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ENVIRONMENTAL EFFECTS OF SITE PREPARATION, PLANT AND ASSOCIATED TRANSMISSION FACILITIES CONSTRUCTION

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CHAPTER 4.0

ENVIRONMENTAL EFFECTS OF SITE PREPARATION, PLANT AND ASSOCIATED TRANSMISSION FACILITIES CONSTRUCTION

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4. ENVIRONMENTAL EFFECTS OF SITE PREPARATION, PLANT AND ASSOCIATED TRANSMISSION FACILITIES CONSTRUCTION

4.1 SITE PREPARATION AND PLANT CONSTRUCTION

4.1.1 Construction Areas

Figure 4.1-1 shows the layout of the proposed plant and its associated facilities. These major plant construction components will occupy the following approximate acreages within the 1,656 acre total site area:

Plant island construction laydown areas and rail loop - 302 acres
Bottom ash disposal area - 125 acres
Solid waste disposal area A - 88 acres
Solid waste disposal area B - 343 acres
Access road - 7 acres

The construction laydown areas located within the rail loop can be seen in Figure 4.1-2.

4.1.1.1 Site Layout During Construction

Construction activities such as clearing the site, building temporary or permanent roads, waste disposal and laydown areas for building materials, are all phases of construction that will affect, to varying degrees, the site area. The disruptive effects of these construction operations are discussed below.

Clearing the site of natural vegetation will be kept to a minimum to minimize erosion and to reduce the negative impacts to terrestrial communities. A buffer approximately 200 feet wide will be placed around each of the wetlands contiguous with the St. Johns River or its tributaries. The boundary of the buffer zone will be delineated with a fence line (Figure 4.1-3). The fence will be constructed early in the

construction phase of the project and will serve to limit access to the wetlands. The natural buffer which results will serve to filter any noise from plant operations and will serve as a visual barrier to the plant itself.

A pulp wood operation has already timbered much of the site for marketable pine pulp wood under the site owner's direction. After additional timber harvesting, construction areas will be cleared and grubbed. Clearing and grubbing wastes will be disposed of either by burning or burial. If burning is chosen as the best approach, burning operations will be conducted in accordance with local and state requirements.

After clearing and grubbing, the construction areas will be graded. As discussed in Section 4.1.8.1, appropriate measures will be employed to control erosion. After grading, the lightly traveled laydown areas will be seeded and grass established to hold down dust and erosion. Heavily traveled construction laydown areas and roads will be stabilized with shell or rock. Dust from high traffic areas will be controlled with water sprinkling. The laydown areas in most cases will be adjacent to the particular facility in which that material will be used. Construction buildings and shops will be located on the eastern side of the power block. Most temporary construction buildings for offices, warehouses, and shops will be located inside the rail loop.

The proposed plant will have three access roads during construction and two access roads after construction is completed. Access during construction will be off New Berlin Road, Island Drive, and the existing north access road to the Northside Generating Station (NGS) (Figure 4.1-2). After construction, the access roads will be off New Berlin Road and the existing NGS access road (Figure 4.1-1).

The entrance from Island Drive during construction will be a paved or coated surface road used by construction personnel. It will provide a route to the employee parking area which is to be located to the east of the boiler building. The road will be approximately 2700 feet long and 20 to 24 feet wide.

The access road from New Berlin Road will be paved both during and after construction. The final route of this access road will be slightly different from that used during construction. During construction, this entrance will be for non-manual and material receiving. The road will be 20 to 24 feet wide. Once the plant is complete, this access road will be rerouted as can be seen in Figure 4.1-2 and will serve as the main entrance for the proposed plant.

The existing north access road to the NGS will serve as a tie-in for the southern entrance to the proposed plant. This access road will have a paved surface to be used as an entrance for plant operators.

The railroad spur will come off the existing Seaboard Coast Line just west of New Berlin Road. The spur will enclose the plant in a loop as shown in Figure 4.1-2. The existing spurline to Blount Island will also tie into the rail loop as shown in the figure. Additional trackage will be provided to allow the movement of train traffic to and from Blount Island without affecting normal plant operations.

Waste materials will be disposed of in accordance with applicable rules and regulations. A number of waste materials such as scrap wood and iron will be taken to a specified open area of the site where they will be separated and stock piled for possible salvage. General waste materials will be disposed of in dumpsters for collection and possible disposal at the city landfill adjacent to the site or other suitable and approved local landfill areas.

By proper site grading methods, construction runoff will be routed to a construction sedimentation pond located at the south end of the rail loop. Chemical waste, such as fuel and lubricants, will be collected in holding tanks for periodic removal. These wastes will either be taken to salvage locations or disposed of at appropriate off-site locations. Sanitary waste will be handled by portable toilet units, temporary units and permanent units. The portable units will serve the coal unloading and ash disposal sites. Temporary units will be located near and throughout the power block area. Permanent units will be located in the boiler area.

The activities associated with the construction and use of the roads and rail lines is not expected to produce significant changes in surface water flow. No adverse effects of disposal of trash and chemical waste are expected, as proper management practices will be developed and followed.

4.1.1.2 Construction Schedule

Construction of the proposed plant is scheduled to begin in 1982. Improvements to the site are scheduled to begin in June, 1982 and subsurface foundation preparation in August, 1982. The installation of the steam drum for Unit 1 is scheduled for August, 1983. Installation of the steam drum for Unit 2 is scheduled for January, 1985. Unit 1 is expected to begin test operation in September, 1985. During the following months, Unit 2 will remain under construction while Unit 1 is operational. Unit 2 is expected to begin test operation in May, 1987. Certain construction related work, including site clean up and landscaping, will continue through December, 1987, at which time all construction activity is scheduled for completion.

Construction of the Blount Island coal handling facilities and all transmission lines will be scheduled concurrent with construction of Unit 1. This will require construction of the coal handling facility on Blount Island to begin by late 1982 with completion of most work by mid-1985 to allow stockpiling of coal. Transmission line construction is expected to occur during 1983 and the first half of 1984.

4.1.2 Effects on Vegetation, Wildlife and Aquatic Life

4.1.2.1 Vegetation

Direct Losses

Of the 1,656 acres of the proposed plant site, construction of the proposed plant will disturb approximately 896 acres (Table 4.1-1). Three vegetation types, grassy scrub, salt marsh, and bottomland hardwood, will not be affected by construction or construction related activities. The plant island (rail loop) (Figure 4.1-3) will require about 300 acres, which includes all the land inside the rail loop as well as a 100 foot wide zone outside the rail loop. Any disturbance associated with construction of this rail loop is assumed to be concentrated within the rail loop and the 100 foot zone. Solid waste disposal area B will require about 348 acres. The bottom ash disposal area will require the third largest amount of land followed by solid waste disposal area A, with approximately 100 and 88 acres, respectively. The waste handling area, sediment control pond, and construction parking area will require approximately 27, 16, and 11 acres, respectively.

Clearing and grubbing of the site will not extend beyond the fence line (Figure 4.1-3). An approximate 200 foot buffer zone of existing trees will be left between the proposed fence line and on-site wetlands which are contiguous with the St. Johns River or its tributary creeks. The affected vegetation community types are discussed below in order of their presentation in Table 4.1-1.

Approximately 33 acres of cypress swamp will be disturbed. The largest disturbances will come from construction of solid waste disposal area B, which will affect 22 acres, or 55 percent, of the total areal extent of this community type within the boundaries of the proposed site. Considering the limited occurrence of this vegetation type at the site, the loss of this association may be considered to be a significant impact from

a site specific perspective. However, this vegetation type is common throughout Duval County with the amount lost due to construction estimated to be less than 0.7 percent of the county total. From this perspective, the loss of this association is not considered to be significant.

Construction of the plant island (that area within the plant rail loop), bottom ash disposal area, construction parking, and waste handling area will eliminate about 286 acres of the grassy scrub/pine flatwood vegetation type. This 286 acres represents 79 percent of the total area of this vegetation type within the proposed site boundaries and is the second largest community type disturbed. This vegetation type has a large number of species including a number of orchids considered to be occasional in occurrence. The loss of this vegetation type, from a site specific perspective, is considered to be a minimal impact. The impact is considered to be minimal since this vegetation type has been disturbed by fire, and the species common to this vegetation type are only present due to the fire induced disturbance. The high species diversity observed is also due to the disturbance by fire. In effect, disturbance is responsible for the uniqueness of this vegetation type and without fire, normal successional patterns would ensue. The loss of this vegetation type in its unnatural state is considered insignificant.

Approximately 23 acres of the bayhead community will be disturbed by the construction of the plant rail loop and waste disposal area. This represents 80 percent of the total areal extent of this vegetation type within the proposed site boundaries. This loss, although it may be considered significant from a site specific perspective, will not result in a major impact on this vegetation type due to its abundance in north and north-central Florida.

Approximately 156 acres of the hardwood hammock vegetation type will be disturbed by the construction of the plant island (inside the rail loop), solid waste disposal area A, and sediment control pond. The 156 acres disturbed by construction is 37 percent of the total area of this

type within the site boundaries. This hardwood hammock type is fairly common in the proposed plant site area, and loss of a portion of this vegetation type is not considered to be significant.

Construction of the plant island and associated rail loop would require the filling of approximately 33 acres of the hardwood swamp vegetation type. The amount disturbed is 32 percent of the total areal extent of this association within the boundaries of the plant site. None of the other proposed facilities will require any additional acreage from this vegetation type. An additional 65 acres of the hardwood swamp occur within the boundaries of the proposed site. However, these 65 acres will be maintained in their natural state throughout the life of the proposed plant. A fence line will be placed 200 feet from the border of the 65 acre tract of the hardwood swamp, forming a buffer between the swamp and the solid waste disposal area (Figure 4.1-3). Loss of a portion of this vegetation type and its supporting soils is not considered to be significant in light of the small amount of this type affected and the preservation of the remaining community type within the site boundary.

The pine flatwoods vegetation community has the largest areal extent of those community types to be disturbed by construction. A total of 350 acres will be disturbed with the largest portion coming from construction of solid waste disposal area B. The 354 acres represent 70 percent of the total areal extent of the pine flatwoods vegetation type within the proposed site boundaries. The pine flatwoods type is the most common vegetation type in Duval County covering about 80 percent of the county. The resultant loss of this vegetation type is therefore not considered to be a significant impact. Approximately 75 percent of this vegetation type found to the north of Island Drive has been logged. In its current state, its value from an ecological perspective is low.

Dusting

Some of the predominant soils, including the Ortega and Pottsburg, within the boundaries of the proposed plant site have been classified in a wind erodibility group two. Soils in this group are highly erodible and as such are considered to have a potential for dust formation.

Dust emitted during construction activities may accumulate on the leaves of vegetation within the immediate vicinity of the construction activity. Although dust accumulations have been reported (Parish, 1910; Czaja, 1961; Spinka, 1971) to cause leaves to overheat during sunny periods and thereby cause premature leaf death, such impacts are not expected to be significant based on: (1) the utilization of dust suppression measures such as paving of major access roads and spraying with water, (2) the small area affected, (3) the tendency for localization within the area of the activity, and (4) the frequency of rain showers which would tend to wash off dust accumulations.

4.1.2.2 Wildlife

Impacts Due to Habitat Loss

Construction of the proposed plant and associated waste disposal areas will disturb approximately 896 acres of wildlife habitat. The pine flatwoods area will be most affected. A logging operation which has cleared approximately 75 percent of this habitat type north of Island Drive has already greatly reduced the value of this community type as wildlife habitat. Varying amounts of hardwood hammock and hardwood swamp will also be lost during the construction phase. The more mobile wildlife species may move into neighboring habitats depending on the carrying capacity and number of animals already present in these areas. Site preparation will destroy the less mobile small mammal, reptile and amphibian populations present in the areas designated for development. These groups generally exhibited low population levels and species diversity. This loss is not

considered significant since the species to be lost are well established in other portions of their range. One possible exception is the gopher tortoise which is discussed in detail later in this section.

Noise Impacts

Site preparation and plant construction will result in increased noise levels which may cause certain noise sensitive species to attempt relocation. Measures have been recommended in the mitigation section (4.1.8) which will help to minimize noise impacts. Significant impacts from noise on wildlife populations are not anticipated.

Dust Related Impacts

Dust levels will increase during site preparation and plant construction, which will indirectly affect wildlife through impacts on vegetation. However, impacts on plants are expected to be minimal (as explained in Section 4.1.2.1) and, therefore, no significant impacts are predicted for wildlife populations.

Impacts on Biologically Sensitive Areas

Rookery

The rookery described in Chapter 2, Section 2.9.2.2 is not included in the site boundary and will not be directly affected by either site preparation or plant construction. However, because of the rookery's proximity to the proposed site, the potential will exist for certain indirect impacts.

Herons traditionally establish rookeries in the same area year after year. Custer et al. (1980) discuss several factors which appear to influence the yearly location and composition of colonies; 1) destruction of nesting habitat by the herons themselves, 2) changes in feeding habitat,

and 3) human disturbance and habitat alteration. Human disturbance at critical times during the nesting season can cause abandonment of previously used areas. The measures described in Section 4.1.8, will help minimize disturbance during these critical times. However, other suitable nesting habitat exists in the area should construction activities force some birds to relocate. Therefore, no significant impact is expected from the construction of the proposed power plant.

Salt Marsh

The construction of a sedimentation pond to intercept runoffs from site preparation and plant construction will prevent significant impacts to the wildlife populations dependent on the salt marsh for food or cover. The pond will be designed to provide a 24 hour retention of runoff produced by a 10 year, 24 hour design storm (Chapter 3, Section 3.7.1) and retain accumulated solids. Freshwater effluent from the sedimentation pond will overflow a wier and follow existing drainage patterns into the marsh.

Impacts on Commercially or Recreationally Valuable Species

The whitetail deer, eastern gray squirrel, and Bobwhite Quail were not present in sufficient numbers to be recreationally important. A huntable population of marsh rabbits is present, but little if any local interest was exhibited as evidenced by the lack of hunting activity. Several of the less economically important furbearers (opossum, raccoon) are present but do not represent a commercially important resource. No significant impacts are predicted for any commercially or recreationally important species.

Impact on Endangered or Threatened Species

American Alligator

Several small cypress areas and a portion of the hardwood swamp are scheduled to be filled as part of site preparation and plant construction. The field study indicates that these areas support only a small number of

alligators. The Florida alligator population has recovered dramatically in recent years and the few animals which may be adversely affected will not significantly impact the local or regional population. The habitats involved are also not unique from a regional or local perspective and their loss will not have a significant impact on the alligator population.

Wood Stork

On several occasions, Wood Storks were observed flying in the vicinity of the proposed plant site and were assumed to be feeding in the area. No evidence of nesting activity was found. Neither site preparation nor construction activities are expected to have a significant impact on stork feeding areas. The Wood Stork is a highly mobile species which can utilize the other suitable feeding habitats in the area if necessary.

Bald Eagle

No Bald Eagles were observed during the course of the study. Potential eagle nesting habitat on the eastern border of the site is scheduled to be maintained in its natural state. The proposed monitoring program, described in Chapter 6, Section 6.3.9, will help assure that there is no significant impact to the local Bald Eagle population.

Gopher Tortoise, Eastern Indigo Snake

The loss of a significant portion of the pine flatwoods habitat may result in the loss of the resident gopher tortoise population. However, tortoise numbers may have already been reduced due to the logging operation currently underway in this area. Therefore, the significance of impacts associated with any additional disturbance cannot be firmly predicted.

Gopher tortoise burrows are occasionally inhabited by the eastern indigo snake. Although numerous burrows were evidenced on the proposed site, the eastern indigo snake was not observed and generally prefers

wetter habitats. Moler (1980) does not believe indigo snakes are present in large numbers either on the site or in Duval County. Therefore, the probability is considered low that the proposed plant will adversely affect this species.

During the approximately 50 man-days spent visiting the proposed site, the two aerial reconnaissances, and numerous consultations with appropriate personnel from both the U.S. Fish and Wildlife Service and the Florida Game and Fresh Water Fish Commission, no information was found to indicate the presence of any "important" species other than those already indicated.

4.1.2.3 Aquatic Life

Site preparation and plant construction will impact aquatic life in on-site freshwater habitats, i.e., streams, inundated swampy areas or bogs, cypress ponds, etc. Approximately 40 acres (Figure 4.1-4) of cypress swamp will be filled during the 30 year life of the plant. Due to their ephermeral nature, these areas are of only limited value to aquatic life. No commercially important or rare and endangered species were observed in these areas during the Preoperational Monitoring Program. Aquatic life in on-site freshwater streams could potentially be affected by increased turbidity from surface water runoff. Since adequate storm water runoff control will be provided, as described in Section 4.1.7, the potential for adverse effects due to increased turbidity is expected to be minimal since many of the organisms found in the creeks are tolerant to turbid conditions, and any potential increase would be expected to be temporary.

No adverse impacts to the aquatic life in the Browns Creek saltmarsh complex are expected due to site preparation or plant construction. No intrusion into or construction in the salt marsh will occur. Additionally, surface water draining from the site will be controlled as described in Section 4.1.7 and drainage water will meet all applicable standards.

Site preparation and plant construction will not impact aquatic life in the Blount Island Channel. This area is removed from the construction site, and will not receive discharges of storm water, sanitary wastes, or other effluents from site preparation or construction.

4.1.3 Land

4.1.3.1 Land Use Activities

Land use activities on-site currently include timber and limited hunting. Construction of the proposed facility would preclude these activities for at least the life of the plant.

Surrounding land uses are primarily industrial and residential. These land uses are not expected to be altered as a result of plant construction.

4.1.3.2 Transportation

This section evaluates the impacts of construction related traffic in the site area, by comparing existing traffic volumes, projected construction related traffic volumes, and road capacities. Little or no barge traffic is expected and, therefore, will not be discussed as a significant impact. The four roadways to be impacted are Heckscher Drive, Main Street, Eastport Road and New Berlin Road. Existing traffic flow, including average daily travel and peak hour traffic, is discussed in Chapter 2, Section 2.3.2. Figure 4.1-5 illustrates the location of primary site access routes.

The year of 1985 will be the peak employment period (2,575) with 90 percent of the work force expected to arrive between the hours of 7:00 and 8:00 a.m. and leave between 3:30 and 4:30 p.m. Assuming an average of 1.2 persons riding in each car (Jacksonville Area Planning Board reported local passenger averages), approximately 1,850 trips will be made to and from the site daily during the peak periods. These 3,700 daily trips were assigned

to the four roadways based on the projected location of the work force and the area from which it would be coming. In addition to the work force, 37,200 trucks are expected to enter and leave the site during 1985, the peak construction year.

