pre-established as the latest starting time that will allow completion during daylight hours except as allowed below.

In emergency situations, or where delay would increase the likelihood of a failure, nighttime work will be allowed to complete a delayed crossing. In addition, where the obvious hazards of nighttime work are carefully considered and determined to be insignificant, nighttime work will be allowed to complete a properly planned crossing if the Maintenance Engineer agrees that the delay was caused by reasonably unavoidable circumstances, when such nighttime work is necessary to avoid placing an undue economic hardship on the permittee or his contractor.

Planned nighttime work is expressly prohibited and will not be allowed except as allowed in the special conditions of the utility permit for extenuating circumstances.

Any nighttime work shall be in strict conformance with the Department's ***Manual on Traffic Control and Safe Practices.***

Crossing operation requirements under the appropriate method used and subsurface conditions are as follows:

(1) Driving or jacking, without auger - For casings with outside diameters of 3 inches or less at the minimum depth of 36 inches and up to *5* inches outside diameter for depths of cover exceeding 6 feet, closed end jacking or driving is permitted.

(2) Hydraulic or mechanical jacking, with auger - The use of an auger is required by the Department on all crossings using casings greater than 5 inches O.D. (greater than 3 inches O.D. if less than 6 feet deep) and is intended to prevent a rigid plug of spoil material from forming at the head of the casing.

If a drilling fluid is used to lubricate the outside of the casing, or the auger and cuttings, it shall not be pumped under pressure great enough to cause any jetting action whatsoever, or to otherwise saturate the soil ahead of the casing. External drilling fluid carriers shall be no larger than 3/4'' O. D, and must be permanently and securely fastened to the casing with the leading end shielded from damage by a collar, band, or other approved means.

In soils with a high clay content only, plain water may be used to clean the augers as necessary to prevent binding. When plain water is used, it must be hand pumped or gravity fed through a carrier pipe permanently and securely fastened to the casing.

The point at which the water enters the casing shall be no closer to the leading end of the casing than one-half the casing diameter or twelve inches, whichever

is less.

G. Equipment Breakdowns or Other Unforeseen Stoppages:

If forward motion of the casing is halted at any time other than for reasons planned for in advance (addition of casing and auger sections, etc.) and prevention of voids under paved areas cannot be assured, the casing must be filled with concrete by pressure grouting as soon as possible and abandoned. If removal of the augers from a casing to be abandoned will allow voids to form under paved areas at the casing head, the augers must be abandoned also.

When an obstruction is encountered that cannot be passed or an existing utility is damaged, cutting of the pavement for inspection may be allowed if approved by the Maintenance Engineer or his representative, when consideration of all pertinent facts indicate that such action would offer the most practical solution to the problem for all parties concerned. Any such authorized pavement opening shall be repaired according to the appropriate specifications in the Utility Accommodation Guide. No cutting of the pavement will be allowed on Interstate or other limited access facilities.

H. Permit on Job Site:

A copy of the approved Utility Permit and plan sheet(s) shall be kept by the permittee or his contractor at the job site at all times. If a subsurface investigation report and/or a dewatering plan is required, they too shall be kept at the job site along with the Utility Permit, and shall be shown to the Department's representative upon request.

6. WAIVER OF REQUIREMENTS

The requirements and recommendations contained in these guidelines are appropriate for the most common crossing situations. Under unusual conditions, not adequately covered herein, these requirements may be altered or waived when their strict adherence would increase the likelihood of a crossing failure. Any such alteration or waiver shall be based on sound engineering judgement and must be fully documented as outlined in Section 7. Any alteration or waiver must be approved by the District Maintenance Engineer or his designated representative.

7. REPORTING PROCEDURES

An accurate log shall be kept by the Maintenance Engineer or his representative on all major crossings. The purpose of this log is to record and report the data necessary to isolate and identify all common factors associated with underground crossing failures. The log is also for the inspector's use as a checklist of essential items pertaining to the crossing.

