

Colonel Andrew M. Perkins, Jr.
U.S. Army Corps of Engineers
Norfolk District
803 Front Street
Norfolk, Virginia 23510-1096

Attn: Audrey Cotnoir
Regulatory Branch

Re: AT&T, Permit Application No. 94-1606-08, Cities of Norfolk, Portsmouth, Chesapeake and Suffolk, Virginia

Dear Colonel Perkins:

The U.S. Fish and Wildlife Service (Service) has reviewed the Department of the Army (DOA) permit application 94-1606-08, submitted by AT and T Corporation (AT&T) to install a fiber optic telecommunications cable across several waterways and wetlands between Norfolk, Virginia and Rocky Mount, North Carolina. However, Norfolk District Corps of Engineers (Corps) jurisdiction and request for formal consultation covers only the portion of the route in Virginia. Your March 7, 1995 request for formal consultation was received in this office on March 13, 1995. This document represents the Service's biological opinion on the effects of that action on the Dismal Swamp southeastern shrew (Sorex longirostris fisheri) in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). It should be noted that the Dismal Swamp southeastern shrew has not been documented within the entire project site, but the applicant has chosen to assume this species is present in areas with appropriate habitat.

I. CONSULTATION HISTORY

- 01-19-95 The Service received a request from the Corps to review the proposed project for potential impacts to Federally listed species.
- 02-02-95 The Service sent the Corps a letter recommending surveys be conducted for the Dismal Swamp southeastern shrew and the Virginia least trillium.
- 02-08-95 The Service received a videotape of the proposed route from Michael Baker Jr., Inc., consultant for AT&T.
- 02-15-95 David DiBenedetto of Michael Baker Jr., Inc. indicated, via a telephone call, that the applicant will assume the Dismal Swamp southeastern shrew is present.
- 03-13-95 The Service received the Corps' request to initiate formal consultation.
- 03-13-95 The Service received the Corps' request to receive a draft of the biological opinion.
- 03-20-95 The Service sent the Corps a letter indicating that their request for formal consultation had been received and was complete.

II. BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The permit applicant, AT&T, has applied for a Federal permit to install an approximately 35-mile long fiber optic telecommunications cable across several waterways and wetlands between Norfolk, Virginia and Rocky Mount, North Carolina. The jurisdiction of the Corps' Norfolk District, and subsequently this opinion, will cover the route from Norfolk, Virginia to the Virginia/North Carolina state line in Chesapeake, Virginia (Figure 1). The project's purpose is to enable AT&T to provide the public with improved telecommunication service quality while meeting projected capacity demands.

The cable will be located within an existing C&P Corporation conduit system and active and abandoned railroad rights-of-way (ROW). The cable will cross 26 waterways and 17 wetlands in Virginia. Ten of the streams to be crossed are perennial and 16 are intermittent; four of the waterways are tidal, the remainder are non-tidal. The wetlands involved include estuarine emergent, palustrine scrub-shrub, and palustrine forested. The proposed method for crossing most of the waterways is directional drilling. This method uses a drill rig to install the cable entirely beneath the waterbody. The Elizabeth River will be crossed via the Midtown Tunnel and the crossing of the Hague will be aerial with the cable attached to the existing bridge.

Installation of the remainder of the cable, including wetland crossings, will be by the off-track plow or trenching method. The plowing method will be used within railroad ROWs. The plowing method eliminates the open trench by plowing the cable into the ground using a Caterpillar-type crawler tractor. The unit is self-contained, holding both the plow and cable reels. Two 1.25-inch cable innerducts will be plowed to a depth of four feet below existing grade. The trench width will be less than two feet and will be immediately backfilled after cable placement. The final grade of the plowed area will be as smooth as practicable and will be restored to original grade. Best management practices will be implemented to ensure the upper 18 inches of the soil or surface material is replaced to its original position.

The trenching method will be used within road ROWs. The trenching method uses a backhoe to cut a 1.5-foot wide by 4-foot deep open trench in the ground; then, the cable is installed. All excavated material will be temporarily stored adjacent to the trench and used as backfill. Trenches will be backfilled the day of excavation.

For both methods, the limits of construction disturbance will be contained within a 15-foot wide path. Secondary impacts from movement of equipment and materials may occur over a path no more than 50 feet wide. The cutting of woody vegetation will be avoided as much as possible. Clearing, where necessary, will be selective. All disturbed areas will be immediately re-seeded to prevent or minimize erosion and sediment transport.

