

ENVIRONMENTAL ASSESSMENT

CONSTRUCTION OF FACILITIES (COF)
REPAIR SANITARY SEWER SYSTEM, PHASE 1, PBS
CoF REPAIR SANITARY TREATMENT PLANT, PBS

FY 1994 AND FY 1995

NASA PLUM BROOK STATION (PBS)

SANDUSKY, OHIO

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Abstract

The objective of this Environmental Assessment is to review proposed actions associated with the rehabilitation of portions of the sanitary sewer system at NASA Plum Brook Station in Sandusky, Ohio. It is concluded that the proposed action will not result in significant impact to the human environment and that an Environmental Impact Statement will not be required.

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LIST OF ACRONYMS

CFR	Code of Federal Regulations
CoF	Construction of Facilities
CWA	Clean Water Act
EA	Environmental Assessment
ECSS	Erie County Sewer System
FY	Fiscal Year
LeRC	Lewis Research Center
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NPDES	National Pollution Discharge Elimination System
PBS	Plum Brook Station
RCRA	Resource Conservation and Recovery Act
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
WWTP	Wastewater Treatment Plant

SECTION 1 SUMMARY AND CONCLUSION

This Environmental Assessment (EA), required pursuant to the National Environmental Policy Act (NEPA), relates to a proposed action at NASA Plum Brook Station (PBS) in Sandusky, Ohio to rehabilitate an aging and deteriorated sanitary sewer system. The proposed action would rehabilitate the sanitary sewer lines through replacement and relining, tie the rehabilitated system into the Erie County Sewer System (ECSS), and demolish the existing Taylor Road Wastewater Treatment Plant (WWTP). This EA addresses and evaluates environmental impacts associated with implementing the proposed action or three alternatives.

Table I-1 summarizes the environmental impacts of the proposed action and the alternatives based on issues outlined in NEPA, and applicable NASA procedures (14 Code of Federal Regulations 1216.3). The proposed action column rates issues as having potential short-term, long-term, or no significant impact at all. The final three columns compare the expected environmental impacts of the alternatives against the proposed action. The comparisons indicate whether the alternatives will bear either more severe, similar, or less-severe environmental impacts than the proposed action.

The proposed action would have no long-term impacts to the environment. Impacts would be short-term during construction activities. No wetlands, floodplains, or biotic life forms would be permanently displaced as a result of the proposed action. Natural resources which will be disturbed during construction activities will be returned to their natural current conditions once construction is complete.

Environmental benefits as a result of implementation of the proposed action would include:

- o eliminating groundwater infiltration to sewer lines and decommissioning existing package plants will have a positive effect on local streams and surface water.
- o tying into the City of Sandusky WWTP would result in a higher level and more efficient treatment of wastewater and would be consistent with the Ohio EPA goal of regionalizing wastewater treatment and eliminating inefficient private package plants.

The alternatives evaluated do not impact any environmental parameters addressed in this EA. None of the alternatives appears more beneficial to the surrounding environment than the proposed action. Standard construction activities appear to be the only cause of impact at PBS. A written notice of the proposed action will be published in the local Sandusky newspapers. A copy of this environmental assessment will be available for review and comment by concerned citizens at the Sandusky Library for 30 days after the published notice.

TABLE 1-1

SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

ENVIRONMENTAL PARAMETERS CONSIDERED	PROPOSED ACTION	NO ACTION	REHABILITATE SEWER LINE ONLY	SEWER REHAB & CONST OF NEW WASTEWATER FACILITY
Land Resources	None	More Severe	Similar	More Severe
Water Resources	Short Term (Construction)	More Severe	More severe	More Severe
Air Quality	Short Term (Construction)	Less Severe	Less Severe	More Severe
Biotic Resources	None	More Severe	More Severe	More Severe
Floodplains & Wetlands	None	Similar	Similar	More Severe
Solid Waste	Short Term (Construction)	Less Severe	Less Severe	More Severe
Hazardous Substances	None	More Severe	Similar	Similar
Noise & Vibrations	None	Similar	Similar	Similar
Historical & Archeological Sites	None	Similar	Similar	Similar
Economic Population & Employment Factors	None	Similar	Similar	Similar
Land Quality, Vicinity Land Use, Visual, & Rec- reational Resources	None	Similar	Similar	Similar

SECTION 2 PURPOSE AND NEED FOR THE PROPOSED ACTION

INTRODUCTION

The National Environmental Policy Act (NEPA) is the basic national charter for protection of the environment. NEPA was enacted in 1969 to articulate the federal government policy and objectives in environmental protection. The primary purpose of the NEPA process is to serve as an action forcing device to ensure that the policies and goals defined in the Act are infused into the ongoing programs of the Federal Government. The requirements dictate that federal agencies shall adopt procedures to ensure that decisions are made in accordance with the scope and intent of NEPA. As a result, the National Aeronautic and Space Administration (NASA) enacted provisions found in 14 CFR 1216.1 and 1216.31 for implementing NEPA requirements¹. This Environmental Assessment (EA) is consistent with the policies set forth in the NASA Lewis Research Center's (LeRC) Environmental Resource Document² and prepared in accordance with the NASA/NEPA provisions, with 40 CFR 1500-1508, and other appropriate background documents³⁻⁵ in support of a proposed action at the NASA Plum Brook Station (PBS) near Sandusky, Ohio.

