Environmental Assessment

Prepared for:

CCAS Natural Gas Distribution System

City Gas Company
of Florida

Cape Canaveral
Air Station
Brevard County,
Florida

Lindahl, Browning, Ferrari & Hellstrom, Inc.

In Association with:

Environmental Permitting Services, Inc.
Thomas Lucido & Associates , Inc.

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September, 1995

Natural gas is proposed as an energy source, both primary and emergency, for certain functions within the Cape Canaveral Air Station (CCAS). Natural gas is a cleaner burning and more efficient fuel for heating and cooling than common petroleum fuels and has lower emissions. CCAS has plans to employ natural gas for its fleet vehicles. Natural gas provides the opportunity of eliminating petroleum storage tanks for emergency generators; eliminating related potential groundwater contamination; avoiding accidental spill potential; and reducing associated traffic of fuel delivery vehicles, hundreds of deliveries per year.

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1. SUMMARY AND CONCLUSIONS

1.1 Summary

The environmental impacts of construction and operation of a natural gas delivery system by City Gas Company for Cape Canaveral Air Station (CCAS) were investigated and reported in this Environmental Assessment (EA) document. The location of CCAS is shown in Figure 1-1.

The natural gas pipeline, ranging in size from about 4-inch to 12-inch diameter, is proposed to be constructed entirely within existing rights-of-way along major road corridors. The pipeline would be installed underground. This is preferable to above ground installation due to safety considerations and visual impacts. Underground installation does not leave the pipeline vulnerable to traffic damage, and follows best engineering practices. The pipeline alignment is shown on Figure 1-2.

The project route of the preferred Alternative begins at the eastern limits of the General Support Zone of Kennedy Space Center (KSC) and runs along the NASA Causeway East corridor, parallels a causeway via subaqueous crossing of the Banana River, follows major rights-of-way within CCAS Industrial Area, and turns south along Phillips Parkway to the south gate of CCAS. This project is intended to serve CCAS demands.

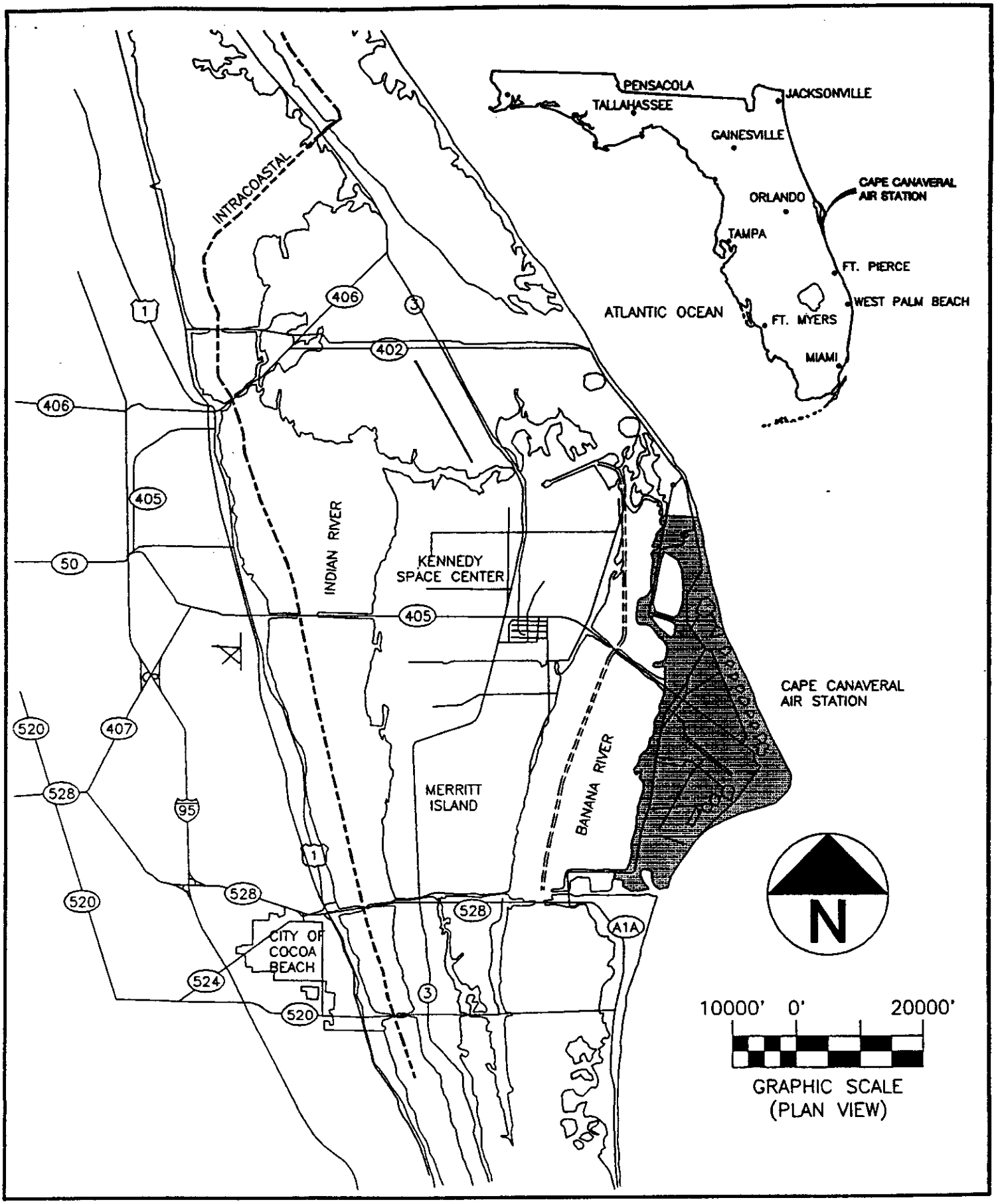
1.2 Conclusions

Alternative 1, the preferred alternative, crosses from KSC at the NASA Causeway East. Alternative 2, crosses into CCAS from the City of Cocoa via the BeeLine Expressway (SR 528). Alternative 3, crosses into CCAS via Merritt Island (County Road 3) and State Route 528 from KSC. Other southern routes were investigated but eliminated because of environmental, natural gas supply, regulatory and construction considerations. A "No Action" Alternative was also investigated.

Environmental impacts are described for Alternatives 1, 2, 3, and "No Action". No significant impacts are anticipated for Alternatives 1, 2, and 3. A U.S. Army Corps of Engineer's dredge & fill and Florida Department of Environmental Protection Wetland Resource Permit will be obtained for Alternative 1, NASA Causeway East Subaqueous Crossing.

1.2.1 Sources

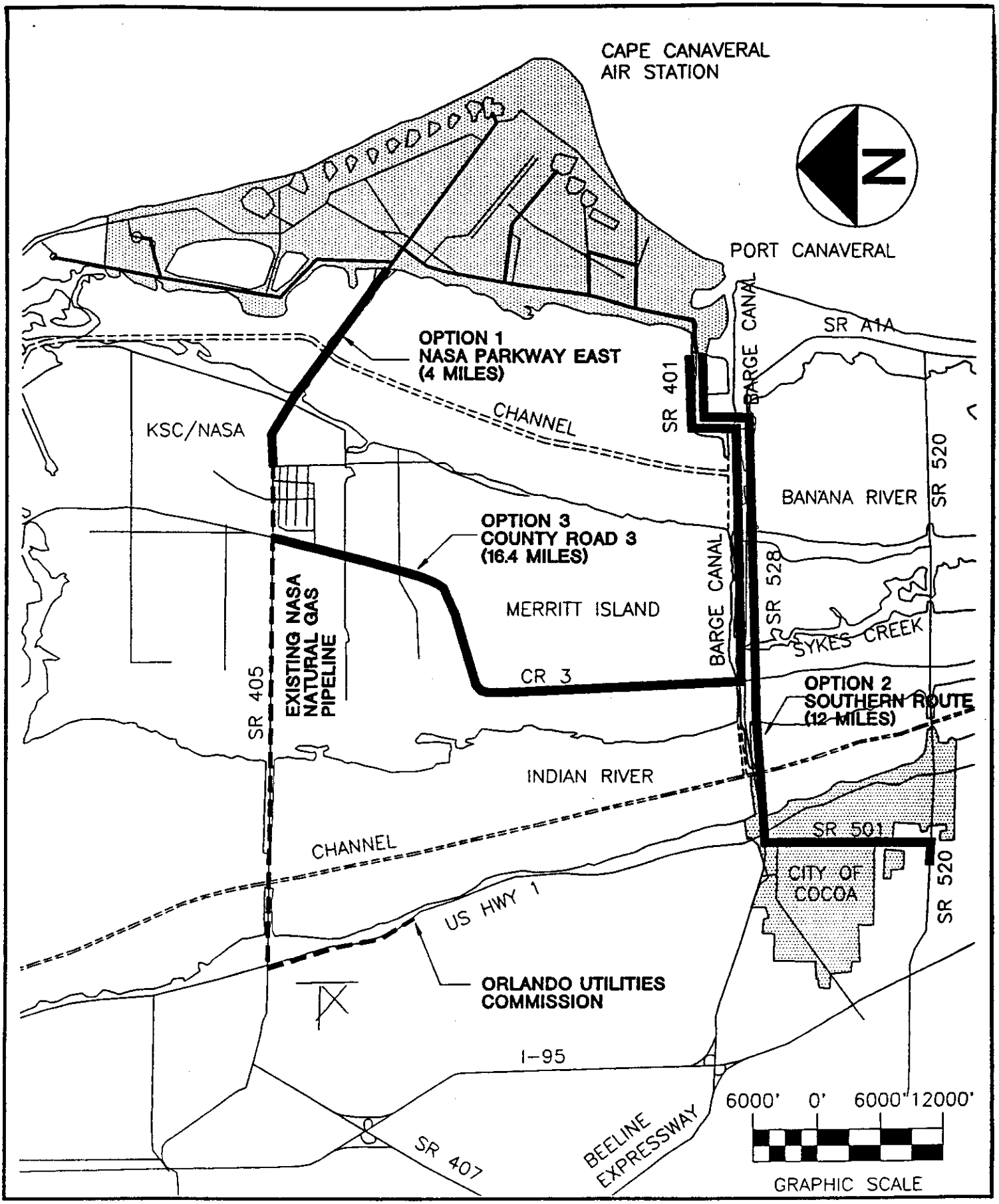
Some information presented herein is a compilation of comments, regulatory agency input, CCAS and KSC comment, observations, site visits, interviews and previous studies. Some figures and text has been borrowed from the "Interim Base Comprehensive Plan Cape Canaveral Air Station - Land Use, Existing and Proposal Section I", and "Concept Summary - Base Comprehensive Plan, Eastern Space and Missile Center Florida" prepared for the Cape Canaveral Air Station (CCAS).



PROJECT LOCATION MAP

FIGURE 1-1

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION



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POTENTIAL ROUTES

FIGURE 1-2

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION

1.2.2 Regulatory Agency Scoping and CCAS/KSC Discussions

This Environmental Assessment is a result of following CCAS's National Environmental Policy Act (NEPA) guidelines, with input and approval from KSC. KSC acted as a coordinating agency in this NEPA process. As a coordinating agency, KSC was included in environmental and logistical discussions relating to the project. KSC provided guidance, document review, and consent through the NEPA process. The NEPA process includes interviewing local regulatory agencies, CCAS/KSC discussions and describing known environmental impacts in this document.

The process of interviewing the agencies is known as scoping. Scoping is an open and early process for determining the scope of issues to be addressed and for identifying the significant environmental issues. The agencies interviewed included:

* Florida Department of Environmental Protection.
* Florida Department of State.
* Florida Game and Freshwater Fish Commission.
* U.S. Army Corps of Engineers.
* U.S. Department of Commerce.
* U.S. Fish and Wildlife Service.
* National Marine Fisheries Service.
* Merritt Island National Wildlife Refuge.
* St. John's River Water Management District.
* East Central Regional Planning Council.
* All Affected Cities and Counties.

An "Advance Notification Package" was transmitted to the regulatory and CCAS parties identified during scoping. Responses from the agencies regarding the Advance Notification Package have been included in the appendix of this EA. In some instances a dialogue was conducted with the agencies regarding issues and concerns of the proposed action.

The preferred alternative involves only two property owners, namely the Air Force 45th Space Wing and National Aeronautics and Space Administration. Since the natural gas system does not cross or impact public lands, rights-of-way, or private properties a public comment workshop was not required during the NEPA process.

2. PURPOSE AND NEED

2.1 Purpose and Need

Interest has been expressed to use natural gas as an energy power source, both primary and emergency, for certain functions within CCAS. To achieve the goal of providing natural gas throughout the CCAS, a natural gas delivery and distribution system is proposed. The construction is anticipated to cause minimal disruption of traffic, environment, and other CCAS operations. Operation of the pipeline and delivery system will be practically hidden from normal CCAS operations.

Natural gas is a cleaner burning fuel than common petroleum fuels with lower particulate matter, nitrous oxides, and sulfur dioxide emissions. It is recognized that natural gas is generally a more efficient fuel for heating and cooling. Energy costs are also reduced by using natural gas, wherever possible and practical. Cape Canaveral Air Station currently has plans to employ natural gas for its fleet vehicles.

Natural gas provides the opportunity of eliminating petroleum storage tanks for emergency generators; eliminating related potential groundwater contamination; avoiding accidental spill potential; and reducing associated traffic of fuel delivery vehicles, several hundred deliveries per year.

2.2 Permits Potentially Required

REGULATORY AGENCY	TYPE OF PERMIT
U.S. Army Corps of Engineers	Dredge and Fill Consent to Easement
Florida Department of Environmental Protection	Wetland Resource Land lease/easement
St. Johns River Water Management District	Stormwater

Additional information concerning the regulatory agencies jurisdiction and an overview of their permitting authority and involvement in the environmental permitting process can be found in Section 4.1.5. A copy of the U.S. Army Corps of Engineers Dredge and Fill permit application is included in Appendix B.

3. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

3.1 General

The following sections describe the proposed action and details for each of the alternatives examined.

Three routes were investigated for the natural gas delivery system. Once on the CCAS site, the distribution system routes will be identical between alternatives. All three would require crossing the Banana River. The three routes originally investigated are:

Alternative Crossing(s)	Route of Delivery System	Causeway/Waterway
1	Eastern	NASA Parkway East/Banana River
2	Southern	Bennett Causeway East/Indian River, Banana River and Barge Canal
3	Merritt Island	Bennett Causeway East/Barge Canal and Banana River

Alternatives 1, 2, and 3 were evaluated and are presented in further detail. Alternative 3 was eliminated because of length of route; additional subaqueous crossings of the Barge Canal; and extra miles of utility conflicts through commercial and residential areas; etc. This alternative is still evaluated to insure completeness of this Document.

The No Action alternative is to leave the natural gas delivery and distribution system unbuilt. The alternative involves cancelling of plans for using alternative fuel vehicles; continued use of petroleum products; continued hazard of spills and groundwater contamination; and continued truck deliveries (hundreds of trips per year).

3.2 Proposed Action

The construction of the natural gas pipeline is anticipated to follow the schedule below:

Task	Date
Receipt of Dredge & Fill Permit	December 1994
Commence of Construction on KSC Site	January 1995
Commence Construction of Subaqueous Crossing	February 1995
Commence construction on CCAS Site	March 1995
Complete Construction	May 1995
Begin Service	June 1995

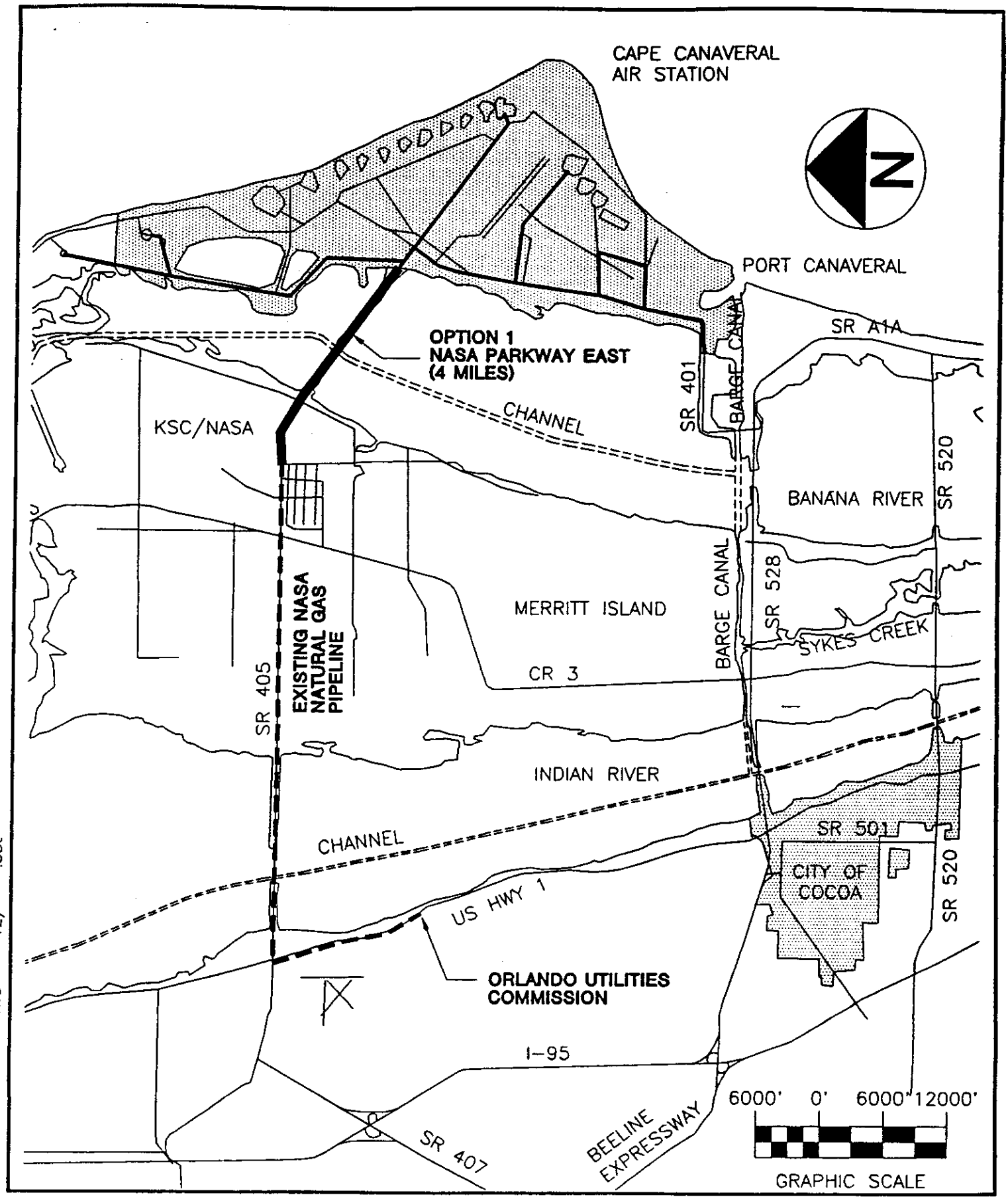
3.3 Alternative 1 (Preferred Alternative)

The preferred route begins at the eastern limits of the General Support Zone of Kennedy Space Center and runs approximately four (4) miles along NASA Parkway East corridor, parallels a causeway and drawbridge via subaqueous crossing of the Banana River, follows major rights-of-way within CCAS Industrial Area, and turns south along Phillips Parkway terminating at the south gate of CCAS. This route represents the shortest route and is shown in Figure 3-1. The natural gas distribution system as shown in Figures 5-1 through 5-13 indicates several potential distribution points throughout the Industrial Area and along the pipeline route in CCAS. The pipeline and distribution routes within CCAS follow major rights-of-way and present the least potential environmental impact.

3.4 Alternative 2 (Southern Route)

Alternative 2 is longer (approx. 12 miles) than the route of the Preferred Alternative. This route is shown in Figure 3-2. Further analysis of potential CCAS natural gas demands has shown that the pipeline must be connected to a gate station source. The route begins at the Cocoa Gate facility on SR 520 west of Clearlake Road. The pipeline follows existing rights-of-way; beginning at the Cocoa Gate; thence east along SR 520; thence north along Clearlake Road (SR 501) through the City of Cocoa to the BeeLine Expressway (SR 528) a distance of approximately 3 1/2 miles; thence east and parallel to the BeeLine Expressway (SR 528) via several subaqueous crossings of Indian River Lagoon, Sykes Creek, and Banana River a distance of approximately 7 miles to the junction of State Route 401; thence north paralleling SR 401 and a drawbridge via subaqueous crossing of the Barge Canal at the Port of Canaveral; thence east along SR 410 to the south gate of CCAS; thence east and north along Phillips Parkway to CCAS Industrial Area.

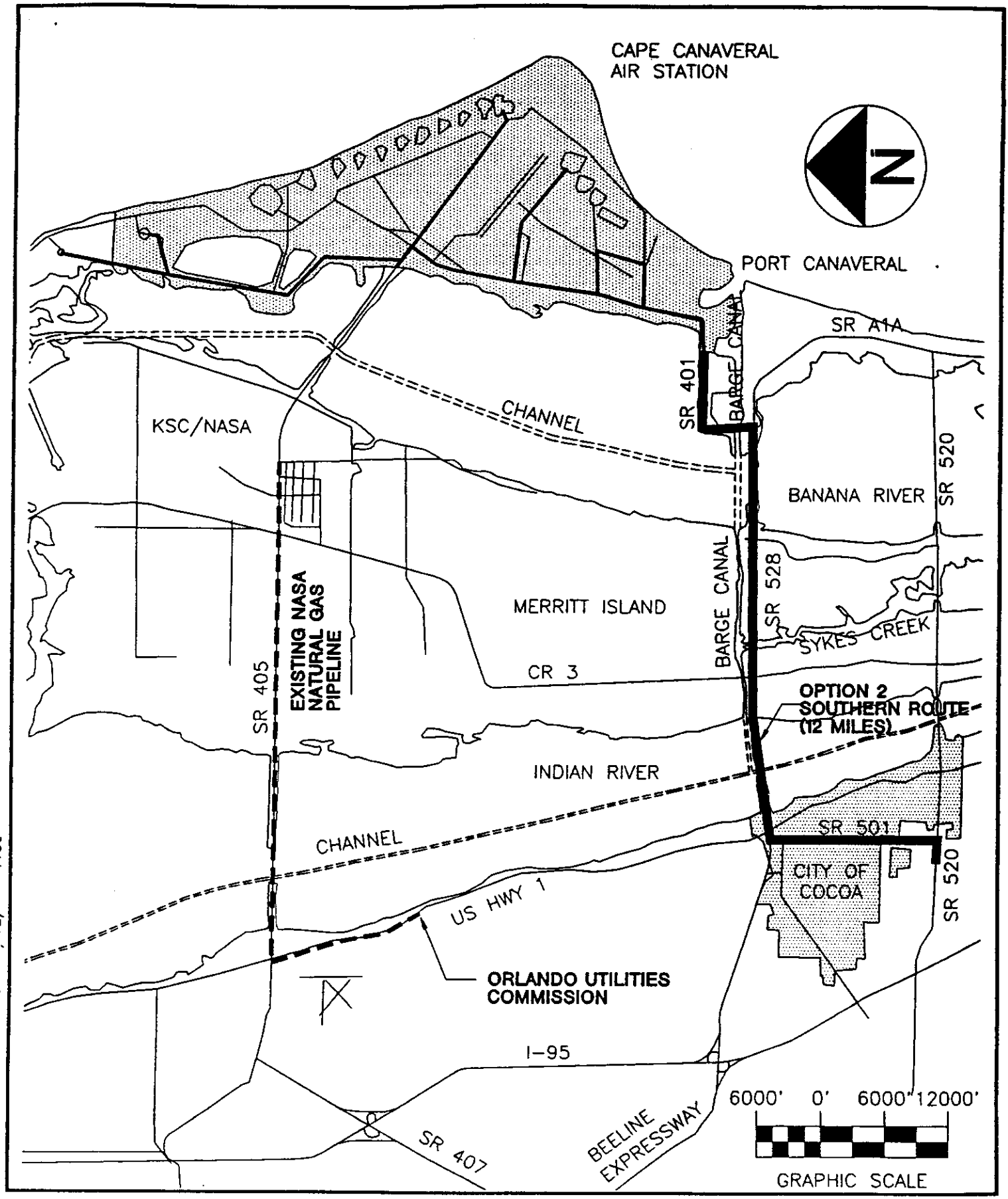
The subaqueous crossing of the Barge Canal would need to be accomplished by directional bore. The subaqueous crossings of the Indian River Lagoon, Sykes Creek and Banana River would be accomplished by hydraulic dredging and turbidity screening. This route is approximately 8 miles longer than the preferred route, represents a deep subaqueous crossing of the Barge Canal at the Port of Canaveral and major construction efforts in commercial areas along the BeeLine Expressway. The BeeLine Expressway (SR 528) is a limited access highway and FDOT has previously declined to allow City Gas to locate utilities along this right-of-way. Alternative 2 may represent crucial considerations including; right-of-way acquisition, construction costs, technical, environmental and perhaps Public Service Commission (PSC). This option does not take advantage of using the natural gas pipeline on the KSC site for extending the pipeline south and east through the Banana River. The distribution system within CCAS is the same as the preferred route.



PREFERRED ALTERNATIVE (NASA PARKWAY)

FIGURE 3-1

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION



ALTERNATIVE 2
(SOUTHERN ROUTE)

FIGURE 3-2

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION

3.5 Alternative 3 (Merritt Island Route)

This route was eliminated from further consideration but a description is provided for the reader's benefit. Alternative 3 is the Merritt Island route (16.4 miles long) and is shown in Figure 3-3. The Merritt Island Route is the longest of the three Alternative routes. It runs south from KSC/NASA along CR 3 with a subaqueous crossing at the Barge Canal, then follows the BeeLine Expressway (SR 528) east with several subaqueous crossings (Sykes Creek, and Banana River) to the junction of State Route 401; then north paralleling SR 401 and a drawbridge via subaqueous crossing of the Barge Canal at the Port of Canaveral. This route has been previously reviewed and evaluated. Several factors make this route difficult or unsatisfactory:

- The majority of natural gas demand is located at the CCAS Industrial Area immediately adjacent to NASA Causeway East.

- The delivery pipe needed for the natural gas supply would be larger than the existing pipeline and a new parallel pipeline would need to be installed along CR 3 from KSC.

- The suggested route is about 12 miles longer than the preferred option.

- The BeeLine Expressway (SR 528) is a limited access highway and FDOT does not allow utilities to locate underground facilities along this right-of-way. See FDOT Utility Accommodation Manual Section 9.(a)2, pages 29 - 30.

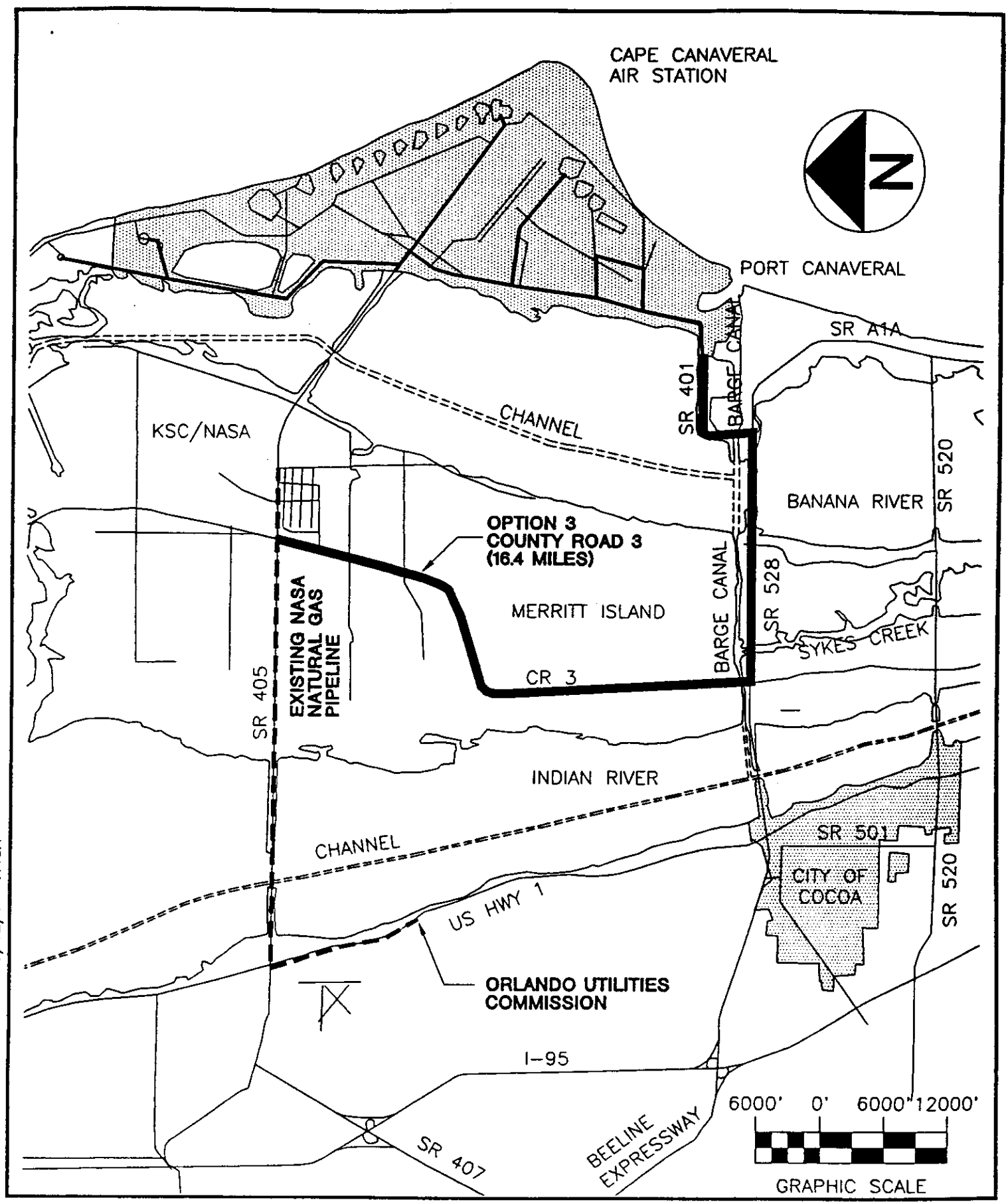
- City Gas would be required to acquire or lease right-of-way across the full width of the Banana River and hydraulic dredge the pipeline outside of BeeLine Expressway and Barge Canal rights-of-way. Impacts to be addressed would include; construction costs, technical, logistical and environmental issues.

- This option would require three more subaqueous crossings and greater impacts to the Banana River than the preferred option.

The distribution system within CCAS is the same as the preferred route.

3.6 No Action Alternative

This No Action Alternative leaves the natural gas delivery and distribution system unbuilt. The CCAS operation would be without a central delivery source of a cleaner burning and more efficient alternative fuel. Problems with this alternative include continued use of petroleum products for heat and energy with associated environmental and personnel exposure hazards. CCAS's ability to comply with the mandated use of alternative fuels for government vehicles prescribed by the National Energy Policy Act and Clean Air Act Amendments would be hampered.



ALTERNATIVE 3
(MERRIT ISLAND ROUTE)

FIGURE 3-3

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

4.1 General

The proposed action is located within and adjacent to KSC and CCAS in eastern Brevard County, Florida. A generalized characterization of KSC and CCAS and its surrounding environmental conditions was obtained from the Environmental Resources Document, CCAS-DF-3080, Revision A, dated March 1992 and is represented herein.

CCAS provides the Launch Base for Eastern Space and Missile Center customers. CCAS also provides the facilities, infrastructure and ground support for the Eastern Test Range's Launch Base Instrumentation requirements.

CCAS is located on 15,804 acres on a barrier island on the central east coast of Florida. CCAS is bounded on the north by the KSC , a NASA installation; on the west by the Banana River, on the south by Port Canaveral, and on the east by the Atlantic Ocean. The nearest civilian community to CCAS is the city of Cape Canaveral, located adjacent to the south side of Port Canaveral. The topography of the station is very flat, and much of the installation is covered with native vegetation. The fragile natural environment of the island includes habitats for several threatened and endangered wildlife species.

KSC is the principal site for the launch of NASA space systems. KSC comprises approximately 140,000 acres (56,000 acres is submerged land) and is situated approximately 150 miles south of Jacksonville and 40 miles east of Orlando.

KSC is relatively long and narrow, being approximately 35 miles in length and varying in width from 5 to 10 miles. It is bordered on the west by the Indian River Lagoon and on the east by the Atlantic Ocean. The southern boundary of KSC runs east-west along the Merritt Island Barge Canal which connects the Indian River Lagoon with the Banana River and Port Canaveral at the southern tip of Cape Canaveral. The northern border lies in Volusia County near the City of Oak Hill and across the Mosquito Lagoon.

Only a very small part of the total acreage of KSC has been developed or designated for NASA operational and industrial use. Because Merritt Island was found to include prime habitat for unique and endangered wildlife, NASA and the U.S. Fish and Wildlife Service (USFWS) entered into an agreement to establish a wildlife preserve, known as the Merritt Island National Wildlife Refuge (MINWR), within the boundaries of KSC. Additionally, an agreement with the U.S. Department of Interior resulted in the majority of the Canaveral National Seashore (CNS) falling within the limits of KSC.

The proposed action considers four alternatives, Alternative 1, Alternative 2, Alternative 3 and the No Action alternative. Alternatives 1 and 3 propose construction within the KSC and CCAS properties while the "No Action" Alternative proposes no new construction within CCAS. Alternative 2 proposes construction within the CCAS property. As previously described in section 3.3, Alternatives 1, 2, and 3 propose corridors which originate from the west side of the Banana River and therefore would

also require a subaqueous crossing of the Banana River and the federal intracoastal waterway channel.

4.1.1 Air Quality

Air quality at KSC and CCAS is generally good. The ambient air quality is influenced by KSC and CCAS operations, land management practices, vehicle traffic, and emission sources outside of KSC and CCAS. Daily air quality conditions are most influenced by vehicle traffic, utilities fuel combustion, standard refurbishment and maintenance of operations, and incinerator operations. Air quality is also influenced by emissions from two regional power plants which are located within a 10 mile radius of KSC and CCAS. Space launches, training fires, and fuel load reduction burns influence air quality as episodic events.

Ambient air quality at KSC and CCAS is monitored (MD/RES-Bionetics) by one Permanent Air Monitoring System (PAMS) station. PAMS A is located at the Environmental Health Facility site.

During the first quarter of 1990 there were no exceedances of either the primary or secondary air quality standards for 0_3, CO or SO_2. There were no exceedances for the second quarter of either the primary or secondary air quality standards for CO, SO_2 or NO_2. An exceedance of the O_3 primary standard occurred on June 16, 1990. For the third quarter, there were no exceedances of either primary or secondary air quality standards of O_3, CO, SO_2, or NO_2. For the fourth quarter, there were no exceedances of either the primary or secondary air quality standards for O_3, CO, or SO_2, although O_3 levels were high due to a fire in November to the southwest. NO_2 and SO_2 emissions are related to utilities fuel combustion and mobile sources. Strong correlation between elevated NO_2 and SO_2 levels and prevailing westerly winds indicate that power plants to the west of CCAS are the primary sources of these emissions.

Although rarely exceeding established standards, ozone (O_3) is the most consistently high criteria pollutant at KSC and CCAS. There have been six exceedances of ambient air quality standards recorded at KSC since 1988 of primary and secondary standards for O_3. Ozone is formed in a series of chemical reactions between oxidant precursors such as VOC's and NO_x in the presence of sunlight.

4.1.2 Surface Water Quality

The surface waters within the vicinity of KSC and CCAS and the proposed action include such named water bodies as the Indian River, Banana River, Banana Creek, Mosquito Lagoon and numerous other unnamed creeks, impoundments, lakes and wetlands.

