

Draft Final

Environmental Assessment for

P - 208

Aircraft Platform Interface (API)

Laboratory Consolidation

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Lakehurst New Jersey

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Environmental Assessment Aircraft Platform Interface (API) Laboratory Consolidation

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Abstract

The following environmental assessment has been prepared in accordance with OPNAV Instruction 5090.1B, Executive Order 12114, and in compliance with Section 102(2)(c) of the National Environmental Policy Act of 1969 and the Council on Environmental Quality Regulations (40 CFR 1500-1508). The proposed action is to construct a new laboratory facility at the Naval Air Engineering Station (NAES) to consolidate existing research and development functions that are currently situated in deteriorated and substandard buildings. The proposed construction will be located in an area designated in our base Master Plan for research and development/engineering activities. The military construction project (project number P-208) associated with this proposed action is also listed in the Station's Master Plan.

The main effects of the proposed construction would be temporary soil disturbance, air emissions and noise associated with construction activities, the removal of 2.4 acres of non-native white pine trees, and net addition of 3.15 acres of impervious ground cover in the construction area. Mitigation of stormwater runoff will be accomplished by the addition of stormwater infiltration basins. As the project will provide workspace for existing personnel, local or regional traffic volume or flow should not be affected. Similarly, the project will not affect the NAES's water allocation or use. The nearest wetlands are located 900 feet from the edge of the construction zone and should not be affected. The site is identified as having low archeological sensitivity during our 1994 Cultural Resources Survey. Although grasshopper sparrows (a state listed threatened grassland bird) have been detected in both a 1995 and 1999 survey east of the proposed site, the construction and completed project are not anticipated to have an adverse affect on their existing habitat. The project will have positive environmental effects in that it will reduce overall energy usage for these functions through a more energy efficient infrastructure and will reduce driving by personnel in the course of their daily functions.

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EXECUTIVE SUMMARY¹

This Environmental Assessment (EA) addresses the impact of the construction of a 6,174 square meter (66,456 square foot) single story laboratory facility at the Naval Air Engineering Station (NAES). The facility is intended to consolidate the research and development functions currently contained within six (6) separate buildings. In anticipation of this Military Construction (MILCON) project, the NAES demolished 6 unrelated buildings, totaling 43,300 square feet of building space prior to 1999. This project also gives the NAES the ability to demolish additional buildings and structures.

Alternatives considered to meet the Navy's need for adequate laboratory space include no action (status quo), renovating and/or providing additions to existing buildings, leasing commercial space to accommodate these missions and the proposed action of constructing a new API laboratory.

The no action alternative would mean that research and development (R&D) functions at NAES would be impaired by insufficient and inadequate infrastructure and the high cost of repairs, maintenance and operation of these facilities. The option of leasing retail space would require extensive building modifications to meet the Navy's unique requirements for testing and security and the time wasted in travel between NAES and the leased space. As development and evaluation programs are conducted in numerous buildings throughout the NAES, the dispersion of design, development and test team members adversely impacts fleet support response times, program schedules and project costs. Therefore, the option of renovating and/or providing additions to existing buildings would not only be more costly, but also would not provide for the best physical arrangement to suit functional relationships. The proposed action would provide the best physical arrangement for the functions at the least cost. The proposed action would be located at a site designated by the current base Master Plan for engineering and research activities.

The environmental impacts associated with the proposed action are not significant as designed. Negative effects are a loss of 2.4 acres of non-native pine forest and the addition of 3.88 acres of parking and new roads and 0.93 acres of net building area (area not already situated on existing blacktop). The project also includes removal of 1.66 acres of old runway asphalt, resulting in a net increase of 3.15 acres of impervious cover in the construction zone. Negative effects have been partially mitigated through previous demolition of 6 buildings at the Station resulting in 3.37 acres of new open space. The project would also include properly designed infiltration basins to manage stormwater. The proposed action would not significantly impact wetlands or endangered species.

1.0 PURPOSE OF AND NEED FOR ACTION

1.1 PURPOSE AND NEED

The Navy wants to consolidate the existing laboratory and/or research and development (R&D) functions at the Naval Air Engineering Station (NAES) into one structure. The Navy wants to consolidate these functions to reduce current building rehabilitation and maintenance costs and increase information sharing and research efficiency.

This proposed action provides for a suitable infrastructure to house and consolidate product development, analysis and integration of Aircraft /Platform Interface (API) systems and equipment (current mission). NAES needs a suitably configured facility for full life-cycle engineering support of the Navy's API mission with particular emphasis on fleet support and the direct application of new technology. This facility would enable Navy Lakehurst to continue to meet its near term commitments to the fleet such as timely resolution of Engineering Investigations (EI's), and engineering changes to in-service equipment and to maintain the Navy's API technological edge with equipment such as the next generation launcher and arresting gear.

Existing spaces are confined and dispersed (Figure 3), are often lacking air conditioning and heat, and suffer from improper and insufficient power and a dusty environment. During building repairs and upgrades, equipment and personnel must be constantly relocated.

All facilities are adaptations of aircraft hangars and other buildings 40 to 75 years old, none which were originally designed for their current mission. Spaces were adapted to satisfy emergent requirements with significant compromise to the optimum layout. The facilities are generally cramped and severely limited for the investigative work required and may not be compatible with emerging technologies that will be applied to API Equipment and Systems. Safety becomes a concern in dealing with noxious/toxic fumes, high noise levels, intensive electromagnetic fields, industrial lasers and performance of high-pressure hydraulic systems or other high-energy systems that pose special safety requirements. Health and safety aspects of these buildings are barely adequate for current activities. Future work will place even greater demands on these critical features. Security in support of emerging weapons systems is difficult and costly in the present physical configuration of these facilities. Finally, these buildings are extremely energy inefficient. A new consolidated facility would be energy efficient and virtually maintenance free, saving the Navy thousands of dollars a year.

The following environmental assessment has been prepared in accordance with OPNAV Instruction 5090.1B, Executive Order 12114, and in compliance with Section 102(2)(c) of the National Environmental Policy Act of 1969 and the Council on Environmental Quality Regulations (40 CFR 1500-1508).

1.2 MISSION OF NAES

The mission of the Navy Lakehurst is to conduct programs of technology development, engineering, developmental evaluation and verification, systems integration, limited manufacturing, procurement, integrated logistics support management, and fleet engineering support for Aircraft Platform Interface (API) systems. This includes terminal guidance, recovery, handling, propulsion support, avionics support, servicing and maintenance, aircraft/weapons/ship compatibility, and takeoff. Navy Lakehurst provides, operates and maintains product evaluation and verification sites, aviation and other facilities, and support services (including development of equipment and instrumentation) for API systems and other Department of Defense programs. The shore-station component of Navy Lakehurst is the Naval Air Engineering Station (NAES), which provides facilities and support services for tenant activities and units as designated by appropriate authority.

1.3 DECISION-MAKING PROCESS

The Navy must decide whether to perform this consolidation and where to locate this consolidated facility to best suit the Navy's needs. This Environmental Assessment (EA) compares the environmental impacts of various alternatives that would fulfill this need against the no action (status quo) alternative.

1.4 SCOPING

The scope of the Environmental Assessment covers the possible relocation or construction activities associated with project P-208 and does not address the potential environmental effects of any building demolition that may follow-on as part of this same military project. Demolition actions that may result from the proposed construction/relocation activity will be addressed through a separate EA. Similarly, mitigation projects as a result of the preferred alternative will be addressed by a separate EA, if an EA is needed based on the project scope.

1.5 RELEVANT ISSUES

In conformance with the Council on Environmental Quality (CEQ) regulations, Section 1501.7, Agencies shall identify and eliminate from detailed study the issues which are not relevant or significant or which have been covered by prior environmental review.

Environmental issues deemed relevant by the Navy for the proposed action include:

- A. Potential impacts on threatened and endangered species,
- B. Conservation of plant life,
- C. Potential for increased stormwater runoff, and
- D. Potential to conserve energy.

Other issues such as, land use, water resources, terrestrial mammals, fire management, utilities, archeological resources, cultural resources, traffic, public safety and airspace do not suggest different actions and therefore are not deemed significant to the decision making process. However, these issues are discussed briefly in Section 4.0 with brief presentation of why they will not have a significant effect on the environment.

1.6 NECESSARY PERMITS, LICENSES, ENTITLEMENT FOR THE PROPOSED ACTION

- Applicability analysis for the Clean Air Act General Conformity Rule and Record of Non-Applicability (RONA) prepared prior to construction.
- Soil Erosion and Sediment Control Plan approved and permit obtained by the Ocean County Soil Conservation District.
- Notice of Intent filed under the NJPDES General Stormwater Permit for stormwater discharges from construction sites.
- Pinelands Commission application (with prior public notification) is required whenever federal, state, or local permits are required. If a Notice of Intent is required under the NJPDES General Permit, Pinelands Commission notification is required.
- New Jersey Treatment Works Approval form to Ocean County Utilities Authority (OCUA) and NJDEP for sewer line extension.
- NJDEP Air discharge permit for boilers rated over 1MBTU/hour and possible air discharge permits for various vents and hoods.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION²

This chapter describes the alternatives and summarizes the environmental consequences of the alternatives. Supporting information regarding environmental consequences is contained in Sections 3.0 and 4.0.

The following alternatives were developed in the Economic Analysis report for project P-208, dated October 1997. The basis for the economic life of the alternatives is 15 years for renovation and 25 years for new construction in accordance with NAVFAC P-442 Economic Analysis Handbook.

2.1 DESCRIPTION OF ALTERNATIVES

2.1.1 ALTERNATIVE A, NO ACTION

This alternative is to keep the various research and development functions at NAES within their current physical locations (Figure 3).

These functions currently exist in portions of buildings 1, 9, 123, 149, 333, and 596. This alternative is not feasible since the amount of existing assets is 3,883 m² (which includes substandard and inadequate space) while the valid requirement is for 6,174 m². This prevents NAES from meeting the current and future fleet mission requirements of the Navy. Uniform annual cost of rehabilitation and maintenance of these areas is \$4,618,025.

The Navy assigns Risk Assessment Codes which are single digit numerical expression of risk which is derived from the combination of hazard severity (1-4) and mishap probability (A-D). The RACs run from 1 (critical) to 5 (negligible). Existing deficiencies or concerns for these buildings and their RACs are:

Bldg. 9 ADMAC/ISIS R&D

- No emergency lighting throughout building (3)

Bldg 149 Environmental Testing Laboratory (ETL) RAC CODES FROM GORDON??

- Power to Pump#1- not within code, energized by a series of extension cords, one which is hard wired into the junction box.
- Numerous electrical wires and hydraulic lines throughout hangar deck area present a tripping hazard.
- Housekeeping is a problem due to numerous projects and limited storage space.

Bldg 149 ALRE (EMALS)

- No existing deficiencies but some concerns with water spray and flooding from nearby water-jet cutter.

Bldg. 333 Materials Laboratory

- Fume hoods (2) barely meet ventilation requirements.
- Lab floor has hole in the center that presents a trip hazard. (3)

2.1.2 ALTERNATIVE B, PROPOSED ACTION, CONSTRUCTION OF NEW API LABORATORY

The proposed action consists of constructing a new API laboratory building within the Engineering Complex of the NAES (Figure 4). The proposed construction would be located in an area designated in our base Master Plan for research and development/engineering activities. The military construction project (project number P-208) associated with this proposed action is also described in the NAES Master Plan.

The new API laboratory would be a one-story, steel frame building to house state-of-the-art technological facilities to conduct product development, analysis and integration of API systems and engineering. The building would have a concrete foundation and slab, membrane roof, concrete walls with brick veneer, natural gas fired heating system, fire protection system, compressed air, electromagnetic shielded areas with special safety features, upgraded electrical power, and chemical resistant floor finishes. The project would also include a bridge crane, hoist, site development, and utility connections. The equipment on hand to be relocated to this building is valued at approximately \$20,000,000.

New construction, with the lowest uniform annual cost, was found to be the least cost alternative of the proposed alternatives. When compared to the status quo (no action), new construction yields a life cycle cost savings of \$55,321,870, a savings-to-investment ratio of 3.04 and a discounted payback of 5.36 years².

2.1.3 ALTERNATIVE C, RENOVATING/ ADDING TO BUILDING 123

Under Alternative 1, renovation and addition to Building 123 would consolidate the various areas into one building and reduce the amount of time spent in travel by associated personnel. The location of building 123 is shown in Figure 5. Approximately 22,000 square feet of existing building space would be renovated and 45,000 square feet of building space would be added to the building. Although not on the list of historic buildings, addition to this structure may require SHPO approval. The disadvantages to this alternative are that the renovated space limits the physical arrangement of the space, which may not suit functional relationships. Although the addition would have considerably lower maintenance, repair and energy costs than the current configuration, the rehabilitated portion would still require higher maintenance and energy costs. During construction, the current laboratory function would need to be temporarily moved. The transfer of additional functions to Building 123 would also displace storage for the Public Works Department. The facility will be located away from the engineering campus created by buildings 562 and 596 resulting in a loss of engineering synergy possible by constructing a new building as part of the current engineering campus. Uniform annual cost \$1,365,790.

2.1.4 ALTERNATIVE D, RENOVATING/ ADDING TO BUILDING 195 (HANGAR 6)

Alternative D, Renovation of Building 195 (Hangar 6) would consolidate the various functions into one building and reduce the time spent in travel by associated personnel. The location of hangar 6 is shown in Figure 5. This alternative includes the renovation of the lean-to areas and portions of the high bay area within the hangar. Hangar 6, built in 1943 for airship operations, is a wood-frame structure containing 303,400 square feet of mostly vacant space. Since the lean-to areas can only accommodate a maximum height of 21'-6", area inside the main hangar space would need to be constructed for the environmental and EMI labs. Due to the age and poor condition of the existing roof system of hangar 6, it would need to be repaired. The disadvantages to this alternative are that the facility will be located approximately one mile from the engineering campus created by buildings 562 and 596, leading to a loss of synergy. The entire building would have to be maintained, while only 26% of its total area would be occupied. This would prevent future excessing/ demolition of the hangar if no other uses for it can be found. Renovation of the existing space does not allow for the best physical arrangement to suit functional relationships. The energy costs for the renovated space will be higher than that for new construction. Uniform annual cost 1,679,570. This cost does not take into consideration extra fire protection systems required to protect the entire structure³, which was determined to exceed \$8M. The hangar is also adjacent to an airfield and similar hangar that is utilized by the Army for helicopter and small aircraft rework. Noise in this area is categorized as Noise Zone 2, indicating an area where individuals may complain, perhaps vigorously or would be normally unacceptable⁴.