The existing and 1985 projected average daily traffic volumes are shown in Table 4.1-2. The volumes projected for 1985 are based on traffic volumes measured in 1980 for each of the four roadways, increased by approximately 4 percent per year to the year 1985 (JAPB reported current local traffic growth rates), and includes the assignment of the additional construction generated truck and work force trips. Table 4.1-2 also shows the projected peak hour volume on, and capacity of, each of the roadways. Projected peak hour volumes were determined by taking the existing peak hour traffic on each of the roadways, increasing it by 20 percent (approximately 4 percent per year from 1980-1985), and then adding the part of the 1,850 trips assigned to the various roadways. The capacities of the roadways were determined by using the Highway Capacity Manual (1965) and capacity charts derived from this publication.

Based on the comparison between the peak hour volume and the capacity, shown as column 4 in Table 4.1-2, two of the roadways, Heckscher Drive and New Berlin Road, will be exceeding level of service C capacity in 1985. Level of service C is defined as stable traffic flow where most drivers are restricted in selecting their speed, but where all stopped traffic will clear a signalized intersection. This is the desired level of service for urban design conditions. This would indicate that the intersections along Heckscher Drive, and particularly the intersection of Heckscher Drive and New Berlin Road, will probably be exceeding the existing intersection capacity. This is based on the fact that the capacities shown in Table 4.1-2 are for free flow conditions. With the introduction of a signalized location, capacity would be greatly reduced. It should be noted that the 4 percent growth per year is an estimate and therefore could be either high or low. However, the area off Heckscher Drive and the Blount Island facilities are just starting to develop. Indications are that the area

will continue to grow and that traffic will increase on roadways leading into the area. Increased automobile occupancy rates could help alleviate traffic problems.

New Berlin Road is expected to receive additional impacts related to truck damage to the road surface. Some repairs to the road surface are anticipated during construction.

In summary, under existing operations and traffic conditions, all signalized locations and roadways in the area of the proposed site are operating at level of service C with additional capacity available. However, the influx of the power plant work force and the continued growth in this particular area will temporarily (through the construction period) affect traffic conditions along these roadways. As indicated, the existing intersections of the I-95 spur to Heckscher Road and its intersection with Heckscher Drive going toward Main Street are presently creating some congestion during peak periods. With additional traffic, this problem will become more severe as will the left turn lane from the north at the intersections of Heckscher and Main Street; New Berlin Road and Main Street; and Eastport and Main Street. Additionally, turning traffic at the intersection of Eastport Road and Heckscher Drive will increase. Perhaps the most severe problem will occur at the intersection of New Berlin Road and Heckscher Drive, presently an intersection of 2 two-lane facilities. The turning traffic from Heckscher onto New Berlin is expected to significantly increase and will likely require the addition of a left turn lane on the west approach at this location. Other locations likely to require improvements include:

Heckscher Drive, Main Street - geometric design, signal controller
Heckscher Drive, Spur - signalization
Main Street, Eastport Road - geometric design, signal controller
Eastport Road, Heckscher Drive - geometric design widening, signalization
Main Street, New Berlin Road - geometric design, signal controller

The estimated costs of these improvements are discussed in Chapter 7, Section 7.2.2.

Construction of the section of the proposed Dame Point Expressway from Main Street to Heckscher Drive would provide improved access to the site area and would greatly alleviate traffic congestion on all roads in the site area. The state proposed expressway is illustrated in Figure 4.1-5. The ability of this highway to alleviate plant construction related traffic is dependent upon the currently uncertain schedule for the Dame Point Expressway project.

One alternative solution to traffic problems on Heckscher Drive and New Berlin Road would be to construct a new bridge across Dunn's Creek and utilize the Eastport - Faye Road connection to the site. This would provide both direct access to the site and relief to both Heckscher Drive and New Berlin Road. However, an Eastport Road - Faye Road connection to the site would introduce increased traffic volumes to residential areas currently experiencing low volumes of traffic. Although Faye Road could handle increased traffic loads, it would be desirable to restrict the use of tractor trailers on this road. For these reasons, use of such a route is not intended.

The use of Heckscher Drive or the proposed Dame Point Expressway for plant access would be compatible with surrounding land uses. Heckscher Drive is currently developing as an industrial area, resulting in heavy truck traffic. In 1985 (peak total employment year), plant construction is expected to increase the tractor trailer traffic share of the total average daily traffic by only 2 percent on this road. Eastport Road also currently serves a high volume of truck traffic with a peak construction year increase of tractor trailer traffic of only 2.5 percent of total average daily traffic. New Berlin Road currently accommodates a high volume of trucks as the access road to the municipal landfill. The alternate use of the proposed Dame Point Expressway would be compatible with surrounding

land use. Engineering practices demand that expressways be designed with adequate buffers from land uses bordering the highway, thereby insulating surrounding users from highway noise.

4.1.4 Effects on Human Populations

4.1.4.1 Noise

Noise impact projections were made for Unit 1 construction activities from 1982 to 1985. The highest noise levels will result from earthmoving activities, which will be conducted concurrently for Units 1 and 2 (e.g., site preparation, solid waste disposal areas). Thus, noise levels during 1986 and 1987 associated with Unit 2 construction are not expected to be greater than those projected for 1982 through 1985.

Projections of noise levels from construction activities are divided into six-month time intervals beginning in July of 1982 when site clearing operations are expected to begin, and continuing through December of 1985 when completion of Unit 1 is expected. Table 4.1-3 lists the anticipated numbers and types of construction equipment with corresponding usage factors for each time interval. Based on this information and typical noise levels for each piece of equipment specified in an EPA document (USEPA, 1971), the total site noise level during each period was estimated (Table 4.1-3). Because of the sporadic nature of noise generated by pile driving and steam blowout operations, these are discussed separately below. Noise levels from these two operations are not included in the site totals presented in Table 4.1-3.

Estimated construction noise levels (excluding pile driving and steam blowout) at the nearest residence, located approximately one mile from the center of construction activity, are presented in Figure 4.1-6. This figure depicts how the noise level will vary throughout the course of the 38 month construction period. These attenuated levels take into consideration geometric spreading and atmospheric attenuation of the sound

waves. No credit was taken for shielding by vegetation or other structures in the calculations, although there will be some attenuation due to any trees between the source and the receptor.

The maximum noise level predicted is 54.4 dB(A) at one mile. This level will be attained only during normal working hours for approximately 1-1/2 years between January, 1984 and July, 1985, and coincidentally is the same as the existing $L_{eq}(24)$ at the nearest residence (55 dB(A) winter, 54 dB(A) summer) (Chapter 2, Section 2.10.1). Therefore, the construction noise impact at this location will be minimal, with a resultant L_{eq} of approximately 57 dB(A) during the working day and unchanged at night. However, this 57 dB(A) level is slightly above EPA's guideline of 55 dB(A) for protecting against outdoor activity interference (see Chapter 2, Table 2.10-2). This means that occasionally there may be some interference of outdoor activity at this location. There should be less of an effect on indoor activity since about a 15 dB(A) reduction in noise levels can be achieved by closing windows and doors.

Two other construction activities which will have noise impacts are pile driving and blowout of the steam lines just prior to start-up of the plant. One pile driver operating intermittently during the first year will produce peak impact levels of 101 dB at 50 feet as the hammer strikes the pile. This level will be reduced to between 55 and 60 dB at the nearest residence and will sound like a distant thumping at a frequency of several blows per minute. Long time residences of this riverside industrial area should be familiar with, and in many cases, accustomed to, the sounds of piles being driven.

In lieu of extensive pile driving for foundations, a technique known as dynamic consolidation may be employed. This consists of lifting a 40 ton weight to a height of 100 feet and dropping it numerous times in a grid pattern over the area to be compacted. Vibration in the ground, rather than noise is the major concern. Vibration measurements conducted in the vicinity of a dynamic consolidator (Law Engineering, 1980) indicate that

damage to walls of typical buildings can be expected to extend only about 250 feet. At 600 feet, the vibration is just noticeable to persons. Therefore, at a distance of one mile the vibration would probably not be noticeable and would certainly cause no damage. Even with this technique, some pile driving would still be required but it would not be nearly as extensive.

Steam blowout is the procedure whereby the steam lines in the plant will be cleared of welding and any other debris by blowing them out with high pressure steam prior to plant start-up. This activity will generate the greatest noise levels, 129 dB(A) at 50 feet, associated with plant construction. However, the duration is short, at less than 3 minutes per blow, and the total number of blows is only about 20. For Unit 1, this will occur during a two week period in late 1985 and will be preceded by adequate notice to the public.

The outdoor noise level at the nearest residence during steam blowout is expected to be between 80 and 90 dB(A). Short exposure to these levels is not damaging to hearing, and the greatest effect the noise will produce is a startle response from persons nearby. However, the public notification plan is designed to minimize this effect.

There are presently no plans to use explosives during any phase of construction.

On the average, one switch engine per day will deliver several railcars carrying construction materials to the site. Because of the frequency, low speeds and short lengths of these trains, noise impacts are not expected to be significant.

Unit 1 will go into operation approximately 18 months before Unit 2 is completed. Since Unit 1 operational noise levels (see Section 5.6.2.2) will be about 10 dB(A) less than the Unit 2 construction noise levels, noise impacts during this overlap period are expected to be no greater than those projected for the period 1982 through 1985.

Some increase in noise levels along Heckscher Drive and New Berlin Road is expected due to the increase in traffic caused by the work force and the movement of materials to and from the site. However, because of the already heavy truck traffic on these roads and the lack of sensitive land uses along the routes, the impact is expected to be minimal.

4.1.4.2 Air Quality

Sources of Air Pollutants During Construction

Various construction activities, including land clearing, open burning, heavy machinery operation, vehicle (light and heavy-duty) traffic, and road construction will discharge certain amounts of pollutants into the atmosphere. The pollutant generated in greatest quantities by site construction is suspended particulates, also termed fugitive dust. The quantities of dust emitted by the site construction vehicular traffic will be dependent on a number of factors, including the frequency of operations, specific operations being conducted, weather and soil conditions. A large portion of the construction operations, such as land clearing and foundation excavation, will be intermittent and usually of short duration.

Open burning will emit quantities of particulate matter, carbon monoxide, hydrocarbons, sulfur oxides and nitrogen oxide. The burning of cleared land debris will be conducted for short periods. These pollutant emissions will depend on the amount and moisture content of the debris.

Exhausts of heavy machine and truck traffic will be a minor source of air pollutants, consisting of mainly carbon monoxide, hydrocarbons, nitrogen oxides, sulfur oxides, and particulate matter. Table 4.1-3 summarizes the construction vehicles and their projected usage.

Air Quality Impacts

The impact of heavy construction activities and site preparation on air quality will be short term and will be confined to the immediate vicinity of the construction activity. This is primarily because most of the fugitive dust created by construction traffic and earthmoving operations consists of relatively large particulates. These large particles tend to settle quickly rather than remaining suspended for long distances. To minimize dust: (1) construction personnel will enter the plant site over prepared surfaces and will park in a surfaced lot; (2) there are presently no plans for on-site concrete production; (3) wetting will be employed on dust prone areas, as needed; and (4) laydown areas will be appropriately stabilized.

Only minor short-term air quality impacts are expected to result from burning since these operations will be conducted only during periods of good atmospheric dispersion. Burning will be conducted in compliance with local and state regulations.

Because of the mitigative measures which will be employed, it is not expected that vehicular emissions, fugitive dust or smoke from burning operations will present any significant air quality problems.

4.1.5 Work Force and Settlement Patterns

This section presents the magnitude and pattern of settlement of the immigrant construction workers, along with the population effects that will be induced by these workers. Immigrant workers are defined as those skilled or semi-skilled workers who will migrate to the Jacksonville area to work on the proposed project, and will remain in the area as long as project work is available. Due to the overlap of Unit 2 construction and Unit 1 operation during 1984-1987, the evaluation includes the immigrant operational population effects for those same years. It is assumed the secondary employment generated by the proposed plant will be filled by

local employables. This assumption is based on a 1979 unemployment rate in Duval County of 5.6 percent. This equates to approxiately 13,500 unemployed people in the county, which is more than sufficient to fill the secondary jobs generated by plant construction and operation. Therefore, the only population increase attributable to the proposed plant was assumed to be immigrant construction and operational workers and their families.

The Envirosphere Construction Worker Model, described in Appendix H, was used to determine the magnitude of the construction worker influx. As shown in Table 4.1-4, most immigrant construction workers would settle in the seven county region, with Duval County having by far the greatest concentration. During the peak construction employment year (1984) when the immigrant level would reach 493 workers, about 59 percent (292) of the total immigrant work force would locate in Duval County. Clay and Nassau Counties would have the second and third largest concentrations of immigrant construction workers with 18 percent (88) locating in Clay County and 14 percent (69) locating in Nassau County. The remaining counties of the region are projected to experience little or no influx of immigrant construction workers during the construction phase.

The projected total population effects within the region attributable to the construction phase are displayed in Table 4.1-5. During the peak construction year of 1984, the immigrant population would total approximately 1,150 persons. The greatest concentration of immigrant population in the region during the construction phase would occur in Duval County. During the peak construction year of 1984, approximately 690 immigrants are expected to locate in Duval County. Clay and Nassau Counties would have the second and third most significant total population effects in raw numbers, respectively. The remaining counties in the region are projected to experience minimal population impacts as a result of the construction phase.

The socioeconomic effects of immigrant settlement in the seven county region are discussed in Chapter 7.

4.1.6 Landmarks and Culturally Sensitive Areas

As noted in Chapter 2, Section 2.2.1.3, archeological sites have been located on the proposed plant site. Modifications have been made in the location of some site facilities to avoid most archeological sites. A few sites are in possible conflict with the construction of site facilities. Should these sites be determined eligible for the National Register of Historic Places by the State Historic Preservation Officer, appropriate programs will be undertaken to preserve the archeological information.

Installation of fencing around the site will restrict land access to any archeological sites on the property which may be designated for protection on the site plan. This should reduce the potential for vandalism of these areas. At the present time, all or part of eight sites have been designated for protection (Figure 4.1-7). Since the archeological sites present are not suitable for public interpretation, the restriction of access is seen as a positive impact.

4.1.7 Water Bodies and Uses

Runoff

The activities associated with site preparation and construction are not expected to produce significant changes in surface water flows. During construction of the plant, runoff from the construction and storage areas will be collected by grading methods such as swales and ditches. The runoff will be directed to construction sedimentation ponds located southeast of the railroad loop and within the area enclosed by the loop (see Chapter 3, Figure 3.7-2). A circumferential grassed main drainage ditch will direct flow from these ponds to the runoff sediment control pond. This pond will provide 24 hour detention of storm water runoff for the once in 10 year, 24 hour rainfall event and will be sized to retain accumulated solids to ensure compliance with effluent standards. The overflow will be reintroduced through natural drainage patterns to the St. Johns River via Browns Creek.

Water quality of the effluent from the sedimentation pond is estimated to be similar to that discussed in Chapter 2, Section 2.4.1.7 and presented in Appendix C, Tables C-33 and C-34, for on-site streams. As noted, the waterbodies sampled on-site meet freshwater classification and Florida Class III water quality standards, except for ambient fecal and total coliform. Because of observed on-site ambient concentrations, high levels of coliform may be present in the construction area runoff. Contributions related to proposed construction activities are not expected to elevate existing coliform concentrations since sanitary wastes will be collected and treated (see Section 4.8.1.2 and Chapter 3, Section 3.6).

For both total suspended solids and turbidity, the construction pond will be designed to control excessive concentrations in the effluent. Total suspended solids will be controlled to approximately 50 mg/l on a monthly average with daily maximums of 100 mg/l or less (see Chapter 3, Section 3.7.1). Turbidity will be about 50 Jackson units, or less, above the ambient receiving water (see Chapter 2, Table 2.5-1, Florida Water Quality Criteria for Class III Predominantly Marine Waters). With the controls on total suspended solids and turbidity, and with the high quality of on-site streams, no significant impact on Browns Creek should occur from construction runoff discharge.

Dewatering

Some dewatering activity will be required during plant construction to permit excavation for structural foundations. The largest dewatering requirement anticipated will be associated with an excavation (coal/limestone unloader pit, see Figure 4.1-1) having surface dimensions of about 400 feet by 400 feet (maximum), and basal dimensions of approximately 80 feet by 80 feet at a depth of approximately 70 feet. The excavation will penetrate the full thickness of the water table aquifer and intermediate sands, and the uppermost portions of the shallow rock aquifer (Chapter 2, Section 2.5.2). Dewatering associated with this excavation, involving only peripheral dewatering wells or pumpage directly from the

excavation, could require production of relatively large quantities of water (on the order of 1000 gallons per minute) over a period of up to one year, possibly lowering water levels in the aquifer throughout an extensive area surrounding the dewatering site unless groundwater control measures such as those described below are employed.

Any potential impacts will be mitigated by employing groundwater control measures in the vicinity of the dewatering site, designed to: (1) limit the lateral extent of dewatering effects and (2) minimize the quantities of groundwater which must be produced in order to achieve the desired level of dewatering. The groundwater control measures could include such techniques as the use of sheet pilings, slurry walls, grout curtains, dewatering wells constructed on benches within the excavation, or other methods as will be required to limit dewatering impacts to the immediate vicinity of the site. Impacts will be monitored using an appropriate observation well or array of observation wells selected, if possible, from the pre-application groundwater monitoring points (Chapter 6, Figure 6.2-10). Accordingly, no significant impacts to water supply wells in the vicinity of the site are expected to result from the dewatering operation.

Other excavations on the site will be limited to depths of 20 to 30 feet and will require dewatering of the shallow, "water table" aquifer for periods generally less than one year in duration. Since the hydraulic conductivity of the shallow sediments is low (Section 2.5.2), the dewatering effects should be confined to a relatively small area surrounding the dewatering site. Moreover, since the water table aquifer is not utilized for water supply in the site vicinity, dewatering will not affect local water use.

Effluent from the dewatering operation will be discharged directly to existing drainage patterns. The discharge should not result in degradation of surface or subsurface water quality since water quality in the shallow rock and water table aquifers is good (Chapter 2, Section 2.5.2). Where

excessive levels of turbidity are encountered, for example in water pumped from open excavations, effluents will be routed to a sedimentation pond prior to discharge to surface drainage.