2.1 BACKGROUND

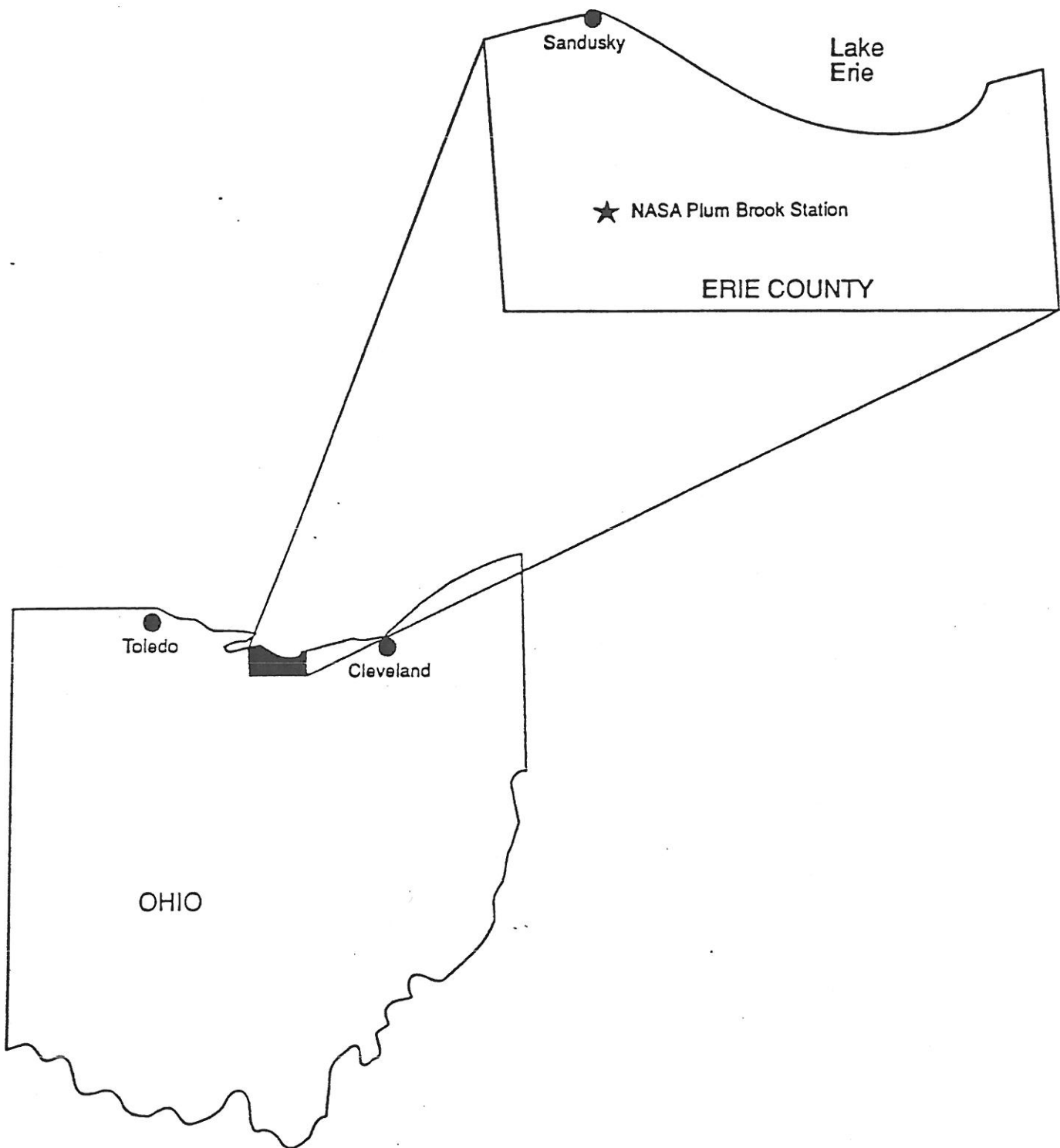
PBS is located 80.5 kilometers (50 miles) west of NASA Lewis Research Center (LeRC) and approximately 6.4 kilometers (4 miles) south of Sandusky, Ohio (Figure 2-1) and is surrounded by land that is primarily rural. PBS is about 2630 hectares (6500 acres) in size and is a satellite operation of NASA LeRC. Of the 15 aerospace test facilities established at PBS in the 1960's, four of the larger facilities have been fully or partially reactivated. LeRC controls the land associated with PBS through ownership of title, use of easements, leases, permits, and ownership of development rights⁶. PBS is surrounded by a 2.44 meter (8 feet) high security fence and unauthorized site access is prohibited. PBS has five sanitary waste treatment systems, three of which are in operation.

2.2 PURPOSE AND NEED

The Taylor Road Wastewater Treatment Plant is the major wastewater treatment facility at PBS. It serves the northern and western sections of PBS via an extensive sanitary sewer system. The facility also serves 43 houses on Columbus Avenue and Taylor Road and the offices and garage facilities of the Perkins Township School District. The 50-year old sanitary sewer system has deteriorated to the point of allowing excessive inflow/infiltration of storm water and groundwater. The volumes of these waters have exceeded the hydraulic design capacity of the plant thereby causing operational problems leading to non-compliance with the facility's NPDES permit⁷.

The proposed action would include:

- o rehabilitation of the existing sanitary sewer lines to eliminate excessive inflow/infiltration into the sewer lines thereby reducing the flow into the treatment plant.
- o connection of the rehabilitated sanitary sewer lines into the Erie County Sewer System and City of Sandusky Wastewater Treatment Plant.
- o decommissioning, abandonment, and demolition of the Taylor Road wastewater treatment plant.
- o the separate connection of the homes and school system buildings, currently using the PBS Taylor Road wastewater treatment plant, to the Erie County Sewer System, effectively segregating their wastewater from NASA wastewater.



NASA PLUM BROOK STATION

FIGURE 2-1 FACILITY LOCATION MAP

SECTION 3
DESCRIPTION OF THE PROPOSED ACTION AND OTHER ALTERNATIVES

This section describes the proposed action, rehabilitation of the existing sanitary sewer lines and tie into the Erie County Sewer System, and the alternatives of; no action, sewer line rehabilitation only, and sewer line rehabilitation and the construction of a new wastewater facility.

3.1 SEWER REHABILITATION AND TIE INTO ERIE COUNTY SEWER SYSTEM

The existing sewer system is over 50 years old and allows excessive infiltration. The infiltration is from stormwater, groundwater, cross connections and other sources such as leaking and deteriorated manholes. The volume of infiltration has, at times, exceeded the hydraulic design capacity of the Taylor Road wastewater treatment plant leading to non-compliance with its NPDES permit. The design capacity of the treatment plant is 416,394 liters per day (110,000 gallons per day). The monthly average of daily flows in four of twelve months during 1990, exceeded the design capacity and was as high as 677,587 liters per day (179,000 gallons per day). Peak flows were as high as 846,415 liters per day (223,600 gallons per day) and only 162,772 liters per day (43,000 gallons per day) could be assigned to sewage. The balance is contributed to in-flow/infiltration. The proposed action would rehabilitate approximately 4267 meters (14,000 feet) of existing sanitary sewer lines. Rehabilitation of the sewer lines would be accomplished through; (1) relining some of the existing lines, (2) replacement of severely deteriorated lines with new sewer line, and (3) rerouting existing lines. Several manholes would also be replaced and some existing sewer line would be plugged and abandoned in place. Figures 3-1 and 3-2 illustrate the location of proposed new sewer line.

Once the sewer system has been rehabilitated, it is proposed that the system be connected to the ECSS and into the City of Sandusky public regional treatment facility. Figure 3-3 shows new sewer line to be constructed by Erie County necessary to connect the NASA sewer system to the existing ECSS. With connection to the regional system complete, the Taylor Road WWTP would be abandoned and demolished. This action would be consistent with the EPA's public policy of providing better treatment through regional facilities which are better designed and more efficiently operated than smaller package plants. The proposed action would also include taking another existing NASA package plant off line. Wastewater now serviced by this plant would be pumped to the existing sewer system through a new force main. With the connection of NASA to ECSS, several private residences along Taylor Road, not severed by the NASA WWTP and currently using septic systems, could also be connected to the ECSS. The connection to the regional facility will be a joint effort between Erie County and NASA. Figure 3-4 identifies NASA sanitary sewer lines outside of the PBS boundary, serving private residences and the Perkins Township School District, which would be conveyed to the ECSS at completion of the proposed action. The proposed action is expected to take approximately two years to implement. The proposed action would

eventually be the least costly and most efficient of all the action alternatives' and would allow NASA to focus on its research and technology mission and allow Erie County to concentrate on better wastewater treatment. Erie County is very supportive of this alternative and is currently negotiating with NASA a means to jointly finance the portion of the sewer system necessary to connect PBS, the private residences, and the Perkins Township buildings to the regional system.