2.1.5 ALTERNATIVE E, LEASING OFF-CENTER R&D SPACE

This alternative proposes to lease space in the neighboring community. The advantages of this alternative are that it allows the areas to be consolidated into one building. There will also be

optimum arrangement of the space to suit its functional needs. However, modifications would be required to achieve this optimum arrangement, that include provisions for built-in equipment, special construction features, and upgraded electrical systems. An industrial park large enough to accommodate this size space allocation exists in Lakewood NJ, which is approximately 8 miles from Lakehurst (Figure 6). This alternative would require supplemental security due to the classified work to be performed in the space at an estimated cost of \$219,000/year. Also, meetings/conferences/training at NAES will require additional travel by employees. The Economic Analysis report² for the project indicates that the extra travel under this alternative would result in an average of 1,238 hours of lost productivity a year at an average cost of \$80,000/year. This also results in the loss of synergy possible by constructing a new building as part of the engineering campus. Another disadvantage is the government's need to make a long-term commitment for leasing of the space. Uniform annual cost is \$1,291,487.

2.2 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The proposed action of constructing a new API laboratory within the Engineering Campus of NAES would result in net increase of 3.17 acres of impervious cover, resulting in an increase of stormwater runoff. However, impacts could be mitigated through properly designed and sized stormwater basins.

Based on six consecutive years of grassland bird surveys, no significant impact or habitat reduction would occur for grasshopper sparrows and other grassland bird species as a result of the proposed action.

Construction of the facility and related site work (addition of parking areas and re-routing of Hancock Road) would require removal of 2.4 acres of non-native white pine trees. The removal of the trees would be mitigated through a 2001 project where an equal area of native trees would be planted in the area.

A new building to house the API laboratories would result in energy savings associated with a well-designed and energy efficient structure and the reduced travel by automobile of employees during the course of their workday.

Construction of the facility would also require the re-routing of piping which serves to recharge treated water from a contaminated site back into the aquifer. However, construction could be staged to minimize shut-off time of the groundwater treatment facility to less than 2 days.

Table 1. Comparison of Environmental and Mission Effects

Area of Consideration	Alternative A, No action	Alternative B, Construction of new API Laboratory Proposed action	Alternative C, Renovation & Addition to Building 123	Alternative D, Renovation & addition to Building 195	Alternative E, leased space off-Station
Land use	No change.	Project is consistent with current NAES Master Plan.	No change in land use.	Changes land use to add R&D office to area of aircraft operations.	No change in land use on the NAES.
Water Resources	No change.	Water allocation not affected as existing personnel would be transferred to the building.	Water allocation due to personnel use should not be affected.	Water allocation due to personnel use should not be affected.	No change.
Surface Water Quality	No change.	No anticipated impact on surface water quality. Nearest wetland is 900 feet from edge of construction zone and should not be impacted.	No change.	No change.	No change
Stormwater	No change.	Stormwater runoff would increase due to addition of 3 acres of impervious cover. However, this will be mitigated through addition of 2 retention basins.	Existing stormwater basin may need to be expanded for new parking lot.	Parking required for personnel would require creation of retention basin.	No impact on NAES stormwater.
Ground Water Quality	No impact.	This project requires rerouting of infiltration lines from groundwater treatment system. No discharges to groundwater result from project itself.	No change in water quality.	No change in water quality.	No impact on NAES groundwater quality. Reduces incidence of spills on NAES.
Air Quality	No improvement in air quality.	Project results in reduced air emissions associated with energy efficiency of the building, and reduced driving of personnel in the course of their daily activities.	Renovation or additions may result in some energy efficiency.	Renovation or additions may result in some energy efficiency.	Increase in air emissions associated with increased vehicular traffic between off-site location and NAES.
Topography	No impact.	As site is relatively flat, no significant change in topography is anticipated.	No significant change in topography associated with renovations/ additions.	No significant change in topography associated with renovations/ additions.	No impact of topography at the NAES.
Soils	No impact.	Soil conservation permitting and measures would be undertaken during construction.	Soil conservation permitting and measures would be taken during construction	Soil conservation permitting and measures would be taken during construction.	No impact on soils at the NAES.
Noise	No impact.	Site is in a low noise area. Project would not increase long-term noise in the area, although construction activities would cause a temporary noise increase.	No noise impact	Noise associated with runways and Army helicopter activity would be annoyance.	No noise impact on the NAES
Plants	No impact.	Approximately 2.4 acres of non-indigenous white pines would be removed during construction. Mitigation would be conducted through 2001 project to include planting of 2.4 acres of indigenous trees in close proximity to the proposed action.	No significant impact to plant life.	No significant impact to plant life.	No impact on plants at the NAES.

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Area of Consideration	Alternative A, No action	Alternative B, Construction of new API Laboratory Proposed action	Alternative C, Renovation & Addition to Building 123	Alternative D, Renovation & addition to Building 195	Alternative E, leased space off-Station
Birds	No impact.	See discussion under T&E species.	No impact to birds	Currently birds (pigeons and starlings) are a nuisance within the hangar and their droppings can pose significant health risks. To reduce this threat, the project would need to include methods to seal off the hangar to prevent bird habitation (attempts have been unsuccessful due to the hangar's size and height.)	No impact on NAES birds.
Terrestrial mammals	No impact.	Very few mammals are present near the site. Temporary disturbances to mammals possible during construction. Mammals territory may be slightly reduced.	Temporary disturbances to mammals possible during construction. Mammals territory may be slightly reduced.	As construction would take place inside the hangar and hangar is surrounded by pavement and tarmac, no disturbance to mammals would be expected.	No impact to mammals on the NAES.
Endangered & Threatened species	No impact.	The grasshopper sparrow is a state-listed threatened grassland bird, located east of the proposed construction site. This is the only T&E species in the area. As the project will be situated in and around existing roads, impacts to birds will not be significant.	No impact.	No impact.	No impact.
Fire management	Aging infrastructure increases the risk of fire due to aging and faulty wiring.	The construction will include a state-of-the-art fire suppression system. The building would be of brick construction. No increase in fire risk is anticipated.	No increase of fire risk.	This hangar is one of the largest wooden hangars in the country. It does not have a sufficient fire suppression system to accommodate the safety of full-time personnel. A proper system would exceed \$8M. The location of aircraft in the wood hangar 100 feet to the north and the location of the NAES's main fuel storage facility to the south substantially increase the risk of fire.	No impact on fire risk at the NAES.
Infrastructure & utilities	Would require extensive maintenance and renovation of existing infrastructure. Would not allow demolition of inferior structures.	The project would tie into existing utility lines, with an addition of one transformer and the movement of one sanitary lift station. Project would include realignment of one NAES road. Project gives the NAES the opportunity to eliminate obsolete buildings and structures, resulting in new open spaces.		Additions/renovations to buildings would require new parking areas and stormwater retention basins. Existing potable and sanitary lines could be utilized for either option. New transformers would be required for either option.	Would not affect infrastructure or utilities at the NAES.
Archeological resources	No impact on archeological resources.	Area is designated as low archeological sensitivity from Cultural Resources Survey. Impacts to archeological resources are not likely.		As the areas have been heavily disturbed in the past, impacts to archeological resources are unlikely.	No impact on archeological resources.

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Area of Consideration	Alternative A, No action	Alternative B, Construction of new API Laboratory Proposed action	Alternative C, Renovation & Addition to Building 123	Alternative D, Renovation & addition to Building 195	Alternative E, leased space off-Station
Cultural resources	No impact on cultural resources.	Nearest historic structure is Hangar 1, located 1200 feet to the north. The Pinelands Commission would not require a full Cultural Resources Survey as there is insufficient evidence of historic or prehistoric presence at the site, based on a commission site inspection.	This building was first used as a gas cell shop for airships in 1932. An addition to this building may require SHPO approval.	Although not listed on the register of historic places, B195 is one of the largest wooden hangars in the country. The addition of an R&D space within the hangar would eliminate the possibility of use of the hangar for its intended purpose of aircraft and/or airship operations.	No impact on cultural resources.
Resources & Energy	Would continue to waste energy in inefficient heating/cooling. Would require extensive materials to maintain inferior structures.	Would require less energy than status quo. Construction materials would follow affirmative procurement guidelines.	Renovations and additions to existing buildings would require a similar amount of building materials as the proposed action. However, increased maintenance of the renovated spaces would require more resources and the space would use more energy over time.	Renovations and additions to existing buildings would require a similar amount of building materials as the proposed action. However, increased maintenance of the renovated spaces would require more resources and the space would use more energy over time.	Leased space would require some modification. This option would consume the least materials for new construction.
Traffic	Traffic patterns would not be affected.	Existing traffic patterns would not be substantially affected.	Bldg 123 is the location of the NAES gymnasium and is located close to the main gate and credit union. Traffic during peak hours (start of day and lunch time) may necessitate a traffic light at the nearest intersection.	Hangar 6 option would not significantly increase traffic in the area.	Assuming leased space at the Lakewood Industrial park, personnel would commute a nominal extra 8 miles each way.
Public Safety	Safety would continue to be compromised as some existing structures do not meet safety codes.	The proposed road realignment and parking lot construction would provide better safety to pedestrians than current configuration for personnel in building 596.	Parking for Bldg 123 is located across Severyns road. Locating additional personnel in the building would require a new parking lot and would increase pedestrian crossings of the road.		Public safety at the Station would not be affected.
Airspace	Airspace would not be affected.	Project is located near abandoned taxiways and would not interfere with active airspace. However, the model flying club is located 300 feet south of the site. Flying activities will cease during construction, but resume afterward.	Bldg 123 is not located near active airspace.	Hangar 6 is located next to an active helicopter and aircraft mat and taxiway. The renovation/ addition option would not impair airspace.	This alternative would not impact airspace at the Station.
Mission Efficiency	Mission would continue to be compromised as current spaces are too cramped and do not have sufficient power supply to perform functions.	This alternative provides the best synergy for conducting research and development at the Station in support of our mission.	Locating the laboratory functions in bldg123 would keep the engineering and research functions apart, reducing opportunity for information sharing and increase unproductive travel time.	Locating the laboratory functions in Hangar 6 would keep the engineering and research functions apart, reducing opportunity for information sharing and increase unproductive travel time.	This option would result in an increase in unproductive time due to increased travel to and from the Station. Estimate of \$80K/year in manpower waste.

Draft Final Environmental Assessment for Project P-208, Aircraft Platform Interface (API) Facility, NAES Lakehurst

Area of Consideration	Alternative A, No action	Alternative B, Construction of new API Laboratory Proposed action	Alternative C, Renovation & Addition to Building 123	Alternative D, Renovation & addition to Building 195	Alternative E, leased space off-Station
Cost	The uniform annual cost for this option is \$4,618,025.	The uniform annual cost is \$1,131,249. This alternative provides a discounted payback within 5.36 years.	The uniform annual cost for Bldg 123 is \$1,292,610.	Uniform annual cost for Hangar 6 option is \$1,679,570 without accounting for increased fire protection (estimated at \$8M).	The uniform annual cost for this option is \$1,291,487

2.3 PROPOSED ALTERNATIVE

The proposed alternative is to construct a new API laboratory in the existing Engineering Campus of NAES, as outlined in the Station's Master Plan.

3.0 AFFECTED ENVIRONMENT

This section presents relevant resource components of the existing or baseline environment.

3.1 GENERAL

NAES is located in Jackson and Manchester Townships, Ocean County, New Jersey, approximately 14 miles inland from the Atlantic Ocean (Figure 1). The Station is comprised of approximately 7,400 acres and is bordered by Route 547 to the east, the Fort Dix Military Reservation to the west, woodland to the north (portions of which are within Colliers Mills Wildlife Management Area), Lakehurst Borough and woodland, including the Manchester Wildlife Management Area, to the south (Figure 2). NAES and the surrounding area are located within the Pinelands National Reserve, the most extensive undeveloped land tract of the Middle Atlantic Seaboard.

NAES encompasses 7413 acres, including a 21-acre non-contiguous parcel, Pinehurst Estates, located in the borough of Lakehurst (Figure 2). The complex contains 446 structures and 328 buildings totaling 2,845,731 square feet of floor space. Facilities include two 5,000-foot operational runways, a 12,000-foot catapult and arresting gear runway and five jet test tracks. Currently 3300 military and civilian personnel from the Navy and other tenants work aboard the Station.

3.2 LOCATION

NAES is located in the Townships of Manchester and Jackson in Ocean County, New Jersey (refer to Figure 1). The NAES lies approximately 55 miles south of New York City, 45 miles east of Philadelphia and is almost 12 miles inland from the Atlantic Ocean.

The location of the proposed action is at the intersection of Hancock and Severyns Roads, south of Building 562, in the R&D/ Engineering Campus, located in the eastern portion of the NAES (Figure 4).

Alternative C is located in Building 123, which currently contains the NAES gymnasium, and one of the laboratory functions.

Alternative D is located in Hangar 6, which is designated in the Master Plan for future out-grant. This hangar is adjacent to the NAES's fueling facilities and Hangar 5, which contains the Army Communications-Electronics Command.

Alternative E moves the laboratory functions off-center to an industrial park 8 miles from the NAES.

3.3 GEOLOGY

Ocean County is situated within the Atlantic Coastal Plain that generally comprises unconsolidated alluvial, marine and continental sediments. The land rises from sea level along the coastline to elevations of over 200 feet on the northwestern portions of the county.

3.4 HYDROLOGY

The vast majority of NAES is underlain by the Cohansey aquifer formation; most of the NAES's potable water supply is withdrawn from this productive water-bearing stratum. Total formation thickness ranges from 50 to 80 feet of coarse-grained, highly permeable quartzite sand and gravel; it is encountered at depths ranging to 80 feet below ground level.

The New Jersey Department of Environmental Protection has permitted a maximum diversion of nearly a billion gallons of water per year, according to the Ocean County Water Quality Management Planning Program.

The aquifer's relatively shallow depth and highly permeable nature make it susceptible to pollution from point and non-point sources. The depth to groundwater varies dependent upon the location of the alternative. The groundwater depth at the Engineering Campus is approximately 12.5 to 16 feet. The groundwater at Building 195 (Hangar 6) is 6 feet below grade and at Building 123 is 34 feet below grade. The approximate average depth to groundwater at the NAES is 6-8 feet.

The groundwater at the NAES is currently classified by NJDEP as Class I – PL (Pinelands), which requires that groundwater meet “natural background” standards. This classification is the strictest in New Jersey.

The Station was listed on the National Priority List in 1987 with 45 individual contaminated sites. In September 1999, the Station signed its last Record of Decision for these sites. All sites have either been remediated or are being addressed through active treatment or long-term monitoring. Currently four groundwater treatment systems are in place and four other areas of groundwater are monitored regularly. Each of the alternatives except the leasing alternative are located in areas that are undergoing active groundwater treatment. However, the potable water supply in the eastern portion of the Station has not been impacted by contamination. Although groundwater contamination is not expected to have an impact on human health under any alternative, the proposed alternative site is located in an area where treated contaminated groundwater from NPL sites is infiltrated (replenishing the aquifer).

3.5 SOILS

Soils at the NAES are typical of the soils of Ocean County and contain several sands which are of mining value. The most significant of these is the large quantity of ilmenite, an important mineral in the manufacturing of paints. Other sands, including concrete sand, molding sand, and industrial sand, are found in varying quantities and qualities in the central and northern townships.

The soil at NAES adjacent to the drainage channels and flood plains consist of the berryland and muck soils. Berryland soils are very sandy and are characterized by a high water table. The muck soils are composed of high amounts of finely divided organic matter within an elevated

water table. Generally though, Ocean County is an area of extremely sandy soil, not conducive to the support of marketable plant growth.