4.1.8 Mitigating Measures

Measures will be taken to mitigate certain potential adverse impacts associated with site preparation and plant construction. These measures include erosion and sediment control, wastewater treatment and control, dust stabilization, control of vehicle traffic, noise control, and protection of sensitive areas and wildlife.

4.1.8.1 Erosion and Sediment Control

Accelerated erosion will be controlled by compaction of embankments, early soil stabilization, limitation of exposed areas, maintenance of relatively flat grades, stabilized storm water flat grades, stabilized storm water outlets, and flat bottom ditches, as well as other appropriate erosion control techniques.

Sedimentation will be controlled during construction by use of sediment control basins and traps, filter berms, straw bales, perforated riser pipes at drainage structures, or other applicable devices as appropriate. Site drainage will be toward the south to a sedimentation pond located near the plant loop.

Earthmoving activities will be staged so as to limit the surface area of disturbed land at any one time, consistent with the amount and types of construction equipment available to work these areas. With the exception of that area occupied by plant components, exposed areas will be revegetated with pines and other vegetation native to the site and beneficial to wildlife. Slash pine (Pinus elliottii) will be planted with an appropriate grass encouraged as the ground cover.

4.1.8.2 Wastewater Treatment and Control

Two methods for sanitary waste disposal will be used. Portable toilet units will be used at the coal unloading and ash disposal sites. Wastes from the portable facilities will be disposed off-site either by the facility's supplier or by a contractor who will collect the wastes and transport them to the nearest municipal sanitary waste treatment facility with available capacity. Permanent toilet units will be used in the boiler area. There will be temporary trailer units in the power block area to supplement the permanent units. Sanitary waste will be treated by extended aeration as indicated in Chapter 3, Section 3.6. Effluent will be discharged to a sedimentation pond during the construction phase.

Metal cleaning wastes resulting from pre-operational cleaning of various plant components will be handled in one of two ways. One method would involve the cleaning contractor collecting and disposing of the wastes in an approved off-site location. A second method would be to treat the wastes in the plant wastewater treatment facility prior to discharge to the NGS intake flume. Metal cleaning waste treatment is described in Chapter 3, Section 3.5.1.4.

4.1.8.3 Dust Stabilization

When deemed necessary, water and/or other dust suppression chemicals will be applied to exposed areas to control fugitive dust. All main construction roads and parking area surfaces will have prepared surfaces to further control dust.

4.1.8.4 Vehicle Traffic Control

Traffic will be controlled by limiting site access to required delivery vehicles. Employee parking will be restricted to a designated area located near the construction office. New Berlin Road will experience

extensive truck traffic during site preparation and plant construction. Any damage to the road surface resulting directly from this plant related traffic will be repaired.

4.1.8.5 Noise Control

Noise levels due to the operation of construction equipment will be minimized by requesting contractors to make use of modern low noise level equipment when possible. Most construction activities will take place during daylight hours, which will further reduce noise impacts. Steam blowout at start-up of each unit is expected to present the greatest noise impact. Such operations will occur only intermittently over a two week period per unit. Steam blowout will be restricted to daylight hours with prior notice made to the public.

4.1.8.6 Protection of Sensitive Areas

Wetlands and archeological sites, indicated for preservation on the plant site plan (Figure 4.1-7), will be protected from construction activities by placing a fence around the area designated for development. The loss of 27.5 acres of hardwood swamp within the area of the plant island will be offset by the preservation of approximately 65 acres of hardwood swamp in the northwestern portion of the property. A buffer zone approximately 200 feet in width will be delineated around each of the on-site wetlands which are contiguous with the St. Johns River or its tributaries. The boundary of the buffer zone will be defined by a fence (Figure 4.1-3) which will serve to restrict access to the wetlands and in turn, aid in the preservation of the areas. The fence line in the portion of the hardwood swamp to be filled for construction of the plant rail loop will be placed 100 feet from the rail line. Fencing around the remaining portion of this wetland will maintain the 200 foot buffer, used in the other on-site wetlands.

4.1.8.7 Wildlife Protection

When possible, construction of solid waste disposal areas in close proximity to the rookery will be timed to avoid disrupting nesting birds in spring and early summer (Figure 4.1-8). Herons and Egrets just starting nesting activities can withstand some disturbance if other birds have already established nests in the rookery. However, it is essential that the first groups of birds be undisturbed while establishing nests. Based on information obtained from other studies and from the preoperational monitoring program, the critical period of initial nesting in north Florida rookeries is from late March to early May. Least Terns nest from April to August and any construction activity close to Least Tern nesting areas should be timed accordingly.

The gopher tortoise, listed as a species of special concern by the Florida Game and Fresh Water Fish Commission, is abundant in the sandhill communities on the site. An effort will be made to capture and transport these animals to another area prior to construction depending on the tortoise's status after the intensive logging operation being conducted on the proposed site is completed. The feasibility of relocation will be evaluated through consultation with appropriate state and federal agencies.

4.1.8.8 Public Revenues

Although construction activities associated with the proposed plant will induce various additional public costs for Duval County, these will be completely offset by 1985 (see Chapter 7, Section 7.2.2.3). The most significant of these costs will be road repair and improvements. Due to increased traffic during construction, the roads and major intersections in the vicinity of the proposed plant will need upgrading. There will also be public costs incurred because of the additional demand on various public services by the immigrant work force and their families. These additional public costs, which are discussed in detail in Chapter 7, Section 7.1, will result in an overall negative fiscal impact during the first three years of construction (Chapter 7, Section 7.2.2.3).

However, the additional public costs induced by plant construction will be more than offset by revenues generated by both JEA and FPL through the sale of electricity and property taxes. A detailed discussion of public revenues is contained in Chapter 7.

4.1.9 Benefits of Construction

Site preparation and plant construction will afford benefits to the region including the protection of sensitive lands, increased employment opportunities, and additional regional income.

Certain areas of the site have been designated as sensitive and will be protected by construction of a fence separating these areas from the usable portion of the plant site. Included in this category are 200 acres of wetland and eight designated achaeological sites as shown in Figure 4.1-7. These land areas will be purchased by the JEA and protected from disturbance during construction and from future use, thereby ensuring their preservation as a natural resource for the region.

The new levels of direct basic employment that would occur during the construction phase (1982-1987) are presented in Table 4.1-6. During the peak construction year of 1984, the proposed plant is expected to generate a total of 2,384 new basic jobs. Because Unit 1 operational staffing will begin in 1984, 68 of the 2,384 basic jobs are direct operational jobs. The overall employment impact of the proposed plant during 1984 will be the generation of approximately 5,905 new jobs in the area (2,384 new basic jobs and 3,521 new non-basic/secondary jobs). During 1985, the Jacksonville area will realize the peak overall employment impact of the plant. The plant is expected to generate 2,294 basic construction jobs, 281 direct operational jobs and 4,261 non-basic/secondary jobs during this year, resulting in a total of 6,836 new jobs in the area.

The impacts the proposed facility would have on income in the region during the construction phase are illustrated in Table 4.1-7. During the first year of construction (1982), the proposed plant is expected to

generate approximately $7.4 million in additional income in the region. The annual income impacts of the proposed facility are expected to peak in 1985 with the generation of approximately $82.5 million in additional income in the region. During the construction and operation overlap years of 1984-1987, the region would realize additional income of over $240 million. The cumulative income effect of the proposed facility during the entire construction period (1982-1987) is projected to be in excess of $288 million.

4.1.10 References

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Table 4.1-1 (Revision 1)

AREAL SUMMARY OF VEGETATION COMMUNITY TYPES AFFECTED
BY DEVELOPMENT OF THE PROPOSED PLANT SITE

Vegetation Community Type	Facility Component (Acres)								Total Area Affected	Total Area Within Site (Ac)	Total Area Not Affected (Ac)	Percent of Total Area On-Site Affected[a]
	Plant Island and Rail Loop	Sedi-ment Control Pond	Solid Waste Disposal Area	Solid Waste Disposal Access Road	Solid Waste Disposal Area A	Con-struction Parking	Waste Handling Area	Solid Waste Disposal Area B				
Bottomland Hardwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.9	79.9	0.0
Cypress Swamp	7.3	0.0	0.0	0.0	3.3	0.0	0.0	22.0	32.6	40.1	7.5	81.2
Grassy Scrub/Pine Flatwood	158.4	0.0	89.5	1.6	0.0	11.2	25.9	0.0	286.6	363.2	76.6	78.9
Bayhead	21.1	0.0	0.0	0.0	0.0	0.0	1.6	0.0	22.7	28.3	5.6	80.2
Hardwood Hammock	61.3	16.0	0.0	0.0	79.4	0.0	0.0	0.0	156.7	415.2	258.5	37.7
Hardwood Swamp	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	100.8	67.8	32.7
Pine Flatwoods	10.6	0.0	8.9	0.2	5.1	0.0	0.0	325.5	350.3	504.1	153.8	69.5
Salt Marsh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.1	41.1	0.0
Grassy Scrub	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.5	24.5	0.0
Open	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1	58.7	44.6	24.0
Total	305.8	16.0	98.4	1.8	87.8	11.2	27.5	347.5	896.0	1655.9	759.9	54.1

a Total area of each vegetation type within site boundaries

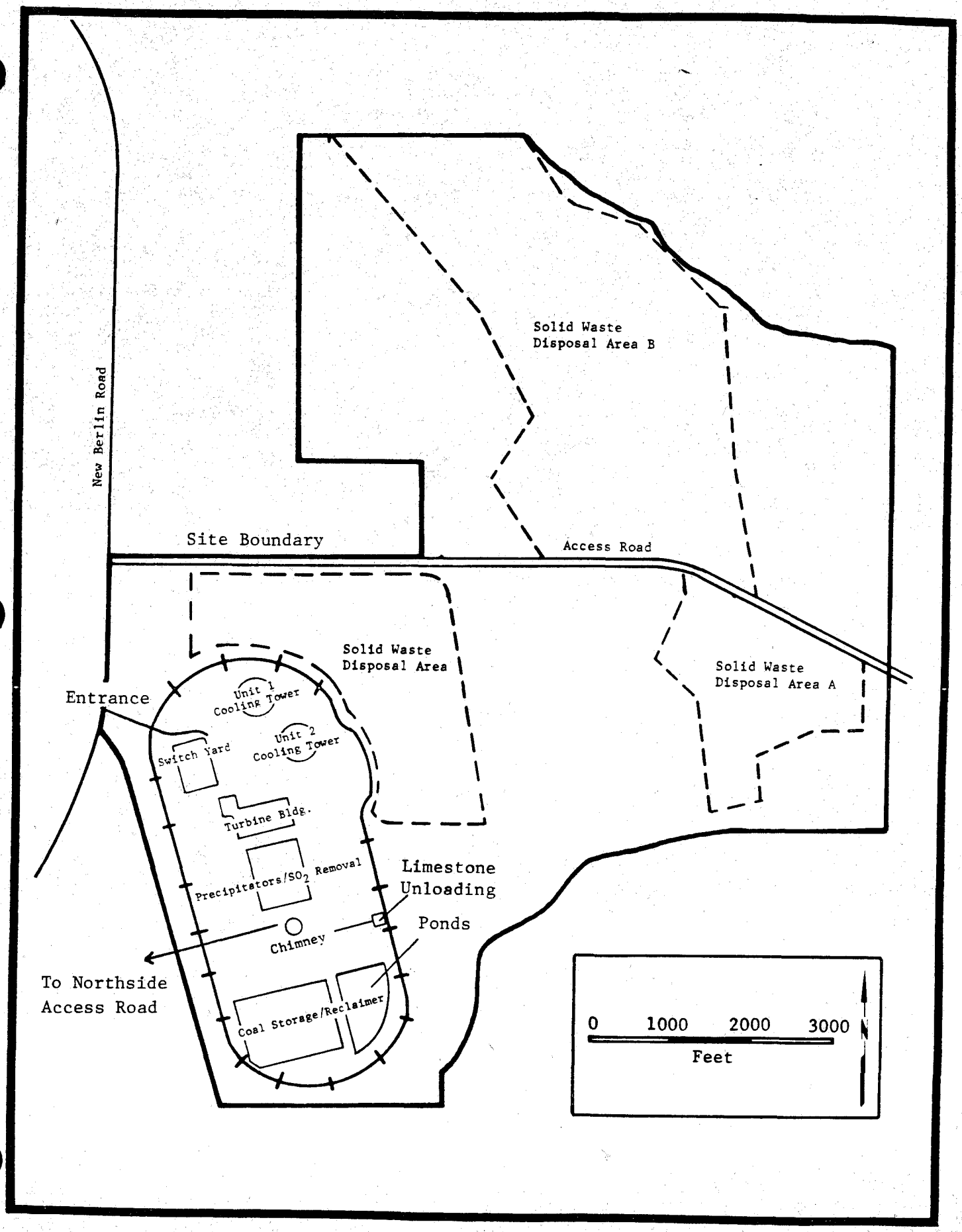
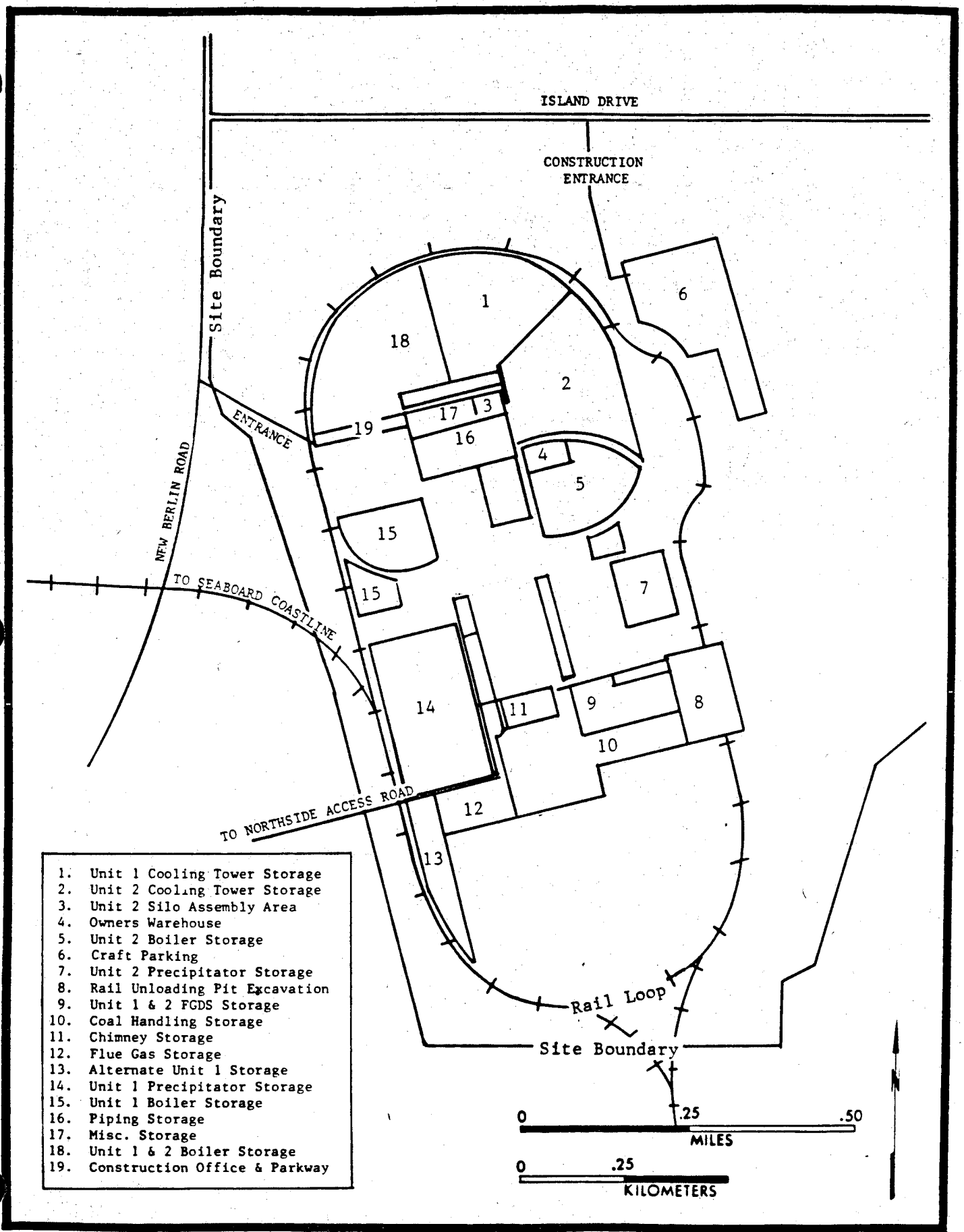


Figure 4.1-1 Layout of Plant and Other Facilities



1. Unit 1 Cooling Tower Storage
2. Unit 2 Cooling Tower Storage
3. Unit 2 Silo Assembly Area
4. Owners Warehouse
5. Unit 2 Boiler Storage
6. Craft Parking
7. Unit 2 Precipitator Storage
8. Rail Unloading Pit Excavation
9. Unit 1 & 2 FGDS Storage
10. Coal Handling Storage
11. Chimney Storage
12. Flue Gas Storage
13. Alternate Unit 1 Storage
14. Unit 1 Precipitator Storage
15. Unit 1 Boiler Storage
16. Piping Storage
17. Misc. Storage
18. Unit 1 & 2 Boiler Storage
19. Construction Office & Parkway

