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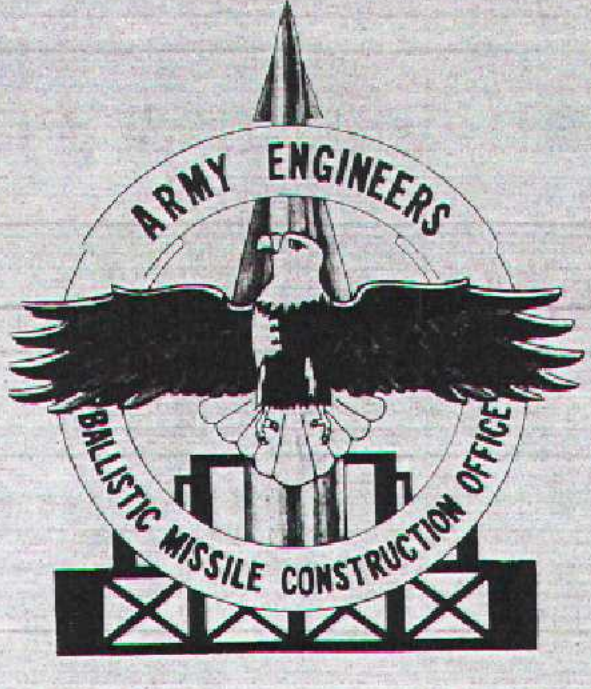
U. S. ARMY CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE
LOS ANGELES, CALIFORNIA

C E B M C O

HISTORICAL SUMMARY REPORT
OF
MAJOR ICBM CONSTRUCTION

BOOK I



LINCOLN AREA

ATLAS "F"

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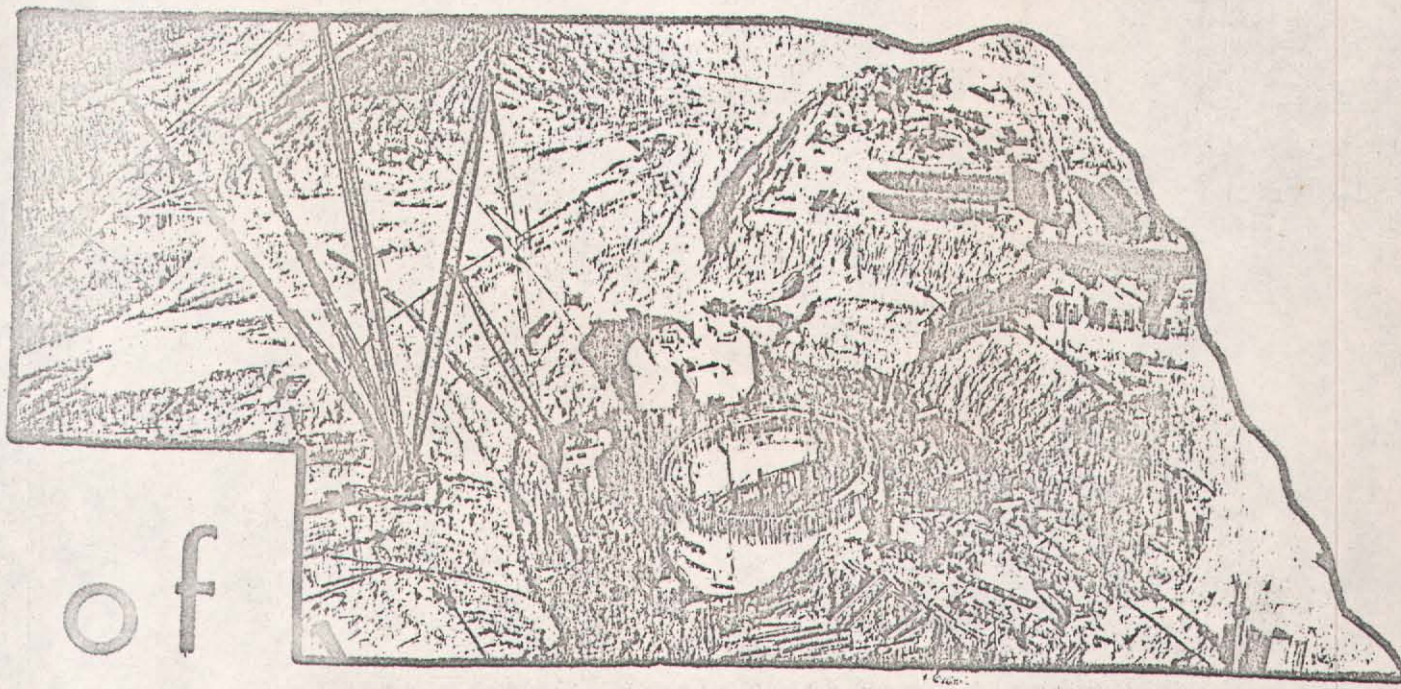
AMC BALLISTIC MISSILES CENTER

ARMY ENGINEERS
BALLISTIC MISSILE CONSTRUCTION CENTER

ATLAS



of

VOLUME ONE

NEBRASKA

AREA ENGINEER, LINCOLN
U. S. ARMY, CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE
P. O. BOX 953
LINCOLN, NEBRASKA

31 March 1962

HISTORICAL SUMMARY REPORT OF MAJOR ICBM CONSTRUCTION

12 ATLAS "F" ICBM COMPLEXES

and

SUPPORT FACILITIES

LESTER J. HENDERSON
Lt. Colonel, Corps of Engineers
Area Engineer

LT. COLONEL LESTER J. HENDERSON
Area Engineer
Lincoln Area Office

FOREWARD

This historical summary gives a resume of the construction and contractual activities associated with this mult-million dollar ICBM project. It also includes some of the technical aspects of the design.

The photographs, with brief description, should tell the story quite rapidly to anyone who does not have the time to spend hours at reading many of the pages of editorial material.

The documentations included should be of interest to anyone who is interested in the evaluation of a project prior to its actual design, during its concurring design and construction period and the successful completion.

GENERAL COMMENTS

For convenience in handling, because of the nature of the binding of the Historical Summary, this document is in four volumes.

Volume One covers Parts I thru VII

Volume Two covers Parts VIII thru XIII

Volume Three covers the Annexes in support of the first two volumes

Volume Four is a newspaper documentation of information which was provided to the public. It is submitted as a source for background information. These news items do not necessarily reflect the opinion or the concurrence of this Lincoln Area Office.

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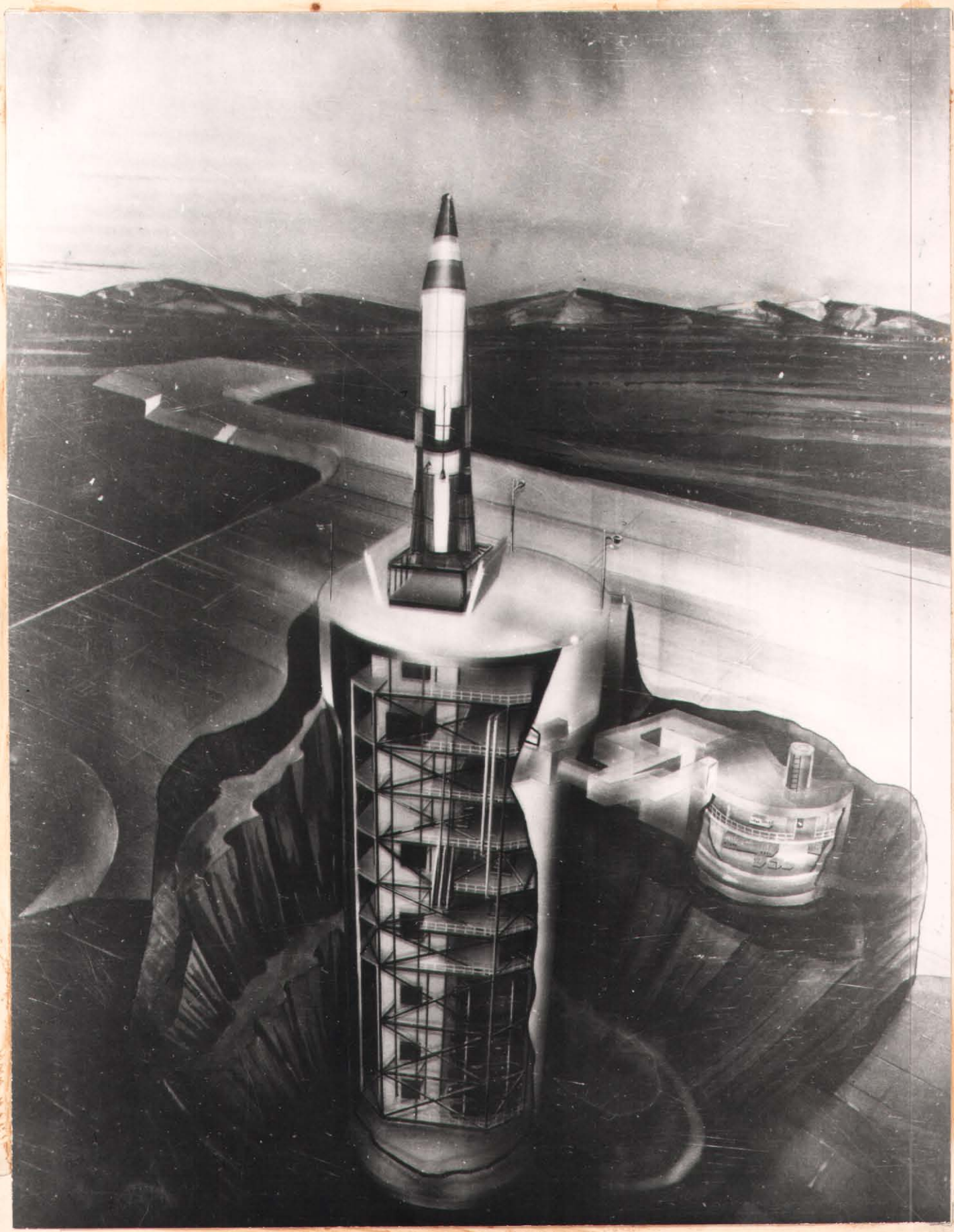

PART I

SECTION 1

Mission and Authority for Lincoln Area Office, CEBMCO

SECTION 2

Background of Atlas "F" ICBM Facilities Construction

SECTION 3

Background of Lincoln Squadron and Support Facilities

SECTION 4

Resume of Publicly Documented Events, Activities and Opinions Related to ICBM Program in Lincoln Area

Mission:

The mission of the Lincoln Area Office of the Corps of Engineers Ballistic Missile Construction Office was to insure the prompt and expeditious construction of twelve Atlas F ICBM Missile Complexes and supporting facilities to meet the need dates of the Air Force, all in conformance with plans and specifications.

AUTHORITY

General Order No. 21, Headquarters, Department of Army, OCE, dated 2 August 1960 established the Corps of Engineers Ballistic Missile Construction Office (CEBMCO) and gave to the Commanding General, CEBMCO, the mission of directing that portion of the Air Force Ballistic Missile program assigned to the Corps of Engineers. Refer to copies of order and letter on following pages regarding authority and mission:

Lt. General E. C. Itschner's letter of 24 August 1960 to Brig. General A. C. Welling.

Headquarters, Department of the Army General Orders 21 dated 2 August 1960 redesignating the Los Angeles Field Office, Military Construction OCE to that of Corps of Engineers Ballistic Missile Construction Office (CEBMCO).

Colonel W. W. Wilson, Acting Director of Atlas F Construction Directorate letter of 24 October 1960 regarding transferral from Los Angeles Area Office to CEBMCO.

Colonel W. W. Wilson, Director, Atlas F Construction Directorate letter 3 July 1961 regarding the mission of the CEBMCO organization.

Authority of Contracting Officers Representative - See Annex N.

Policy of Surveillance by Integrating Contractor Pre-BCO Facility Construction - See Annex O.

HEADQUARTERS
DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON 25, D. C.

IN REPLY REFER TO
ENGCE

24 August 1960

Brigadier General A. C. Welling
Commanding General, CEBMCO
Air Force Unit Post Office
Los Angeles 45, California

Dear Al:

In the ballistic missile site activation program the Corps of Engineers is a part of the Department of Defense team charged with providing for the United States a substantial operational ICBM capability within the shortest possible time. Time is so important that we must never lose sight of it as the principal guide for our actions while assuring sound and functional construction.

For this reason the Corps' responsibility for ballistic missile base construction far transcends our normal supervisory function of assuring that construction contractors adhere to plans and specifications. In the ICBM program we are not merely inspectors or checkers of the work, armed with the authority of the various penalty provisions of the contracts to enforce compliance without serious worry over timely completion.

Instead, our Division, District and Area Engineers must assume a role of positive leadership and direction. They must make sure that the contractor supplying the operating and managing responsibility will assure that construction progresses expeditiously and properly. They must satisfy themselves that the contractor is organized and manned properly for both construction and supply to continuously keep on or ahead of a very tight schedule. They must be satisfied by repeated inquiry and inspection that timely planning is accomplished and necessary advance actions are taken to keep the work on schedule. Once it falls behind, it is virtually impossible to regain lost time. In determining the status of a contract, more weight should be given to the degree of completion of the sequence of critical phases of the work which pace progress, rather than estimates of the value of work completed.

I desire that you make certain that your people understand clearly the necessity for the Corps of Engineers to exercise the highest degree of initiative, diligence and force in supervising the portion of the ICBM site activation program which is a Corps' responsibility.

Sincerely,

E. C. Itschner

E. C. ITSCHNER
Lieutenant General, USA
Chief of Engineers

(G. O. NO. 21)
HEADQUARTERS
DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON 25, D. C.

GENERAL ORDERS)
NO. 21)

2 August 1960

SUBJECT: Establishment of the Corps of Engineers Ballistic Missile Construction Office

1. Effective 1 August 1960, the Los Angeles Field Office, Military Construction, Office of the Chief of Engineers, TD 05-2407, is redesignated the Corps of Engineers Ballistic Missile Construction Office, TD 05-2407, a separate Class II activity under the direct command of the Chief of Engineers. The mission of this activity is to direct that portion of the Air Force Ballistic Missile Program assigned to the Corps of Engineers.

2. The District Engineer, U. S. Army Engineer District, Los Angeles, will provide necessary administrative support for the Corps of Engineers Ballistic Missile Construction Office.

3. General Orders No. 7, 15 July 1959, Office of the Chief of Engineers, is rescinded.

FOR THE CHIEF OF ENGINEERS:

W. P. LEBER
Colonel, Corps of Engineers
Executive

COPY

HEADQUARTERS
DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON 25, D. C.

ENGEX

2 August 1960

SUBJECT: Construction of Air Force ICBM Facilities

TO: Commanding General
Corps of Engineers Ballistic
Missile Construction Office
Los Angeles 45, California

1. General Orders No. 21, Hq D/A, OCE, dated 2 August 1960, establish the Corps of Engineers Ballistic Missile Construction Office (CEBMCO), and give you, as CG, CEBMCO, the mission of directing that portion of the Air Force Ballistic Missile Program assigned to the Corps of Engineers. This mission will be implemented as follows: (See Inclosure #1 for list of operational bases).

a. Atlas D & E operational bases:

You will direct this program through Division and District Engineers now responsible for projects, using direct channel to area engineers for coordination and technical control.

b. Atlas F & Titan I operational bases:

You will take over direct administration of contracts by having successor contracting officers designated in CEBMCO and by assuming direct command of area engineers as soon as possible.

c. Titan II & Minuteman operational bases:

You will have contracting officers designated in CEBMCO to award all contracts. You will have direct command of area engineers when established.

d. Patrick, Edwards & Vandenberg AFBs:

You will direct program through District Engineers, with information to Division Engineers concerned.

COPY

ENGEX 2 August 1960
SUBJECT: Construction of Air Force ICBM Facilities

2. Division and District Engineers are being instructed to continue to supervise the Area Engineers' operations and perform all existing contract administration and support functions until CEBMCO is organized and staffed to assume these functions. Pending your assumption of command of individual areas, Division and District Engineers will not transfer personnel from area offices without your concurrence for civilian personnel, and OCE for military personnel.

3. After coordination with Division Engineers concerned you will recommend to the Chief of Engineers your plan of operation and support and specific dates for transfer of contractual, fiscal, personnel and organizational responsibilities to your office. The Chief of Engineers will publish orders effecting such transfers.

4. After CEBMCO becomes fully operational, Division and District Engineers will perform such support functions as you require of them. Division Engineers have been instructed to submit to you by 15 August 1960 specific recommendations on the support which their Divisions and Districts should continue to give to Area Engineers in the ICBM Construction Program. These recommendations should cover all matters including fiscal, engineering, operations and administration.

5. Personnel remaining in Area Engineers offices will continue to have Reduction-in-Force rights in their present Districts. All others transferring to CEBMCO will have administrative re-employment rights. Separate letter will be issued covering personnel details.

/s/ E. C. Itschner
E. C. ITSCHNER
Lieutenant General, USA
Chief of Engineers

1 Incl
as

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS BALLISTIC MISSILE CONSTRUCTION OFFICE
9510 BELLANCA AVENUE
LOS ANGELES 45, CALIFORNIA

IN REPLY REFER TO ENGMA-ABO

24 October 1960

SUBJECT: Transfer of Construction of Atlas F Operational Base, Lincoln

TO: Area Engineer
U. S. Army Engineer Area, Lincoln
Lincoln, Nebraska

1. Upon transfer of construction operations responsibility from the New York District on 30 September 1960 and the District Engineer, Omaha, on 15 October 1960, to the Commanding General, Corps of Engineers Ballistic Missile Construction Office, I assumed command of the Area Engineers, Atlas F, at Plattsburgh, New York, and Lincoln, Nebraska.

2. These transfers were the first of a series of such actions which will place under the Atlas F Construction Directorate direct charge of and contracting officer responsibility for all Atlas F operational bases.

3. So that you may be fully informed, the proposed program for the transfer of the remaining Atlas F construction projects is:

Schilling	25 October 1960
Altus	4 November 1960
Dyess	15 November 1960
Walker	22 November 1960

4. The purpose of the new command arrangements is to insure:

a. An extremely urgent prosecution of the Atlas F construction program.

b. Efficient, uniform control of Atlas F contract procedures and construction operations.

c. Close liaison with those elements of the Air Force involved in the activation of the Atlas F operational bases.

ENGMA-AEO 24 October 1960
SUBJECT: Transfer of Construction of Atlas F Operational Base, Lincoln

5. In the prosecution of your Lincoln construction mission, the following goals are those I desire you to give priority attention:

a. Maximum and urgent effort on the part of the construction contractor(s) to provide the required facilities. The success of the construction effort largely depends upon the contractor operation being properly organized, fully and competently manned and equipped, adequately and technically preplanned, and everywhere dominated by evidence of a deep motivation to accomplish the construction as an urgent defense requirement.

b. Adequate staffing and proper organization of your area office.

c. Firm, detailed schedules for all features of work in your construction program. A further requirement is to establish and keep up-to-the-minute information on the status of the construction operation and the construction contract.

d. Special attention to the extraordinary requirements and close tolerances of the mechanical systems. Inspection and engineering control of the highest order should be exercised over the work as it progresses.

e. Prompt resolution of outstanding contract changes and modifications. The availability of funds for changes and modifications requires immediate coordination and confirmation.

f. Close control of additional changes and modifications.

g. Initial clearance with me of any proposals to extend time and any proposals for the use of funds for expediting purposes.

6. For the following reasons, there is a requirement for an unprecedented degree of the close coordination of the construction programs with the Air Force designated representatives at your station:

a. The project design is an Air Force responsibility. The fact of concurrency leads to many design changes.

b. The Air Force requires detailed information of construction progress so that it may schedule its follow-on operations and contractors.

c. The principle of joint occupancy leads to the Air Force contractors working in the same space as your forces.

24 October 1960

KNCMA-AFO
SUBJECT: Transfer of Construction of Atlas F Operational Base, Lincoln

7. Throughout your supervision of the Atlas F effort at Lincoln, you will be guided by the demanding requirements expressed to the Commanding General by the Chief of Engineers in his letter of 24 August 1960 (copy of which has been provided you) on the urgency and unusual aspects of the intercontinental ballistic missile construction program.

W. W. WILSON
Colonel, Corps of Engineers
Acting Director
Atlas F Construction Directorate

U. S. ARMY CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE
5651 West 96th Street
Los Angeles 45, California

3 July 1961

Effective 1 August 1960, the Los Angeles Field Office, Military Construction, Office of the Chief of Engineers, was redesignated the Corps of Engineers Ballistic Missile Construction Office (CEBMCO), a separate activity under the direct command of the Chief of Engineers. On 1 April 1961 CEBMCO was placed under joint operational control of the Commander, Air Force Systems Command except that contractual matters and contract administration remain in the Corps of Engineers channel.

The mission of CEBMCO is to direct that portion of the Air Force Ballistic Missile Program assigned to the Corps of Engineers. The organization of CEBMCO was decided upon to provide uniform control and administration of the complex ICBM construction operation.

Responsibility for construction of Intercontinental Ballistic Missile Facilities was transferred from various Corps of Engineers Districts to CEBMCO. The Atlas F Construction Directorate of CEBMCO has been charged with execution of the Atlas F construction program since takeover in October, November and December 1960 through Area Engineers at six operational bases, with twelve launch sites located near Lincoln, Nebraska; Salina, Kansas; Altus, Oklahoma; Abilene, Texas; Plattsburgh, New York; and Roswell, New Mexico.

In this new program we are confronted with a rare, unique combination for a large scale construction operation -- combat speed coupled with delicate precision. We are working toward the objective of concurrency which might in one sense be termed "all together and all at once". This objective requires the very splendid teamwork being accomplished between all our elements and the Air Force and construction contractors and their sub-contractors. Our mutual concern is to work closely and diligently in an all-out effort to make Atlas F bases operational.