The soils at the R&D/Engineering Campus (Alternative B, New API Laboratory) have been classified as Lakewood Sand with 0 to 5 percent slope. Lakewood sand is characterized by a black sand surface layer 1 inch thick, with a light brownish gray sand 9 inches thick underneath. The subsoil is yellowish brown 26 inches thick. The substratum is brownish yellow sand to a depth of 60 inches or more. The permeability of the soil is rapid in the subsoil and rapid to moderate in the substratum. Organic matter content is low and natural fertility is very low. The soil is generally suitable for most urban uses. Soils at Building 123 and Hangar 6 are classified as Urban Land in the 1989 Soil Survey of Ocean County, New Jersey⁵.

3.6 FLORA

Principal types of timber in the Lakehurst area are the pitch pine (*Pinus rigida*) and black oak (*Quercus velutina*). Other timber types include the Atlantic white cedar (*Chamaecyparis thyoides*), eastern white pine (*Pinus strobus*), Virginia pine (*P. virginiana*), white oak (*O. alba*), pin oak (*O. palustris*), and scrub oak (*Q. ilicifolia*). Except for the Atlantic white cedar, these trees grow well in sandy well drained upland soils. The white cedar, along with stands of sweetgum and red maple, grows well in marsh and bog areas.

The NAES's forested lands were previously adversely affected by heavy timber harvesting and wildfires. They are, however, recovering under prudent management strategies.

The sites of the various Station alternatives are located in previously disturbed areas very little native vegetation.

3.7 WILDLIFE

Much of the land within and adjacent to NAES is underdeveloped and consequently inhabited with an abundance of wildlife. The New Jersey Pinelands, of which the NAES is a part, supports 39 species of mammals, 299 species of birds, 59 reptile species, 91 fish species and an estimated 10,000 arthropod species. The central eastern portion of the Station has been heavily developed since the 1920's as an Air Station. The western portion of the Station and areas adjacent to wetlands are generally undeveloped and are more suitable for wildlife habitation.

3.8 ENDANGERED SPECIES

None of the animal types typical to the Pine Barrens are found on the U.S. Department of the Interior Fish and Wildlife Service's list of endangered or threatened flora and fauna, with the exception of the bog turtle (*Clemmys muhlenbergia*)

The alternative sites on NAES were included in the 1988-1989 Rare Species Survey conducted at the NAES. The Grasshopper sparrow was found in fields east of the proposed action site. The Grasshopper sparrow is a State threatened (breeding) species. Its range is throughout New Jersey, but mostly in the agricultural lands of the northwest sections (Highlands) and the southern and western portions (Inner Coastal Plain). NAES has one of the largest populations of Grasshopper sparrows in New Jersey. Their habitats include open grasslands, cultivated fields, and fallow weedy fields. Its nests are concealed on the ground and their breeding season is May

through August. Approximately 3-5 singing males were identified during the Rare Species Survey⁶ in the location “Old Runway Grasslands –East”, which comprises the grassy field east of Severyns Road. In the latest field survey (1999)⁷ one mating pair was detected in the field south of Hancock Road (Figure 10). However these birds tend to keep clear of roads and traffic.

3.9 TOPOGRAPHY

The topography of the mainland areas of Ocean County can best be described as gently rolling lands with a few steep slopes. Only one percent of the County's land area has a slope greater than ten percent, which is generally considered too steep for normal development. Another four percent of the county's area has slopes ranging from five to ten percent. The remaining 95 percent of the County has slopes of less than five percent. Where soil and drainage conditions permit, this is suitable for almost all forms of development.

The topographic profile at NAES is generally flat with a mean elevation of approximately 100 feet above sea level. The elevation of the proposed action site averages 77 feet above mean sea level (Figure 11).

It was determined that the NAES alternative sites (including no action) are not located in a floodplain by an examination of the Floodplain study of September 1989 conducted by the U.S. Army Corps of Engineers, Philadelphia District and revised March 1990. Wetlands (Manapaqua Branch) are located 900 feet south of the proposed action site (at the closest point).

3.10 CULTURAL AND HISTORIC RESOURCES⁸

Hangar No. 1 was designated a National Historic Landmark in 1969 under the Section 110 of the National Historic Preservation Act (Figure 4). Construction at the preferred site would occur 1200 feet from Hangar 1.

Alternative C would provide for an addition to a 1932-built brick structure that once supported the NAES's lighter-than-air program.

Alternative D utilizes Hangar 6. Hangar 6 is one of a two all wood “sister” hangars constructed in the 1940's by the Navy for airship squadrons and are the only two still owned by the Navy. They are considered the largest arched wooden structures in the world.

3.11 TRANSPORTATION SYSTEMS AND TRAFFIC

Transportation in the region is chiefly automobile and the County and State roads are generally fair. There are no interstate highways near the activity. Principal access highways include State Route 70, which traverses Ocean County from east to west, US Route 9 and the New Jersey Garden State Parkway (Figure 6). The main gates of the NAES are located off Route 547 and just north of the Route 70 Lakehurst Circle.

3.12 UTILITIES

The Station owns and operates three potable water systems for Station use. These systems are named the Hill system, Helo System and Test System. The locations of the alternative sites at NAES would be supplied by the Hill System, which serves the eastern portion of the Station. As

the consolidation of the laboratory functions would relocate existing personnel, there is no expected need for an increase in the Station's water allocation.

The Station owns the sanitary lines on Station, which ultimately tie into the Ocean County Utility Authority sewer lines. The Station abandoned its sanitary sewer treatment plant in 1979 and does not perform any treatment of sanitary wastes, other than through small individual septic systems located in the western portion of the Station.

The Station is in the process of converting the buildings in the eastern portion of the base to natural gas boiler steam heat. Currently steam heat is transferred to buildings through underground steam lines from a central steam generation plant, fueled by Number 6 fuel oil. All the Station alternative locations would utilize natural gas as their primary heating fuel.

3.13 AIR QUALITY

Air quality is generally very good due to the rural nature of the area and meets all Environmental Protection Agency air quality standards except for ozone. No areas in New Jersey meet the ozone requirements.

The Station has a draft Title V Air permit that is expected to be finalized in October 2000. Existing air discharge permits relating to the laboratory work would be transferred or consolidated under the alternatives. The addition of new boilers for the alternatives would require new air permits.

The Station has also signed a Greenhouse Gas Reduction Covenant with the New Jersey Department of Environmental Protection in April 2000. A Greenhouse Gas Reduction Plan is currently under development and will be submitted to the NJDEP in accordance with this Covenant.

3.14 NOISE ⁴

Based on the Air Incompatibility Use Zone (AICUZ) Plan for NAES, which includes noise contour maps (see Figure 14), the proposed action site and Alternative C (building 123) are located in Noise Zone 1. Zone 1 indicates that essentially no complaints would be expected or would be normally acceptable. Alternative D, utilizing Building 195 (Hangar 6), is located in Noise Zone 2, which indicates an area where individuals may complain, perhaps vigorously or would be normally unacceptable.

3.15 ARCHEOLOGICAL SENSITIVITY

The areas associated with Alternatives C and D are shown by the Cultural Resources Survey⁸ as "disturbed soils (no sensitivity)" (Figure 15). A portion of the area of the proposed action is depicted as type 3 "low archeological sensitivity".

3.16 STORMWATER

The Station applied for a facility-wide National Pollution Discharge Elimination System (NPDES) permit for industrial stormwater discharge on October 1, 1992. The Station has a Stormwater Pollution Prevention Plan dated August 1991.

Construction activities are subject to the Ocean County Soil Conservation (OCSC) district permitting process as well as state and federal soil conservation and stormwater pollution regulations. Any soil disturbance greater than 1500 square feet requires Pinelands Commission and OCSC permit approval.

4.0 ENVIRONMENTAL CONSEQUENCES

This section presents a discussion of the impacts of the various alternatives considered within this assessment. It addresses the adverse environmental impacts that cannot be avoided, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources that would be involved if the proposed action were implemented.

4.1 EFFECTS OF ALTERNATIVE A, NO ACTION

4.1.1 EFFECTS ON THREATENED AND ENDANGERED SPECIES

As laboratory functions would remain in their existing buildings, this implementing this alternative would have no impact on threatened and endangered species. The existing buildings are located in highly developed, urbanized areas, which are not conducive to habitation by wildlife.

4.1.2 EFFECTS ON PLANT LIFE

This alternative would have not impact on plant life as these functions are currently carried out indoors, in buildings located in highly developed areas.

4.1.3 EFFECTS ON STORMWATER RUNOFF

Building 9, 149, and 333 do not have stormwater retention basins associated with their parking areas. As these areas are grand-fathered under stormwater pollution regulations, the Navy would have no incentive to implement additional stormwater retention measures.

4.1.4 EFFECTS ON ENERGY CONSERVATION

The buildings associated with this alternative are between 40 and 75 years old and very energy inefficient. This alternative would not increase energy efficiency of these buildings. This alternative would also perpetuate the need for employees to frequently travel by automobile between their offices and laboratory spaces, wasting non-renewable petroleum resources.

4.2 EFFECTS OF ALTERNATIVE B, CONSTRUCTION OF NEW API LABORATORY

4.2.1 EFFECTS ON THREATENED AND ENDANGERED SPECIES

As the proposed site is located in close proximity to existing roads and paved areas and is mowed regularly, construction activities and the completed facility would not have a significant impact on grassland bird habitat, based on six years of grassland bird survey data in the area of concern.

4.2.2 EFFECTS ON PLANT LIFE

The proposed action results in the removal of approximately 2.4 acres of white pine trees (Figure 9). These trees were planted in the mid-1960s under direction of the NAES forester and this stand is a non-native species mono-culture. However, the NAES has plans to conduct additional tree planting in FY2001 and would incorporate an additional 2.4 acres of native tree planting into this project to compensate for the loss under this project.

As this project would disturb more than 1500 square feet, the site work would require approval from the Pinelands Commission and require use of native landscaping in conformance with the Pinelands Comprehensive Management Plan.

4.2.3 EFFECTS ON STORMWATER RUNOFF

The proposed action would remove 1.66 acres of existing paved surface (existing road and old aircraft taxiways) (Figure 16). However, the new building and associated roads and parking areas would add 4.81 acres of new impervious cover in the area (Figure 17). This results in a net increase of 3.15 acres of impervious cover associated with this alternative. To capture stormwater runoff, the project would include two new stormwater retention basins, engineered to provide appropriate capacity.

As the site is located 900 feet from the nearest wetland, the construction would pose no significant threat to wetlands with proper erosion control measures (Figure 12).

4.2.4 EFFECTS ON ENERGY CONSERVATION

A new facility would incorporate energy saving features such as energy-efficient heating and cooling systems, building insulation, and lighting. The location of the building in proximity to the engineering campus would reduce automobile traffic normally arising from the need to consult with peers and management. This would reduce fossil-fuel usage when compared to the no action alternative.

4.2.5 OTHER ENVIRONMENTAL ISSUES

Contaminated Site Cleanup: The proposed action site lies just upgradient of an area of groundwater contaminated with solvents known as Areas A & B. The treatment system pipes remediated water near and through the proposed area of construction. However, this piping system would be identified during the design phase and measures would be taken to reroute the

affected piping. During construction, disruptions to or temporary shutdowns of the treatment system would be reported to the Station's federal and state case managers.

Traffic: Numbers of vehicles on NAES should not increase as the proposed facility will not increase the number of personnel at the NAES. As personnel can walk between buildings to consult with their peers, mid-day traffic may be reduced at the Station. The realignment of Hancock Road and location of parking lots would be designed to limit pedestrian crossings of Hancock Road and increase human safety. Hancock Road is the primary route of truck and commercial traffic at the NAES. An increase in truck traffic during construction is expected, however, the proximity of the preferred site to the NAES's commercial gate should localize any nuisance or traffic issues (Figure 8). Safety measures that could be implemented during construction include re-routing truck and commercial traffic, striping crosswalks, and adding stop signs.

Utilities: The proposed action would require a new exterior electrical substation, new area lighting, and new underground communications lines (Figure 13). The primary objective of site utility improvements under the proposed action will be to re-route existing utilities away from the building footprints, provide building service connections to the new API facility, and to provide new storm water management for the site including the new parking, new building and displaced stormwater retention basin for Building 596. The site utility work will include re-routing of the existing domestic water, fire main and gas main around the new building and to provide new service lines and connections to the API facility. A new sanitary lift station will be required next to the existing lift station west of Building 596 to provide capacity for the additional flows generated by the API facility.

Air Quality: The proposed action would not significantly impair the air quality in the area. The Applicability Analysis for the General Conformity Rule under the Clean Air Act⁹ indicates the construction would result in 13.81 tons/year of NO_x and 8.3 tons/year of volatile organic compounds (VOCs). Both these levels are less than the de minimus criteria level of 25 tons/year under the Clean Air Act General Conformity Rule for areas classified as nonattainment. Furthermore, boiler operations for the completed facility were estimated to produce 6.27 tons/year of NO_x and 0.18 tons/year of VOCs, also below de minimus levels. Existing laboratory hoods would be transferred to the new building, which are considered insignificant sources by NJDEP. Air emissions from automobiles should decrease under this alternative as employees can walk between buildings in order to consult with their peers during the normal course of their duties.

Topography: As the proposed building would have a slab-on-grade foundation, the construction should require only slight alteration of the existing grades. It is anticipated that approximately 3 feet of cut and/or fill will be required to reach required subgrades¹⁰.

Cultural Resources: The Pinelands Commission has reviewed the potential cultural impacts due to the proposed development. In a letter dated July 18, 2000, their review of cultural resource inventories and a site inspection of the project did not reveal sufficient evidence of a significant historic or prehistoric presence to require a full cultural resources survey.

4.3 EFFECTS OF ALTERNATIVE C, RENOVATION AND ADDITION TO BUILDING 123

4.3.1 EFFECTS ON THREATENED AND ENDANGERED SPECIES

Building 123 is located in a highly developed section of the Station and is surrounded by parking lots, roads and other buildings. The NAES Rare Species Survey⁶ did not identify any rare species of flora or fauna in the area of building 123. The nearest suitable habitat for grassland birds is located four hundred feet to the east, although no survey has ever confirmed their presence there. The nearest wetland is 1100 feet to the northeast, with numerous buildings and roads located between. Construction associated with this alternative is anticipated to have little to no impact on threatened and endangered species.

4.3.2 EFFECTS ON PLANT LIFE

Building 123 is located in a highly developed section of the station and has little native sewn vegetation surrounding it. The construction associated with this alternative would have little impact on plant life as the construction would occur in an area already designated for parking.

4.3.3 EFFECTS ON STORMWATER RUNOFF

Stormwater runoff associated with parking areas for Building 123 is retained through an existing area-wide retention basin, located to the northeast of the building. The consolidation of laboratory functions in this building would require the addition of parking areas. Therefore this alternative would possibly require additional stormwater retention capacity through enlargement of the current basin or through construction of an additional basin.