Figure 4.1-2 Plant Construction Laydown Areas

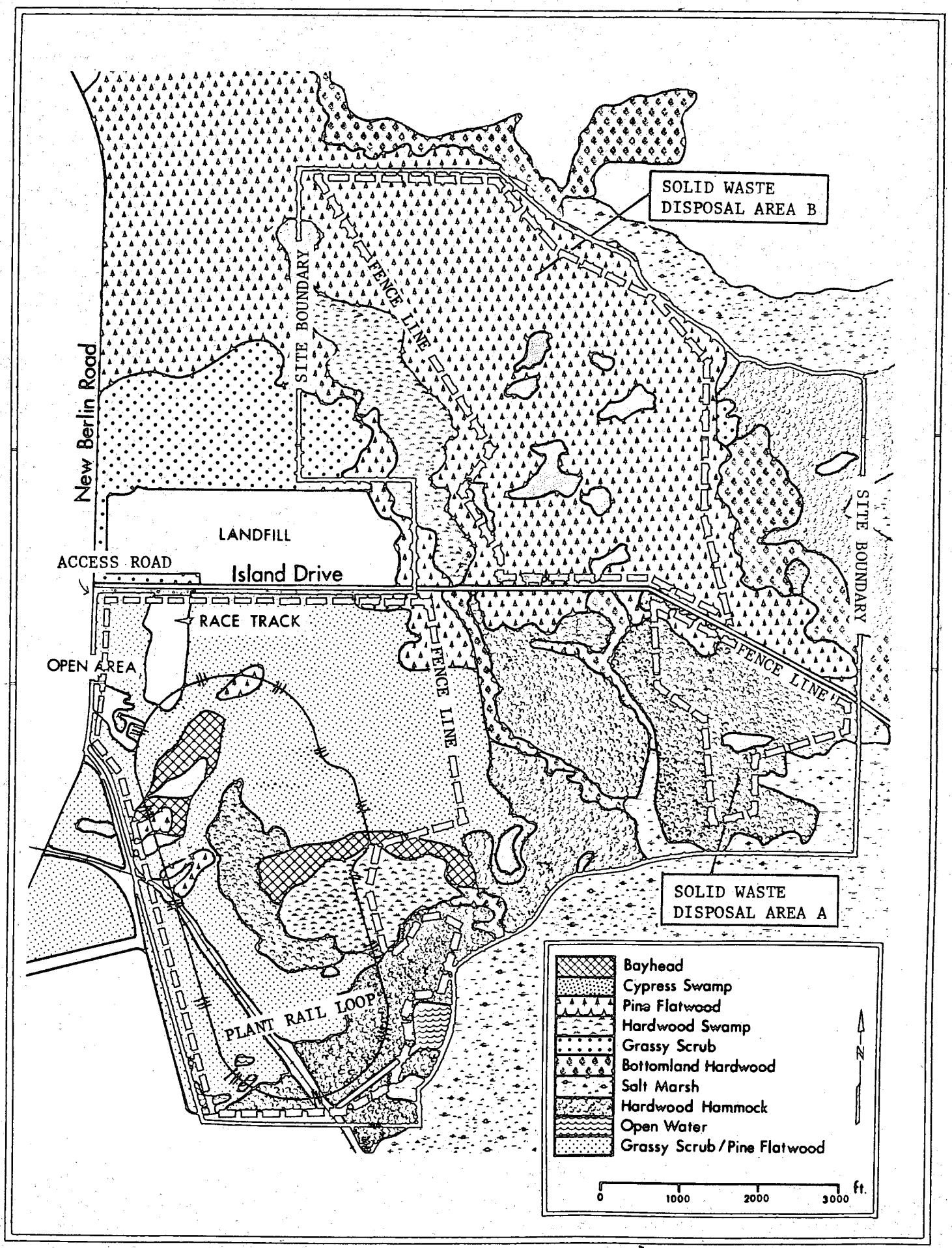


Figure 4.1-3 Location of Facility Components in Relation to Vegetation Community Types

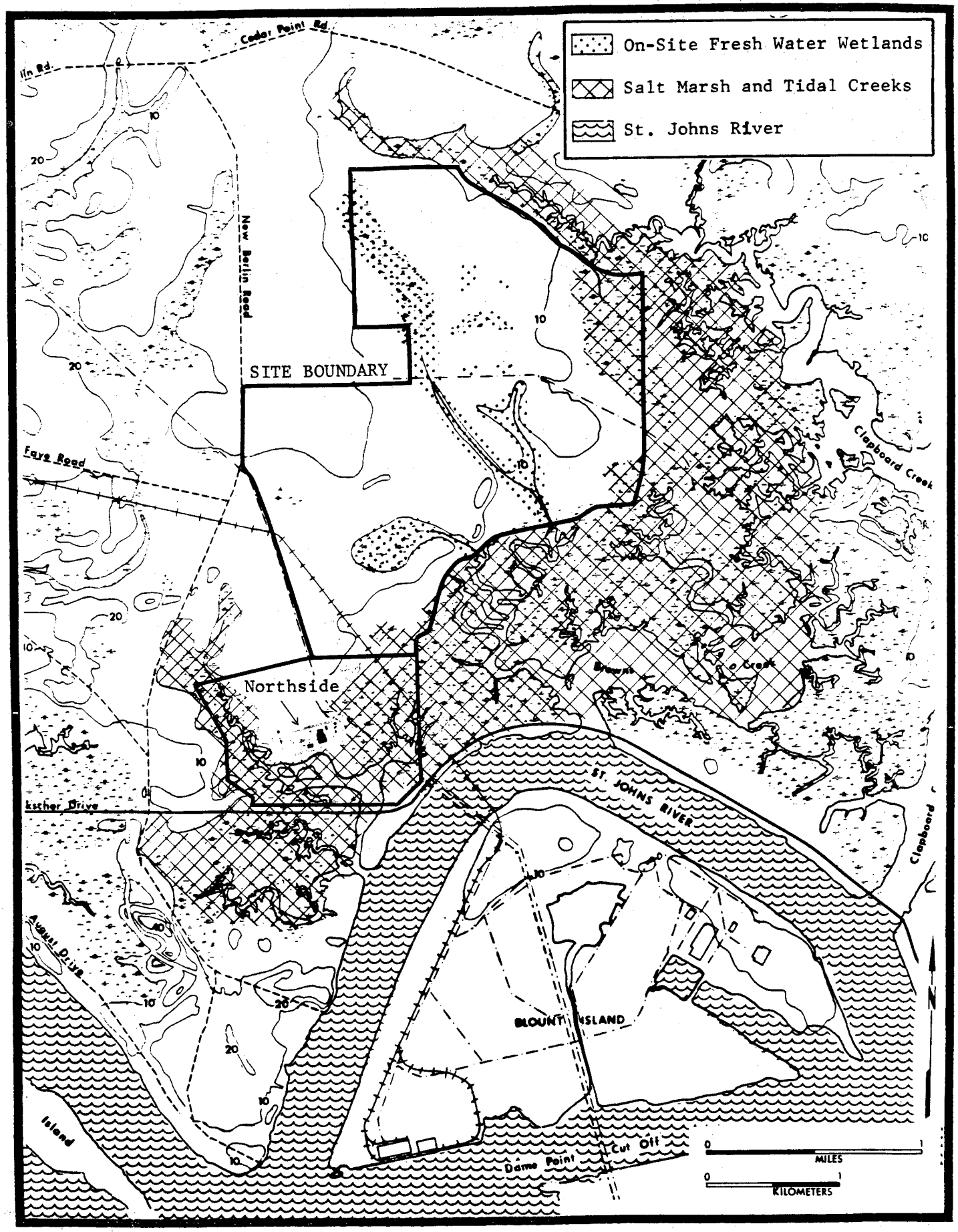


Figure 4.1-4 Aquatic Habitats in Vicinity of Proposed Site

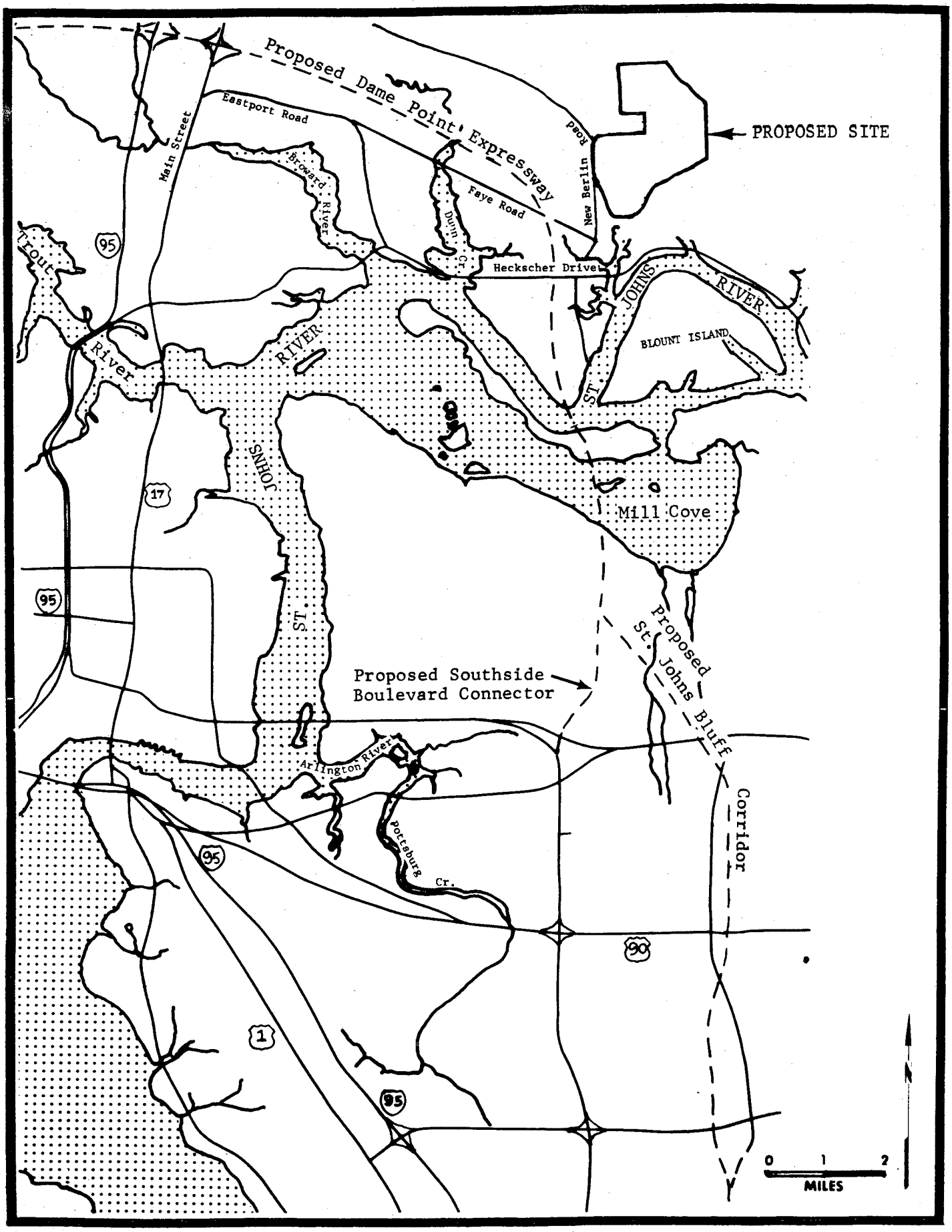


Figure 4.1-5 Major Roads in Vicinity of Proposed Site

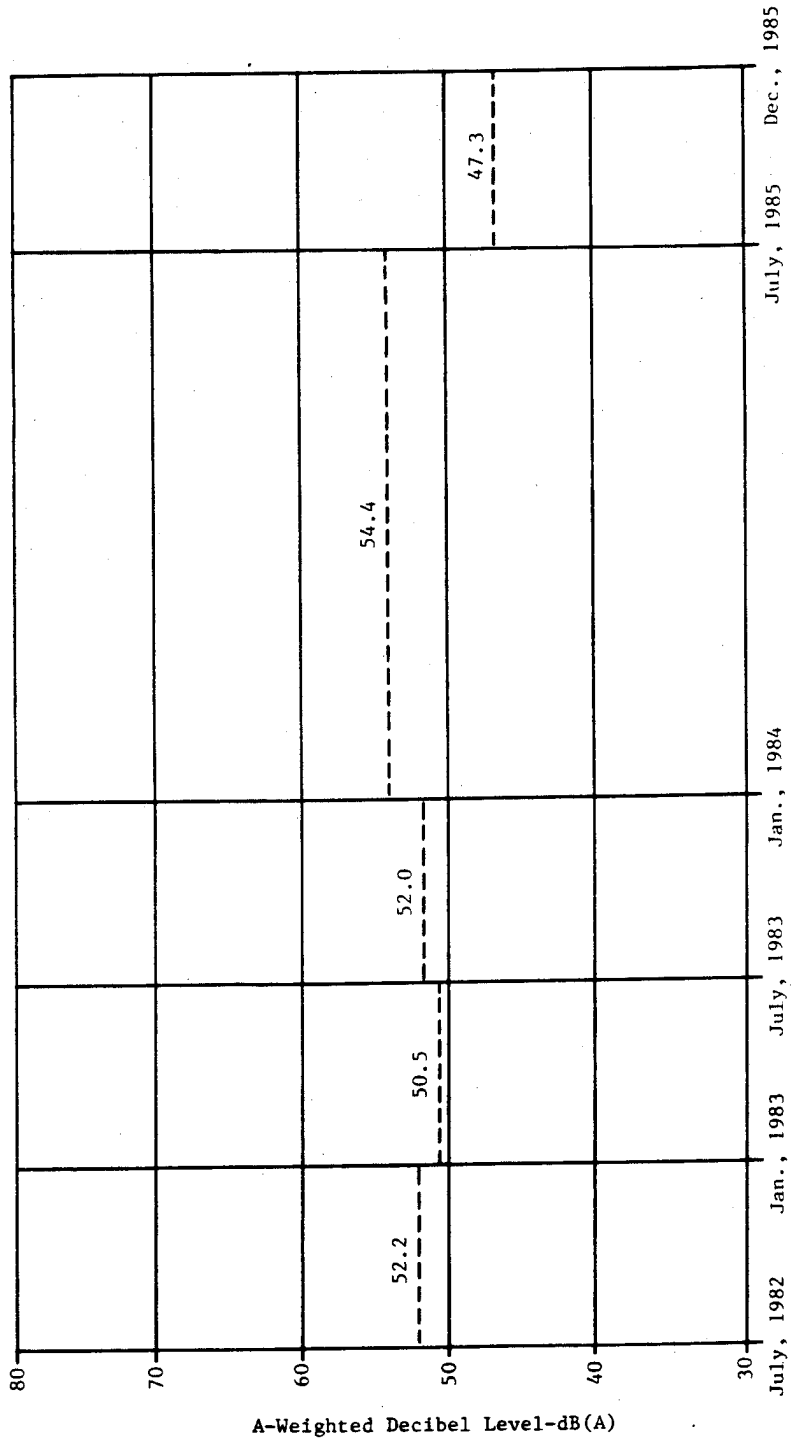


Figure 4.1-6 Projected Construction Noise Levels at 1-Mile from the Proposed Plant