W. W. WILSON
Colonel, Corps of Engineers
Director
Atlas F Construction Directorate

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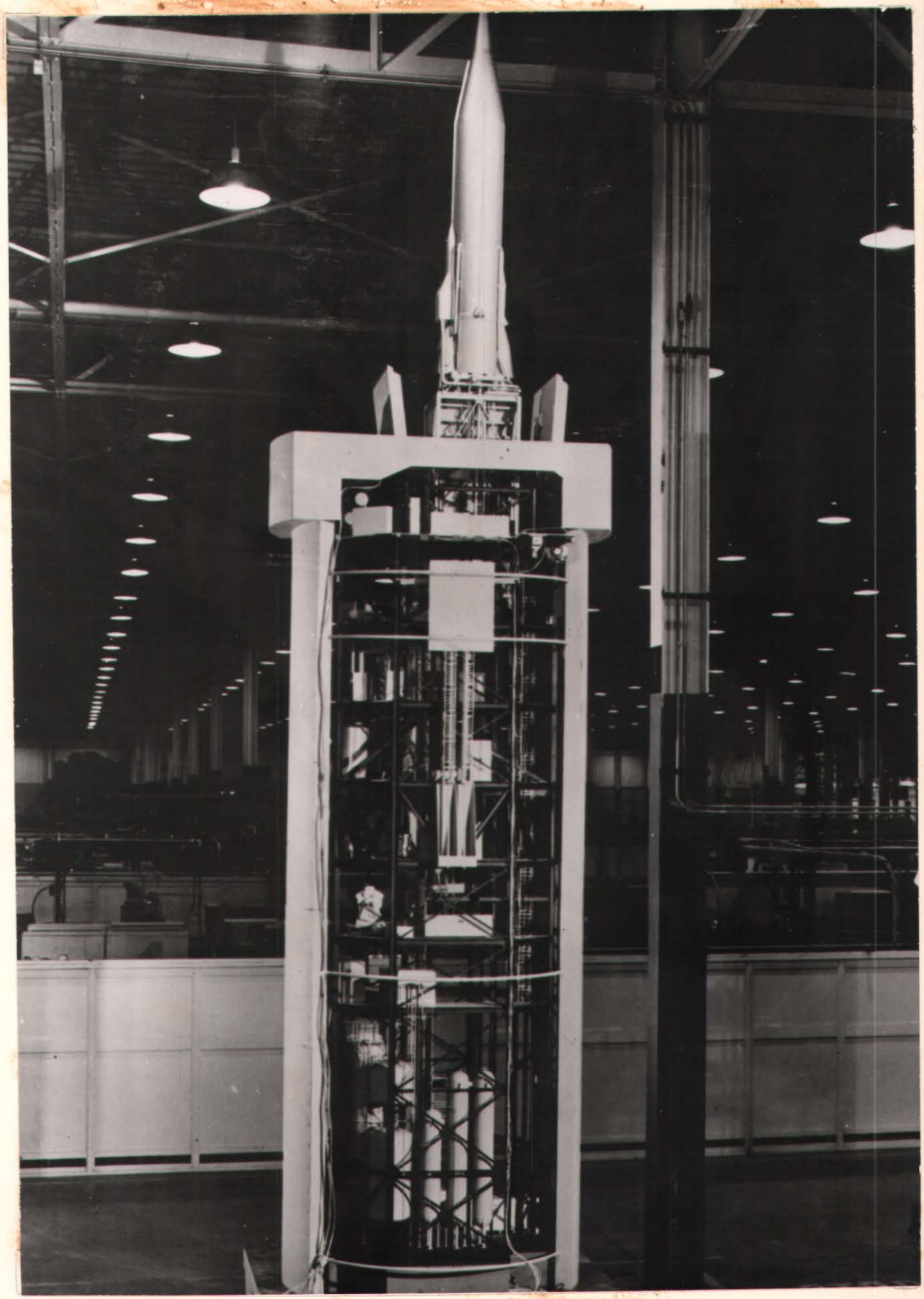
BACKGROUND ON THE DEVELOPMENT OF THE ATLAS UNITARY SILO LIFT LAUNCHING FACILITY



In March of 1959, while the design of the horizontal Atlas launching facilities was being completed, the Air Force Ballistic Missile Division (AFBMD) indicated to Convair Astronautics (later General Dynamics/Astronautics) and the Bechtel Corporation their desire to investigate the feasibility of a silo configuration for the operational bases for launching the Atlas ICBM.

At this time, these two companies began preliminary concept work on this type of a facility. With the receipt in April of a letter contract, Bechtel was authorized to proceed with design and preparation of criteria. This effort was carried on simultaneously, but separately, by Convair and Bechtel.

Convair-Astronautics retained the services of American Machine and Foundry (AMF) to design a major portion of the Ground Service Equipment (GSE) for the silo configuration. This was done to take advantage of AMF's background and previous experience in the Titan program. Since the entire design was being headed up by Convair they elected to have such items as the crib, the suspension system, launcher platform, its counterweight, the guidance system and related equipment all GSE. The only facility item being the concrete work for the silo and for the launch control center.

As directed by AFBMD, Bechtel Corporation took the same approach relative to the split between facility and GSE as was done on the horizontal jobs. Therefor, in the Bechtel design, the crib, launch platform, and so forth were all facility items. The only items remaining GSE were the items directly concerned with the launching

of the missile, such as the guidance system, the logic units and the like. Each company presented their own concept of how this facility should appear to the Air Force in the spring of 1959.

Probably the most remarkable thing about the two concepts was the similarity of the two. There were admittedly some major differences in design and approach, but the total concept was essentially the same between the two agencies. As the design progressed it became more apparent that many of the items that Convair felt were GSE should in actual practice be handled as facility items and therefore designed by the Bechtel Corporation.

Specific items, such as the crib, in the concept proposed by Convair-Astronautics would be prefabricated in sections and in a factory operation and installed in the silo in pieces. Bechtel Corporation did not feel that this approach would be operable in the field in the scattered locations in which these would be installed. Therefore, when the crib was made a part of the facility design one of the early approaches was to keep the design as completely flexible as possible allowing Convair to vary its GSE requirements practically without limit. This concept was finally scrapped.

At the direction of the Air Force, Bechtel and Convair were to develop a joint design criteria. Bechtel and Convair joined forces as a design team in an effort to develop a joint criteria that would be acceptable to both agencies concerned with the design as well as the Air Force, STL and interested Governmental agencies. This criteria, as ultimately developed, was prepared by Bechtel and Convair and submitted to the Air Force in July of 1959.

This document was reviewed by AFBMD, STL, USAF Headquarters and SAC. In addition to this, Bechtel Corporation retained the New York firm of Amman and Whitney as consultants to assist in the preparation of the required design criteria for the hardened facility. This, so called Amman and Whitney criteria, was also reviewed by the governmental agencies and the final design was based on these two documents. The letter contract authorizing additional work beyond the concept stage was received by Bechtel in August, 1959. This document, in effect greatly expanded the program from the standpoint of the Architect-Engineer (AE).

Following the approval of the design criteria, a Bechtel representative spent two weeks working with AMF in their Greenwich, Connecticut offices to bring the crib design to as near a final state as possible within the available time period. The original, four drawings on the crib were returned to the Bechtel Corporation from AMF on August 10th. On August 17th these drawings were submitted to the Air Force for final review. The review conference was held on August 24th with the subsequent submittal to the Air Force for transmittal to the Corps of Engineers on August 31st. These drawings were then held by the Air Force until later the same year when a second submittal was made on October 1. These drawings were then submitted again on the 9th of October, once more on the 2nd of November. Each time, it was believed that the configuration was in its final form. Actually the crib design was affected during this same period of time by the fact that design work was still progressing on the CSE, facility piping, heating and ventilating and allied items.

Of particular importance to the development of the operational Atlas silo bases was the use of two mock-ups and the CSTF site at Vandenberg AFB as a means of locating problem areas and to prove the design.

Work was begun during the summer of 1959, by Convair, on a 1/10 scale mock-up of the missile silo. This mock-up was complete with all equipment in it. The overhead doors, launch platform and personnel elevator are operable.

In September 1959, the Bechtel Corporation, under contract to Convair, initiated engineering drawings for the construction of a full scale mock-up of the launching silo. This mock-up was built at Convair's plant in San Diego. Actual construction work, also by Bechtel was begun in November, 1959 when ground was broken for the foundations. The three towers, into which the crib was broken, began to rise in January, 1960 with the setting of the first columns. These three towers, the low tower made up of levels 7 and 8, the high tower, levels 1 through 6 and launcher platform tower were fabricated primarily of the actual steel shapes required on the operational bases. Non-loaded members were in some cases mocked-up in wood as was most of the equipment.

These mock-ups have proven to be invaluable in eliminating interferences. Information gathered from the construction of these have been incorporated into the CSTF and operational packages.

On March 28, following the completion of the silo shell by the Peter Kiewitt Company, Bechtel Corporation moved onto the job at the CSTF site. Construction of this facility by Bechtel as a "turn

key" job has enabled the Air Force to incorporate new data and design requirements into an actual job at an accelerated rate. This method has provided an integrated engineering-construction solution to problems that would be virtually impossible to solve if the construction were being performed by a contractor other than the designing A-E.

Knowledge gained by Bechtel in this construction program was to be fed back into the operational base program through drawing revisions. Discussions of unusual construction problems encountered were to be passed on through field engineers to help prevent these same problems from occurring on the operational bases.

Some of the major changes that took place during the design period are described below.

In September, the entire crib design was revised, when the allowable steel stresses were increased approximately 45 percent. This same month saw the liquid oxygen tank change entirely in design concept. Since these tanks are a very important part of the PLS system and a major load on the structure, this constituted a major change in the design.

In October of 1959, specific data on the Launcher Platform was released from Convair to Bechtel which permitted the crib design to progress to a much more refined state.

On 18 March 1960, Bechtel submitted to AFBMD a revised criteria for the design of the Heating and Ventilating System. With subsequent approval of this system, immediate action was taken to incorporate this change into the system.

Fortunately, for the benefit of the program there was excellent communications and agreement between Convair and Bechtel that enabled many of the shortcomings discovered in the design of the horizontal configuration to be eliminated.

During the same period of time that the launcher silo was being designed, Bechtel was also concerned with the design of the launch control center. Since the items located in the LCC were of a more stable nature and not subject to change as was the equipment in the silo, this phase of the design was able to proceed at a normal rate. Submittals of the LCC began on October the 5th when a submittal was made to Convair and the other associate contractors for their review and comments on the concept. Then, on October 19th, preliminary submittal was made to the Air Force after which a review conference was held on October 27th. A second submittal was made to Convair and the other associate contractors on November 16th and then final submittal to the Air Force on November 27th. A technical review was held on December 3rd and then the Air Force review on December 11th. On December 21st the submittal to the Air Force for transmittal to the Corps of Engineers was made.

The forgoing dates are actually dates of the submittal of the OSTF package. However, these dates are all tied in too closely with the development process to separate them. The OSTF package served as the manner in which the design information was passed between the A & E and Convair to the Air Force. Basically OSTF and the Standard Package are the same.

During the development and design period of the silo program many exceedingly unusual problems were encountered by the design agency. Probably some of the more spectacular problems were encountered due to the fact that the crib is in effect a fifteen story building without a foundation, one that is suspended from its mid-section on springs. This in turn was reflected back in virtually every part of the design. One consequence was that every piece of equipment, every line, cable, and the like passing from the crib to the silo walls or beyond had to be through a flexible connection. This presented rather severe problems in the heating and ventilating areas, water supply, fueling, piping liquids of any nature and electrical power transmission. The solutions of these problems were based upon studies to determine the most economical and efficient manner in which this could be handled. Several other studies were also embarked upon at the direction of the Air Force. Just to mention a few, a study was made to determine the economic and operational advantage of one type of overhead door over another type. Comparisons between single leaf, double leaf, and sliding doors as well as methods of actuation were made. Copies of this report are on file with AFBMC. The final result, of course, was the use of the double leaf door with single actuating cylinders as is presently designed. Other studies with far reaching impact on the program were the studies to determine the feasibility of commercial power or gas turbines, against the use of diesel generators as is presently shown. These studies were undertaken by the A & E at the direction of the Air Force.

One of the major areas of concern was the problem of site selection. This task, originally a SAC responsibility, developed into a team effort as outlined below.

The site selection parties on the new base were made up of SAC, BMD, AFRCE and Corps of Engineer personnel and representatives of the Site Selection and Site Evaluation A - E. Before any base was actually sited, SAC geologists made a detailed reconnaisance of the base area considering both construction problems and site water supply. Then after construction proved feasible at any base, the other members of the siting party were invited to the field to pick the actual sites. Prior to beginning actual locating of sites, the SAC geologists presented the collected information, along with information from the Corps of Engineers and the Site Selection A - E, and certain areas of site location were then designated. SAC during the actual siting had prime responsibility for selection and acceptance. BMD had the responsibility of final evaluation and technical acceptance. Bechtel's responsibility was to act as a consultant to BMD on the above problems, to prepare detailed reports of siting and determine the extent of the investigation. The Corps of Engineers accompanied the siting party in order to speed up the right-of-entry permit acquisition and to move to begin the investigation program. AFRCE personnal sometimes accompanied the siting party in order to give final approval for fund expenditure.

Siting began on new bases on or about 15 September 1959, ultimately to find four bases for development with the silo configuration. The first four bases selected for development and then investigated were Plattsburgh and Dyess Air Force Bases and Bases A-9 and A-11. Prior to completion of the investigation, Plattsburgh and both A-9 and A-11 were dropped from consideration. Part of this may be due to the fact that the Secretary of the Air Force had stated that there would be no missile bases located east of the Mississippi River. Then, to bring the total back to four bases, Altus Air Force Base and Bases T-6 and T-12 were selected for development. The T designates a base previously sited for the Titan Missile. Altus was also selected for the Titan Missile like T-6. Upon completion of the investigations on the last three bases, both T-6 and A-12 were dropped from consideration and Walker Air Force Base was considered for development along with Plattsburgh, which was previously investigated.

About 1 January 1960, a revised siting criteria was formulated for site location. Finally, considering the economic savings possible with the new criteria, it was decided to relocate sites at both Walker and Plattsburgh which were located too far from the base or were shown border line by the previous investigation. Walker was also a base selected for Titan Missiles.

In March 1960, it was decided to increase the number of sites surrounding each base using the revised siting criteria. The exact number of sites selected at the bases varied from three to twelve depending upon the particular base. Finally, it was decided to construct three additional sites at each base and have three alter-

nate sites investigated and adopted for construction if the need be.

All in all, a total of 215 sites were selected by the A - E firm and covered by siting reports. Of these 215 sites, 147 were investigated and construction recommendations prepared. Ninety-three of these sites were designed ready for construction.

Operational sites at Lincoln and Schilling Air Force Bases were selected and originally intended for development with the horizontal launcher. Prior to June 1958, preliminary investigations had been completed on the nine prime sites and several alternates and land has been acquired for construction of the 1 by 3 horizontal concept. Then with the advancement of the silo concept, it was decided to investigate nine of the selected sites for both the horizontal and the silo configuration. Finally, the Bechtel Corporation, working with a separate BMD contract for site selection and site evaluation, was responsible for the following at Schilling and Lincoln Air Force Bases.

1. Review the results of the preliminary site investigations and detail nine of the best sites for final investigation.

2. With instructions to use only the existing sites, view the sites in the field and make recommendations concerning the length and idrection of access roads and location of water supply for each site.

3. Detail the extent of the investigation to provide the information for both construction and design.

4. Provide data for design and recommendation on methods of construction.

5. Evaluate the sites with respect to the controlling shock spectra to see if the missile could perform its intended mission after a nuclear attack.

On the other bases, which had been originally sited for other weapon systems or were being sited for the first time, Bechtel had the following responsibilities.

1. Select locations for the desired number of sites in the vicinity of the particular air base using the current siting criteria.

2. Detail the extent of and supervise the field investigation on the selected sites.

3. Review the results of the field investigation and the subsequent laboratory tests and prepare a detailed report presenting both design and construction recommendations.

4. Evaluate the site with respect to the design shock spectra.

5. Be available for field consultation on construction and design problems revealed during excavation.

One of the most severe problems encountered incidental to the design phase of this project was the task involved in preparing the shop details for the crib. The first set of shop details were prepared in part by the Kaiser Steel Corporation for use by Bechtel Corporation in the construction of the OSTF crib at Vandenberg AFB. However, it became apparent during the period of time that Kaiser was preparing the shop drawings, that if the construction schedules were going to be met, that a method of eliminating the time lag between a design change and the subsequent change in the shop drawings

was essential. With this thought in mind, Bechtel was assigned the additional task of completing the OSTF shop drawings and maintaining them through future changes. This approach worked quite successfully and a great deal of potential schedule shippage was prevented.

The problem on the operational bases was somewhat different though. Initially, the plan was to reproduce these drawings for use as shop details on all of the operational bases. The basic reason leading up to the decision to prepare one set of shop drawings which would be used for all the operational squadrons was to achieve standardization throughout all silos. This was required in order to insure that the standard equipment arrangement including routing of piping, duct work, cable trays, and wireways would work at all bases. A fringe benefit was considered to be the potential cost savings in having the shop drawings prepared once instead of seven times. It turned out that one of the most important results of the standard shop drawings was the time which was saved in incorporating changes into the facility contracts, particularly at the earlier squadrons.

It was anticipated that only slight modification would be needed to the OSTF shop drawings to make them suitable for use on the operational bases. Unfortunately, construction schedules at OSTF created scheduling problems that forced the OSTF and the operational base drawings to be different. Consequently when these drawings were reproduced for the operational bases it was necessary to revise them extensively.

One of the major items in this project are the cryogenic and pressure vessels located on the 8th level. To facilitate the design of this portion of the project, the equipment arrangements were based around one specific manufacturer's product. The intent was, that there would be many manufacturers able to furnish tanks of the same overall dimensions. However, after the contract was let for the first operational base, specifically Schilling, it was found that the contract documents tended to be restrictive to this one specific manufacturer. In an effort to relieve the situation, the vessel drawings were changed to delete any specific tank sizes and space envelopes were substituted. This method thereby opened up the job to any manufacturer as long as he could fit within the space. It therefor developed that this particular phase of the program is not identical for all bases. The tanks, at all bases, perform the same function and occupy the same space but their physical appearance and shape is different.

The original design of the silo included a thick foundation slab and a thinner inverted domed bottom. Both of these silo bottom designs were predicated on the hydrostatic pressure of a water table height at the ground surface. When it was discovered that some of the sites had water tables that were lower than this, a design was developed which would permit the bottom to be only a thin 6-inch thick slab. The small amount of water would then be allowed to flow into the silo sump through a graded filter material and be pumped out. A study was prepared which showed that in spite of the necessity for operating these pumps continually over an extended period of time, the net cost would still be less than for the thicker

slabs. As it has now developed virtually all of the sites with the exception of one at Schilling and two at Lincoln are using this perforated 6-inch slab concept. The type of slab to be used is determined from preliminary borings taken prior to the time the construction actually began.

To summarize, the complete design of the standard operating base package has been concluded through a joint effort on the part of the Weapon System Contractor and the Facility A & E. This design team has worked as a single unit thus forestalling many of the problems inherent when the Weapon System Contractor and the A & E operate completely separately and distince from each other, having contact only through the Air Force Ballistic Missile Division, as was the case on the design of the horizontal type Atlas launching facilities.

BACKGROUND OF LINCOLN SQUADRON AND SUPPORT FACILITIES

1. LAUNCHER FACILITIES

Original planning for the Lincoln Squadron, initiated in the summer of 1958, was for the 3 x 3 horizontal (coffin) hardened Atlas configuration. Site selection, soils investigation, and initial real estate planning documents were completed in the fall of 1958 for this plan. Design was scheduled to start in the spring of 1959 to meet a construction scheduled start in October 1959.

The change to the 1 x 9 horizontal configuration required additional site selection effort which started in February 1959 to obtain the six new sites needed. This effort was completed and the site selection report (horizontal 1 x 9) issued in April 1959. Real estate plans and soils and foundation investigations were then completed. The architect-engineer firm of Black and Veatch, Kansas City, Missouri was then selected to design this project utilizing the design prepared by the Bechtel Corporation.

Additional site selection activities and soil investigations were conducted in the fall of 1959 to select sites that would be usable for either a hard silo-lift or horizontal configuration of Atlas.

On 27 November 1959 direction was received from Headquarters USAF that Lincoln would be a silo-lift (hard) squadron. This action required a change in sequence of the Schilling and Lincoln squadrons. Re-design to the silo-lift (hard) configuration was immediately initiated by Black & Veatch using the Bechtel standard silo design.

Extensive study and investigation of the site conditions was necessary because of the dewatering and soil bracing problems anticipated at Lincoln. During the bidding period the USAF decision to increase the squadron from nine to twelve sites was received. Action was immediately taken to include by addendum to the Invitation to Bid, an option to construct three additional sites on an expedited basis.

The construction release for launch stations 1 through 9, Lincoln AFB, was issued on 15 February 1960. A pre-bid conference (See appendix B) was held in Omaha, Nebraska on 18 March 1960, with a bid opening of 12 April 1960. Notification to proceed with construction was given on 15 April 1960 with the construction contract awarded to Western Contracting Corporation for $17,400,000.

A pre-construction conference was held in Omaha on 21 April 1960 (See appendix C).

On 12 May 1960 three sites were added to the contract for an increase in contract price of $6,613,000.

2. TECHNICAL SUPPORT FACILITIES

a. Liquid Oxygen Plant Design of the 25 ton LOX plant was started in January 1960 by Black & Veatch, Kansas City, Missouri. Design was completed in March 1960 with a bid opening on 21 April 1960. Notification to proceed with construction was given on 4 June 1960 with the construction contract awarded to Cleveland Consolidated of Lincoln, Nebraska for a contract price of $388,800. The completed facility was turned over to the Air Force on 25 January 1961.

b. Re-entry Building Facility Facilities for the Lincoln squadron were designed by Omaha District Corps of Engineers based on

criteria furnished by AFBMD. Black & Veatch, Kansas City, Missouri, was the architect-engineer firm. Design was started in January 1960 and completed in April 1960. Bids were opened on 1 July 1960. Notification to proceed with construction was given on 15 July 1960 with the construction contract awarded to Kingery Construction Company of Lincoln, Nebraska for a contract price of $114,352.

c. Missile Assembly Building Design was accomplished by the architect-engineer firm of Servis, Van Doren and Hazard, Topeka, Kansas. Design was started in October 1959 and completed in July 1960 with a bid opening on 11 August 1960. Notification to proceed with construction was given on 29 August 1960 with the construction contract awarded to the Eby Construction Company of Lincoln, Nebraska for a contract price of $913,622.

Resume of Publicly Documented Events, Activities and Opinions Related to the ICBM Program in the Lincoln Area, 1958 - 1962.

7 August 1958, (Thursday) - Washington - Senator Dennis Chaver, (Dem. N.M.), said Thursday that a coming Air Force survey of the Lincoln AFB area will be part of a search for new Intercontinental Ballistic Missile bases.

He told the Omaha World-Herald the Air Force is "mainly interested" in finding sites forthe Atlas, Titan and Bomarc missiles.

5 February 1959, (Thursday) - Washington - The Air Force in a letter to Republican Phil Weaver (R. Neb) has confirmed that the Lincoln Air Force Base is one of the possible sites being surveyed for Intercontinental Ballistic Missiles.