Surface waters adjacent to and at KSC and CCAS, include "Waters of the United States", "Navigable Waters" and "Waters of the State". Activities within these "waters" are subject to numerous Federal, State and Regional regulations. Additionally, surface waters are categorized by the State of Florida into several different classes which afford varying thresholds of water quality standards and regulatory constraints respective to each class. Surface waters within and adjacent to the proposed action include the following

classes: **Class II - Shellfish Propagation or Harvesting** (Mosquito Lagoon & northern Indian River), **Class III - Recreation-Propagation and Management of Fish and Wildlife** (Indian River, Banana River and Banana Creek) and **Outstanding Florida Waters** - All surface waters within the MINWR (Portions of the Indian River, Banana River, Mosquito Lagoon and the majority of Banana Creek).

The Florida Department of Environmental Regulation with its recent (July 1, 1993) merger with the Florida Department of Natural Resources to become a single agency known as the Florida Department of Environmental Protection (FDEP), manages marine fisheries in the state of Florida.

The FDEP has established water classifications which regulate the harvesting of shellfish. Water classifications are based on bacteriological and sanitary surveys of the water quality and shellfish purity, according to standards and guidelines of the National Shellfish Sanitation Program. The FDEP classifies surface waters as approved, conditionally approved, prohibited and unclassified (unapproved). Shellfish may be harvested from approved and conditionally approved areas. Conditionally approved areas are closed following rainfalls which exceed predetermined amounts for designated areas, over a 72-hour period. Prohibited and unclassified areas are closed to shellfish harvesting.

The surface water quality within KSC and CCAS and its adjacent waters is considered as generally good, with better water quality predictably found in the waters which are adjacent to undeveloped areas. NASA, CCAS, the USFWS and Brevard county maintain water quality monitoring stations within and at the KSC and CCAS boundaries.

4.1.3 Ground Water Quality

Ground waters at KSC and CCAS are classified as Class G-II, Potable water use. This classification includes ground water in aquifers which has a total dissolved solids (TDS) content of less than 10,000 mg/l, unless otherwise classified by the Environmental Regulatory Commission. Nearly all ground water at KSC and CCAS originates as precipitation that infiltrates through soil into flow systems in the underlying geohydrologic units.

There are three aquifer systems underlying KSC and CCAS: the surficial aquifer, the intermediate and the Floridan Aquifer. The Surficial aquifer contains fresh water (potable) but is less extensive than the Floridan, the principle artesian aquifer in east-central Florida. The two main aquifers are separated by nearly impermeable confining units and contain three shallow aquifers referred to as the intermediate aquifer system.

The quality of water in an aquifer is dependent on the lithology of the aquifer, the proximity of the aquifer to highly mineralized waters, the presence of residential saline waters in the aquifer and the presence of chemical constituents in the aquifer and overlying soils. The quality of water in the Floridan Aquifer is highly mineralized with high concentrations of chlorides due to lateral sea water intrusion, induced lateral intrusion (due to inland pumping), and a lack of flushing from distant freshwater recharge areas. The Floridan Aquifer beneath KSC and CCAS has been ranked as having a low potential for wellfield site acceptability by the Brevard County Water Study.

Data from the Brevard County monitoring network wells in the Floridan Aquifer at KSC and CCAS are summarized below. Chloride values greater than 250 mg/l are usually indicative of excessive salinity.

Parameter	Range (mg/l)
Calcium	127-214
Magnesium	92.3-201
Chloride	1250-2750
Sulfate	21.9-170
Carbonates	128-175
Total Dissolved Solids	2716-5263

Because ground waters at KSC and CCAS are classified as Class G-II, any construction and operation activity which discharges, or has the potential to discharge into Florida's ground waters requires a permit from FDEP. Such facilities include percolation ponds, seepage pits, underground storage tanks, injection and drainage wells, livestock waste lagoons, spray irrigation fields, and sanitary landfills. Discharges to ground water at KSC and CCAS must have ground water monitoring plans and meet primary and secondary drinking water standards or natural ground water quality, whichever is less stringent.

4.1.4 Geology

KSC and CCAS are located on Peninsular Florida, which gradually rose above a larger feature called the Florida Plateau. The Florida Plateau is one of the world's most stable areas and for millions of years it has been basically a carbonate platform on which thousands of feet of limestones and dolomites have accumulated. Lithography, stratigraphy and geologic structure are important controls of ground water quality, distribution of aquifers and confining beds and the availability of ground water.

Soils at KSC and CCAS generally originated from relict beach ridges formed by the action of wind and waves along the shore and their subsequent denudation as well as deposition in marine estuary environments. Several soil associations are found on KSC and CCAS and are described below.

The PAOLA-POMELLO-ASTATULA ASSOCIATIONS are nearly level to strongly sloping, excessively drained to moderately drained soils, and are typically sandy throughout their profile. These soils are found on long, narrow ridges usually less than 2 miles wide between the Indian River and the Banana River and along the Kennedy Parkway. Paola soils are nearly level to strongly, sloping excessively drained, sandy soils on ridges. Vegetation includes sand pine, scrub live oak, rosemary, and grasses. Pomello soils are nearly level, moderately well drained, sandy soils on broad, low ridges and knolls throughout the flatwoods. These soils formed in thick beds of marine sands.

Permeability is very rapid in the upper 50 inches. Astatula soils are nearly level to gently sloping, with excessively drained sandy soils on ridges. These soils were formed in sandy marine or eolian sediments and are more than 95 percent quartz. Permeability is very rapid throughout the profile. The natural vegetation is scattered scrub oak, and scrub hickory.

The CANAVERAL-PALM BEACH-WELAKA ASSOCIATIONS are nearly level to gently sloping with moderately well-drained to excessively drained soils and are sandy throughout. Canaveral soils are excessively drained and appear on narrow ridges and sloughs parallel to the Atlantic Ocean. The natural vegetation support by these soils is saw palmetto, scrub oak, and cactus on the ridge, and various salt-tolerant grasses in the sloughs where soil is poorly drained. Palm Beach soils are excessively drained and appear on dune-like ridges parallel to the Atlantic Ocean. Permeability is very high throughout, and water table depths average 10 feet. The natural vegetation associated with this soil includes prickly pear cactus, scrub oak, sea oats, and sea grape.

The MYAKKA-EAU GALLIE-IMMOKALEE ASSOCIATIONS are nearly level, poorly drained soils, sandy throughout to a depth of 40 inches. Myakka sands are nearly level, poorly drained soils on broad flatwoods and areas between ridges. Natural vegetation is characterized by slash pine with an understory of saw palmetto and wiregrass. Eau Gallie sands are nearly level, poorly drained soils on broad and low ridges. The natural vegetation is dominated by flatwoods communities.

The COPELAND-WABASSO ASSOCIATIONS are nearly level, very poorly drained to poorly drained and sandy to a depth of 40 inches. Copeland soils are nearly level poorly drained soils on low flats. Limestone or coquina rock may underlie this soil. Natural vegetation includes cabbage palms, live oaks, bay and magnolia. Wabasso soils are nearly level, poorly drained soils on low ridges and flood plains. These soils were formed in sandy marine sediments over loamy materials. Natural vegetation is characterized by slash pine, runner oak, and saw palmetto on low ridges and cabbage palm and live oak in the flood plain.

The SALT WATER MARSH-SALT WATER SWAMP ASSOCIATIONS are nearly level, very poorly drained, saline to brackish soils of variable textures. Marsh soils may be shallow sands over marl or limestone, irregularly stratified mixed sand and shell fragments, silty clays over sand and shell, or deep organic material. Natural vegetation is the salt marsh community. Swamp soils consist of mixed sand and organic material.

4.1.5 Aquatic Communities

The aquatic communities at the KSC and CCAS can be characterized as estaurine, brackish or freshwater. Within each of these categories are differing community types comprising specific habitats such as open water (rivers, lakes, bays, etc.) and both forested and herbaceous wetlands.

The open water communities and wetlands support numerous species of juvenile and adult fauna as well as a diverse assemblage of flora. Open water habitat involvement with the proposed action is confined to the Indian and Banana Rivers. The Indian River adjacent

to KSC is segmented by three causeways; NASA Parkway West, Titusville Causeway and the NASA Railroad Spur. The Banana River adjacent to KSC and CCAS is segmented by two causeways; NASA Parkway East and Bennett Causeway. The remoteness of the estuarine waters from oceanic influence and the restrictions imposed by constructed causeways, minimize water circulation within the lagoon basins. Surface water movement and flushing are primarily a function of wind driven forces and salinity regimes are mostly controlled by precipitation, upland runoff, evaporation and groundwater seepage.

The lagoon system near KSC and CCAS is dominated by shallow flats that support dense growths of submerged aquatic vegetation including manatee grass *(Syringodium filiforme)*, shoal grass *(Halodule wrightii)*, widgeon grass *(Ruppia maritima)* and various macroalgae such as *Gracilaria, Caulerpa, Sargassum and Acanthophora*. Cool winter temperatures preclude the growth of turtle grass *(Thalassia testudinum)* in the KSC and CCAS area. Shorelines of the system near KSC and CCAS are dominated by white mangrove *(Langunclaria racemosa)* and black mangrove *(Avicennia germinans)*; however, this region represents the northern limits of their range due to past freezes.

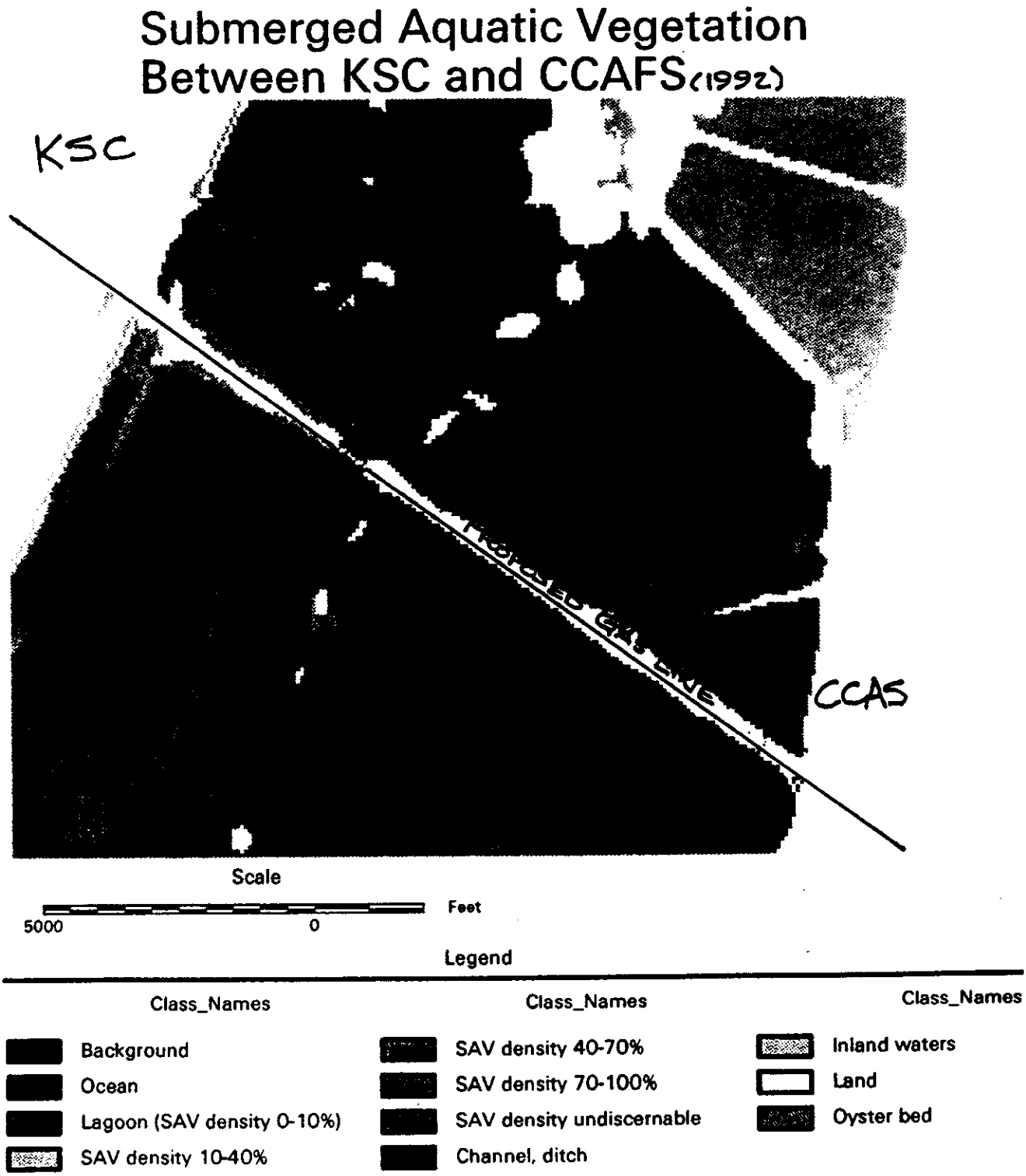
Wetland communities comprise approximately 38,500 acres within KSC and 1,200 acres within CCAS. The wetlands can be divided into two groups, freshwater wetlands and brackish or saline marsh wetlands.

Freshwater wetlands consist of **hardwood swamp, willow swamp, freshwater swale marsh, cattail marsh and cabbage palm savanna.** Dominant vegetative cover for each wetland type is described as follows.

The **hardwood swamp** community is a closed forest dominated by deciduous overstory comprised of red maple *(Acer rubrum)* and elm *(Ulmus spp.)*, but often includes evergreen species such as laurel oak *(Quercus laurifolia)* and cabbage palm *(Sabal palmetto)*. In the understory, royal fern *(Osmunda regalis)* and Virginia chain fern *(Woodwardia virginica)* occur.

The **willow swamp** community is a swamp of small trees dominated by Carolina willow *(Salix caroliniana)* with some red maple and wax myrtle *(myrica cerifera)*.

Figure 4-1
NASA Causeway-Seagrass Map



The **freshwater swale marsh** community can vary in vegetative composition depending upon the depth of the swale and its hydroperiod. Representative species include several species of beardgrass *(Andropogon spp.)*, sand cordgrass *(Spartina bakeri)*, sawgrass, *(Cladium jamaicense)*, Virginia chain fern, swamp fern *(Blechum serrulatum)* and other herbaceous and woody species.

Cattail marsh is dominated by southern cattail *(Typha domingensis)* and common cattail *(T. latifolia)*. Cattail marsh occurs in freshwater and brackish water habitats and typically colonizes disturbed areas.

The **cabbage palm savanna** community has an open or scattered canopy of cabbage palm and an understory of sand cordgrass combined with black rush *(Juncus roemerianus)* and giant plumegrass *(Erianthus giganteus)*. Shrubs including wax myrtle and groundswell *(Baccharis halimifolia)* are also prevalent.

Brackish or saline wetlands occur in marshes fringing Merritt Island adjacent to the lagoonal area and west of Complex 40 on CCAS. Most of these have been impounded for mosquito control and their hydrology and salinity have been modified by this management. These wetlands consist of **sand cordgrass-black rush, mixed salt-tolerant grasses marsh and sea oxeye.** These communities are described in the following paragraphs.

The **sand cordgrass-black rush** community is dominated by sand cordgrass and black rush. Scattered shrubs of wax myrtle and groundswell may occur. This type is generally the most inland of the brackish wetland vegetation and often grades into cabbage palm savanna.

The **mixed salt-tolerant grasses marsh** community is dominated by one or more species of short grasses including saltgrass *(Distichlis spicata)*, seashore paspalum *(Paspalum distinchum)* and seashore dropseed *(Sporobolus virginicus)*. Patches of sea oxeye *(Borrichia frutescens)* may occur.

The **sea oxeye** community occurs interspersed with brackish or saline marsh vegetation and consists of dense strands of sea oxeye along with leather fern *(Acrostichum danaeifolium)*, christmasberry *(Lycium carolinianum)*, and saltwort *(Batis maritima)*.

As previously indicated in Section 4.1.2, "waters" of the U.S. and the state of Florida includes both surface waters and wetlands. These "waters" fall under regulatory review of numerous federal, state and local agencies.

Most "waters" are under the jurisdiction of the Clean Water Act (CWA). A number of federal agencies administer programs that can potentially affect wetlands and their likelihood for utilization. The Army Corps of Engineers (COE), through delegation from the Environmental Protection Agency (EPA), administers the Section 404 Dredge and Fill Permit Program of the CWA. Any action involving discharges of dredged or fill material in waters of the U.S. requires a permit under Section 404 of the CWA. The USFWS has the responsibility to identify threatened and endangered species through the Endangered Species Act. This Act emphasizes the need to preserve critical habitats upon which protected species depend upon. The USFWS reviews Section 404 permit applications and

provides comments to the COE. The EPA also reviews Section 404 applications and reserves the right to veto any COE decision to issue permits.

On the state level, The FDEP regulates dredge and fill activities within "waters of the state" including the landward extent of such waters (wetlands). The St. John's River Water Management District (SJRWMD) maintains a regulatory and planning program which focuses on water quantity as well as water quality. The SJRWMD considers wetlands as hydrologically sensitive areas and exerts regulatory jurisdiction over dredge and fill activities within wetlands. The SJRWMD also, through delegation from FDEP, regulates stormwater management facilities and their subsequent discharges to surface waters.

4.1.6 Terrestrial Communities

As previously indicated in Section 3.3, Alternative 2 originates offsite of KSC and CCAS. A description of the terrestrial communities offsite KSC and CCAS is limited to uplands which are located within the City of Cocoa. These uplands have been mostly developed or are small parcels sandwiched between developed areas. The most dominant vegetative cover on these remaining uplands is comprised of either a pine flatwoods community with an overstory of slash pine *(Pinus elliotti)* or a sand pine *(Pinus clausa)* oak scrub *(Quercus virginiana var. geminata)* community. This area can best be described as a xeric sand pine-scrub community.

The terrestrial communities at KSC consist of approximately 30,000 acres of uplands and can be characterized into three groups; pine flatwoods, scrub habitat and upland hammock. All occur on well-drained, acidic, sandy soils.

Pine flatwoods are dominated by a overstory of slash pine and an understory of myrtle oak *(Q. myrtifolia)*, sand live oak, Chapman oak *(Q. Chapmanii)*, saw palmetto *(Serenoa repens)*, *Lynoia* spp. and *Ilex* spp.

Scrub habitat is divided into two types, oak scrub and saw palmetto scrub. Oak Scrub is dominated by myrtle oak, sand live oak, Chapman oak and saw palmetto. Saw palmetto scrub is dominated by saw palmetto, shrubs such as *Lyonia* spp. and *Ilex* spp., with a few scrub oaks.

Upland hammocks share an overstory dominated by live oak *(Q. virginiana)* and cabbage palm. The understory is dominated by saw palmetto.

Approximately 70 percent, or 11,063 acres, of CCAS has been retained in a natural state of virgin stand and secondary growth of vegetation indigenous to the Florida coastal-salt spray zone, coastal dune, coastal strand, or coastal scrub plant communities. This type of environment offers an excellent habitat for various wildlife species, both resident and migratory.

The Coastal-Salt Spray Zone is adjacent to the Atlantic Ocean on recent dunes. Vegetation here is subject to the effects of wind-borne salt spray as well as sand movement from storms.

The Coastal Dunes occur on the first dunes. It is dominated by sea oats (Uniola paniculta) with other grasses including slender cordgrass (Spartina patens) and beach grass (Panicum amarum) occurring. Small shrubs such as beach berry (Scaevola plumieri), marsh elder (Iva Imbricata) and Croton punctatus occur along with herbs including beach sunflower (Helianthus debilis), railroad vine (Ipomoea pes-caprae), and camphorweed (Heterotheca subaxillaris).

Coastal strand occurs inland from the sea oats zone on more stabilized dunes. It is a dense shrub community dominated by saw palmetto (Serenoa repens) with other shrubs such as sea grape (Coccoloba uvifera), saw myrtle (Myrica cerifera), nakedwood (Myrcianthes fragrans), and snowberry (Chiococca alba) occurring. Inland, sand live oak (Quercus virginiana var. geminata) becomes more abundant.

The coastal dune consist of the area from the high-tide line to a point between the primary and secondary dune crest. Sea oats inhabiting this zone are listed as a species of special concern; their disturbance or removal is prohibited by Florida statute.

The coastal dune zone is used extensively during the summer months for nesting by large numbers of sea turtles. The Air Force has conducted a program to protect the sea turtle nesting areas for many years, including measures to control predation of the nest by raccoons and feral hogs. Recent studies by the Air Force indicate that the effort to reduce the predation rate through greater control and surveillance is beginning to show positive results.

4.1.7 Threatened and Endangered Species 21/10/01

KSC supports large and diverse communities of flora and fauna. Within KSC, much of Merritt Island has been maintained in an undeveloped state as a result of protection within the MINWR and the CNS. The area is a mosaic of natural and developed coastal communities typical of east-central Florida. The diversity of flora and fauna in this area is made even greater by the fact that Merritt Island is the northernmost area in the United States with both tropical and subtropical species.

A list of federally protected animal species known to occur at MINWR and their approximate numbers and breeding status appears in Table 4-1.

TABLE 4-1
Federally Listed Species Occurring on MINWR

SPECIES	BREED	PEAK POPULATION SPRING	SUMMER	FALL	WINTER
West Indian Manatee	Yes	300	120	80	50
Southeastern Beach Mouse	Yes	*(1)	*(1)	*(1)	*(1)
Southern Bald Eagle	Yes	15	8	12	20
Artic Peregrine Falcon	No	6	0	10	5
Wood Stork	Yes	500	300	250	250
Roseate Tern	No	10(2)	0	10(2)	0
Piping Plover	No	10(2)	0	10(2)	5(2)
Florida Scrub Jay	Yes	2500	3500	3500	3000
Kemps' Ridley Turtle	No	103	10(2)	10(2)	10(2)
Loggerhead Turtle	Yes	200	2000	2000	200
Hawksbill Turtle	No	10(2)	10(2)	10(2)	10(2)
Green Turtle	Yes	150	150	400	150
American Alligator	Yes	2500	3500	3500	3000
Eastern Indigo Snake	Yes	750(2)	750(2)	750(2)	750(2)
Atlantic Salt Marsh Snake	Yes	500(3)	500(3)	500(3)	500(3)

(1) = Population data not available
(2) = Estimated Population
(3) = No genetically pure specimens found

The following species listed by the U.S. Fish and Wildlife Service as threatened or endangered are known to occur within or adjacent to the waters surrounding, CCAS: Atlantic Green Turtle (Chelonia mydas), Atlantic Loggerhead Turtle (Caretta carretta), Atlantic Ridley Turtle (Lepidochelys kempi), Leatherback Turtle (Dermochelys coriacea), American Alligator (Alligator mississippiensis), Eastern Brown Pelican (Pelecanus occidentalis), Least Tern (Sterna antillarum), Piping Plover (Characrius melodus), Roseate Spoonbill (Ajaia ajaja), Wood Stork (Mycteria americana), and West Indian Manatee (Trichechus manatus).

The ocean beaches at KSC and CCAS are important nesting areas for loggerhead, green and occasionally leatherback turtles. All three of these sea turtles are federally protected. Surveys conducted in 1989 along the 10 kilometer MINWR beach and 13 kilometers of CCAS beach documented a combined total of 3,134 nests, of which 3,105 were loggerhead and 29 of which were green turtle nests. Nest predation has been lowered in recent years due to screening of nests after egg deposition and raccoon trapping by MINWR personnel. Hatchling disorientation continued to be a problem in 1989, particularly near CCAS launch pads 40 and 41. The 1989 December freeze resulted in retrieval of 253 green and loggerhead and the subsequent release of revived individuals.

KSC and CCAS and the adjacent coastal areas provide habitat for over 300 bird species. Nearly 90 species are resident breeders while over 100 species winter at KSC and CCAS. Many of the wetlands within the MINWR and CCAS are managed to provide wintering

habitat for approximately 200,000 waterfowl. Annual waterfowl population surveys are undertaken by the USFWS on the MINWR. Uplands at KSC and CCAS also provide important habitat for many bird species, including the threatened Florida Scrub Jay. Land bird surveys in hammocks and swamps and scrub have highlighted the importance of broad-leaved woodlands and scrub habitat for the maintenance of regional avian diversity. The MINWR and CCAS are two of the three largest population centers for the Florida Scrub Jay in Florida. Recent population surveys for the Florida Scrub Jay (1,415-3,603 birds) indicate a declining population.

There are ten nesting locations within KSC which have been utilized by southern bald eagles in recent years. Bald eagle management guidelines have been established by the USFWS and are identified as the primary zone and the secondary zone. Activity is prohibited within the primary zone and is restricted within the secondary zone. The primary zone can vary in radius from 750 to 1500 feet from the nest while the secondary zone can range anywhere from 750 feet to one mile from the primary zone.

Fifty-two species of reptiles and 16 amphibian species are known to inhabit the CCAS area. Three of the resident species, (American alligator, eastern indigo snake, and the Atlantic salt marsh snake) are federally protected and require special consideration when projects with potential for environmental impact are undertaken.

More than 25 species of mammals are known to reside within the Merritt Island land mass. Of these 25 species only three species are federally protected, the Florida Panther, the West Indian Manatee and the Southeastern Beach Mouse. There have been no recent sightings nor evidence of panther activity at the MINWR so, its presence, though undetermined, is not considered likely.

As much as 15 percent of the total manatee population in the U.S. is located within the waters immediately surrounding the KSC and CCAS property. To further protect this endangered species the USFWS officially designated the following waters at the KSC and CCAS as Critical Habitat: (1) the entire inland section of water known as the Indian River Lagoon, from its northernmost point immediately south of the intersection of U.S. Highway 1 and Florida State Road 3, (2) the entire inland section of water known as the Banana River, north of KARS park, (3) and all waterways between the Indian River Lagoon and the Banana River (exclusive of those existing manmade structures or settlements which are not necessary to the normal needs of the survival of the species). Aerial surveys conducted since 1977 have shown increases in manatees utilizing the northern Banana River and data indicates that the waters within and adjacent to CCAS continue to provide important habitat.

4.1.8 Historic and Archaeological

There have been several isolated archaeological studies and surveys on the KSC and CCAS property since its initial acquisition. Many of the studies were conducted by early explorers or have been performed more recently in response to proposed construction activity in undisturbed areas. The earliest of these surveys was conducted by J. Francis LeBaron, a U.S. engineer who traveled through the region from 1877 to 1878. In 1895-1896, Clarence B. Moore excavated a number of Indian mounds on the Indian River. In 1931, Gene M. Stirling of the Peabody Museum investigated 11 sites in the

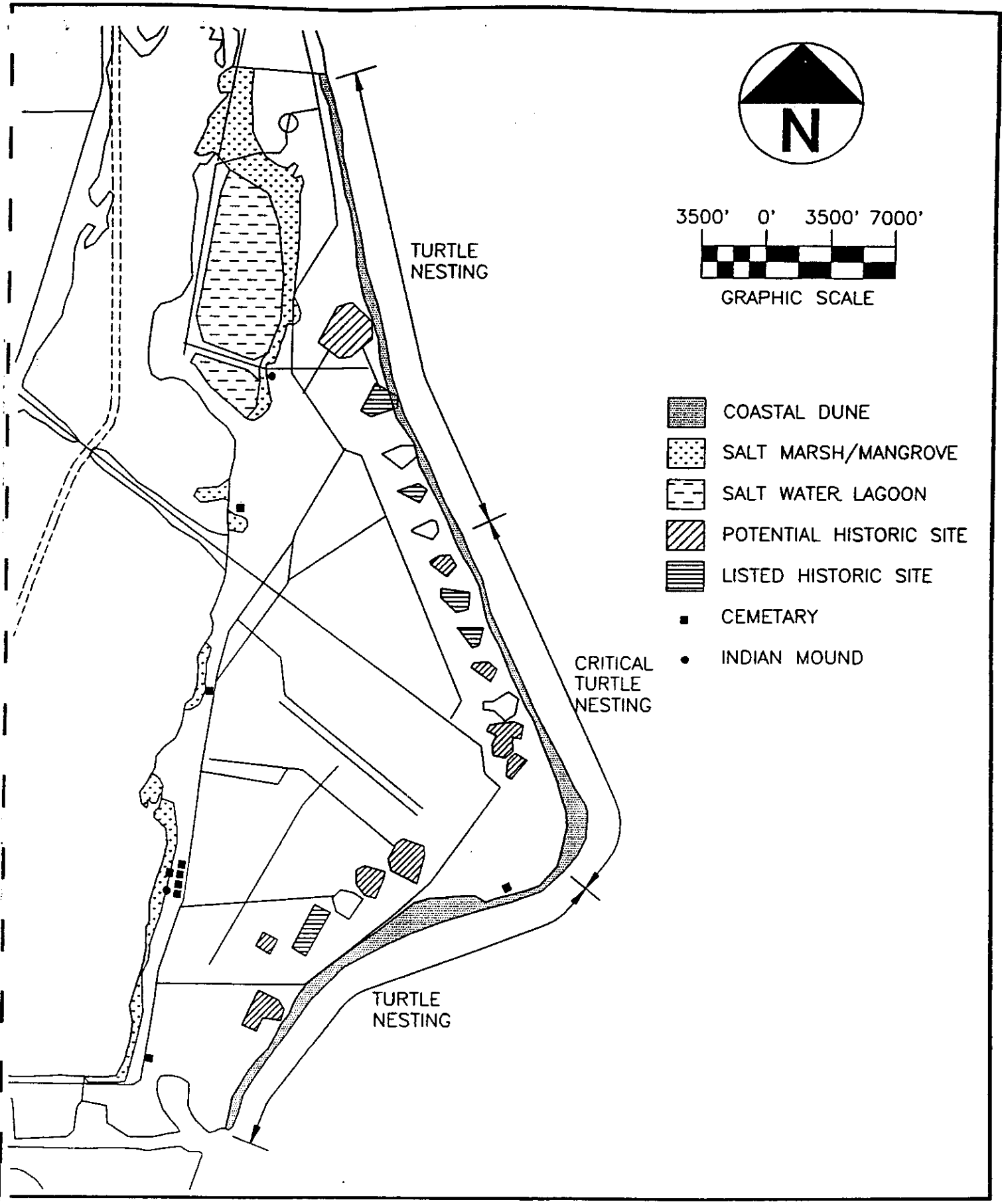
CCAS. A landmark synthesis of the Indian River archaeology was published by Rouse in 1951. Between 1956 and 1963, Ripley P. Bullen's work at Ross Hammock, Castle Windy, and Green Mound contributed to a better understanding of the sequence of aboriginal cultures in the region. A complete list of historical surveys and sites with detailed descriptions can be found in the Environmental Resources Document, CCAS-DF-3080, Revision A, dated March, 1992. Figure 4-2 shows the natural and cultural restraints on the CCAS site.

Archaeological evidence indicates that the general area was inhabited by prehistoric Indians at least 3,000 years ago. The first visitors were probably small bands of nomadic hunters and gatherers who wandered in from the St. Johns River basin seeking food sources. Shellfish of several types formed a primary dietary component as evidenced by the numerous shell middens which still exist in the area. While they left few artifacts, it is known that they used spears with chipped flint tips for weapons. These archaeological studies have provided valuable historic information concerning early settlement of the area.

The first European explorers to visit the area were the Spaniards. Their first period of influence was from 1513, when Ponce de Leon first made contact with the Ais Indian tribe, through 1763. Neither Spanish settlements nor missions were known to have occurred in the Cape Canaveral area, though evidence of their passage is indicated by the presence of wild orange groves. Following the first occupation by the Spanish, English settlers moved into the area. Among the earliest were some of Dr. Andrew Turnbull's colonists from New Smyrna who established Ross Hammock. They are believed to have excavated a drainage canal which still exists. The American Revolution brought an end to Britain's influence over its Florida colonies.

After Florida ceded to the United States in 1821, it became a territory and shortly thereafter, commerce and settlement began along the coastal areas. Limited agriculture and fishing industries developed, and permanent home sites and settlements were established. Citrus was an important early crop. Sea turtles were captured in the Mosquito Lagoon and shipped to northern towns. Another early agricultural industry was the cutting of live oak trees for use in the construction of naval ships.

The extension of Henry Flagler's East Coast Railroad drastically reduced the area's dependence on waterway transportation and opened up the area to further development including agriculture, fishing and permanent housing.



NATURAL/CULTURAL RESTRAINTS

FIGURE 4-2

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION

The protection of archaeological and historical resources is administered by the Division of Historic Resources (DHR) in the Florida Department of State. If archaeological sites in a proposed undisturbed development area are likely or known, and impacts are indeterminable, then the DHR will require a detailed site survey to locate and assess the historical or archaeological significance of sites known or likely to occur within the subject area. If the development activity is proposed in a site which has already been disturbed by development activity and no sites of significance are known or likely to occur, then the DHR may allow the project activity to proceed.

In 1993 and 1994 archeological and historic surveys of CCAS were completed to determine which facilities and sites are eligible for inclusion in the National Register of Historic Places (NRHP).

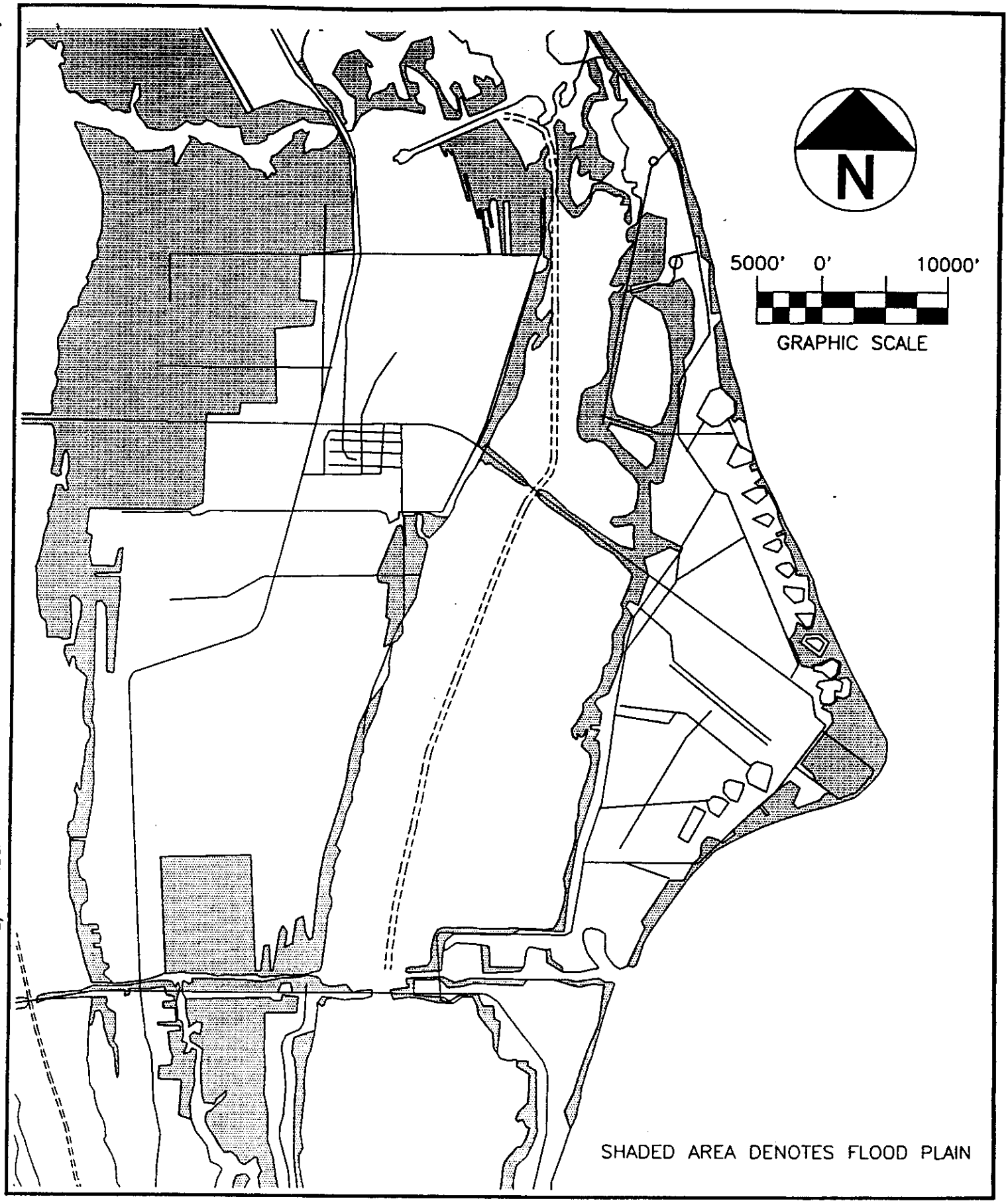
Thirty-three sites are identified as potentially eligible for listing in the NRHP. These sites include the Old Lighthouse Site (built between 1843 and 1847) and Indian burial mounds that could potentially contain artifacts.