Norfolk District's Regional Permit 19 is proposed to be used to authorize the crossing of two tidal waterbodies by directional drill and the crossing of the Elizabeth River under the Midtown Tunnel. Also included is the aerial crossing of the cable over the Hague directly under the bridge and within an existing conduit. Nationwide Permit 12 is proposed to be used to authorize the crossings of small streams and wetlands by railplow. No permits are required for the crossings of non-navigable streams by the subaqueous directional drill method.

Only one portion of the route will be located in an area that contains habitat for the Dismal Swamp southeastern shrew. This part of the cable route begins near Bowers Hill, approximately two miles northeast of the Hampton Roads Airport in Chesapeake and ends just south of the U.S. Route 58 Bypass in Suffolk (Figure 2). This portion of the alignment is 38,150 linear feet and is located within an active railroad ROW. Within this area, five streams (three unnamed tributaries to Goose Creek and two unnamed tributaries to Burnetts Mill Creek) will be crossed by the directional drill method. The remainder of the cable installation, including wetland crossings, will be conducted using the off-track plow method. The cable will be installed within the railroad ROW, 20 feet from the edge of the rail. All work will take place within the 25-foot railroad ROW and vegetation clearing/construction will be contained within AT&T's 16.5-foot wide easement (DiBenedetto, pers. comm.). A total of 14.45 acres of Dismal Swamp southeastern shrew habitat will be temporarily impacted; this includes 0.6 acres of forested, scrub-shrub, and emergent wetlands. No permanent habitat loss or alteration will occur within shrew habitat.

Installation of the cable along the entire route within Virginia will take approximately 45 days. However, work within the area of concern for the shrew should take approximately seven days to complete.

The Service's initial review of this project indicated that two areas of the cable route traversed Dismal Swamp southeastern shrew habitat. One area was north of the Great Dismal

Swamp National Wildlife Refuge (Refuge) in Chesapeake and Suffolk; the other area was Cypress Swamp in Suffolk (Figure 3). Because the alignment traversing Cypress Swamp can be installed within an abandoned railroad bed, this portion of the project is not likely to affect the shrew and therefore, will not be considered in this biological opinion. The action area for this biological opinion has been determined by the Service to be the portion of the cable route from near Bowers Hill, approximately two miles northeast of the Hampton Roads Airport in Chesapeake to just south of the Route 58 Bypass in Suffolk (Figure 2). The action area includes the 16.5-foot construction path as well as any other areas that are cleared of vegetation to enable the stockpiling of equipment, materials, etc. or cable installation.

RANGEWIDE STATUS OF THE DISMAL SWAMP SOUTHEASTERN SHREW

The Dismal Swamp southeastern shrew is a small mammal that weighs less than 0.2 ounces and measures approximately four inches in length. Little is known about the life history of the shrew, except that in 1905, a litter of five young were found in a nest in the Dismal Swamp (U.S. Fish and Wildlife Service 1994). However, the species' life history is likely similar to that of the southeastern shrew (*S. l. longirostris*). Based on a few studies, it appears that southeastern shrews average approximately four young per litter (U.S. Fish and Wildlife Service 1994). Pregnant southeastern shrews have been found in Indiana from 8 April to 25 September and in Alabama and Georgia from 31 March to 6 October (U.S. Fish and Wildlife Service 1994). Shrews of the genus *Sorex* usually have at least two litters per year (Churchfield 1990). It is likely that young shrews remain in the nest for their entire period of growth and development and are nearly adult size when they leave the nest (U.S. Fish and Wildlife Service 1994).

Southeastern shrews feed mainly on small-sized invertebrates, but consume some vegetation (U.S. Fish and Wildlife Service 1994). Typically, shrews forage intermittently throughout the day and night in all seasons and seem to have highest levels of activity associated with rainfall and periods of high humidity. Much of their foraging occurs in the leaf litter or in tunnels in the upper layers of the soil (U.S. Fish and Wildlife Service 1994). Predators of southeastern shrews include barred and barn owls, domestic cats, and occasionally snakes, domestic dogs, and opossums (French 1980).