4.3.4 EFFECTS ON ENERGY CONSERVATION

Alternative C (renovation and addition to Building 123) would result in less energy efficient structures than the proposed action. Building 123 was constructed in 1932 with a steel frame and brick walls. Although the addition would use state-of-the art building materials to conserve energy, the renovated area would provide less energy conservation than the proposed alternative.

Building 123 is located approximately 0.3 miles from the engineering campus where most of the engineering consultation for the various projects will occur. Although this alternative provides a closer distance to the Engineering Campus than alternatives D and E, due to the need to cross the main entrance road and the lack of walkways, most workers would probably utilize their cars to travel between the facilities during the workday. This would waste a greater amount of non-renewable energy resources than the proposed alternative.

4.3.5 OTHER ENVIRONMENTAL ISSUES

Safety: Placing the functions in Building 123 (would increase traffic significantly at the intersection of Lansdowne and Severyns Road, especially during the peak hours of morning start time and lunch hour. Additional parking facilities would need to be constructed for the building. Due to constraints placed by the close proximity of other buildings and roads, new parking would probably be placed east of Severyns Road. This would increase the amount of pedestrian crossings of Severyns Road.

4.4 EFFECTS OF ALTERNATIVE D, RENOVATION AND ADDITION TO BUILDING 195

4.4.1 EFFECTS ON THREATENED AND ENDANGERED SPECIES

A grassland habitat exists 300 feet east of Hangar 6 and the nearest wetlands are 650 southeast of the hangar. However, as all construction associated with this alternative would take place inside the existing hangar structure, impacts to wildlife would be minimal.

4.4.2 EFFECTS ON PLANT LIFE

Building 195 (Hangar 6) is located in the central portion of the Station, adjacent to aircraft landing mats, taxiways and a fuel farm. During the NAES Rare Species Survey, no rare plant life was encountered in the area of Hangar 6. Areas directly to the west and east of the hangar are paved for a distance at least 600 feet in each direction. Hangar 5 is located north of this hangar and the fuel farm area is located to the south. As construction will occur solely within the existing hangar structure, impacts to plant life are expected to be minimal.

4.4.3 EFFECTS ON STORMWATER RUNOFF

Areas to the south and north of Hangar 6 are paved and would provide adequate area for parking of vehicles under this alternative. Paved areas around the hangars do not have associated stormwater retention basins. As these areas are grand-fathered under stormwater pollution regulations, the Navy would have no incentive to implement additional stormwater retention measures.

4.4.4 EFFECTS ON ENERGY CONSERVATION

Hangar 6 was constructed in 1943 of wood as steel was in short supply during the war years. The hangar is sided in corrugated aluminum. The building currently does not have heat, although it was originally heated through steam radiators. The energy efficiency of the structure is poor as it has single pane window in the lean to area and high ceilings. Although the new construction portion of the building (on the hangar deck) would be made of state-of-the-art, energy efficient building materials and methods, the energy efficiency overall would be less than that of the proposed alternative.

Hangar 6 is located over 1 mile from the engineering campus where most engineering consultation would occur. This would necessitate frequent automobile travel between the buildings, wasting a greater amount of non-renewable energy resources than the proposed alternative.

4.4.5 OTHER ENVIRONMENTAL ISSUES

SHPO: Although not on the register of historic places, these hangars have potential for inclusion on the registry. Although no addition to the outside of the structure would be required under this alternative, this construction would preclude traditional aircraft or airship functions within the hangar.

Traffic: Alternative D is located in a sparsely populated area of the NAES. Therefore, a slight increase in traffic due to the relocation of the laboratory functions to Hangar 6 would not increase traffic to an unmanageable level.

Fire Protection: This wooden structure currently has little to no fire protection. As fueled aircraft and a fuel farm are located within 100 feet of the structure, the building has an elevated risk of fire. Although not considered in the economic analysis for the P-208 project, earlier study has indicated that adding adequate fire protection would cost the Navy over \$8M.

Noise: Hangar 6 is located in Noise Zone 2, which indicates an area where individuals may complain, perhaps vigorously or would be normally unacceptable. Under this alternative, noise reduction measures would need to be implemented, such as increased building insulation, removal of windows or curtailment or alteration of aircraft operations during work hours.

4.5 EFFECTS OF ALTERNATIVE E, LEASING SPACE OFF-STATION

4.5.1 EFFECTS ON THREATENED AND ENDANGERED SPECIES

Under this alternative, equipment would be transferred to an existing off-station facility. It is assumed that the Lakewood Industrial Park would be the most suitable location under this alternative. The Lakewood Industrial Park is an existing developed and highly urbanized site. Therefore, impacts to wildlife are not expected.

4.5.2 EFFECTS ON PLANT LIFE

It is assumed that the Lakewood Industrial Park would be the most suitable location under this alternative. The Lakewood Industrial Park is an existing developed and highly urbanized site. Therefore, impacts to plant life are not expected.

4.5.3 EFFECTS ON STORMWATER RUNOFF

It is assumed that adequate stormwater retention was provided by the industrial park at its time of construction under Alternative E. Therefore no project specific adverse effects to stormwater are anticipated under this alternative.

4.5.4 EFFECTS ON ENERGY CONSERVATION

Alternative E requires increased travel between Lakewood and the NAES. This alternative would waste considerable amounts of gasoline associated with this frequent travel.

4.6 INDIRECT EFFECTS OF PROPOSED ALTERNATIVE AND THEIR SIGNIFICANCE

The proposed action of constructing a new API laboratory facility will have an insignificant impact on the neighboring community. The proposed program will not change the number of employees at the NAES and is not expected to have long-term economic impacts on the local community. However, the construction aspects of the proposed action would require the use of small local businesses as subcontractors. This would provide a short-lived economic growth for local business.

4.7 POSSIBLE CONFLICTS BETWEEN THE PROPOSED ACTION AND THE OBJECTIVES OF FEDERAL, REGIONAL, STATE, AND LOCAL LAND USE PLANS, POLICIES AND CONTROLS

The site of the proposed action is within the Research, Development, Test and Evaluation development zone outlined in the NAES's Master Plan. This site is designed for engineering, design, research and development. The construction of the API Laboratory facility will be required to conform with the objectives and specific terms of all applicable Federal, state and local land use plans, policies, and controls for the affected area, including those developed in response to environmental legislation.

1. New Jersey Pinelands Commission Comprehensive Management Plan (CMP)¹¹

The proposed action disturbs over 1500 square feet and would require Pinelands Commission application and approval. The proposed action also requires clearing of approximately 2.4 acres of non-native white pine trees. However, these trees would be replaced by an equal area of native species within ¼ mile of the proposed action site. The proposed site would incorporate native landscaping in accordance with the Pinelands CMP.

2. Ocean County Master Plan

The Ocean County Master Plan places no restrictions on the use of the designated area within NAES.

3. Naval Air Engineering Station Master Plan

The proposed action project is specifically discussed within the 1988 NAES Master Plan. The proposed building corresponds with the planned usage of the site.

The proposed site is located in an area dedicated for Research, Development, Test and Evaluation at the NAES.

4. Executive Order 11988 and 11990, Floodplain and Wetlands

The proposed site is not within a floodplain. No impacts to wetlands will occur. The nearest wetland is 900 feet from the closest edge of the construction zone.

4.8 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

In anticipation of and to increase funding support for this military construction project, six buildings (116, 185, 188, 193, 300 and 329) were demolished prior to 1999, totaling 43,300 square feet. As a result of these demolitions, approximately 3.37 acres of previously paved land have been converted to open grassy fields.

4.9 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF MAN'S ENVIRONMENT AND MAINTENANCE OF LONG-TERM PRODUCTIVITY

Potential for minor unavoidable short-term impacts caused by soil erosion, fugitive dust emissions, construction noise, and associated traffic disruptions. The construction activities and annual operation of the boilers at the proposed facility would not require a formal Conformity Determination because projected emission levels are below *de minimus* criteria. Furthermore, since the annual project-induced emissions do not make up 10 percent or more of the New York, New Jersey and Connecticut metropolitan region's projected emissions from the severe ozone non-attainment region, the emissions from the implementation of the project would not be regionally significant.

The project will not create a long-term net increase in the air emissions resulting from mission activities.

The proposed alternative involves the removal of 2.4 acres of non-native white pine trees. However, impacts will be mitigated through 2001 project that could be amended to plant an additional 2.4 acres of indigenous trees at the NAES to compensate for those lost under the proposed action.

The site of the proposed action was established to conduct similar RDT&E functions. A new API laboratory facility will increase productivity in support of our mission, result in less energy consumption and provide for a safer, more efficient working environment for laboratory employees.

4.10 MEANS TO MITIGATE ADVERSE ENVIRONMENTAL IMPACTS

The proposed new API laboratory building would be situated in an area designated by the NAES's master plan for research and development activities. The building would address stormwater concerns through the installation of two infiltration basins. Although 2.4 acres of non-native trees will be removed, the NAES would mitigate this removal by planting an equal area of native tree species during a planned FY2001 planting project at the NAES.

4.11 PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSED ACTION BE IMPLEMENTED

As the proposed location of the new API laboratory is adjacent to existing roads, buildings and abandoned taxiways, no long-term adverse ecological effects are predicted. The addition of 3.15 acres of impervious cover in the area would increase stormwater runoff in the area. However, this would be mitigated through properly designed stormwater retention basins. Also, six previous building demolitions at the NAES conducted in anticipation of the P-208 project have resulted in 3.37 acres of open grassy space.

5.0 LIST OF CONTRIBUTORS

Name	Contributions	Degree(s)	Years of Experience
Dorothy S. Peterson, P.E., Environmental Engineer	Writer/Editor, Hydrology, National Priority Sites.	B.S. Engineering M.S. Engineering Management P.E. Environmental Engineering	9 years, environmental engineering
Lucy S. Bottomley, P.E. Supervisory Environmental Engineer	Hydrology, Stormwater, Soils, Air Quality, Team Leader	B.S. Mechanical Engineering P.E. Mechanical Engineering	20 years, environmental engineering
John Joyce, Natural Resources Manager	Natural resources, Forestry, Threatened and Endangered Species, Wetlands, Archeological sensitivity.	B.S. Recreation and Park Management	21 years, forestry, fish & wildlife, and natural resources management
Frank Crowe, P.E., Facility Management	Facilities, planning, economic analysis, historic and cultural resources.	B.S. Civil Engineering P.E. Civil Engineering	20 years, civil/planning
Gordon Mason, Occupational Safety and Health (OSH) Specialist	Industrial hygiene, occupational safety and health.	B.A. Public Administration M.S. Systems Management	14 years, OSH
Leander McClain, Program Manager	Mission and laboratory functions.	B.S. Mechanical Engineering MBA	11 years, Aircraft Platform Interface