Seven launch complexes have been identified as potentially eligible for inclusion in the NRHP. The National Park Service conducted a study to provide alternatives for presenting the "Man in Space" theme that resulted in the listing of seven other sites in the NRHP. In addition, CCAS received National Historic Landmark status as a discontiguous historic district made up the seven listed properties.

4.1.9 Flood Plains

The potential routes are located within cleared and sodded rights-of-way. Construction of the pipeline will not leave structures above grade and within the floodplain. Most construction activities will be above the 100-year flood plain. Construction activities which occur within the 100-year flood plain will be subject to current stormwater and dredge and fill regulations. The 100-year flood plain at KSC is established at the +4 National Geodetic Vertical Datum (NGVD). Approximately 78 percent of the KSC land area is within this designation (see Figure 4-3). On CCAS, the 100-year floodplain extends into the Cape to seven feet above mean sea level (MSL) on the ocean side and four feet above MSL on the Banana River side.

In accordance with Executive Order 11988 "Flood Plain Management" and EO 11990 "Protection of Wetlands", KSC and CCAS has established procedures and planning policies to minimize federal project and operations impacts on flood plains and wetland resources. Any KSC or CCAS activity which substantially impacts flood plains or wetlands is subject to NEPA documentation requirements. The requirement to prepare an Environmental Assessment insures that all practicable alternatives to the proposed action have been reviewed.



KSC AND CCAS 100-YEAR FLOOD PLAIN MAP

FIGURE 4-3

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION

4.1.10 Noise

Noise generated at KSC and CCAS by day-to-day operations, space vehicle launches and Orbiter landings can be attributed to six general sources: (1) Orbiter reentry sonic booms, (2) launches, (3) aircraft movements, (4) industrial operations, (5) construction, and (6) traffic noise.

The 24-hour average ambient noise level on KSC and CCAS is appreciably lower than the EPA recommended upper level of 70 decibels (dBA). This is on a scale ranging from approximately 10 dBA for the rustling of grass or leaves to 115 dBA, the unprotected hearing upper limit for exposure on a missile or space launch. The backwoods and National Wildlife Refuge areas of KSC and CCAS are exposed to relatively low ambient noise levels, in the range of 35 to 40 dBA.

4.1.11 Infrastructure and Services

The KSC and CCAS require the facilities and functions to directly support flight operations. Additionally, KSC and CCAS have Base Support Operations which consist of daily tasks that are required to support the Center. Base support operations, as distinguished from launch and landing operations include:

* Maintenance of Facilities
* Utilities
* Shops (including laboratories and the Motor Pool)
* Roads and Grounds (including sanitary landfill)
* Waste Management
* Logistics (liquid fuels and fluids)
* Emergency Services
* Visitor Services

Road access to KSC and CCAS is from SR-3 and the Cape Road from the south, NASA Causeway (SR-405) and the Beach Road (SR-406) from the west, and Kennedy parkway from the north. All roads have control access points which are manned 24 hours per day, seven days per week.

4.1.12 Socioeconomics

There were approximately 19,088 personnel employed at KSC at the end of September, 1991. This work force population includes contractor, construction, tenant, and permanent civil service employees. Civil service employees, which are generally located in the General Support Zone, account for approximately 13% of the total work force.

Approximately 40-45% of the estimated personnel at KSC have positions directly related to the STS and payload processing operations. The remaining work force are employed in ground and base support, unmanned launch programs, crew training, engineering and administrative positions. The largest concentration of personnel (approximately 40% of the KSC work force) are stationed in the VAB area. The Industrial Area is the next most populated area, with approximately 36% of the work force. The remaining personnel are stationed at various outlying facilities at KSC and at the CCAS.

A total of 439 military, 379 civilian, and 6,965 contractor personnel are employed at CCAS, for a total installation population of 7,783. There is no military family housing at CCAS.

Cape Canaveral Air Station	Population
Military	439
Civilian (Appropriated Funds)	379
Civilian (NAF)	0
Civilian (Contractors)	6,965
Dependents	0
Total	7,783

4.1.13 Land Use

KSC comprises approximately 140,000 acres of which approximately 56,000 acres occurs as submerged land including portions of the Indian River Lagoon, the Banana River, Mosquito Lagoon and all of Banana Creek. Only a very small part of the total acreage has been developed or designated for NASA operational or industrial use. Because Merritt Island was found to include prime habitat for unique and endangered wildlife, NASA and the U.S. Fish and Wildlife Service (USFWS) entered into an agreement to establish a wildlife preserve known as the Merritt Island Wildlife Refuge (MINWR), within the boundaries of KSC. Also, an agreement with the U.S. Department of the Interior resulted in the majority of the Canaveral National Seashore to fall within the limits of KSC.

Developed facilities within KSC include the Shuttle Landing Facility, the Industrial Area and the VAB area. These facilities comprise more than 70% of the NASA operational area.

NASA has broadly zoned the entire KSC into three functional areas. They are the **Launch Impact Zone**, the **Launch Support Zone** and the **General Support Zone.** The Launch Impact Zone extends from the shuttle launch pads to the Launch Impact Line and into the Atlantic Ocean. High sound-pressure levels occur in this zone and personnel are excluded from this zone during launch events. The Launch Support Zone extends beyond the Launch Impact Line to the General Support Zone. Only those structures required in direct support of launches are located within this area. Structures in this zone may require special design to provide protection from toxic propellants and other hazards. The General Support Zone extends from the Launch Support Zone to the KSC boundaries. Structures within this area may be manned and are relatively safe from explosion on launch pads, acoustic vibrations, and toxic propellant hazards.

Existing land use at CCAS is depicted on the Existing Land Use Map. Because of the special nature of activities at CCAS, several new land use categories have been identified to describe the pattern of activities on the installation. The Launch Operations category is used to identify the launch complexes and adjacent launch control facilities. Launch danger zones are associated with active launch complexes; personnel access is controlled within the launch danger zones at predetermined times prior to a launch.

Launch and Range Support areas contain facilities within which launch vehicles, payloads, fuels, and related equipment are processed and maintained. Explosive safety

quantity-distance arcs (QDs) are associated with many of the vehicle and fuels facilities; non-essential personnel should be located away from these areas. Payloads are also processed within Launch and Range Support facilities; these areas generally have associated QDs, and security requirements are very high due to the sensitive nature of the operations.

Launch and Range Control facilities include those specifically associated with operations at the time of launch. These uses are currently scattered through the installation.

U.S. Navy operations are located in the Port Operations area, a commercial and industrial port in an artificial harbor. Other Navy facilities are located between Pier Road and South Patrol Road. The Canaveral Locks connect the harbor to the Banana River. Two of the Port Canaveral turning basins are used by civilian and military vessels. A third basin (eastern), constructed by the Navy for the Trident Program, is restricted to military vessels. The QD established for the Fleet Ballistic Missile Program operations at the port is a constraint to new development.

Most support facilities at CCAS are centrally located in what is known as the "Industrial Area." The Industrial Area actually includes administrative, community, recreation, and launch and range support and control, as well as industrial land uses.

Airfield land use is defined by the Skid Strip and associated setbacks and clear zones. The airfield accounts for 1,129 acres. Aircraft Operations and Maintenance areas include the Airfield Operations Facility adjacent to the west end of the Skid Strip and are included in the Airfield land use.

Land Use	Existing (Acres)	Future (Acres)
Airfield	1,129	1,120
Runway/Taxiway/Apron	105	105
Industrial	522*	753
Administrative	----	266
Outdoor Recreation	----	410
Open Space	193	1,446
Water	1,768	1,768
Launch Operations	4,915	3,292
Launch and Range Support	7,075	5,366
Launch and Range Control	----	288
Port Operations	100	981
Total	15,804	15,804

* This is a mixture of Industrial, Administrative, Launch and Range Support and Control, and Outdoor Recreation land uses.

4.2 Alternative 1 (Preferred Alternative)

The following section describes the affected environment within and adjacent to the proposed Alternative 1 corridor as described in Section 3.3.

4.2.1 Air Quality

Air quality for the Preferred Alternative is the same as that of KSC and CCAS site, generally good. The route traverses a small portion of the KSC site and a large portion of the CCAS site.

4.2.2 Surface Water Quality

The area of surface water which is associated with this alternative is the Banana River. The water quality within the Banana River is considered good to excellent.

4.2.3 Ground Water Quality

The Preferred Alternative covers much of CCAS. Three aquifers are found under the Preferred Alternative, the surficial aquifer, the intermediate aquifer and the Floridan aquifer. The surficial aquifer is approximately 4 to 20 feet below the surface and receives direct recharge from the surface above. The immediate recharge characteristic provides waters within this aquifer with a low salinity content and thus high quality.

Waters of the intermediate and Floridan aquifers are highly mineralized and saline and thus are of lower quality than the surficial aquifer. This characteristic, due in large part to salt water intrusion, limits waters within these aquifers for potable and irrigation water supplies.

4.2.4 Geology

The geology of the pipeline route for the Preferred Alternative is typical of Merritt Island, KSC and CCAS. Merritt Island consists of Pleistocene and recent deposits occurring to a depth of 30 to 45 feet and containing the surficial aquifer, and the Pliocene and Upper Miocene Deposits occurring between 40 to 100 feet below the surface. The Hawthorn Formation, the principal confining unit of the Floridan aquifer occurs from 100 to approximately 150 feet below the surface. Below this layer, the Ocala Limestone and Eocene deposits that contain the Floridan aquifer are found.

The geology of KSC and CCAS are described in Section 4.1.4.

4.2.5 Aquatic Communities

Alternative 1 would necessitate a subaqueous crossing of the Banana River. The aquatic communities associated with the Banana River for this alternative are limited to open water habitat and do not include seagrass communities.

Seagrass coverage within and adjacent to the proposed corridor is shown in Figure 4-1. This map was produced with information obtained from the Bionetics Corporation, a NASA contractor, and delineates any seagrass coverage within or adjacent to the proposed subaqueous corridor.

Also associated with the open water habitats of the Indian River would be the endangered West Indian Manatee. Since this species is transient by nature and feeds on seagrasses and other aquatic plants, its presence would be expected within the proposed corridor. More specific information concerning this species and any corresponding effects of this alternative is discussed in Section 4.2.7.

Other aquatic communities which are adjacent to this corridor are limited to freshwater swale wetland communities within the various road rights-of-way and the brackish to saline canals on CCAS. The threatened American alligator is known to reside in the drainage canals adjacent to Phillips Parkway; however, no modifications/construction are proposed within the canal.

4.2.6 Terrestrial Communities

The proposed Alternative 1 action occurs within the rights-of-way of roadways. These rights-of-way have been substantially cleared of upland vegetation and consist of sodded medians and shoulders which have been contoured to accommodate stormwater runoff. The rights-of-way are maintained by mowing and virtually no natural terrestrial communities remain.

Natural scrub vegetation does occur immediately adjacent to the right-of-way along Phillips Parkway.

4.2.7 Threatened and Endangered Species

The Florida Scrub Jay is known to inhabit the vegetation adjacent to Phillips Parkway. The scrub jay and its natural habitat will be protected by the establishment and maintenance of barriers and/or buffer zones.

The endangered West Indian Manatee is the only protected aquatic species which could be directly affected by the proposed action in Alternative 1. Manatees are large herbivores who forage for seagrasses and other aquatic vegetation and by nature exhibit transient characteristics. The necessity of placing a subaqueous pipeline in the bottom of the Banana River provides the opportunity for encounter during the installation/construction phase of the proposed action.

Of concern would be the potential for collision or crushing of the mammal by vessels associated with emplacement of the subaqueous pipeline. Indirect impacts to manatee habitat could also occur via turbid discharges during the excavation/backfill phase of the project. Turbid discharges could reduce light availability to the seagrasses in the nearfield waters thus reducing photosynthetic activity and possibly causing eventual plant mortality. Any loss of seagrass would be considered a loss of manatee habitat.

As indicated in Section 4.1.5, environmental permits from the COE and FDEP will be required for construction of the subaqueous pipeline in the Banana River. As part of the permitting process, impacts to endangered species are evaluated. Typically, as a condition of permit approval, the COE and FDEP will require appropriate turbidity containment measures to minimize or eliminate potential adverse impacts to adjacent seagrass habitat. Additionally, specific conditions pertaining to protective measures concerning the manatee are made a part of the permit as well. These permit conditions bind the permittee to take the precautionary measures as stated in each pertinent condition or be subject to enforcement proceedings by the COE and/or FDEP.

4.2.8 Historic and Archaeological

Except for the subaqueous crossing of the Banana River, all construction activity for Alternative 1 is located within the rights-of-way of major roadways which have been substantially cleared of upland vegetation and consist of sodded medians and shoulders which have been contoured to accommodate stormwater runoff. Current records show there are no historic or archeological sites located within these rights-of-way. The rights-of-way are maintained by mowing and no undisturbed areas remain.

4.2.9 Flood Plains

The Alternative 1 pipeline route is designed to avoid wetlands and floodplains. The 100 year flood plain is usually defined as having a one-percent chance of occurring in any given year. The 100 year flood elevation at KSC has been established at +4 feet NGVD and the 100 year flood elevation at CCAS has been established at +4 feet NGVD on the Banana River side and +7 feet NGVD on the ocean side. The route of the natural gas lines are above the 5-foot contour, with the exceptions where crossings are made at the Banana River and drainage canals.

4.2.10 Noise

The Alternative 1 pipeline route is relatively quiet, with the exception of traffic noise, construction activities, occasional locomotive horns, jet traffic, noise from the agricultural machinery, industrial operations, launches, and reentry sonic booms. Noise from these sources is well within appropriate limits for human health and wildlife habitat.

4.2.11 Infrastructure and Services

KSC and CCAS is presently served by four lane roadways that run north and south, east and west directions. Construction will be scheduled to minimize the impact to traffic flow, and traffic maintenance provisions will be established.

No hazardous materials are anticipated to be generated during the installation or operation of the natural gas system.

Underground utilities within the right-of-way should be located and avoided whenever possible.

4.2.12 Socioeconomics

Construction manpower requirements during installation of the gas main along the Preferred Alternative route would have a positive, short-term impact on local employment. However, the number of workers required during construction (less than 50) is not expected to significantly affect the overall work force in the area around KSC and CCAS.

4.2.13 Land Use

All construction activities for the Preferred Alternative would be limited to the existing road rights-of-way within the General Support Zone of KSC and virtually all of CCAS. A Future Land Use Map and adjacent codes is included as Fig. 4-4.

4.3 Alternative 2 (Southern Route)

The following section describes the affected environment within and adjacent to the proposed Alternative 2 corridor as described in Section 3.3.

4.3.1 Air Quality

Similar Air Quality to the Preferred Alternative, generally good.

4.3.2 Surface Water Quality

The Indian River, Sykes Creek, Banana River and the Barge Canal are the four surface waters which would be affected by this alternative. The proposed corridor crosses the Indian River, Sykes Creek and the Banana River parallel to the south side of the Beeline Expressway (SR 528) and the Barge Canal on the east side of State Route 401.

The water quality within the Indian River in this area is poor. The Banana River in this area is designated as a Class III water.

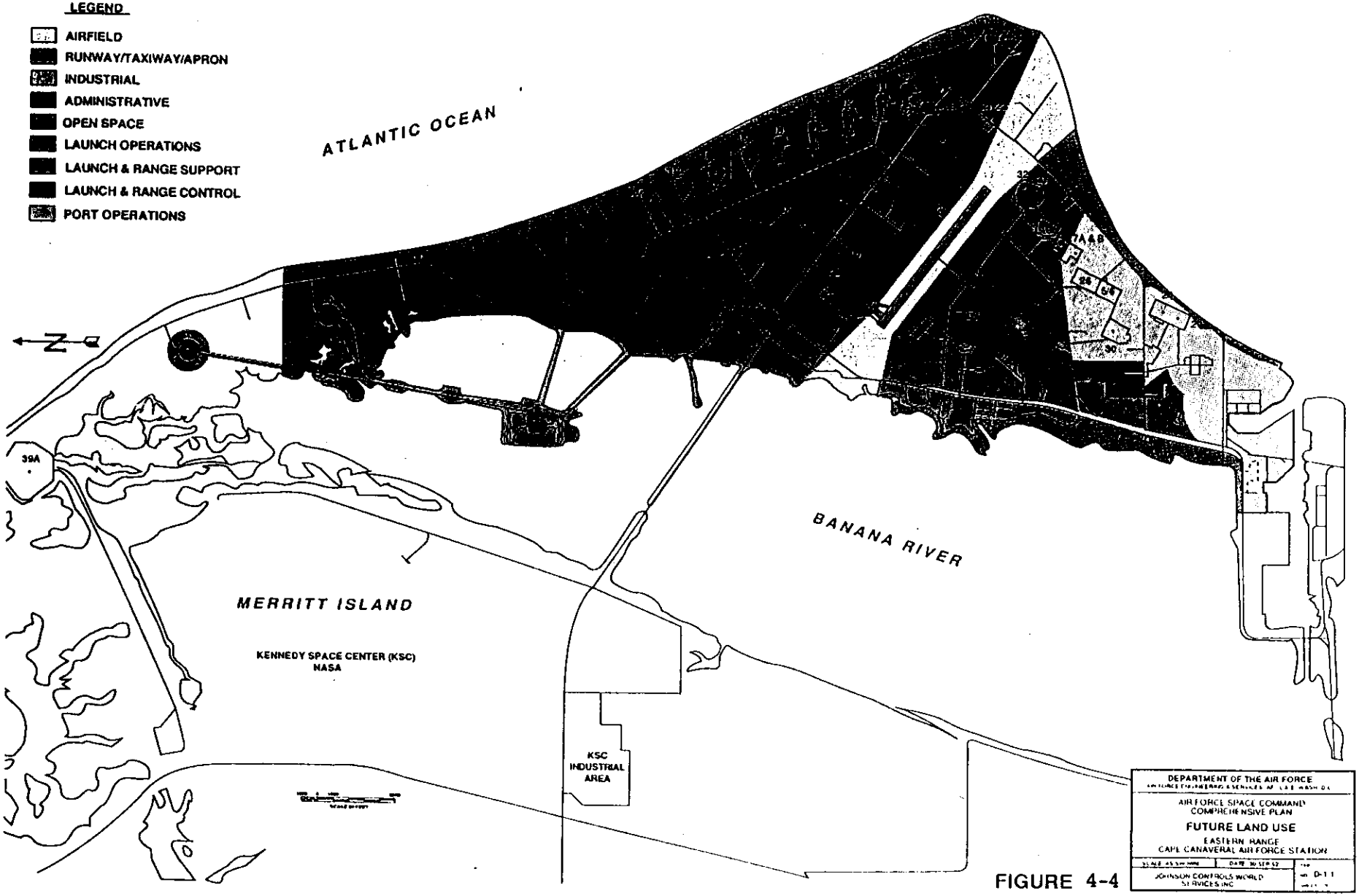

LEGEND
AIRFIELD
RUNWAY/TAXIWAY/APRON
INDUSTRIAL
ADMINISTRATIVE
OPEN SPACE
LAUNCH OPERATIONS
LAUNCH & RANGE SUPPORT
LAUNCH & RANGE CONTROL
PORT OPERATIONS
ATLANTIC OCEAN
BANANA RIVER
MERRITT ISLAND
KENNEDY SPACE CENTER (KSC)
NASA
KSC
INDUSTRIAL
AREA
39A
AAFB
DEPARTMENT OF THE AIR FORCE
AIR FORCE SPACE COMMAND
COMPREHENSIVE PLAN
FUTURE LAND USE
EASTERN RANGE
CAPE CANAVERAL AIR FORCE STATION
JOHNSON CONTROLS WORLD SERVICES INC
D-11

FIGURE 4-4

4.3.3 Ground Water Quality

Ground water quality at the Alternative 2 site is comparable to that under the entire KSC and CCAS area and the Preferred Alternative site. The surficial aquifer in all of these areas is of higher quality than the deeper intermediate and Floridan aquifers because of its influence by direct recharge from rainfall events. Intermediate and Floridan aquifers have high salt contents due to salt water intrusion.

4.3.4 Geology

Geology of the Alternative 2 site is similar to that of the Preferred Alternative.

4.3.5 Aquatic Communities

Alternative 2 would necessitate subaqueous crossings of the Indian River, Sykes Creek and the Banana River. The aquatic communities associated with the subaqueous crossings for this alternative are limited to open water habitat and may include seagrass communities.

The Indian River waters adjacent to the Alternative 2 corridor are classified by FDEP as prohibited for shellfish harvesting. The Banana River waters adjacent to the Alternative 2 corridor are classified by FDEP as unclassified (unapproved) for shellfish harvesting.

Also associated with the open water habitat of the Indian River, Banana and Barge Canal would be the endangered West Indian Manatee. Since this species is transient by nature and feeds on seagrasses and other aquatic plants, its presence would be anticipated within the proposed corridor of the subaqueous crossing of the intracoastal waterway. More specific information concerning this species and any corresponding effects of this alternative is discussed in Section 4.3.7.

The proposed crossing of the Barge Canal will be accomplished using a directional bore which will have no impact on the West Indian Manatee or seagrasses.

4.3.6 Terrestrial Communities

Action that would occur with Alternative 2 occurs within the rights-of-way S.R. 520, Clear Lake Road, the Beeline Expressway, S.R. 401, SR 410 to the CCAS industrial area. These rights-of-way have been substantially cleared of upland vegetation and consist of sodded medians and/or shoulders with very sparse or scattered trees, which have been contoured to accommodate stormwater runoff. The rights-of-way are maintained by mowing and virtually no natural terrestrial communities remain.

4.3.7 Threatened and Endangered Species

The Florida Scrub Jay is the only protected terrestial species which could be directly affected by the proposed action in Alternative 2. The concerns and precautionary measures previously discussed in Section 4.2.7 will also apply to this alternative.

The endangered West Indian Manatee is the only protected aquatic species which could be directly affected by the proposed action in Alternative 2. The concerns and precautionary measures previously discussed for this species in Section 4.2.7 would apply for this alternative as well.

4.3.8 Historic and Archaeological

Except for the subaqueous crossings of the Indian River, Sykes Creek, Banana River and Barge Canal, all construction activity for Alternative 2 is located within the rights-of-way of major roadways which have been substantially cleared of upland vegetation and consist of sodded medians and shoulders which have been contoured to accommodate stormwater runoff. Current records show that there are no historical or archaeological sites within these rights-of-way. The rights-of-way are maintained by mowing and no undisturbed areas remain.

4.3.9 Flood plains

Flood plain impacts of Alternative 2 are similar to those of the Preferred Alternative.

4.3.10 Noise

Noise impacts of Alternative 2 are similar to those of the Preferred Alternative. The most substantial noise sources in and around the Alternative 2 route are vehicular traffic and industrial/commercial activities.

4.3.11 Infrastructure and Services

Infrastructure and Services impacts of Alternative 2 are the same as for the Preferred Alternative.

4.3.12 Socioeconomics

Construction manpower requirements during installation of the gas main along the Alternative 2 route would have a positive, short-term impact on local employment. However, the number of workers required during construction (less than 50) is not expected to significantly affect the overall work force in the area around KSC and CCAS.

4.3.13 Land Use

All construction activities associated with Alternative 2 would be limited to the existing road rights-of-way within City of Cocoa, the General Support Zone of KSC and virtually all of CCAS. The future Land Use Map and adjacent codes is included as Fig. 4-4. Adjacent residential, commercial and various businesses and residences occur within the City of Cocoa.

4.4 Alternative 3 (Merritt Island Route)

The following section describes the affected environment within and adjacent to the proposed Alternative 3 corridor as described in Section 3.3.

4.4.1 Air Quality

Similar Air Quality to the Preferred Alternative, generally good.

4.4.2 Surface Water Quality

The Barge Canal (twice), Sykes Creek, and the Banana River are the three surface waters which would be affected by this alternative. The proposed corridor crosses the Barge Canal parallel to CR 3, Sykes Creek and the Banana River on the south side of the Beeline Expressway. Then crosses the Barge Canal at the Port of Canaveral

The water quality within the Banana River in this area is poor.

4.4.3 Ground Water Quality

Ground water quality at the Alternative 3 site is comparable to that under the entire KSC and CCAS area and the Preferred Alternative site. The surficial aquifer in all of these areas is of higher quality than the deeper intermediate and Floridan aquifers because of its influence by direct recharge from rainfall events. Intermediate and Floridan aquifers have high salt contents due to salt water intrusion.

4.4.4 Geology

Geology of the Alternative 3 site is similar to that of the Preferred Alternative.

4.4.5 Aquatic Communities

Alternative 3 would necessitate subaqueous crossings of Sykes Creek and the Banana River. The aquatic communities associated with the Banana River for this alternative are identical to those of Alternative 2.

The Banana River waters adjacent to the Alternative 3 corridor are classified by FDEP as unclassified (unapproved) for shellfish harvesting.

Also associated with the open water habitat of the Banana River and Barge Canal would be the endangered West Indian Manatee. Since this species is transient by nature and feeds on seagrasses and other aquatic plants, its presence would be anticipated within the proposed corridor of the subaqueous crossing of the intracoastal waterway. More specific information concerning this species and any corresponding effects of this alternative is discussed in Section 4.4.7.

The proposed crossings of the Barge Canal will be accomplished using a directional bore which will have no impact on the West Indian Manatee or seagrasses.

4.4.6 Terrestrial Communities

Action that would occur with Alternative 3 occurs within the rights-of-way CR3, the Beeline Expressway, S.R. 401, to the CCAS industrial zone. These rights-of-way have been substantially cleared of upland vegetation and consist of sodded medians and/or shoulders with very sparse or scattered trees, which have been contoured to accommodate stormwater runoff. The rights-of-way are maintained by mowing and virtually no natural terrestrial communities remain.

4.4.7 Threatened and Endangered Species

The endangered West Indian Manatee is the only protected species which could be directly affected by the proposed action in Alternative 3. The concerns and precautionary measures previously discussed for this species in Section 4.2.7 would apply for this alternative as well.

4.4.8 Historic and Archaeological

Except for the subaqueous crossings of the Sykes Creek, Barge Canal, and the Banana River, all construction activity for Alternative 3 is located within the rights-of-way of major roadways which have been substantially cleared of upland vegetation and consist of sodded medians and shoulders which have been contoured to accommodate stormwater runoff. Current records show that there are no historic or archaeological sites within these rights-of-way. The rights-of-way are maintained by mowing and no undisturbed areas remain.

4.4.9 Flood plains

Flood plain impacts of Alternative 3 are similar to those of the Preferred Alternative.

4.4.10 Noise

Noise impacts of Alternative 3 are similar to those of the Preferred Alternative. The most substantial noise sources in and around the Alternative 3 route are vehicular traffic and industrial/commercial activities.

4.4.11 Infrastructure and Services

Infrastructure and Services impacts of Alternative 3 are the same as for the Preferred Alternative.

4.4.12 Socioeconomics

Construction manpower requirements during installation of the gas main along the Alternative 3 route would have a positive, short-term impact on local employment. However, the number of workers required during construction (less than 50) is not expected to significantly affect the overall work force in the area around KSC and CCAS.

4.4.13 Land Use

All construction activities associated with Alternative 3 would be limited to the existing road rights-of-way within the General Support Zone of KSC and along road right-of-ways in the City of Cocoa.

The Future Land Use Map and adjacent codes is included as Fig. 4-4. Adjacent residential, commercial and various businesses and residences occur within the City of Cocoa.

4.5 "No Action" Alternative

The "No Action" Alternative leaves the natural gas delivery and distribution system unbuilt.

4.5.1 Air Quality

The "No Action" Alternative continues the use of petroleum fuels as the primary energy source for heating, cooling and CCAS vehicles. No action likely will result in no reductions in emissions. The heat plants consume low sulfur No. 2 fuel oil. Actual air emissions of particulate matter (PM), NO_X, SO_2, HC and CO from these sources are less than those allowable in the applicable permits.

Mobile sources of air pollution from vehicular traffic, tour busses, and locomotives can cause increases in ambient CO, NO_2 and, on occasion, O_3 readings at the PAMS A site, especially resulting from employee traffic.

Despite the above-mentioned sources of air pollution, air quality for the "No Action" Alternative is generally good.

4.5.2 Surface Water Quality.
No change in impacts to surface water quality.

4.5.3 Ground Water Quality
No change in current impacts to ground water quality.

4.5.4 Geology
No impacts to geology.

4.5.5 Aquatic Communities
There are no changes in impacts to aquatic communities associated with the No Action Alternative.

4.5.6 Terrestrial Communities
There are no changes in impacts to terrestrial communities associated with the No Action Alternative.

4.5.7 Threatened and Endangered Species
No change to impacts on threatened and endangered species.

4.5.8 Historic and Archaeological
No impacts.

4.5.9 Flood Plains
Not applicable.

4.5.10 Noise
No change to impacts of noise.

4.5.11 Infrastructure and Services
No change.

4.5.12 Socioeconomics
Continued use of petroleum fuels is anticipated to cause demand strains on the locating, drilling, pumping, refining, and transportation of a known limited resource. Neglecting the cleaner and more economical fuel may result in public and political pressures for CCAS to lead the way in the use of alternative fuels.

4.5.13 Land Use - No change.

5. ENVIRONMENTAL IMPACT OF PROPOSED ALTERNATIVES

5.1 Alternative 1 (Preferred Alternative)

5.1.1 Air Quality

Construction. Alternative 1 will require utility installations throughout most of the CCAS site along existing traffic corridors or right-of-ways. The impact of construction vehicles to the ambient air quality will be a small fraction of total emissions at CCAS. Construction is scheduled to occur within a six month window this coming spring season of 1997. Dust generated during excavation and backfilling activities should be controlled by the use of water spray and other standard dust control measures.

Operation. Natural gas is recognized as a cleaner, more efficient fuel than petroleum based fuel. Once in place, the natural gas delivery and distribution system will not itself cause emissions. Natural gas is anticipated to replace petroleum fuels and reduce NO_X and SO_2 emissions at the Points of Delivery shown in Figures 5-1 through 5-13.

5.1.2 Surface Water Quality

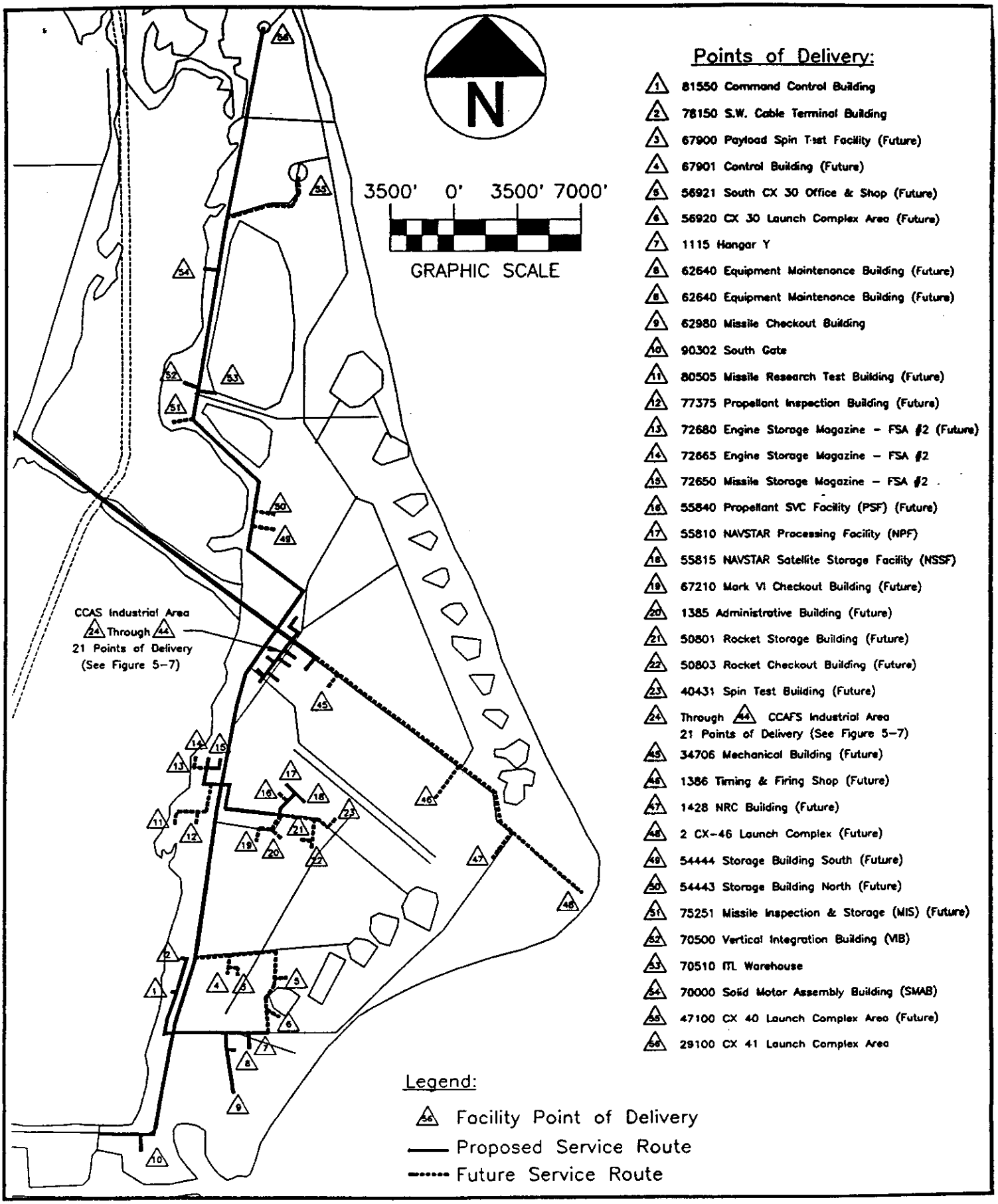
Construction. Adverse affects to the surface water quality of the Banana River for Alternative 1 would appear to be minimal or none if precautionary measures in accordance with the conditions of the USCOE and FDEP Permits are taken to contain any turbidity generated during emplacement of the subaqueous pipeline.

Standard containment measures such as hay bales, silt screens, etc. employed adjacent to other surface waters during construction of the pipeline should also prevent any significant degradation from occurring within those waters.

Operation. No long-term adverse affects to surface waters should occur during the operation phase.