3.2 NO ACTION ALTERNATIVE

This alternative assumes the proposed actions would not be performed. Choosing this alternative would allow further deterioration of the PBS sanitary sewer system. The problems of excess water infiltration and non-compliance with the NPDES permit would continue.

3.3 SEWER REHABILITATION ONLY

This alternative would be similar to the proposed action in that the existing sanitary sewer lines would be rehabilitated in the same manner. The rehabilitated system would not be tied into the ECSS and the Taylor Road wastewater treatment plant would remain in operation. The Taylor Road plant is an aging facility and would need extensive rehabilitation in order to achieve long-term compliance with its NPDES permit. The cost to repair and upgrade the facility would be more expensive than the preferred alternative'. The continued operation of the NASA sewage package plant instead of connecting to the county system is contrary to the USEPA goal of regionalization of wastewater treatment.

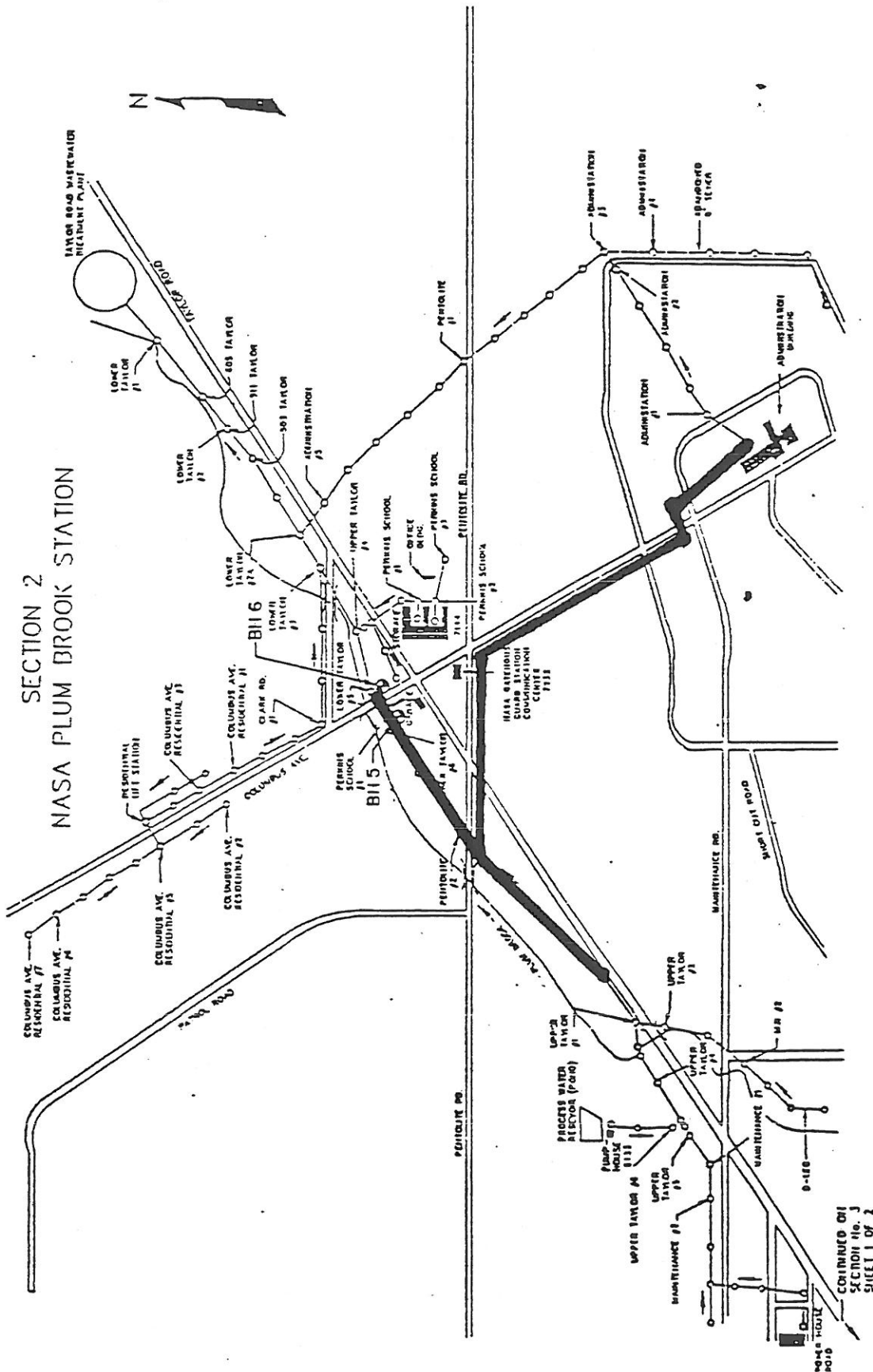
3.4 SEWER REHABILITATION AND CONSTRUCTION OF A NEW WASTEWATER FACILITY

This alternative would rehabilitate the existing sanitary sewer lines as in the proposed action. The rehabilitated sewer lines would not be tied into the ECSS and a new wastewater treatment facility would be constructed to treat NASA wastewater. This alternative would segregate NASA's wastewater from the Perkins Township garage and the homes on Taylor Road and Columbus Avenue. The Erie County Sanitary Engineer would only treat waste not associated with NASA. NASA would be solely responsible for its own waste. The new treatment facility would be located near the intersection of Plum Brook and Pentolite Road. The plant would be similar in process configuration to the existing plant, except that it would have tertiary sand filters. With these filters, the effluent quality would be good enough to reuse the water as process water or fire protection water. Excess effluent would be discharged to Plum Brook under a NPDES permit.


Construction of a new private wastewater facility would be much more expensive (approximately double the cost) than the preferred alternative. A new facility will get NASA out of the wastewater treatment business (servicing private residences), but a new facility would not meet the USEPA objective of wastewater regionalization nor the Clean Water Act's goal of no discharge to waters of the United States.