Location of the Naval Air Engineering Station Lakehurst, New Jersey

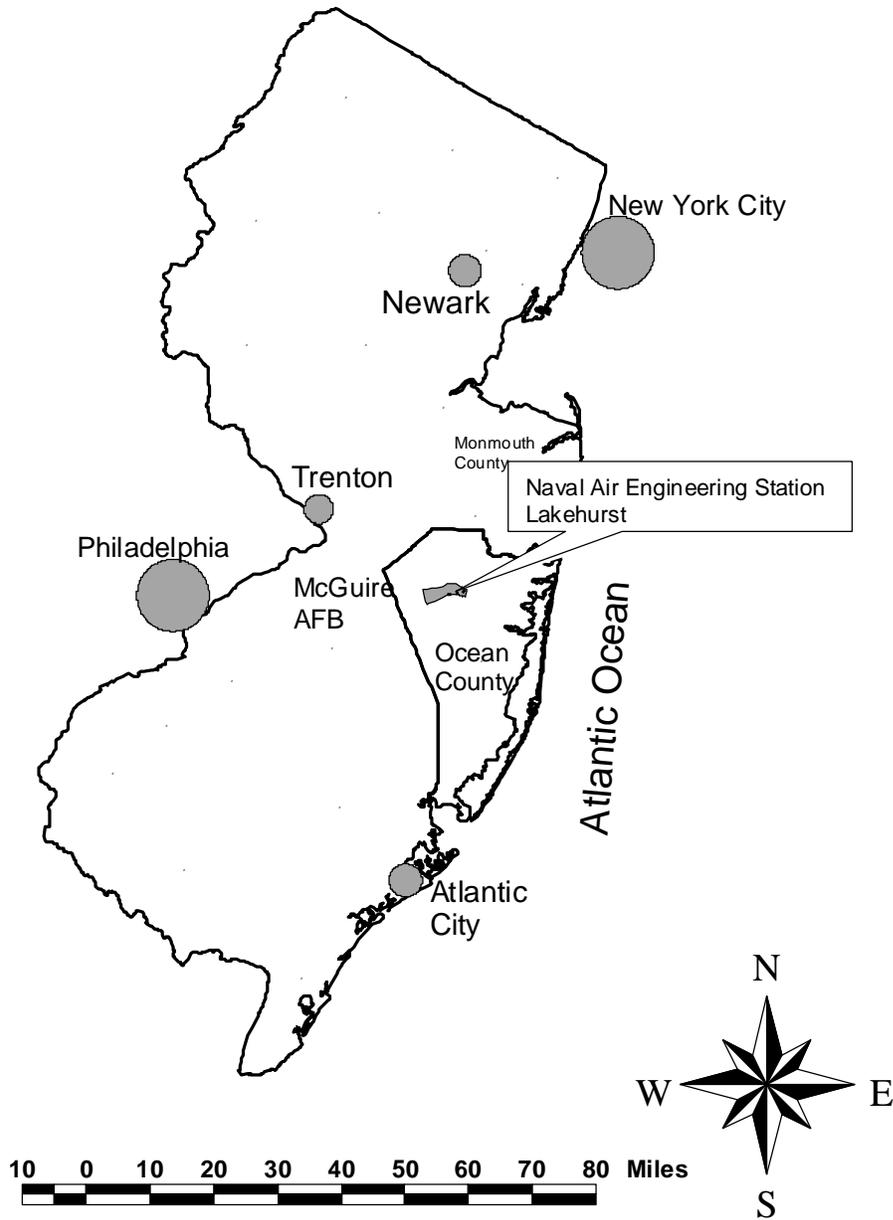


Figure 1

Naval Air Engineering Station Surrounding Community

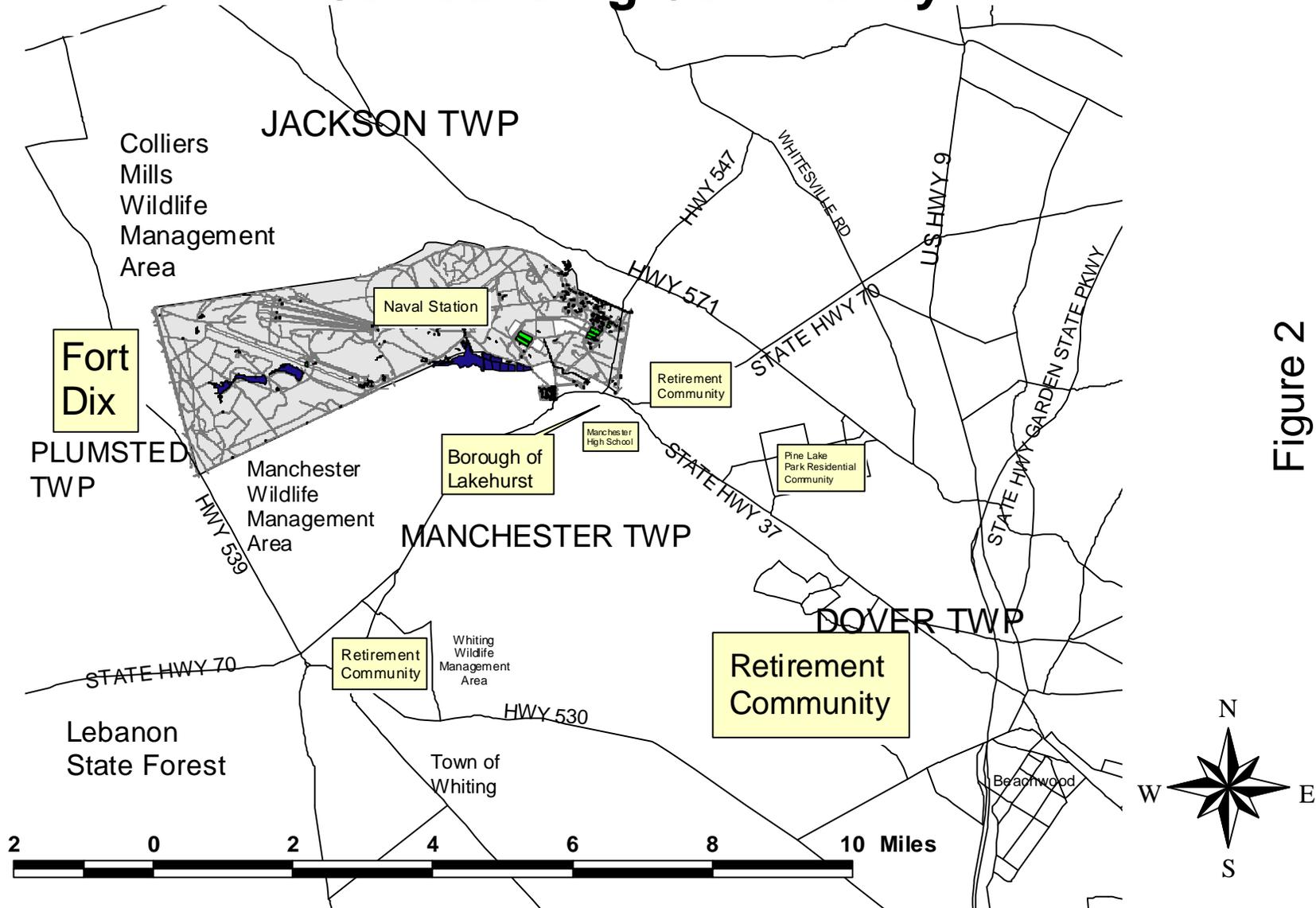


Figure 2

Location of Existing R&D Functions at NAES

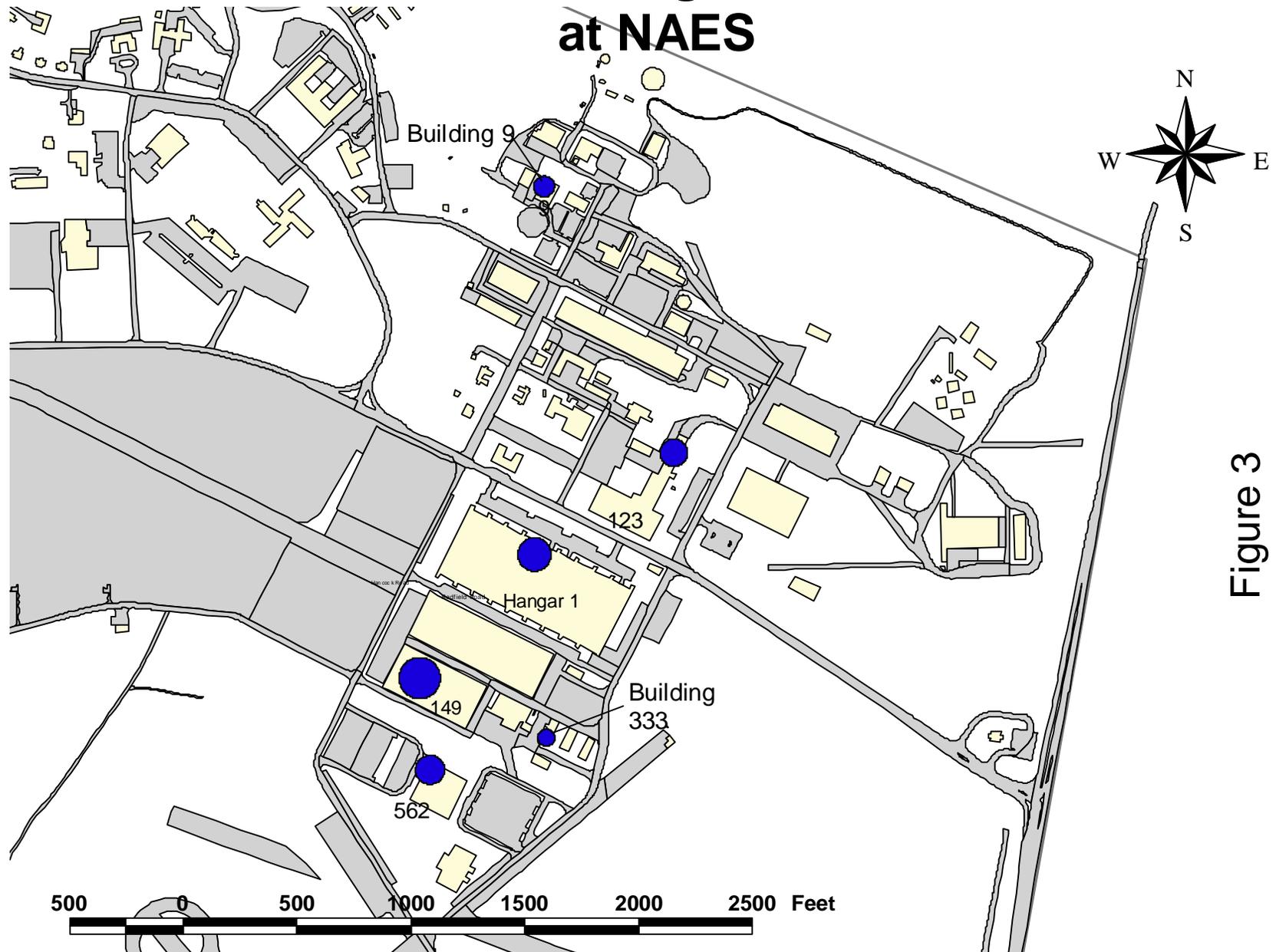


Figure 3

Proposed Alternative, Site Layout

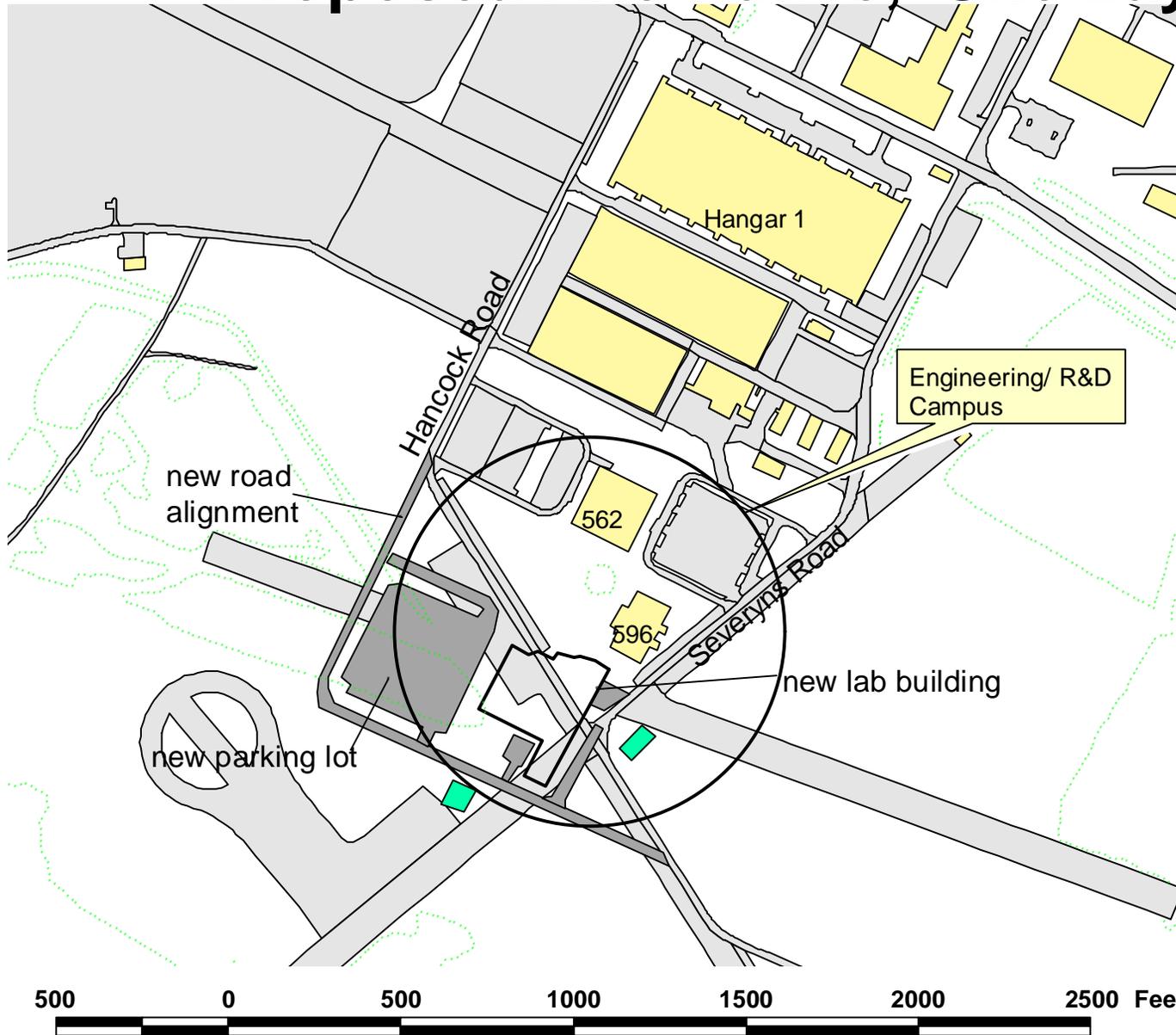
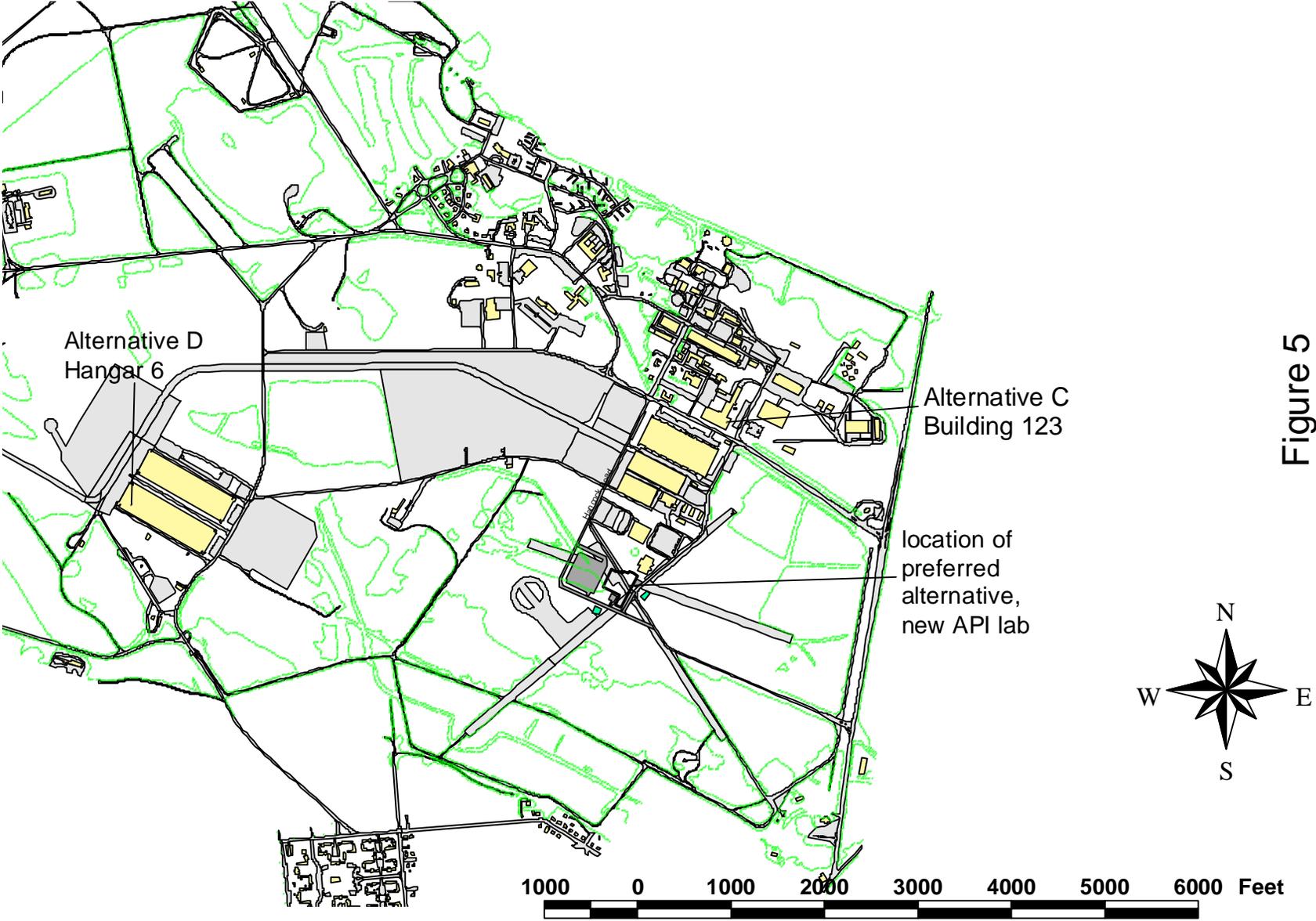