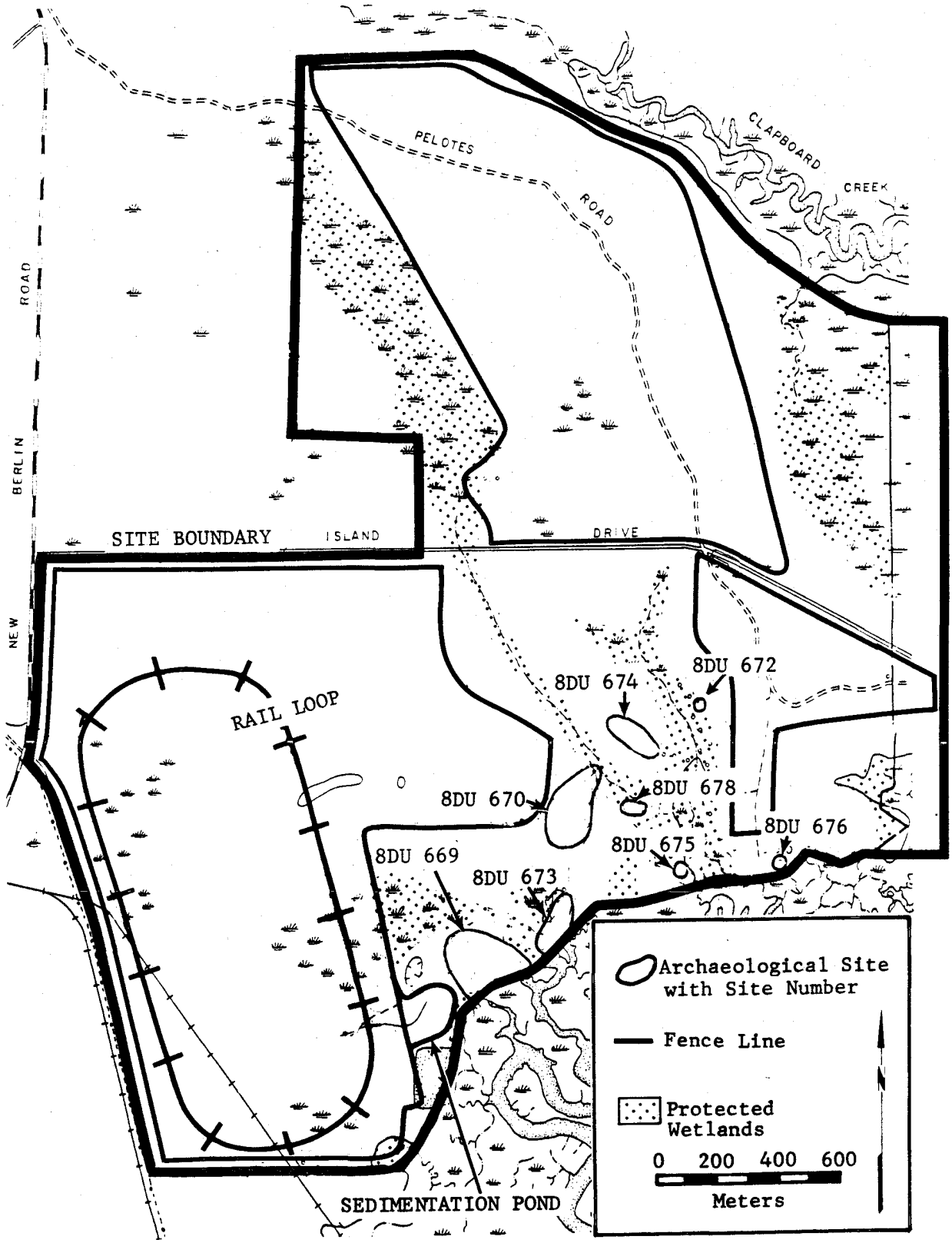


Figure 4.1-7 Plot Plan Showing Protected Areas

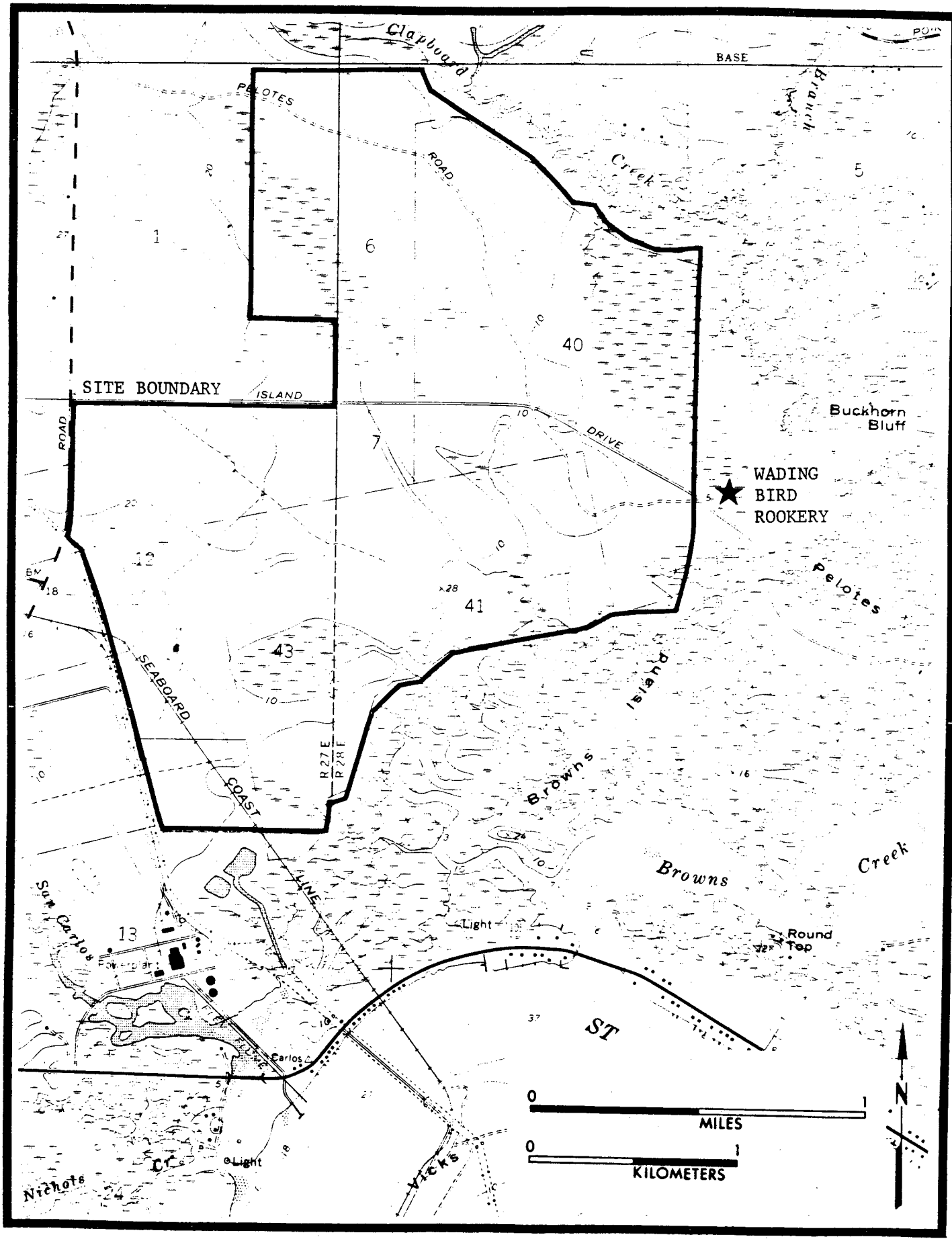


Figure 4.1-8 Location of Wading Bird Rookery

4.2 SPECIAL FEATURES - TRASH AND WASTE DISPOSAL

Liquid effluents that will be generated during construction are discussed in Section 3.7.1. These effluents include rainfall runoff from the site and from the heavy equipment refueling area, and wastewater generated during concrete truck washing. Other waste materials produced during construction will be waste oils, solid wastes from the clearing and grubbing operations, construction wastes, and garbage.

Waste oils, fuels, and lubricants from construction equipment will be collected and held in suitable containers for periodic disposal. Oily sludge from the oil-storm water separator at the maintenance area will be removed off-site by approved contractors.

Solid wastes from the clearing and grubbing operations will consist of brush and trees. Contractors will be encouraged to sell all marketable timber. Other clearing and grubbing wastes will be buried on-site or burned, using appropriate techniques for control of smoke. The burning operations will be conducted according to local and state requirements.

Construction waste will be segregated and disposed of in accordance with applicable rules and regulations. Scrap wood and metal will be taken to a specified area of the site to be separated and stock piled for possible salvage or disposal. Portions of the construction debris may also be used as a fill material on-site.

General garbage and waste materials, such as discarded food products, will be placed in suitably marked containers. These containers will be emptied on a scheduled basis by an approved contractor for off-site disposal in local landfills.

4.3 CONSTRUCTION OF DIRECTLY ASSOCIATED TRANSMISSION FACILITIES

The construction of two 230 kV transmission lines from the proposed site to the Normandy Substation and to the Fort Caroline and Robinwood Substations will be directly associated with power plant development. As discussed in Chapter 9, a preferred transmission line corridor, which is 0.5-1 mile in width, has been identified (Figure 4.3-1). Following site certification approval, a right-of-way (ROW) alignment will be established. The preferred corridor includes an existing transmission line ROW from the Northside Station to the respective substations. For over 90 percent of the new ROW, it is anticipated that the existing ROW will simply be expanded by up to 150 feet to accommodate the new facilities. Where the existing ROW is not followed, a new ROW up to 200 feet in width will be constructed. This section, however, addresses potential construction impacts associated with development of a right-of-way within any portion of the preferred corridor.

4.3.1 Effects on Vegetation, Wildlife and Aquatic Life

4.3.1.1 Wetlands

The preferred corridor to the JEA's Robinwood and Normandy Substations includes wooded wetlands with very little salt marsh found in the proposed plant to Robinwood section (Table 2.11-1). The wooded wetland areas in the preferred corridor have been largely drained, particularly through segments C', D and E (Figure 4.3-1, Appendix K). Thus, ROW alignment will have little effect on corridor wetlands as a whole. No major wooded wetland stands will be cleared or bisected by new ROW construction. The largest undisturbed wooded wetland area to be affected is a cypress wetland near the Normandy Substation. Assuming that the new ROW will be adjacent to the existing ROW, relatively little additional clearing will be required through this habitat (less than 150 feet).

With proper construction care, salt marshes will not be greatly impacted by transmission line construction. Corridor halophytic vegetation consists of salt marsh cordgrass (Spartina alterniflora) and needlerush (Juncus roemerianus), herbaceous species that do not impair the establishment and maintenance of a transmission line. By using mats to support heavy equipment in the marsh, lasting damage to the marsh will be avoided. If towers must be located in a marsh, the marsh habitat will be disturbed only in the immediate tower foundation areas. This will result in temporarily increased turbidity levels. When construction in a particular area is complete, the mats will be removed and habitat will recover. Construction noise will locally disturb water birds feeding in salt marshes. Tower construction in Mill Cove mud flat areas east of the existing line will require draglining or dredging to accommodate equipment use in the area. The increased turbidity will be temporary and backfilling of channels will take place. Turbidity screens will be used to minimize impacts where a violation of state water quality is possible. The maximum total volume of dredge material temporarily displaced but retained in Mill Cove and later backfilled, will be approximately 45,000 cubic yards (based on a linear distance of 3,600 feet, a channel width of 45 feet, a 4 to 1 slope and a barge draft of 5 feet). A typical Mill Cove tower cross-section is diagrammed in Figure 4.3-2, showing a tower foundation, dredged channel, and water levels. Figure 4.3-3 shows approximate tower placement near the NGS. Figure 4.3-4 shows approximate tower placement in the Mill Cove area.

4.3.1.2 Upland Habitats

Impacts on upland communities will be greater in forested areas than in open habitats. ROW clearing will result in removal of all trees and brush in the ROW that could interfere with the safe operation of the transmission line. Wood and brush material removed will be disposed of in landfill, sold or burned. Movement of timber harvesting and construction equipment is expected to churn, rut, and compact the soil in wet areas. Increased erosion (see Section 4.3.4) may result. Forested areas will be replaced by early secondary ecological successional stages. The "edge

effect", or tendency for increased variety and density of floral and faunal species at community junctions that is often cited as a benefit of ROWs will be offset by the fact that much diversity of habitats already exists due to the existing ROW. No major forest stands will be involved in ROW preparation (Table 2.11-1), and no chemical herbicides and pesticides are planned during ROW preparation.

4.3.1.3 Aquatic Habitats

The only areas of open water to contain transmission towers will be in Mill Cove. The entire width of the St. Johns River will be spanned without placing a tower in the open channel. New transmission tower locations will be east of existing towers in habitats exposed at low tide. The height of the lines at the towers adjacent to the channel will be 240 feet. The minimum line elevation between towers and over the channel will be 160 feet. Fewer towers may be required because of the shorter over water distance required. Dredging (dragline) equipment will be brought into the area by barge via the existing channel. Efforts will be made to minimize sediment disturbances, including barging in of equipment during high tide periods. Streams and channels will be spanned, and, where necessary, culverts will be placed to avoid altering stream flow characteristics.

4.3.1.4 Important Wildlife

The most important wildlife to be potentially affected by construction of the transmission lines and towers are colonial and raptorial birds. Potential impacts to other wildlife species are not anticipated to be serious due to their relatively larger abundances or local absence.

The special areas of wildlife importance include Blount Island and the Northside Station area. On Blount Island, spoil areas on and near the existing ROW have the potential to become nesting habitat for several species of shorebirds, and terns such as the Least Tern (Sterna albifrons). However, if construction takes place during breeding season (April-August), these birds may be driven away from potential nesting

areas. Similarly, the Osprey (Pandion haliaetus) frequently nests in transmission towers and has nested in towers on Blount Island and in the salt marsh near the Northside Station. Construction in the areas of nesting terns and osprey will be avoided. It should be noted that fresh spoil mounds left behind or introduced to the area will expand potential habitat for the terns.

4.3.2 Sensitive Areas

For this analysis, areas are classified by low, medium or high sensitivity to the construction of transmission lines. High sensitivity areas include, for example critical habitats of threatened or endangered species, wooded wetland communities, and medium and high density residential areas. Medium sensitivity areas include, for example salt marshes, open water, and recreational areas such as golf courses. Low sensitive areas include land cover such as agricultural lands, pine flatwoods habitats, and grasslands. Several areas of high sensitivity are crossed by the existing transmission line ROW. However, when compared to other possible ROW alignments through the preferred corridor, expansion of the existing ROW will result in less severe impacts. Sensitive areas and linear existing transmission line distances through these areas are listed in Table 4.3-1.

4.3.3 New Roads

A service road is maintained along most of the existing ROW. Approximately 90 percent of the new transmission ROW will follow existing ROW. Therefore, it will be necessary to construct very few, if any, new roads.

4.3.4 Erosion

Impacts of transmission line construction on soils will be limited to the effects of required clearing and stripping activities. Clearing will be required along the ROW and associated access roads. The removal of

natural vegetation and the stripping and grading operations will result in disturbance to the soil, making the land susceptible to wind- and precipitation-induced erosion. The use of construction equipment compacts topsoil which reduces infiltration of rainfall and increases surface runoff. This will result in locally increased erosion evidenced by the formation of rills and gullies. The loss of topsoil removes nutrients resulting in decreased soil productivity. The impacts associated with this loss will be most prominent in on-site wet areas. Because construction equipment will occupy a relatively small portion of the ROW and because the terrain is flat, erosion impact is expected to be minor.

The Federal Power Commission (1971) states that impacts to soils can be minimized by adhering to the following guidelines:

- The time and method of clearing the ROW will take into account soil stability and protection of vegetation.

- Trees, shrubs, grass and topsoil not cleared will be protected from damage during construction.

- Clearing of the ROW to the mineral soil will be avoided. Where this does occur, topsoil will be replaced and stabilized without undue delay by planting appropriate vegetation.

- Scars on the ground surfaces in erosion prone areas will be repaired and replanted.

- Terraces and other erosion control devices will be constructed where necessary.

- Where the ROW crosses streams, the banks will be stabilized and if necessary, culverts will be constructed to minimize alterations in water flow.

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- The time and method of clearing the ROW will take into account soil stability and protection of vegetation.

- Trees, shrubs, grass and topsoil not cleared will be protected from damage during construction.

- Clearing of the ROW to the mineral soil will be avoided. Where this does occur, topsoil will be replaced and stabilized without undue delay by planting appropriate vegetation.

- Scars on the ground surfaces in erosion prone areas will be repaired and replanted.

- Terraces and other erosion control devices will be constructed where necessary.

- Where the ROW crosses streams, the banks will be stabilized and if necessary, culverts will be constructed to minimize alterations in water flow.

- Construction access roads will be stabilized by erosion control measures and by planting appropriate grass and other vegetation. Roads will be designed for proper drainage.

- Service and access roads will be used jointly when possible.

- Exposed ground will be sprayed with water to reduce dust as needed.

- Periodic inspection of the transmission line will include observations for areas of erosion. These areas will be noted and stabilized promptly.

Where practical, these guidelines will be implemented during construction.

4.3.5 Land Use and Socioeconomics

By avoiding most areas of existing or planned medium and high density residential development, the preferred corridor remains largely compatible with surrounding land uses (Jacksonville Area Planning Board). The preferred corridor is characterized mostly by natural upland vegetation. It is probable that the selected ROW will cross limited areas of medium residential development. Such crossings may result in the displacement of a small number of residences. These crossings will be avoided when possible.

The preferred corridor section to the Robinwood Substation includes a limited area of private recreation uses consisting of a golf course and tennis courts. It may, however, be possible to avoid crossing these recreation areas by using tower designs which decrease the ROW width necessary along with changing the tower location.

Areas diverted to transmission line ROW can still be utilized for certain compatible land uses. Possible uses include general agriculture; cultivation of nursery stock pine trees; parks; golf courses; equestrian or

bicycle paths; picnic areas; game refuges; and hiking trail routes (Federal Power Commission, 1971). It is possible that all or part of the existing transmission line ROW that lies within the preferred corridor may also serve the new transmission lines. Land uses after routing of the transmission line will reflect the existing land uses.

The preferred corridor does not contain known archeological or historic sites as listed in the National Register of Historic Sites. However, limited areas within the corridor may contain archeological sites, as indicated by the State of Florida Division of Archives and History and illustrated in Appendix K. A survey of such areas would be required if the new ROW were to involve new clearcutting or placement of new towers in the indicated areas.

The socioeconomic impact of transmission line construction is not expected to be significant. The preferred corridor remains within Duval County and will require a combined labor force of only approximately 20 persons for construction. Duval County is expected to provide nearly all of the required labor. The economic impacts of line construction are therefore aggregated with the plant construction analysis in Chapter 7.

Specific local impacts of transmission line construction include construction staging areas and highway crossings. Staging areas will be located in already stressed areas such as existing ROW to minimize any serious impacts on surrounding developments. Contruction equipment will disrupt traffic flow for short periods of time at points where the ROW crosses roads. When possible, work at these points will be avoided during periods of peak traffic flow.

4.3.6 Viewshed

The visual impacts of transmission towers and the ROW are expected to be minimal and are discussed in Chapter 5, Section 5.5.

4.3.7 Solid Waste Disposal

Solid wastes generated during transmission ROW clearing and line construction will be disposed according to guidelines outlined in Section 4.2.

4.3.8 Mitigating Measures

Mitigation measures are discussed within each appropriate impact discussion above.

4.3.9 References

Federal Power Commission, 1971. Electric Power Transmission and the Environment. Washington, D.C.

Jacksonville Area Planning Board. Land Use Plan for the Year 2005.

Table 4.3-1

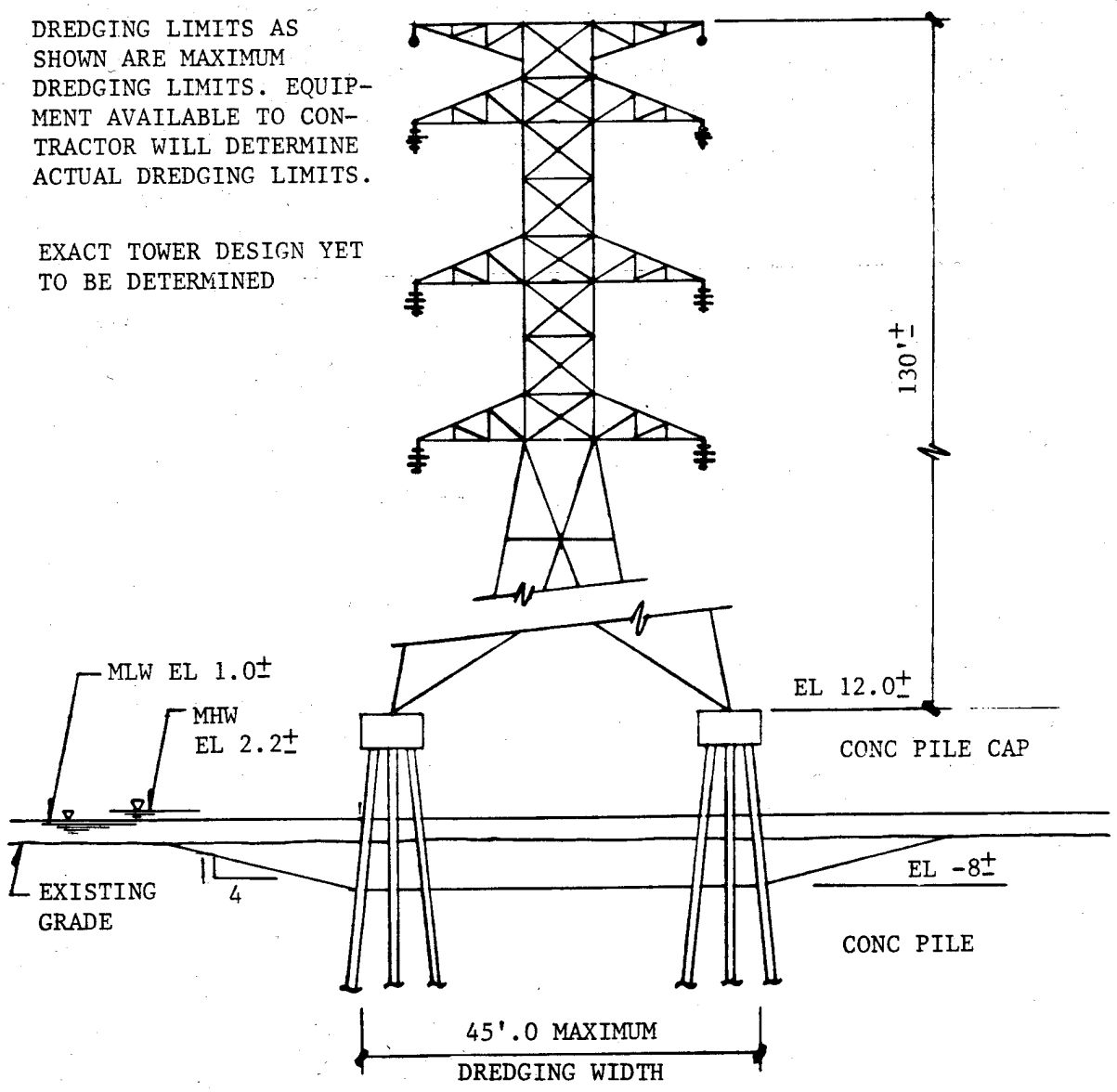
LINEAR DISTANCES OF EXISTING TRANSMISSION LINES
THROUGH SENSITIVE AREAS

Sensitive Area	Corridor[c]	Approximate Linear Distance
Wooded Wetlands	G	500'
	J	1000'
Residential Areas (Med. Density)	G	2500'
	E	2500'
	I'	1000'
Proposed High Density Residential Areas	H	2500'
Salt Marsh	A'	1400'
Open Water	A'	7300'
Recreational Area (Golf Course)	A'	2500'
Blount Island Ponds ([a]Wood Stork Feeding Area)	A'	3800'
Blount Island Spoil Area ([b]Least Tern Nesting Area)	A'	1000'

a Listed as endangered by the Florida Game and Fresh Water Fish Commission
b Listed as threatened by the Florida Game and Fresh Water Fish Commission
c Appendix K

NOTE: DREDGING LIMITS AS SHOWN ARE MAXIMUM DREDGING LIMITS. EQUIPMENT AVAILABLE TO CONTRACTOR WILL DETERMINE ACTUAL DREDGING LIMITS.