The log shall be filed with the Maintenance Engineer's copy of the utility permit, subsurface investigation report, dewatering plan (if applicable), completion notice, and

related correspondence. A copy of the above information must be submitted to the Central Office on all crossings resulting in failures as defined herein, and on other crossings where such information would also be of value in determining future guidelines and regulations.

The data shall be recorded on the job site during the actual crossing operation, where appropriate, on the following form with additional sheets as necessary.

UNDERGROUND CROSSING LOG
(Please Print Clearly or Type)

Job Identification)

Utility Permit Number_____ Date Issued_____State Road No._____

Section _____ M.P. _____Permittee_____

Permittee's representative on Job _____Position_____

Contractor _____ Address _____

Contractor's Superintendent or Foreman_____

Permittee's or contractor's workers on Job - Equipment Operators (No.) _____

Welders (No.) _____ Laborers (No.)_____

Maintenance Engineer_____

Inspector_____ Class Title (ET Ill, etc,)_____

Equipment Used

Auger Power Unit (Name of Manufacturer & Model No.)_____

Power rating - Horsepower (gas or diesel), P.S.I. (Hydraulic), CFM (Air)_____

Auger sections - overall diameter_____

if more than one diameter used, list the diameters and lengths of sections in the order used, from the leading end back.

Cutting head (Name of Manufacturer and Model No.) _____

overall diameter with wing cutters extended_____

Jacks – hydraulic, mechanical, other (describe)_____power rating _____

Dewatering equipment - record any deviation from attached dewatering plan._____

CROSSING DATA

Crossing began - Date _____, Time _____

Crossing completed - Date _____, Time _____

Type of facility (water line, gas, etc.) _____ crossing method (closed end jacking, etc.) _____ cased or uncased carrier pipe - total length _____ outside diameter _____, wall thickness _____

Method of making joints (welding, couplings, etc.) _____

Method of reducing skin friction (band, overboring, etc.) _____

resulting increase in outside diameter _____.

Subsurface conditions upon which, set up and crossing procedures are based. (Example: saturated, loose sandy soil for the first 60', with intermittent rock expected during remainder of crossing). _____

_____

Pressure test results for plastic pipe. Test method _____.

results _____.

Stoppages

No. 1: Cause (to make joint, breakdown, obstruction encountered, other) _____

Time _____, Duration _____, Location (distance from beginning point) _____.

No. 2: Cause _____, Time _____, Duration, _____, Location _____

No. 3: Cause _____, Time _____, Duration _____, Location _____

No. 4: Cause _____, Time _____, Duration _____, Location _____

No. 5: Cause _____, Time _____, Duration _____, Location _____

Deviation from intended line and grade _____

(record horizontal distances between the intended final location of the casing end and it's actual location).

Inspection or repair cuts made in paved areas - reason (to locate cause of stoppage, repair water line, etc.) _____

_____.

Authorized by (Name and Position) _____.

Dimensions of cut (length, width, depth) _____, Location _____

Abandoned casings - reason for abandonment _____

_____

Time sealed with concrete _____, by whom (individual firm or company) _____

_____, volume of concrete used _____cu. yds.

Failures - Any crossing requiring pavement repair or correction.

Nature of failure (pavement settlement, collapse, ging, etc.) _____ .

extent of failure (dimensions) _____ .

Cause _____ .

Corrective action taken _____ .

By whom (individual firm or company) _____, date _____ .

Exceptions to Requirements

Any alteration or waiver of requirements as allowed for under Section 6, page 55 of the jacking and boring supplement to the Utility Accommodation Guide.

Nature of exception (refer to specific section and item of the supplement to which the exception pertains) _____

_____

justification for exception (explain fully, attach additional sheets as necessary) _____

_____ .

_____

_____

_____

_____

_____

Authorized by (Name and position) _____ .

Date _____, Time (if pertinent) _____ .

Remarks

Include any additional pertinent information regarding the manner, means, or method of making the crossing such as any unusual method, or procedure that should be recommended, required, discouraged, or disallowed on future jobs.