Figure 4

Locations of Alternatives B, C and D



Location of Alternative D Leasing Space Off-Station

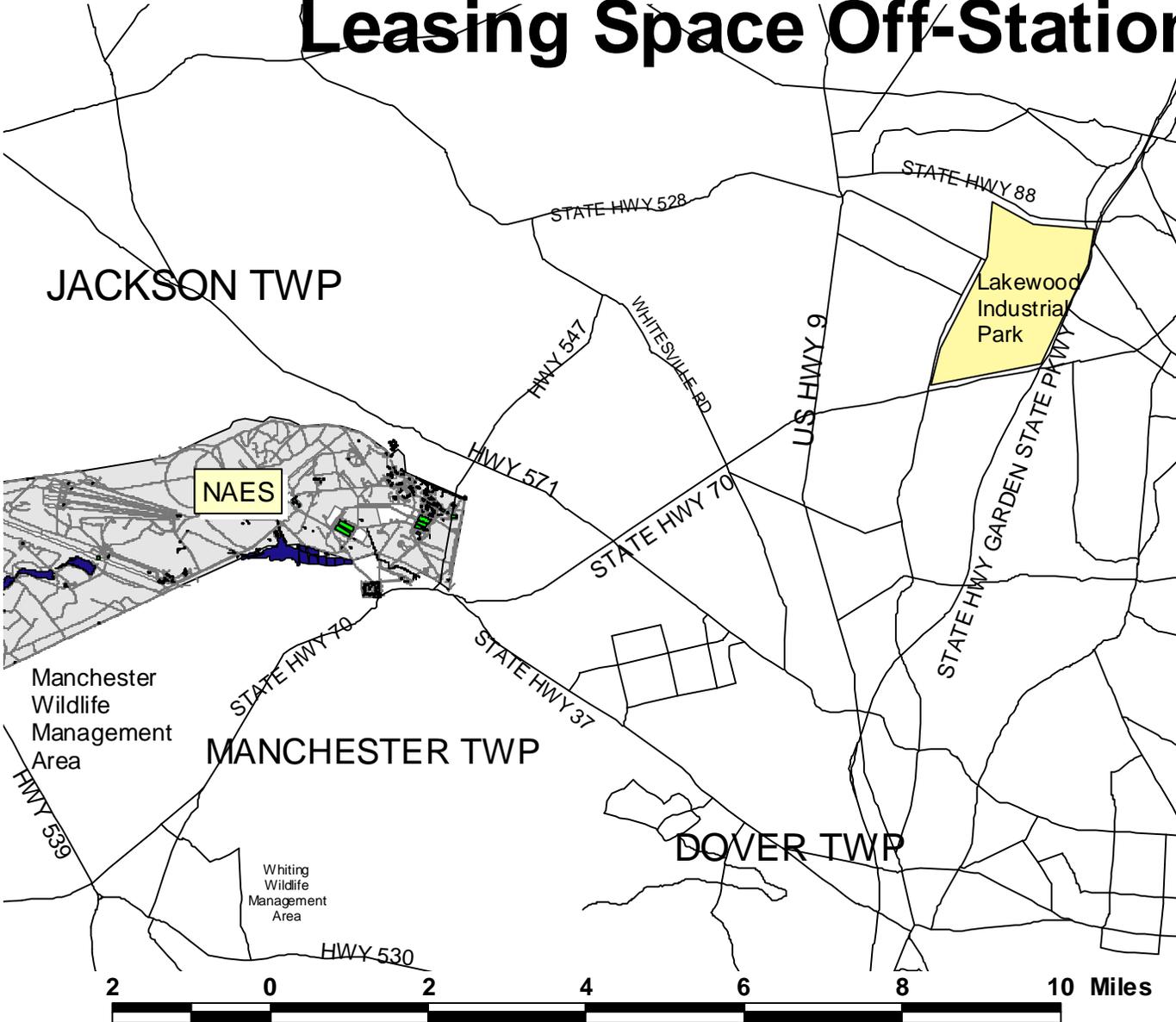
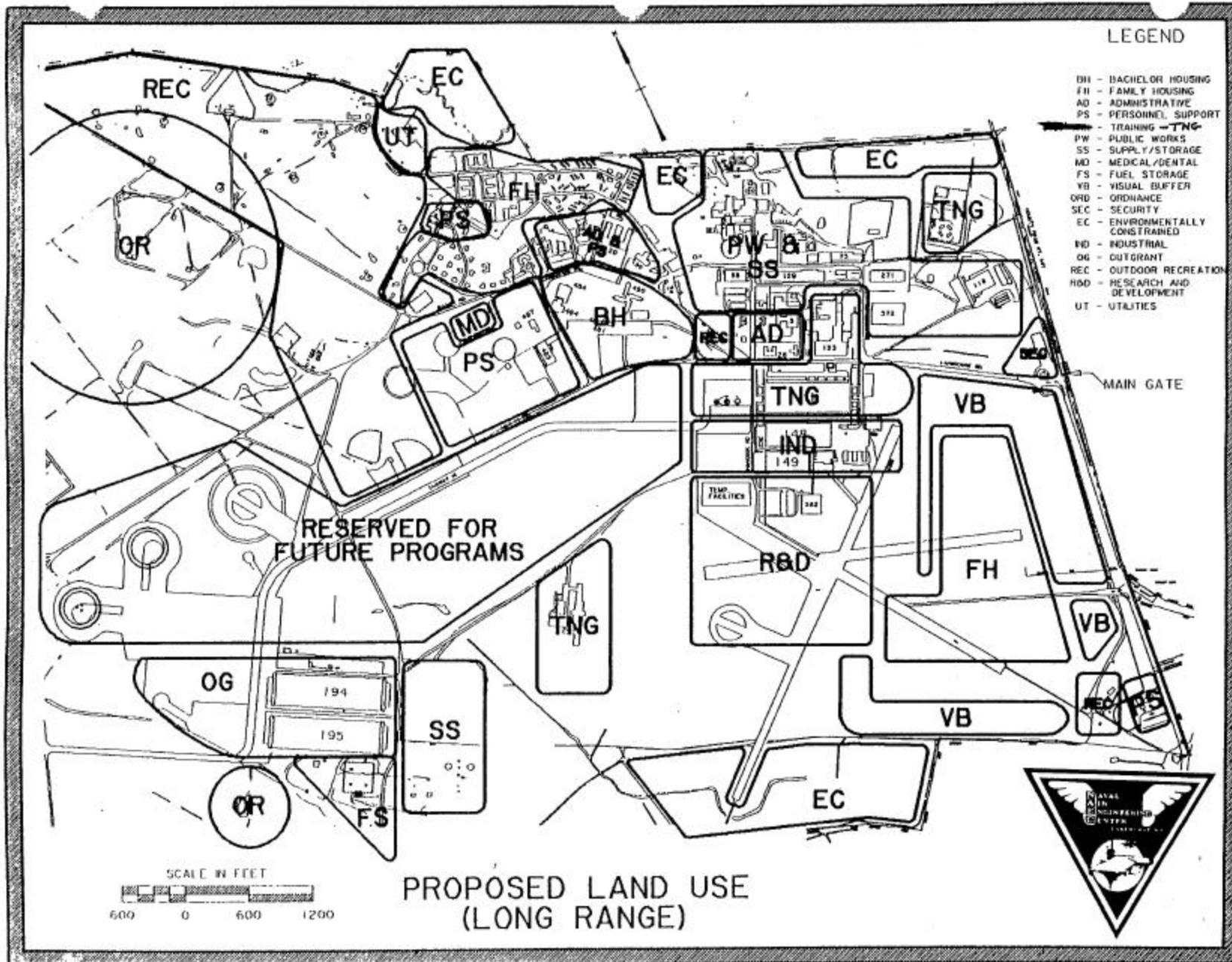