SECTION 2 NASA PLUM BROOK STATION



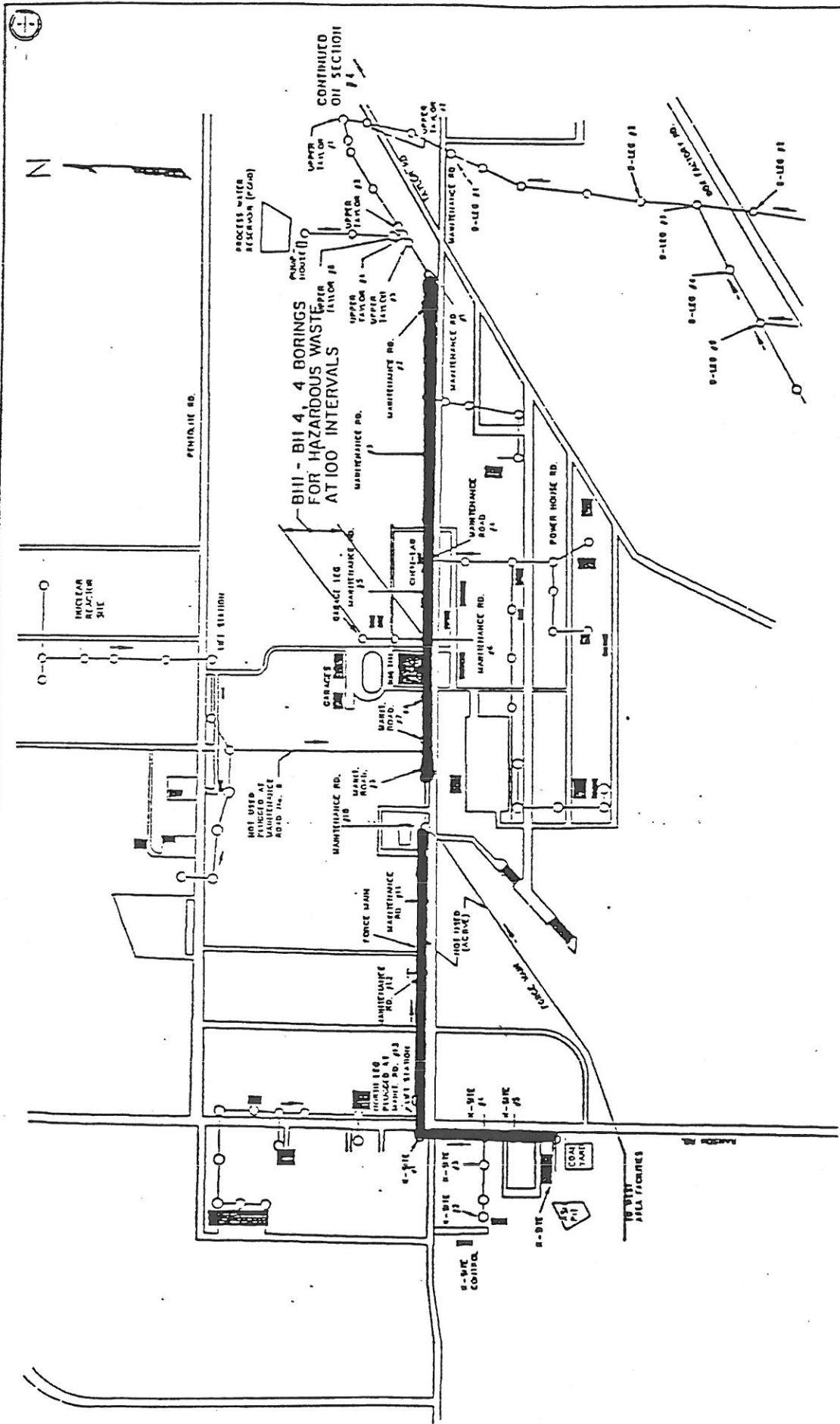
EAST AREA




REPAIR SANITARY SEWER SYSTEM,
PLUM BROOK STATION

FIGURE 3-1

CONTINUED ON
SECTION No. 3
SHEET 1 OF 2



WEST AREA

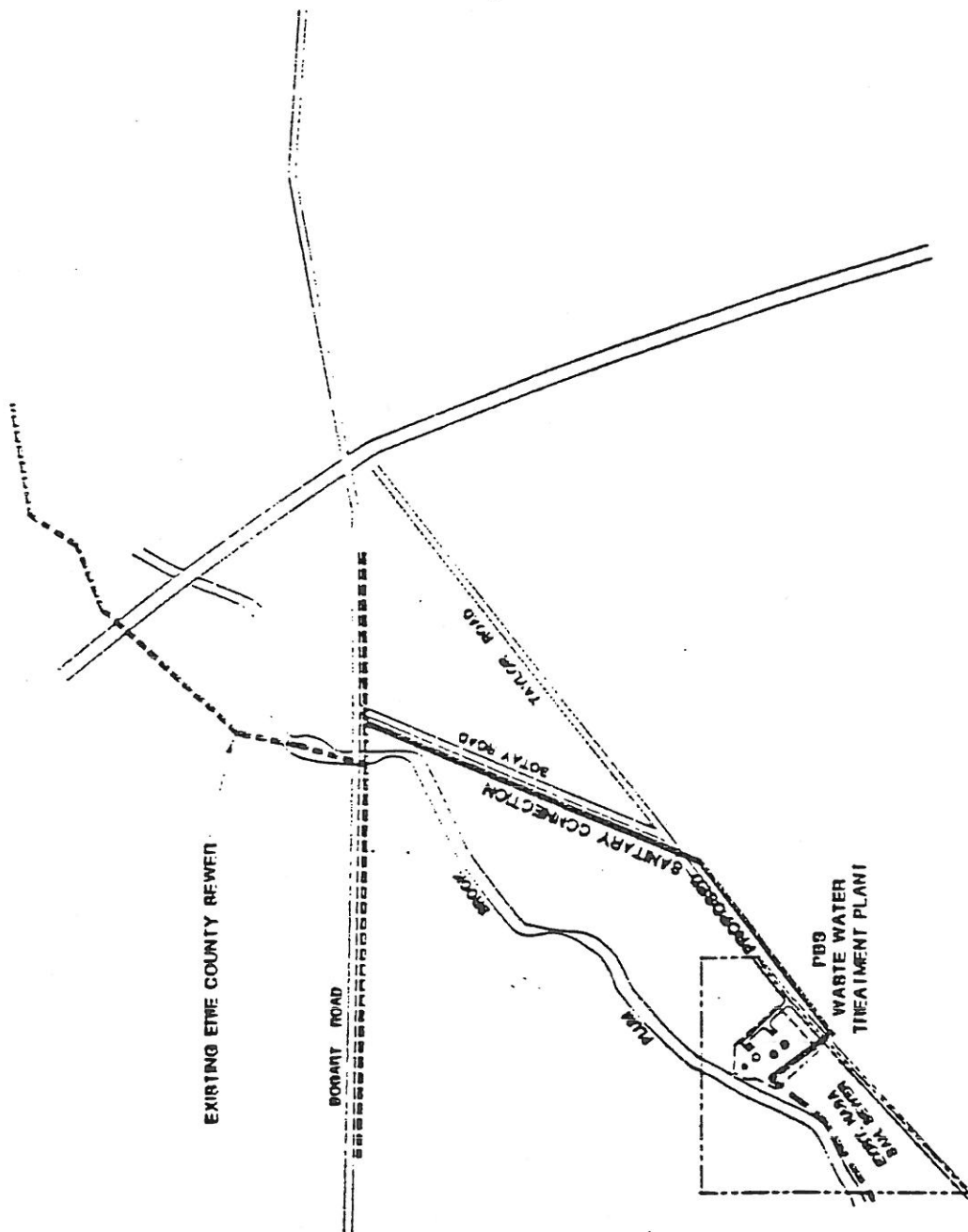


NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
 WASHINGTON, D.C. 20546-0001