10 March 1959, (Tuesday) - Washington - The Air Force has disclosed that its seventh Intercontinental Ballistic Missile ICBM base will be located at Lincoln Air Force Base, Nebraska. The service issued a statement late Monday (9 March 1959). It said the Air Force has added Lincoln to its request for construction authorization for the year starting July 1, 1959 and that after approval by Congress, additional details will be announced.

14 March 1959, (Saturday) - Washington - An advanced version of the Atlas Intercontinental Ballistic Missile - apparently to be based in "hardened" underground redoubts - is slated for Lincoln.

The Air Force announced that Lincoln would get the Atlas, the first U. S. long range missile to be operational.

A source on the Senate Appropriation Committee revealed that $45 million was being requested in the 1960 military construction budget for the Lincoln base.

17 April 1959, (Friday) - A construction start of Lincoln's Atlas ICBM site by December appeared probable as October was designated for the bid advertising time.

This pre-construction schedule was disclosed Friday in Washington as an Army Engineers spokesman said a directive for the bid letting would be forwarded to the Omaha District Army Engineers office.

22 April 1959 , (Wednesday) - Washington - The squadron of Atlas missiles slated for the Lincoln Air Force Base area will be placed on 9 individual launchers, probably spaced 20 miles apart, according to an Army Engineer source here.

The source said that each launcher would fire a single intercontinental ballistic missile with a 10th missile held as a spare.

1 May 1959, (Friday) - Washington - The Lincoln Missile Facility will be the most fully protected of the nine Atlas bases planned by the Air Force so far.

11 June 1959, (Thursday) - Launching sites of Lincoln's Atlas ICBM complex could be located in any one of 13 areas which SAC headquarters disclosed have been surveyed.

The surveyed areas announced by a SAC spokesman are in the vicinities of: York, Seward, Brainard, Elmwood, Nebraska City, Tecumseh, Cortland, Beatrice, Dorchester, Shelby, Osceola, Geneva and Fairbury.

1 July 1959, (Wednesday) - Washington - Air Force engineers are designing underground "silos" for the Atlas ICBM's slated for the Lincoln Area.

15 July 1959, (Thursday) - Bids on construction of 9 Atlas ICBM sites around Lincoln are expected to be awarded in "December or January" according to Colonel J. S. Caples of Omaha, U. S. Air Force Regional Civil Engineer.

Meanwhile, land appraisal by Omaha District Army Engineers continues in 13 areas forming an "oval" around the capital city, in which 9 sites eventually will be constructed.

29 July 1959, (Wednesday) - Washington - The Air Force announced Wednesday the location of nine Atlas launching sites around Lincoln.

They will be in the areas of Brainard, Seward, York, Dorchester, Cortland, Beatrice, Tecumseh, Nebraska City and Elmwood.

8 September 1959, (Tuesday) - Army Major Lester J. Henderson who is now Resident Engineer, will change to Area Engineer as the Atlas complex construction begins early next spring. Major Henderson will be responsible for Army Engineer liaison with the firm awarded the Atlas construction job, in early 1960.

28 October 1959, (Wednesday) - A $31.9 million sum from the USAF military construction budget in Washington gives the green light to Lincoln's 9-site Atlas missile system construction.

Over-all estimated cost of the base, including construction and the missiles, is around $88 million.

Also slated for construction - in addition to the 9 sites - are the following:

A communications support facility.
A missile assembly and maintenance building.
A missile storage facility for the component parts of the missile.
A storage facility for the missile nose cones or the re-entry vehicle.

7 January 1960, (Thursday) - Washington - Missiles contracts for a deep "silo" type underground launch site were awarded to the Bechtel Corporation to be built at Vandenburg Air Force Base, California.

The Army Corps of Engineers who awarded the contract described the silo unit as a prototype for operational Atlas missile bases yet to be built, including the 9 missile Lincoln Base due to be started this spring. The amount of the contract was $2,292,262.

14 January 1960, (Thursday) - Lincoln - Lt. Colonel Hal L. Schroeder, Assistant Deputy Engineer of the Omaha District, U. S. Army Corps of Engineers, confirmed earlier reports that the 9 Atlas ICBM launchers to be built around Lincoln are to be placed in 180-foot deep silos.

It was the first official announcement that the final plans for the bases had been settled.

Colonel Schroeder said the silos would be 50 feet in diameter with the upper portions lined with 9-feet of concrete.

The Colonel made the announcement at a meeting of the Nebraska Chapter of the Associated General Contractors of America which is holding its annual convention in Lincoln.

Among installations which will be constructed at the Lincoln Air Force Base itself, Colonel Schroeder said, are a guided missile assembly and test facility, a liquid oxygen generating facility, a liquid oxygen disposal unit, and various communications facilities.

30 January 1960, (Saturday) - Washington - The Air Force will start construction of 9 heavily protected Atlas missile sites in the Lincoln, Nebraska, area on April 1, Representative Phil Weaver (R - Nebr) disclosed late Friday.

The missile sites to be protected at the rate of 100 pounds per square inch, will be in operation by June of next year, the congressman revealed.

9 February 1960, (Tuesday) - San Diego, California - A full-scale mock up of the underground Atlas Missile launching facilities to be constructed in the Lincoln southeast Nebraska area is being built near San Diego at Convair-Astronautics, according to the Air Force.

16 February 1960, (Tuesday) - Washington - Representative Phil Weaver said Monday, Army Engineers will call Tuesday for bids on construction of nine underground sites that will house Atlas ICBM's surrounding the Lincoln Air Force Base.

He said the bids will be receivable March 1, opened April 11, and the 9-hardened silos will be completed in the early summer of 1961. Mr. Weaver said he was informed construction costs of the silos were to be between 25 and 30 million dollars with the Corps purchasing and installing some 59 million additional equipment.

22 February 1960, (Monday) - For the first time since the inception of plans for Lincoln - Southeast Nebraska's Atlas ICBM base, the exact acreage and farms involved in the launcher site locations have been announced by Colonel David Hammond, Omaha District Army Engineer.

He said the government will or has paid between $60,000 or $80,000 for land needed. A majority of farm owners have accepted options, others are being negotiated and a few require condemnation proceedings because of price differences or multiple title owners. A total of 219.85 acres in 8 counties is involved.

The real estate transactions also include land easements necessary for water and pipe lines, plus access roads. This farm land will be on long term lease to the government.

2 March 1960, (Wednesday) - Omaha - Four tons of plans, consisting of four volumes per set were being sent out Wednesday to six hundred suppliers and contractors with invitations to bid on the Lincoln Arlas missile base construction job. The bids will be opened 2 p.m. April 12 at Pershing Auditorium in Lincoln.

2 March 1960, (Wednesday) - Fort Worth, Texas - A $10,838,176 contract for building and installing propellant loading systems at Atlas missile bases in the Lincoln area and six other locations was awarded here Tuesday by Army Engineers.

The contract went to Paul Hardeman, Inc., of Stanton, California, which bid almost $10 million below the Government estimate.

Work will begin in September. Completion is scheduled in October, 1961.

11 March 1960, (Friday) - Washington - Air Force proposals to augment presently planned Atlas squadrons were revealed here by Defense Secretary Thomas Gates.

Strength of the missile squadron to be based at Lincoln may be boosted by as much as one-third.

The engineering designs require that equipment for all launchers be interchangeable to facilitate addition of other sites.

19 March 1960, (Saturday) - Omaha - Colonel D. G. Hammond, District Engineer for the Omaha District, Army Engineers, conducted the pre-bid conference for the Lincoln Air Force Base Atlas ICBM launch facilities Friday at the Rome Hotel.

Colonel Hammond stressed the "all important urgency factor". He told the contractors "you can and must meet the completion dates. The Lincoln Atlas ICBM job, like others is a main cog in the national defense program". He said the government would demand a safe job combining quality construction and on-time completion.

Colonel Hammond also pointed out other forthcoming dates in connection with the extensive missile construction in Nebraska. He said the Corps would advertise for bids March 22 for construction of a liquid oxygen plant and May 17 for construction of re-entry vehicle facilities at the Lincoln Air Force Base.

26 March 1960, (Saturday) - Washington - Three additional sites were announced by the Air Force through Representative Phil Weaver (R - Neb) bringing the total number of launching pads in the Lincoln area to 12 and the number of missiles to 13.

The proposed launching pads would probably be located east of Lincoln.

7 April 1960, (Thursday) - Contracting firms whose bids to construct the Lincoln Atlas missile base will be opened Tuesday in Lincoln must agree to build three additional launching site pads.

The Omaha District Office of the Army Engineers sent out supplemental notices this week to prospective bidders, setting forth this provision.

Bidding is on a per-missile basis. The unit price for the original nine-missile job would hold for the additional missile launchers.

13 April 1960, (Wednesday) - Lincoln - Western Contracting Corporation of Sioux City, Iowa submitted the apparent low bid of $17,400,000 Tuesday on basic construction of the Lincoln Atlas ICBM base.

The Army Engineer estimate on the 9-launcher site missile system was $18,398,377.

If Western's bid is accepted, it will mark the firms first entry into missile base construction.

Other bidders included Gus K. Newberg, Chicago, $18,467,000; S. J. Groves Company, Minneapolis, $21,260,000; Peter Kiewitt Sons Company, Omaha, $18,139,362; Raymond International, New York, and allied firms, $17,947,000; Potashnick Construction, Inc., and Associates, of Cape Girardeau, Missouri, $20,957,400; Morrison-Knudsen, Los Angeles and Allied Firms, $18,297,000; George A. Fuller, Los Angeles, $18,640,000.

The bids covered only the work under supervision of the Army Engineers. They do not cover the cost of the missiles nor the electronic equipment to be installed by contractors to the U. S. Air Force.

16 April 1960, (Saturday) - Washington - Locations of three additional launching sites for the Lincoln Atlas missile base have been selected by the Air Force. Senator Carl T. Curtis (R - Neb) said Friday he was advised by the Air Force that the sites would be spotted at these general locations:

Near Elmwood in Cass County, 30 miles east of Lincoln; near Avoca in Cass County, 39 miles east of Lincoln; and near Palmyra in Otoe County, 23 miles southeast of Lincoln.

18 April 1960, (Monday) - Army Engineers in Omaha Monday announced award of a $17,400,000 contract to Western Contracting Corporation of Sioux City for construction of nine Atlas ICBM launcher sites in the general vicinity of the Lincoln Air Force Base.

The Engineers said it was agreed that if three additional sites are added, Western will build them at a comparable cost to the Government. The Air Force has confirmed its intentions to build a total of twelve, but there has been no official notice to Army Engineers.

A Western Contracting Corporation spokesman said at Sioux City that a fleet of earth movers was being shipped from points in South Dakota, Michigan and Ohio.

Work at each site involves construction of a reinforced concrete underground launch control center 30 feet deep and 40 feet in diameter, a missile silo 175 feet deep and 50 feet in diameter, fuels storage and handling equipment and other facilities.

21 April 1960, (Thursday) - Cleveland Consolidated Division of the Cleveland Electric Company of Jacksonville, Florida, is apparent low bidder to construct the liquid oxygen storage plant for Lincoln's Atlas ICBM system.

Clevelands bid was $388,800, compared with the Omaha District, Army Engineers estimate of $409,885.

Colonel David J. Hammond, District Engineer, said ten bids were submitted. These included one for $423,000 by Kershoj Construction Company of Blair and $433,616 by Kingery Construction of Lincoln.

The plant is scheduled for completion October 15 and will be located at the Lincoln Air Force Base. It will store the liquid oxygen supply for the nuclear missiles at each of the systems twelve sites.

The job includes the construction of a 50 x 100 foot concrete block building, a 2,000 KW substation, two 28,000 gallon storage vessels - one for liquid oxygen and the other for liquid nitrogen. Also included in contract are water, sewer, gas lines, paving, fencing and landscaping.

29 April 1960, (Friday) - Lincoln - An aerospace education conference was held Thursday at the Pershing Auditorium and attended by more than 2,000 University of Nebraska men and 1300 students of higher education in the Lincoln-Omaha area.

The speakers were:

Colonel Vernon L. Hastings who spoke on the development of the Atlas ICBM.
Al Huggins of Convair Astronautics, the expert responsible for the planning of all Nebraska Atlas bases.
R. A. Fitzgerald of McDonnel Aircraft Corporation, the makers of the nose cone and the Mercury capsule designed to carry man into outer space.

29 April 1960, (Friday) - Beatrice - Rain drenched ground was broken today on the Paul Claassen farm about 5 miles southwest of Beatrice for what will be a 175 foot deep and 50 foot circular underground silo.

Representing the Army Corps of Engineers were Major Lester J. Henderson, Army Field Engineer; John M. Clema, Electrical Engineer; and John C. W. Carroll, Civil Engineer.

Malcolm Schaller, Western Contracting Corporation representative said the first 35 foot excavation of the area will take about 2 weeks. A shaft sinking operation to excavate the remaining 134 feet will take another 4 to 6 weeks.

Ceremonies for the entire complex were held here. Major Henderson briefly described the 96-foot long range missile and stressed that eachlauncher will have but one - and only one - predetermined target.

"The Atlas will only be fired in anger," the Major said. "There will be no practicing."

Not enthused about the project was Paul Claassen on whose land missiles as well as corn will be planted. He is giving up the 18 acres of land for the site through condemnation. Mr. Claassen did not attend the ceremony. He said "Even if I had no moral scruples about the base, I wouldn't be very happy about losing my best 18 acres."

2 May 1960, (Monday) - Western Contracting Corporation of Sioux City, Iowa, builders of Lincoln's Atlas Missile system, opened central offices Monday at 501 South 7th Street in Lincoln.

Mason Travis, civil engineer, who will be project manager, said field offices will be set up at each of the nine sites.

Also on the job during this first-part construction will be Lt. Colonel Hal Schroeder, Area Officer for the Omaha District Army Engineers who are responsible for the work done by Western. Their office is at Lincoln Air Force Base.

The Air Force Ballistic Missile Division will have Colonel Vernon Hastings as their liaison officer with Western and the Army Engineers. He will operate from Mead Ordnance Plant, Wahoo.

13 May 1960, (Friday) - Construction is scheduled to begin within 10 days on the Liquid Oxygen Plant at Lincoln AFB. A $338,800 contract was awarded the Cleveland Consolidated Division of the Cleveland Electric Company. It must be completed by October 15.

18 May 1960, (Wednesday) - Seven of Lincoln's 9 Atlas sites should be under construction by Tuesday. But the builders have another five, instead of two, to get under way.

Mason Travis, Project Manager, said Western has been instructed to procure material to build the three added sites.

13 June 1960, (Monday) - Atlas site builders run into "sand traps". An Army Engineers spokesman confirmed Monday that fine sand keeps caving in at the Beatrice site, where shaft mining has been in progress. The sandy soil began collapsing as the men neared 75 feet. One remedial step being considered is the application of steel sheeting against the sand walls in addition to the steel ring beams used every 3 feet.

26 June 1960, (Sunday) - Lincoln - Missile Sites struck. Miners off jobs - may be back Monday. Mason Travis, Project Superintendent for Western Contracting Corporation, said about 130 miners, members of Local No. 1140 International Hod-Carriers and Common Laborers of America, have walked off at Sites 1 (Eagle); 3 (Tecumseh); 4 (Cortland); and 5 (Beatrice).

According to Travis, Bud Finnell, business representative of the union showed up at the sites Friday and ordered the men to leave their jobs. Bud Finnell would not give Westerns site superintendents a reason for the order, Travis said.

27 June 1960, (Monday) - Atlas site workers return. Working conditions at Lincoln's Atlas missile sites were given by Bud Finnell, union business representative, as the reason for the laborers walking off the job.

The men returned to work Monday morning with the promise that these conditions would be ironed out at a labor-management meeting Thursday at Lincoln.

29 June 1960, (Wednesday) - Cortland - Western Contracting Corporation has set up a pipe fabrication shop here to serve 5 of the 12 Atlas bases near Lincoln.

A similar shop at Elmwood will service the other seven sites.

1 July 1960, (Wednesday) - Lincoln - Western Contracting Corporation is using a helicopter to speed work on the Atlas missile sites here.

The new whirly-bird flies supervisory personnel from its Lincoln Project Office to the 12 scattered missile sites.

14 July 1960, (Thursday) - Workers have reached bottom at Site 3 (Tecumseh) - 176 feet below the surface.

Site 5 (Beatrice) was first launcher base started but sandy soil slowed down its progress.

The shaft is 135 feet deep with an open cut 40 feet deep.

Mason Travis, Western Project Manager, said "We will start cementing our way up at Site 3 by the weekend or early next week.

17 July 1960, (Sunday) - Work Saturday was getting into the full scale phase at the new Lincoln Atlas Missile Base. It is a construction job that is sprawled over an area greater than that of Connecticut and encompasses an area of 5,000 square miles.

The Lincoln and the Salina jobs are the nations first underground Atlas bases and the first unitary projects - a single missile on a single base.

The jobs sprawling nature adds to construction problems. Mason Travis, Western Contracting Corporation Project Manager, said the problems of supervision, equipment and scheduling all result from distance and area.

Supervision boils down to the difficulty of keeping in touch. To tighten control, Western uses a 3-place Helicopter for supervisory heads. Two extra echelons of supervisory personnel have been inserted in the organizational set-up. Two telephone lines run to each site and the whole - headquarters, cars and sites - are linked by a radio network.

Each site must have its own complete set of machinery. Individual concrete mixing plants will be needed for each site with 8 unloading points for cement and other material rather than a single one. This will boost the cost of the concrete phase by 50%, according to Mr. Travis.

The sites are being constructed by cut and cover. Earth is stripped away in an egg shaped cut from 35 to 57 feet deep and 400 feet long. The control buildings are constructed in the open and later will be covered with earth.

28 July 1960, (Thursday) - Colonel Harry C. Woodbury, Jr., the new Omaha District Army Engineer, made his first visit to the Lincoln Area.

Colonel Woodbury succeeded Colonel David Hammond as chief of the Army Engineers largest district earlier this month.

Commenting on the Atlas Missile base the Colonel said,

---"Some of the 12 sites in the Lincoln underground Atlas missile system are ahead of schedule, some are behind. We see nothing now that would indicate our contracting firm, Western Contracting Corporation, not being able to meet its July 1961 completion date, but we are exploring methods to catch up on our interim schedules."

He said Garland Everist of Sioux City, Iowa, president of Western Contracting, would be among Atlas building contractors and labor leaders attending a Pentagon-called conference Friday in Washington.

"We are now at building missile bases, 175 feet down in the ground; so is the Air Force; so are the contractors," Colonel Woodbury said.

He indicated sandy soil and excessive water hit in some of the shaft mining were major reasons for the delay.

"Once these 12 silos are mined and lined with concrete, even bad winter weather should not hold up meeting the schedule," Colonel Woodbury concluded.

6 August 1960, (Saturday) - A California trucking firm has been authorized to establish rates for hauling missile fuel to launching sites in Nebraska, the State Railway Commission reported Friday.

The firm, Asbury Transportation Company of Los Angeles, will employ special, expensive equipment and specially trained personnel for the job, a commission spokesman said.

It will transport cryogenic liquids and/or liquified gases, except propane and butane. The point of origin of the fuel is unknown.

12 August 1960, (Friday) - Omaha - The Martin K. Eby Construction Company of Wichita, Kansas, was the apparent low bidder to construct the Lincoln missile system check-out facility for actual weapons.

The firm's bid was $913,622 as compared with the Government estimate of $1,075,100.

An Engineer spokesman said there was only a $26,000 difference between the lowest and highest bid. Ten bids were opened.

The job includes construction of a single story 225 x 162 foot steel frame assembly building at Lincoln Air Force Base. This is the structure in which each of the 12 Lincoln area Missiles will be checked out.

A technical supply building in the contract is a one-story, 200 x 28 foot addition to an existing building. Also included are a wooden gate house, helium and nitrogen vessels, utilities, paving, fencing and seeding.

13 August 1960, (Saturday) - Omaha - Major General Thomas P. Gerrity, who is charged with getting the nations operational ICBM program back on schedule, Friday described the problem as one of a "10,000-mile production line" and a compressed schedule.

The line includes the whole complex missile production, from manufacturing plants to launching bases, said General Gerrity, and involves bringing together all three operational parts at the right time.

He said the Lincoln Air Force Base Atlas project is his responsibility, "And there, we intend to make the schedule.

The problem is not one of avoiding changes in the missile program - this is a business of change", he told a news conference, "It is a question of coping with change."

16 August 1960, (Tuesday) - Omaha - Colonel Vernon L. Hastings, a native of Nebraska, will direct the work of activating the 12 ICBM sites surrounding the Lincoln Air Force Base. This is an additional assignment for Colonel Hastings. He is currently in charge of preparing the Omaha area Atlas Bases.

The Colonel will work directly under Major General Thomas P. Gerrity, whose Air Force Ballistic Missile Center was recently given the job of expediting the Atlas Base program to an early completion.

19 August 1960, (Friday) - Lt. General E. C. Itschner, the Army Engineers No. 1 man in Washington, D. C., headed a party of Army and Air Force Generals who arrived Thursday night to look over Lincoln ICBM sites.

This was the General's first visit to Lincoln in several years and his initial inspection of Lincoln's Missile system. He plans to regularly visit all the missile bases which are being constructed under Army Engineers' supervision.

Accompanying General Itschner were Major General A. M. Minton, director of civil engineering for the Air Force in Washington, D. C.; Brigidier General Alvin C. Welling, newly-designated commanding general of the Army Engineers Ballistic Missile construction office in Los Angeles; and Brigidier General Christian F. Dreyer, Joseph E. Gill and William Leonhard, all with the U. S. Air Force.

The group inspected 3 of the Lincoln area Atlas launcher sites at York, Wilbur and Cortland.

Joining the VIP's in Lincoln were Major General Keith R. Barney, division Engineer of the Missouri River Division, Omaha Army Engineers; Colonel Harry C. Woodbury, Jr., new Omaha District Engineer; Colonel Vernon Hastings, who will direct activation of Lincoln's missile system, and Lt. Colonel Hal Schroeder, based at Lincoln Air Force Base as Omaha Army Engineers' supervising officer of the Lincoln Missile site construction.

"Aside from a war, this is the most urgent of jobs for us".

"No, I'd say this job of building missile bases for the Air Force has the same urgency as wartime work."

These two comments-in-one, two tempo - came from the Army Engineers Chief, General Itschner, as he took rapid strides toward an awaiting Army helicopter.

General Itschner, in the Army Corps since 1924, symbolizes the trend of the job of the Engineers down through the years.

He said:
"My first job in the Corps was to help build the Alaskan roads back in 1924. There have been many of those, many dams since. But this is the most urgent of all."

18 August 1960, (Thursday) - Martin K. Eby Construction Company of Wichita, Kansas, low bidder for constructing the missile assembly and technical supply buildings at Lincoln Air Force Base, now has been awarded the contract.

The Omaha District Engineer said the bid was $913,622 and the government cost estimate, $1,075,000.