EXACT TOWER DESIGN YET TO BE DETERMINED



45,000 CU YD MAXIMUM DREDGING VOLUME TO BE BACKFILLED UPON COMPLETION OF TOWER CONSTRUCTION

Figure 4.3-2 Cross Section of a Typical Tower Foundation to be Used in Mill Cove

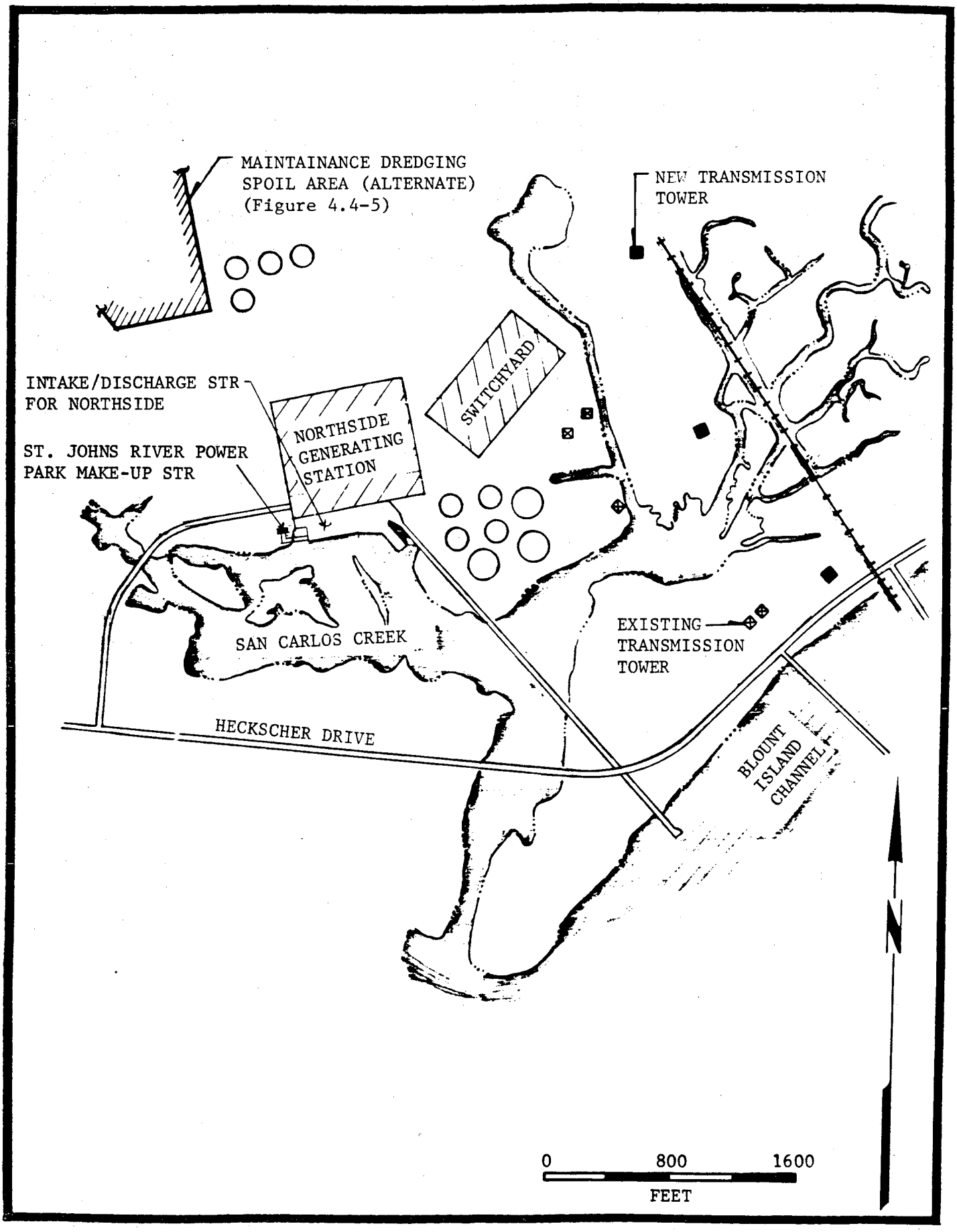


Figure 4.3-3 Approximate Tower Placement Adjacent to Northside Station

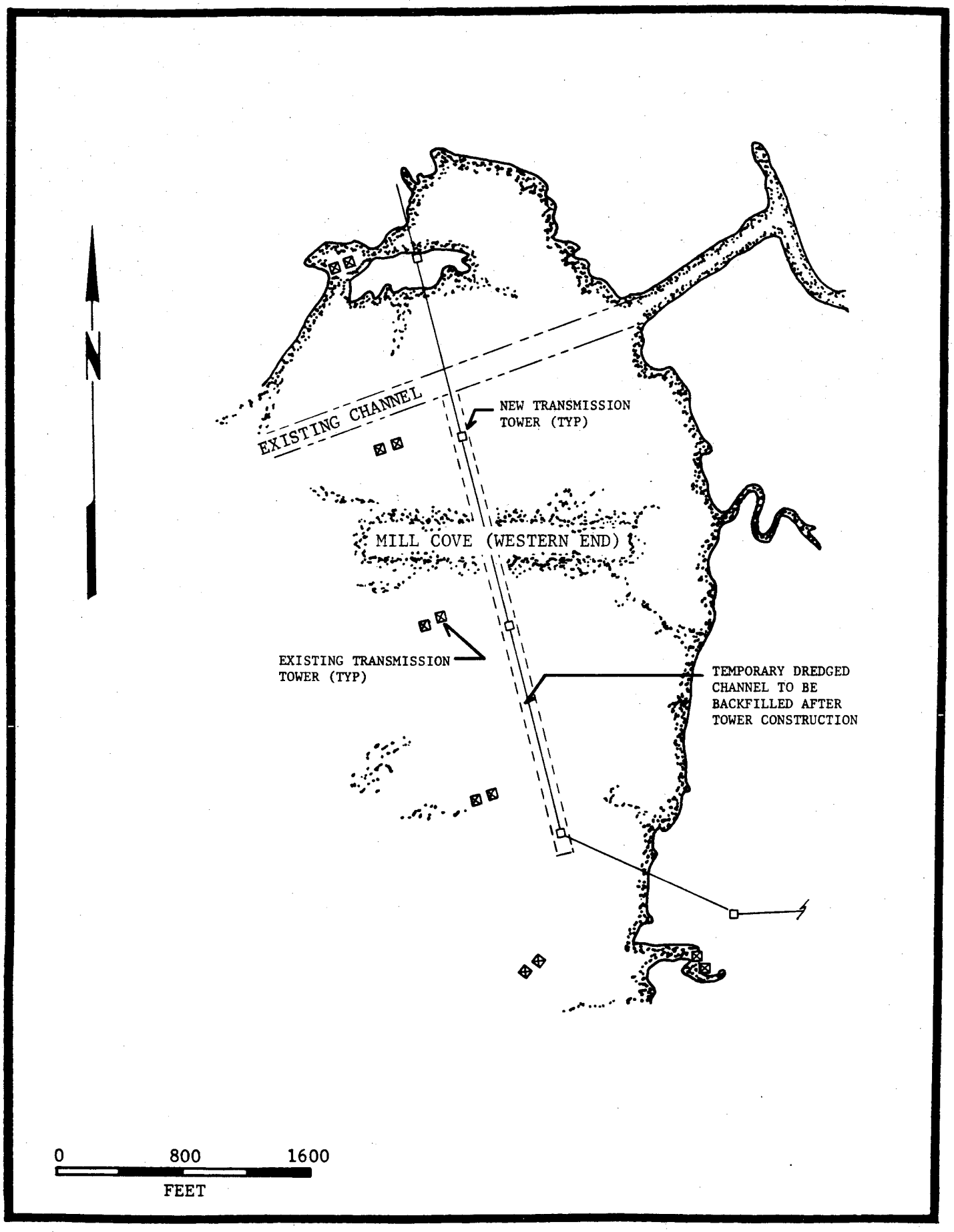


Figure 4.3-4 Approximate Tower Placement in Mill Cove

4.4 CONSTRUCTION OF OTHER ASSOCIATED FACILITIES

Figures 4.4-1 through 4.4-3 show the location and layout of the proposed coal unloading facility on Blount Island. The facility, excluding new trackage, will occupy a total of approximately 55 acres, and will include an unloading wharf, stacker-reclaimer, active and emergency coal stackout areas and rail car loading facility (see Chapter 3, Section 3.10). The railroad loop track will connect with the plant and the existing rail line to the Jacksonville Port Authority (JPA) facilities.

The wharf will be a pile-supported structure, faced with a sheet pile wall and parallel to the existing channel. All piling will be driven, anchored and capped prior to any dredging activity. Figure 4.4-2 shows the proposed dredge cut and quantities (a description of the offshore borehole program by which these quantities were determined is contained in Appendix E). Figure 4.4-3 is an extension of the facility layout showing the railroad loop as it exits the facility along an existing drainage easement and JEA transmission line.

Figure 4.4-2 presents dredging estimates for the proposed coal unloading facility on the Fulton-Dame Point Cutoff side of Blount Island. Of the approximately 551,000 cubic yards of material removed, 170,000 cubic yards will be spoil and the remaining 381,000 cubic yards will be used as fill on the proposed site. Dredged material will be removed with a suction dredge to minimize the generation of turbidity and release of other pollutants to the St. Johns River. Spoil material will be pumped to receiving area(s) on Quarantine Island via a submerged pipeline. This area, shown in Figure 4.4-4, was used previously by the U.S. Army Corps of Engineers (COE) as a spoiling area. The pipeline will follow bottom contours such that accidental rupture by ship traffic is precluded. Settling pond dikes and earthen berms will be modified to COE specifications. The spoil site and settling pond(s) will be designed by the COE. Overflow from the settling pond will be released to the St.

Johns River through a standpipe and culvert. Fill runoff will be collected with other surface runoff from the plant site in a sedimentation pond before being discharged into the St. Johns River.

Sampling in the St. Johns River south of Blount Island indicates that there may be temporary localized changes in the water quality due to dredging activities necessary for construction of the proposed coal unloading facility. Anticipated water column effects will include slight increases in levels of certain chemical constituents in the dredge material discharge during active operation.

Table 4.4-1 allows a comparison between results of chemical analyses performed on the elutriate from the material to be dredged, the River water in the dredging area and in Blount Island Channel, and historical River quality data in the vicinity of the proposed dredging, for those parameters which exceed Class III water quality standards. Concentrations equal to or in excess of standards for cadmium, copper, lead, silver and possibly mercury (standard is less than reported analytical level of detection) were observed during dredging site water quality monitoring analyses (November 13, 1980). The elutriate test sampling procedure is described in Chapter 6, Section 6.2.4 while details of the boring program are discussed in Appendix E.

Results of the elutriate analyses approximate concentrations of constituents from the disposed dredged material at the time of discharge (complete results are included in Appendix C, Table C-35). Results presented in Table 4.4-1 do not account for dilution effects anticipated within a mixing zone in the St. Johns River. Thus, those parameters whose expected elutriate concentrations exceed Class III standards at the point of discharge (antimony, cadmium, copper, cyanide, lead, oil and grease, silver and possibly mercury), may not exceed standards beyond the mixing zone. The ambient silver concentration observed during the elutriate test, while much higher than any of the other observed values, was considered to be valid, based on quality control measures utilized in sampling and

analysis and a lack of any other reasons for disregarding the value. Results of a mixing zone model indicate that cadmium, copper, lead, mercury and silver could occur in concentrations greater than their respective Class III water quality criteria at the edge of a maximum sized mixing zone allowed by FDER regulations.

Other parameters included in Table 4.4-1 - aluminum, cyanide, iron, and mercury - were observed during pre-application monitoring at Transect F-2 in concentrations exceeding their respective water quality criteria (see Appendix C, Section C.5). Thus, there is potential for these additional constituents to exceed the standards during the active dredging operation. However, impacts on the receiving water are expected to be non-persistent and minor, given the limited duration of the dredging operation and the dispersion of constituents after discharge. As stated in Chapter 4, Section 5.8, variances or other relief from water quality standards will be requested for the parameters which, potentially, could be found in the River in excess of their respective water quality criteria as a result of dredging activities.

Where possible, dredging activities will be confined to the late fall and early winter, approximately November through early January. It is during these periods that ichthyoplankton and benthic macroinvertebrate densities are lowest (Chapter 2, Section 2.8.4.1 and 2.8.5.1, respectively), thus minimizing any impact to these communities. Likewise, the substrate exposed by dredging would be available for benthic macroinvertebrate colonization during the spring and summer peak spawning. It also is during these months that the commercial fishery in the area is at a low.

The material resulting from any subsequent maintenance dredging will also be pumped to the Quarantine Island disposal area if adequate capacity is available and permitted by the JPA and the COE. If not, an alternative existing spoil area to the north-northeast of the NGS will be used. This area, shown in Figure 4.4-5, was licensed for the dredging of the Blount

Island Channel adjacent to the NGS under the condition that the excess water, after sufficient settling to meet turbidity guidelines, be pumped back to the St. Johns River to avoid any impact on San Carlos Creek. This procedure will also be followed during the coal unloading facility maintenance dredging, as required.

4.4.1 Effects on Vegetation, Wildlife and Aquatic Life

4.4.1.1 Vegetation

Direct Losses

Construction of the proposed coal unloading facility and the associated rail loop on Blount Island will disturb approximately 86 acres of the vegetation community types identified on Table 4.4-2. The two community types with the largest total areas that would be disturbed are the Baccharis shrub and grassy scrub types. Approximately 14 acres of the Baccharis shrub community will be disturbed (Figure 4.4-6). This acreage represents 22 percent of the total area of this community type on Blount Island. Baccharis is considered to be a transitional species commonly found on disturbed areas. The loss of this amount of Baccharis shrub type is not considered to be a significant impact.

Approximately 46 acres of the grassy scrub type would be disturbed, representing 50.2 percent of the site. However, this acreage is only 8.2 percent of the total areal extent of the grassy scrub vegetation type on Blount Island. The grassy scrub vegetation type is comprised largely of weedy species on an area disturbed by spoil disposal. The loss of this vegetation type is not considered to be a major impact.

The 4.4 acres of Myrica shrub community that would be disturbed by construction of the coal unloading facility is 9.6 percent of the total area of this type on Blount Island and only 5.1 percent of the proposed coal unloading facility site. The Myrica shrub community type is not

common on Blount Island due to the industrial development and dredge spoil disposal practices. As such, the loss of 4.4 acres is not considered to be a serious adverse impact.

Approximately 2.8 acres of the mixed hardwood vegetation type would be disturbed by construction of the proposed rail loop. The 2.8 acres comprise 4.2 percent of the total amount of this vegetation type on Blount Island. This vegetation type is common along the banks of the St. Johns River and as such, the loss of only 2.8 acres is not considered to be significant.

Approximately 0.9 acres of salt marsh will be disturbed. The 0.9 acres is about 1 percent of the proposed coal unloading facility site and is 2.2 percent of the salt marsh occurring on Blount Island. The salt marsh is an important vegetation type, providing feeding, spawning and nesting areas for a variety of terrestrial and aquatic organisms. However, the loss of such a small amount as 0.9 acres of salt marsh is not considered to be a serious adverse impact.

The remaining 17.8 acres required for the construction of the proposed Blount Island facilities are characterized as open water, beach, or industrial. Each of these areas has already been disturbed and do not support any vegetation; as such, their loss is not significant from an ecological perspective.

Dusting

Dust emissions from construction activities may accumulate on the leaves of vegetation within the immediate vicinity of the construction activity. Although dust accumulations have been reported (Parish, 1910; Czaja, 1961; Spinka, 1971) to cause leaves to overheat during sunny periods and thereby cause premature leaf death, such impacts are not expected to be significant based on: (1) utilization of dust suppression measures such as paving of major access roads and periodic spraying with water; (2) the

small area affected; (3) the tendency for localization within the area of the activity; and (4) the frequency of rain showers, which would tend to wash off dust accumulations.

4.4.1.2 Wildlife

Impacts Due to Habitat Loss

Contruction of the proposed coal unloading facilities will result in the loss of approximately 86 acres of wildlife habitat. A large portion (70 percent) of the 86 acre area is characterized as Baccharis shrub and grassy scrub which are used primarily by certain bird species of which Ground and Mourning Doves, Mockingbirds, Blue Jays, Painted Buntings, and Rufous-sided Towhees were the most conspicuous. Birds are highly mobile and should adjust easily to the projected loss of habitat. Less mobile resident mammal, amphibian, and reptile populations may be lost. However, this will not have a significant impact when viewed from a regional perspective.