REPAIR SANITARY SEWER SYSTEM,

PLUM BROOK STATION

FIGURE 3-2



MSA
MICHIGAN SANITARY ASSOCIATION
1000 WEST LANSING
LANSING, MI 48201

**SANITARY SEWER TO BE
CONSTRUCTED BY
ERIE COUNTY**

FIGURE 2-2

SECTION 4 THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

4.1 INTRODUCTION

This section has been outlined in a format consistent with the NASA Environmental Resources Document and addresses the factors identified in the Facility Project Implementation Handbook, and 14 CFR 1216.1 and 1216.3. This section provides a baseline analysis for existing parameters and will describe the environment to be affected or created as a result of the alternatives considered. The section will then compare the impact of the alternatives described in Section Three to the preferred alternative.

4.2 LAND RESOURCES

PBS topography is relatively flat as a result of glaciation during the Pleistocene epoch. The subsurface soils are primarily lacustrine clay underlain by glacial tills⁸. The Arkport-Galen is the dominant soil association covering northern PBS which includes the study area⁹. The Arkport-Galen Association is a well drained soil exhibiting rapid permeability and low available moisture content which subjects the soil to wind erosion when not covered by vegetation. Bedrock is encountered at 4.57-6.09 meters (15-20 feet) and groundwater will vary seasonally, but is generally within 3.05 meters (10 feet) of the surface.

4.2.1 SEWER REHABILITATION AND TIE INTO ERIE COUNTY SEWER SYSTEM

The proposed action is not expected to have a negative impact on land resources. Site work including excavation, trenching and manhole construction could result in soil erosion through wind and runoff if the impacted areas are not promptly re-graded, seeded and covered. Excavations will be open for a short duration and plans call for efficient re-seeding and coverage with natural plant species. The proposed action would stabilize the soils near the sewer lines once infiltration is controlled, will not impact prime or unique farmland, and is consistent with current land use. Land resources would be temporarily disturbed, but would revert back to their current conditions in one growing season. There will be no displacement of current land resources.

4.2.2 NO ACTION

If no action is taken, the sewer system will continue to deteriorate resulting in more infiltration, slumping and erosion of surrounding soils, and potential introduction of contaminants from the wastewater into the surrounding soils. This alternative would present a more severe impact than the preferred alternative.

4.2.3 SEWER REHABILITATION ONLY

This alternative would have a less severe impact than the proposed alternative. With the sanitary sewer system not connected to the ECSS there would be less excavation and lower potential for soil erosion.

4.2.4 SEWER REHABILITATION AND CONSTRUCTION OF A NEW WASTEWATER FACILITY

Implementation of this alternative would have more severe impacts than the proposed alternative. Construction of a new wastewater plant would require extensive excavation and grading increasing the potential of soil erosion by both wind and water runoff.

4.3 WATER RESOURCES

There are ten streams that drain PBS, some of which are minor and originate on-site. Three major streams receive discharges from seven NPDES permitted outfalls. All streams at PBS drain to Lake Erie and are classified as Warm Water Habitat by Ohio EPA Water Quality Standards. Because the streams are relatively small and isolated, the Ohio EPA does not routinely monitor water quality. No significant surface water quality problems have been documented by Ohio EPA in the vicinity of PBS. The decommissioning of the Taylor Road WWTP would result in a decrease in surface water flow (in the form of treated effluent and untreated effluent after periods of heavy rain when the WWTP is overloaded and discharges to brook without treatment) in Plum Brook. The reduced flow could impact aquatic organisms who make the Plum Brook their home. Impacts due to reduced flow would be minor considering; no endangered aquatic species have been identified at PBS, and the combination of a high water table and the large surficial drainage area (687.8 hectares <1700 acres>) of Plum Brook should sufficiently recharge the Brook.

The water table in the vicinity of the proposed action is high due to the combination of a porous soil and a shallow (4.57-6.09 meters <15-20'>) shale bedrock. Surface water and the shallow surficial ground water behave as a single system. Streams and pond water levels remain high even during dry months. Neither the surficial soil nor the underlying shale could be considered a major aquifer. Limited quantities of groundwater may be obtained through thin interbedded sand deposits, but yields seldom exceed 11.36 liters per minute (three gallons per minute)¹⁰.

4.3.1 SEWER REHABILITATION AND TIE INTO ERIE COUNTY SEWER SYSTEM

Impact due to the proposed action would be minor and short-term during construction. Several small drainageways and two larger streams, Plum Brook and Ransom Brook, would be crossed during installation of new sewer lines. Impact would consist of minor

soil erosion and siltation of stream water for a period of approximately one day at each crossing. The potential of groundwater contamination from leaky sewer lines would be eliminated and the water quality of Plum Brook would be improved through elimination of effluent from the Taylor Road treatment plant. The construction contractor should take care not to place material from trench excavation into stream waters in such a manner that it could be dispersed by currents or other forces. Hay bales or other erosion control measures should be placed near stream/sewer line crossings to control stream siltation.

4.3.2 NO ACTION

No action would lead to continued groundwater infiltration which overloads the Taylor Road treatment plant resulting in non-compliance with the NPDES permit and potential contaminants and untreated effluent entering the surface water of Plum Brook. This alternative would have a more severe impact than the preferred alternative.

4.3.3 SEWER REHABILITATION ONLY

This alternative would have impacts similar to the preferred alternative considering sewer line improvements and resulting short-term siltation of streams. Continued operation of the inefficient Taylor Road treatment plant would result in future non-compliance with its NPDES permit. This alternative presents a more severe impact to the environment than the preferred alternative due to continued discharge of effluent to Plum Brook.

4.3.4 SEWER REHABILITATION AND CONSTRUCTION OF A NEW WASTEWATER FACILITY

This alternative would have the same short-term impacts during sewer line construction as the preferred alternative. The new wastewater facility would be constructed near Plum Brook adjacent to the boundaries of the 100-year floodplain. Additional excavation and construction over a longer period of time increases the potential for erosion and siltation to the waters of Plum Brook. The increased potential for water pollution in Plum Brook could result in a more severe impact by this alternative than the preferred alternative.