The main reasons for the shrew's decline are habitat loss and modification and possible loss of genetic integrity through interbreeding with the more common upland subspecies (U.S. Fish and Wildlife Service 1994). "It is presumed that the Dismal Swamp southeastern shrew developed its distinctive size and coloration while geographically or ecologically isolated within the Great Dismal Swamp during the Holocene (Handley 1979). The recent human-induced progression toward homogenous mature hardwood forest, more representative of habitat conditions of the surrounding region, leads to the possibility that the more common and presumably more generally adapted...subspecies could invade the Dismal Swamp and genetically overwhelm the existing populations of *S. l. fisheri*, which are more specifically adapted to historic swamp conditions" (U.S. Fish and Wildlife Service 1994).

The Dismal Swamp southeastern shrew's distribution is considered to be coincidental with the boundaries of the historic Dismal Swamp, an extensive contiguous wetland complex that once occupied most of the low-lying land between Norfolk, Virginia and the Albemarle Sound in North Carolina. Historically, this wetland complex was maintained in a variety of successional stages (such as marshes, canebreaks, pocosins, and forest) by natural fires. The original Dismal Swamp ecosystem has been greatly reduced in size as a result of urban development and the clearing and draining of land for agriculture and silviculture. Most of the remaining wetlands are forested. Approximately 197,680 acres of these wetlands still remain, more than half of which are preserved by the Service as the Great Dismal Swamp National Wildlife Refuge, created in 1974, which is located in Virginia and North Carolina. The Service is attempting to restore some of the vegetational and successional diversity to the portion of the Dismal Swamp ecosystem within the Refuge. The Great Dismal Swamp State Park in North Carolina provides an additional 22 square miles of shrew habitat. There are additional areas of protected shrew habitat such as the North Landing River Preserve and the Northwest River Park in Virginia and Elizabeth City State University's Dismal Swamp Wetland in North Carolina.

Outside of the protected areas, remnants of the Dismal Swamp are rapidly disappearing in southeastern Virginia due

to development associated with the Hampton Roads metropolitan area (U.S. Fish and Wildlife Service 1994). In North Carolina, agricultural and silvicultural conversion are the main causes of habitat loss. "In the vicinity of Elizabeth City, North Carolina, for example, two tracts totalling some 32,000 acres of swamp have been cleared and drained within the past 20 years. In addition to these contiguous tracts, many smaller areas within the historic Dismal Swamp of North Carolina have been ditched and cleared in a piecemeal fashion. In Virginia, a comparison of U.S.G.S. 7.5-minute topographic maps to recent aerial photography revealed a collective loss of some 2,600 acres of forested land, scattered over four maps portraying the Dismal Swamp (S. Martin, U.S. Army Corps of Engineers, pers. comm. 1993)" (U.S. Fish and Wildlife Service 1994).

Within the historic Dismal Swamp boundaries, the Dismal Swamp southeastern shrew is found in a range of habitats including recent clearcuts, regenerating forests, young pine plantations, grassy and brushy roadsides, young forests with shrubs and saplings, and mature pine and deciduous forests (U.S. Fish and Wildlife Service 1994). The shrew is likely to exist at highest densities in early successional wetland habitats, such as cane stands; shrub-dominated areas; and young, open forests which retain a fairly dense herbaceous understory. The shrew also occurs at high densities within cleared right-of-ways, such as those used for utility lines, as these areas often contain early successional habitats such as scrub-shrub wetlands. Mature wetland forests also provide habitat diversity important to the integrity and dynamic structure of the shrew population as a whole. Rose (1983) found that the shrew was most abundant in mid-successional, 12 to 15 year-old regenerating forests having a dense understory, moist organic soils, and moderate leaf litter.

Recently, new evidence suggests that the Dismal Swamp southeastern shrew may occur throughout the coastal plain of North Carolina, at least as far south as Wilmington (U.S. Fish and Wildlife Service 1994). However, until this can be substantiated through additional distribution and taxonomy studies, the shrew will remain on the Service's list of endangered and threatened wildlife and plants. As such, the shrew, and its habitat, will continue to receive protection pursuant to the Endangered Species Act until it is removed from this list.