Figure 6

Figure 7



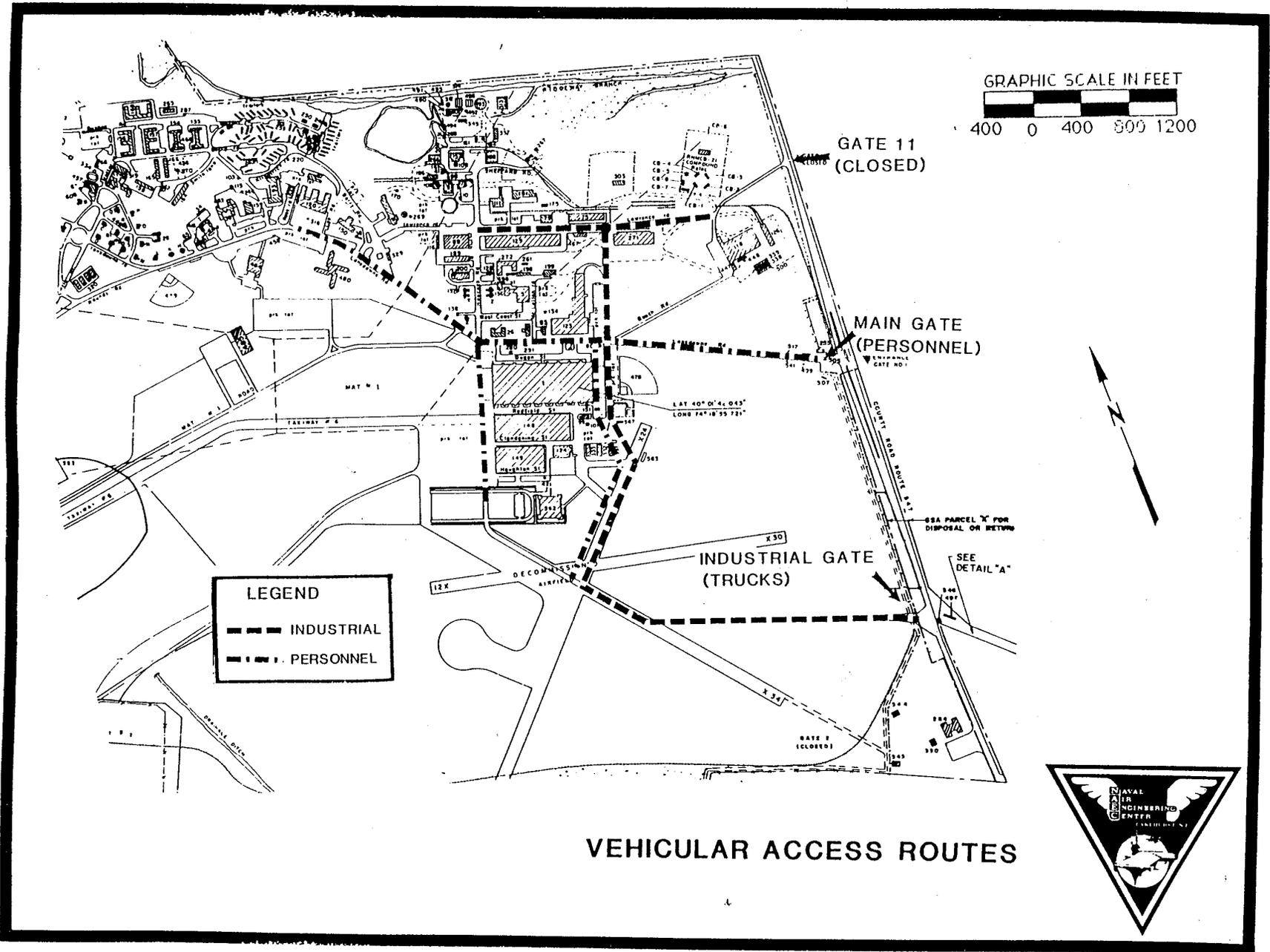


Figure 8

Tree Removal under Proposed Alternative

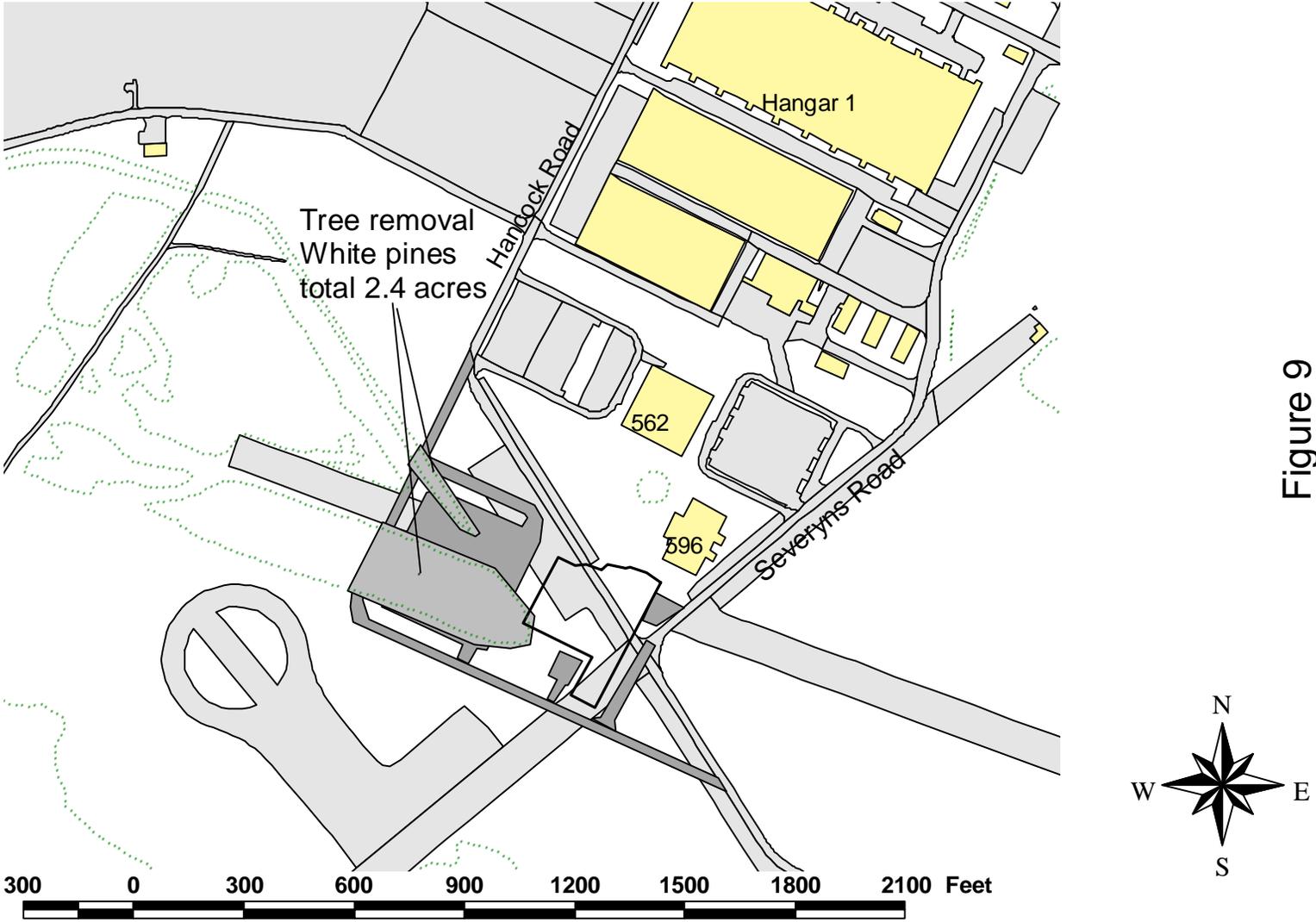


Figure 9

Grassland Bird Survey Results, 1999

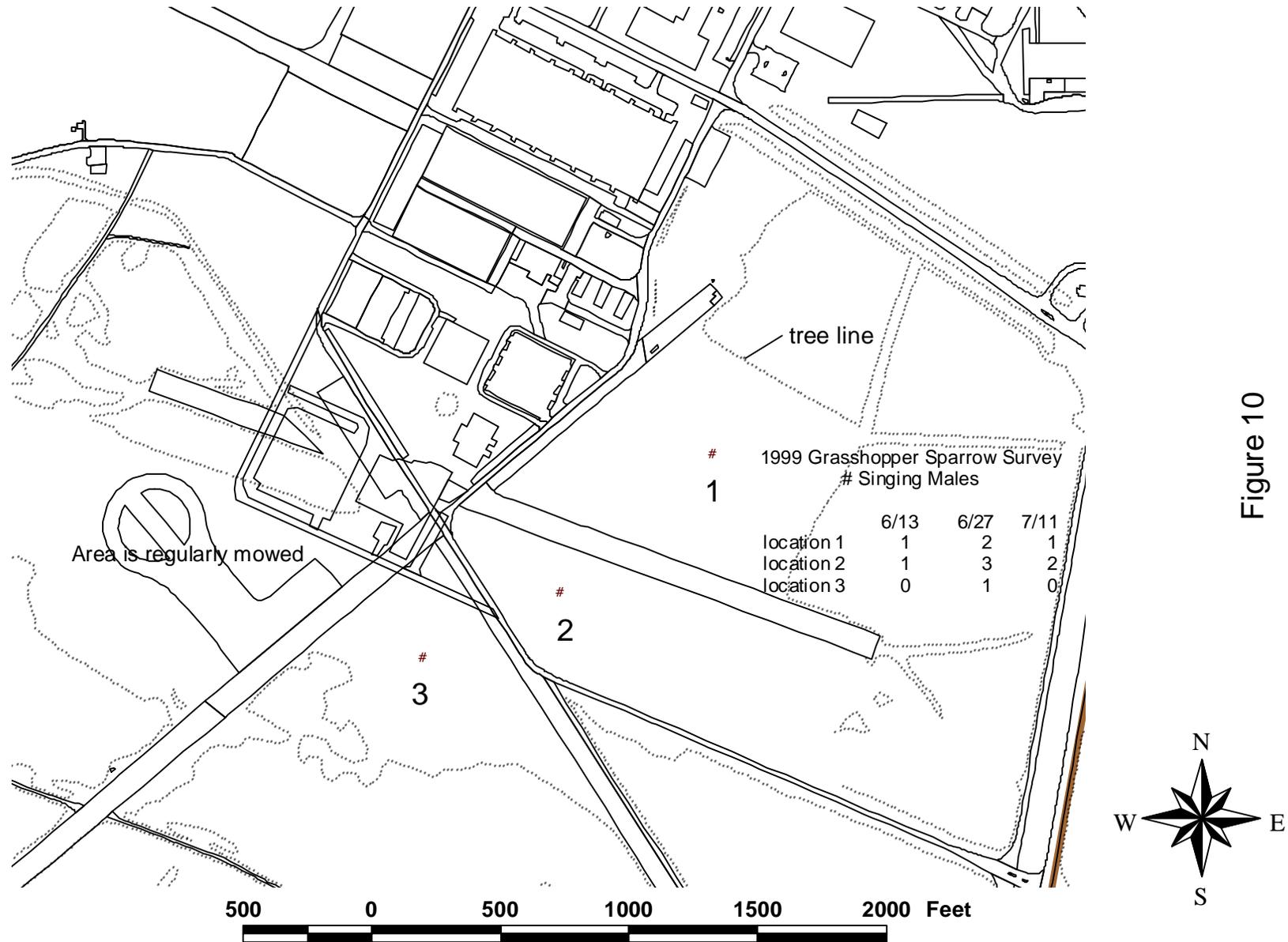


Figure 10

Topography of Proposed Alternative Site

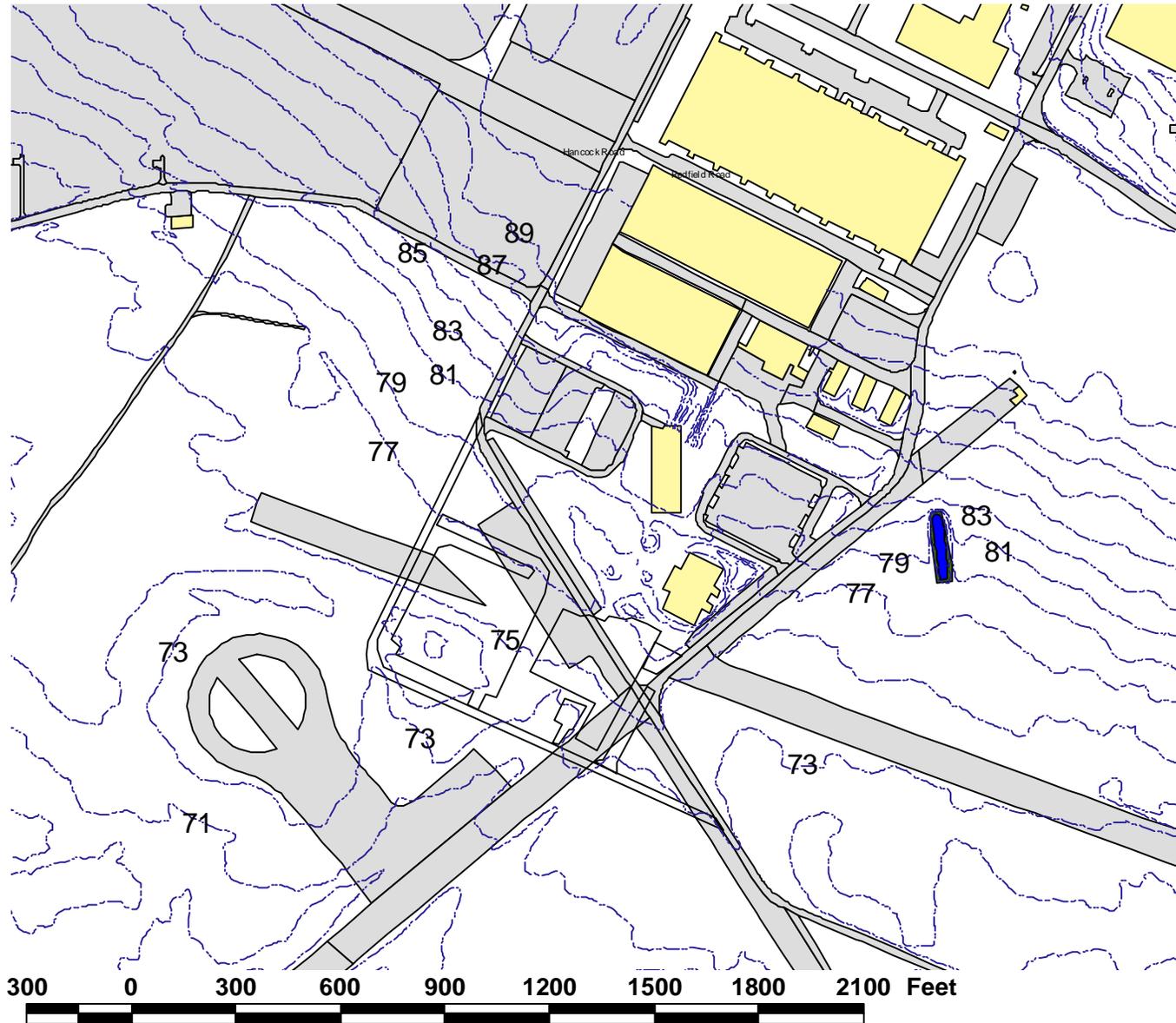
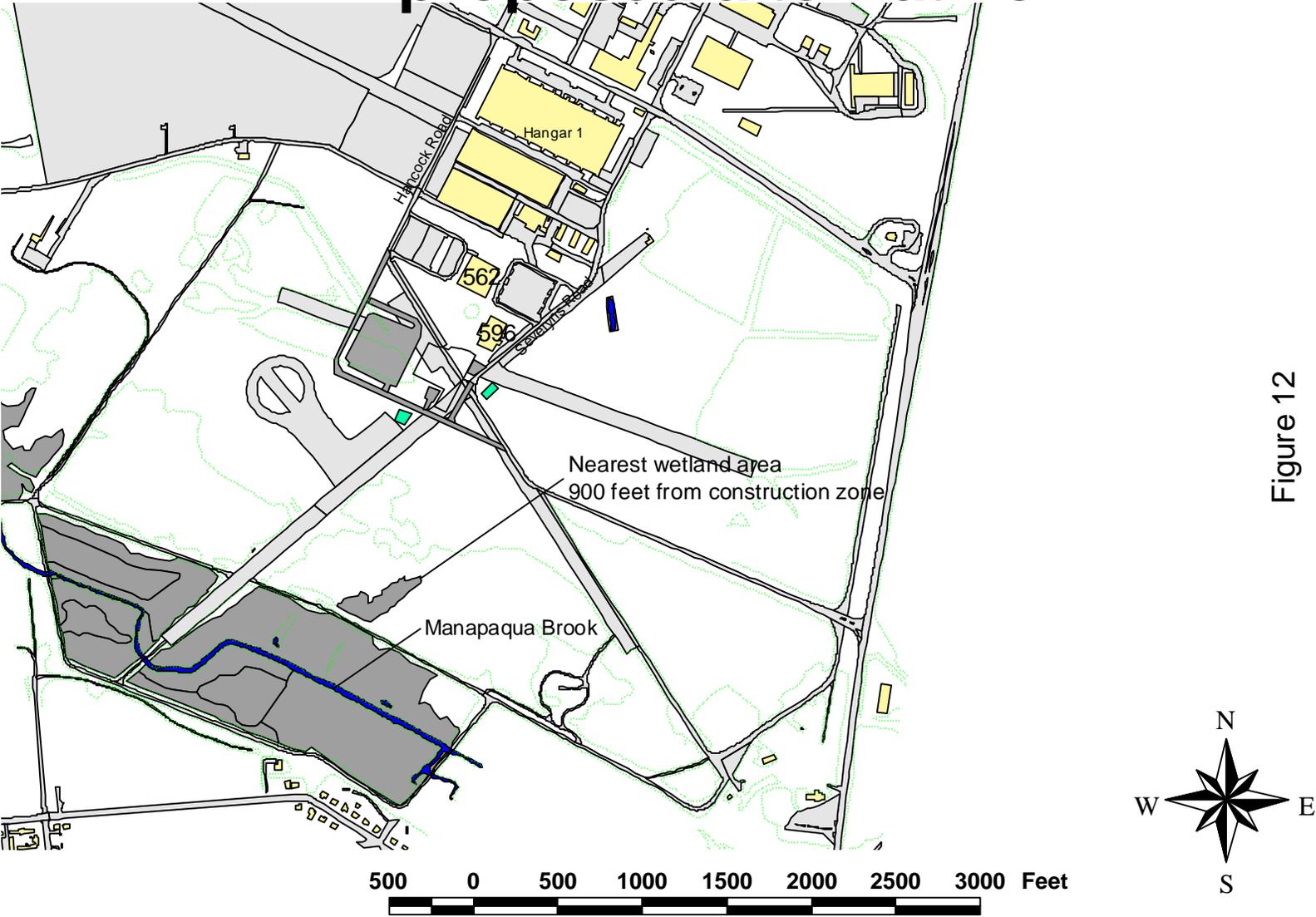