4.4 AIR QUALITY

The Ohio Environmental Protection Agency has designated areas within the state as attainment or non-attainment for various pollutants. An attainment area for a particular pollutant is an area that meets the national primary or secondary ambient air quality standard for that pollutant. Erie County is classified as an attainment area for all air

quality parameters and is in compliance with all National Ambient Air Quality Standards¹¹. Major emission sources for the county include Ford Motor Company in Sandusky, several large greenhouse operations and large coal-fired institutional boilers. The rural character of Erie County is a large factor in attainment. PBS has applied for OEPA air permits and many air emission sources were placed on Registration status by the OEPA. Five boilers at the B-Boiler House will require an air permit once they are placed in operation in Spring 1994.

4.4.1 SEWER REHABILITATION AND TIE INTO THE ERIE COUNTY SEWER SYSTEM

Improvements associated with this proposed action will have a minor short-term impact on air quality at PBS. The impact would occur during construction due to excavation, grading, and trenching (i.e. dust generation) associated with sewer construction. Short-term impacts would continue through the demolition of the Taylor Road wastewater treatment plant.

4.4.2 NO ACTION

The no action alternative would have no impact on air quality. This alternative presents a less severe impact than the preferred action.

4.4.3 SEWER REHABILITATION ONLY

Similar to the preferred alternative, this alternative would have a minor short-term impact on air quality due to dust generation during construction activities. With this scenario, the Taylor Road treatment plant would not be demolished and would remain operational. Impact to air quality would be over a shorter duration, and this impact presents a less severe impact than the preferred alternative.

4.4.4 SEWER REHABILITATION AND CONSTRUCTION OF A NEW WASTEWATER FACILITY

Similar to the preferred alternative, this alternative would have short-term air quality impacts due to dust generation during sewer construction and demolition of the Taylor Road treatment plant. Under this alternative, dust generation would also occur during construction of the new wastewater treatment facility. The impact to air quality as a result of this alternative would be more severe than the preferred alternative.

4.5 BIOTIC RESOURCES

Federally endangered animal species in Erie County are the Indiana bat (*Myotis Sodalis*) and the Bald eagle (*Haliaeetus leucocephalus*)¹². Approximately four breeding pairs of Bald eagles occur within 8.05 to 16.09 kilometers (5 to 10 miles) of PBS. No survey has been

conducted to identify habitats of the Indiana bat in the Plum Brook area. The Indiana bat is identified as a state-endangered species. Three state-endangered species of moth are associated with habitats (wetlands and prairie grass) that exist on PBS. These species are identified as: *Papaipema silphii*, *Spartiniphaga inops*, and *Hypocoena enervata*.

There are no federally-endangered fish, or shellfish species in Erie County³. There are several state-designated threatened or endangered and potentially threatened plant communities on or near PBS. The plant species are listed below:

- o *Hypericum gymnanthum* - least St. Johns wort
- o *Carex conoidea* - field sedge
- o *Xyris torta* - twisted yellow-eyed grass
- o *Carex alata* - broad-winged sedge
- o *Hemicarpha micrantha* - dwarf bullrush
- o *Baptisia lactea* - prairie false indigo

4.5.1 SEWER REHABILITATION AND TIE INTO ERIE COUNTY SEWER SYSTEM

This alternative would have no impact to the biotic resources at PBS. Areas that would be excavated are primarily adjacent to roadways and areas of previously disturbed soil and vegetation. Habitat would be disturbed for approximately one month would revert to conditions as they exist. No existing habitat would be permanently displaced.

4.5.2 NO ACTION

Continued deterioration of the sewer lines would continue the flow of untreated effluent into Plum Brook during periods of high flow. This would result in a more severe impact to the aquatic and terrestrial resources of Plum Brook.

4.5.3 SEWER REHABILITATION ONLY

This alternative would have minimal, if any, impact on biotic resources. Continued operation of the Taylor Road treatment plant may result in future excursions to its NPDES permit. The isolated excursions could result in a negative impact to the wildlife using Plum Brook.

4.5.4 SEWER REHABILITATION AND CONSTRUCTION OF A NEW WASTEWATER FACILITY

This alternative would have the same impact on biotic resources as the preferred alternative during sewer line rehabilitation and the demolition of the Taylor Road treatment plant. The construction of a new wastewater facility would occur adjacent to the

Plum Brook floodplain. Though no endangered species or plant habitat would be disturbed, the construction and paving required for a new facility would permanently displace natural plant and animal habitat. Overall, this alternative would have a more severe net impact to biotic resources than the preferred alternative.

4.6 FLOODPLAINS AND WETLANDS

This parameter is concerned with the impact the proposed alternatives would have on facilities within the 100-year floodplain and in wetlands. The proposed action does not include any critical action facilities.

Flood Maps prepared by the National Flood Insurance Program for the Erie County Board of County Commissioners were reviewed. The maps display areas susceptible to flooding and delineate zones of 100-year floods and 500-year flooding. The construction of new sewer lines would cross the 100-year floodplain of two streams at PBS. Approximately 9.14 meters (30 feet) of sewer line would be placed across Ransom Brook floodplain and approximately 6.096 meters (20 feet) of sewer line would cross the Plum Brook floodplain. No permanent above-ground construction would occur in a 100-year floodplain. Construction equipment should be staged and fueled outside the floodplain. There is no practicable alternative to these short floodplain crossings.

Wetlands are characteristic of and delineated by three parameters: (hydrology) water at or near the surface for a period of at least two weeks during the growing season; soil exhibiting evidence of wet and dry cycles (hydric) based on color; identification of water dependent (hydrophytic) plants. Wetlands include, but are not limited to swamps bogs or low-lying areas. Based on visual observance, there are many areas at PBS that exhibit all parameters indicative of wetlands, but there have been no formally delineated wetlands at PBS. Wetland Delineation Maps prepared by the Department of Interior, Fish and Wildlife Service revealed no wetlands in the vicinity of sewer line construction¹⁵.

4.6.1 SEWER REHABILITATION AND TIE INTO THE ERIE COUNTY SEWER SYSTEM

None of the proposed activities associated with the preferred alternative are expected to directly impact wetlands or floodplains. The new sewer lines would be installed below grade and would result in temporary disturbance to the floodplains and wetlands. There would be no above-grade permanent construction. Silt runoff and deposition associated with construction activities could have a minimal secondary affect to wetlands. Floodplain soils disturbed during excavation should be limited to the minimum necessary to construct the sewer line. The top 15.4 to 30.5 centimeters (6" to 12") of the trench should be backfilled with topsoil removed from the trench to assist in natural

revegetation of disturbed areas. Silt fences or hay bales will be used to control potential erosion and the impact due to construction runoff. There is no practical alternative that avoids or reduces location in wetlands.

4.6.2 NO ACTION

The no action alternative would result in no impact to floodplains or wetlands as they currently exist.

4.6.3 SEWER REHABILITATION ONLY

The impact by this alternative would be similar to the preferred alternative. The only impact would be potential silt deposition as a result of runoff during construction activity.