Noise Impacts

Increased noise levels associated with the construction phase are a potential problem. However, much of the area already supports various industrial and commercial activities with their associated noise. Therefore, the noise contributed by construction activities is not predicted to have a significant additional impact.

Impacts on Biologically Sensitive Areas

Least Tern Nesting Areas

No development is scheduled for any of the known Least Tern nesting areas (Figure 4.4-7). This species is reasonably tolerant of human activity and therefore should not be affected by the proposed

construction. With proper disposal, the dredge material produced during construction may create additional nesting habitat for this small tern. Downing (1973) during a study of Least Tern nesting areas, found that 80 percent were man-made and composed primarily of dredging and development spoil. Therefore, no significant impact is foreseen and a positive effect may result since disposal of dredge material will be timed so it does not disturb nesting birds.

Impacts on Commercially or Recreationally Valuable Species

Due to the restricted access, no species present on the proposed coal unloading site are considered commercially or recreationally valuable.

Impact on Endangered or Threatened Species

Wood Stork

Wood Storks were observed on several occasions feeding in various open water habitats on Blount Island. The proposed facility will not directly affect any of these areas. There is also an abundance of alternative feeding sites. Therefore, no significant impact is expected.

Least Tern

This species was discussed above.

4.4.1.3 Aquatic Life

Construction of the proposed coal unloading facility will have temporary effects on the aquatic flora and fauna of Blount Island and the Fulton-Dame Point Cutoff (Chapter 4, Section 4.1.7). The proposed coal unloading facility site is on previously deposited spoil. Important spawning or nursery areas for commercial or sport fisheries on or contiguous to the site (Chapter 2, Section 2.8.5) are absent. Fulton-Dame

Point Cutoff channel periodically is dredged by the Army Corps of Engineers. Spring and summer 1980 bottom samples show that the benthic fauna is depauperate (Chapter 2, Section 2.8.4.1). Therefore, loss of benthic habitat from construction of the proposed coal unloading facility is expected to have negligible effects.

Based on elutriate test results, ten water quality parameters are expected to exceed Class III standards in the dredge spoil discharge (Table 4.4-1). Toxicity information for these parameters are listed in Chapter 5, Table 5.1-5 and Appendix B, Tables B-22 through B-31 (oil and grease information is not listed since specific constituents cannot be predicted). Silver is the only parameter of these which exceeds the acute toxicity level (one-third of the 96 hr LC_{50}) of a significant indigenous species. As stated in Section 4.4.1, the concentration of silver in the water sample used for the elutriate test was uncharacteristically high. All of the parameters in excess of Class III standards will be at or near ambient levels within 150 meters. No significant biological effect due to this discharge is expected outside of the mixing zone. Since the dredging is anticipated to last approximately 3 months, no permanent biological effect is expected within the mixing zone.

4.4.2 Visually Sensitive Areas

There are no visually sensitive lands within the site boundaries of the proposed coal unloading facility. The aesthetic impact to visually sensitive lands within the vicinity of the proposed coal unloading facility are discussed in Chapter 5, Section 5.6.2.3.

4.4.3 New Roads

Access to the proposed coal unloading facility on Blount Island will be provided by use of existing traffic routes on the island. The main drive on Blount Island is controlled by the Jacksonville Port Authority. Crossing the St. Johns River at the north end of the island, the main drive

is routed down the west side of Blount Island and continues to the docks located at the southwest corner of the island as shown in Figure 4.4-1. Just before the docks there is a service road which runs east-west on the island. This road, which is paved for about the first quarter of a mile and then becomes a dirt road, will be improved and used to service the coal unloading facility. The rail line parallels the road and will also be used to serve the coal unloading facilities. Since existing routes are being used, the construction improvements to them are not expected to produce significant changes in surface water flow.

4.4.4 Erosion and Sedimentation

Accelerated erosion of the Blount Island coal handling site during facility construction will be controlled by compaction of embankments, early soil stabilization, limitation of exposed areas, maintenance of relatively flat grades, stabilized storm water flat grades, stabilized storm water outlets, and flat bottom ditches, as well as other appropriate erosion control techniques.

Sedimentation will be controlled during construction by use of sediment control basins and traps, filter berms, straw bales, perforated user pipes at drainage structures, or other applicable devices as appropriate.

4.4.5 Land Use

The coal unloading facility should have very little impact on the surrounding area. The impact will be negligible since most of Blount Island is devoted to industrial or transportational land uses. The island is used by numerous shipping firms. The largest single use of Blount Island is as a receiving port by foreign car dealers, and serves as a storage area for automobiles. While this storage function takes place on the west side of the island, the east side is occupied by Offshore Power Systems. The center of Blount Island is not currently in use but has been cleared and graded.

Because most of Blount Island has been graded, there are no historic, cultural or archeologically significant features believed to exist.

4.4.6 Viewshed

The visual impacts of the coal unloading facility proposed for Blount Island are discussed in Chapter 5, Section 5.6.2.3.

4.4.7 Mitigating Measures

Spoil from dredging activities at the coal unloading facilities will be disposed of in previously spoiled areas that have been specifically designated and licensed for this purpose. Blount Island and Fulton-Dame Point Cutoff exist as an engineered rather than natural system. All water draining from dredge spoil deposit areas will be controlled by earth berms and routed to a settling pond or ponds before being discharged. Dredge spoil discharge water will be monitored as described in Chapter 6, Section 6.3 and will meet applicable state standards for Class III waters. However, variances or other relief for several parameters will be sought in those cases where the ambient receiving waters exceed the standards.

4.4.8 References

Czaja, A.T., 1961. Zementstaubwir - Kungen auf Pflanzen: Die Enstenhung der Zementkrusten. Qual. Plant Mater Veg. 8:201-238.

Downing, R.L., 1973. A Preliminary Nesting Survey of Least Terns and Black Skimmers in the East. American Birds 27:946-949.

Parish, S.B., 1910. The Effects of Cement Dust on Citrus Trees. Plant World. 13:288-291.

Spinka, J., 1971. Effects of Polluted Air on Fruit Trees and Legumes. Ziva 19:13-15.

Table 4.4-1 (Revision 1)

ELUTRIATE TEST RESULTS FOR CHEMICAL PARAMETERS
EXCEEDING CLASS III WATER QUALITY STANDARDS

Parameter	Class III Standard[a]	Ambient Concentration Dredging Area Water[b] (11/13/80)	Blount Island Elutriate Data (11/13/80) BI-4[c]	Percent Above Ambient	BI-6[c]	Percent Above Ambient	Blount Island Channel Sta. F2[d] Mean	Max.	Historical Conditions[e]
Aluminum, mg/l	1.5	0.033	0.033	0	0.066	100	0.613	3.34[f]	-
Antimony, mg/l	0.2	0.18	0.23[f]	27.8	0.23[f]	27.8	<0.0002	0.0009	-
Cadmium, ug/l	5.0	8.2[f]	11[f]	34.1	10[f]	22	0.25	0.7	-
Copper, mg/l	0.015	0.015[f]	0.017[f]	13.3	0.017[f]	13.3	0.074[f]	0.185[f]	0.2[f]
Cyanide, mg/l	0.005	<0.002	<0.010[f]	-	<0.010[f]	-	0.007[f]	0.031[f]	-
Iron, mg/l	0.30	0.12	0.16	33.3	0.13	8.3	0.767[f]	2.2[f]	0.25
Lead, mg/l	0.05	0.062[f]	0.072[f]	16.1	0.072[f]	16.1	0.0001	0.009	<0.0005
Mercury, ug/l	0.10	<0.2[f]	<0.2[f]	-	<0.2[f]	-	<0.22[f]	0.4[f]	0.4[f]
Oil and Grease, mg/l	5.0	3.6	6.0[f]	66.7	5.0[f]	38.9	1.7	3.2	-
Silver, mg/l	0.05	6.1[f]	7.9[f]	29.5	8.4[f]	37.7	<0.16[f]	0.25[f]	-

a See Table 2.5-1
b Water sample taken in Fulton Dame Point Channel in the area where core samples for elutriate testing were collected.
c Locations BI-4 and BI-6 are shown on Figure E-19.
d Concentrations at Station F2 observed during pre-application monitoring program, 11/79-10/80.
e See Station 11, Table C-23 and Figure 2.5-13.
f Exceeds Class III water quality standards

Table 4.4-2

AREAL SUMMARY OF VEGETATION COMMUNITY TYPES TO BE AFFECTED
BY CONSTRUCTION OF THE PROPOSED COAL UNLOADING FACILITY

Vegetation Community Type	Area Affected (Ac)			Total Area Affected (Ac)	Total Area on Blount Island (Ac)	Total Area Not Affected (Ac)	Percent of Total Area on Blount Island Affected[b]
	Coal Handling and Storage	Rail Loop[a]	Rail Car Unloading Area				
Mixed hardwood	0.0	2.8	0.0	2.8	65	62.3	4.2
Baccaharis shrub	13.3	0.8	0.0	14.1	63	48.9	22.3
Grassy scrub	29.8	15.3	1.0	46.1	560	513.9	8.2
Myrica shrub	1.6	2.8	0.0	4.4	45	40.6	9.6
Salt marsh	0.9	0.0	0.0	0.9	40	39.1	2.2
Open (water/beach)	1.7	0.0	0.0	1.7	115	113.3	1.5
Industrial	7.6	8.5	0.0	16.1	620	603.9	2.6
Total	54.9	30.2	1.0	86.1	1508	1422	5.7

[a] Assumes a 100 foot right-of-way
[b] Total area of each vegetation type within Blount Island

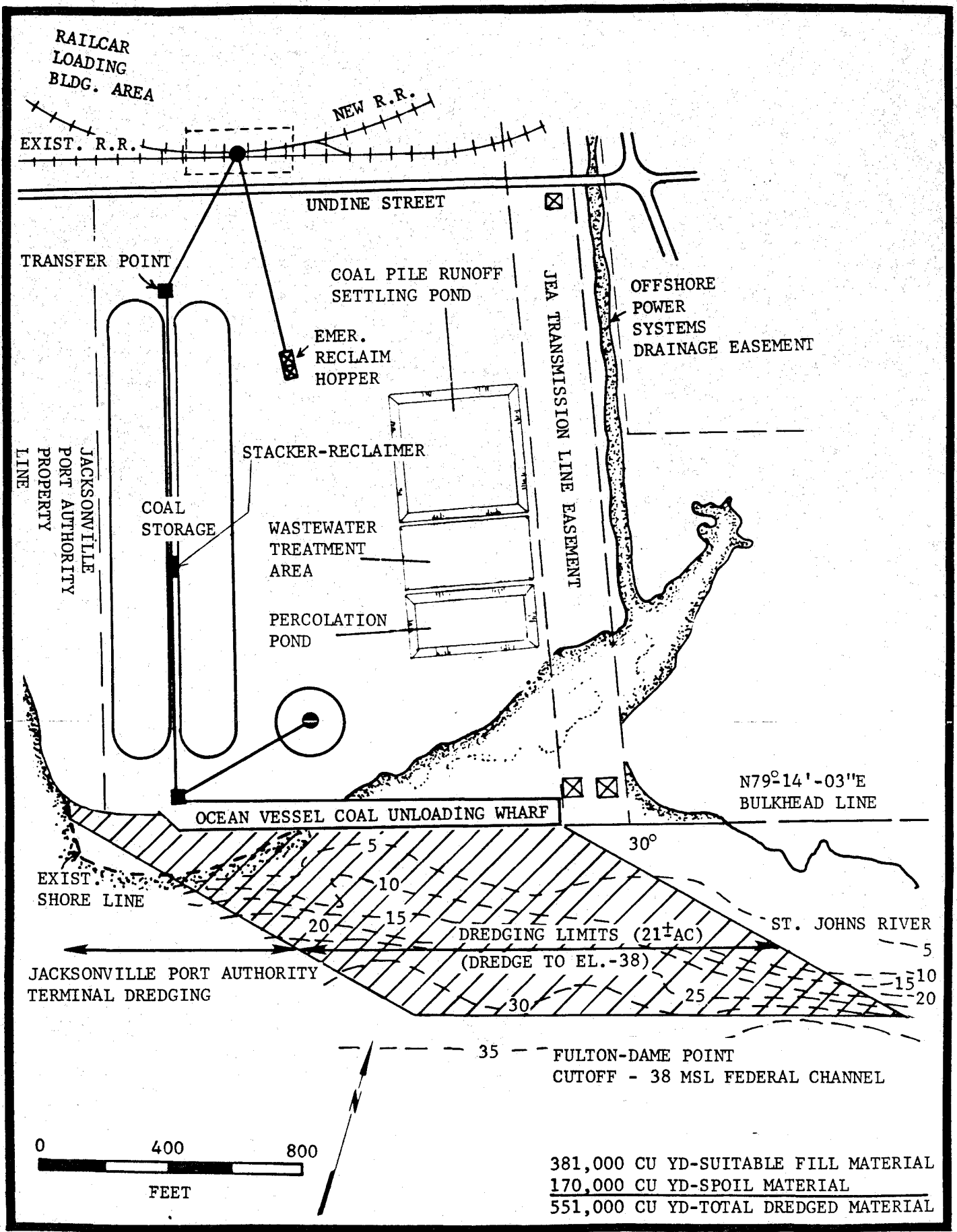


Figure 4.4-2 Coal Unloading Facility Layout and Dredging Plan

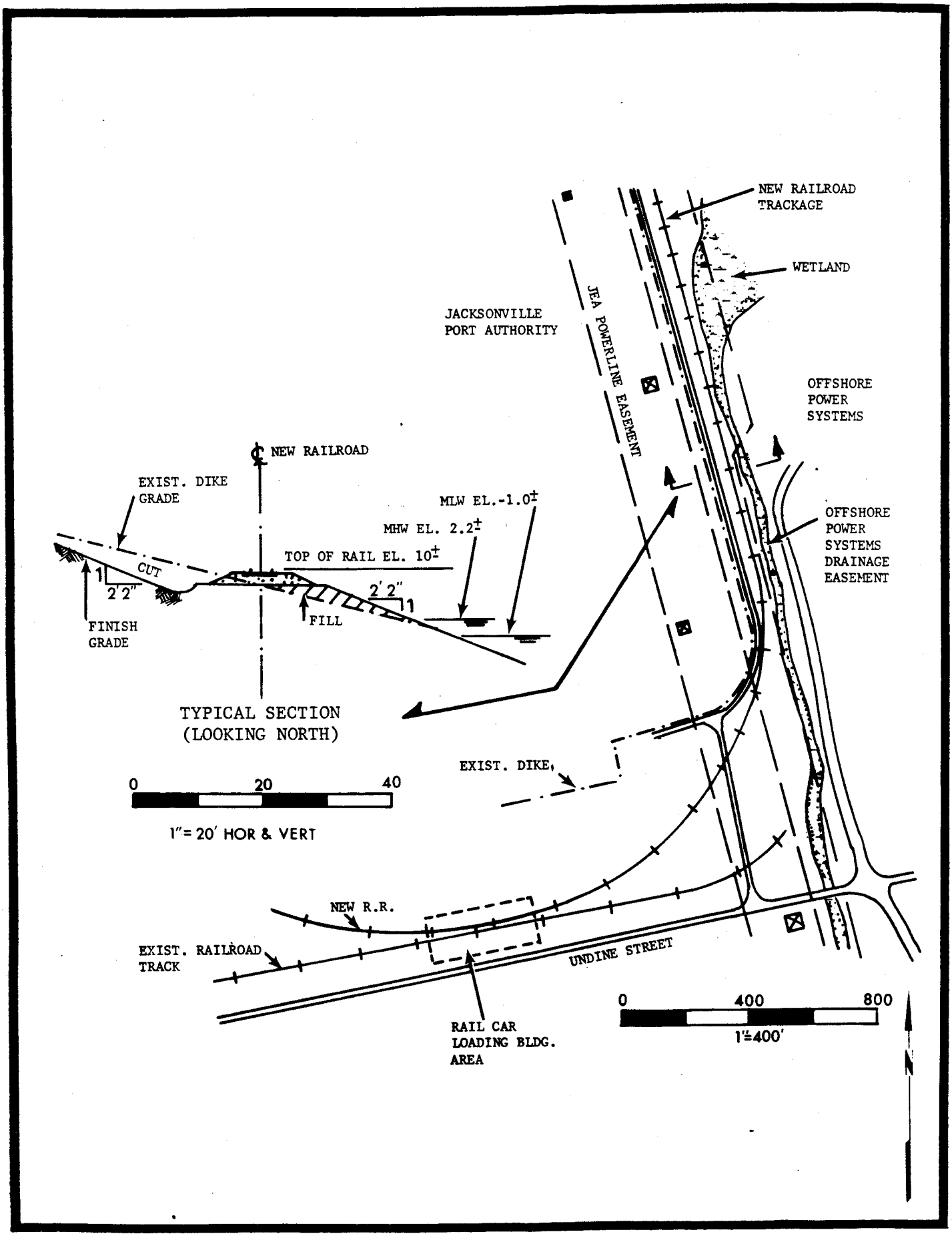
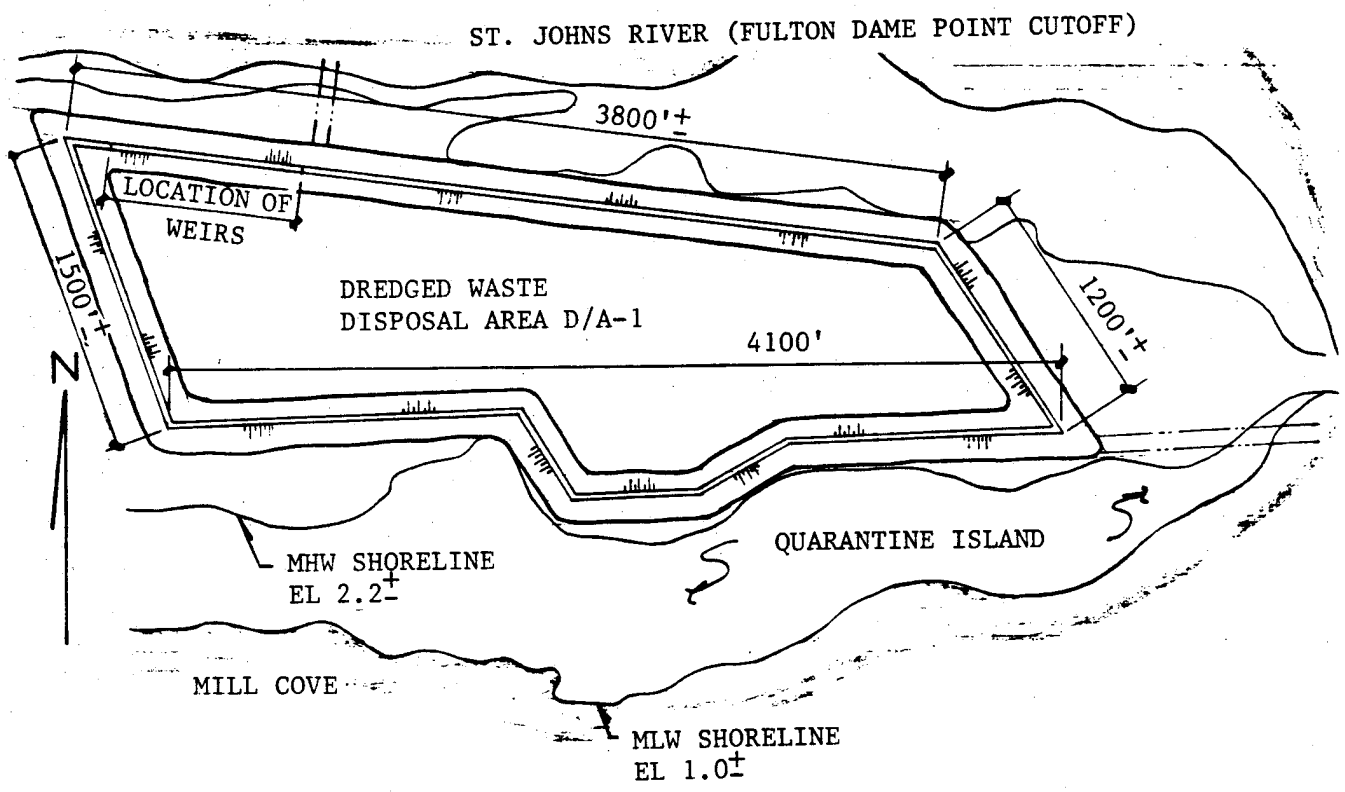
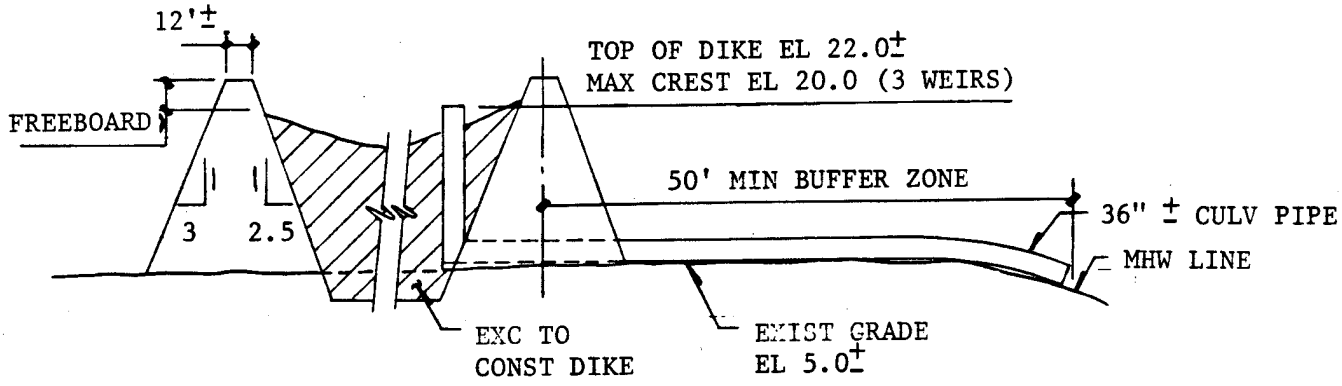