Figure 11

Proximity to wetlands to area of proposed alternative



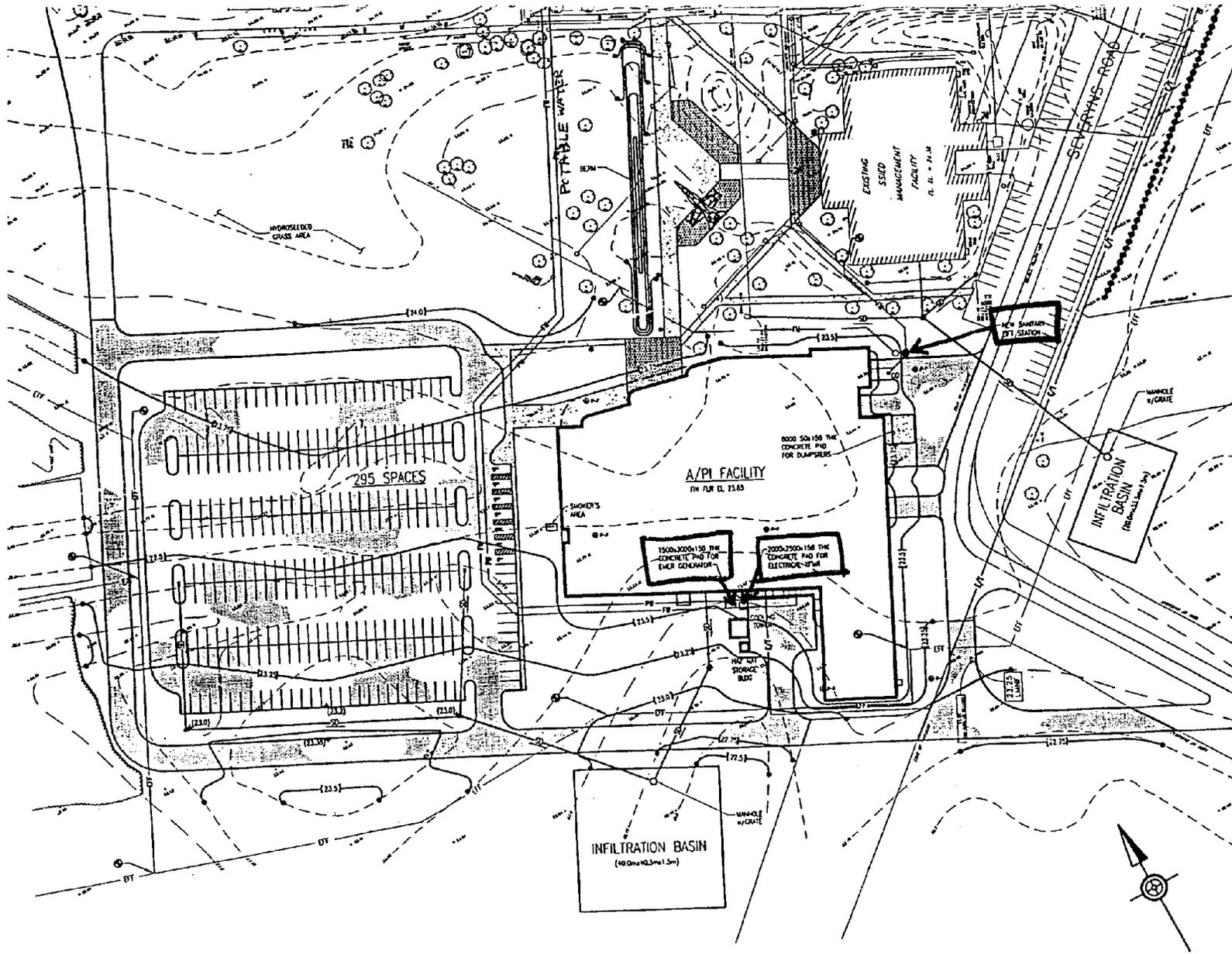


Figure 13 – Preferred Alternative, Utility Drawing (Preliminary) SITE PLAN

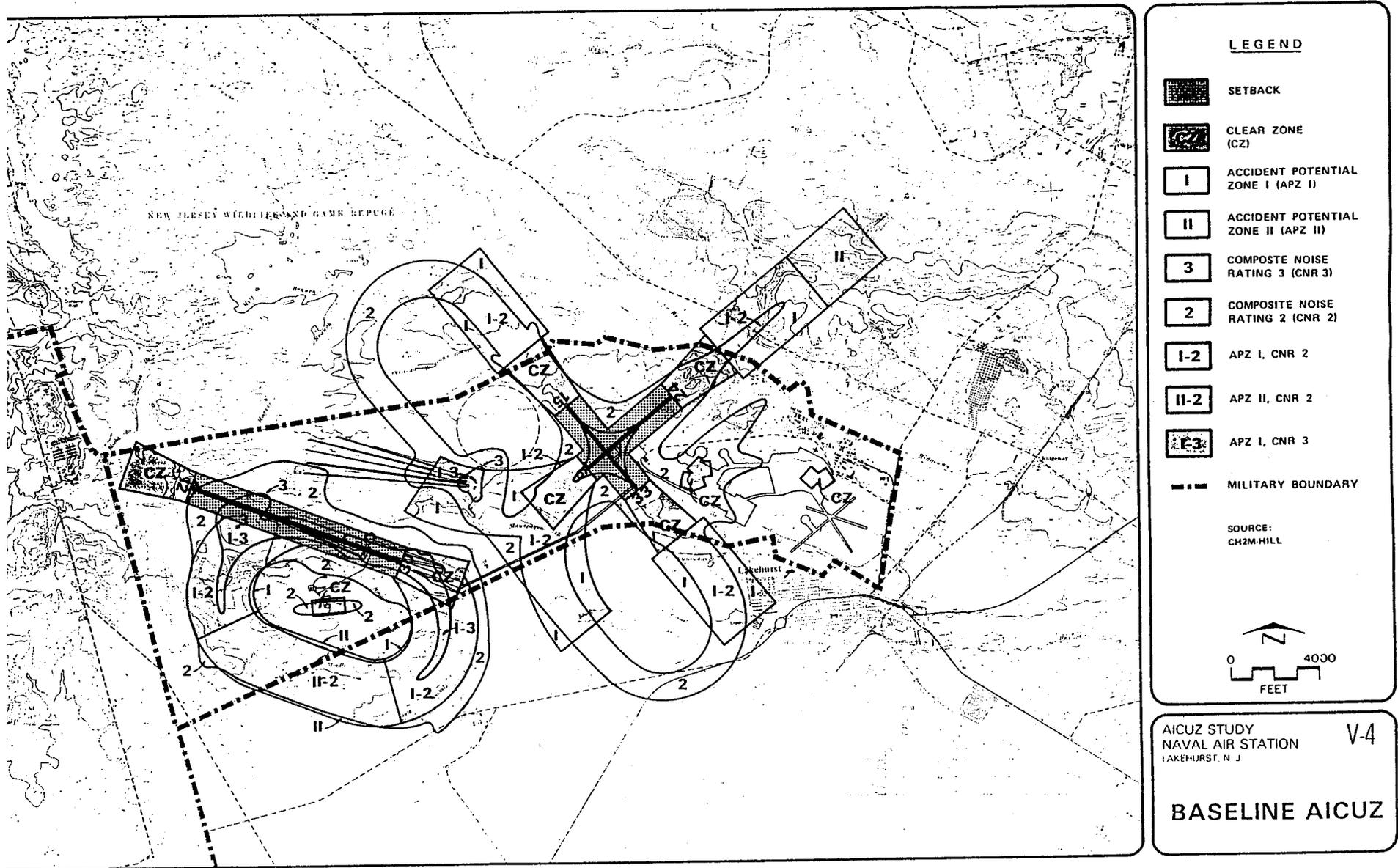


Figure 14

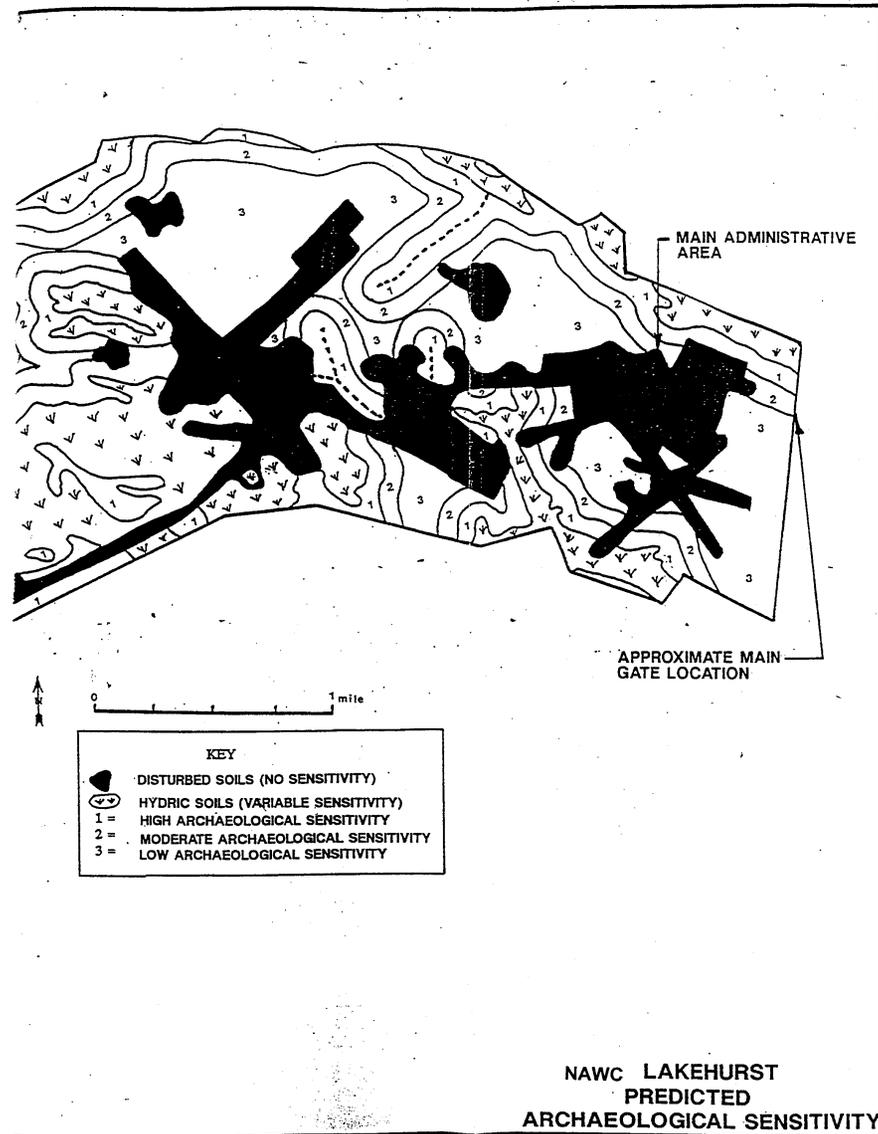


Figure 15

Existing impervious cover removed under proposed alternative

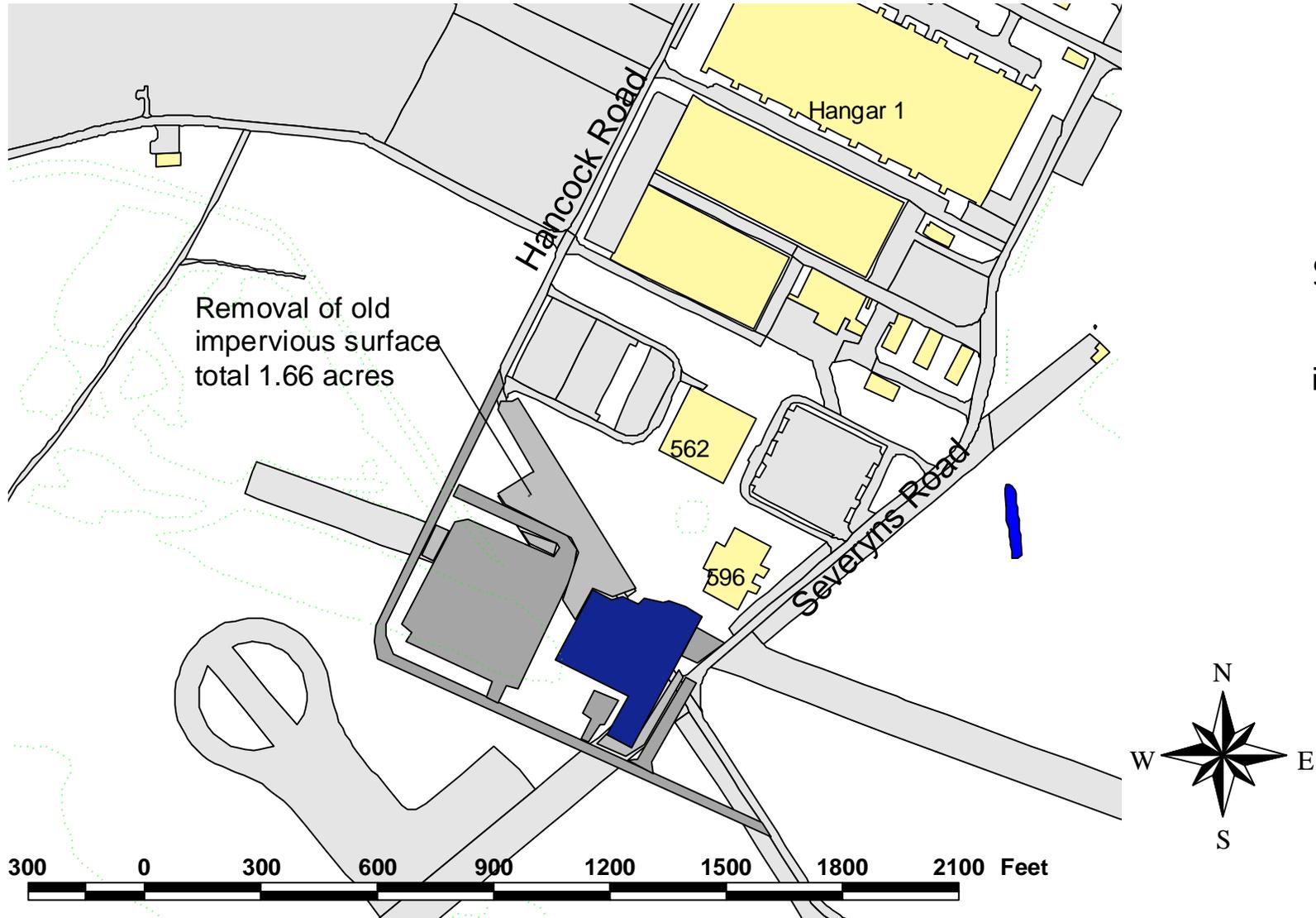


Figure 16

New impervious cover calculations

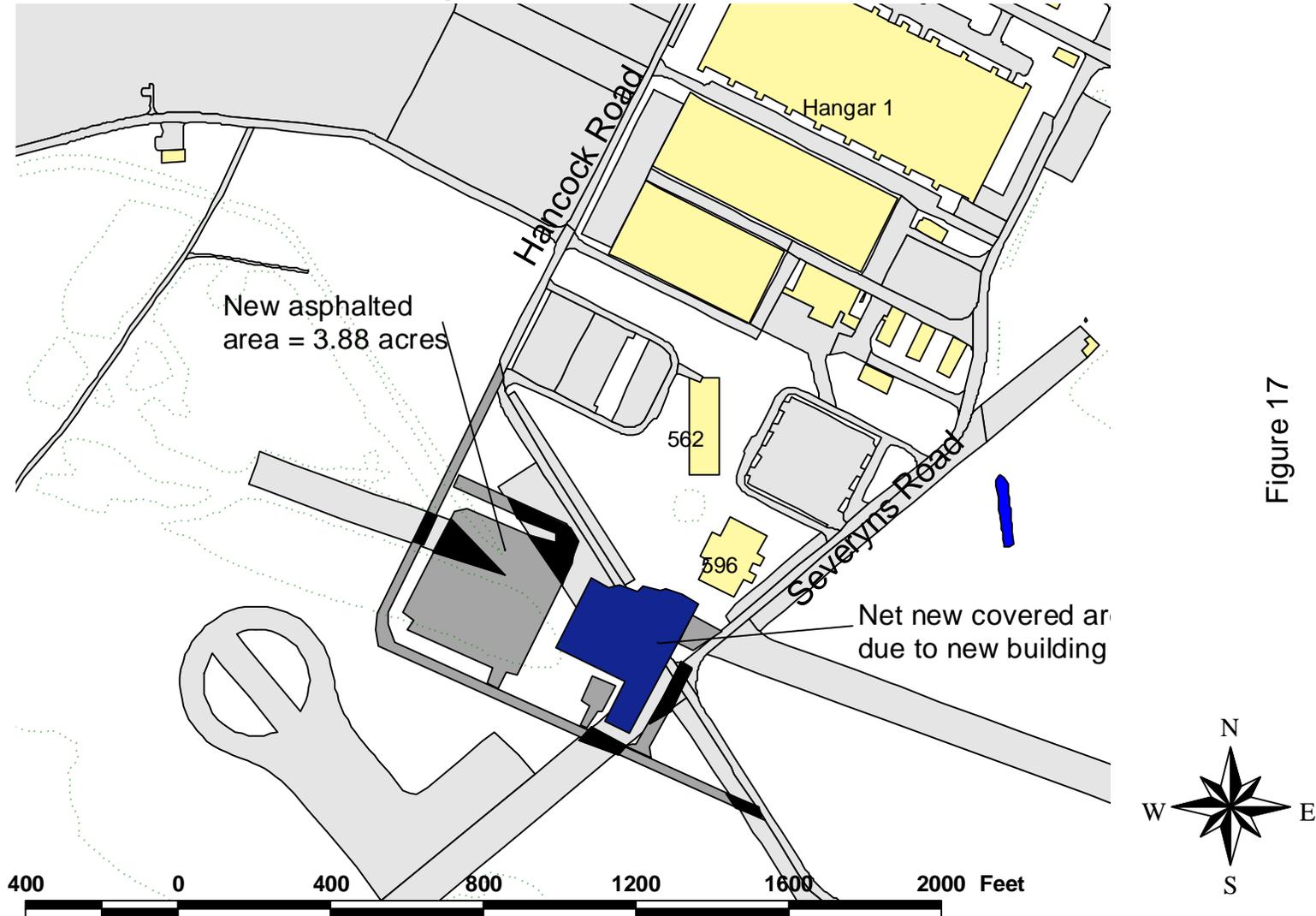


Figure 17

6.0 REFERENCES

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¹¹ New Jersey Pinelands Comprehensive Management Plan