17 September 1960 - Nebraska City - J. D. Lee, Construction worker for the Western Contracting Corporation, was killed at a missile base near here. He was crushed by a truck mounted crane as he bent over the truck frame. As the crane swung a basket away from the silo excavation, it caught Lee between the counter-balance on the rear of the crane and the truck frame.

7 October 1960, (Friday) - Army Engineer Colonel John E. Minahan has been assigned to supervise Lincoln area Atlas Missile launcher construction.

Omaha District Engineer Colonel H. G. Woodbury, Jr. said Minahan will replace Lt. Colonel Hal L. Schroeder as Lincoln Area Engineer for the Corps. Lt. Colonel Schroeder will stay on as assistant.

16 October 1960, (Sunday) - The Lincoln Atlas Missile base job, now one-third complete, was turned over to Army Engineers' Ballistic Missile Construction Office of Inglewood, California Saturday.

Colonel H. G. Woodbury, Jr., Omaha District Engineer, handed the construction responsibility to Colonel Woodrow Wilson, Director of the Atlas "F" category of missile bases of which the Lincoln complex is a part.

The change is part of a program to put missile base construction under one authority. Brig. General A. C. Welling is commander of the new construction set-up.

20 October 1960, (Thursday) - Colonel Vernon Hastings, commander of the Offutt-Lincoln Site Activation Task Force, in answering questions after a brief talk to a group of student members of the American Society of Mechanical Engineers at the University of Nebraska Wednesday night said:

"We can fire (the missile) in anything short of a tornado, without effect."

Asked where in Nebraska the fuel tank and propulsion stages of the 3-stage Atlas would drop if fired from this area, the Colonel replied:

"These stages will not drop in Nebraska but more than likely in the polar regions over which they cross. We have been able to predetermine where these stages will drop and seek to have this occur in sparsely populated regions."

One student posed the question of how the construction crews combat the high water tables in such areas as Seward and York, to which the Colonel's answer came back:

"Actually, last month we had the two deepest swimming pools in Nebraska." He added: "The Engineers and contractors did expect such difficulties, but it is far easier and more economical to pump water out while

constructing the concrete silo than to build another Lincoln Air Force Base in the area needing support. You can pump a lot of water for that price.

26 October 1960, (Wednesday) - Western Contracting Corporation has called on Secretary of Defense Thomas Gates to "take necessary action to end a strike" at the Brainard Missile site, which started 6 a.m. Tuesday.

Western Project Manager, Mason Travis, Lt. Colonel Hal Schroeder, assistant to the Army Engineers Area Engineer in Lincoln and news media were not able to reach business representatives of the Omaha local 1140 of the Laborers Union which called the strike by Wednesday noon.

James Hutt, one of Western's concrete superintendents attempted to take a picture of the signs carried by pickets on the access road to the site which referred to unsafe working conditions. Mason Travis said Hutt was attacked by 3 persons who had been sitting in a near-by car and was knocked down, beaten and kicked.

Site Superintendent Carl Estill asked and was removed from the Brainard site "in deadly fear for his safety and that of his family after threats. He fired a foreman last week for incompetence," Mason Travis said.

Neither Travis nor Colonel Schroeder had received any reports of unsafe conditions or any compliant from the union, both said.

Colonel Schroeder said the Army Engineers only concern in this strike is to try to get the two parties together to settle any differences.

"We had a representative at a trade union council meeting the other day and nothing was said about lack of safety," the Colonel said. He also said the Corps inspectors several days ago checked out the Brainard site for safety. "We would like to get to the bottom of this allegation that the job is unsafe. Making sure the job is safe on all 12 sites is an Engineer (Corps) responsibility," he added.

Mason Travis recalled that the only work stoppages through labor difficulties on the Lincoln sites has been occasioned by the Laborers Union since the Project began.

28 October 1960, (Friday) - Lincoln - The pickets around the Atlas site near Brainard withdrew Thursday under an injunction issued by the district court for Butler County.

Mason Travis, Project Manager for Western Contracting Corporation, said the injunction restrains Omaha Local 1140 Laborers Union from striking or picketing at any of the 12 missile sites in Southeast Nebraska.

The court, in David City, issued the injunction about noon, and the pickets withdrew shortly thereafter.

Travis said work then started on the unloading of steel, which had been waiting in trucks parked along the highway since the strike started Tuesday.

During the strike signs carried by pickets indicated the dispute was over "safety conditions", but Travis said he believed it probably was over the discharge of a foreman for incompetence.

7 November 1960, (Monday) - Cortland - A worker who was setting reinforcing steel at an Atlas missile site here was killed when he fell into the silo.

An Army Engineers spokesman identified him as Delbert T. Ryan, 34, of St. Peter, Minnesota. He was employed by the O. F. Salyer Company, a sub-contractor for Western Contracting Corporation.

A board of investigators has been named to investigate the accident.

10 November 1960, (Thursday) - The first liquid oxygen storage tank for the Lincoln area is on its way to a site near Tecumseh.

The 50-ton bottle came into Cortland, the central gathering place, by rail and was placed on a flat-bed trailer to be trucked to the site. It was manufactured in Los Angeles.

"It's sort of like building a boat in your basement," Lt. Colonel Hal Schroeder of the Army Engineers said.

"You have to do things in a certain order. This is one of the first vessels to go into the 'hole'. This is just another step along the road to activating the site," the Colonel said.

He said there was a set of 10 vessels going into each of the 12 sites or "silos" and that this 50-ton bottle would complete one set.

"In two or three months we will have all of the vessels in all of the 12 sites", he said.

10 November 1960, (Thursday) - The first few hundred feet of some 275 miles of moisture-resistant cable was buried 4 feet underground in a ceremony Thursday near Seward.

Actually the cable-laying got a jump on the ceremonies, beginning Monday, to take advantage of the weather.

Representatives from the Air Force as well as from the Advanced Communications Engineering of Washington, D. C. a division of Cook Electric Company of Chicago, the prime contractor, related construction companies, and delegates from the National Electrical Contractors Association were on hand for the ground breaking ceremony.

The cable will provide a fool-proof underground communication link of Lincoln Air Force Base and 12 southeast Nebraska Atlas ICBM sites.

The entire system will be tied in with the Strategic Air Command's world-wide alerting communication network.

22 November 1960, (Tuesday) - Another crises in the construction of the Lincoln Atlas Missile system, this time involving workers' paychecks, apparently was solved Tuesday afternoon.

The inability of a major sub-contractor, the Hansen-Keshner Company of Fresno, California, to meet its payroll caused the latest difficulty.

Work at the 12 Lincoln sites was not interupted but the workers employed by the defaulting sub-contractor gathered at the Lincoln Office of the Western Contracting Corporation, to "wait until we're paid."

Mason Travis, Western Project Manager, said Tuesday morning some $37,000 in payroll checks were available to the waiting men shortly after noon Tuesday.

He said he was not aware of the sub-contractors financial difficulties until last Friday.

"We immediately communicated with Hansen's bonding company, who instructed us to take over the remaining 15% of the work."

Travis said there is money now to cover the checks out.

Waiting workers complained they had been told "for 4 days their checks would be ready that day".

Bud Finell, business representative in Lincoln for Laborers Local Union 1140, said "some affected employees were getting pretty warm about it".

He also criticized Western's reluctance to deal directly with local representatives of the labor union which "provides about 800 workers on the missile sites".

Travis and the Army Engineers said the Hansen-Kashner firm evidentally hit financial difficulties in meeting the payroll of a 7-day 'round-the-clock' program and the overtime involved in such a schedule.

29 November 1960, (Tuesday), - Lincolns Atlas base construction is now at a peak at all 12 sites and is costing its builder and sub-contracting firms a weekly $450,000 in wages.

One Lincoln banking official calls this an"all-time record in weekly Lincoln payrolls".

About 1,900 employees, including 1,600 employed directly by Western and 300 by sub-contractors, are working on a "round-the-clock, 7-day schedule" at the sites to draw the money, according to Mason Travis, Western's Project Manager.

17 December 1960, (Saturday) - Avoca - Avoca Town Hall is jammed for first missile site meeting.

On the informative end of things was Colonel Thomas G. Corbin, 816th Air Division Commander at the Lincoln Air Force Base.

Corbin, flanked by a team of ballistic missile experts, is touring the 12 missile sites in the Lincoln area.

The next meeting will be at Cortland, Saturday.

The meeting in Avoca was the first of a planned program initiated by Colonel Corbin to inform the public in the vicinity of the missile bases of what is "going on" and to acquaint the public of the necessity of the bases.

2 February 1961, (Thursday) - Construction of the Lincoln Atlas Missile System is on schedule, says Project Manager, Mason Travis of Western Contracting Corporation.

He said the system of twelve launcher sites is 76.6% complete.

"The weather has been pretty much in our favor and no union complications have occurred to slow down our schedule," Travis said.

Completion of the 12-site construction, for which the Army Engineers Corps is responsible and Western is the contracting firm, is scheduled for late July.

16 February 1961, (Thursday) - Nebraska's most exotic gas station -- a liquid oxygen manufacturing plant at Lincoln AFB- was shown off for the first time Thursday.

The plant was toured by this area's newsmen.

It can produce 5,000 gallons of liquid oxygen or LOX daily.

The million dollar plant will manufacture LOX and liquid nitrogen for the 12 Atlas bases in the Lincoln area. It will also produce "breathing oxygen" used by LAFB air crews. It is scheduled to be in operation in about a month.

Two 28,000 gallon tanks adjacent to the plant provide storage space for the liquid oxygen and nitrogen. Truck trailers will load up at the plant tanks and will deliver it to similar storage tanks at the 12 Atlas sites.

16 February 1961, (Thursday) - Governor Frank Morrison of Nebraska was given a glimpse of Lincoln AFB defenses Wednesday.

The Governor and his assistant, Norman Otto, were briefed in detail on the mission and role of the air division and base, both as to its manned bombers and Atlas missile program.

After lunch, the Governor was flown by helicopter to an Atlas missile site Northwest of the base - about 20 minutes distance.

He was conducted through the missile's underground silo by Colonel Vernon Hastings and Lt. Colonel H. L. Schroeder, who are in charge of the missile construction program in this area.

After the 6½ hour tour of Lincoln AFB and the Atlas site the Governor said of the missile installation, "Every American ought to have the opportunity to see this."

27 February 1961, (Monday) - Washington - Garland Everist, President of Western Contracting Corporation, blamed the Army Corps of Engineers for most of the losses Western expects to incur while building the 12-Atlas sites near Lincoln.

He told a House committee that his company expects to lose $12 million on the project as a result of modifications in the original contract.

Everist spoke before the military construction sub-committee of the House Appropriations Committee in testimony which has just been released.

Some of Everist's comments:

"Despite modifications in 312 pages of the original 476 pages of specifications, Western was being held to its original contract completion date this Summer."

"Modifications have added 1,214 technical drawings to the 355 drawings included in the original contract."

"Our efforts to proceed are rendered ineffectual by the lack of prompt and uninhibited direction from the Corps of Engineers for successful handling of the day to day problems involved in such unusual work. This lack of unitary action in the program results in wasted efforts, inefficiency, low productivity and greatly increases the overall cost."

"Convair Astronautics (builder of the Atlas missile) were responsible for delaying work at 5 sites because of refusal to accept completed portions of the steel crib in which the missile will be housed."

"Convair people are swimming all over the sites apparently checking out the work we are doing so when they take it from some other agency, they will have approved of it at some previous point."

Everist was asked by sub-committee Chairman Harry R. Sheppard (D-Calif) "Insofar as Convair is concerned, they are not intervening into the picture to retard your function timewise?"

Everist answered, "Yes, they are, in their relationship with the Corps of Engineers."

He complained that Western's contract was with the Corps of Engineers, yet Convair, the Air Force and others were also evaluating it.

"Validations of portions of this work we are doing apparently has to be done by Convair before we can sell it to the Corps of Engineers," he said.

He said he was told by the original Contracting Officer that the "Corps was solely responsible for the execution of the work. Delays could be paid for, but time extensions could not be given."

He said no extensions were given nor were delays paid for and Western financed delays. He added that total contract modifications cost Western $23 million and that the Corps has allowed payment of only $3 million. The rest of the money is in controversy.

Asked if he felt Western was entitled to $23 million, he replied, "We would probably settle for less."

Everist testified in favor of a change in the type of contract that is used in the construction of missile sites. The change would allow the Contractor a set fee and would compel the Government to absorb the extra cost of contract modifications.

27 February 1961, (Monday) - Washington - House investigators said Sunday the Air Force program for construction of missile launchers is in a mess, with cost estimates now running nearly $100 million higher than original contracts.

The new estimates were disclosed by the House Military Construction Subcommittee in a report on an inquiry into elaborate missile sites now being built at some 20 Air Force bases in the U. S.

Subcommittee Chairman Harry R. Sheppard (D-Calif.), said, "Any way you look at this program things are in a mess."

He noted some improvement in the last few months but "all too long this program has been characterized by a failure of top level management to exercise proper control."

29 military and construction witnesses testified; including Garland Everist, President of Western Contracting Corporation - Building of the Lincoln Atlas sites.

28 February 1961, (Tuesday) - Speaking to the Engineers' Club of Lincoln, Colonel John Minahan, Lincoln Area Army Engineer said more than 50% of the original plans for Atlas missile sites have been changed since construction began in the Lincoln Area.

He said this was primarily because of changes in the missile itself and overall structure of the silos.

"The major problem we have faced is the forever flowing underground rivers," the Colonel said.

"We have had to set up elaborate dewatering systems, pumping water constantly out to the nearest river or run-off ditch."

He said the most water was at the Seward Site, retarding construction by 90 days.

Of the report that 85% of the sites are complete he said, "This does not mean we are almost through. The final 15% will be the hardest."

He said the Engineers expect to have their work complete this Summer.

4 March 1961, (Saturday) - Colonel Edward P. Denton, a veteran Air Force pilot, with more than 9,000 flying hours is the new Lincoln AFB Missile Squadron Commander.

Lincoln's Strategic Missile Squadron - the 551st - will become operational April 1, 1961. On that date, the squadron will activate its administrative section, assume responsibility for supply accounting, and begin a pre-training program. Complete activation will not take place until the missiles arrive.

4 March 1961, (Saturday) - Washington - The House Appropriations Committee, Friday, called for a "czar" over the missile program to cut costs and end divided responsibility.

It acted on the recommendations of a subcommittee which recently heard testimony on the conduct of the missile program.

It said divided responsibility within the Air Force and between it and the Army Corps of Engineers, "coupled with an abnormally large number of change orders and modifications and other problems, threaten to push costs to alarming proportions."

To direct the entire program, the committee said, there should be "a single head responsible directly to the Chief of Staff and the Secretary of the Air Force."

"The person filling this position should be charged with the full responsibility for the successful prosecution of this program and given complete authority to fulfill this responsibility."

4 March 1961, (Saturday) - Washington - Air Force Secretary Eugene Zuckert has denied that the launching pad program is in a "mess".

Zuckert said that "difficulties have arisen because of the complexity" of the construction program, but the total cost would be only about 4½% more than the amount Congress approved.

"Since the program was started," he said, "we have extended the Atlas ICBM program 72%, without additional appropriations. The survivability of the forces has been increased 5-fold."

7 March 1961, (Tuesday) - Milo J. Olson, 40, of Sioux City, Iowa, was killed Monday at a site near Elmwood when a vise fell 107 feet and struck Olson in the head.

Mr. Olson, a welder for Western Contracting Corporation was working in the lowest level in the silo when the vise fell from the 3rd level.

An investigation of the accident is under way.

18 March 1961, (Saturday) - Washington - Defense Secretary Robert S. McNamara Friday announced a sweeping Air Force re-organization designed to carry forward a March 6 directive giving the Air Force nearly all responsibility for Military space programs.

All Air Force space, weapons, communications and warning systems will be consolidated under Lt. General Bernard A. Schriever.

Schriever's outfit will be known as the "Air Force Systems Command."

It will include a section of the Army Engineers responsible for building missile bases.

General Thomas D. White, Air Force Chief of Staff said the Army Engineers shake-up was "not necessarily" in response to recent Congressional charges of incompetence and waste in connection with the missile base program.

The Engineers' section will be under Brig. General A. C. Welling of the Engineers, but he will report through the Air Force Command.

22 March 1961, (Wednesday) - Washington - Lt. Gen. Emerson C. Itschner, Chief of Army Engineers to retire soon.

Spokesmen were unable to say when his retirement will become effective but invitations have been mailed out for a retirement review parade for General Itschner on March 27.

He has been Chief of Engineers since October 1956.

5 April 1961, (Wednesday) - The 551st Strategic Missile Squadron at Lincoln AFB became operational "on paper" over the week end.

The squadron will eventually operate the 12-Lincoln missle sites. It currently consists of about 10 officers and 10 airmen, commanded by Colonel Edward P. Denton. It will eventually have about 1,000 men.

17 April 1961, (Monday) - The U. S. Chamber of Commerce reported Monday that the Lincoln area Atlas missile base work had more work stoppages than any of the other 20 - ICBM bases in the nation.

It said Lincoln had 30 work stoppages and 1,298 man days lost during 8 months ending last February.

The Army Engineers put the total of 1,300 with another 293 man days lost since February 28.

Western Contracting Corporation Project Manager, Mason Travis said 1,788 man days lost from July, 1960 to 22 March 1961.

18 April 1961, (Tuesday) - Washington - A Scientist, Dr. J. E. McDonald of the University of Arizona's Institute of Atmospheric Physics says that placing ICBM launching sites up wind of at least 9 major cities means nearly certain death for an additional 3 or 4 million Americans if the U. S. is attacked.

He said the launching sites are certain to be "targets of the heaviest nuclear attacks in the opening minutes of any sneak attack."

Omaha, Nebraska, Los Angeles, Topeka, Kansas, Kansas City, Memphis, Spokane, Washington, Tucson, Arizona, Wichita, Kansas, and Little Rock, Arkansas were the cities named.

18 April 1961, (Tuesday) - Western Contracting Corporation reported that the Atlas Site at Tecumseh should be complete and turned over to the Army Engineers for final inspection by May 1.

Sites at Brainard, Eagle and Wilber should follow in a period of about a week to 10 days.

Mason Travis, Project Manager, said the 12 sites in the system are about 92% complete as to construction.

26 April 1961, (Wednesday) - Washington - The Defense Dept. reports that Lincoln AFB Atlas missile complexes had 33 strikes which resulted in 1, 743 man days lost since April 1960.

12 May 1961, (Friday) - Washington - Sen. John L. McClellan, (D-Ark) Thursday denounced labor work stoppages at U. S. missile bases as "gouging", "sandbagging" and "blackmail." He called them a "sordid kind of extortion".

He called on Congress to pass a law outlawing deliberate work stoppages on vital Government contracts.

He blamed unions, management and Military overseers for the "intolerable" situation.

17 May 1961, (Wednesday) - Omaha - A $56,989 contract for construction and installation of safety platforms at each of the 12 Lincoln Atlas sites has been awarded to Denver Steel & Iron Works, Denver, Colo., a division of Idaho-Maryland Industries, Inc.

The announcement came from Omaha Distric Engineer Colonel H. G. Woodbury, Jr.

The Government estimate was $97,050. Denver Steel submitted the lowest of 9 bids.

27 May 1961, (Saturday) - Washington - The Government came up Friday with a labor peace plan for missile and space bases and officials said they are sure it will work.

The plan involves a firm no-strike pledge from labor unions and a no-lockout pledge from manufacturers and contractors - along with a new 11-man "Missile Sites Labor Commission" designated to settle all disputes.

Secretary of Labor, Arthur J. Goldberg, will head the Commission, with William E. Simkin, Director of the Federal Mediation and Conciliation Service, serving as Co-Chairman.

Three top representatives each from the public, labor unions and management round out the commission.

President Kennedy expressed confidence to the Secretary of Labor, who arranged the new peace plan, that it will enable fast and economical completion of the nation's multibillion dollar space projects.

12 June 1961, (Monday) - A $1 million Atlas missile maintenance area has been completed at Lincoln AFB.

The area consists of a specially-designed maintenance building and an addition to the base supply building.

Lt. Col. Frederick Marsh, Chief of Missile Maintenance said the building will house the specialist maintenance shops, maintenance control room and administration offices.

15 June 1961, (Thursday) - Omaha - A. O. Smith Corporation, Milwaukee, Wisconsin, was apparent low bidder Wednesday on a U. S. Army Engineer project involving installation of fuel catchment tank systems at 12-missile base sites near Lincoln.

The Smith bid was $169,720 compared with the Engineers' estimate of $241,450. The highest bid of 4 received was $276,000 by Korshoj Co., Blair, Nebraska.

15 June 1961, (Thursday)David City - A construction worker from Davey, W. Va., was killed at a missile site near Brainard, Nebraska.

The victim, Cecil Belcher, 41, had been working in the fill and vent shaft and fell as he was climbing out.

9 June 1961, (Friday) - Tecumseh - The Tecumseh Site, the first of 12 underground missile complexes in the Lincoln Area was turned over to the Air Force by the U. S. Corps of Engineers today. A brief ceremony attended by three helicopter loads of top brass marked the end of the first major phase of construction.

An oversize key, symbolic of the milestone, was presented Colonel V. L. Hastings, SATAF Commander, by Colonel John E. Minahan of the Corps of Engineers.

Mason Travis, Western Contracting Corporation Project Manager, said the remaining 11 sites will be transferred at intervals of approximately one week.

The Tecumseh facility will now enter the installation and check-out phase handled by General Dynamics Astronautics. It will be supervised by the Lincoln Site Activation Task Force (SATAF), a branch of the Air Force Ballistic Systems Division.

18 June 1961, (Friday) - Wilber - A worker at the Atlas Missile site near here was killed Friday when a safety cap holding 4,000 lbs. of pressure blew off and knocked him 35 feet to the bottom of the pit.

He was Stiles Berry, 58, of Little Rock, Arkansas. Death resulted from the cap striking his body and not from the fall, officials said.

26 June 1961, (Monday) - Brainard - Another Atlas silo was accepted Monday by Col. Vernon L. Hastings, SATAF Commander from Col. John E. Minahan, Area Engineer for the Corps of Engineers.

2 July 1961, (Sunday) - General Dynamics/Astronautics will employ some 2,600 workers to install the electronic components and other equipment for the Lincoln Atlas missile system.

GD/A's payroll will go up as Western Contracting Corporation's employee total declines. GD/A and its sub-contractors begin work as Western turns the missile sites over to the Army Engineers Corps. GD/A's phase of construction will bring a payroll of between $20 and $26 million to South-eastern Nebraska, annually.

17 July 1961, (Monday) - Hyannis Port, Mass. - President Kennedy got a report Sunday that work stoppages from labor disputes at the nation's missile sites dropped sharply in June compared with last year.