4.6.4 SEWER REHABILITATION AND CONSTRUCTION OF A NEW WASTEWATER FACILITY

This alternative would have similar impacts as the preferred alternative. The construction of a new wastewater facility, though not within the 100-year floodplain, would be adjacent to the floodplain. As stated previously, there are no delineated wetlands at PBS, but there is high probability that any construction adjacent to a stream channel could impact a wetland area. A formal wetland delineation would be required to fully assess the potential impact. Since there is a high probability of wetland impact, this alternative presents the potential of a more severe impact than the preferred alternative.

4.7 SOLID WASTE

This parameter will consider the generation, management, and disposal of solid waste associated with the proposed alternatives. Solid waste is regulated at the federal level by the Resource Conservation and Recovery Act (RCRA), Subtitle D and by the State Solid Waste Code. In Ohio, a license to dispose of solid waste is controlled by the Ohio EPA and monitored by the local county health department. No solid waste generated at PBS is disposed of on-site. PBS has contracted with an off-site disposal company to remove waste from the station and properly dispose of it at the Erie County Landfill. Solid waste generated at PBS consists of office waste, scrap parts, packaging, and equipment. NASA has a soil excavation and removal policy which outlines general procedures for handling, sampling, and disposal of soil and excavated debris¹⁶.

4.7.1 SEWER REHABILITATION AND TIE INTO ERIE COUNTY SEWER SYSTEM

There would be a considerable amount of construction debris generated during the replacement and relining of the sewer lines.

This scenario also includes the demolition of the Taylor Road WWTP which would also generate considerable debris. The debris would probably include materials such as lumber concrete, brick, piping, packaging material, soil and other excavated material and could be disposed of as construction debris at a construction landfill. The generation of debris would be considerable, but considering the amount of waste generated daily in Erie County, the short-term impact to the environment would be minimal.

4.7.2 NO ACTION

There would be no generation of solid waste with the no action alternative and presents a less severe impact than the preferred alternative.

4.7.3 SEWER REHABILITATION ONLY

A similar amount of solid waste would be generated during the replacement and relining of sewer lines as in the preferred alternative. This scenario does not include the demolition of the Taylor Road treatment plant and would result in the generation of less debris to be disposed of in a landfill. The generation of construction debris is short-term and minimal and there would be a less severe impact than the preferred alternative.

4.7.4 SEWER REHABILITATION AND CONSTRUCTION OF A NEW WASTEWATER FACILITY

This alternative would result in a similar generation of solid waste during sewer line rehabilitation and demolition of the Taylor Road facility as the proposed alternative. This alternative also includes the construction of a new wastewater facility and would result in more generation of construction debris. Of all the proposed alternatives, this scenario would generate the greatest amount of waste. The generation of waste is short-term and a minimal impact to the environment. This alternative would have a more substantial impact than the preferred alternative.

4.8 HAZARDOUS SUBSTANCES AND HAZARDOUS WASTE MANAGEMENT

This parameter will consider the generation and management of hazardous waste as an impact to the environment as a result of alternative implementation. A solid waste is considered a hazardous waste if it exhibits a hazardous characteristic or if it is listed in Chapter I, Subpart D of 40 CFR 260. There are other wastes that are not hazardous, but must be managed in accordance with promulgated regulations. Specific regulations exist for disposal of PCB's, pesticides, UST's, asbestos and radioactive wastes. Applicable federal and state regulations for hazardous wastes are described in detail in the environmental resource document².

An environmental site assessment was conducted to characterize the soil to be excavated during sewer line construction. The soil was analyzed for hazardous constituents to determine disposition for soil disposal and worker health and safety. The assessment identified an area of soil contaminated with several organic solvents, most notably 1,1,1 trichloroethane, toluene, and tetrachloroethane in the vicinity of Maintenance Road and Garage Road. The source of these solvents was most probably a leaking UST east of Building 7121 which was removed in 1989. The soil and groundwater contaminated as a result of the leaking UST is scheduled for remediation in FY94.

The sewer line to be rehabilitated along Garage Road will be sliplined and no soil excavation would be necessary¹⁷. Approximately 60.96 lineal meters (200 lineal feet) of sewer line along Maintenance Road would be replaced and soil excavation would be required. Excavation of contaminated soil would be considered the generation of hazardous waste. Soil would have to be disposed as a hazardous waste in a hazardous waste landfill in accordance with RCRA policy and NASA procedure.

4.8.1 SEWER REHABILITATION AND TIE INTO ERIE COUNTY SEWER SYSTEM

This alternative would result in the generation of 114.7 cubic meters (150 cubic yards) of contaminated soil to be disposed of as hazardous waste. The amount of soil to be disposed is relatively insignificant and implementation of this preferred alternative would have minor to no impact to the environment.

4.8.2 NO ACTION

A no action alternative would result in no generation of hazardous material or disposal of hazardous waste. Continued infiltration of groundwater into the sewer lines could potentially bring dissolved solvents into the sewer system. The contaminated water would eventually pass through the Taylor Road treatment plant and into the environment via Plum Brook. This alternative would result in a more severe impact to the environment.

4.8.3 SEWER REHABILITATION ONLY

A similar amount of hazardous waste would be generated for disposal as in the preferred alternative. Impact to the environment would be similar to the preferred alternative.

4.8.4 SEWER REHABILITATION AND CONSTRUCTION OF A NEW WASTEWATER FACILITY

Implementation of this alternative would also generate the same amount of soil to be disposed of as hazardous waste and would have a similar impact as the proposed alternative.

4.9 NOISE AND VIBRATION

PBS is predominantly forest with open grassland surrounded by agricultural land. Most of the facilities are inactive and those in operation are remotely located from one another, as original use dictated hazard-exclusion distances. PBS exhibits an isolated, quiet environment. Noise and vibration would be generated by construction equipment during the proposed action. Noise generation would be short-term and construction sites are well removed from worker populations. Once the proposed action is completed PBS will revert back to its peaceful environment. No new permanent noise sources will result from the proposed action.

4.9.1 SEWER REHABILITATION AND TIE INTO ERIE COUNTY SEWER SYSTEM

Construction activity would generate short-term low level noise from backhoes, front loaders, trucks ,etc. Noise from these sources would be nomadic, changing locations as construction progresses. Considering the isolated site, the duration, and no introduction of permanent noise source, there would be no substantial impacts due to this alternative.

4.9.2 NO ACTION

A no action alternative would result in no noise and vibration generation.

4.9.3 SEWER REHABILITATION ONLY

Generation of noise and vibration levels would be similar to the preferred alternative.

4.9.4 SEWER REHABILITATION AND CONSTRUCTION OF A NEW WASTEWATER FACILITY

Implementation of this alternative would generate noise and vibration over a longer duration, but the overall impact would be similar to the preferred alternative.