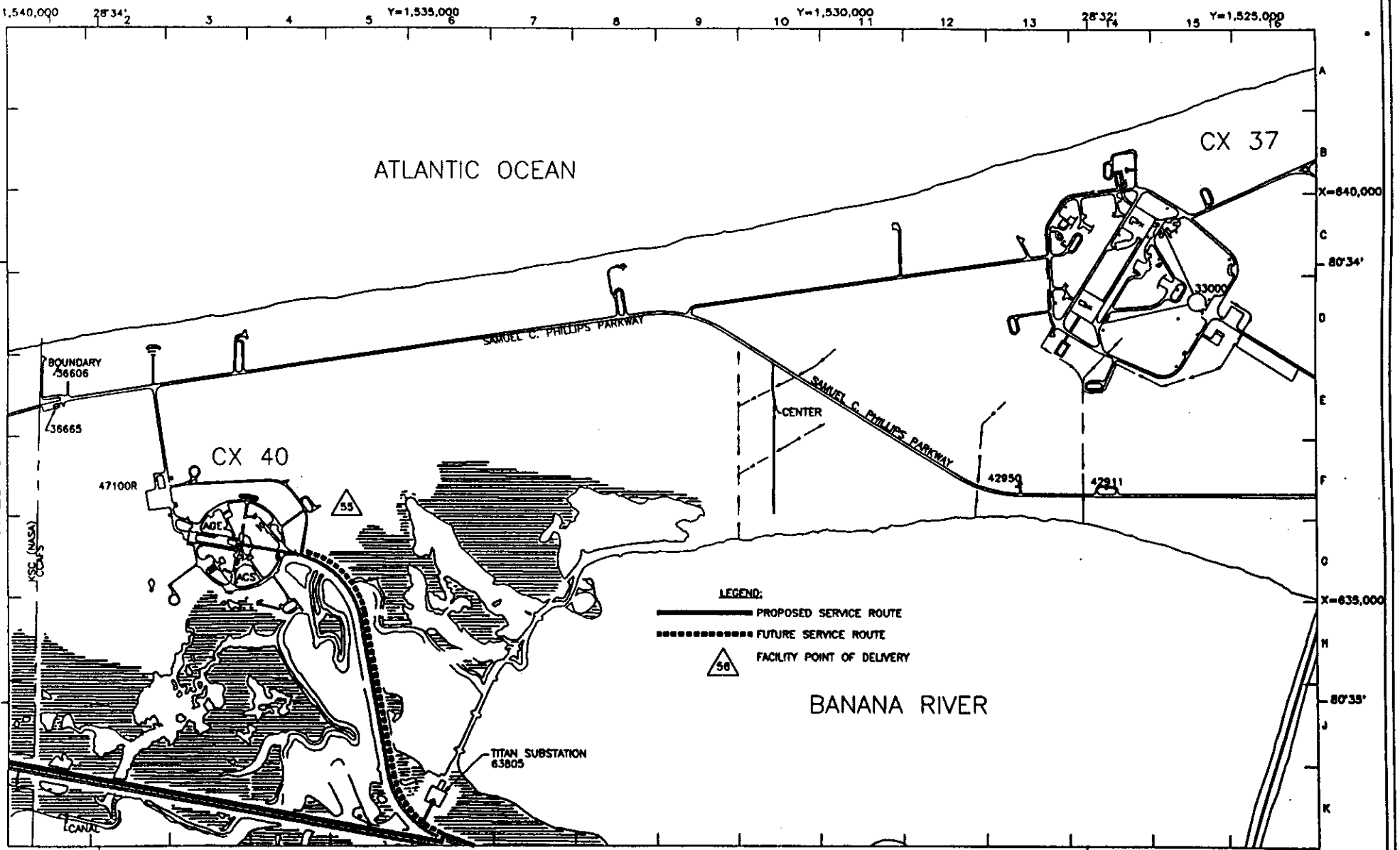
5.1.3 Ground Water Quality

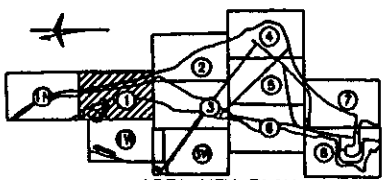
Construction. There should be no change in ground water quality resulting from Alternative 1 construction activities. The Preferred Alternative will not negatively impact ground waters of KSC and CCAS. During certain construction activities, the contractor may be required to keep his trench free from standing water while installing the natural gas lines. One method of maintaining water free conditions is to dewater the trench by use of well pointing. Well pointing is the placement of several shallow tubes (6 to 8 feet long) into the soil just surrounding the excavated area. By use of a portable pump, the contractor can lower the surface area of the water table in the localized vicinity immediately surrounding the trench. Water from the well pointing is contained in an adjacent swale, turbidity is reduced and the water is allowed to recharge the aquifer. If dewatering is performed below elevation 0.0 and within 1000 feet of a saline water body, an individual dewatering permit will be required by SJRWMD.



SERVICE PIPELINE ROUTING
FIGURE 5-1

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION





AREA KEY PLAN

LEGEND

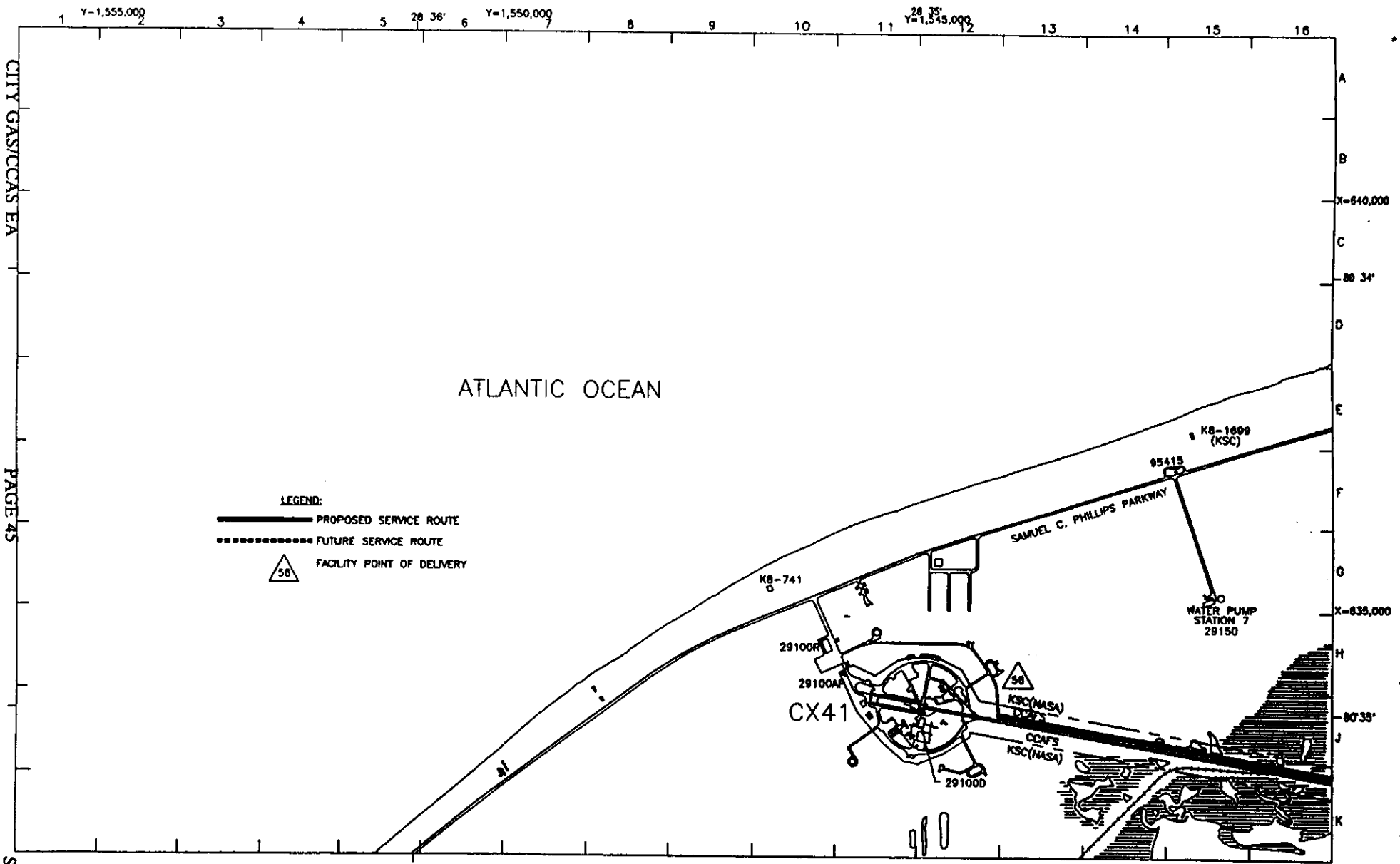
NOTES

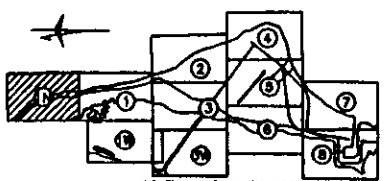
1. FOR DRAWING INDEX SEE DWG 93423KEY

NOT AN ORIGINAL
MASTER FACILITY
DRAWING

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION
AREA 1

FIGURE 5-2





LEGEND

- ANTENNA POLE
- TOWER
- PIPELINES
- RAILROAD
- GEODETIC CONTROL POINT
- DRAINAGE CANAL

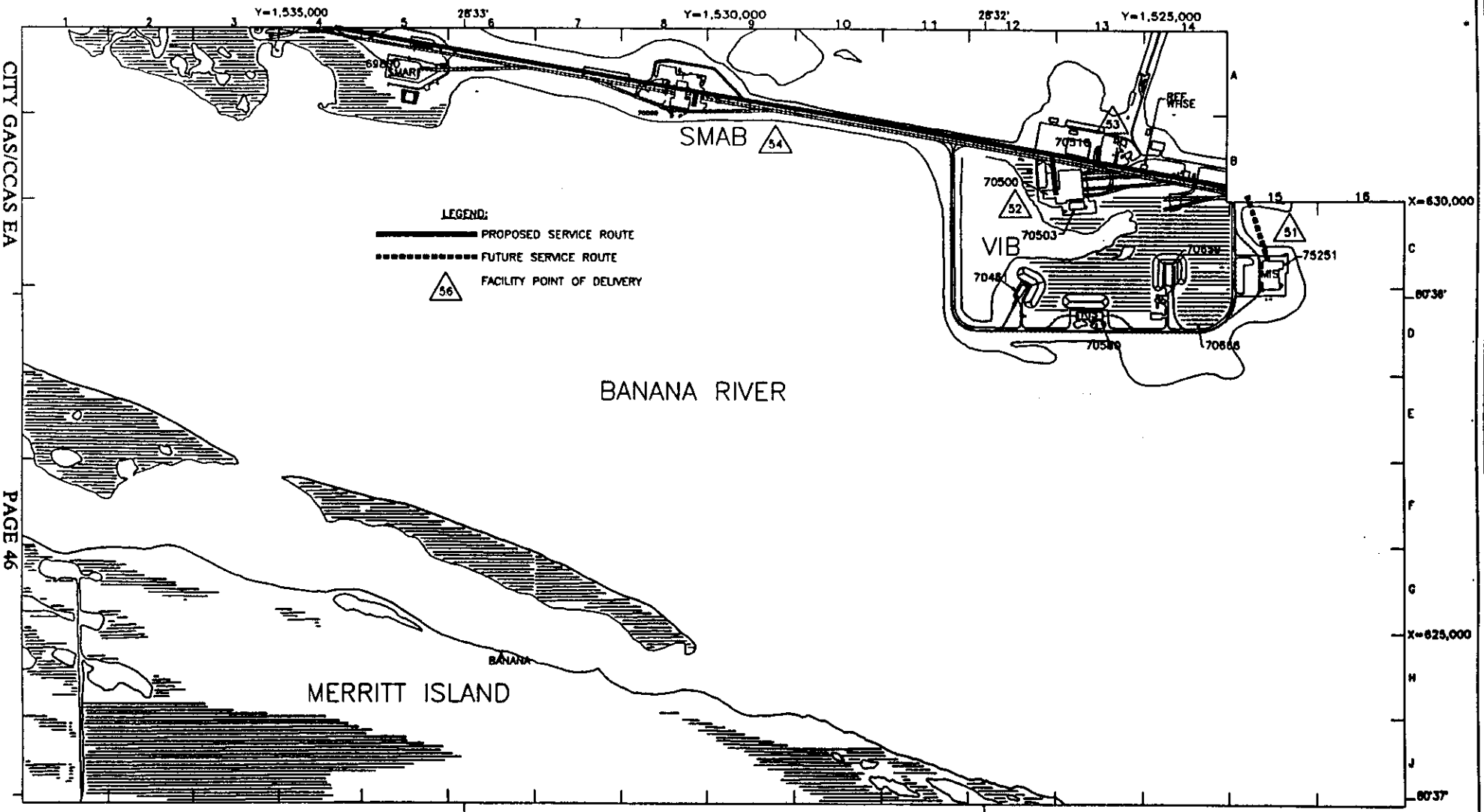
NOTES

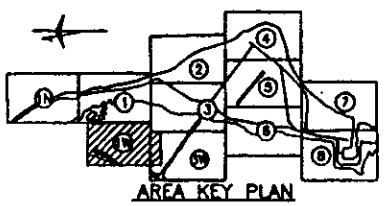
1. FOR DRAWING INDEX SEE DWG 95413KEY.

NOT AN ORIGINAL
MASTER FACILITY
DRAWING

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION
AREA 1N

FIGURE 5-3





LEGEND

NOTES

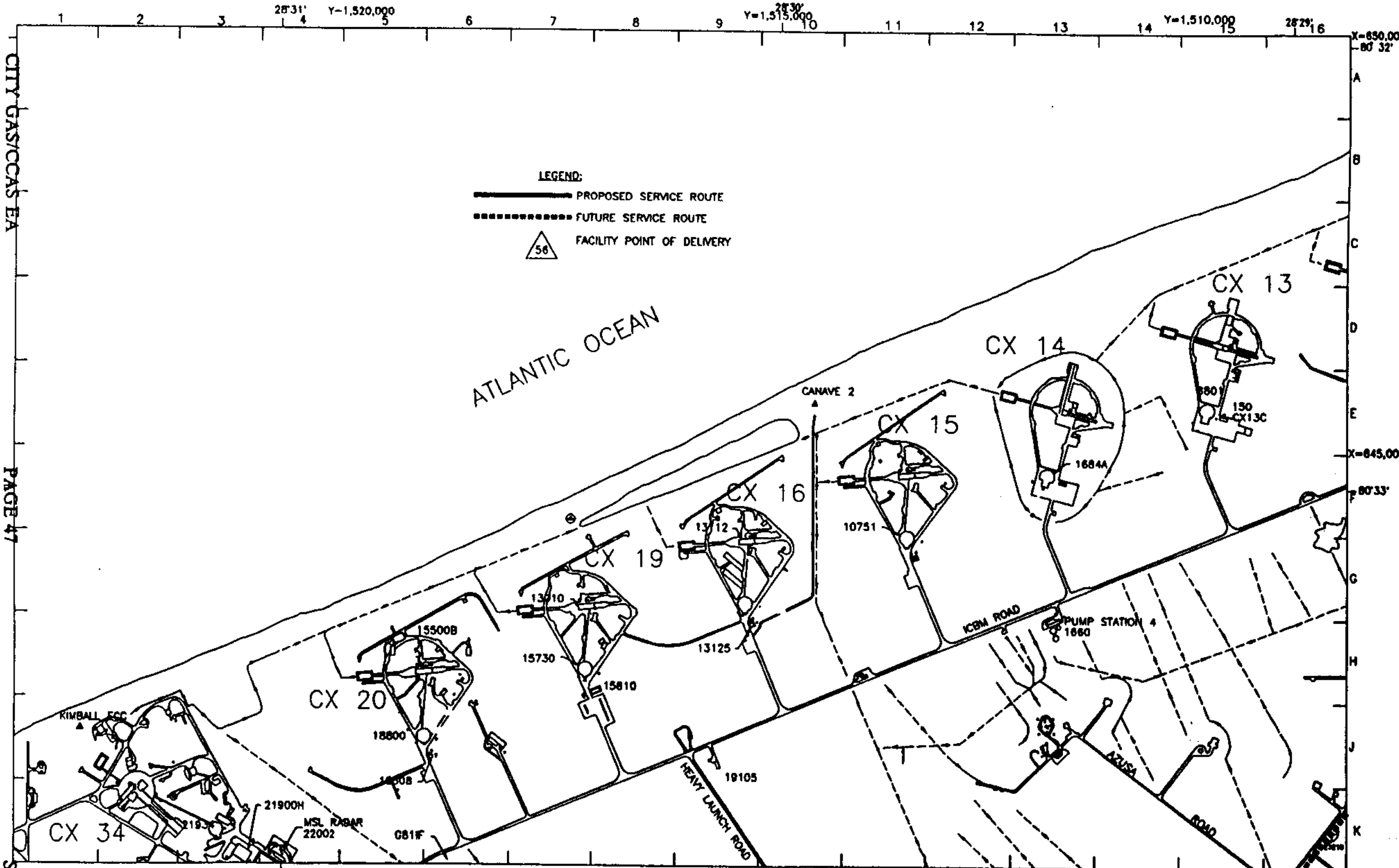
1. FOR DRAWING INDEX SEE DWG 0041SKEY

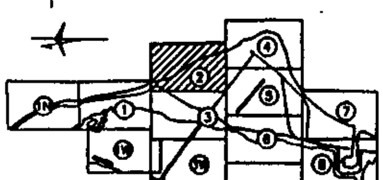
NOT AN ORIGINAL

KEY DRAWING

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION
AREA 1W

FIGURE 5-4





NOT AN ORIGINAL

KEY DRAWING

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION

AREA 2

FIGURE 6-5

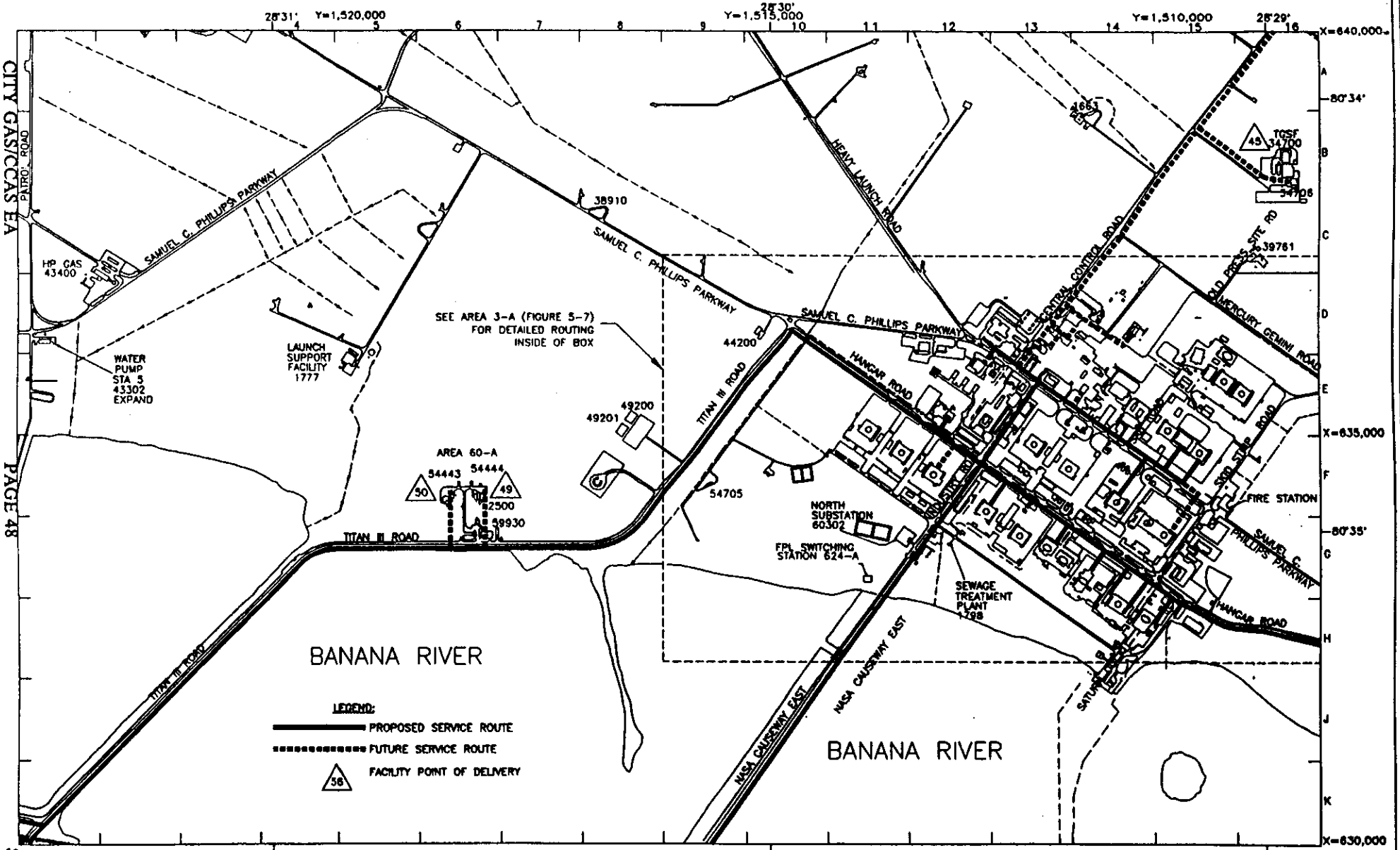
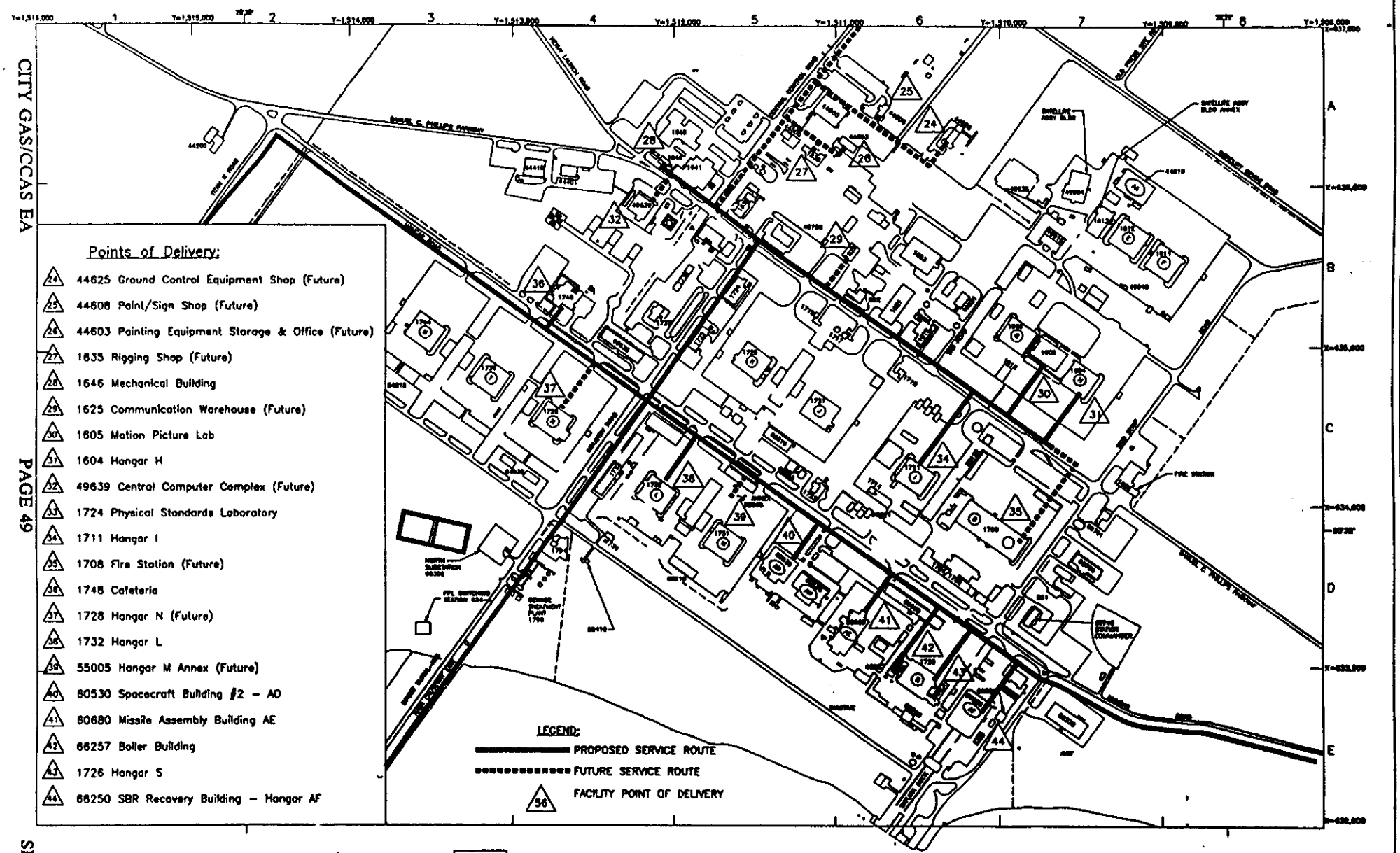

CITY GAS/CCAS EA
PAGE 48
SECTION 5
28°31'
Y=1,520,000
28°30'
Y=1,515,000
Y=1,510,000
28°29'
X=640,000
X=635,000
X=630,000
80°34'
80°35'
PATROL ROAD
SAMUEL C. PHILLIPS PARKWAY
HEAVY LAUNCH ROAD
CENTRAL CONTROL ROAD
OLD PRESS SITE RD
MERCURY GEMINI ROAD
HANGAR ROAD
SKID STRIP ROAD
FIRE STATION
TITAN III ROAD
NASA CAUSEWAY EAST
SATURN AVENUE
HP GAS 43400
WATER PUMP STA 5 43302 EXPAND
LAUNCH SUPPORT FACILITY 1777
SEE AREA 3-A (FIGURE 5-7) FOR DETAILED ROUTING INSIDE OF BOX
AREA 60-A
NORTH SUBSTATION 60302
FPL SWITCHING STATION 624-A
SEWAGE TREATMENT PLANT 1798
TOSF 34700
BANANA RIVER
BANANA RIVER
LEGEND:
PROPOSED SERVICE ROUTE
FUTURE SERVICE ROUTE
FACILITY POINT OF DELIVERY
AREA KEY PLAN
LEGEND
NOTES:
NOT AN ORIGINAL
KEY DRAWING
CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION
AREA 3

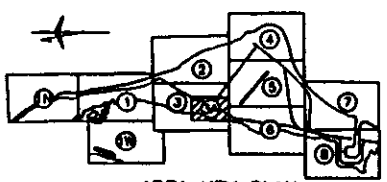
FIGURE 5-6

CITY GAS/CCAS EA

PAGE 49

SECTION 5





AREA KEY PLAN

LEGEND

NOTES:

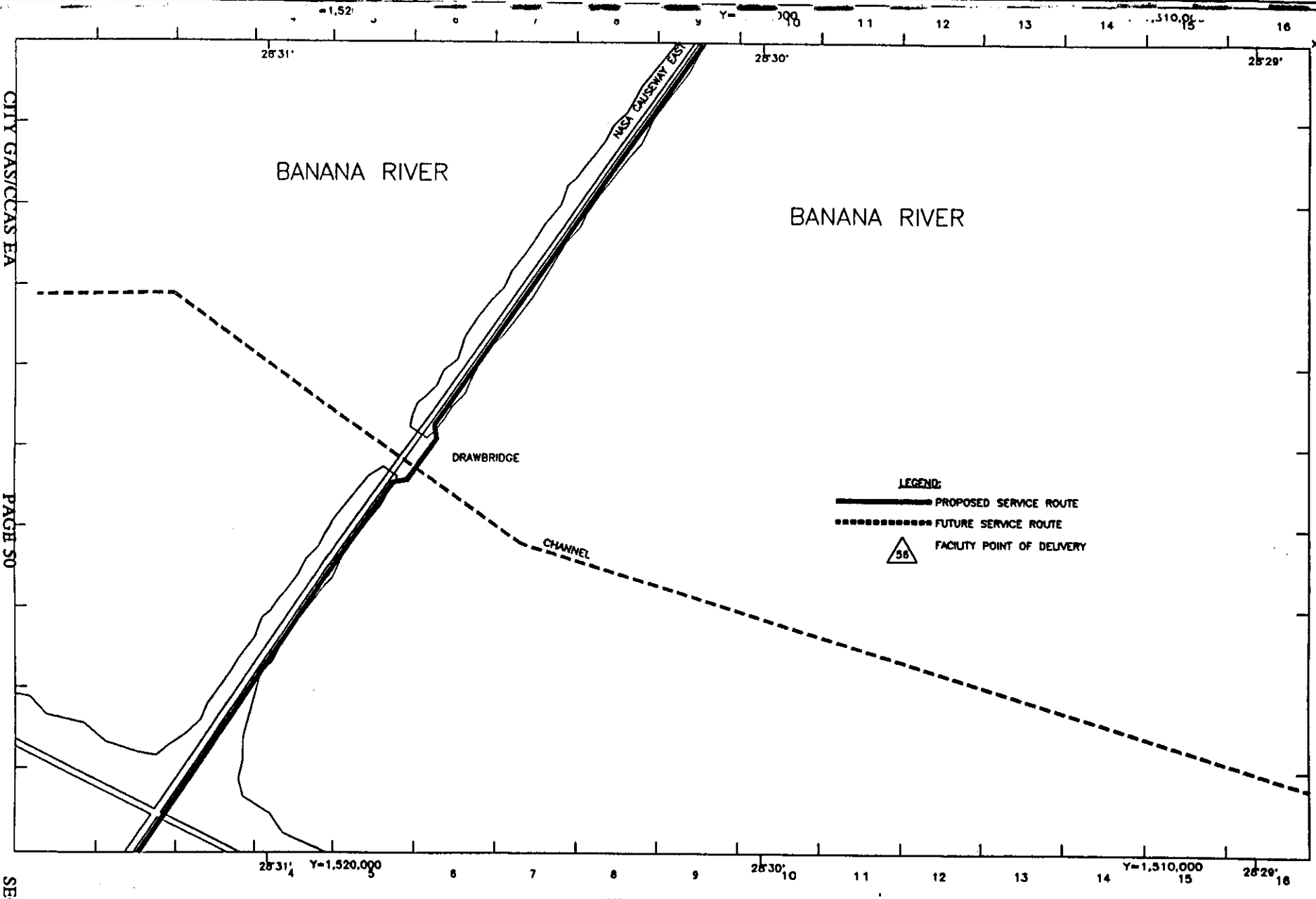
1.

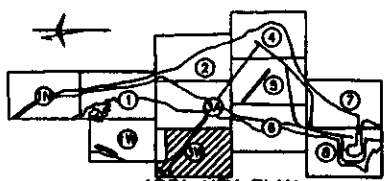
NOT AN ORIGINAL

KEY DRAWING

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION
AREA 3A

FIGURE 5-7





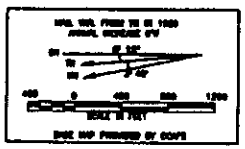
AREA KEY PLAN

LEGEND

- ANTENNA POLE
- TOWER
- WETLANDS
- RAILROAD
- EXISTING CONTROL POINT
- DRAINAGE CANAL

NOTES:

1. FOR DRAWING INDEX SEE 2ND SHEET



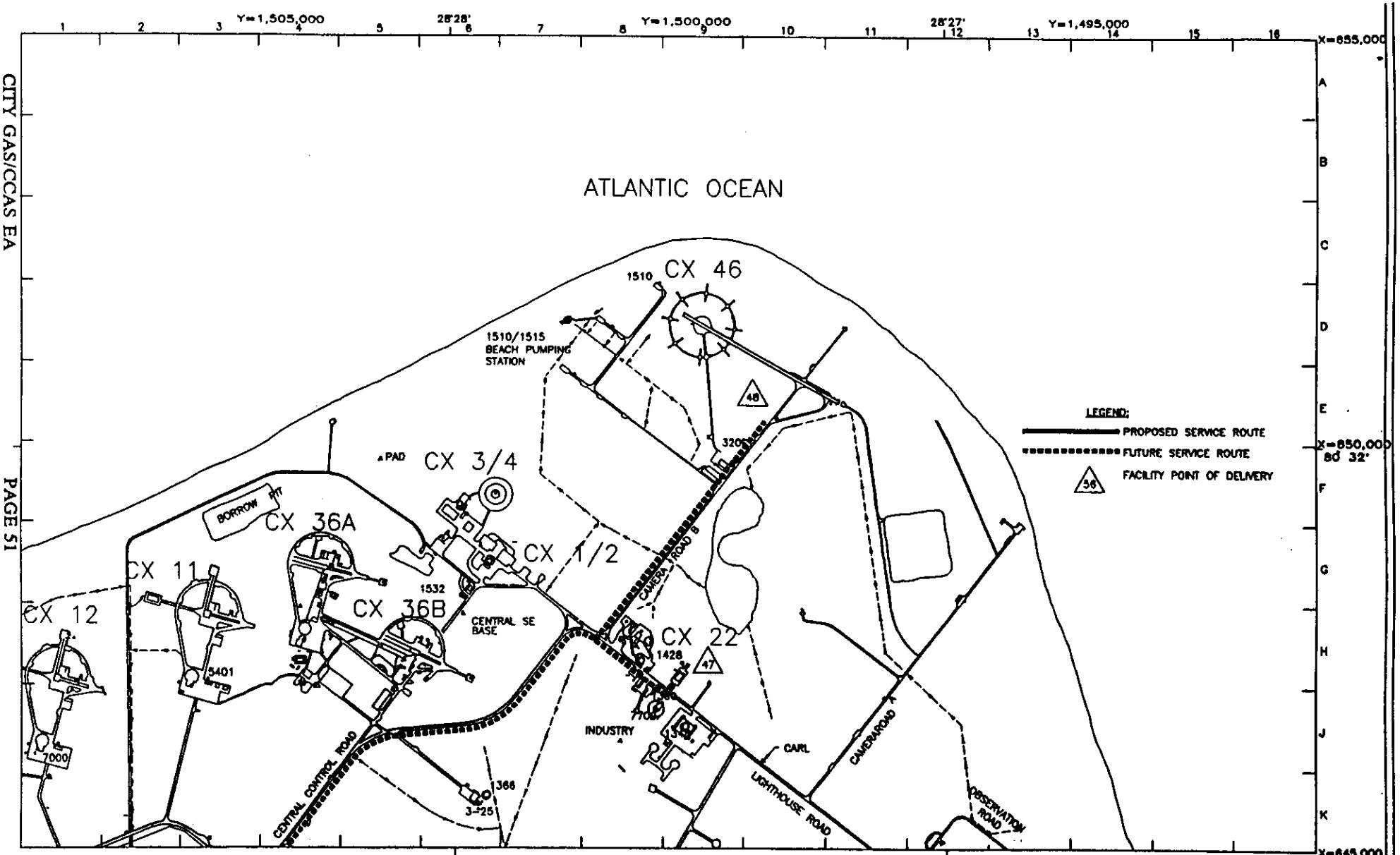
NOT AN ORIGINAL

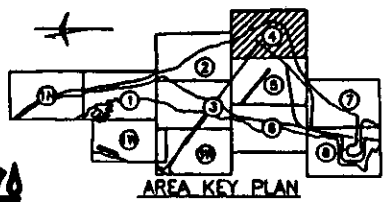
KEY DRAWING

FIGURE 5-8

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION

AREA 3W

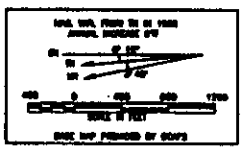




LEGEND

NOTES:

1. FOR DRAWING INDEX SEE DWG 63402NEY



NOT AN ORIGINAL

KEY DRAWING

FIGURE 5-9

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION
AREA 4

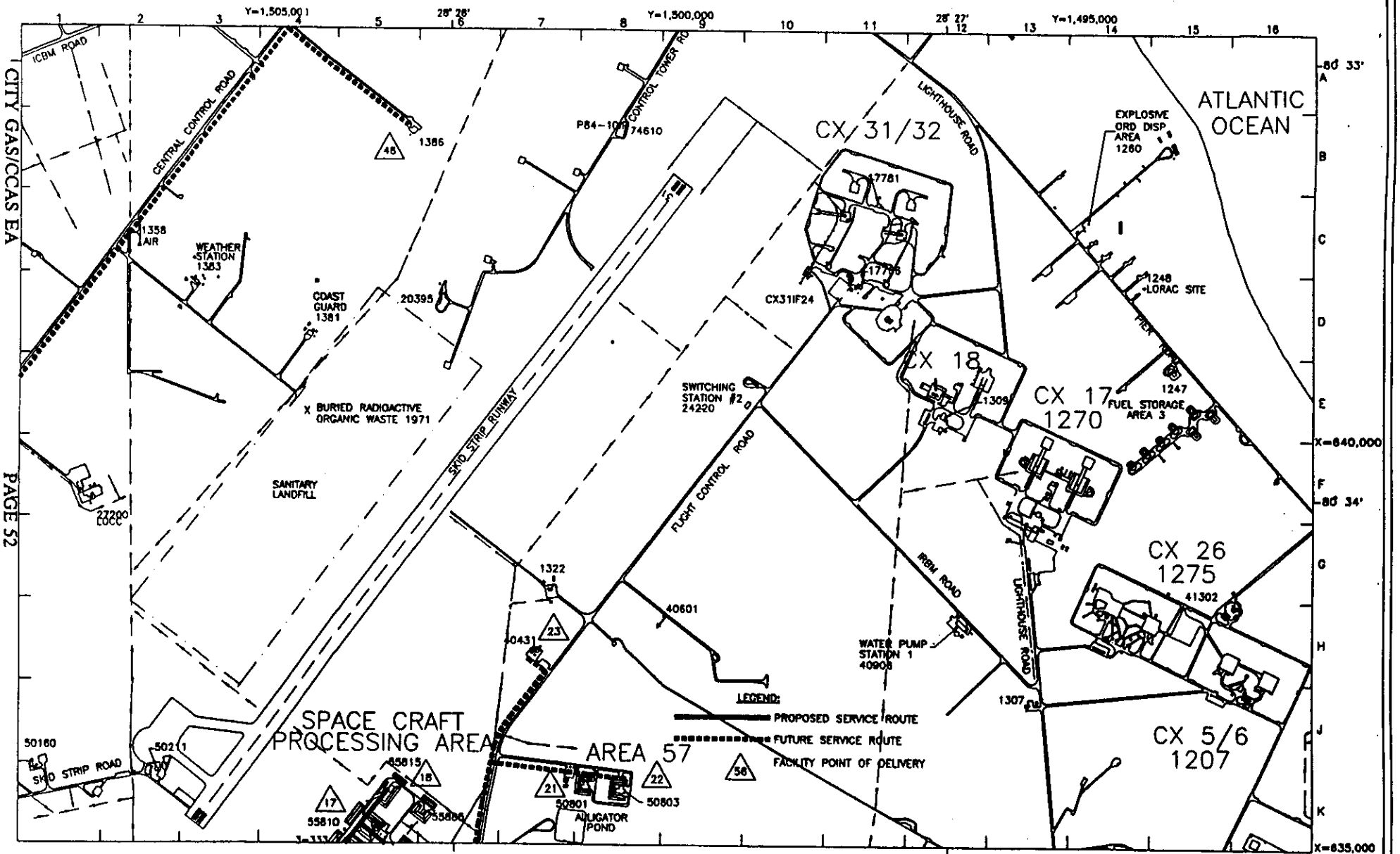


FIGURE 5-10

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION
AREA 5

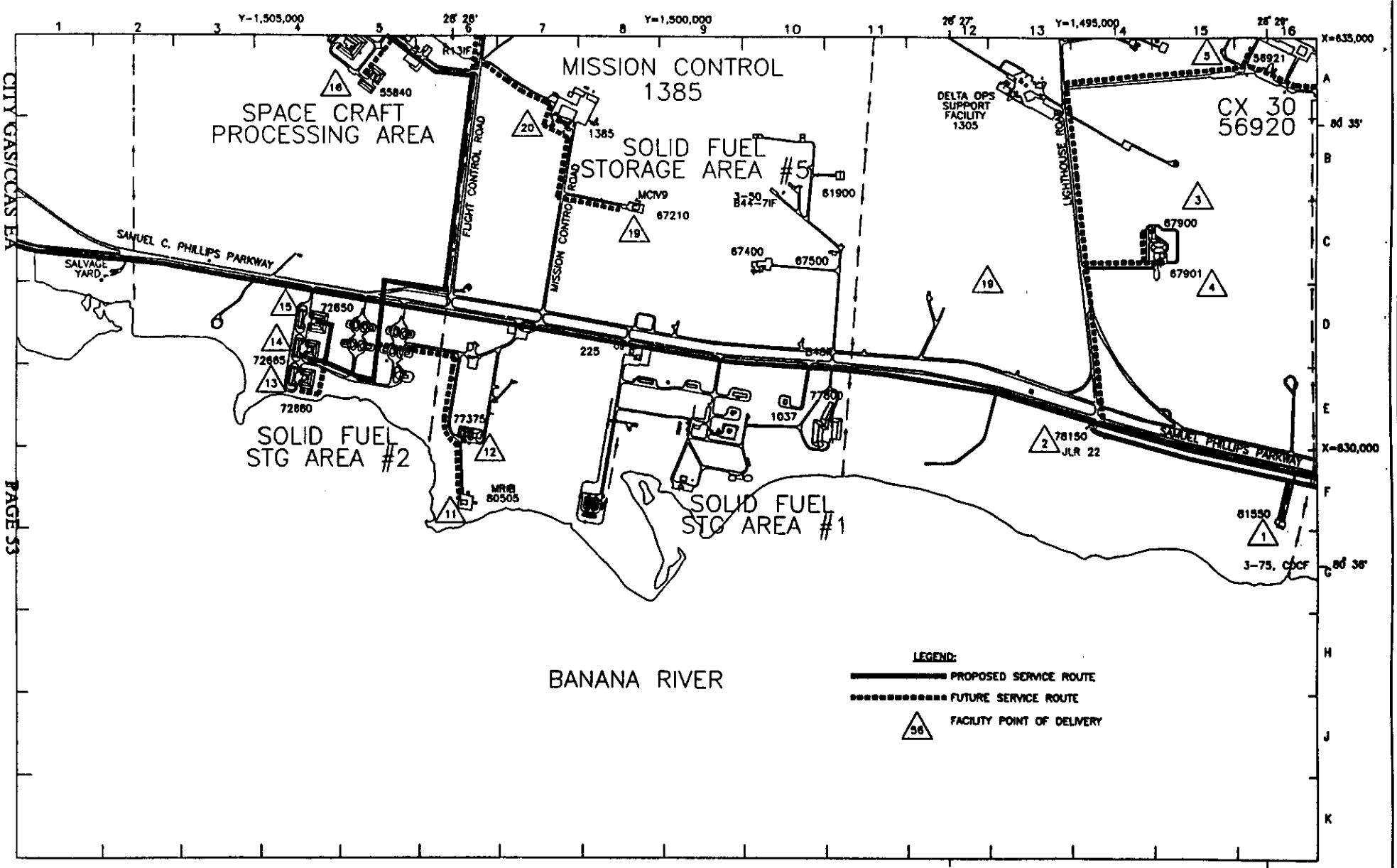
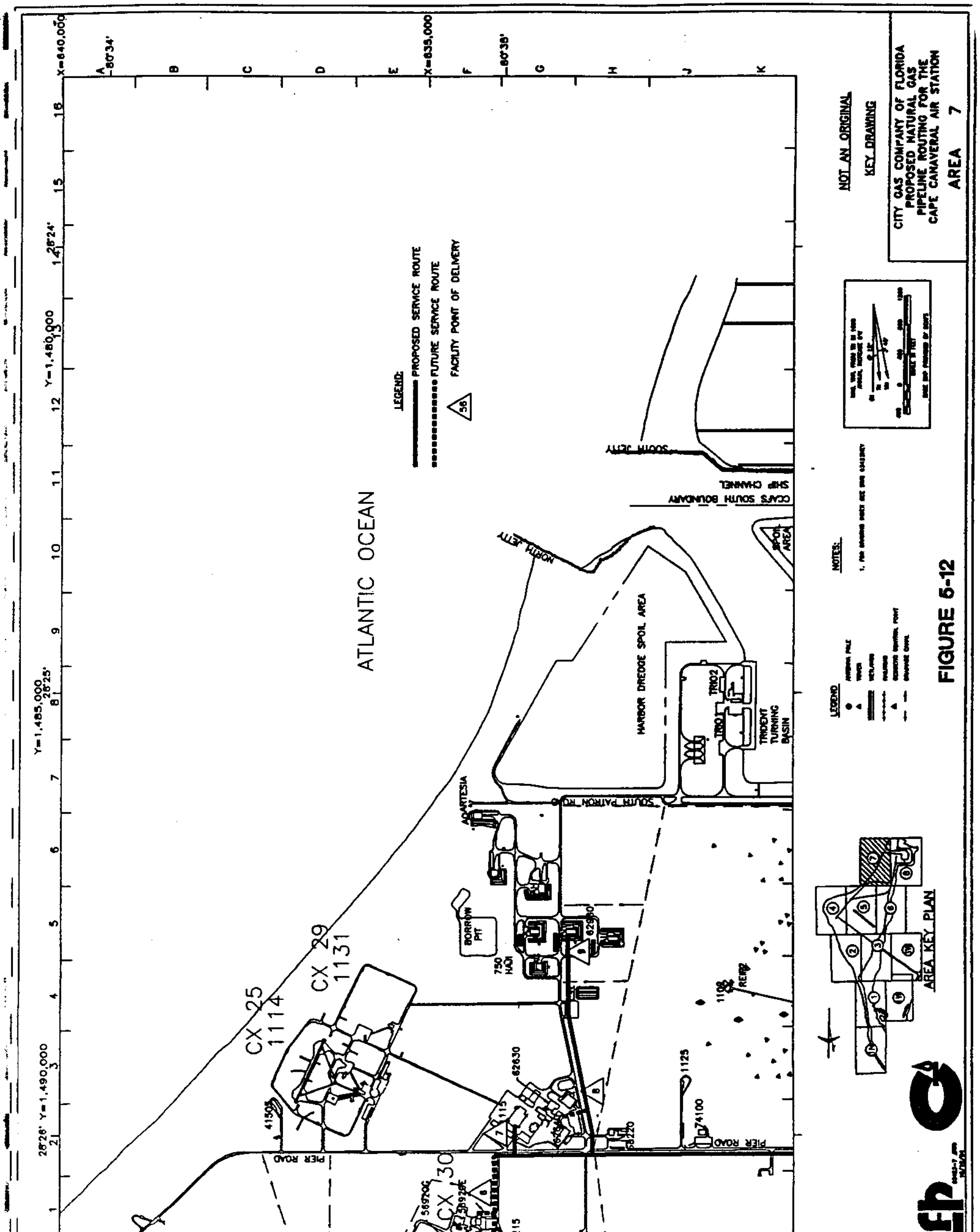


FIGURE 5-11

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION
AREA 6


ATLANTIC OCEAN
LEGEND:
PROPOSED SERVICE ROUTE
FUTURE SERVICE ROUTE
FACILITY POINT OF DELIVERY
HARBOR DREDGE SPOIL AREA
TRIDENT TURNING BASIN
NORTH JETTY
SOUTH JETTY
SHIP CHANNEL
CCAFS SOUTH BOUNDARY
SPOIL AREA
SOUTH PATROL ROAD
PIER ROAD
BORROW PIT
CX 25
1114
CX 29
1131
CX 30
NOT AN ORIGINAL
KEY DRAWING
AREA KEY PLAN
NOTES:
LEGEND
CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION
AREA 7
FIGURE 5-12

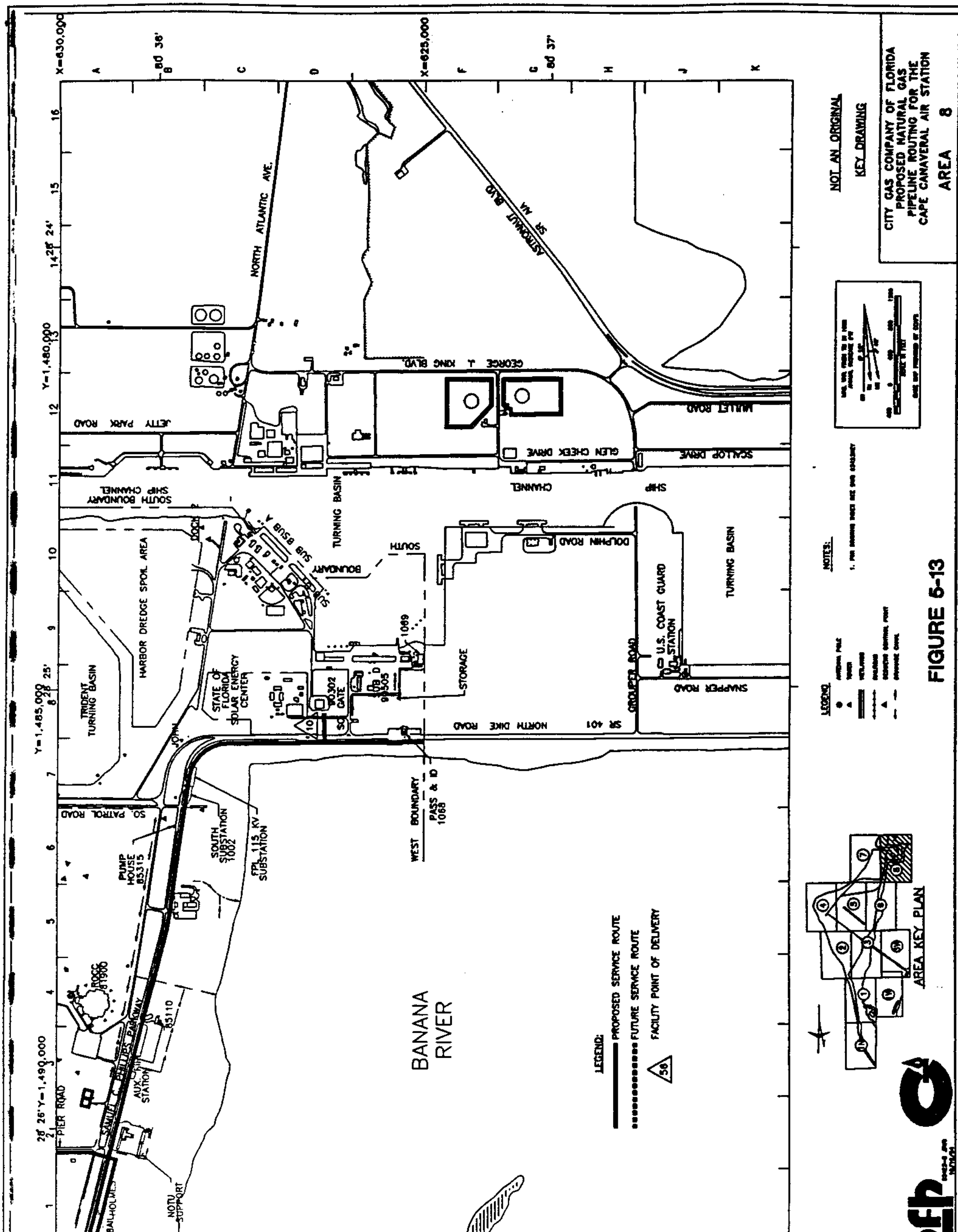


FIGURE 5-13
CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR STATION
AREA 8
NOT AN ORIGINAL
KEY DRAWING
LEGEND:
PROPOSED SERVICE ROUTE
FUTURE SERVICE ROUTE
FACILITY POINT OF DELIVERY
NOTES:
AREA KEY PLAN
BANANA RIVER
TRIDENT TURNING BASIN
HARBOR DREDGE SPOIL AREA
STATE OF FLORIDA SOLAR ENERGY CENTER
TURNING BASIN
SHIP CHANNEL
SOUTH BOUNDARY SHIP CHANNEL
SOUTH BOUNDARY
WEST BOUNDARY
PASS & ID 1068
NORTH ATLANTIC AVE.
ASTRONAUT BLVD
SR A1A
GEORGE J. KING BLVD.
JETTY PARK ROAD
MULLET ROAD
GLEN CHEEK DRIVE
SCALLOP DRIVE
DOLPHIN ROAD
GROUPER ROAD
SNAPPER ROAD
NORTH DIKE ROAD
SR 401
U.S. COAST GUARD STATION
STORAGE
90302 GATE
90505
1089
SO. PATROL ROAD
PUMP HOUSE 85315
SOUTH SUBSTATION 1002
FPL 115 KV SUBSTATION
SAMUEL C. PHILLIPS PARKWAY
AUX. STATION
85110
ROCC 81900
PIER ROAD
NOTU SUPPORT
X=630,000
X=625,000
Y=1,480,000
Y=1,485,000
Y=1,490,000

Operation. There should be no change in ground water quality resulting from operation of the natural gas pipeline. The removal and closure of above and underground storage tanks would significantly reduce the exposure potential from petroleum products. The following Table 5.1 lists the known and registered storage tanks by category.

TABLE 5-1
KSC and CCAS Tank Registration Listing

Location	Total Number	Number of Tanks						Percentage	
		Fuel Oil	Diesel	Lube Oil	Used Lube Oil	Misc/Special Products	Gasoline	Above-Ground	Under-ground
LC-39 Area	3	1	0	1	1	0	0	67	33
VAB Area	20	5	10	0	3	1	1	50	50
Industrial Area	24	4	15	0	0	0	5	46	54
Cape Canaveral	30	9	5	0	0	16	0	73	27
USFWS	3	0	1	0	0	0	2	0	100
Summary	80	19	31	1	4	17	8	56	44

5.1.4 Geology

Construction. Existing soil types may be altered by Alternative 1 either by excavation or filling to achieve proper site grades and geotechnical stability. These activities should not alter the underlying geology of the site and surrounding areas.

Operation. There should be no change to the geology of the site resulting from operation of the natural gas pipeline.

5.1.5 Aquatic Communities

Construction: The potential for impact to any existing seagrass habitat is possible during the subaqueous crossing of the Banana River (Figure 4-1). Any adjacent seagrasses areas should not be adversely affected, as long as turbidity containment measures as required by USCOE and FDEP Permits are employed during construction.

Other freshwater swale wetlands, and canals should not be adversely affected if adequate sedimentation controls are in place during construction.

Operation: Once the pipeline is operational, no affects to the existing aquatic communities would be expected to occur.

5.1.6 Terrestrial Communities

Construction: Construction associated with Alternative 1 would be located within the highway rights-of-way, which have been cleared of virtually all terrestrial vegetation and are sodded and maintained (mowed). No impacts to terrestrial communities are anticipated.

Operation. Since no substantial terrestrial communities exist and the landscape should return to its present state subsequent to construction, operation of the pipeline should pose no additional impacts.

5.1.7. Threatened and Endangered Species

Construction. The endangered West Indian Manatee should not be adversely affected during the construction phase for Alternative 1, as long as precautionary measures indicated in Section 4.2.7 are followed.

The Federally threatened Florida Scrub Jay utilizes road shoulders and adjacent scrub oak habitat on most roadways throughout CCAS. A buffer zone should be established and maintained in these areas to minimize any potential impact.

Operation. No impacts to threatened or endangered species are anticipated during the operational phase of the proposed pipeline.

5.1.8 Historic and Archaeological

Construction. Except for the subaqueous crossing of the Banana River, all construction activity associated with Alternative 1 is located within the rights-of-way of major roadways. These rights-of-way have been substantially cleared of upland vegetation and consist of sodded medians and shoulders which have been contoured to accommodate stormwater runoff. The rights-of-way are maintained by mowing and no undisturbed areas remain. DHR surveys indicate that there are no know historic or archaeological sites within the road rights-of-way. No direct or indirect (visual) impacts to archaeological resources will occur as a result of the proposed activity. The construction contract should contain a stipulation for the inadvertent discovery of cultural resources during excavation.

Operation. Operation of the gas main will not result in additional impacts to any undisturbed property. After placement of the pipe within the excavated trench, the trench will be filled to the previously existing grade and seeded with grass.

5.1.9 Flood Plains

Construction. Alternative 1 construction will not alter the elevation of ground surfaces below the 100 year flood elevation. Appropriate engineering practices will be utilized throughout the construction process.

Operation. No impacts to the flood plan will be made during the operation of the natural gas pipeline.

5.1.10 Noise

Construction. Noise will be generated by construction machinery during implementation of Alternative 1. During periods of construction, noise attenuation is generally not possible. Decreases in efficiency due to such efforts would increase construction costs and the time period over which the impacts would occur. Noise generation by construction activities is generally transitory and localized in nature. The effects of construction noise on wildlife and man are episodic in nature. Various studies conducted on noise impacts on Wood Storks, Bald Eagles, Scrub Jays, Beach Mice and wading birds have shown generally that the startle response of episodic loud noises is short-term and appeared to cause no significant impacts.

Operation. No noise should be generated during the operation of the natural gas pipeline. Noise generation will be reduced by eliminating petroleum delivery vehicle traffic.

5.1.11 Infrastructure and Services

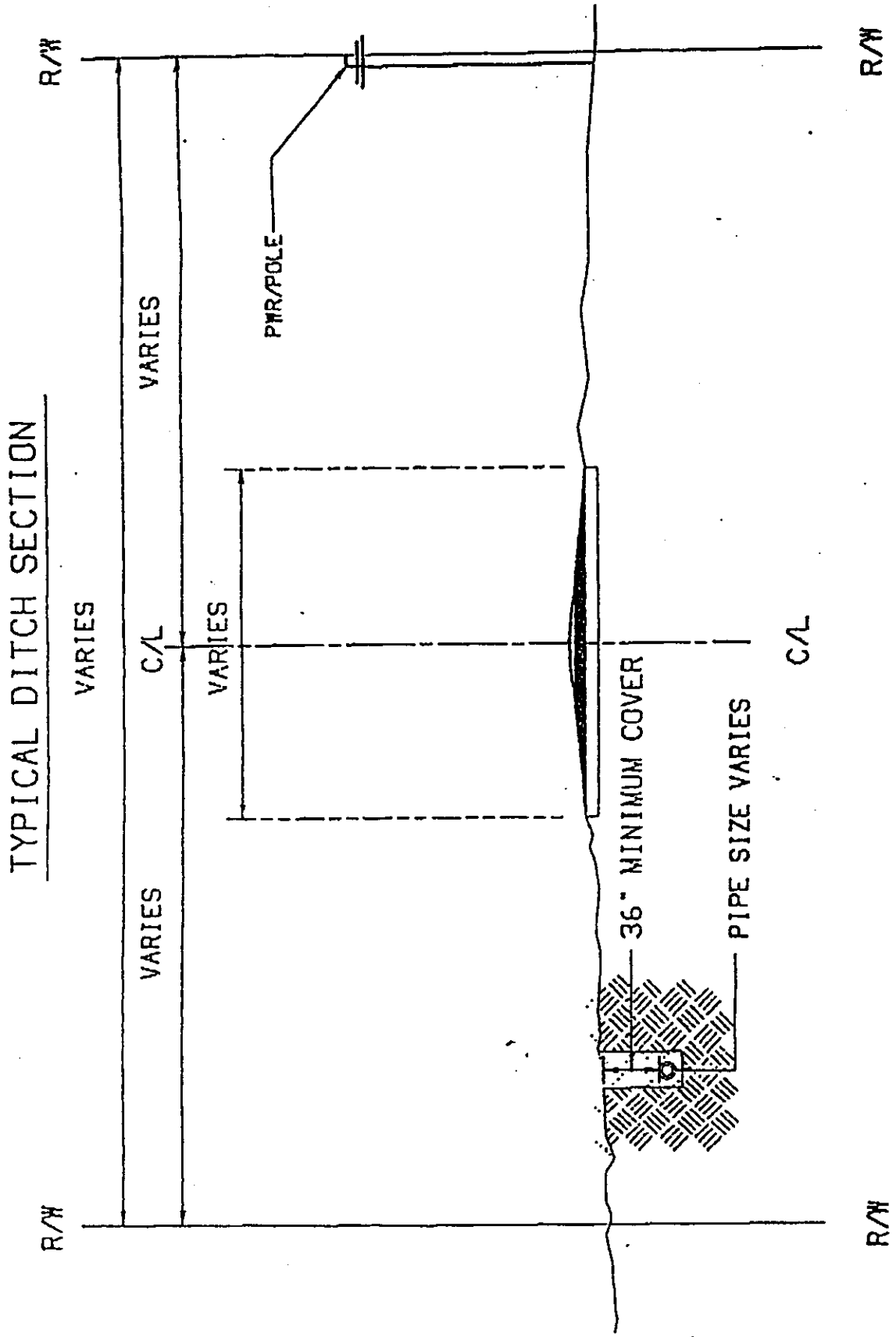
Construction. Because all construction for Alternative 1 would occur within established rights-of-way and outside of the lanes of travel, construction activities should not impact infrastructure usage or services. Construction would have minimal impacts on infrastructure and services (see Figure 5.14). All major roads would be crossed using the jack and bore method which does not interrupt traffic or the pavement surface. Occasionally a secondary road or drive may be cut for pipe placement (see Figure 5-15).

Operation. The elimination or reduction of trucks delivering petroleum fuels will have a positive impact on CCAS. The Preferred Alternative will mean the reduction in traffic of fuel delivery vehicles, which approaches hundreds of deliveries per year.

5.1.12 Socioeconomics

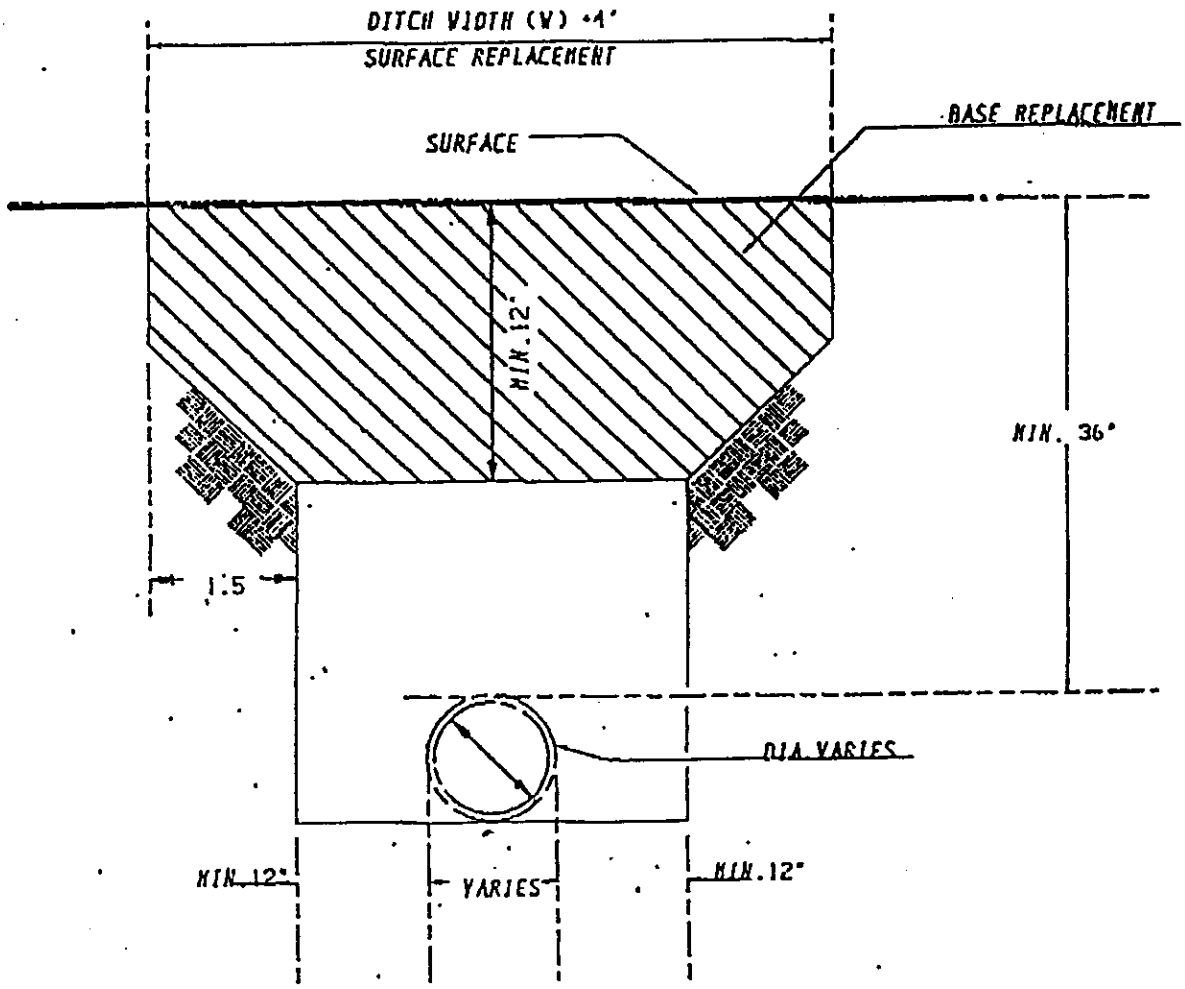
Construction. Construction manpower requirements during installation of the gas main for Alternative 1 will have a positive, short-term impact on local employment. However, the number of workers required during construction (less than 50) is not expected to significantly affect the overall work force in the area around KSC and CCAS.

Operation. Once installed to service all distribution points, the gas main will be self-operating and will not require additional manpower.



TYPICAL DITCH SECTION
FIGURE 5-14

TYPICAL STANDARD PAVEMENT CUT



TYPICAL STANDARD PAVEMENT CUT
FIGURE 5-15

5.1.13 Land Use

Construction. All construction activities associated with Alternative 1 will be limited to the existing road rights-of-way within the General Support Zone of KSC and throughout CCAS. Land uses adjacent to the existing road rights-of-way within the General Support Zone of KSC and throughout CCAS will not be significantly impacted.

Operation. Once the gas main is installed, the placement area within the road rights-of-way will be regraded and re-sodded. No additional impacts to adjacent land uses are anticipated as a result of operation.

5.1.14 Hazardous Materials

Construction. Although not anticipated, there is a small possibility that petroleum products could be unintentionally released into the environment during construction of the pipeline. Any spills or release of hazardous materials, including unintentional significant release of natural gas, must be reported to the installation in accordance with that installations spill plans (OPLAN 19-1 for CCAS. "Oil and Hazardous Substance Pollution Contingency Plan".)

Operation. Once in operation, the gas main will eliminate hundreds of petroleum product deliveries per year. This will greatly reduce the likelihood of a petroleum spill. There is a possibility of a catastrophic failure of the line during operation. However, safety provisions are incorporated in the design of the natural gas distribution system. These safety features include sectionalizing isolation valves, locating the gas main as far as possible from roadways, and prompt emergency response.

5.2 Alternative 2 (Southern Route)

5.2.1 Air Quality

Construction. Airborne particulate matter may increase with Alternative 2 because of the greater length of pipeline installation.

Operation. Natural gas is recognized as a cleaner, more efficient fuel than petroleum based fuel. Once in place, the natural gas delivery and distribution system itself will not cause emissions. Natural gas is anticipated to replace petroleum fuels and reduce NO_X and SO_2 at the Delivery Points shown in Figures 5-1 and 5-13.

5.2.2 Surface Water Quality

Construction. Adverse impacts to the surface water quality of the Indian River, Sykes Creek and the Banana River would appear to be minimal with Alternative 2 if precautionary measures in accordance with USCOE and FDEP Permits are taken to contain any project-generated turbidity during emplacement of the subaqueous pipeline.

Standard containment measures such as hay bales, silt screens, etc. employed adjacent to other surface waters during construction of the pipeline should also prevent any significant degradation from occurring within those waters.

Operation. No long term adverse impacts to surface water quality should occur as a result of the operational phase of the pipeline.

5.2.3 Ground Water Quality

Construction. There should be no change in ground water quality resulting from construction activities associated with Alternative 2.

Operation. There should be no change in ground water quality resulting from operation of the pipeline.

5.2.4 Geology

Construction. Existing soil types may be altered either by excavation or filling to achieve proper site grades and geotechnical stability. These activities should not alter the underlying geology of the site and surrounding areas.

Operation. There should be no change to the geology of the site resulting from operation of the pipeline.

5.2.5 Aquatic Communities

Construction. The potential for impact to existing seagrass habitat is possible during construction of the subaqueous crossings of the Indian and Banana Rivers. Other adjacent seagrass communities should not be adversely affected as long as turbidity containment measures as required by USCOE and FDEP Permits are employed during construction.

Other freshwater swale wetlands and canals should not be adversely affected if adequate sedimentation controls are in place during construction.

Operation. Once the pipeline is operational, no affects to the existing aquatic communities would be expected to occur.

5.2.6 Terrestrial Communities

Construction. Construction associated with Alternative 2 will be located within the highway rights-of-way, which have been cleared of virtually all terrestrial vegetation and are sodded and maintained (mowed). No impacts to terrestrial communities are anticipated.

Operation. Since no substantial terrestrial communities exist and the landscape should return to its present state subsequent to construction, operation of the pipeline should pose no additional impacts.

5.2.7 Threatened and Endangered Species

Construction. The endangered West Indian Manatee should not be adversely affected during the construction phase as long as the precautionary measures indicated in Section 4.2.7, are followed.

Operation. No impacts to threatened or endangered species are anticipated during the operational phase of the proposed pipeline.

5.2.8 Historic and Archaeological

Construction. Except for the subaqueous crossing of the Indian River, Sykes Creek and the Banana River, all construction activity associated with Alternative 2 is located within the rights-of-way of major roadways which have been substantially cleared of upland vegetation and consist of sodded medians and shoulders which have been contoured to accommodate stormwater runoff. The rights-of-way are maintained by mowing and no undisturbed areas remain. DHR surveys indicate that there are no known historic or archaeological sites within the road rights-of-way. Therefore, no direct or indirect (visual) impacts to archaeological resources will occur as the of the proposed activity.

Operation. Operation of the gas main will not result in additional impacts to any undisturbed property. After placement of the pipe within the excavated trench, the trench will be filled to the previously existing grade and seeded with grass.

5.2.9 Flood Plains

Construction. Alternative 2 construction will not alter the elevation of ground surfaces below the 100 year flood elevation. Appropriate engineering practices will be utilized throughout the construction process.

Operation. No impacts to the flood plain will be made during the operation of the pipeline.

5.2.10 Noise

Construction. Noise would be generated for a longer time period from construction machinery during implementation of Alternative 2 due to the greater length of pipeline installation. During periods of construction, noise attenuation is generally not possible. Decreases in efficiency due to such efforts would increase construction costs and the time period over which the impacts would occur. Noise generation by construction activities is generally transitory and localized in nature.

Operation. Noise should be generated during operation of the natural gas pipeline. Noise generation will be reduced by eliminating petroleum delivery vehicle traffic.

5.2.11 Infrastructure and Services

Construction. Because all construction associated with Alternative 2 would occur within established rights-of-way and outside of the lanes of travel, construction activities should not impact infrastructure usage or services. Construction would have minimal impacts on infrastructure and services (see Figure 5.14). All major roads will be crossed using the jack and bore method which does not interrupt traffic or the pavement surface. Occasionally a secondary road or drive may be cut for pipe placement (see Figure 5-15).

Operation. The elimination or reduction of trucks delivering petroleum fuels would have a positive impact on CCAS. Alternative 2 will mean the reduction in traffic of fuel delivery vehicles, which approaches hundreds of deliveries per year.

5.2.12 Socioeconomics

Construction. Construction manpower requirements during the installation of the gas main under Alternative 2 will have a positive, short-term impact on local employment. However, the number of workers required during construction (less than 50) is not expected to significantly affect the overall work force in the area around KSC and CCAS.

Operation. Once installed to service all distribution points, the gas main will be self-operating and will not require additional manpower.