Secretary of Labor, Arthur Goldberg, Chairman of the Missile Sites Labor Commission set up by President Kennedy, May 26, said man days of work lost in June equalled only a little over 1% of the time lost earlier.

Mr. Goldberg reported that labor relations committees have been set up at the 21 missile sites under the Commission's jurisdiction. He said during 1960 a total of 86,000 man days of work were lost because of strikes at missile and space sites. That's an average of over 7,000 man days a month. In June 1960, 26,217 man days were lost in work stoppages. He explained that the high June total was due chiefly to the fact that June is contract re-negotiating month.

23 July 1961, (Sunday) - Washington - The 11-man Missile Sites Labor Commission announced in a policy statement that it was going to check contracts covering missile base construction work to try and end "unreasonable" provisions.

The action is designed to bolt or modify some of the labor-management practices disclosed by the Senate Investigations Committee headed by John L. McClellan (D-Ark).

Testimony indicated that some craftsmen received up to $800 a week because of contract clauses that awarded them as much as 4 times their normal pay.

"Wage rates, fringe benefits and other conditions of employment should not be negotiated which establish more costly standards on missile and space site construction than are made applicable to other construction activity in similar circumstances," said Labor Secretary Goldberg, who head the 11-man Missile Sites Labor Commission.

26 July 1961, (Wednesday) - York - One man died in the nitrogen-filled fill and vent shaft of an Atlas site near York Tuesday and two fellow workmen were overcome as they went to his aid, but a fourth workman donned skin-diving equipment and saved them.

The victim was Harold D. Odle, 26, Wichita, Kansas, an employee of the Paul Hardeman Company.

Robert Hartsoe of Chase City, Virginia, and Warren Miller of South Hill, Virginia, fell about 47 feet when they were overcome as they went to Odle's aid.

Other workmen dropped hoses from oxygen bottles into the shaft in an effort to provide oxygen for the men in the shaft.

Jerry May, 27, of Central City, a hobby skin diver, donned air tanks, went down into the shaft and passed lines around the three men so they could be raised to the surface. He was uninjured.

Site Superintendent H. L. Rochelle said that had it not been for May's act, Hartsoe and Miller might have died.

A leak developed during a pressurization test on high pressure nitrogen gas lines and filled the shaft with nitrogen, thereby displacing the air in the shaft.

2 August 1961, (Wednesday) - Fidelity Title Insurance Company of Lincoln was the apparent low bidder Thursday for a federal contract to obtain title evidence policies on 75 parcels of real property in connection with missile sites.

The Corps of Engineers is handling the contract for the missile sites which will be located in 8 counties: Cass, Gage, Otoe, Butler, Johnson, Lancaster, Saline, and York.

3 August 1961, (Thursday) - Washington - Labor Secretary Arthur J. Goldberg reported Wednesday after a 2-day tour of key missile bases that man-days lost to strikes at the launching sites fell to an all-time low of 209 in July.

He praised workers and contractors for their record of uninterrupted performance.

Goldberg made his trip as chairman of the Missile Sites Labor Commission which was set up to end delay and wasteful practices.

8 August 1961, (Tuesday) - The Army Engineers will acquire some rights to 75 parcels of land in 9 Nebraska counties according to L. Y. Lawton of the real estate division of the Corps.

The properties are adjacent to missile sites and will be posted and patrolled for safety sake, Lawton said.

4 September 1961, (Monday) - Edward L. McCartney, 50, of Lincoln was killed Saturday night when a "freak tornado" lashed through the missile base near Palmyra where he was standing guard.

McCartney was in a guard trailer at the gate to the base when the tornado caught it up and rolled it on its sides for about 150 feet.

It was Mr. McCartney's first day on the job and he had been on duty only a few hours when the incident occurred.

The tornado did little other damage in the Palmyra missile site area aside from tearing down a few wires, according to Otoe County Sheriff, Ralph Hall.

Another "freak" tornado hit a missile site near Elmwood, Nebraska, and rolled over and split a trailer. A Quonset hut was damaged and a car was demolished but no injuries were reported, according to Frank N. Vivant of the Western Contracting Corporation missile site builder.

7 September 1961, (Thursday) - Omaha - SAC headquarters said Wednesday the Atlas Missile Complex at Lincoln will be equipped with the new "F" series missile, which was tested at Cape Canaveral, Florida last month.

The "F" series main propulsion system develops 389,000 pounds of thrust, 165,000 in each of two booster engines and 57,000 in a single sustainer engine.

13 October 1961, (Friday) - The first Atlas "F" missile designed for Lincoln Area bases arrived at Lincoln Air Force Base. The missile, now weighing 50,000 pounds, will weigh 360,000 pounds when combat ready.

The 75-foot long missile arrived during the night aboard a giant Air Force C-133 Cargomaster plane. It was towed to the missile assembly and maintenance building on the base.

16 October 1961, (Monday) - Seward - The last and nearest Atlas "F" missile silo complex in the Lincoln Area is complete.

A brief ceremony took place today at the Seward site to mark the completion of the construction phase of this, the last of 12 complexes surrounding the Lincoln Air Force Base.

Air Force and civilian officials witnessed the formal turnover of the silo from Colonel John E. Minahan, Lincoln Area Engineers Ballistic Missile Construction Officer, to Colonel Vernon L. Hastings, Commander of the Wahoo SATAF.

Completion of the Seward silo marks the end of a long, hard struggle against sifting sand, and gallons upon gallons of water, dozens of feet underground. At times, wet clay flowed into the silo almost as fast as it would be removed. Work nearby stood still on various occasions.

Even with these extra problems, other work was set at a more rapid pace, and the construction phase was completed on schedule according to Colonel Hastings, SATAF Commander.

19 October 1961, (Thursday) - Major Alexander P. de Seversky, aviator, aircraft designer and author, visited Lincoln Air Force Base Tuesday for a briefing and inspection of Atlas missile complex developments. He visited the Brainard Atlas site by helicopter. Major de Seversky has been a frequent consultant to the Secretary of the Air Force.

6 November 1961, (Monday) - In a brief ceremony at the Atlas site near Elmwood, Nebraska, Lt. Colonel Lester J. Henderson blocked in the last square of a chart, marking the completion of the more than 200 validations and test procedures supervised by the Army Engineers during the construction phase of the Atlas Complexes.

1 January 1962 (Monday) - Colonel John E. Minahan turned over the office of Lincoln Area Engineer to Lt. Colonel Lester J. Henderson, effective this date.

1 March 1962 (Thursday) - Lt. Colonel Hal E. Schroeder, who first entered the missile program as Assistant Deputy District Engineer to Colonel Haley in the ICBM program, retired effective this date. Colonel Schroeder later served as the Area Engineer at Offutt and Lincoln and as the Special Assistant to Director, Atlas F, stationed at Lincoln. After retirement, he is to be the Manager-Engineer for the Salt-Wahoo Watershed District, Lincoln, Nebraska.

5 March 1962, (Monday) - Washington - The Air Force said hurry-up construction procedures were mostly to blame for a $225 million bad guess on the cost of building launching bases for Atlas and Titan missiles.

Air Force Secretary Zuckert told a Senate Armed Services subcommittee that as a time saver, the Air Force began building the huge concrete bases long before the missiles they were to house had been flown, "much less fully tested", and construction schedules were "tightly compressed".

"Estimating is difficult enough for routine construction;".....Beyond a doubt, however, missile base construction has never been routine. Whether the test is size, first of a kind technology, or urgency, it has no parallel in past experience," Mr. Zuckert said.

The Secretary also listed labor disputes, bad weather and adverse sub-surface conditions as reasons why estimates of missile base construction costs have jumped to $1,273,000,000 from $1,048,000,000 last July.

What is "unique" in this program is the extent to which a base change generates indirect costs, Mr. Zuckert declared. "Typically, major changes did not occur until the work was well under way, precisely when their impact was greatest," he said. "In the later stages, more over, the effect was further heightened as changes accumulated, and were superimposed, one upon the other. So it was, all too often, that contractors themselves were not aware of the full cost of a change until after the fact, and only then were able to submit documented cost proposals."

The Secretary expressed hope that the current estimate ($1,173,000,000) is accurate. He noted that it includes a $25 million cushion to cover additional unforeseen costs.

PART II

SECTION 1

Map of Titan and Atlas Site in United States at Time of this Project.

Vicinity Area Map of Lincoln Atlas Missile Squadron.

Railroad Facilities Map for Southeastern Nebraska.

Complex Site Location on Aeronautical Map.

Access Road Maps (2).

Sources of Electric Power for Missile Complexes.

Map of Electric Power Sources in Nebraska.

General Layout and Sources of Water for Complexes.

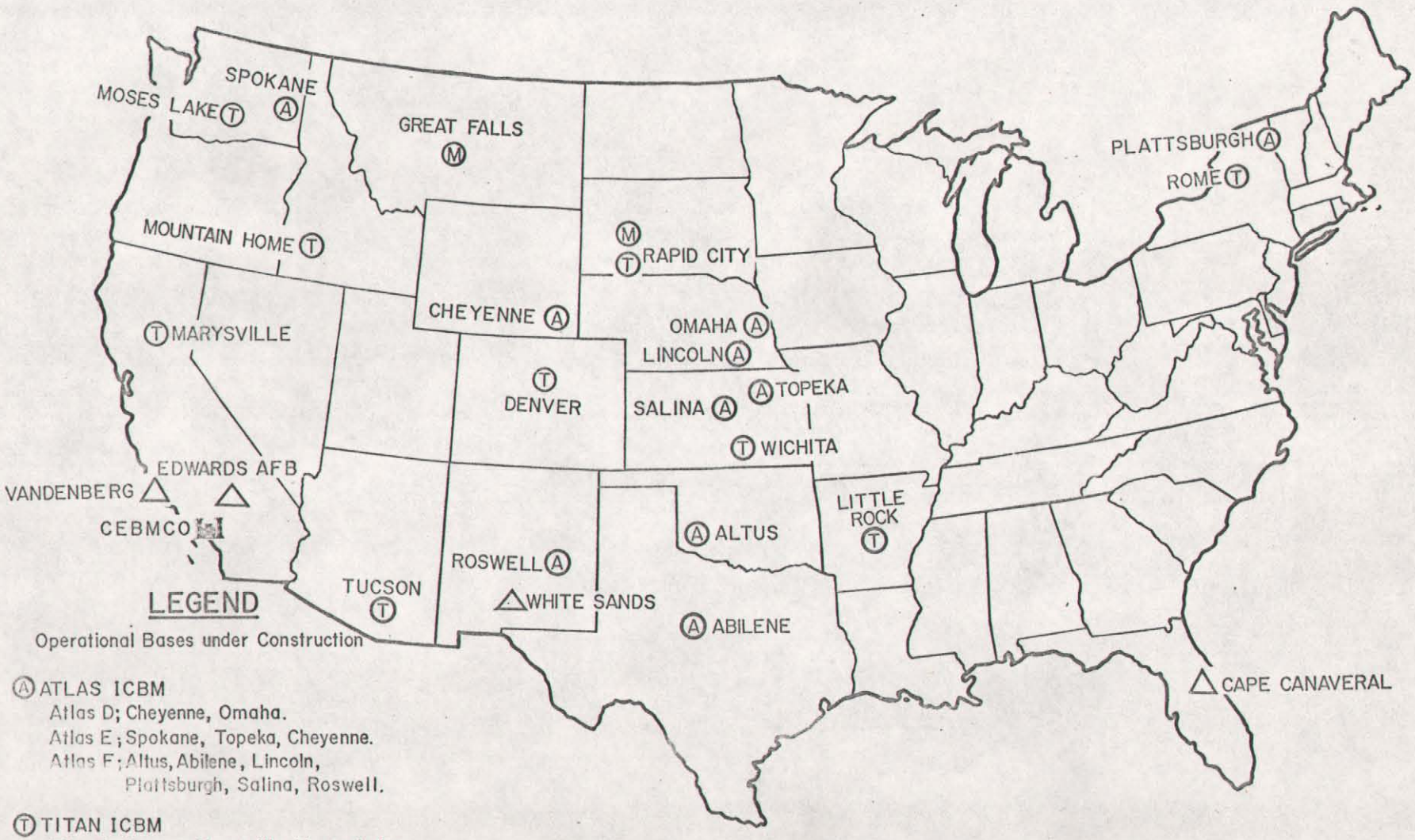
SECTION 2

Physiography, Topography and Geology of Sites with Maps and Ground Water Conditions of Sites and Geologic Section of Silos, by Site.

Climatological Maps showing Temperatures and Precipitation Indicated by Isolines - Annex D.

U.S. ARMY CORPS OF ENGINEERS

MISSILE & SPACE CONSTRUCTION PROGRAMS



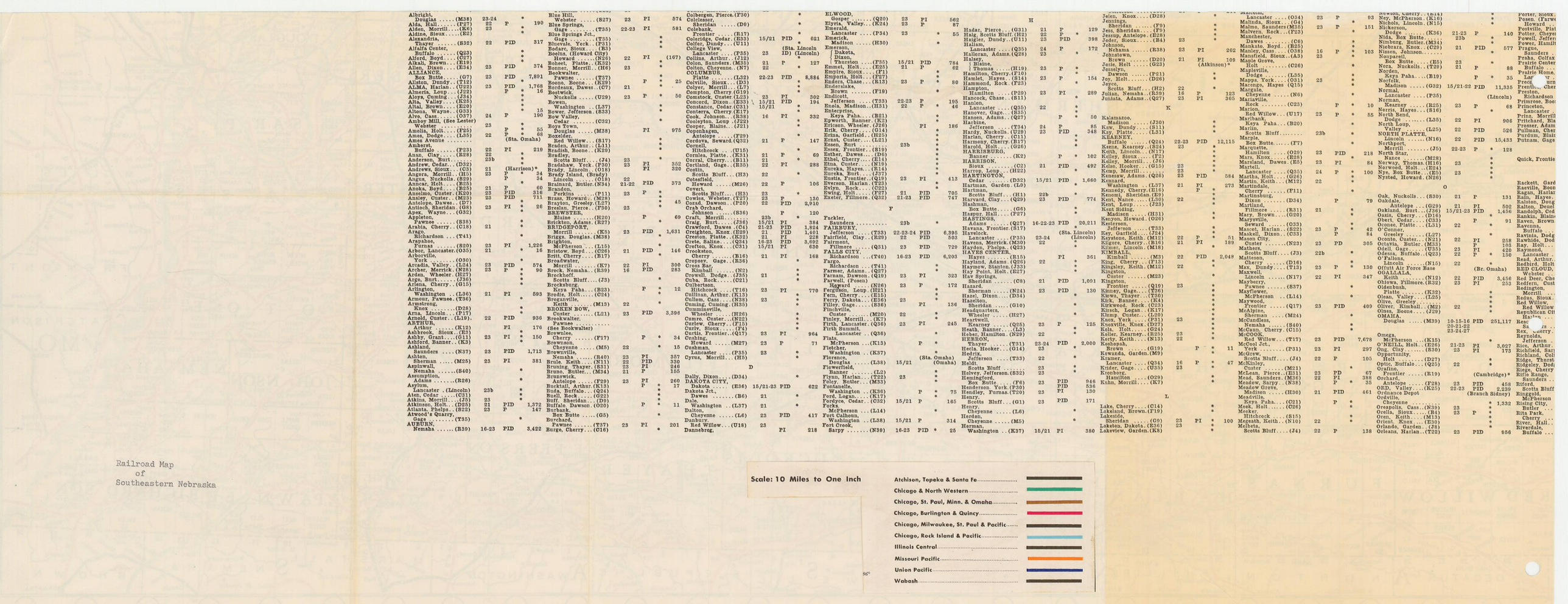
Ⓐ ATLAS ICBM
Atlas D; Cheyenne, Omaha.
Atlas E; Spokane, Topeka, Cheyenne.
Atlas F; Altus, Abilene, Lincoln, Plattsburgh, Salina, Roswell.

Ⓣ TITAN ICBM
TitanI; Denver, Marysville, Moses Lake, Mt. Home, Rapid City.
TitanII; Little Rock, Rome, Tucson, Wichita.

Ⓜ MINUTEMAN ICBM
Great Falls, Rapid City

△ SPECIAL FACILITIES; including testing, training and operational sites.

CORPS OF ENGINEERS BALLISTIC MISSILE CONSTRUCTION OFFICE


Railroad Map
of
Southeastern Nebraska
Scale: 10 Miles to One Inch
Atchison, Topeka & Santa Fe
Chicago & North Western
Chicago, St. Paul, Minn. & Omaha
Chicago, Burlington & Quincy
Chicago, Milwaukee, St. Paul & Pacific
Chicago, Rock Island & Pacific
Illinois Central
Missouri Pacific
Union Pacific
Wabash


CUSTER
SHERMAN
HOWARD
MERRICK
POLK
BUTLER
SAUNDERS
DOUGLAS
SARPY
LINCOLN
DAWSON
BUFFALO
HALL
HAMILTON
YORK
SEWARD
LANCASTER
CASS
OTOE
FRONTIER
GOSPER
PHELPS
KEARNEY
ADAMS
CLAY
FILLMORE
SALINE
JOHNSON
NEMAHA
RED WILLOW
FURNAS
HARLAN
FRANKLIN
WEBSTER
NUCKOLLS
THAYER
JEFFERSON
GAGE
PAWNEE
RICHARDSON
DECATUR
NORTON
PHILLIPS
SMITH
JEWELL
REPUBLIC
WASHINGTON
MARSHALL
NEMAHA
BROWN
FREMONT
ATCHISON
MO.
OMAHA
LINCOLN
GRAND ISLAND
HASTINGS
KEARNEY
COUNCIL BLUFFS
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COLUMBUS
SCHUYLER
NORTH BEND
FREMONT
ARLINGTON
SITE B
TO BLAIR
SILVER CREEK
PLATTE RIVER
BUTLER
POLK
DAVID CITY
SAUNDERS
DOUGLAS
VALLEY
ELKHORN
OMAHA
PROPOSED
BOYS TOWN
SHELBY
RISING CITY
WAHOO
MEAD
AFBMD FIELD OFFICE NO. 2
SITE A
MILLARD
RALSTON
OSCEOLA
NORTH BRANCH BIG BLUE RIVER
GRETNA
INTERSTATE ROUTE
BELLEVUE
OFFUTT AIR FORCE BASE
STROMSBURG
SARPY
VALPARAISO
CERESCO
ASHLAND
PLATTSMOUTH
GREENWOOD
551-9
551-7
551-8
SEWARD
YORK
LINCOLN AIR FORCE BASE
CASS
PROPOSED INTERSTATE ROUTE
LINCOLN
ELMWOOD
EAGLE
551-1
551-10
551-11
AVOCA
UNION
MILFORD
LANCASTER
PALMYRA
SYRACUSE
551-12
OTOE
551-2
NEBRASKA CITY
MISSOURI RIVER
FAIRMONT
EXETER
FRIEND
DORCHESTER
CRETE
551-4
GENEVA
SALINE
FILLMORE
WILBER
CORTLAND
LITTLE NEMAHA RIVER
551-6
551-3
NORTH FORK BIG NEMAHA RIVER
AUBURN
TECUMSEH
BIG BLUE RIVER
GAGE
JOHNSON
NEMAHA
BEATRICE
THAYER
JEFFERSON
551-5
HEBRON
DESHLER
FAIRBURY
BLUE SPRINGS
WYMORE
PAWNEE CITY
PAWNEE
R-4-W R-3-W R-2-W R-1-W R-1-E R-2-E R-3-E R-4-E R-5-E R-6-E R-7-E R-8-E R-9-E R-10-E R-11-E R-12-E R-13-E R-14-E R-15-E
T-17-N T-16-N T-15-N T-14-N T-13-N T-12-N T-11-N T-10-N T-9-N T-8-N T-7-N T-6-N T-5-N T-4-N T-3-N T-2-N T-1-N

GRAPHIC SCALE — MILES
0 4 8 12 16 20

THIS DRAWING HAS BEEN REDUCED TO THREE EIGHTHS THE ORIGINAL SCALE

THIS PLAN ACCOMPANIES CONTRACT NO. DA-25-066-ENG-6186 MODIFICATION NO. 12

REVISION	DATE	DESCRIPTION	AGENCY	INITIAL
M/12	3-17-60	Added Sites 551-10, 551-11, 551-12.	B&V	R.F.R.