Figure 4.4-3 Coal Unloading Facility Trackage

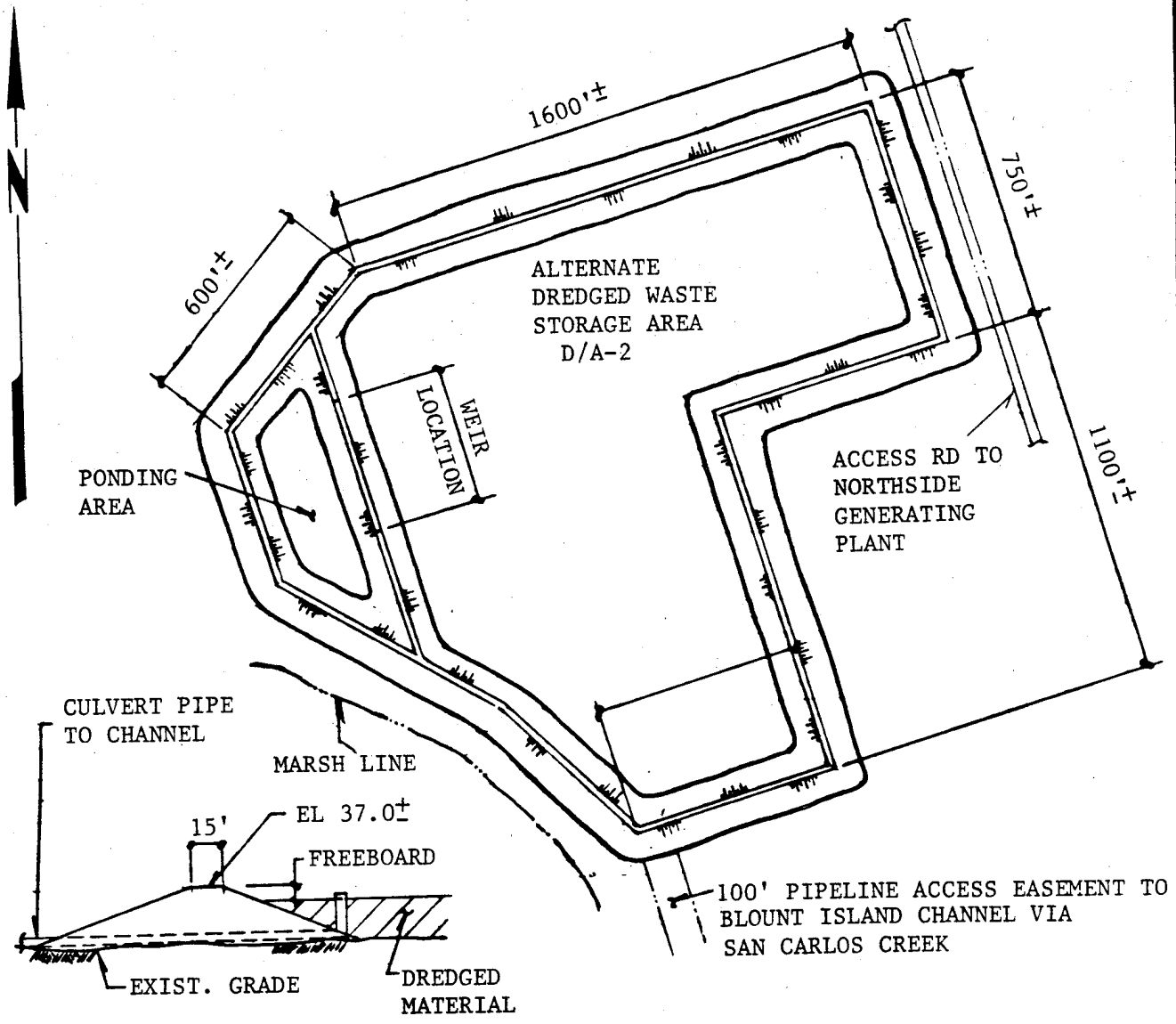


PLAN
(NOT TO SCALE)



TYPICAL SECTION
(NOT TO SCALE)

Figure 4.4-4 Dredge Spoil Disposal Area



LOCATION SHOWN ON FIGURE 4.3-3

Figure 4.4-5 Alternate Maintenance Dredge Spoil Disposal Area

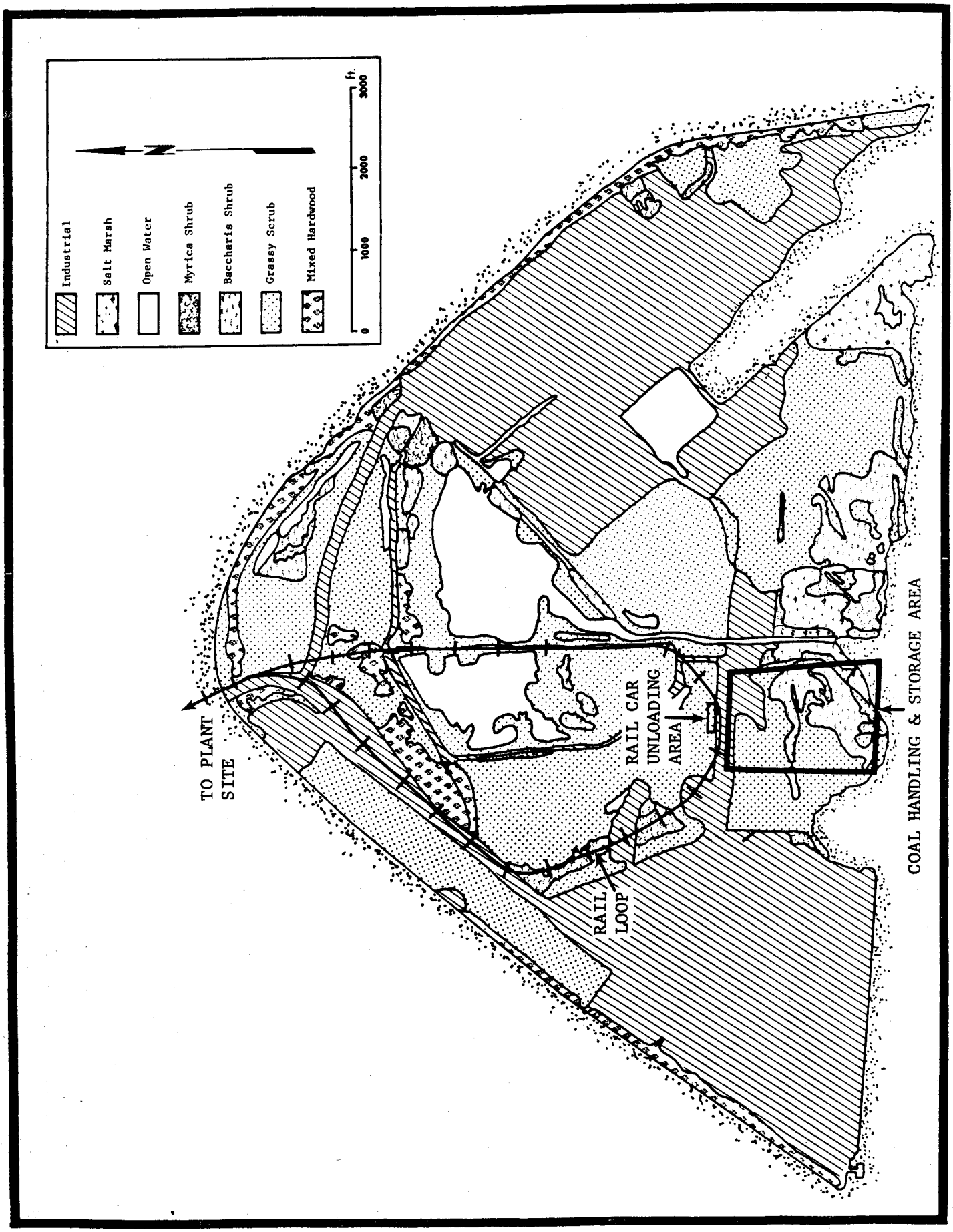


Figure 4.4-6 Location of Facility Components on Blount Island in Relation to Vegetation Community Types

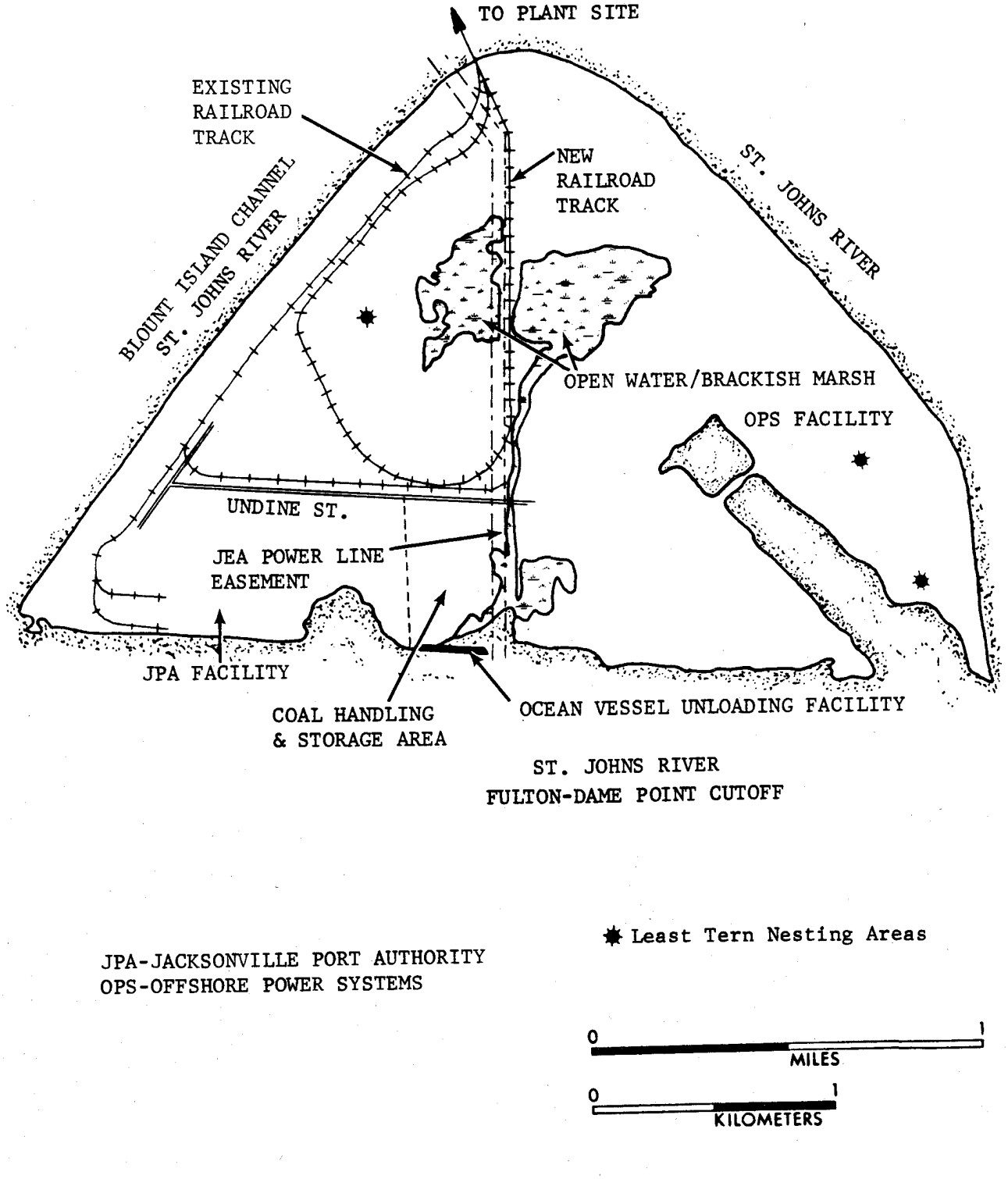


Figure 4.4-7 Least Tern Nesting Areas on Blount Island

4.5 RESOURCES COMMITTED

A total of 1,711 acres of mostly vacant land will be impacted by the construction of the proposed plant and the coal unloading facility. The 2005 Comprehensive Plan by the Jacksonville Area Planning Board indicates that the site is in an area designated for port related industrial uses, therefore qualifying for the construction of a generating facility. The site is presently zoned for heavy industry, although the land in the site area is not currently being used as such. However, the NGS is adjacent to the site and is an industrial use. Construction of the proposed plant would preclude the use of this land by another industry during its 40 year life.

Eight hundred and ninety-six acres of wildlife habitat will be lost for at least the 40 year operational life of the proposed plant. An additional 55 acres will be lost by construction of the proposed coal unloading facility. The affected habitat types are regionally abundant with no observed unique wildlife characteristics. The acreages of each community type committed are presented in Chapter 4, Tables 4.1-1 and 4.4-1.

Construction of the proposed plant will result in 896 acres of potential hunting habitat being lost for at least the 40 year operational life of the facility. Although population levels of game species are low and only one group of hunters was observed on the proposed plant site during the monitoring program, the area has a certain significance as a hunting resource when viewed in light of development in Duval County.

Certain of the less mobile mammalian, amphibian and reptilian populations will be destroyed during site preparation and plant construction. No wildlife species that is currently listed as endangered or threatened on either the state or federal list will be adversely affected with the possible exception of the gopher tortoise. A proposed tortoise relocation project, if feasible, would lessen the impact on this species of special concern. All other expected losses are not significant from a regional perspective.

There are four archeologically sensitive areas within the site boundaries that will be lost, in part or in total, due to construction activities. These are described in more detail in Appendix J. These sites have been studied to record their contents. Recovered material and records will be stored at the Florida Division of Archives History and Records Management.

Construction of the proposed plant will result in approximately 88.3 acres of wetland type vegetation being disturbed. However, 202 acres will remain undisturbed. The types and amounts of wetlands affected are presented in Table 4.5-1.

Commitment of resources that will be irretrievable will include the use of materials and energy to construct the facilities.

Table 4.5-1 (Revision 1)

WETLAND VEGETATION COMMUNITY ACREAGES AFFECTED

Wetland Type	Area Disturbed (Acres)	Area Undisturbed (Acres)
A. Plant Site		
Bottomland Hardwood	0.0	79.9
Cypress Swamp	32.6	7.5
Hardwood Swamp	33.0	67.8
Bayhead	22.7	5.6
Salt Marsh	0.0	41.1
Total	88.3	201.9
B. Coal Unloading Site		
Salt Marsh	0.00	4.4
Total	0.00	4.4