5.2.13 Land Use

Construction. All construction activities associated with Alternative 2 will be limited to the existing road rights-of-way within the General Support Zone of KSC throughout CCAS and in the City of Cocoa. Access to existing businesses and residences in the City of Cocoa may be temporarily inconvenienced during construction along their frontage but no significant impacts are anticipated. Land uses adjacent to the existing road rights-of-way within the General Support Zone of KSC, throughout CCAS and in the City of Cocoa will not be significantly impacted.

Operation. Once the gas main is installed, the placement area within the road rights-of-way will be regraded and re-sodded. No additional impacts to adjacent land uses are anticipated as a result of operation.

5.2.14 Hazardous Materials

Refer to Section 5.1.14

5.3 Alternative 3 (Merritt Island Route)

5.3.1 Air Quality

Construction. Airborne particulate matter may increase with Alternative 3 because of the greater length of pipeline installation.

Operation. Natural gas is recognized as a cleaner, more efficient fuel than petroleum based fuel. Once in place, the natural gas delivery and distribution system itself will not cause emissions. Natural gas is anticipated to replace petroleum fuels and reduce NO_x and SO_2 at the Points of Delivery shown in Figures 5-1 through 5-13.

5.3.2 Surface Water Quality

Construction. Adverse impacts to the surface water quality of the Sykes Creek and the Banana River would appear to be minimal with Alternative 3 if precautionary measures in accordance with USCOE and FDEP Permits are taken to contain any project-generated turbidity during emplacement of the subaqueous pipeline.

Standard containment measures such as hay bales, silt screens, etc. employed adjacent to other surface waters during construction of the pipeline should also prevent any significant degradation from occurring within those waters.

Operation. No long term adverse impacts to surface water quality should occur as a result of the operational phase of the pipeline.

5.3.3 Ground Water Quality

Construction. There should be no change in ground water quality resulting from construction activities associated with Alternative 3.

Operation. There should be no change in ground water quality resulting from operation of the pipeline.

5.3.4 Geology

Construction. Existing soil types may be altered either by excavation or filling to achieve proper site grades and geotechnical stability. These activities should not alter the underlying geology of the site and surrounding areas.

Operation. There should be no change to the geology of the site resulting from operation of the pipeline.

5.3.5 Aquatic Communities

Construction. The potential for impact to existing seagrass habitat is possible during construction of the subaqueous crossing of the Banana River. Other adjacent seagrass communities should not be adversely affected as long as measures as required by USCOE and FDEP Permits for turbidity containment are employed during construction.

Other freshwater swale wetlands and canals should not be adversely affected if adequate sedimentation controls are in place during construction.

Operation. Once the pipeline is operational, no affects to the existing aquatic communities would be expected to occur.

5.3.6 Terrestrial Communities

Construction. Construction associated with Alternative 3 will be located within the highway rights-of-way, which have been cleared of virtually all terrestrial vegetation and are sodded and maintained (mowed). No impacts to terrestrial communities are anticipated.

Operation. Since no substantial terrestrial communities exist and the landscape should return to its present state subsequent to construction, operation of the pipeline should pose no additional impacts.

5.3.7 Threatened and Endangered Species

Construction. The endangered West Indian Manatee should not be adversely affected during the construction phase as long as the precautionary measures indicated in Section 4.2.7, are followed.

Operation. No impacts to threatened or endangered species are anticipated during the operational phase of the proposed pipeline.

5.3.8 Historic and Archaeological

Construction. Except for the subaqueous crossing of the Sykes Creek and the Banana River, all construction activity associated with Alternative 3 is located within the rights-of-way of major roadways which have been substantially cleared of upland vegetation and consist of sodded medians and shoulders which have been contoured to accommodate stormwater runoff. The rights-of-way are maintained by mowing and no undisturbed areas remain. DHR surveys indicate that there are no known historic or archaeological sites within the road rights-of-way. Therefore, no direct or indirect (visual) impacts to archaeological resources will occur as the of the proposed activity.

Operation. Operation of the gas main will not result in additional impacts to any undisturbed property. After placement of the pipe within the excavated trench, the trench will be filled to the previously existing grade and seeded with grass.

5.3.9 Flood Plains

Construction. Alternative 3 construction will not alter the elevation of ground surfaces below the 100 year flood elevation. Appropriate engineering practices will be utilized throughout the construction process.

Operation. No impacts to the flood plain will be made during the operation of the pipeline.

5.3.10 Noise

Construction. Noise would be generated for a longer time period from construction machinery during implementation of Alternative 3 due to the greater length of pipeline installation. During periods of construction, noise attenuation is generally not possible. Decreases in efficiency due to such efforts would increase construction costs and the time period over which the impacts would occur. Noise generation by construction activities is generally transitory and localized in nature.

Operation. No noise should be generated during operation of the natural gas pipeline. Noise generation will be reduced by eliminating petroleum delivery vehicle traffic.

5.3.11 Infrastructure and Services

Construction. Because all construction associated with Alternative 3 would occur within established rights-of-way and outside of the lanes of travel, construction activities should not impact infrastructure usage or services. Construction would have minimal impacts on infrastructure and services (see Figure 5.14). All major roads will be crossed using the jack and bore method which does not interrupt traffic or the pavement surface. Occasionally a secondary road or drive may be cut for pipe placement (see Figure 5-15).

Operation. The elimination or reduction of trucks delivering petroleum fuels would have a positive impact on CCAS. Alternative 3 will mean the reduction in traffic of fuel delivery vehicles, which approaches hundreds of deliveries per year.

5.3.12 Socioeconomics

Construction. Construction manpower requirements during the installation of the gas main under Alternative 2 will have a positive, short-term impact on local employment. However, the number of workers required during construction (less than 50) is not expected to significantly affect the overall work force in the area around KSC and CCAS.

Operation. Once installed to service all distribution points, the gas main will be self-operating and will not require additional manpower.

5.3.13 Land Use

Construction. All construction activities associated with Alternative 3 will be limited to the existing road rights-of-way within the General Support Zone of KSC and throughout CCAS. Land uses adjacent to the existing road rights-of-way within the General Support Zone of KSC and throughout CCAS will not be significantly impacted.

Operation. Once the gas main is installed, the placement area within the road rights-of-way will be regraded and re-sodded. No additional impacts to adjacent land uses are anticipated as a result of operation.

5.3.14 Hazardous Materials

Refer to Section 5.1.14

5.4 "No Action" Alternative

The "No Action" Alternative consists of not constructing the gas main system. This alternative will have minimal impact to the surrounding environment; therefore, many of the environmental issues listed below are not applicable to this alternative.

5.4.1 Air Quality

Construction. The "No Action" Alternative will involve no construction activities.

Operation. No change will occur in emission rates and impacts. Air quality will continue to be impacted by petroleum combustion emissions.

5.4.2 Surface Water Quality

Construction. Not Applicable.

Operation. Not Applicable.

5.4.3 Ground Water Quality

Construction. Not Applicable.

Operation. Not Applicable.

5.4.4 Geology

Construction. Not Applicable.

Operation. Continued use of petroleum fuel storage tanks will continue the exposure potential to ground water contamination.

5.4.5 Aquatic Communities

Construction. Not Applicable.

Operation. Not Applicable.

5.4.6 Terrestrial Communities

Construction. Not Applicable.

Operation. Not Applicable.

5.4.7 Threatened and Endangered Species

Construction. Not Applicable.

Operation. Not Applicable.

5.4.8 Historic and Archaeological

Construction. Not Applicable.

Operation. Not Applicable.

5.4.9 Flood Plains

Construction. Not Applicable.

Operation. Not Applicable.

5.4.10 Noise

Construction. Not Applicable.

Operation. Minimal Impacts. Continued noise generation from petroleum fuel delivery vehicle traffic.

5.4.11 Infrastructure and Services

Construction. Not Applicable.

Operation. Continued traffic pressures will occur from petroleum fuel delivery vehicles.

5.4.12 Socioeconomics

Construction. Not Applicable.

Operation. Minimal Impacts. Continued personnel exposure potential to petroleum spills and fumes.

5.4.13 Land Use

Construction. Not Applicable.

Operation. Not Applicable.

5.5 Comparative Effects of Alternatives

The following chart summarizes the various environmental factors associated with each alternative.

Environmental Factor	Alternative 1	Alternative 2	Alternative 3	No Action Alternative
5.3.1 Air Quality				
Construction	None	None	None	None
Operation	Positive	Positive	Positive	Minimal
5.3.2 Surface Water Quality				
Construction	Minimal	Minimal	Minimal	None
Operation	None	None	None	None
5.3.3 Ground Water Quality				
Construction	None	None	None	None
Operation	None	None	None	Minimal
5.3.4 Geology				
Construction	None	None	None	None
Operation	None	None	None	None
5.3.5 Aquatic Communities				
Construction	Very Minimal	Minimal	Minimal	None
Operation	None	None	None	None
5.3.6 Terrestrial Communities				
Construction	None	None	None	None
Operation	None	None	None	None

Environmental Factor	Alternative 1	Alternative 2	Alternative 3	No Action Alternative
5.3.7 Threatened and Endangered Species				
Construction	Minimal	Minimal	Minimal	None
Operation	None	None	None	None
5.3.8 Historic and Archaeological				
Construction	None	None	None	None
Operation	None	None	None	None
5.3.9 Flood Plains				
Construction	None	None	None	None
Operation	None	None	None	None
5.3.10 Noise				
Construction	Minimal	Minimal	Minimal	None
Operation	None	None	None	Minimal
5.3.11 Infrastructure and Services				
Construction	Minimal	Minimal	Minimal	None
Operation	Positive	Positive	None	Minimal
5.3.12 Socioeconomics				
Construction	None	None	None	None
Operation	None	None	None	Minimal
5.3.13 Land Use				
Construction	None	None	None	None
Operation	None	None	None	None
5.3.14 Hazardous Materials				
Construction	None	None	None	None
Operation	None	None	None	None

5.6 Mitigation and Monitoring

Should mitigation be required by permitting agencies, details will be worked out during the permitting process. No long term monitoring requirements are anticipated.

5.6.1 Alternative 1

The corridor in Alternative 1 does not effect seagrass coverage within the Indian River Lagoon. This impact may result in the need for compensatory mitigation by the environmental permitting agencies (COE & FDEP). If this corridor is selected and subsequent mitigation requirements are imposed by the COE and FDEP, details will be resolved during the permitting process.

5.6.2 Alternative 2

The proposed corridor in Alternative 2 could affect areas of sparse seagrass coverage within the Indian River Lagoon. It is not anticipated that compensatory mitigation will

be required by the environmental permitting agencies (COE & FDEP). If this corridor is selected and subsequent mitigation requirements are imposed by the COE and FDEP, details will be resolved during the permitting process.

5.6.3 Alternative 3

The proposed corridor in Alternative 3 could affect areas of sparse seagrass coverage within the Indian River Lagoon. This impact may result in the need for compensatory mitigation by the environmental permitting agencies (COE & FDEP). If this corridor is selected and subsequent mitigation requirements are imposed by the COE and FDEP, details will be resolved during the permitting process.

6. REFERENCE INFORMATION

6.1 Agencies and Individuals Consulted

Federal

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6.3 Reference Documents

Bionetics Corporation, The. "Biological Assessment for the Banana River Dredging Spoil Sites on John F. Kennedy Space Center", Prepared for: Biomedical Operations & Research Office.

Florida Department of Transportation, State Topographic Bureau, Thematic Mapping Section. "Florida Land Use, Cover and Forms Classification System". September 1985.

Florida Department of Transportation, Office of Environment. "1988 Project Development and Environment Guidelines", July 1988

Larson, Vickie Lynn. June 1992. "A Method for Assessing the Conservation Value of Natural Communities at A Local Scale.

TW Recreational Services, Inc. and Associates, Morris Architects Natural Systems Analysts, Inc. June 1992. Final Report, "Environmental Assessment, Apollo/Saturn V Center".

Environmental Assessment. "Hydrogen from Coal the Polygeneration Concept". February 1985.

"CCAS OPLAN 19-1, Oil and Hazardous Substance Pollution Contingency Plan".

APPENDIX A
ADVANCE NOTIFICATION PACKAGE

APPENDIX B
CCAS AND NASA 813 FORMS

APPENDIX C
SUMMARY OF COMMENTS

LINDAHL, BROWNING, FERRARI & HELLSTROM, INC.
CONSULTING ENGINEERS, PLANNERS & SURVEYORS

April 15, 1994

Ms. Tammy Weingarten
Florida Department of Environmental Protection
Wetland Resource Permitting
3319 Maguire Boulevard, Suite 232
Orlando, FL 32803

RE: REVISED Project Notification Package
City Gas Company of Florida -Natural Gas Pipeline
Cape Canaveral Air Force Station
National Environmental Policy Act Procedure
(LBFH #93-423)

Dear Ms. Weingarten:

Enclosed is a REVISED Project Notification Package. Option 2 has been re-routed. Further analysis of potential natural gas demands at the Cape Canaveral Air Force Station (CCAFS) has shown that the system must be connected to a better source (gate station) and cannot be served by connecting to the system in the City of Cape Canaveral. The pipeline is proposed to connect to the Cocoa Gate Facility adjacent to SR 520 in Clearlake Road (SR 501) in Brevard County, making the Option 2 route more than 12 miles in length. Option 2 (paralleling SR 528 and SR 401) will cross four major water bodies; Indian River Lagoon, Sykes Creek, Banana River and the Barge Canal.

Please DISCARD the previous package. Changes have been formatted for your convenience. Deletions are shown as ~~strikeouts~~ and additions are underlined. Although more specific comments will be solicited during the permit coordination process, we are requesting your office and other permit reviewing agencies to review the attached information. If you know of any other entities that need input, please contact them and request appropriate comments. Please furnish us with whatever general comments, as well as specific determinations, which are considered pertinent at this time.

CCAFS in coordination with KSC, using input from federal and state agencies, will determine the degree of environmental documentation that will be necessary. Determination of impacts will be based upon CCAFS/KSC evaluation in addition to comments received through coordination with other agencies.

We are looking forward to receiving your comments within 30 days. Your expeditious review of this information will be appreciated. Your comments should be addressed to my attention at the letterhead address.

Sincerely,

Sterling L. Carroll, P.E.

Enclosures

REVISED
ADVANCE NOTIFICATION FACT SHEET

City Gas Company of Florida - CCAFS Natural Gas Pipeline

The following information is provided as succinct general descriptions/evaluations of existing conditions for each element of the Advance Notification Package. Information presented herein is a compilation of observations, site visits, interviews and previous studies. Some figures and text has been borrowed from the "Interim Base Comprehensive Plan Cape Canaveral Air Force Station - Land Use, Existing and Proposal Section I", and "Concept Summary - Base Comprehensive Plan, Eastern Space and Missile Center Florida" prepared for the Cape Canaveral Air Force Station (CCAFS).

1. NEED FOR PROJECT.

Interest has been expressed to use natural gas as an energy power source, both primary and emergency, for certain functions within Cape Canaveral Air Force Station (CCAFS). Natural gas is a cleaner burning fuel than common petroleum fuels with lower emissions. It is recognized that natural gas is generally a more efficient fuel for heating and cooling. Energy costs are also reduced by using natural gas, wherever possible and practical. Cape Canaveral Air Force Station currently has plans to employ natural gas for its fleet vehicles. Natural gas provides the opportunity of eliminating petroleum storage tanks for emergency generators; eliminating related potential groundwater contamination; avoiding accidental spill potential; and reducing associated traffic of fuel delivery vehicles, several hundred deliveries per year.

2. DESCRIPTION OF THE PROJECT.

a. **Project Limits.** The natural gas pipeline (about 12-inch diameter) will be constructed entirely within existing public rights-of-way along major road corridors, see attached project location maps. The project route begins at the eastern limits of the General Support Zone of Kennedy Space Center and runs along NASA Causeway East corridor, parallels a causeway via subaqueous crossing of the Banana River, follows major rights-of-way within CCAFS Industrial Area, and turns south along Phillips Parkway to the south gate of CCAFS. <u>This project is intended to serve CCAFS demands.</u> The subaqueous crossing is anticipated to be accomplished by hydraulic dredging. A complete description of the route will be graphically represented as part of the permitting process.

b. **Option 1.** The preferred route (Option 1) begins at the eastern limits of the General Support Zone of Kennedy Space Center and runs <u>approximately four (4) miles</u> along NASA Parkway East corridor, parallels a causeway and drawbridge via subaqueous crossing of the Banana River, follows major rights-of-way within CCAFS Industrial Area, and turns south along Phillips Parkway terminating at the south gate of CCAFS. This route represents <u>the shortest route</u> ~~the option of least~~

~~impact~~. The distribution system as shown on the attached figure indicates several potential distribution points throughout the Industrial Area and along the pipeline route in CCAFS.

c. **Option 2.** Option 2 is the longer (approx. 12 miles) southern route. Further analysis of potential CCAFS natural gas demands has shown that the pipeline must be connected to a gate station source. The route begins at the Cocoa Gate facility on SR 520 west of Clearlake Road. The pipeline follows existing rights-of-way; beginning at the Cocoa Gate; thence east along SR 520; thence north along Clearlake Road (SR 501) through the City of Cocoa to the BeeLine Expressway (SR 528) a distance of approximately 3 1/2 miles; thence east and parallel to the BeeLine Expressway (SR 528) via several subaqueous crossings of Indian River Lagoon, Sykes Creek, and Banana River a distance of approximately 7 miles ~~It begins in the City of Cape Canaveral and proceeds north along the A-1-A corridor~~ to the junction of State Route 401; thence north paralleling SR 401 and a drawbridge via subaqueous crossing of the Barge Canal at the Port of Canaveral; thence east along SR 410 to the south gate of CCAFS; thence east and north along Phillips Parkway to CCAFS Industrial Area.

The subaqueous crossing of the Barge Canal would need to be accomplished by directional bore. The subaqueous crossings of the Indian River Lagoon, Sykes Creek and Banana River would be accomplished by hydraulic dredging and turbidity screening. This route is approximately 8 miles longer than the preferred route, represents a deep subaqueous crossing of the Barge Canal at the Port of Canaveral, major construction efforts in commercial areas along the BeeLine Expressway. ~~A-1-A in the City of Cape Canaveral, and natural gas supply is not as great as the preferred route.~~ The BeeLine Expressway (SR 528) is a limited access highway and FDOT has previously declined to allow City Gas to locate utilities along this right-of-way. Option 2 may represent crucial considerations including; right-of-way acquisition, construction costs, technical, environmental and perhaps Public Service Commission (PSC). This option does not take advantage of using the ~~current mobilized~~ natural gas pipeline ~~contractor at~~ on the KSC site for extending the pipeline south and east through the Banana River. The distribution system for CCAFS is the same as the preferred route.

d. **Option 3.** Option 3 is the NO ACTION option. The No Action option is to leave the natural gas delivery and distribution system unbuilt. The CCAFS operation would be without a central delivery source of a cleaner burning and more efficient alternative fuel. The option involves altering of plans for purchasing and using alternative fuels vehicles; continued use of petroleum products for heat and energy; continued hazard of spills and groundwater contamination with associated environmental and personnel exposure hazards; and continued truck deliveries (hundreds of trips per year).

e. **Proposed Improvements.** Proposed improvements are described as construction of a natural gas pipeline (about 12-inch diameter) in existing road fill material and within existing public rights-of-way along major road corridors. The construction of the pipeline will leave no structure above grade and within sight, except occasional pressure regulator stations. The contractor will be required to restore all disturbed areas to original condition. Roadway crossings are anticipated to be constructed by jack and bore. The subaqueous crossings are anticipated to be accomplished by hydraulic dredging using turbidity screens or directional bore at the major water bodies. A complete description of the proposed improvements will be graphically represented as part of the permitting process.

3. ENVIRONMENTAL INFORMATION.

a. **Land Use.** From its point of origin to its eventual destinations, the proposed gas lines occur within existing public rights-of-way along major road corridors. Adjacent land uses range from residential near the origin of the project to waterfront commercial along the US-1 corridor. The balance of the project (from KSC Industrial Area east to the gas line destinations) lies within the CCAFS. A complete description of all adjacent land uses will be graphically represented as part of the permitting process.

b. **Wetlands.** The preferred route (Option 1) is located within the cleared and sodded right-of-way of the NASA Parkway East and Phillips Parkway. From initial field observations this route does not appear to traverse wetland areas (excluding stormwater retention and canal areas). Box culverts perpendicular to the Phillips Parkway and NASA Causeway East are constructed with sufficient depth and cover such that the gas line can be laid on top of the culvert, without impacts to adjacent drainage canals. The project criteria is to install the natural gas pipeline in areas of least impact.

Option 2 is the southern route which parallels the SR 528 across three bodies of water and then following SR 401 across the Barge Canal at the Port of Canaveral and then northerly adjacent to the Phillips Parkway. This route appears, from initial field observations, to be located within the relatively wide and maintained rights-of-way of SR 528, SR 401 and Phillips Parkway with several major ~~minimal to no~~ wetland impacts expected. This route will necessitate a subaqueous crossing at the Barge Canal located just north of the intersection of the Beeline Expressway, and the three water bodies paralleling SR 528 (Indian River Lagoon, Sykes Creek and Banana River). It is unknown at this time whether there are other wetland impacts along this route.

c. **Seagrass.** All proposed routes will require the placement of a subaqueous pipeline crossing of major waterways. Potential impacts (if any) to existing seagrass communities will be evaluated and quantified during the environmental evaluation.

The preferred Option 1 route would be on the southern side of NASA Causeway East in existing road fill material and will go subaqueous only at bridges. Because the pipeline will be placed only at bridge channel zones which ~~have~~ experience tidal/wind movement, the likelihood of laying pipe where seagrasses exist is considered remote. A visual inspection of the seagrasses was performed and none were seen in proposed placement alignment. At the time of this writing, updated seagrass maps are expected to be available from KSC for determining impacts.

Option 2, (the southern route) requires a subaqueous crossing of the Barge Canal at the Port of Canaveral. It is proposed that this crossing be accomplished using the directional bore which has no impact on seagrasses. The three water bodies paralleling SR 528 are the Indian River Lagoon, Sykes Creek and Banana River. Other wetlands crossing along this route may yet be identified and all necessitating hydraulic dredging. A determination of potential seagrass impacts is not known at this time on the three crossings.

d. **Floodplains.** The potential routes are located within the cleared and sodded rights-of-way. The construction of the pipeline will not leave structures above grade and within the floodplain, except occasional pressure regulator stations consisting primarily of piping and valves. Construction activities may occur within the 100-year flood plain and will be subject to current stormwater and dredge & fill regulations.

e. **Listed Species Involvement.** The preferred route (Option 1) traverses the Banana River along the NASA Parkway East which lies within the Merritt Island National Wildlife Refuge (MINWR). Federal and State listed species known to inhabit or migrate through CCAFS and MINWR includes the following:

West Indian Manatee, Southeastern Beach Mouse, Southern Bald Eagle, Arctic Peregrine Falcon, Wood Stork, Roseate Tern, Piping Plover, Florida Scrub Jay, Kemps' Ridley Turtle, Loggerhead Turtle, Hawksbill Turtle, Green Turtle, American Alligator, Eastern Indigo Snake, ~~and~~ the Atlantic Salt Marsh Snake, Mangrove Rivulus, Gopher Tortoise, Florida Pine Snake, Gopher Frog, Roseate Spoonbill, Limpkin, Little Blue Heron, Reddish Egret, Snowy Egret, Tricolored Heron, Brown Pelican, Florida Mouse, Sherman's Fox Squirrel, and Least Tern.

At this stage of the project siting and environmental evaluation, it is not known of specific listed species involvement except for the following:

The preferred route Option 1 would require a subaqueous crossing of the Banana River. It is recognized that the Banana River has been designated by the U.S. Fish and Wildlife Service as "Critical Habitat" to the West Indian Manatee.

Option 2 (the southern route) would require a subaqueous crossing of the Barge Canal at the Port of Canaveral, the Banana River, Sykes Creek and Indian River

Lagoon. It is well known that the manatee uses the Barge Canal locks and are daily in the vicinity.

f. **Outstanding Florida Waters.** The waters within the boundaries of the MINWR are designated as Outstanding National Resource Waters and are afforded the same level of protection as Outstanding Florida Waters.

g. **Aquatic Preserves.** The location of the subaqueous crossing of the Banana River in Option 1 is within the limits of the MINWR. The subaqueous crossing of the Barge Canal in Option 2 is adjacent to or may cross the northern limits of the Banana River Aquatic Preserve.

h. **Coastal Zone Consistency Determination.** All proposed routes are located in a coastal county adjacent to a navigable waterbody with tidal influence, and therefore, are within the coastal zone. The Florida Department of Environmental Protection, which is responsible for administering the state coastal management program, will be consulted throughout the environmental evaluation process to ensure compliance with the Florida Coastal Zone Management Plan.

i. **Cultural Resources.** Based on a preliminary field survey of the proposed offsite corridor routes the proposed project (Options 1 or 2) are not expected to impact any public recreation areas, or any known historical, archaeological or other cultural resources within one-half mile of the corridor location. Regardless of route option, the natural gas distribution system within CCAFS will pass on the opposite side of the road from the historic Jeffords Cemetery (19 graves). Construction activities will not encroach on the cemetery. A complete description and survey of all cultural resources will be provided as part of the permitting process. Previous surveys of the CCAFS have identified several archeological and burial sites along the Banana River. The survey will include an assessment by the Division of Historical Resources, Florida Department of State, identifying the project's impact on historic properties listed or eligible for listing in the *National Register of Historic Places.*

j. **Coastal Barrier Resources.** It is unknown at this time if any of the proposed routes are located in the vicinity of or within a coastal barrier resource. The U.S. Fish and Wildlife will determine if the project is located within a coastal barrier resource as defined by the Federal Coastal Barrier Resource Act.

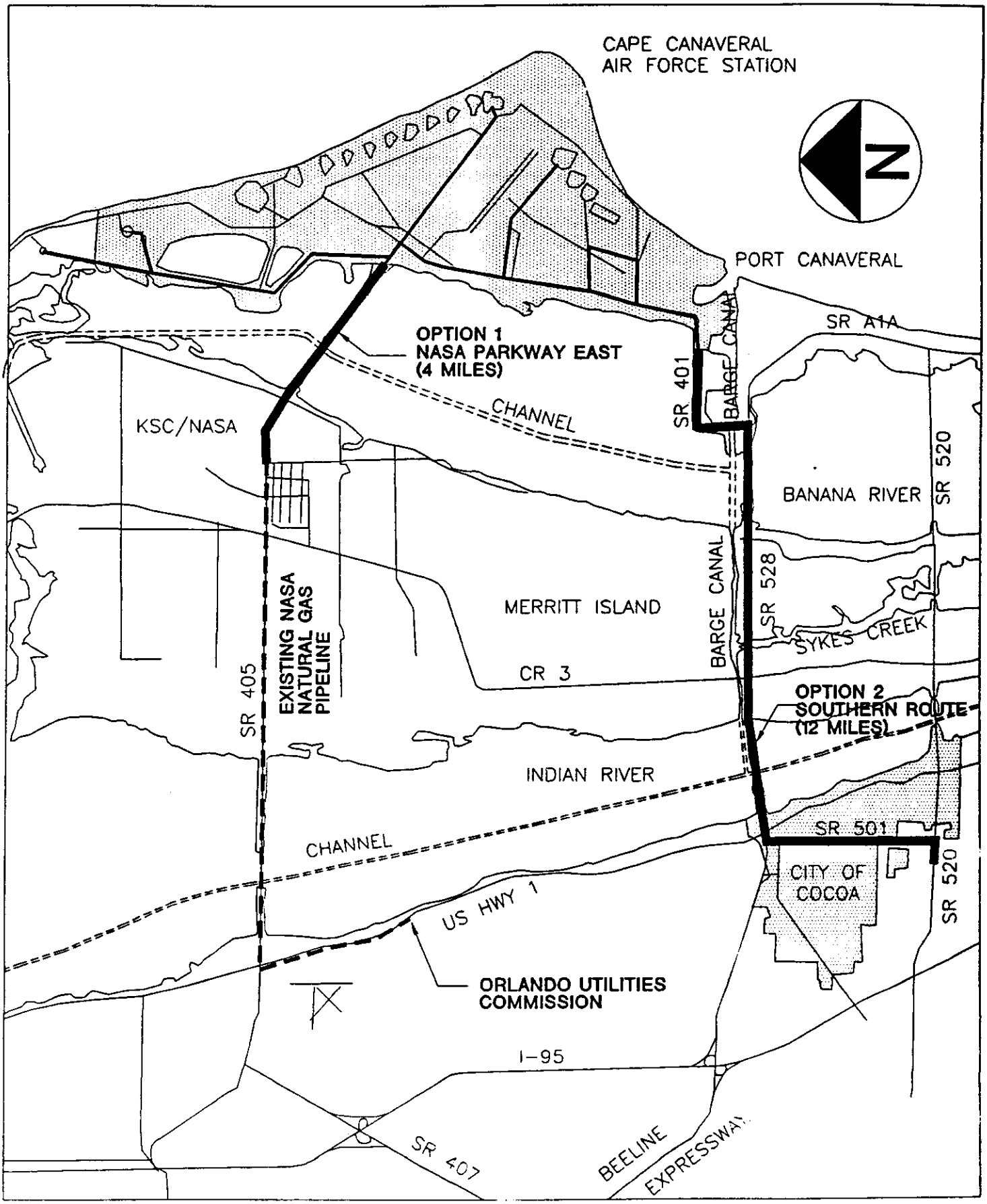
k. **Hazardous Materials.** No direct generators of hazardous materials within the project's immediate vicinity were identified during the preliminary field survey. Industrial and/or commercial uses will be evaluated with special emphasis on operations within the CCAFS. A comprehensive Hazardous Materials Evaluation will be conducted as part of the permitting process, including prevention and management strategies, if applicable.

4. NAVIGABLE WATERWAY CROSSING. ☒ Yes ☐ No

A determination will be made later in the project study under 23 CFR 650, Subpart H, Section 650.805, regarding whether a U.S. Coast Guard Permit is required.

5. PERMITS POTENTIALLY REQUIRED.

REGULATORY AGENCY	TYPE OF PERMIT
U.S. Army Corps of Engineers	Dredge & Fill
U.S. Army Corps of Engineers	Consent to Easement
Florida Dept. of Environmental Protection	Wetland Resource
Florida Dept. of Environmental Protection	Land Lease/Easement
St. John's River Water Management District	Stormwater

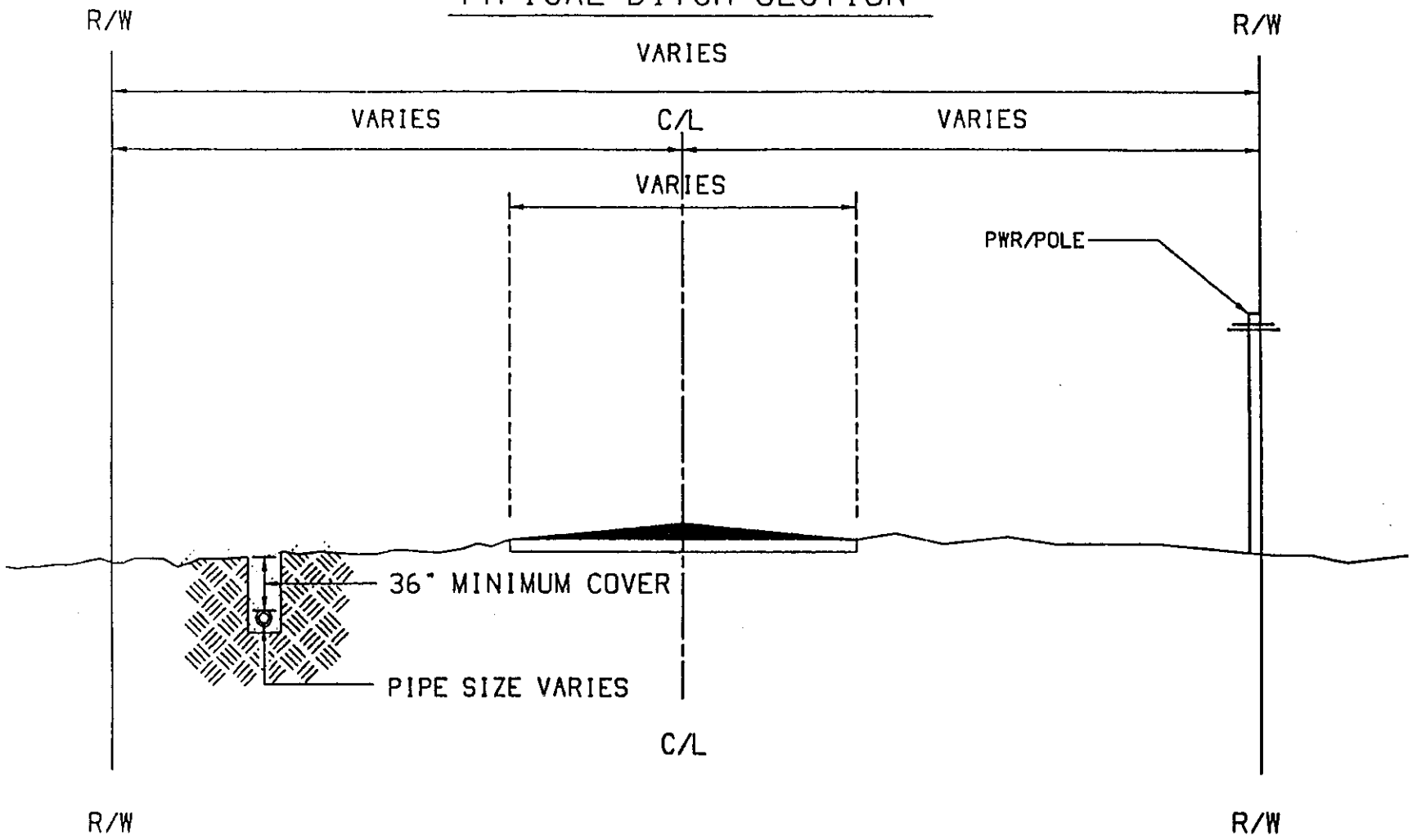


9342OP5.DWG 4/15/94 3:00pm

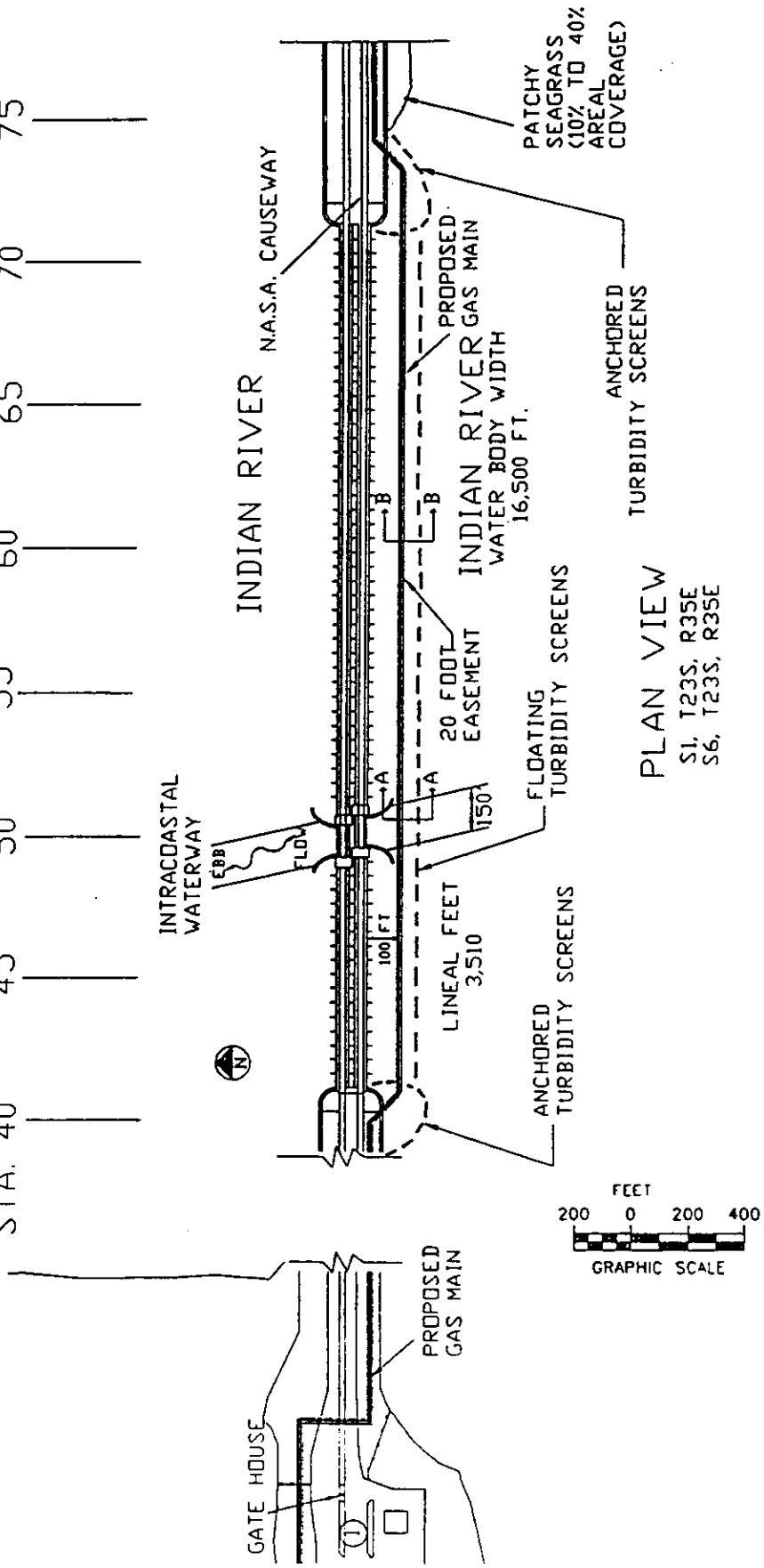
CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR FORCE STATION

POTENTIAL ROUTES

TYPICAL DITCH SECTION



CITY GAS COMPANY OF FLA.	
TYPICAL DITCH SECTION	
DATE 4-/-93	DRAWN BY H.S.E.
SCALE N.T.S.	CHECKED BY
SHEET NO. 1 of 1	DRAWING NO.
REVD. NO.	REF. TYP. INIT.