BLACK & VEATCH
CONSULTING ENGINEERS
KANSAS CITY, MISSOURI

DEPARTMENT OF THE AIR FORCE
AIR FORCE BALLISTIC MISSILE DIVISION (ARDC)
INGLEWOOD, CALIFORNIA

DESIGNED BY A.B.R. DATE 1-25-60
DRAWN BY R.H.P. 1-25-60
CHECKED BY R.J.M. 1-25-60
SUBMITTED BY Black & Veatch 1-28-60

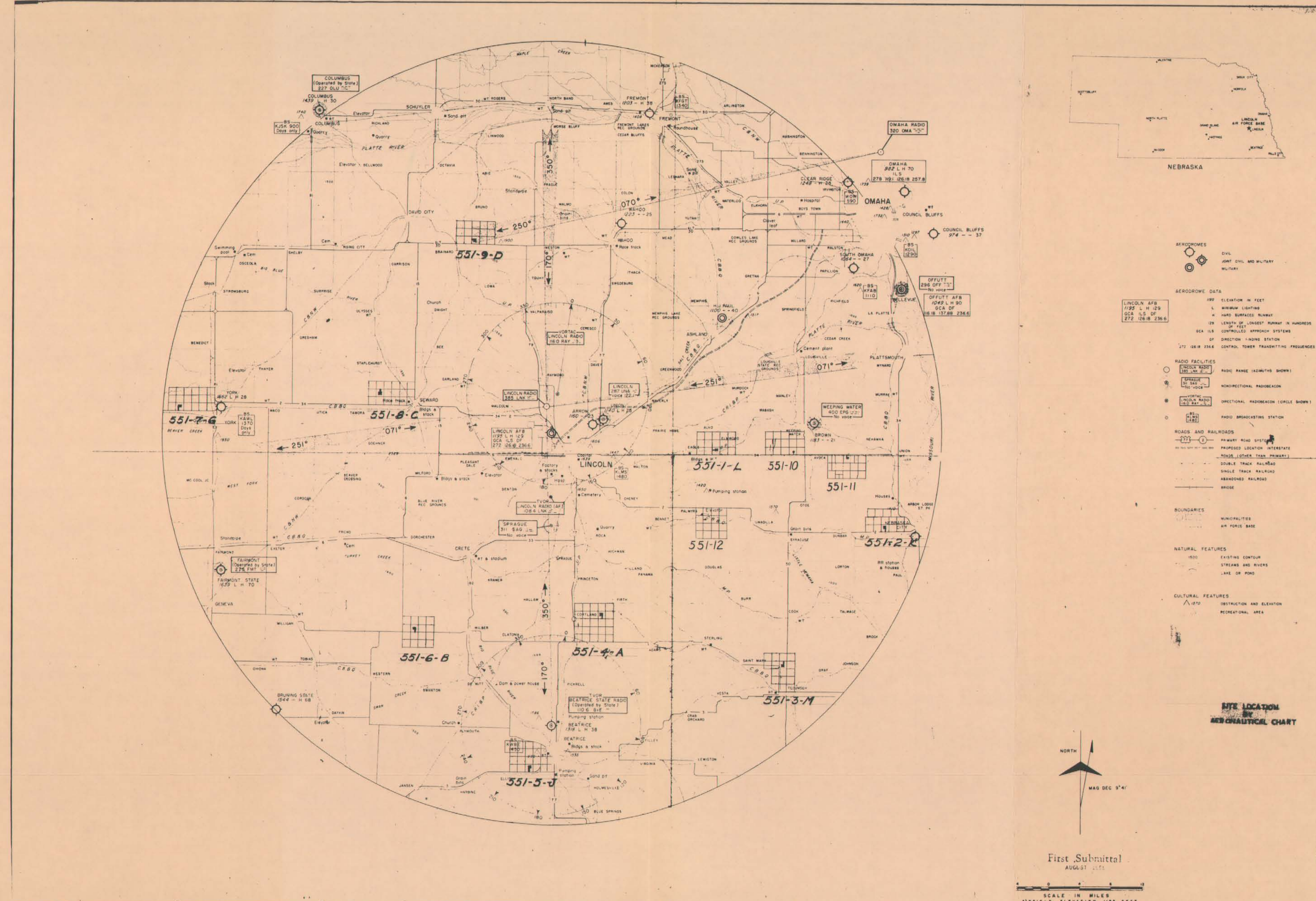
WS-107A-1 OPERATIONAL BASE
LINCOLN A.F.B., NEBRASKA
SMS-551

VICINITY MAP

5F-1.6

APPROVED: DATE
AFBMD

SPECIFICATION NO. ENG. 25-066-60-52
DATE 25 Jan 1960 SCALE 1" = 4 MILES
DRAWING NUMBER 389-X-3-C-1 M/12 3-2



NEBRASKA
AERODROMES
CIVIL
JOINT CIVIL AND MILITARY
MILITARY
AERODROME DATA
ELEVATION IN FEET
MINIMUM LIGHTING
HARD SURFACED RUNWAY
LENGTH OF LONGEST RUNWAY IN HUNDREDS OF FEET
CONTROLLED APPROACH SYSTEMS
DIRECTION FINDING STATION
CONTROL TOWER TRANSMITTING FREQUENCIES
RADIO FACILITIES
RADIO RANGE (AZIMUTHS SHOWN)
NONDIRECTIONAL RADIOBEACON
DIRECTIONAL RADIOBEACON (CIRCLE SHOWN)
RADIO BROADCASTING STATION
ROADS AND RAILROADS
PRIMARY ROAD SYSTEM
PROPOSED LOCATION INTERSTATE
ROADS (OTHER THAN PRIMARY)
DOUBLE TRACK RAILROAD
SINGLE TRACK RAILROAD
ABANDONED RAILROAD
BRIDGE
BOUNDARIES
MUNICIPALITIES
AIR FORCE BASE
NATURAL FEATURES
EXISTING CONTOUR
STREAMS AND RIVERS
LAKE OR POND
CULTURAL FEATURES
OBSTRUCTION AND ELEVATION
RECREATIONAL AREA
LINCOLN AFB
1195 L H 129
GCA ILS DF
272 126.18 236.6
SITE LOCATION BY AERONAUTICAL CHART
NORTH
MAG DEC 9°4'
First Submittal
SCALE IN MILES
AIRFIELD ELEVATION 1195 FEET
LINCOLN
OMAHA
COUNCIL BLUFFS
FREMONT
COLUMBUS
SCHUYLER
WAHOO
SEWARD
YORK
CRETE
BEATRICE
ASHLAND
PLATTSMOUTH
DAVID CITY
PLATTE RIVER
551-1-L
551-2-K
551-3-M
551-4-A
551-5-J
551-6-B
551-7-G
551-8-C
551-9-D
551-10
551-11
551-12

SITE "C"-8
DIVISION ENGINEERS PROJ. Nº 10-C
SEWARD COUNTY

SITE "A"-4
DIVISION ENGINEERS PROJ. Nº 10-A
GAGE COUNTY

SITE "M"-3
DIVISION ENGINEERS PROJ. Nº 10-M
JOHNSON COUNTY

SITE "G"-7
DIVISION ENGINEERS PROJ. Nº 10-G
YORK COUNTY

SITE "D"-9
DIVISION ENGINEERS PROJ. Nº 10-D
BUTLER COUNTY

SITE "L"-1
DIVISION ENGINEERS PROJ. Nº 10-L
CASS COUNTY

SITE "K"-2
OTOE COUNTY

LINCOLN AIR FORCE BASE

SITE "B"-6
SALINE COUNTY

SITE "J"-5
GAGE COUNTY

STATE OF NEBRASKA

SKETCH MAP
FOR

MISSILE ACCESS ROAD REPORT

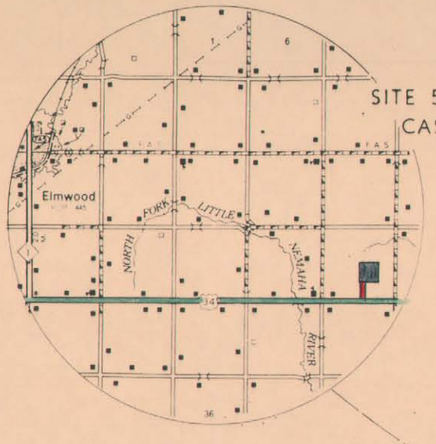
LINCOLN AIR FORCE BASE
LINCOLN, NEBRASKA

Main U.S., State & County roads to sites - -
Access Roads built by Army Engrs.--
DIVISION ENGINEERS REPORT Nº 10

REVISED FEBRUARY 1960
DATE

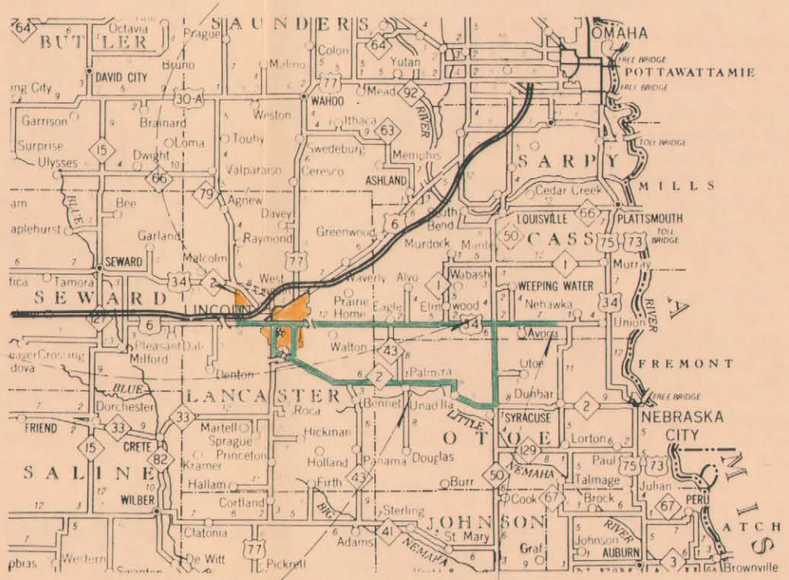
Project No. 10-A, B, C, D, G, J, K, L & M.
Project Detours
Initial Hard Surfaced Routes
Ultimate Hard Surfaced Routes
Alternate Routes Containing Gravel Roads
Structures With Restrictive Clearances

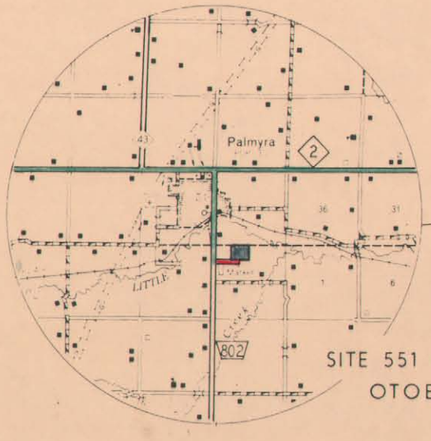
PRINTED BY CHARLES BRUNING CO., INC.



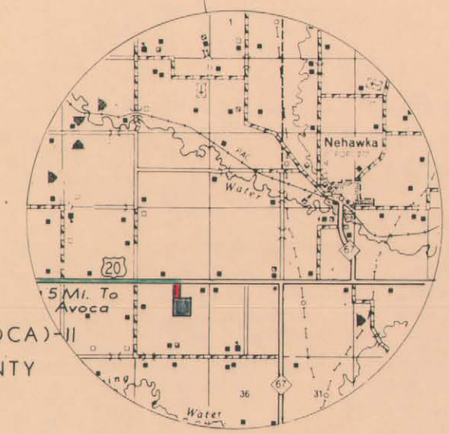
SITE 551 (ELMWOOD)-10
CASS COUNTY

LINCOLN AIR FORCE BASE





SITE 551 (PALMYRA)-12
OTOE COUNTY



SITE 551 (AVOCA)-11
CASS COUNTY

STATE OF NEBRASKA

SKETCH MAP
FOR

MISSILE ACCESS ROAD REPORT

LINCOLN AIR FORCE BASE
LINCOLN, NEBRASKA

Main U.S., State & County Roads to Sites -
Access Roads built by Army Engrs. -

DIVISION ENGINEERS REPORT Nº 15

Revised July 21, 1960
Date

Project No 15
Project Detours
Initial Hard Surfaced Routes
Ultimate Hard Surfaced Routes
Alternate Routes Containing Gravel Roads
Structures With Restrictive Clearances

PRINTED BY CHARLES BRUNING CO., INC. BRUNING BLUEPRINT NO. 378

SOURCES OF ELECTRIC POWER FOR CONSTRUCTION AND TESTING PURPOSES

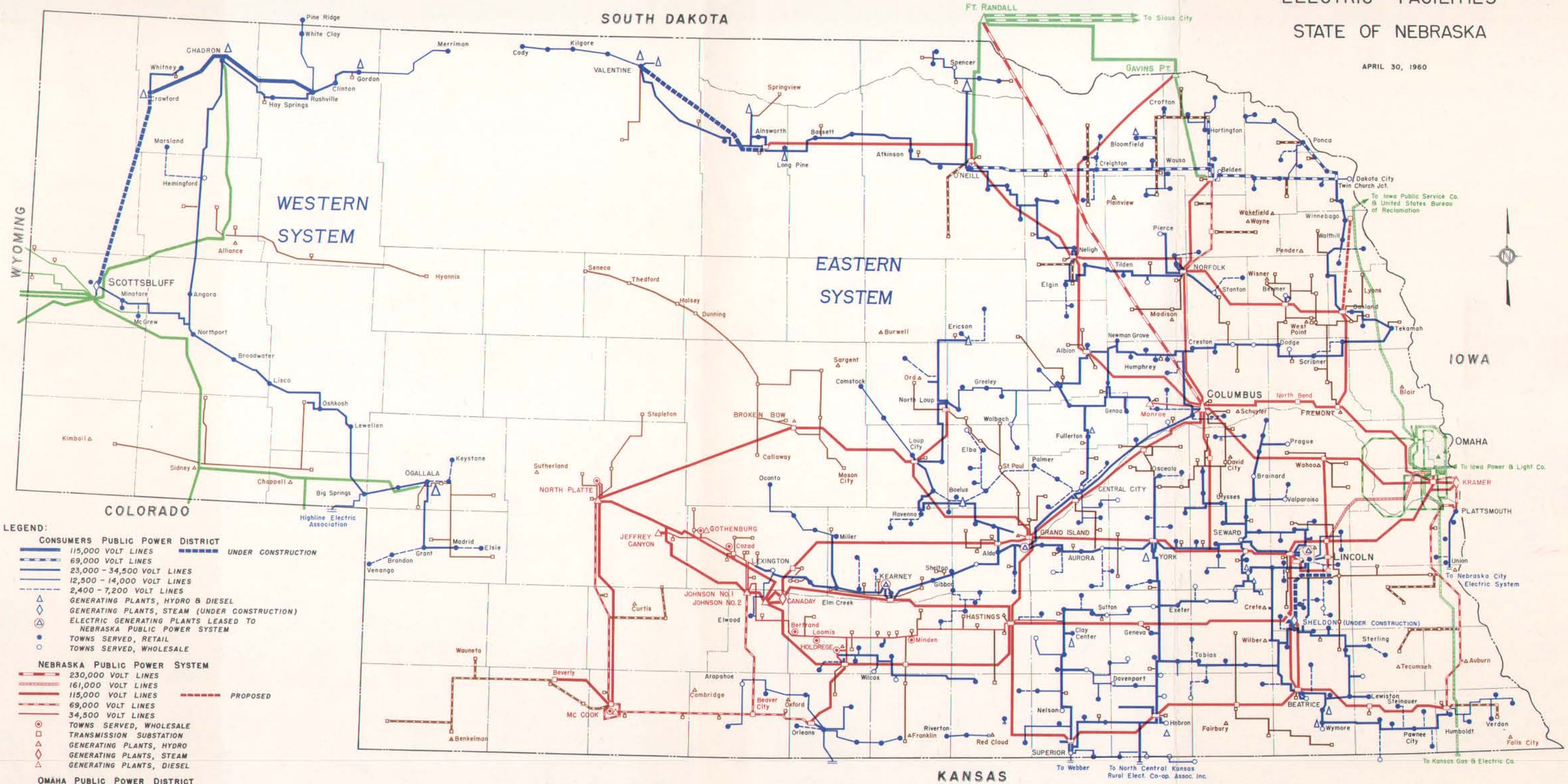
COMPLEX	SERVED BY & HEADQUARTERS DISTRICT	PRIMARY VOLTAGE TO SITE
Site No. 1	Eastern Nebraska Public Power, Syracuse	12.47 KV
Site No. 2	Nebraska City Power & Light District	24.9 KV
Site No. 3	Eastern Nebraska Public Power District, Syracuse	12.47 KV
Site No. 4	Consumers Public Power District	34.5 KV 4160/2400
Site No. 5	Norris Public Power District, Beatrice	12.5 KV
Site No. 6	Consumers Public Power District, Beatrice	34.5 KV 4160/2400
Site No. 7	Consumers Public Power District, York	34.5 KV 4160/2400
Site No. 8	Seward County Public Power District, Seward	12.47 KV
Site No. 9	Consumers Public Power District, York	34.5 KV 4160/2400
Site No. 10	Omaha Public Power District, Omaha	13.2 KV
Site No. 11	Eastern Nebraska Public Power District, Syracuse	12.47 KV
Site No. 12	Nebraska City Power and Light	24.9 KV

Secondary voltage was 440 volts, 3 phase, except for Sites 7 and 8 which were 220 volts, 3 phase initially and later changed to 440 volts, 3 phase. All sites had 120/240 volt single phase power also for lighting purposes, tools and other single phase applications.

PREPARED BY
R. W. BECK AND ASSOCIATES
UTILITY ANALYSTS AND ENGINEERS
COLUMBUS, NEBRASKA – SEATTLE, WASHINGTON

ELECTRIC FACILITIES
STATE OF NEBRASKA

APRIL 30, 1960



LEGEND:

CONSUMERS PUBLIC POWER DISTRICT
- 115,000 VOLT LINES — UNDER CONSTRUCTION
- 69,000 VOLT LINES
- 23,000 – 34,500 VOLT LINES
- 12,500 – 14,000 VOLT LINES
- 2,400 – 7,200 VOLT LINES
- GENERATING PLANTS, HYDRO & DIESEL
- GENERATING PLANTS, STEAM (UNDER CONSTRUCTION)
- ELECTRIC GENERATING PLANTS LEASED TO NEBRASKA PUBLIC POWER SYSTEM
- TOWNS SERVED, RETAIL
- TOWNS SERVED, WHOLESALE

NEBRASKA PUBLIC POWER SYSTEM
- 230,000 VOLT LINES
- 161,000 VOLT LINES
- 115,000 VOLT LINES — PROPOSED
- 69,000 VOLT LINES
- 34,500 VOLT LINES
- TOWNS SERVED, WHOLESALE
- TRANSMISSION SUBSTATION
- GENERATING PLANTS, HYDRO
- GENERATING PLANTS, STEAM
- GENERATING PLANTS, DIESEL

OMAHA PUBLIC POWER DISTRICT
- 161,000 VOLT LINES
- 69,000 VOLT LINES
- GENERATING PLANTS, STEAM

RURAL AND MUNICIPAL SYSTEMS
- 69,000 VOLT LINES
- 34,500 VOLT LINES
- RURAL SUBSTATIONS
- MUNICIPAL GENERATING PLANTS

UNITED STATES BUREAU OF RECLAMATION
- 230,000 VOLT LINES
- 115,000 VOLT LINES
- 34,500 VOLT LINES
- GENERATING PLANTS, HYDRO

0 10 20 30 40 50
SCALE OF MILES

GEOLOGICAL MAPPING OF COMPLEXES

Geologic mapping during the excavation phase of the 12 Lincoln Air Force Base Auxiliary Sites began in early May and continued through December 1960. Initially, one geologist from the Omaha District was attached to the Lincoln Area Office for geologic mapping. In early July, shaft excavation at 6 of the 12 sites had begun and work on the open excavation at most of the remainder of the sites had started.

At this time, a second geologist was assigned to the project to assist with the field mapping. Field geologic work was continued until 28 November 1960, when excavation of 11 of the 12 sites was essentially complete; after this date, one geologist remained in the field through December 1960 to continue mapping at Site 8 (Seward) where excavation for the silo had been delayed. Shaft excavation work was normally in progress 7 days a week, 24 hours a day. Wood lagging, gunite and wire mesh, or metal liner plate was usually placed in the interval between 2 ring beams within 24 hours after the installation of the lower ring beam. Geologic mapping was carried out 6 days a week, 8 hours per day. Daily visits to each site were made when practicable, but due to the number of sites being worked simultaneously and the distances between the sites, this was not always possible. During active excavation, geologic mapping visits were normally made at a site at least every 2 days.

The following gives a schedule of the Geological Mapping of the twelve complexes:

SITE	STARTED MAPPING	FINISHED FIELD WORK
1	31 May 60	9 Nov 60
2	3 June 60	15 Nov 60
3	3 June 60	10 Sep 60
4	2 July 60	17 Nov 60
5	3 May 60	17 Nov 60
6	17 June 60	29 Aug 60
7	1 Aug 60	2 Nov 60
8	9 Aug 60	30 June 61
9	28 June 60	16 Aug 60
10	21 June 60	9 Nov 60
11	14 July 60	9 Nov 60
12	Early May 60	Thru Dec 60

SITE 1 - EAGLE

LOCATION

Site 1 is located 3½ miles east and ½ mile north of Eagle, Nebraska, in Section 24, Township 10 North, Range 9 East, in Cass County.

PHYSIOGRAPHY AND TOPOGRAPHY

This location is in the Dissected Till Plains Section of the Central Lowland Province.

The topography of the site and surrounding area is gently rolling with moderate to low relief.

GENERAL GEOLOGY

There are unconsolidated sediments with a thickness of about 156 feet overlie the bedrock.

See Geologic Section on Page 3.

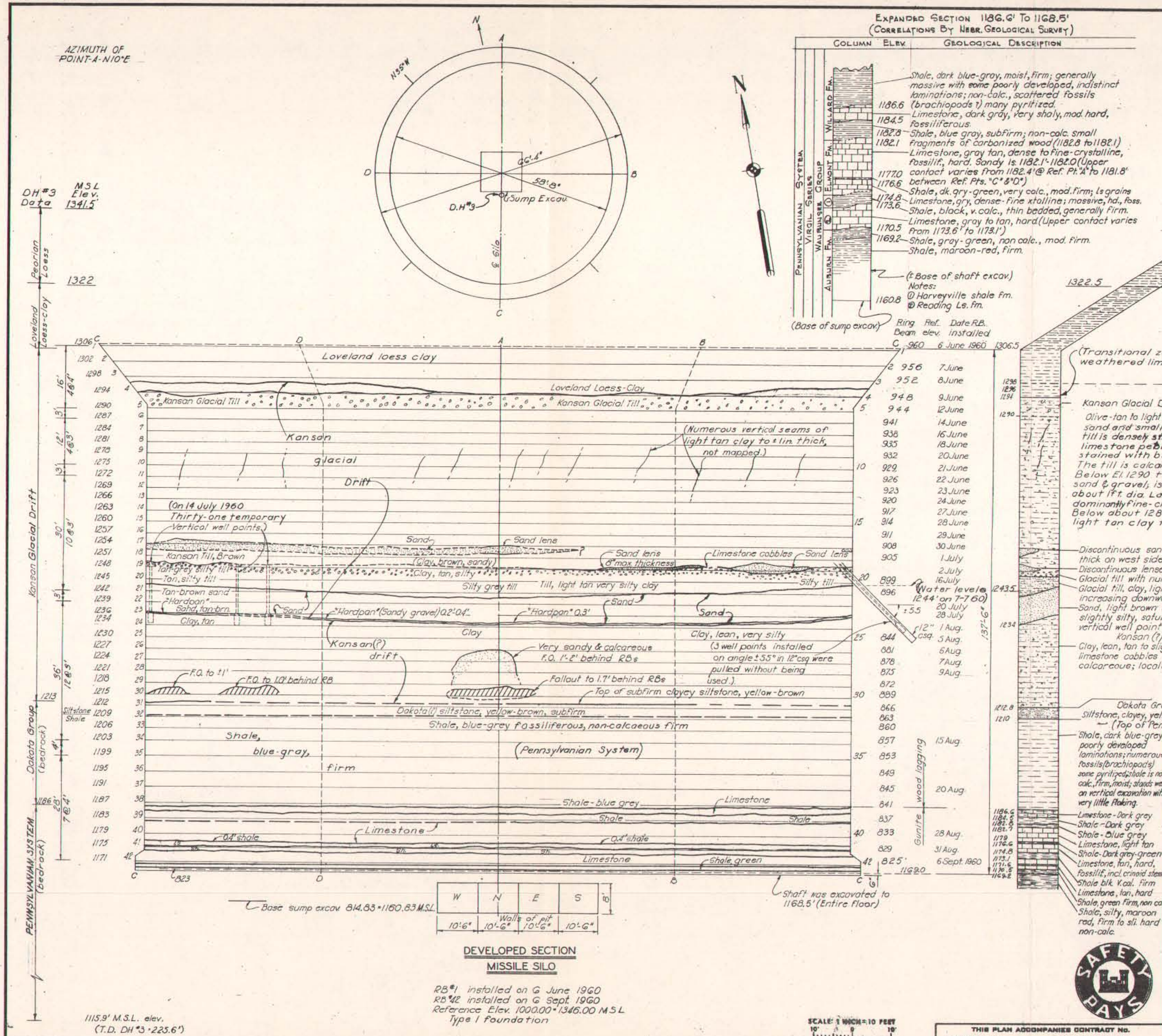
GROUND WATER

Ground water was encountered only in relatively small amounts during preliminary drilling at Site 1, and a pump test was not run here. Drill hole No. e, located in the shaft area, penetrated only about 8.6 feet of saturated sand. This was in a glacial zone between elevations 1241.7 and 1233.1 feet. The water level in drill hole 3 was at an elevation of 1251 feet (depth 89.6 feet) on 4 June 1959 when this hole was being drilled. Drill hole 3, drilled to a depth of 122.8 feet with a churn drill and completed to a total depth of 226.7 feet with a Failing rotary rig, was at a depth of 102 feet when the water level measurement was obtained. On 6 July 1960, after the

shaft had been excavated to an elevation of about 1246 feet, the water level from the saturated sand zone was at elevation 1243.9 feet.