4.10 HISTORICAL AND ARCHEOLOGICAL SITES

The rehabilitation of the sanitary sewer system at Plum Brook Station should have no impact on any historical or archeological sites. There have been reports of the discovery of native indian artifacts in vicinities south and west of PBS. To date there have been no search/investigation of the existence of artifacts on PBS. Much of PBS is poorly drained and was very swampy when indians historically inhabited the area. If artifacts were to be found on PBS they would probably be located in mound areas or rises in elevation. Excavation and reconstruction activities would occur along roadside right-of-way in

previously disturbed soil. The likelihood of discovery of archeological sites from construction activity would be remote. Construction activity would not impact historic buildings or sites listed or eligible for listing in the National Register of Historic Places. If an archeological resource is encountered during construction, activity in the area will be halted until the Ohio State Historic Preservation Officer and the NASA Federal Preservation Officer have been contacted and any concerns they might have, have been satisfied.

4.11 ECONOMIC POPULATION AND EMPLOYMENT FACTORS

Social and economic impacts interrelated with natural or physical environmental factors can have an impact on an Environmental Assessment. These factors associated with the proposed action would relate solely to the number of NASA PBS employees, contract employees, and subcontract employees working at the station on a daily basis. As of June 1993, there were 129 people working at PBS. There is no permanent residence population within PBS. No new NASA employees would be hired to complete the proposed action.

Sewer assessments paid by residences connecting to the ECSS may be slightly higher than the rate currently charged by NASA. The payments would be similar to all residences currently using the ECSS. Tap-in fees would be paid by NASA.

4.11.1 SEWER REHABILITATION AND TIE INTO THE ERIE COUNTY SEWER SYSTEM

With addition of five to ten construction workers on site at any given time, the overall impact of this alternative on population and employment would be temporary and very minimal. There would be no impact to the local economy, employment levels, schools, or medical facilities.

4.11.2 NO ACTION

This alternative would be similar to the preferred alternative and would have no impact to population and employment factors.

4.11.3 SEWER REHABILITATION ONLY

This alternative would have impacts similar to the preferred alternative.

4.11.4 SEWER REHABILITATION AND THE CONSTRUCTION OF A NEW WASTEWATER FACILITY

Similar to the preferred alternative, there would be no impacts to population and employment. With the construction of a new wastewater facility this alternative would involve more construction workers over a longer duration. The project would be

temporary and only involve a few workers and the impact to existing facilities is very minimal.

4.12 LAND QUALITY, VICINITY LAND USE, VISUAL AND RECREATIONAL RESOURCES

Land quality in vicinity of construction activity is predominantly mowed grass mixed with low growth roadside vegetation. The geography is flat. There would be no permanent above ground structures as the result of the proposed action. Vicinity land use is agricultural with isolated residential, commercial and institutional property. No surface structures will be constructed under the proposed action, therefore, no visual resources would be impacted. There are no public recreational facilities at PBS.

4.12.1 SEWER REHABILITATION AND TIE INTO THE ERIE COUNTY SEWER SYSTEM

There will be no permanent above ground structures as a result of the proposed action. All construction will be associated with underground sewer lines. Once construction is complete and surrounding grass is reseeded with natural vegetation species, land quality would be similar to its current condition. The demolition, removal, and reseeded at the site of the Taylor Road WWTP may even enhance the land quality at PBS. Extension of the Erie County sanitary sewer line from an existing manhole on Bogart Road¹⁸ to NASA tie in at the current site of the Taylor Road WWTP is approximately 2.4 kilometers (1.5 miles) in length. This extension would not appear to impact vicinity land use by future development considering the current proximity of existing sanitary sewers. There would be no impact as a result of this alternative.

4.12.2 NO ACTION

A no action alternative would have no impact on this parameter.

4.12.3 SEWER REHABILITATION ONLY

This alternative would present similar impacts as the preferred alternative in regards to land quality. With continued operation of the Taylor Road WWTP there would be no extension to the ECSS and no potential impact to the vicinity land use.

4.12.4 SEWER REHABILITATION AND CONSTRUCTION OF A NEW WASTEWATER FACILITY

This alternative is also similar to the preferred alternative to land quality. The construction of a new wastewater facility would have minimal visual impact to the landscape. There would be no extension of the ECSS to collect NASA wastewater, so there would be no potential impacts on vicinity land use.

SECTION 5

LIST OF AGENCIES AND INDIVIDUALS CONSULTED

TABLE 5-1
AGENCIES AND INDIVIDUALS CONSULTED

<u>ORGANIZATION</u>	<u>INDIVIDUAL(S)</u>	<u>INFORMATION</u>
MK-Environmental 1500 W. Third Street Cleveland, OH 44114	John Dulin	Waste Generation Hazardous Substances Floodplains and Wetlands
NASA Lewis Research Center 21000 Brookpark Road Cleveland, OH 44135	Ron Zurawski Lynn Irvine Ed Stevenson Renee Palyo Rick Kalynchuk	Floodplains and Wetlands Archeological and Historic Sites Solid Waste Generation Hazardous Substances and Waste Management
NASA Plum Brook Station 6100 Columbus Avenue Sandusky, OH 44870	Amy Bower Michele Smith Harry McCune	Water Resources Air Quality, Historic and Archeological Sites, Noise and Vibration Land Quality, Land Use
Department of Agriculture (419) 625-9093	Edward C. Cleary	Biotic Resources (Wildlife and Plants Endangered Species
Department of Interior Fisheries Research Sandusky Biological Station	Kenneth M. Muth	Biotic Resources Fish Water Resources Endangered Species

SECTION 6

REFERENCES

1. 14CFR Subpart 1216.3 (NASA) Procedures for Implementing the National Environmental Policy Act (NEPA).
2. Environmental Resources Document, NASA Lewis Research Center, August 1990.
3. NASA Facility Project Implementation Handbook (FPIH), NHB 8820.2, Chapter 3: Planning and Appendix A: Definitions.
4. NASA Management Instructions (NMI) 8800.13
5. NASA Handbook (NHB) 8800.11
6. William A. Gould and Associates, Master Facilities Plan, January 1971.
7. Sanitary Sewer Wastewater Treatment Plan Engineering Evaluation for Plum Brook Station -- Requirements for the Year 2000. Warner/Osborn/Pardee, March 1991.
8. Ohio Department of Natural Resources Division of Water, Drastic Map. Erie County, 9/90.
9. United States Department of Agriculture (USPA), Erie County Soil Survey - Draft.
10. Ohio Department of Natural Resources, Division of Water, Ground Water Resource of Erie County, 2/86.
11. Plum Brook Station Preliminary Assessment. SAIC, June 1991.
12. Federally Listed and Endangered Species in the State of Ohio, August 1990.
13. ODNR, Division of Wildlife.
14. National Flood Insurance Program, Firm Flood Insurance Rate Map for Erie County, January 1991.
15. Wetland Delineation Maps, ODNR -- Division of Fish and Wildlife. Kimbell Quad, April, 1977.
16. Policy of Soil Excavation and Removal, NASA Lewis Research Center, December 1990.
17. PBS Sanitary Sewer Line Repair/Replace Site Assessment, May 1993.
18. Repair Sanitary Sewer System, Phase I, PBS, August 1993.