NOTE: INFORMATION FOR SEAGRASS AREAS SUPPLIED BY BIONETICS CORPORATION

ADJACENT PROPERTY OWNERS:

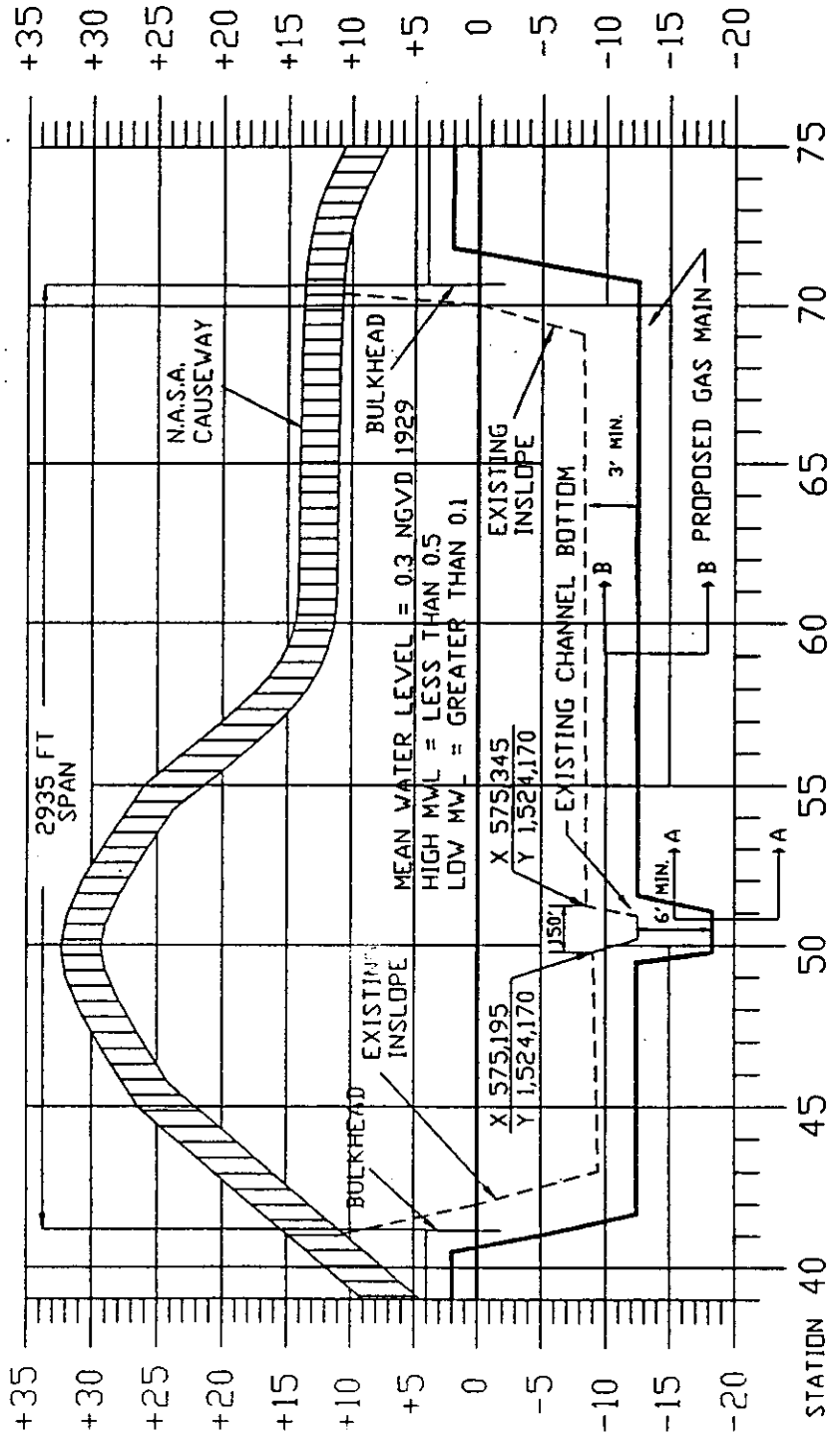
① FLORIDA DEPARTMENT OF TRANSPORTATION
555 CAMP RD
COCOA FL
32927

TYPICAL SUBAQUEOUS CROSSING EXAMPLE

CITY GAS COMPANY OF FLORIDA
PROPOSED SUBAQUEOUS GAS MAIN CROSSING
INDIAN RIVER LAGOON
AT THE NASA CAUSEWAY
BREVARD COUNTY, FLORIDA
SEP 1993

3

GARY M. SIMS
C.E.P. &
LBFP



PROFILE

SUBMARINE GAS MAIN TO BE BURIED AT LEAST 18 FT. BELOW MEAN WATER. AT INTRACOASTAL WATERWAY CHANNEL

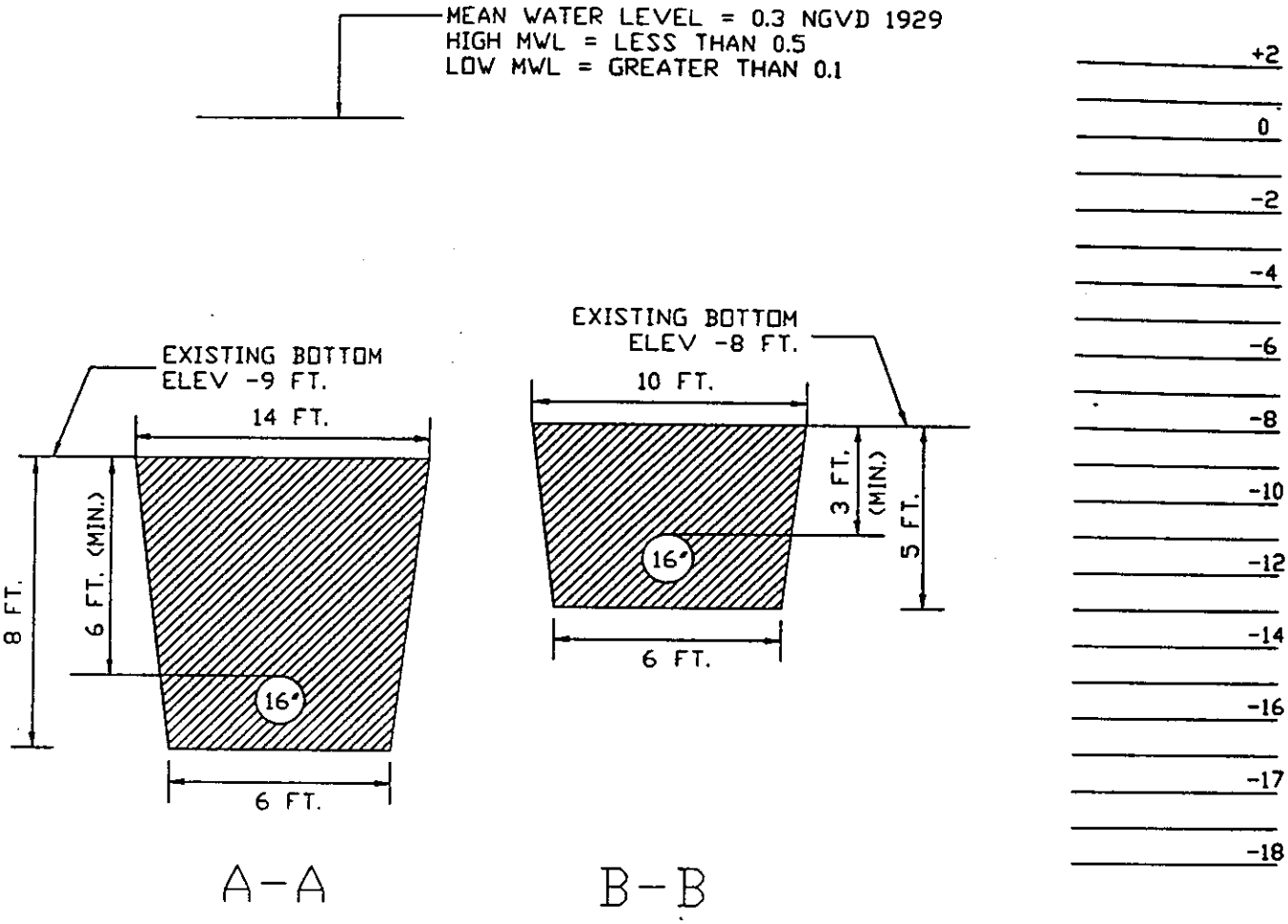
FEET
200 0 200 400
GRAPHIC SCALE
HORIZONTAL SCALE

EXAMPLE

CITY GAS COMPANY OF FLORIDA
PROPOSED SUBAQUEOUS GAS MAIN CROSSING
INDIAN RIVER LAGOON
AT THE NASA CAUSEWAY
BREVARD COUNTY, FLORIDA
SEP 1993

4

GARY M. SIMS, C.E.P. & lbfh



EXCAVATION AND BACKFILL

EXCAVATION VOLUME = 5422 CU. YDS.
PIPE VOLUME = 182 CU. YDS.

CROSS SECTIONS

EXAMPLE

CITY GAS COMPANY OF FLORIDA
PROPOSED SUBAQUEOUS GAS MAIN CROSSING
INDIAN RIVER LAGOON
AT THE NASA CAUSEWAY
BREVARD COUNTY, FLORIDA
SEP 1993

5

GARY M. SIMS, C.E.P. & lbfh

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APPENDIX B
CCAS AND NASA 813 FORMS

MAY 24 1994

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS: DBEH 94-1761

INSTRUCTIONS: *Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).*

SECTION I - PROPONENT INFORMATION

1. TO *(Environmental Planning Function)*	2. FROM *(Proponent organization and functional address symbol)*	2a. TELEPHONE NO.
Ginger Crawford 45CES/CEV	City Gas Company of Florida 4180 S. US Hwy. #1, Rockledge, FL 32955	407-636-4644

3. TITLE OF PROPOSED ACTION: SEE ATTACHED

4. PURPOSE AND NEED FOR ACTION *(Identify decision to be made and need date)*: SEE ATTACHED

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES *(DOPAA) (Provide sufficient details for evaluation of the total action.)*: SEE ATTACHED

6. PROPONENT APPROVAL *(Name and Grade)*	6a. SIGNATURE	6b. DATE
M. Randall Harris, General Manager	M. Randall Harris	5/23/94

SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY

(Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)

	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE *(Noise, accident potential, encroachment, etc.)*		X		
8. AIR QUALITY *(Emissions, attainment status, state implementation plan, etc.)*	X			
9. WATER RESOURCES *(Quality, quantity, source, etc.)*				X
10. SAFETY AND OCCUPATIONAL HEALTH *(Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.)*		X		
11. HAZARDOUS MATERIALS/WASTE *(Use/storage/generation, solid waste, etc.)*		X		
12. BIOLOGICAL RESOURCES *(Wetlands/floodplains, flora, fauna, etc.)*		X		
13. CULTURAL RESOURCES *(Native American burial sites, archaeological, historical, etc.)*		X		
14. GEOLOGY AND SOILS *(Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)*		X		
15. SOCIOECONOMIC *(Employment/population projections, school and local fiscal impacts, etc.)*		X		
16. OTHER *(Potential impacts not addressed above.)* Coastal Barrier Resources Act		X		
Florida Coastal Management Program		X		

SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17. [ ] PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____; OR
[X] PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

The proposed subaqueous pipeline crossing would require Dredge and Fill permits from the Florida Department of Environmental Protection and U.S. Army Corps of Engineers. All necessary environmental permits must be obtained by the proponent prior to initiating construction. The proposed upland route of pipeline is along existing utility corridors and should not affect natural habitats at CCAS.

CONTINUED...

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION *(Name and Grade)*	19a. SIGNATURE	19b. DATE
Olin C. Miller GM-14	Olin Miller	5/26/94

REVISED
Attachment to AF Form 813
Request For Environmental Impact Analysis

3. TITLE OF PROPOSED ACTION.

City Gas Company of Florida
Cape Canaveral Air Station
Natural Gas Distribution System

4. PURPOSE AND NEED FOR PROJECT.

Interest has been expressed to use natural gas as an energy power source, both primary and emergency, for certain functions within Cape Canaveral Air Station (CCAS). Natural gas is a cleaner burning fuel than common petroleum fuels with lower emissions. It is recognized that natural gas is generally a more efficient fuel for heating and cooling. Energy costs are also reduced by using natural gas, wherever possible and practical. Cape Canaveral Air Station currently has plans to employ natural gas for its fleet vehicles. Natural gas provides the opportunity of eliminating petroleum storage tanks for emergency generators; eliminating related potential groundwater contamination; avoiding accidental spill potential; and reducing associated traffic of fuel delivery vehicles, several hundred deliveries per year.

Decision: Choose natural gas as an energy power source, both primary and emergency, for certain functions within CCAS.

Date: March 31, 1994

5. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES.

a. **Project Limits.** The natural gas pipeline (about 12-inch diameter) will be constructed entirely within existing public rights-of-way along major road corridors, see attached project location maps. The project route begins at the eastern limits of the General Support Zone of Kennedy Space Center and runs along NASA Causeway East corridor, parallels a causeway via subaqueous crossing of the Banana River, follows major rights-of-way within CCAS Industrial Area, and turns south along Phillips Parkway to the south gate of CCAS. The subaqueous crossing is anticipated to be accomplished by hydraulic dredging. A complete description of the route will be graphically represented as part of the permitting process.

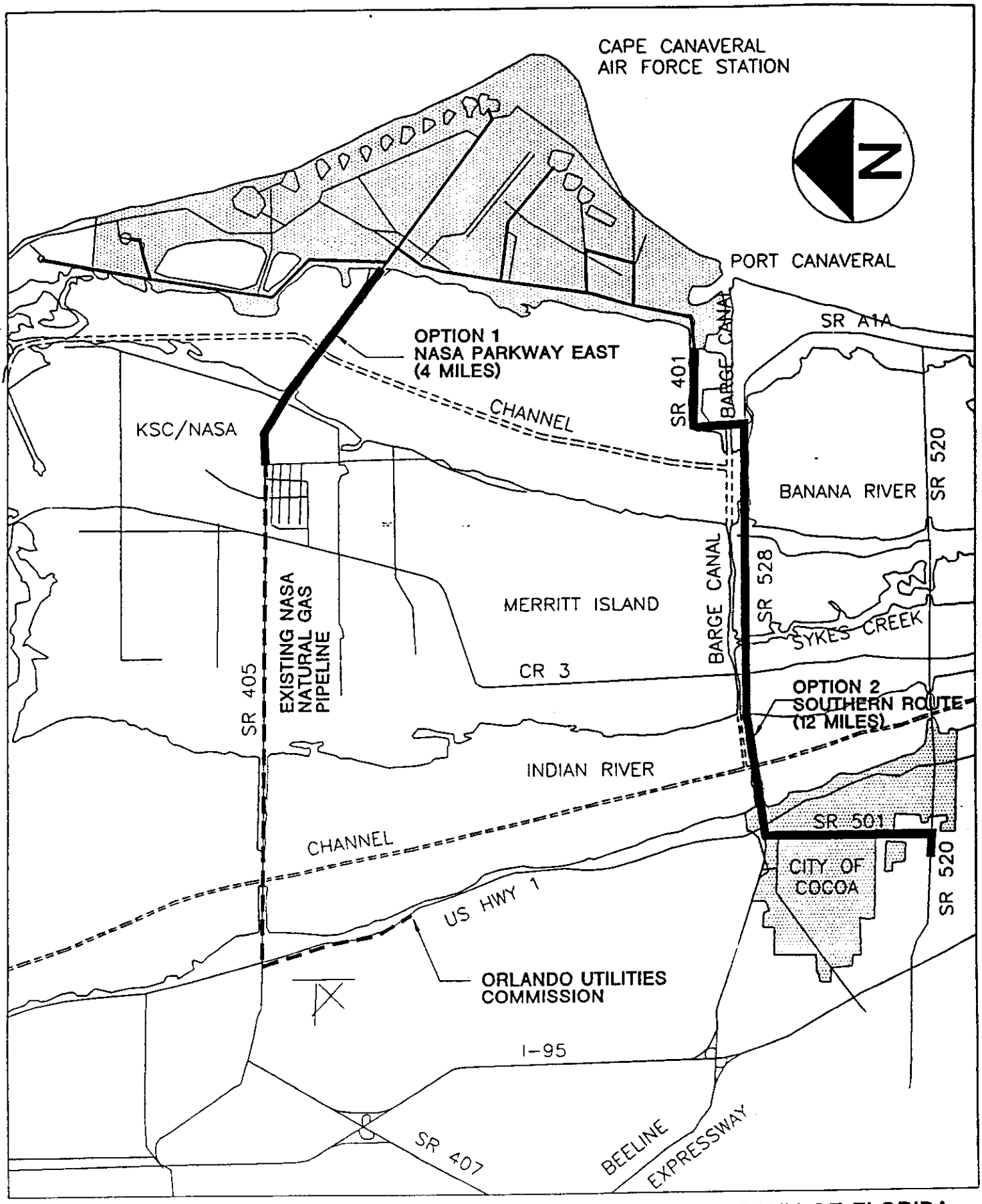
b. **Alternative 1.** The preferred route (Alternative 1) begins at the eastern limits of the General Support Zone of Kennedy Space Center and runs along NASA Causeway East corridor, parallels a causeway and drawbridge via subaqueous

crossing of the Banana River, follows major rights-of-way within CCAS Industrial Area, and turns south along Phillips Parkway terminating at the south gate of CCAS. This route represents the option of least impact. The distribution system as shown on the attached figures indicates several potential distribution points throughout the Industrial Area and along the pipieline route.

c. **Alternative 2.** Alternative 2 is the longer (approx. 12 miles) southern route. Further analysis of potential CCAS natural gas demands has shown that the pipeline must be connected to a gate station source. The route begins at the Cocoa Gate facility on SR 520 west of Clearlake Road. The pipeline follows existing rights-of-way; beginning at the Cocoa Gate; thence east along SR 520; thence north along Clearlake Road (SR 501) through the City of Cocoa to the BeeLine Expressway (SR 528) a distance of approximately 3 1/2 miles; thence east and parallel to the BeeLine Expressway (SR 528) via several subaqueous crossings of Indian River Lagoon, Sykes Creek, and Banana River a distance of approximately 7 miles to the junction of State Route 401; thence north paralleling SR 401 and a drawbridge via subaqueous crossing of the Barge Canal at the Port of Canaveral; thence east along SR 410 to the south gate of CCAS; thence east and north along Phillips Parkway to CCAS Industrial Area.

The subaqueous crossing of the Barge Canal would need to be accomplished by directional bore. The subaqueous crossings of the Indian River Lagoon, Sykes Creek and Banana River would be accomplished by hydraulic dredging and turbidity screening. This route is approximately 8 miles longer than the preferred route, represents a deep subaqueous crossing of the Barge Canal at the Port of Canaveral, major construction efforts in commercial areas along the BeeLine Expressway. The BeeLine Expressway (SR 528) is a limited access highway and FDOT has previously declined to allow City Gas to locate utilities along this right-of-way. Alternative 2 may represent crucial considerations including; right-of-way acquisition, construction costs, technical, environmental and perhaps Public Service Commission (PSC). This alternative does not take advantage of using the natural gas pipeline on the KSC site for extending the pipeline south and east through the Banana River. The distribution system for CCAS is the same as the preferred route.

c. **Alternative 3.** Alternative 3 is the NO ACTION alternative. The No Action alternative is to leave the natural gas delivery and distribution system unbuilt. The CCAS operation would be without a central delivery source of a cleaner burning and more efficient alternative fuel. The alternative involves altering of plans for using alternative fuels vehicles; continued use of petroleum products for heat and energy; continued hazard of spills and groundwater contamination with associated environmental and personnel exposure hazards; and continued truck deliveries (hundreds of trips per year).



6000' 0' 6000' 12000'

GRAPHIC SCALE

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR FORCE STATION

POTENTIAL ROUTES

9342JUP5.DWG 4/15/94 3:30pm

KSC Environmenta

KSC ENVIRON. CHECKLIST

Project Name City Gas Company of Florida - Cape Canav :al Gas Distribu-
tion System

Project Lead City Gas Company of Florida M. Ra: l Manager

Facility No. _____ Project No. _____

Org./Mail Code _____ Date ~~September 30, 1994~~

Phone No. 636-4757 Estimated Completion Date May, 1995

1. Purpose of Project

Refer to Attachment A

2. Project Description (Include appropriate maps and drawings for each alternative.)

Refer to Attachment B

3. Operational Impact if Not Implemented

Refer to Attachment C

4. Project Location: ☒ KSC ☒ CCAFS ☐ Other _____

ATTACHMENT A

PURPOSE OF PROJECT

Interest has been expressed to use natural gas as an energy power source, both primary and emergency, for certain functions within Cape Canaveral Air Station (CCAS). Natural gas is a cleaner burning fuel than common petroleum fuels with lower emissions. It is recognized that natural gas is generally a more efficient fuel for heating and cooling. Energy costs are also reduced by using natural gas, wherever possible and practical. Cape Canaveral Air Station currently has plans to employ natural gas for its fleet vehicles. Natural gas provides the opportunity of eliminating petroleum storage tanks for emergency generators; eliminating related potential groundwater contamination; avoiding accidental spill potential; and reducing associated traffic of fuel delivery vehicles, several hundred deliveries per year.

ATTACHMENT B

PROJECT DESCRIPTION

a. **Project Limits.** The natural gas pipeline (about 12-inch diameter) will be constructed entirely within existing public rights-of-way along major road corridors, see attached project location maps. The project route begins at the eastern limits of the General Support Zone of Kennedy Space Center and runs along NASA Causeway East corridor, parallels a causeway via subaqueous crossing of the Banana River, follows major rights-of-way within CCAS Industrial Area, and turns south along Phillips Parkway to the south gate of CCAS. The subaqueous crossing is anticipated to be accomplished by hydraulic dredging. A complete description of the route will be graphically represented as part of the permitting process.

b. **Alternative 1.** The preferred route (Alternative 1) begins at the eastern limits of the General Support Zone of Kennedy Space Center and runs along NASA Causeway East corridor, parallels a causeway and drawbridge via subaqueous crossing of the Banana River, follows major rights-of-way within CCAS Industrial Area, and turns south along Phillips Parkway terminating at the south gate of CCAS. This route represents the option of least impact. The distribution system as shown on the attached figures indicates several potential distribution points throughout the Industrial Area and along the pipieline route.

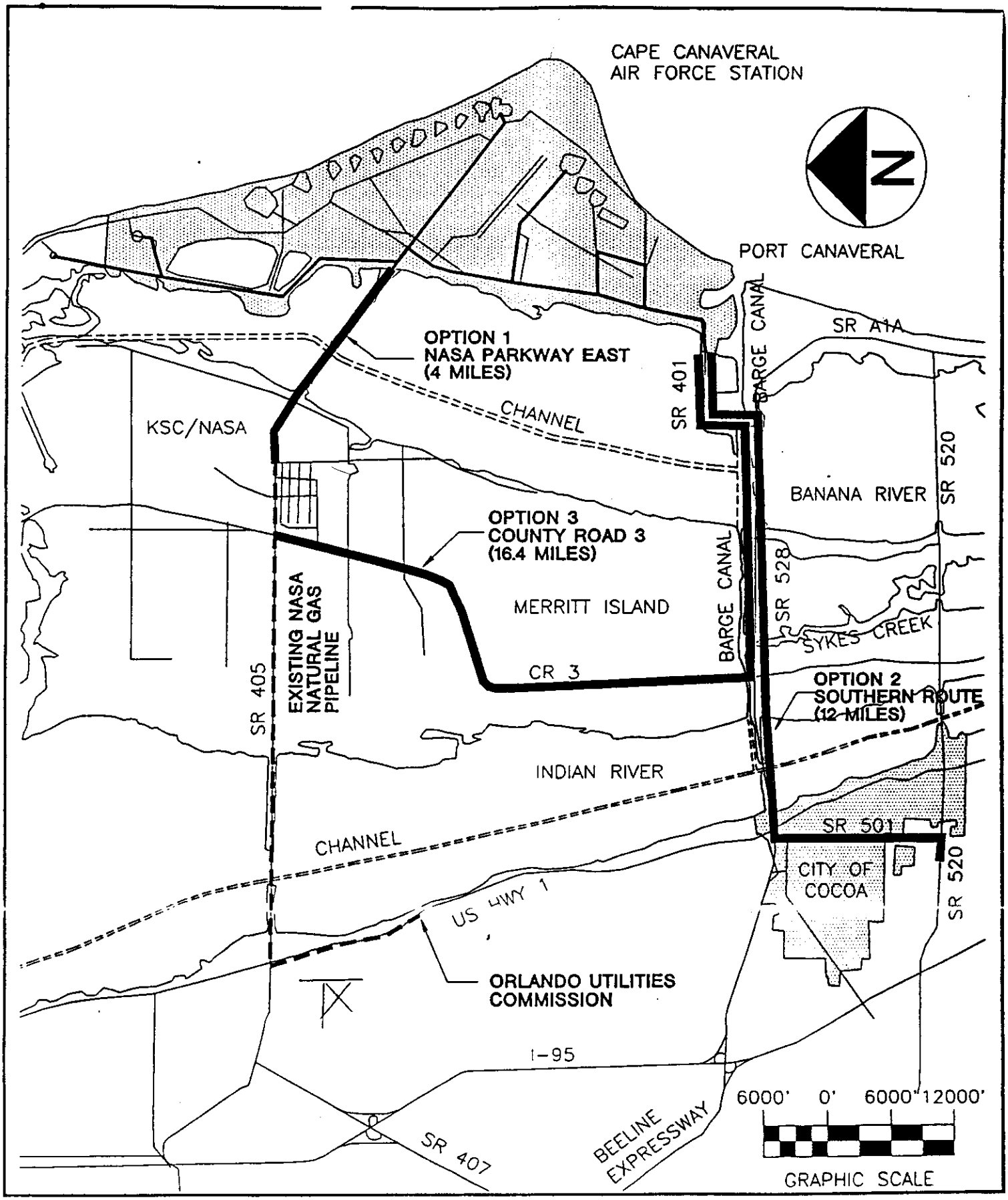
c. **Alternative 2.** Alternative 2 is the longer (approx. 12 miles) southern route. Further analysis of potential CCAS natural gas demands has shown that the pipeline must be connected to a gate station source. The route begins at the Cocoa Gate facility on SR 520 west of Clearlake Road. The pipeline follows existing rights-of-way; beginning at the Cocoa Gate; thence east along SR 520; thence north along Clearlake Road (SR 501) through the City of Cocoa to the BeeLine Expressway (SR 528) a distance of approximately 3 1/2 miles; thence east and parallel to the BeeLine Expressway (SR 528) via several subaqueous crossings of Indian River Lagoon, Sykes Creek, and Banana River a distance of approximately 7 miles to the junction of State Route 401; thence north paralleling SR 401 and a drawbridge via subaqueous crossing of the Barge Canal at the Port of Canaveral; thence east along SR 410 to the south gate of CCAS; thence east and north along Phillips Parkway to CCAS Industrial Area.

The subaqueous crossing of the Barge Canal would need to be accomplished by directional bore. The subaqueous crossings of the Indian River Lagoon, Sykes Creek and Banana River would be accomplished by hydraulic dredging and turbidity screening. This route is approximately 8 miles longer than the preferred route, represents a deep subaqueous crossing of the Barge Canal at the Port of Canaveral, major construction efforts in commercial areas along the BeeLine Expressway. The BeeLine Expressway (SR 528) is a limited access highway and FDOT has previously declined to allow City Gas to locate utilities along this right-of-way. Alternative 2 may represent crucial

considerations including; right-of-way acquisition, construction costs, technical, environmental and perhaps Public Service Commission (PSC). This alternative does not take advantage of using the natural gas pipeline on the KSC site for extending the pipeline south and east through the Banana River. The distribution system for CCAS is the same as the preferred route.

d. **Alternative 3.** The Alternative 3 route would run south from KSC/NASA along SR 3 with a subaqueous crossing at the Barge Canal, then follow the BeeLine Expressway (SR 528) east with several subaqueous crossings (Sykes Creek, and Banana River) to the junction of State Route 401; then north paralleling SR 401 and a drawbridge via subaqueous crossing of the Barge Canal at the Port of Canaveral. We previously reviewed and evaluated this route. Several factors make this route difficult or unsatisfactory:

- The majority of natural gas demand is located at the CCAS Industrial Area immediately adjacent to NASA Causeway East.
- The delivery pipe needed for the natural gas supply would be larger than the existing pipeline and a new parallel pipeline would need to be installed along SR 3 from KSC.
- The suggested route is about 11 miles longer than the preferred option.
- The BeeLine Expressway (SR 528) is a limited access highway and FDOT does not allow utilities to locate underground facilities along this right-of-way. See FDOT Utility Accommodation Manual Section 9.(a)2, pages 29 - 30, attached.
- City Gas would be required to acquire or lease right-of-way across the full width of the Banana River and hydraulic dredge the pipeline outside of BeeLine Expressway and Barge Canal rights-of-way. Impacts to be addressed would include; construction costs, technical, logistical and environmental issues.
- The suggested option would require three more subaqueous crossings and greater impacts to the Banana River than the preferred option.



POTENTIAL ROUTES

CITY GAS COMPANY OF FLORIDA
PROPOSED NATURAL GAS
PIPELINE ROUTING FOR THE
CAPE CANAVERAL AIR FORCE STATION

ATTACHMENT C

OPERATIONAL IMPACT IF NOT IMPLEMENTED

The No Action alternative is to leave the natural gas delivery and distribution system unbuilt. The CCAS operation would be without a central delivery source of a cleaner burning and more efficient alternative fuel. The alternative involves altering of plans for using alternative fuels vehicles; continued use of petroleum products for heat and energy; continued hazard of spills and groundwater contamination with associated environmental and personnel exposure hazards; and continued truck deliveries (hundreds of trips per year).

APPENDIX C
SUMMARY OF COMMENTS

LINDAHL, BROWNING, FERRARI & HELLSTROM, INC.
CONSULTING ENGINEERS, PLANNERS & SURVEYORS

May 24, 1994 LBFH #93-423

Alex Alexander, Director
Central District
Florida Department of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767

RE: FDEP Responses to the Advance Notification Package
Natural Gas Distribution System
City Gas Company of Florida
for the Cape Canaveral Air Station

Dear Mr. Alexander:

Thank you for the response letters of April 4, 1994 and May 18, 1994 from your office. We have noted these comments and request clarification. Comments in the April 4, 1994 letter from Ms. Barbara Bess on the original Advance Notification Package differ somewhat in content from the May 18, 1994 letter from Ms. Tammy Weingarden on the revised package. Copies of the two letters are enclosed.

A copy of the Revised Advance Notification Package is also provided for your reference. The original and revised packages are not significantly different. Changes have been formatted for your convenience. Deletions are shown as ~~strikeouts~~ and additions are underlined.

An issue that perhaps is causing some confusion is that this project for the Cape Canaveral Air Station (CCAS) resembles a recent Kennedy Space Center (KSC) natural gas distribution extension, both by City Gas Company of Florida. Regardless of similarities in the two projects, these are separate and distinct actions. The CCAS project is a recent development.

In addition, the two projects fall under different guidelines per the National Environmental Policy Act (NEPA) and require independent approval processes. NEPA requires each federal agency to define its own NEPA procedure. Thus, the Air Force NEPA process differs from NASA NEPA process.

We have attempted to remain forthright and provide disclosure to FDEP and other agencies. The Advance Notification Package distributed to 38 individuals at local, state and federal agencies is evidence of our actions. There has been no intent to mislead, misinform, or piecemeal FDEP regarding permitting activities on the KSC or CCAS.

Ms. Weingarden suggested in the May 18, 1994 letter another option or route be explored. The suggested alternate route would run south from KSC/NASA along SR 3 with a subaqueous crossing at the Barge Canal, then follow the BeeLine Expressway (SR 528) east with several subaqueous crossings (Sykes Creek, and Banana River) to the junction of State Route 401; then north paralleling SR 401 and a drawbridge via subaqueous crossing of the Barge Canal at the Port of Canaveral. We previously reviewed and evaluated this route. Several factors make this route difficult or unsatisfactory:

- The majority of natural gas demand is located at the CCAS Industrial Area immediately adjacent to NASA Causeway East.
- The delivery pipe needed for the natural gas supply would be larger than the existing pipeline and a new parallel pipeline would need to be installed along SR 3 from KSC.
- The suggested route is about 11 miles longer than the preferred option.
- The BeeLine Expressway (SR 528) is a limited access highway and FDOT does not allow utilities to locate underground facilities along this right-of-way. See FDOT Utility Accommodation Manual Section 9.(a)2, pages 29 - 30, attached.
- City Gas would be required to acquire or lease right-of-way across the full width of the Banana River and hydraulic dredge the pipeline outside of BeeLine Expressway and Barge Canal rights-of-way. Impacts to be addressed would include; construction costs, technical, logistical and environmental issues.
- The suggested option would require three more subaqueous crossings and greater impacts to the Banana River than the preferred option.

Please clarify the difference between the two comment letters. Thank you for your assistance on this project. Feel free to call me if you have any questions or comment.

Very truly yours,

LINDAHL, BROWNING, FERRARI & HELLSTROM, INC.