A pilot hole, drilled to a depth of 149 feet in an attempt to locate a water supply on the site, was dry. Subsequent wells were drilled for a water supply off the site but nearby; tests indicated that each of these two wells would have a maximum rate of water production of about 25 gpm.

CORPS OF ENGINEERS U. S. ARMY



DATE	DESCRIPTION	MADE	APPR'D
	REVISIONS		

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA

DESIGNED BY: A.S.H. — DRAWN BY: A.N.J. — TRACED BY: A.N.J. — CHECKED BY: A.S.H.

LINCOLN A.F.B. — LINCOLN, NEBRASKA

WS-107A-1 OPERATIONAL BASE
SMS-551-1 (L)- EAGLE
(MISSILE SITE 1)
GEOLOGIC SECTION

SUBMITTED: CHIEF, GEOLOGY SECTION
APPROVED: CHIEF, F.N.D. & MAT'LS BRANCH — APPROVED: CHIEF, ENGINEERING DIVISION — DATE: FEB 1961
APPROVED: COL., C.E., DISTRICT ENGINEER

SCALE AS SHOWN — SPEC. NO. DA-25-066-eng.
DRAWING NUMBER AW 16-14-03

THIS PLAN ACCOMPANIES CONTRACT No. DA-25-066-eng. MODIFICATION No.

SITE 2 - NEBRASKA CITY

LOCATION

Site 2 is located about five miles west of Nebraska City, in Section 10, T8N, R13E, Otoe County, Nebraska.

TOPOGRAPHY AND PHYSIOGRAPHY

The topography of the site and surrounding area is gently rolling with moderate to low relief. The elevation of the site is about 1246 feet above mean sea level.

Physiographically, the location of Site 2 is within the Dissected Till Plains Section of the Central Lowland Province.

GENERAL GEOLOGY

The shaft excavation at total depth had penetrated into the glacio-fluvial zone of the Kansan glacial drift; drill hole data shows that this material extends downward to bedrock. The Aftonian formation and the Nebraskan drift were not encountered at this location.

See Geologic Section on page 3.

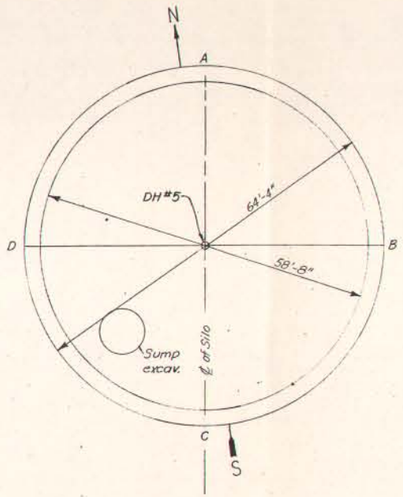
GROUND WATER

During exploratory drilling, minor amounts of water seepage was encountered at various shallow depths in the relatively impervious loess and glacial till formations.

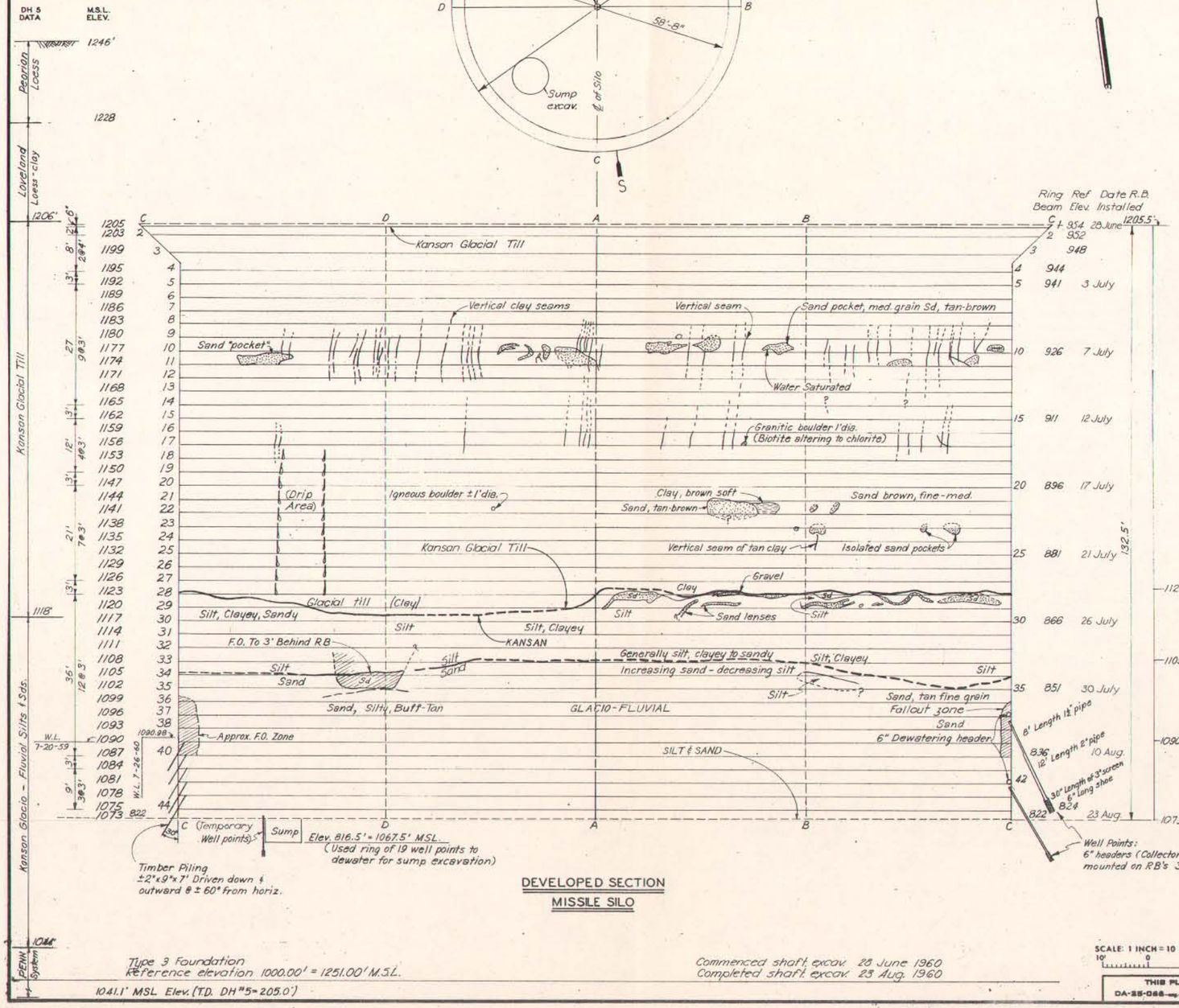
In hole drilled at the location of the center of the shaft, a sandy pocket with some seepage water was observed at a depth of 37.8 feet, and a small amount of seepage was encountered at a depth of 80.0 feet. A saturated sand pocket was penetrated between depths

106.8 feet and 108.2 feet. In this hole the top of a glacio-fluvial silt and sand zone was at a depth of 125.7 feet (elevation 1120.4 feet); this material was moist above an elevation of 1090.2 and saturated below that elevation to the top of bedrock at elevation 1044.7 feet. The total thickness of the saturated zone between elevations 1090.2 feet and 1044.7 feet was 45.5 feet. On 15 July when this churn drill hole was at a depth of 166 feet, the water level in this hole was measured at a depth of 159.2 feet, elevation 1086.9 feet.

AZIMUTH OF POINT -A- N 7°40'02" E



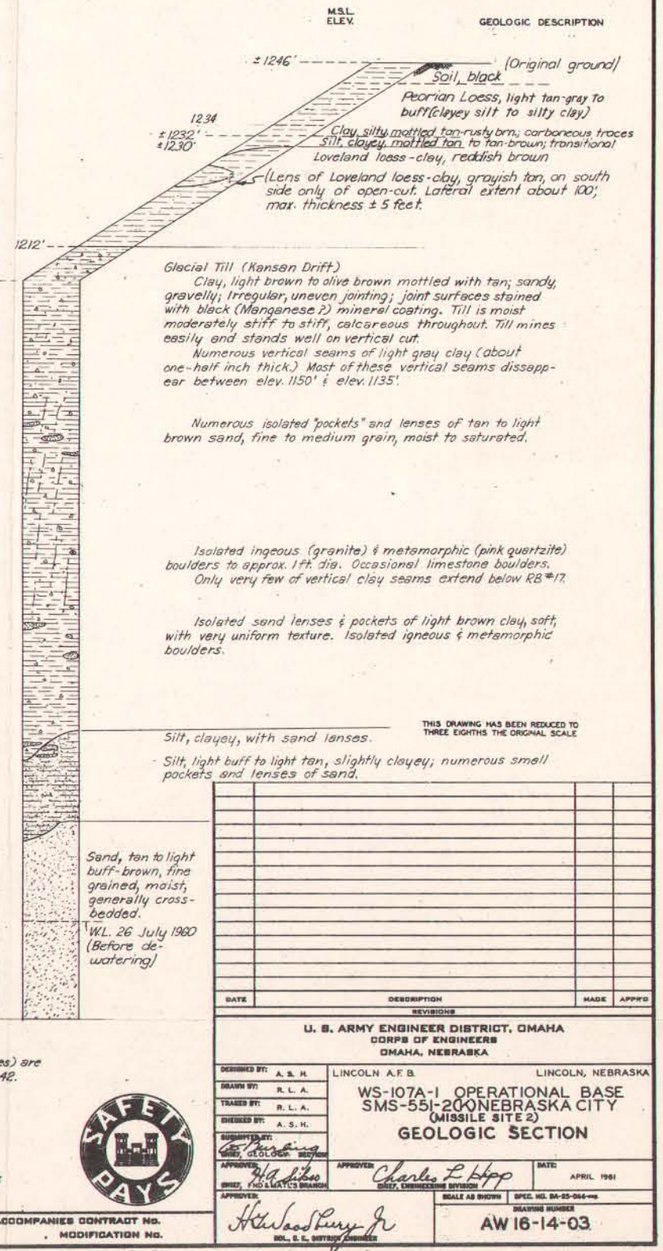
Piezometer #5



DEVELOPED SECTION
MISSILE SILO

Type 3 Foundation
Reference elevation 1000.00' = 1251.00' M.S.L.

Commenced shaft excav. 28 June 1960
Completed shaft excav. 23 Aug. 1960



THIS DRAWING HAS BEEN REDUCED TO THREE EIGHTHS THE ORIGINAL SCALE

DATE	DESCRIPTION	MADE	APPR'D
	REVISIONS		

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA

DESIGNED BY: A. S. H.
DRAWN BY: R. L. A.
TRACED BY: R. L. A.
CHECKED BY: A. S. H.
SUBMITTED BY: [signature] CHIEF, GEOLOGY SECTION
APPROVED: [signature] CHIEF, FND & MATLS BRANCH
APPROVED: Charles L. Hopp CHIEF, ENGINEERING DIVISION
DATE: APRIL 1961
APPROVED: H. W. Woodbury Jr. COL., C. E., DISTRICT ENGINEER
SCALE AS SHOWN
SPEC. NO. DA-25-066-eng-

LINCOLN A.F.B. LINCOLN, NEBRASKA

WS-107A-1 OPERATIONAL BASE
SMS-551-20 NEBRASKA CITY
(MISSILE SITE 2)
GEOLOGIC SECTION

DRAWING NUMBER
AW 16-14-03

SCALE: 1 INCH = 10 FEET
10' 0 10'

THIS PLAN ACCOMPANIES CONTRACT No. DA-25-066-eng-
MODIFICATION No.

SAFETY DAYS

PLATE 1

SITE 3 - TECUMSEH

LOCATION

Site 3 is located 4 miles north of Tecumseh, Nebraska, in Section 4, Township 5 North, Range 11 East, Johnson County, Nebraska.

PHYSIOGRAPHY AND TOPOGRAPHY

The topography of the site and surrounding area is gently rolling with moderate to low relief. The elevation of the original ground surface at this site was approximately 1304 feet above mean sea level.

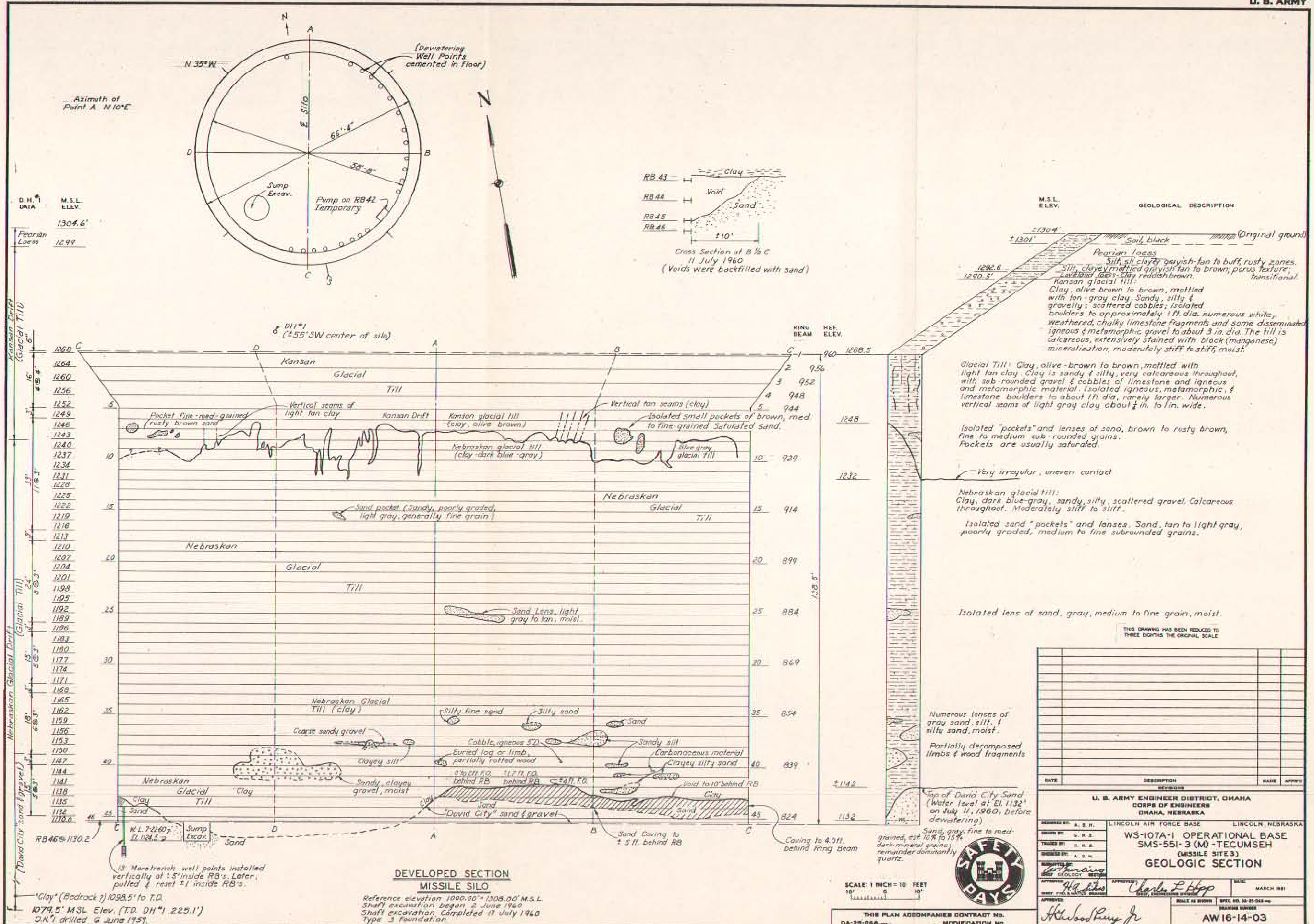
GENERAL GEOLOGY

See Geologic Section on Page 2.

GROUND WATER

In an initial drill hole completed on 13 May 1959, the water level was at an elevation of 1128.8 feet, a depth of 175 feet below a ground level of 1303.8 feet, about 22 feet below the top of the David City sand as logged in this hole. In the second phase (June 1959) of the exploration drilling, a small amount of water was found through the relatively impervious clays and in small isolated lenses and pockets of moist to saturated sand in the glacial till zones. At the start of a pump test on 4 February 1960, the water level in piezometer No. 1 was at elevation 1132.0 feet. On 14 July the shaft had been excavated below water level which was at an elevation of 1131.7 feet in the shaft.

Water supply for this complex is secured from a connection to the City of Tecumseh water line between this site and Tecumseh.


Azimuth of Point A N 10°E
N 35°W
(Dewatering Well Points cemented in floor)
Silo
66'-4"
38'-8"
Sump Excav.
Pump on RB42 Temporary
RB 43
RB 44
RB 45
RB 46
Clay
Void
Sand
±10'
Cross Section at B ½ C
11 July 1960
(Voids were backfilled with sand)
D.H.#1 DATA
M.S.L. ELEV.
1304.6'
Peorian Loess
1299
Kansan Drift (Glacial Till)
Nebraskan Glacial Drift (Glacial Till)
(David City Sand & gravel)
DH#1 (±55' SW center of silo)
RING BEAM
REF. ELEV.
Kansan Glacial Till
Pocket fine-med-grained rusty brown sand
Vertical seams of light tan clay
Kansan Drift
Kansan glacial till (clay, olive brown)
Vertical tan seams (clay)
Isolated small pockets of brown, med. to fine-grained Saturated sand.
Nebraskan glacial till (clay-dark blue-gray)
Blue-gray glacial till
Sand pocket (Sandy, poorly graded, light gray, generally fine grain)
Nebraskan Glacial Till
Sand Lens, light gray to tan, moist.
Nebraskan Glacial Till (clay)
Silty fine sand
Silty sand
Sand
Coarse sandy gravel
Cobble, igneous 5"D
Sandy silt
Buried log or limb, partially rotted wood
Carbonaceous material
Clayey silt
Clayey silty sand
Sandy, clayey gravel, moist
Void to 10' behind RB
"David City" sand & gravel
W.L. 7-22-60 El. 1124.5
Sump Excav.
RB46 @ 1130.2
13 Moretrench well points installed vertically at ±5' inside RB's. Later, pulled & reset ±1' inside RB's.
Sand Caving to ± 5 ft. behind RB
Caving to 4.0 ft. behind Ring Beam
"Clay" (Bedrock ?) 1098.5' to T.D.
1079.5' MSL Elev. (T.D. DH#1 225.1')
D.H.#1 drilled 6 June 1959.
DEVELOPED SECTION
MISSILE SILO
Reference elevation 1000.00' = 1308.00' M.S.L.
Shaft excavation began 2 June 1960
Shaft excavation Completed 17 July 1960
Type 3 Foundation
SCALE: 1 INCH = 10 FEET
M.S.L. ELEV.
GEOLOGICAL DESCRIPTION
±1304'
±1301'
Soil, black
(Original ground)
Peorian loess
Silt, sli clayey grayish-tan to buff, rusty zones.
Silt, clayey mottled grayish tan to brown; porus texture; transitional.
Kansan glacial till:
Clay, olive brown to brown, mottled with tan-gray clay. Sandy, silty & gravelly; scattered cobbles; isolated boulders to approximately 1 ft. dia. numerous white, weathered, chalky limestone fragments and some disseminated igneous & metamorphic gravel to about 3 in. dia. The till is calcareous, extensively stained with black (manganese) mineralization, moderately stiff to stiff, moist.
Glacial Till: Clay, olive-brown to brown, mottled with light tan clay. Clay is sandy & silty, very calcareous throughout, with sub-rounded gravel & cobbles of limestone and igneous and metamorphic material. Isolated igneous, metamorphic, & limestone boulders to about 1 ft. dia, rarely larger. Numerous vertical seams of light gray clay about ¼ in. to 1 in. wide.
Isolated "pockets" and lenses of sand, brown to rusty brown, fine to medium sub-rounded grains. Pockets are usually saturated.
Very irregular, uneven contact
Nebraskan glacial till:
Clay, dark blue-gray, sandy, silty, scattered gravel. Calcareous throughout. Moderately stiff to stiff.
Isolated sand "pockets" and lenses. Sand, tan to light gray, poorly graded, medium to fine subrounded grains.
Isolated lens of sand, gray, medium to fine grain, moist.
THIS DRAWING HAS BEEN REDUCED TO THREE EIGHTHS THE ORIGINAL SCALE
Numerous lenses of gray sand, silt, & silty sand, moist.
Partially decomposed limbs & wood fragments
Top of David City Sand (Water level at El. 1132' on July 11, 1960, before dewatering)
Sand, gray, fine to med-grained, est 10% to 15% dark-mineral grains; remainder dominantly quartz.
SAFETY PAYS
THIS PLAN ACCOMPANIES CONTRACT No. DA-25-066-eng. MODIFICATION No.
DATE
DESCRIPTION
REVISIONS
U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA
LINCOLN AIR FORCE BASE
LINCOLN, NEBRASKA
WS-107A-1 OPERATIONAL BASE
SMS-551-3 (M)-TECUMSEH
(MISSILE SITE 3)
GEOLOGIC SECTION
MARCH 1961
AW 16-14-03

SITE 4 - CORTLAND

LOCATION

Site 4 is located 3½ miles east and 1 mile north of Cortland, in Section 4, Township 6 North, Range 7 East, Gage County, Nebraska.

