

DESIGN CONCEPTS

Activity and Location: Marine Corps Base, Camp Lejeune, NC
Project Title: Field Maintenance Shop
Date: October 1, 1986

USE OF DEFINITIVES AND PREVIOUS DESIGNS

The design of this facility was developed around a schematic plan provided by the user group and the drawings of similar facilities (P-517 and P-240) in the French Creek Area. Design modifications reflect changes discussed in the pre-design conference, February 2, 1986, with the user group and additional adjustments necessary to accommodate functional criteria.

SPECIAL DESIGN CHARACTERISTICS

A two post (24,000 lb.) hydraulic vehicle lift will be required for vehicle servicing.

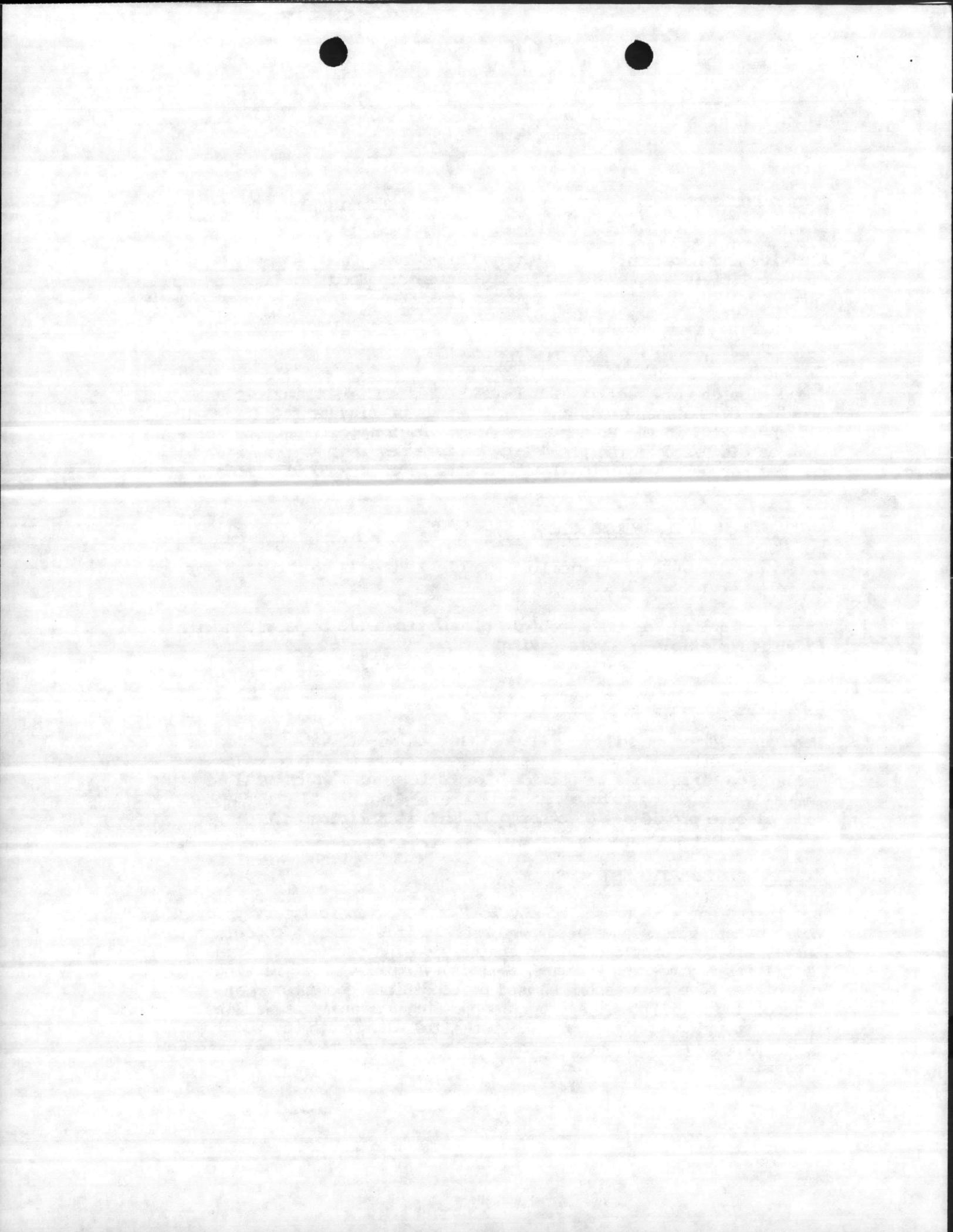
Areas designated for track vehicle circulation will be provided with 6,500 PSI flexible concrete paving.

POLLUTION ABATEMENT ASPECTS OF DESIGN

Wash apron drainage will be filtered through an oil water separator prior to discharge into the storm drainage system. A fiberglass collection barrel will be provided for battery acid which will be manually drained by maintenance personnel. A waste oil storage tank will also be provided. No other pollution is anticipated.

SPECIAL ENGINEERING SERVICES

Due to current site usage, no physical or topographical surveys or soil investigations have been performed at this time. A topographical survey has been provided for preliminary design purposes by Naval Facilities Engineering Command, Norfolk, Virginia. Soil bearing capacities have been assumed based on conditions encountered at neighboring facilities. Appropriate testing and analysis will be performed prior to the final 100% submittal along with any required adjustments to design assumptions. A computerized mechanical systems analysis was also performed.



ENERGY CONSERVATION

1. Solar Energy:

In view of recent past studies for active solar utilization at this location which clearly indicated Solar Energy not to be feasible, solar was not studied for this specific project.

2. Meters:

Metering of primary energy sources is not included in the project.

3. Energy Monitoring and Control Systems (EMCS):

EMCS has not been discussed with base personnel. Engineer will discuss requirements with base engineers and design controller and EMCS as required.

4. Energy Conservation:

- A. Steam is available at the site. Because previous economic analyses have proven the use of steam for this type project to be the most economical heat source and because of the simplicity of the HVAC system, an economic analyze has not been performed for this project.
- B. The following energy conservation measures will be incorporated in the HVAC system design:
 - a. Night set back for heating cycle.
 - b. Dead band thermostats with 78 degrees summer and 68 degrees winter setting.
 - c. Outdoor reset controls on hot water system.
 - d. De-energize heating system above 65 degrees fahrenheit outside temperature.
 - e. Provide time program control for occupied and unoccupied cycles (time clock).
- C. The Building Category Codes for this building are 210 Maintenance Facilities and 610 Administrative Building. The total allowed energy budget is 1,462,350 MBTU. Total energy used per attached is 1,245,242 MBTU.



BUILDING ENERGY BUDGET

1. ALLOWED MBTU

BUILDING AREA	BUDGET	SQ FT	MBTU/YR
SHOPS, STOR, TLTS, ETC	85	14910	1267350
ADMINISTRATIVE AREA	50	3900	195000
			1462350

2. ENERGY USE

SERVICE	KWH	GAL OIL	MBTU/YR
LIGHTS (INSIDE)	72050		245980
LIGHTS (OUTSIDE)	16700		57015
AIR CONDITIONING	9680		33050
HEATING		3809	528310
Htg/AC FANS	4322		14760
SUMMER VENTILATION			17605
WATER HTR (DOMESTIC)			68722
WATER HTR (RACKS)			279800
			1245242