Sterling L. Carroll, P.E.
Sr. Project Manager

Enclosures: Ms. Barbara Bess response letter dated April 4, 1994
Ms. Tammy Weingarden response letter dated May 18, 1994
Revised Advance Notification Package
FDOT Utility Accommodation Manual Section 9.(a)2, pages 29 - 30

FILE: M:\93-423\ALEXNDER.LTR

cc: Randy Harris, City Gas
Gary Sims, EPS
Vincent P. Juselis, CCAS
Mario Busacca, KSC
Ginger Crawford, CCAS
Dean Holt, CCAS

CITY GAS COMPANY OF FLORIDA

INTEROFFICE MEMORANDUM

TO: Sterling Carroll

FROM: Randy Harris

DATE: May 24, 1994

SUBJECT: DOT Right of WAY Restrictions

Please find enclosed copies of the DOT Utility Accommodation Manual section 9.(a)2. As you can see, the installation of our facilities on the limited access Beeline Highway #528 is prohibited.

When we approached DOT nearly three years ago, this prohibition was pointed out to us. Consequently, no formal application was made to DOT .

Should you need further information please do not hesitate to contact me.

UTILITY ACCOMMODATION MANUAL

This Manual is ... regulate the location, manner, installation and ... facilities along, across, under or on ... right ... jurisdiction of the FDOT. This Manual also is ... work which is in the interest of safety ... development of the highways ... public service offered by adequate ... Section 337.401, ... Florida Administrative Code Rule 14-46.001. Agreements ... required under ... circumstances set forth in this Manual ... outlined in this Manual. ... criteria of this Manual, disputes may arise as to what ... which can be ... resolved at the local or ... district level by mutual agreement ... designee for final ... referred to the State Utility ... Administrator or concerning ... location, manner ... matters adjustment ... of the installation or not ... utilities or FDOT ... right-of-way. It does installation ... pertaining to authority for their placement ... financial responsibilities for

The presence ... underground facilities in FDOT rights-of-way ... properly permitted in accordance with the ... time of their installations ... effect exists. The UAO will relocate ... and underground utility facilities ... accommodation standards ... determined or traffic accident ... the relocation does not ... regulations that provide for ... economically unfeasible ... at the local or District level ... Administrator as provided ...

Where ... the land occupied by its facilities ... or used for highway and utility ... agree in writing as to the obligations ... party. In any event, the interest ... the FDOT in any portion of the right-of-way ... be relocated, used or occupied by utilities ... a nature and extent adequate for the ... and maintenance of the highway project. The procedure ... outlined in the FDOT'S Right-of-Way Policy Manual, see ... F.A.C.2.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

JUNE 1993

DOCUMENT NO. 710-020-001-C

TABLE OF CONTENTS

Florida has adopted this manual as the State Standard to be used on all streets and highways open to the public. As a supplement to this manual the FDOT publishes Roadway and Traffic Design Standards (Index Series 600) and the Standard Specifications for Road and Bridge Construction .

(b) Traffic Control Plan

When a permit for utility installation, adjustment or maintenance activity is required under Section 3 of this Manual, a proposed traffic control plan shall be submitted with the permit application. Site condition changes that warrant a change to the proposed MOT plan will require the UAO to notify the FDOT. The proposed and final traffic control plan shall be designed in accordance with the standards set forth in the MUTCD and the FDOT Roadway and Traffic Design Standards (Index Series 600) and the FDOT Standard Specifications for Road and Bridge Construction.

(c) Training and Job Control

The UAO is responible for insuring that each person supervising the selection, placement and maintenance of Traffic Control Devices in Utility Work Zones shall be certified by attending a FDOT approved MOT training course or the UAO'S approved tranning course through work zones. When changes are made to the MUTCH, Roadway Design Standards (Index Series 600) and the FDOT Standard Specification for Road and Bridge Construction, the UAO will update their tranning manual to reflect such changes.

All UAO'S shall furnish to the FDOT a listing showing all personnel certified in MOT within their company, when requested.

(d) Non-Compliance

Upon notification by the FDOT of deficiencies in the Traffic Control Plan or other matters involving traffic safety, the permittee shall immediately make improvements as directed by the FDOT. Should the FDOT deem conditions to be such that imminent danger is present, all work shall cease automatically until the conditions are corrected.

(9) LOCATION CRITERIA FOR UTILITIES

(a) RURAL AND URBAN Limited Access Facilities --- Design Speed of 45 MPH or Greater and Projected ADT (20 YR.) of 1500 or Greater:

1. UTILITY/LIGHT POLES: See FDOT Standard Index No. 700, "Design Criteria Related To Highway Safety".

2. PARALLEL (UNDERGROUND): Accommodation of New Utilities on Limited Access Right-of-Way is prohibited.

3. CROSSING (AERIAL): Aerial crossings requires twenty-four (24) feet minimum vertical clearance over limited access facilities and eighteen (18) over other roadway. Other Governmental Agencies or Codes may require a greater clearance for certain voltages. The greater clearance required prevails as the rule. No poles or structures will be permitted within right of-way of the main travel way.

4. CROSSING (UNDERGROUND): Underground crossings require a minimum vertical clearance of forty-eight (48) inches below pavement surface for limited access facilities and thirty six (36) inches for other highways, or thirty (30) inches below unpaved ground including ditch grade. After pavement has been constructed, no open cuts will be allowed. Where a high pressure gas or volatile fuel line is located under a highway bridge, additional protection may be necessary.

The type of additional protection may vary depending upon the circumstances and each individual case will be analyzed on its own merits. (See Jacking and Boring Section)

NOTE: ANY EXCEPTIONS TO THE "LIMITED ACCESS FACILITY POLICY MUST BE APPROVED BY THE STATE UTILITY ADMINISTRATOR" OR DESIGNEE.

(b) ALL OTHER FDOT HIGHWAYS:

1. UTILITY/LIGHT POLES: See FDOT Standard Index No. 700, "Design Criteria Related To Highway Safety".

2. PARALLEL (UNDERGROUND): Parallel underground installations require a minimum vertical clearance thirty-six (36) inches below top of pavement and thirty (30) inches below existing unpaved ground including ditch grade except for gas lines, which should be thirty-six (36) inches below ground including ditch grade. In rural areas, installation normally will not be between edge of pavement and toe of slope and as near right-of-way line as practical. Minimum depth requirement can vary if Utility is buried under sidewalk or bike path.

3. CROSSING (AERIAL): Aerial crossings are permitted and will have a minimum of eighteen (18) feet vertical clearance over the roadway. Other Governmental Agencies or Codes may require a greater clearance for certain voltages. The greater clearance required prevails as the rule.

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

May 20, 1994

REPLY TO
ATTENTION OF

Real Estate Division
Management and Disposal Branch

RECEIVED
MAY 23 1994
Ans'd.....

Mr. Sterling L. Carroll
Lindahl, Browning, Ferrari and
Hellstrom, Inc.
2222 Colonial Road, Suite 201
Fort Pierce, Florida 34950

Dear Mr. Carroll:

Reference is made to your letter dated April 15, 1994,. requesting comments relative to a natural gas pipeline proposed to be constructed by City Gas Company.

Option 2 of the revised Project Notification Package submitted with your letter indicates two crossing points within Federal right-of-way under the control of the U.S. Army Corps of Engineers. The first crossing is in the Intracoastal Waterway, Jacksonville to Miami Project at Cut BV-17, the second crossing point is in the Canaveral Harbor Project at the State Road 401 bridge. The criteria for crossing both projects are the same. Both of the subaqueous pipeline crossings must be made so that the top of the pipeline is a minimum of six (6) feet below the project depth of -12 feet MLW for the entire width of the channel (125 feet), plus an additional 25 feet perpendicular beyond each toe of the channel.

As noted in item number 5 of the Notification Package, a Department of the Army dredge and fill permit will be required for construction activities in waters of the United States (i.e., wetlands and waterbodies). The permit application should include detailed drawings specific to the point of subaqueous crossings in Option 2. In addition, x and y coordinates based on the plane rectangular coordinate system for the East Zone of Florida should be provided for those crossing points. Our Regulatory Division is available for pre-application meetings, if necessary. You may contact Mr. Joe Bachelor of our Tampa Regulatory Field Office if you desire such a meeting.

In addition to a Department of the Army permit, if Option 2 is selected, a consent to easement must be obtained form this office prior to construction. Option 1 does not cross lands under control of the Department of the Army, therefore, a consent to easement will not be required if this alignment is chosen.

If you have any further questions, please telephone Mr. Larry Wright at 904-232-2537.

Sincerely,

Marsha F. Chwington

for Gary A. Ditch
Acting Chief, Real Estate Division

Florida Department of
Environmental Protection

Lawton Chiles
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

May 18, 1994

Mr. Sterling Carroll, P.E.
Lindahl, Browning, Ferrari & Hellstrom, Inc.
2222 Colonial Road, Suite 201
Fort Pierce, FL 32950

OCD-WRP-94-0315

City Gas Company/Cape Canaveral AFS
Brevard County - WRP

Dear Mr. Carroll:

I have reviewed the second project notification package for the proposed pipeline and have the following comment.

When the Department received an application from City Gas Company (c/o Lindahl, Browning, Ferrari & Hellstrom, Inc.) on July 21, 1993, I specifically requested in the initial request for additional information, dated August 17, 1993, how this pipeline will or will not impact other wetlands, ditches, creeks, or other water bodies.

Your response to this request for additional information stated that "upon further review of the proposed pipeline corridor, two additional crossings of probable FDEP jurisdictional waters are proposed. etc..."

The site inspection conducted on November 4, 1993 revealed that there were actually many ditch crossings that were necessary beyond the "additional two".

During the site inspection and in my request for additional information I made it clear that for permitting purposes the entire pipeline should be proposed in ONE application and not piecemeal into several applications.

Please note that based upon the information supplied in 1993 the Department apparently was misinformed by the applicant and its agent regarding this pipeline.

Please note that the issuance of a previous permit does not preclude or assure the issuance of any future permits.

If City Gas Company still proposes to cross the Banana River Aquatic Preserve the Department strongly recommends a location realignment. It appears at the minimum the crossing can be shifted to a narrower section of this Aquatic Preserve. It appears that the pipeline could actually run south from KSC/NASA and then east across the Barge Canal, thus avoiding and minimizing impacts to the Indian and Banana Rivers.

Sincerely,

Tamy Weingarden

Tamy Weingarden
Environmental Specialist II
Wetland Resource Permitting

TW:hs

WATER MANAGEMENT DISTRICT

Henry Dean, Executive Director
John R. Wehle, Assistant Executive Director
Charles T. Myers III, Deputy Assistant Executive Director

POST OFFICE BOX 1429 PALATKA, FLORIDA 32178-1429
TELEPHONE 904/329-4500 SUNCOM 904/860-4500
FAX (EXECUTIVE/LEGAL) 329-4125 (PERMITTING) 329-4315 (ADMINISTRATION/FINANCE) 329-4508

FIELD STATIONS

618 E. South Street, Orlando, Florida 32801, 407/897-4300
7775 Baymeadows Way, Suite 102, Jacksonville, Florida 32256, 904/730-6270
PERMITTING: 305 East Drive, Melbourne, Florida 32904, 407/984-4940
OPERATIONS: 2133 N. Wickham Road, Melbourne, Florida 32935-8109, 407/254-1762

May 12, 1994

Mr. Sterling L. Carroll, P.E.
Lindahl, Browning, Ferrari & Hellstrom, Inc.
2222 Colonial Road STE 201
Fort Pierce FL 34950

RECEIVED
MAY 16 1994
Ans'd.....

Re: City Gas Company of Florida - Natural Gas Pipeline
Cape Canaveral Air Force Station
Brevard County

Dear Mr. Carroll:

The District received your notification package regarding the referenced project, on April 18, 1994. It is my understanding that the project consists of the placement of a natural gas pipeline paralleling SR 528 and SR 401 in Brevard County, and will cross the Indian River Lagoon, Sykes Creek, Banana River, and the Barge Canal.

Please be advised that pursuant to the delegation agreement between the Department of Environmental Protection (DEP) and the St. Johns River Water Management District, the DEP is responsible for review and final action on all applications for wetland resource permits required pursuant to Chapter 403, F.S., and Management and Storage of Surface Water permits pursuant to Part IV, Chapter 373, F.S. and Chapters 40C-4, 40C-40, 40C-41, and 40C-42, F.A.C. for natural gas or petroleum exploration activities and facilities, and product pipelines. In summary, applications normally issued by the District are reviewed by the DEP for the referenced category of project. The contact person at DEP is Barbara Bess at the following address:

Department of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803

This letter applies only to the requirements of the St. Johns River Water Management District and does not relieve you of meeting the permit requirement of other agencies. If you have further questions, please call Janice Unger or me at 407-984-4940.

Sincerely,

Jennifer S. Cope

Jennifer S. Cope, Environmental Specialist
Department of Resource Management

cc: John Juilianna Janice Unger Eddie Carr
Permit Data Services Barbara Bess

FLORIDA DEPARTMENT OF STATE
Jim Smith
Secretary of State
DIVISION OF HISTORICAL RESOURCES
R.A. Gray Building
500 South Bronough
Tallahassee, Florida 32399-0250
Director's Office (904) 488-1480
Telecopier Number (FAX) (904) 488-3353

May 12, 1994

Mr. Sterling L. Carroll
LBFH
2222 Colonial Road, Suite 201
Fort Pierce, Florida 34950

In Reply Refer To:
Denise M. Breit
Historic Sites
Specialist
(904) 487-2333
Project File No. 941166

RE: Cultural Resource Assessment Request
City Gas Company of Florida - Natural Gas Pipeline
Cape Canaveral Air Force Station, Brevard County, Florida

Dear Mr. Carroll:

In accordance with the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the referenced project(s) for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places. The authority for this procedure is the National Historic Preservation Act of 1966 (Public Law 89-665), as amended.

A review of the Florida Site File indicates that no significant archaeological or historical sites are recorded for or likely to be present within the project area. Furthermore, because of the project location and/or nature it is unlikely that any such sites will be affected. Therefore, it is the opinion of this office that the proposed project will have no effect on historic properties listed, or eligible for listing, in the National Register of Historic Places.

If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

for Laura A. Kammerer

George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

GWP/Bdb

BREVARD County
BOARD OF COUNTY COMMISSIONERS

FLORIDA'S SPACE COAST

NATURAL RESOURCES MANAGEMENT DIVISION
2725 St. Johns St., Melbourne, FL 32940

Telephone: (407) 633-2016
Sun Com: 366-2016
FAX: (407) 633-2029

May 12, 1994

RECEIVED
MAY 18 1994
Ans'd.....

S. L. Carroll, P.E.
Lindahl, Browning, Ferrari & Hellstrom, Inc.
2222 Colonial Rd., Suite 201
Fort Pierce FL 34950

RE: City Gas Company of Florida/Natural Gas Pipeline
Cape Canaveral Air Force Station

Dear Mr. Carroll:

We have reviewed the referenced Project Notification Package, and wish to offer comments and recommendations. Please note that the Indian River/Banana River Lagoon is presently an Estuary of National Significance. In addition, the Banana River is designated as an Outstanding Florida Waterbody and an Aquatic Preserve. Both rivers have been identified as "critical habitat" for the endangered Florida Manatee (Trichechus manatus latirostris) by the U. S. Fish and Wildlife Service (USFWS). Estuary areas that will be affected by the proposed project are frequently used by manatees and loggerhead turtles (listed as a threatened species by USFWS). Both species utilize seagrasses as forage. The Marine Mammal Commission (MMC) identified the Banana River as the most important summer feeding and resting area in the Indian River Lagoon (MMC, 1988). Recent aerial surveys performed by the Bionetics Corporation have documented 365 manatees, or approximately 40 % of the east coast population , aggregated in the north Banana River alone.

The Brevard County Comprehensive Plan requires this Division to review all proposed projects within the County for potential impacts to Listed Species, seagrass beds and functional wetlands. Brevard County has adopted a "No Net Loss" policy with regards to wetland protection. The natural gas pipeline project must comply with the above constraints in order to receive approval from this Division. Based upon your environmental information, I would concur that Option 1 (NASA Parkway) is the preferred route. Option 2 (S.R. 528) would result in substantial seagrass and wetland impacts, and is therefore not acceptable. Option 3 (no action) is preferrable, but this option may have adverse long term economic results. Please contact me at (407)-633-2016, should you wish to discuss Option 1 in more detail.

Sincerely,
NATURAL RESOURCES MANAGEMENT DIVISION

Charles Turner
Environmental Specialist

cc Deborah Coles, Supervisor NRMD

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive
St. Petersburg, Florida 33702

May 10, 1994

Mr. Sterling L. Carroll, P.E.
Lindahl, Browning, Ferrari & Hellstrom, Inc.
2222 Colonial Road
Suite 201
Fort Pierce, Florida 34950

Dear Mr. Carroll:

The National Marine Fisheries Service (NMFS) has reviewed the Revised Project Notification Package, dated April 15, 1994, regarding the proposed installation of a natural gas pipeline to serve Cape Canaveral Air Force Station in Brevard County, Florida.

Based on the information provided regarding the preferred route we anticipate that impacts to living marine resources would be minimal. However, as noted in the document additional information regarding wetlands and seagrasses will be obtained. We strongly suggest that impacts to these areas be avoided. If seagrasses are encountered at the location of the subaqueous crossing of the Banana River, we recommend directional drilling from uplands be utilized to complete the crossing.

We appreciate the opportunity to provide these comments. Please direct any questions regarding this matter to David N. Dale at 813/893-3503.

Sincerely,

Edwin Klepper

for Andreas Mager, Jr.
Assistant Regional Director
Habitat Conservation Division

F/SEO2
F/SEO23-ST PETE

LINDAHL, BROWNING, FERRARI & HELLSTROM, INC.
CONSULTING ENGINEERS, PLANNERS & SURVEYORS

May 9, 1994

Albert R. Hight, Refuge Manager
United States Department of the Interior
Fish and Wildlife Service
Merritt Island National Wildlife Refuge
P.O. Box 6504
Titusville, FL 32782

RE: City Gas Company of Florida transmission line to the Cape Canaveral Air Force Station LBFH #93-423

Dear Mr. Hight:

Thank you for your response letter of April 28, 1994. The construction is proposed to be on the South side of NASA Causeway and should not conflict with your plans to construct holding pens for release of manatees on the north side.

If you have any further questions, please contact me.

Very truly yours,

LINDAHL, BROWNING, FERRARI & HELLSTROM, INC.

Sterling L. Carroll, P.E.
Sr. Project Manager

SLC/fkm
FILE: M:\93-423\LTR\HIGHT.LTR

2222 COLONIAL ROAD, SUITE 201, FORT PIERCE, FLORIDA 34950 (407) 461-2450 FAX (407) 465-1225

WEST PALM BEACH JUPITER STUART FORT PIERCE

LINDAHL, BROWNING, FERRARI & HELLSTROM, INC.
CONSULTING ENGINEERS, PLANNERS & SURVEYORS

May 9, 1994

Todd Peetz, Planner II
Planning and Zoning Division
Brevard County
2725 St. Johns Street, Bldg. A
Melbourne, FL 32940

RE: **City Gas Company of Florida transmission line to the Cape Canaveral Air Force Station**
LBFH #93-423

Dear Mr. Peetz:

Thank you for your response letter of April 25, 1994. Turbidity screens will be used for submerged aquatic vegetation during development per example provided in the advance notification package.

If you have any further questions, please contact me.

Very truly yours,

LINDAHL, BROWNING, FERRARI & HELLSTROM, INC.

Sterling D. Carroll, P.E.
Sr. Project Manager

SLC/fkm
FILE: M:\93-423\PEETZ.LTR

cc: Lisa Barr, Director; Natural Resource Division
Peggy Busacca, Director, Planning & Zoning Division

2222 COLONIAL ROAD, SUITE 201, FORT PIERCE, FLORIDA 34950 (407) 461-2450 FAX (407) 465-1225

WEST PALM BEACH JUPITER STUART FORT PIERCE

City of Titusville

555 SOUTH WASHINGTON AVENUE
TITUSVILLE, FLORIDA 32796-3684
POST OFFICE BOX 2806 (32781-2806)

RECEIVED
MAY 1 1 1994
Ans'd.....

(407) 269-4400
FAX (407) 268-6009

May 6, 1994

Sterling L. Carroll, P.E.
LBFH
2222 Colonial Road, Suite 201
Ft. Pierce, FL 34950

Dear Mr. Carroll:

The City of Titusville staff has reviewed the REVISED Project Notification Package dated April 15, 1994 (LBFH#93-423).

The project, as proposed, does not fall within the City's jurisdiction and, therefore, no permits from the City of Titusville would be required.

The City staff supports the proposed use of natural gas to fuel a fleet of vehicles and its implied pollution reduction. Therefore, Option 3 the No Action alternative would be the least preferred from our professional viewpoint.

Given that Option 1 is one-third the length of Option 2 and that Option 2 requires significantly greater environmental impacts and costs, Option 1 is in our opinion the preferred option.

We thank you for this opportunity to review and comment. If you have any questions relative to our comments, please give me a call at (407) 269-4400, ext. 342.

Sincerely,

Wes Hoaglund
Associate Planner

WH/cmr

Florida Department of
Environmental Protection

Lawton Chiles
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

April 29, 1994

Mr. Sterling L. Carroll, P.E.
Senior Project Manager
Lindahl, Browning, Ferrari & Hellstrom, Inc.
2222 Colonial Road, Suite 201
Fort Pierce, Florida 34950

OCD-MS-94-0275

Re: Cape Canaveral Air Force Station
Natural Gas Company of Florida
National Environmental Policy Act Procedure

Dear Mr. Carroll:

Pursuant to your correspondence of March 28, 1994 (received April 22, 1994) regarding permit notification, it appears that a Wetland Resource Permit (Dredge and Fill) may be required for the above stated project, depending on which of the three alternatives are selected. It does not appear that a Stormwater Management permit will be required.

Any questions regarding the Wetland Resource Permit should be directed to Mr. Terry Zable of this office.

Sincerely,

Richard S. Lott, P.G., P.E.
Stormwater Management

cc: Mr. Terry Zable

RSL/GG

BREVARD County
BOARD OF COUNTY COMMISSIONERS

FLORIDA'S SPACE COAST

PLANNING and ZONING DIVISION
2725 St. Johns St., Bldg. A, Melbourne, FL 32940

Telephone: (407) 633-2070

April 25, 1994

Mr. Sterling Carroll, P. E.
LBFH
2222 Colonial Road, Suite 201
Fort Pierce, FL 34950

Dear Mr. Sterling:

I appreciate again the opportunity to review the options of City Gas Company of Florida transmission line to the Cape Canaveral Air Force Station. At this time, it would appear the project is consistent with the Comprehensive Plan. The Coastal Management Element does discuss limiting turbity that may impact to submerged aquatic vegetation during development. When installing the gas line, precautions should be considered that would help to limit impacts caused by turbity.

If you have any questions or need further information, please do not hesitate to contact me at (407) 633-2069.

Sincerely,

Todd Peetz, Planner II
Planning and Zoning Division

cc: Lisa Barr, Director
Natural Resource Division
Peggy Busacca, Director
Planning and Zoning Division

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Merritt Island National Wildlife Refuge
P.O. Box 6504
Titusville, Florida 32782

TAKE PRIDE IN AMERICA

April 28, 1994

Mr. Sterling L. Carroll, P.E.
Senior Project Manager
Lindahl, Browning, Ferrari, & Hellstrom, Inc.
2222 Colonial Road
Suite 201
Fort Pierce, Florida 34950

Dear Mr. Carroll:

We have reviewed the proposal for a natural gas pipeline within Kennedy Space Center/Merritt Island National Wildlife Refuge. We see no major impacts from the proposed project.

From the drawings it is difficult to determine if construction is proposed on the north or south side of the roadway along NASA Causeway East. There are plans to construct holding pens for release of manatees on the north side and we would recommend using the south side to avoid any construction conflicts.

We are pleased to be a part of the review process.

Sincerely,

Ron Hight

Albert R. Hight
Refuge Manager

Florida Department of
Environmental Protection
DIVISION OF STATE LANDS
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

April 21, 1994

Mr. Sterling L. Carroll, P.E.
Lindahl, Browning, Ferrari & Hellstrom, Inc.
2222 Colonial Road, Suite 201
Fort Pierce, Florida 34950

Dear Mr. Carroll:

RE: **REVISED** Project Notification Package
City Gas Company of Florida-Natural Gas Pipeline
Cape Canaveral Air Force Station
National Environmental Policy Act Procedure
(LBFH #93-423)

Thank you for your recent advance notification regarding the above captioned project. The Department of Environmental Protection, Division of State Lands requires consent in the form of an easement for utility crossings and right of ways on sovereignty submerged lands pursuant to Chapter 18-21, F.A.C.

Upon receipt of the Joint DER/ACOE application for this project, our Title and Lands Record Section will identify any activity occurring on state-owned lands. A Completeness Summary will be sent to you requesting any additional information required to complete your file.

If you have any questions, please feel free to contact me at the Division of State Lands, East Central Florida District Office, 400 West Robinson Street, Suite 208-South, Orlando, Florida 32801 or call (407) 423-6816.

Sincerely,

Wilbert Holliday

Wilbert Holliday, Planning Manager
Bureau of Submerged Lands and Preserves
Division of State Lands

WH/bam

Florida Department of
Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

April 21, 1994

Sterling L. Carroll, P.E.
Lindahl, Browning, Ferrari & Hellstrom, Inc.
2222 Colonial Rd., Suite 201
Ft. Pierce, FL 34950

RE: REVISED Project Notification Package
City Gas Company of Florida-Natural Gas Pipeline
Cape Canaveral Air Force Station
(LBFH #93-423)

Dear Mr. Carroll:

Upon review of the revised project notification package, Aquatic Preserve Staff agree that Option 1 appears to be a more favorable route. Our opinion is based of the fact that this route is not within the boundaries of the Banana River Aquatic Preserve, whereas Option 2 crosses the Aquatic Preserve at the site of the subaqueous crossings of the Banana River and Sykes Creek.

As Ch.18-20.004(1)(g)F.A.C. states that for the installation or maintenance of oil and gas transportation facilities, "it must be demonstrated that no other reasonable alternative exists which would allow the proposed activity to be constructed or undertaken outside the preserve", AP Staff would recommend denial of Option 2 as there clearly is a more reasonable and preferable alternative.

If you have any questions please feel free to contact this office.

Sincerely,

Brian Poole, Environmental Specialist II
Melbourne Aquatic Preserves Office

ST JOHNS RIVER

WATER MANAGEMENT DISTRICT

Henry Dean, Executive Director
John R. Wehle, Assistant Executive Director

POST OFFICE BOX 1429 PALATKA, FLORIDA 32178-1429
TELEPHONE 904/329-4500 SUNCOM 904/860-4500
FAX (EXECUTIVE/LEGAL) 329-4125 (PERMITTING) 329-4315 (ADMINISTRATION/FINANCE) 329-4508

FIELD STATIONS

618 E. South Street, Orlando, Florida 32801, 407/897-4300
7775 Baymeadows Way, Suite 102, Jacksonville, Florida 32256, 904/730-6270
PERMITTING: 305 East Drive, Melbourne, Florida 32904, 407/984-4940
OPERATIONS: 2133 N. Wickham Road, Melbourne, Florida 32935-8109, 407/254-1762

April 7, 1994

RECEIVED
APR 11 1994
Ans'd.....

Lindahl, Browning, Ferrari & Hellstrom, Inc.
ATTN: Sterling Carroll
2222 Colonial RD, STE 201
Ft Pierce FL 34950

Re: Cape Canaveral Air Force Station Natural Gas Pipeline
City Gas Company of Florida

Dear Mr. Carroll:

The St. Johns River Water Management District received your letter on March 30, 1994, requesting a permit determination for the referenced project. This project involves the installation of a natural gas pipeline from Kennedy Space Center to the Cape Canaveral Air Force Station.

As specified in the 1992 delegation agreement, the Florida Department of Environmental Protection will review all wetland and stormwater issues related to this project. A surface water permit will not be required from the Water Management District.

If dewatering will be required as a part of the installation process, a Consumptive Use Permit (CUP) from our agency may be required, pursuant to Chapter 40C-2, Florida Administrative Code. Please contact Blanche Soucheck of the Melbourne office at (407) 984-4940 for assistance in determining if a CUP will be required.

Thank you for the opportunity to comment on this project.

Sincerely,

Janice V. Unger, Compliance Manager
Department of Resource Management

JVU:ga

cc: John Juilianna
Garry Cook
Blanche Soucheck
PDS

Florida Department of
Environmental Protection
DIVISION OF STATE LANDS
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

April 7, 1994

Mr. Sterling Carroll, P.E.
Lindahl, Browing, Ferrari & Hellstrom Inc.
2222 Colonial Rd. Suite 201
Ft. Pierce, FL 34950

Dear Mr. Carroll:

I am responding to your letter dated March 28, 1994 in which you discuss the installation of a natural gas pipeline for City Gas Company of Florida.

After speaking with Brian Poole (Aquatic Preserve Manager) he made it clear to me that the proposed project is not located within an aquatic preserve and therefore he would not provide comments on this project.

A Department of Environmental Protection application would still need to be submitted for the proposed project so that an appropriate authorization can be issued. It appears from your letter that this project is in the preliminary planning stages and therefore it may be premature to discuss the application submittal.

If you need to contact me, please call me at (407) 423-6816 or you can write to 400 W. Robinson St. Suite S-208, Orlando, FL 32801.

Sincerely,

Bryan Kellenberger

Bryan Kellenberger, Planner II
Bureau of Submerged Land & Preserves
Division of State Lands

BSK/bsk

Florida Department of
Environmental Protection
DIVISION OF STATE LANDS
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

April 5, 1994

RECEIVED
APR 0 8 1994
Ans'd.....

Lindahl, Browning, Ferrari & Hellstrom, Inc.
Sterling L. Carroll, Senior Project Manager
2222 Colonial Road, Suite 201
Fort Pierce, Florida 34950

Dear Mr. Carroll:

RE: Project Notification Package
City Gas Company of Florida - Cape Canaveral Air Force Station
Natural Gas Pipeline
National Environmental Policy Act Procedure
(LBFH #93-423)

Thank you for your recent advance notification regarding the above captioned project. The Department of Environmental Protection, Division of State Lands requires consent in the form of an easement for utility crossings and right of ways on sovereignty submerged lands pursuant to Chapter 18-21, F.A.C.

Upon receipt of the Joint DER/ACOE application for this project, our Title and Lands Record Section will identify any activity occurring on state-owned lands. A Completeness Summary will be sent to you requesting any additional information required to complete your file.

If you have any questions, please feel free to contact me at the Division of State Lands, East Central Florida District Office, 400 West Robinson Street, Suite 208-South, Orlando, Florida 32801 or call (407) 423-6816.

Sincerely,

Wilbert Holliday

Wilbert Holliday, Planning Manager
Bureau of Submerged Lands and Preserves
Division of State Lands

WH/bam

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Merritt Island National Wildlife Refuge
P.O. Box 6504
Titusville, Florida 32782

TAKE PRIDE IN AMERICA

April 4, 1994

RECEIVED
APR 0 8 1994
Ans'd.....

Lindahl, Browning, Ferrari & Hellstrom, Inc
Consulting Engineers, Planners & Surveyors
2222 Colonial Road,
Suite 201
Fort Pierce, Florida 34950

Dear Mr. Carroll:

I have reviewed your environmental assessment for the natural gas pipeline to Cape Canaveral Air Force Station. Because the pipeline follows existing right-of-ways we have no comments to make.

Thanks you for your notification.

Sincerely,

Bruce Blihovde

Bruce Blihovde
Assistant Refuge Manager

Lawton Chiles
Governor

Florida Department of Environmental Protection

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

April 4, 1994

Sterling L. Carroll, P.E.
Lindahl, Browning, Ferrari & Hellstrom, Inc.
2222 Colonial Road, Suite 201
Fort Pierce, FL 34950

OCD-WRP-94-0216

City Gas Co./Cape Canaveral AFS
Brevard County - WRP

Dear Mr. Carroll:

Tamy Weingarden and I have reviewed the Project Notification Package for the proposed pipeline, and offer the following comments.

Option 1, which is the preferred route, requires a crossing of the Banana River, which constitutes Outstanding Florida Waters at this location. Any project proposed at this location, therefore, would have to be clearly in the public interest (pursuant to Section 403.918 and/or Section 373.414, F.S.) to be permitted.
The documents submitted indicate this route doesn't appear to cross any wetlands except canal areas and stormwater ponds. We do not agree with the statement that "This route represents the option of least impact", especially since the Banana River is involved! Specifically how will the subaqueous crossing be accomplished?

Option 2 involves a crossing of the Barge Canal immediately west of Port Canaveral. The documents provided state that, with this route, "...minimal to no wetland impact [is] expected."
Furthermore, you indicate the use of directional drilling (which results in NO disturbance to wetlands) is required to cross the canal. The quality of the Banana River for fish and wildlife habitat is far better than that of the deep, previously disturbed Port Canaveral and Barge Canal. Therefore, the Department recommends more serious consideration be given to Option 2.

In regard to Coastal Zone issues, it is suggested you contact Ms. Lynn Griffin in the Division of Water Management for additional information. Ms. Griffin may be reached at the following address.

Lynn Griffin
Division of Water Management
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904/488-0130

Thank you for providing the opportunity to comment. Please contact Ms. Weingarden or me at 407/894-7555 if you have any questions.

Sincerely,

Barbara Bess

Barbara Bess
Program Manager
Wetland Resource Permitting

BB

BREVARD County
BOARD OF COUNTY COMMISSIONERS

FLORIDA'S SPACE COAST

PLANNING and ZONING DIVISION
2725 St. Johns St., Bldg. A, Melbourne, FL 32940

Telephone: (407) 633-2069

RECEIVED
APR 07 1994
Ans'd.....

March 31, 1994

Mr. Sterling Carroll, P. E.
LBFH
2222 Colonial Road, Suite 201
Fort Pierce, FL 34950

Dear Mr. Sterling:

I appreciate the opportunity to review the options of City Gas Company of Florida transmission line to the Cape Canaveral Air Force Station. I have reviewed of Brevard County's Coastal Management and Ports and Related Facilities Elements for consistency with the proposed options. At this time, it would appear the project is consistent with the Comprehensive Plan. The Coastal Management Element does discuss limiting turbity that may impact to submerged aquatic vegetation during development. When installing the gas line, precautions should be considered that would help to limit impacts caused by turbity.

If you have any questions or need further information, please do not hesitate to contact me at (407) 633-2069.

Sincerely,

Todd Peetz, Planner II
Planning and Zoning Division

cc: Lisa Barr, Director
Natural Resource Division
Peggy Busacca, Director
Planning and Zoning Division

FLORIDA GAME AND FRESH WATER FISH COMMISSION

110 43rd Avenue, S.W.
Vero Beach, Florida 32968
March 31, 1994

Mr. Sterling L. Carroll, P.E.
Lindahl, Browning, Ferrari & Hellstrom. Inc.
2222 Colonial Road, Suite 201
Fort Pierce, Florida 34950

Re: City Gas Company of Florida (Cape Canaveral Air Force Station), Brevard County

Dear Mr. Carroll:

The Office of Environmental Services of the Florida Game and Fresh Water Fish Commission has reviewed your request for advanced review of the proposed pipeline routes; however, due to the lack of detail regarding environmental surveys provided by the Advance Notification Fact Sheet, we are unable to furnish you with a detailed response at this time. State-listed fish and wildlife species that may occur in northeastern Brevard County but are not mentioned by the fact sheet are the mangrove rivulus, gopher tortoise, Florida pine snake, gopher frog, roseate spoonbill, limpkin, little blue heron, reddish egret, snowy egret, tricolored heron, brown pelican, Florida mouse, and Sherman's fox squirrel (all species of special concern); and the least tern (threatened). In addition, we would be concerned with potential impacts to seagrasses. Although the fact sheet states that the likelihood of the preferred route disturbing seagrasses is small due to subaqueous crossings being placed where there is "tidal/wind movement," we note that the Banana River is not tidally influenced. This statement is also perplexing from the standpoint that seagrass beds commonly occur within tidally influenced portions of the Indian River Lagoon system that are subject to disturbance by wind.

Sincerely,

Stephen R. Lau
Biological Administrator

SRL/MAP/rs
ENV 2-11-7/3
citygas.let