ENVIRONMENTAL BASELINE

Status of the Species - The action area is within the ROW of an active CSX Corporation railway. This area is maintained and periodically mowed by the railroad company. The vegetation in this area consists primarily of scrub-shrub and herbaceous species such as giant cane (Arundinaria gigantea), greenbriar (Smilax spp.), bayberry (Myrica cerifera), common reed (Phragmites australis), honeysuckle (Lonicera japonica), common rush (Juncus effusus), broom sedge (Andropogon virginicus), and cattails (Typha spp.). For most of the route, the area directly adjacent to the ROW consists of forested wetlands. In addition, there is a man-made ditch that runs parallel to the railroad for a portion of the route. The entire action area contains habitat appropriate for the Dismal Swamp southeastern shrew and the shrew has been documented within or adjacent to the action area in previous studies. For example, the shrew has been documented within a powerline ROW near the north end of Jericho Ditch in the Refuge, near Bowers Hill, and in Suffolk north of Highway 58/460 one kilometer east of the Southeastern Public Service Authority landfill (Padgett 1991); and near the Hampton Roads Airport (Rose 1988).

Effects of the Action - In evaluating the effects of the Federal action under consideration in this consultation, 50 CFR 402.2 and 402.14(g)(3) require the Service to evaluate the direct effects of the action on the species. Direct impacts to the shrew associated with this project include the potential to crush shrews with construction vehicles and heavy equipment while clearing vegetation and installing the cable resulting in death or injury. Shrews also may be killed or injured during stockpiling of materials and/or equipment.

In addition, during clearing for and installation of the cable, cleared areas within the 16.5-foot construction path along the cable route will be unusable to shrews. Therefore, shrews will be directly affected by the temporary loss of at least 14.45 acres of habitat. It is possible that during clearing and/or installation, areas outside of the 16.5-foot construction path may be cleared of vegetation and/or traversed by heavy equipment and vehicles. Removal of vegetation along the construction path will result in early successional vegetation, similar to what currently exists, therefore, no permanent loss of habitat is expected to occur.

While there is likely to be a loss of individual shrews, because there will not be any permanent habitat loss or fragmentation, this loss should not affect the genetic viability or range of the species. Shrews from areas adjacent

to the action area should be able to recolonize this site. "Because these shrews have a high reproductive potential and rapid maturation rate, limited collection of individuals is not detrimental to healthy populations, although more widespread mortality associated with loss or permanent alteration of habitat continues to constitute the primary threat to the survival of this subspecies." (U.S. Fish and Wildlife Service 1994).

Cumulative Effects - Cumulative effects include the effects of future State, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of Endangered Species Act.

One future activity that may affect the shrew is the maintenance of the CSX railroad ROW. This maintenance activity may result in death or injury to shrews from crushing by vehicles. However, it will result in a successional vegetation stage used by shrews and is unlikely to cause habitat fragmentation. The majority of future development activities in this area will require a permit from the Corps and will be reviewed when a permit is applied for.

CONCLUSION

After reviewing the current status of Dismal Swamp southeastern shrew throughout its range and in the action area, the environmental baseline for the action area, the effects of the proposed cable installation and the cumulative effects, it is the Service's biological opinion that the issuance of a DOA permit for this project, as proposed, is not likely to jeopardize the continued existence of the Dismal Swamp southeastern shrew. No critical habitat has been designated for this species, therefore, none will be affected.

III. INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the Endangered Species Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are nondiscretionary, and must be implemented by the Corps so that they become binding conditions of any permit issued to the applicant in order for the exemption in Section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of Section 7(o)(2) may lapse.

AMOUNT OR EXTENT OF TAKE

The extent of incidental take of the Dismal Swamp southeastern shrew anticipated from this project is difficult to quantify because the population density of the shrew within the project area has not been determined, and any shrews that are killed during clearing of vegetation, project construction, and stockpiling of equipment will be difficult to observe or locate due to their coloring, small body size, and tendency to remain beneath the leaf litter or underground. However, the level of take of this species can be anticipated by the areal extent of the potential habitat affected. This incidental take statement anticipates the taking of Dismal Swamp southeastern shrews from at least 14.45 acres along the cable route from approximately two miles northeast of the Hampton Roads Airport in Chesapeake to just south of the U.S. Route 58 Bypass in Suffolk (Figure 2) resulting from vegetation removal, construction activities, stockpiling of materials and equipment, and temporary loss of habitat.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that the level of anticipated take is not likely to result

in jeopardy to the species or destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take:

1. Vegetation clearing should be minimized. This will reduce soil and leaf litter disturbance and will enhance revegetation of the construction path.
2. Impacts to wetlands should be minimized. This will lessen the impacts to shrew habitat and enhance revegetation of the site after cable installation.
3. Avoid use of herbicides and pesticides. This will minimize impacts to the shrew and its habitat.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of Section 9 of Endangered Species Act, the Corps and AT&T must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. The following measures will be taken during clearing, construction, and maintenance activities associated with the project:
 - a. No use of vehicles or heavy equipment will occur outside the 16.5-foot construction path except on existing roadways, active agricultural fields, maintained lawns, or previously unvegetated areas.
 - b. No placement or stockpiling of materials will occur outside the 16.5-foot construction path except on existing roadways, active agricultural fields, maintained lawns, or previously unvegetated areas.
 - c. No ground disturbance or vegetation clearing will occur outside of the 16.5-foot construction path.
 - d. Stumps/root wads will not be removed after vegetation clearing, if possible.
 - e. Initial and maintenance clearing of vegetation will be done by hand where practicable.
 - f. The top 18 inches of topsoil will be stockpiled and replaced immediately after cable installation and restored to original elevations.
 - g. All work in wetlands will be done on mats where practicable, preferably during the driest period of the year (May-October).
 - h. No use of broad scale or aerial herbicide or pesticide applications.
2. The applicant is required to notify the Service before initiation of construction and upon completion of the project at the address given below. All additional information to be sent to the Service should also be sent to the following address:

Virginia Field Office
U.S. Fish and Wildlife Service
P.O. Box 480
White Marsh, VA 23183
(804) 693-6694

3. Care must be taken in handling any dead specimens of the Dismal Swamp southeastern shrew that are found in the project area to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens, the finder has the responsibility to ensure that evidence intrinsic to determining the cause

of death of the specimen is not unnecessarily disturbed. Upon locating a dead specimen, initial notification must be made to the following Service Law Enforcement office:

Division of Law Enforcement
U.S. Fish and Wildlife Service
P.O. Box 187
Yorktown, VA 23690
(804) 890-0003

Please note that the finding of dead specimens does not imply enforcement proceedings pursuant to the Endangered Species Act. The reporting of dead specimens is required to enable the Service to determine if incidental take is reached or exceeded and to ensure that the terms and conditions in this biological opinion are appropriate and effective.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. With implementation of these measures the Service believes that only shrews located within the 16.5-foot wide construction path (14.45 acres) will be incidentally taken. If, during the course of the action, this minimized level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The Corps must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

IV. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of Endangered Species Act directs Federal agencies to utilize their authorities to further the purposes of Endangered Species Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to further minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans and other recovery activities, or to develop information to benefit the species.

The Service recommends that the Corps conduct before and after surveys for the Dismal Swamp southeastern shrew within the action area. This will allow our agencies to determine the exact effects of clearing and construction from this type of project on the shrew. If one or two surveys were conducted before the clearing and construction are initiated and several annual surveys are conducted after project completion, valuable information could be obtained regarding the rate of recolonization of cleared areas and the extent to which shrews are impacted. This information could be used in future consultations to better determine the extent of project impacts and evaluate the effectiveness of the terms and conditions that are provided in biological opinions. Additionally, the Technical/Agency Draft of the Recovery Plan (U.S. Fish and Wildlife Service 1994) for this species indicates that "more information is needed on the distribution and abundance" of the shrew outside of the Refuge. Any information on shrew distribution or abundance obtained from the action area would enhance the recovery of this species. The Service would be pleased to work with the Corps to design such a study.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any of these conservation recommendations by the Corps.

V. REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action outlined in the Corps' request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the

action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Unless information in this biological opinion is protected by national security or contains confidential business information, the Service recommends that you forward a copy of to the Virginia Department of Game and Inland Fisheries at the following address:

Nongame and Endangered Species
Virginia Department of Game and Inland Fisheries
P.O. Box 11104
Richmond, VA 23230

If this opinion is not provided by the Corps and does not contain national security or confidential business information, the Service will provide a copy to this State agency ten business days after the date of this opinion.

The Service appreciates this opportunity to work with the Corps in fulfilling our mutual responsibilities under the Endangered Species Act. Please contact Cindy Schulz of this office at (804) 693-6694 if you require additional information.

Sincerely,

Karen L. Mayne
Supervisor
Virginia Field Office

Enclosures LITERATURE CITED

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(CSchulz:04/20/95)