PHYSIOGRAPHY AND TOPOGRAPHY

The topography of the site and the surrounding area is gently rolling with moderate to low relief. The elevation of the original ground surface at this site was approximately 1410 feet above mean sea level.

Physiographically, the location of Site 4 is within the Dissected Till Plains Section of the Central Lowland Province.

GEOLOGY

See Page 2

GROUND WATER

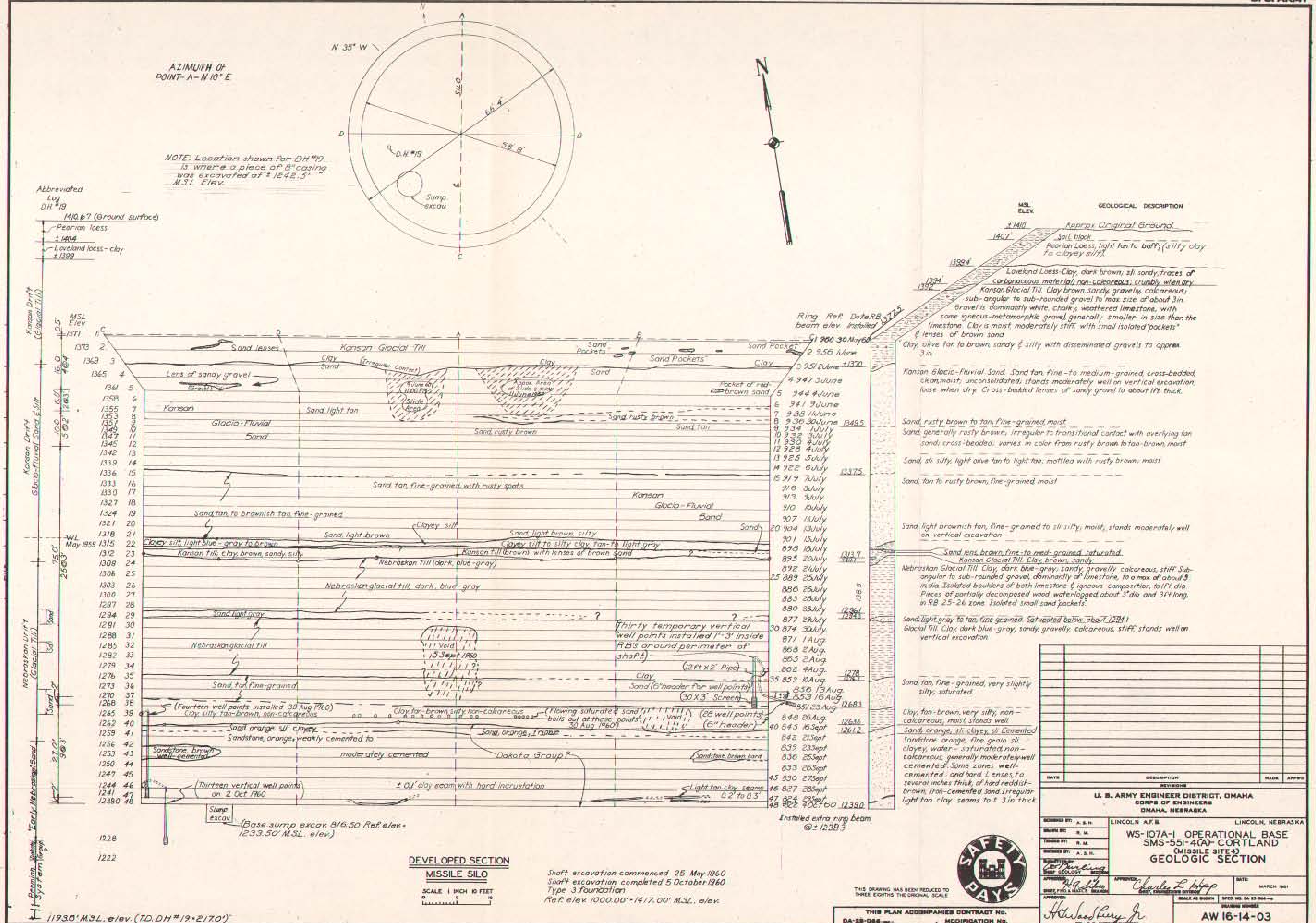
In drill hole 19, located near the center of the shaft area, free water was first encountered at elevation 1317.3 feet, 98.3 feet below original ground.

The static water level in Well No. 1, located about 400 feet northeast of the shaft, was measured at elevation 1300.37 feet on 15 February 1960.

During shaft excavation, water was first encountered in a saturated sand at elevation 1320 feet.

Water in significant quantities was found in two zones penetrated by shaft construction.

A water-bearing sand zone between elevations 1279 feet and 1268 feet, and the Dakota(?) sandstone below elevation 1261.21 were saturated, and both zones required dewatering.


AZIMUTH OF POINT-A-N 10° E
N 35° W
N
A
B
C
D
SILO
D.H.#19
Sump excav
NOTE: Location shown for DH #19 is where a piece of 8" casing was excavated at ± 1242.5' M.S.L. Elev.
Abbreviated Log D.H.#19
1410.67 (Ground surface)
Peorian loess
± 1404
Loveland loess-clay
± 1399
Kansan Drift (Glacial Till)
Kansan Drift Glacio-Fluvial Sand & Silt
Nebraskan Drift (Glacial Till)
"Early Nebraskan Sand"
Permian System
WL May 1959
MSL Elev
Sand lenses
Kansan Glacial Till
Lens of sandy gravel
Kansan Glacio-Fluvial Sand
Sand light tan
Sand rusty brown
Sand Pockets
Pocket of red-brown sand
Slide Area
Sand tan, fine-grained, with rusty spots
Sand tan to brownish tan fine-grained
Clayey silt
Sand light brown
Sand light brown, silty
Clayey silt, light blue-gray to brown
Clayey silt to silty clay, tan to light gray
Kansan till, clay, brown, sandy, silty
Kansan till (brown) with lenses of brown sand
Nebraskan till (dark, blue-gray)
Nebraskan glacial till, dark, blue-gray
Sand light gray
Nebraskan glacial till
Thirty temporary vertical well points installed 1'-3' inside RB's around perimeter of shaft.
Void
13 Sept 1960
(12ft x 2' Pipe)
Sand (6" header for well points)
(30 X 3' Screen)
Sand, tan fine-grained
(Fourteen well points installed 30 Aug 1960)
Clay silty tan-brown, non-calcareous
Clay tan-brown silty non-calcareous
(Flowing saturated sand boils out at these points 30 Aug 1960)
(28 well points)
(6" header)
Sand orange sli clayey
Sandstone, orange, weakly cemented to moderately cemented
Sand, orange, friable
Sandstone, brown well-cemented
Dakota Group?
Sandstone, brown hard
(Thirteen vertical well points on 2 Oct 1960)
± 0.1' clay seam with hard incrustation
Light tan clay seams 0.2' to 0.3'
Sump excav
(Base sump excav. 816.50 Ref. elev. = 1233.50' M.S.L. elev.)
Installed extra ring beam @ ± 1238.3
11930' M.S.L. elev. (T.D. DH #19 - 2170')
Ring Ref. beam elev. Date RB Installed
DEVELOPED SECTION
MISSILE SILO
SCALE 1 INCH 10 FEET
Shaft excavation commenced 25 May 1960
Shaft excavation completed 5 October 1960
Type 3 foundation
Ref. elev. 1000.00' = 1417.00' M.S.L. elev.
MSL ELEV.
GEOLOGICAL DESCRIPTION
Approx Original Ground
Soil, black
Peorian Loess, light tan to buff; (silty clay to clayey silt)
Loveland Loess-Clay, dark brown; sli sandy, traces of carbonaceous material; non-calcareous; crumbly when dry
Kansan Glacial Till. Clay brown, sandy, gravelly, calcareous; sub-angular to sub-rounded gravel to max size of about 3 in. Gravel is dominantly white, chalky, weathered limestone, with some igneous-metamorphic gravel generally smaller in size than the limestone. Clay is moist, moderately stiff, with small isolated "pockets" & lenses of brown sand.
Clay, olive tan to brown, sandy & silty with disseminated gravels to approx. 3 in.
Kansan Glacio-Fluvial Sand. Sand tan, fine- to medium-grained, cross-bedded, clean, moist; unconsolidated; stands moderately well on vertical excavation; loose when dry. Cross-bedded lenses of sandy gravel to about 1 ft. thick.
Sand, rusty brown to tan, fine-grained, moist
Sand, generally rusty brown, irregular to transitional contact with overlying tan sand; cross-bedded; varies in color from rusty brown to tan-brown, moist
Sand, sli silty, light olive tan to light tan, mottled with rusty brown, moist
Sand, tan to rusty brown, fine-grained, moist
Sand, light brownish tan, fine-grained to sli silty, moist, stands moderately well on vertical excavation
Sand lens, brown, fine- to med-grained, saturated
Kansan Glacial Till. Clay brown, sandy
Nebraskan Glacial Till. Clay, dark blue-gray, sandy, gravelly, calcareous, stiff. Sub-angular to sub-rounded gravel, dominantly of limestone, to a max of about 5 in dia. Isolated boulders of both limestone & igneous composition, to 1 ft. dia. Pieces of partially decomposed wood, waterlogged about 3" dia and 3 1/4 long, in RB 25-26 zone. Isolated small sand pockets.
Sand, light gray to tan, fine grained. Saturated below about 1294.1
Glacial Till. Clay, dark blue-gray, sandy, gravelly, calcareous, stiff, stands well on vertical excavation
Sand, tan, fine-grained, very slightly silty, saturated
Clay, tan-brown, very silty, non-calcareous, moist, stands well
Sand, orange, sli clayey, sli Cemented
Sandstone, orange, fine grain sli. clayey, water-saturated, non-calcareous, generally moderately well cemented. Some zones well-cemented and hard. Lenses, to several inches thick, of hard reddish-brown, iron-cemented sand. Irregular light tan clay seams to ± 3 in. thick.
DATE
DESCRIPTION
MADE
APPR
REVISIONS
U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA
LINCOLN A.F.B.
LINCOLN, NEBRASKA
WS-107A-1 OPERATIONAL BASE
SMS-551-4(A)-CORTLAND
(MISSILE SITE 4)
GEOLOGIC SECTION
THIS DRAWING HAS BEEN REDUCED TO THREE EIGHTHS THE ORIGINAL SCALE
THIS PLAN ACCOMPANIES CONTRACT No.
DA-25-066-eng-
MODIFICATION No.
MARCH 1961
AW 16-14-03
SAFETY PAYS

SITE 5 - BEATRICE

LOCATION

Site 5 is located 2 miles south and 3½ miles west of Beatrice, in Section 13, Township 3 North, Range 5 East, in Gage County, Nebraska.

PHYSIOGRAPHY AND TOPOGRAPHY

This location is in the Dissected Till Plains Section of the Central Lowland Province.

The topography of the site and the surrounding area is gently rolling with moderate to low relief. The elevation of the original ground surface was approximately 1410 feet.

GEOLOGY

See Page 3.

GROUND WATER

In hole located in the center of the shaft, the water level was logged at a depth of 53.4 feet, or at elevation 1356.4 feet, on 28 May 1959 while the hole was being drilled. This water level was approximately 26 feet above the top of bedrock (Dakota Group).

During the excavation of the shaft, water was first reported by the Resident Engineer of the Corps of Engineers, at an elevation of approximately 1355 feet. When the shaft had been excavated to ring beam 7 elevation (1352 feet), ground water was observed to be seeping into the shaft at an estimated rate of 10 gpm. At the depth of the water level, the material (sandy silt to silt) being excavated had a relatively low permeability and porosity. Below the depth of the water level, a small but nuisance amount of water continued to affect shaft excavation work until the top of bedrock was reached at elevation 1330.8 feet.

At Site 5 a piezometer was installed in Drill Hole 1. This piezometer, however, was located about 920 feet northwest of the final location selected for the working point of the launching silo. The well point in this piezometer was set at a depth of 129 feet and the hole was gravel-packed from 135 feet to 50 feet below the surface. The top of the 2" diameter pipe was 3.1 feet above ground level, with impervious fill from 50 feet to ground surface. Because of its distance from the excavation area, only a few water readings were made in this piezometer during shaft excavation. An initial water level reading at the time of installation (May 1959) showed water at a depth of 95.1 feet. A water level of 73.2 feet below the top of pipe was reported on 29 December 1959. On 15 July 1960 the depth to water was 75.5 feet. The top of the pipe of this piezometer was at an estimated elevation of 1408 feet.

CORPS OF ENGINEERS

U. S. ARMY

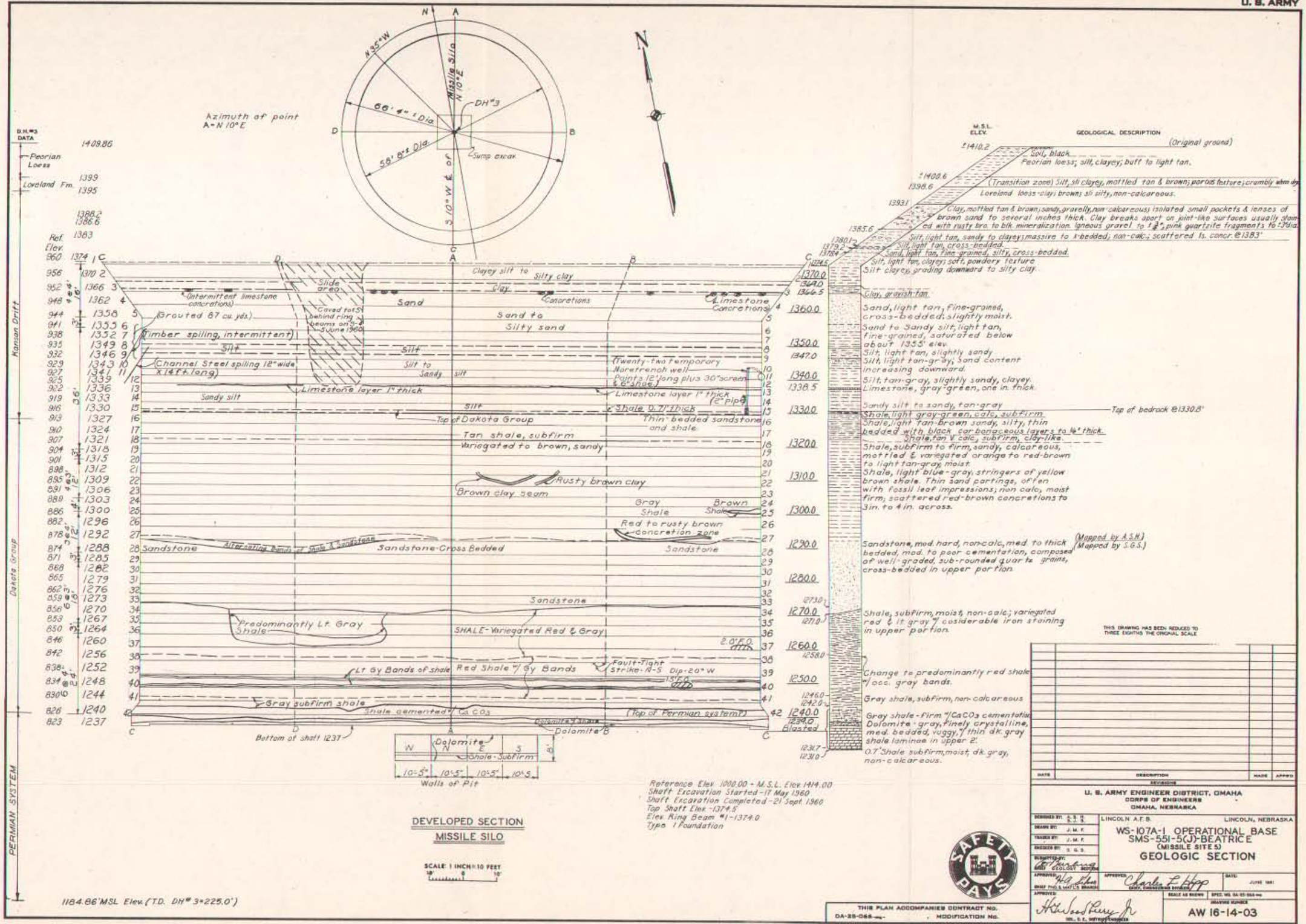


PLATE 1

SITE 6 - WILBER

LOCATION

Site 6 is located 6 miles west of Wilber on State Highway 41 in Saline County, Nebraska. It lies approximately in the center of the SE¼ of Section 16, R3E, T6N.

SIZE

Total area of the site proper is about 18½ acres. An access road, 1100 feet long and 100 feet wide, runs from Highway 41 to the site.

PHYSIOGRAPHY, TOPOGRAPHY AND DRAINAGE

The reference elevation 1000.0 corresponds to a mean sea level elevation of 1495.0. Average surface elevation of the site area is 1485. Total relief in the general area is 65 feet. Minimum elevation of 1440 is 2000 feet east of shaft and maximum elevation of 1505 is 1000 feet southwest of shaft.

Site 6 is situated on an outlier of the Loess-Drift Hill region. The topography of the area is gently rolling hill and plain, located on the western flank of the Big Blue River valley.

The area is drained by intermittent streams flowing east and south into Turkey Creek and thence into the Big Blue River.

GEOLOGY

The beds dip gently to the west in this region. Peneplanation during early Tertiary time caused local truncation of post-Pennsylvanian formations along the Nemaha ridge in southeastern Nebraska. As a result of this period or erosion and nondeposition during the early Tertiary, a marked unconformity exists between the Cretaceous formations and the overlying Pleistocene deposits.

Through information gathered from borings at the site, the beds in this area appear to be dipping gently to the east. This reversal of the general attitude of beds in the region is probably due to a small localized structure. There was no visible deformation of the beds as exposed on the shaft excavation.

See Page 3.

GROUND WATER

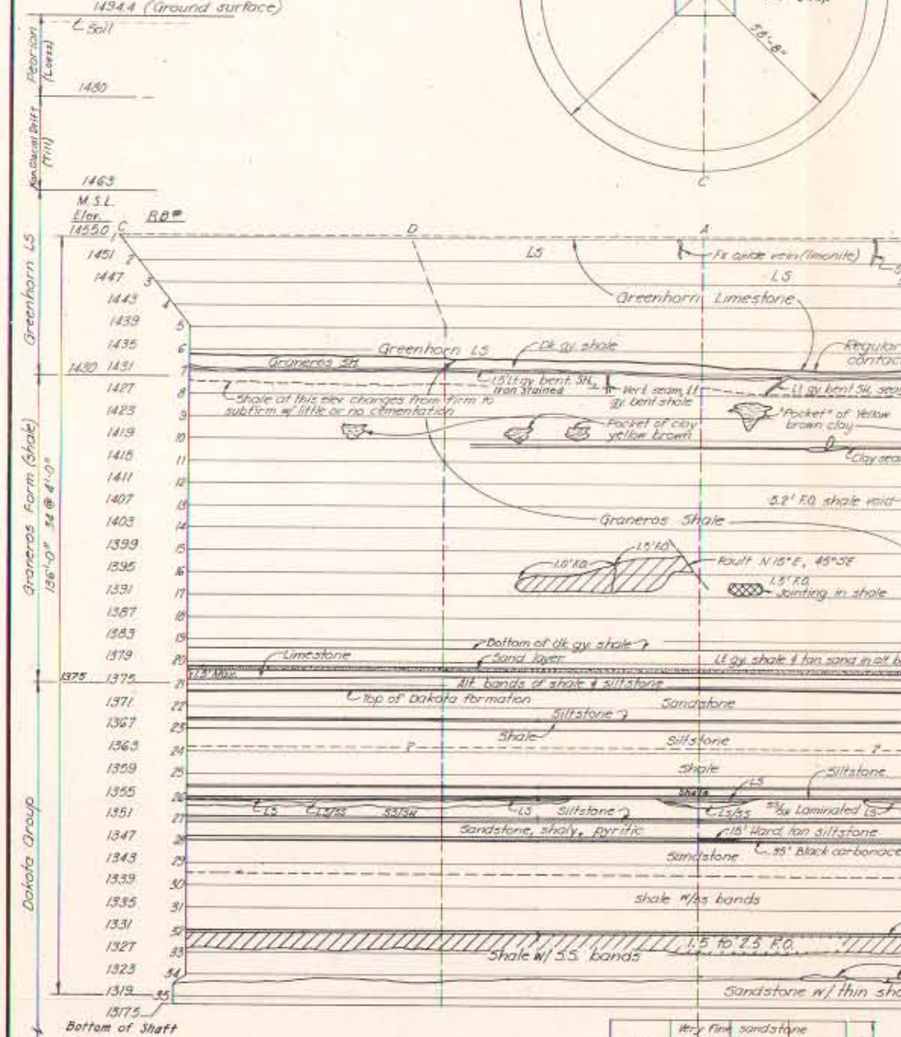
A total of eight deep borings were made at the site. (See the site layout in Plate No. 2) Seven of these borings were done by Layne-Western for the establishment of a permanent water supply. The data on the Layne-western drill holes is available in a report entitled "Exploration of Water Supply for Lincoln AFB Auxiliary Sites." The other drill hole was an exploratory boring done by the Corps of Engineers.

Water level readings were taken in all of the borings during the time of drilling. The average static water level in six of the eight holes stood at elevation 1404. The other two holes had water levels of 1425 and 1453 respectively. The reason for these high water readings is unknown, although it is assumed that they do not indicate the true static water level. (See water level readings in Table No. 2)

The average static water level at 1404 lies within the Graneros formation, an impervious gray shale. The top of the Dakota Group is at approximately 1374, indicating a hydrostatic head of 30 feet.

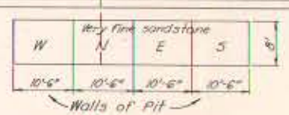
AZIMUTH OF
POINT "A" N 10° E

Log
D.H. # 1
(150' W of "C" shaft)

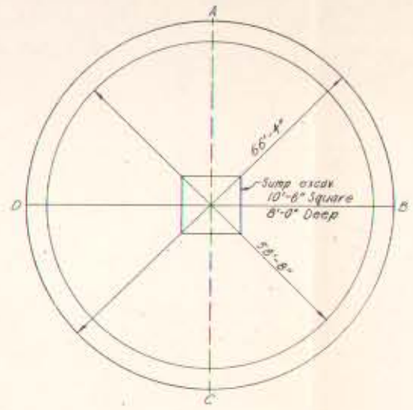


Bottom DH #1
MSL Elev. 1269
(T.D. 225.4')

Reference Elev. 1000.00 = M.S.L. Elev. 1495.00
Type I Foundation
Shaft Excavation Started - 8 July 1960
Shaft Excavation Completed - 28 Aug. 1960



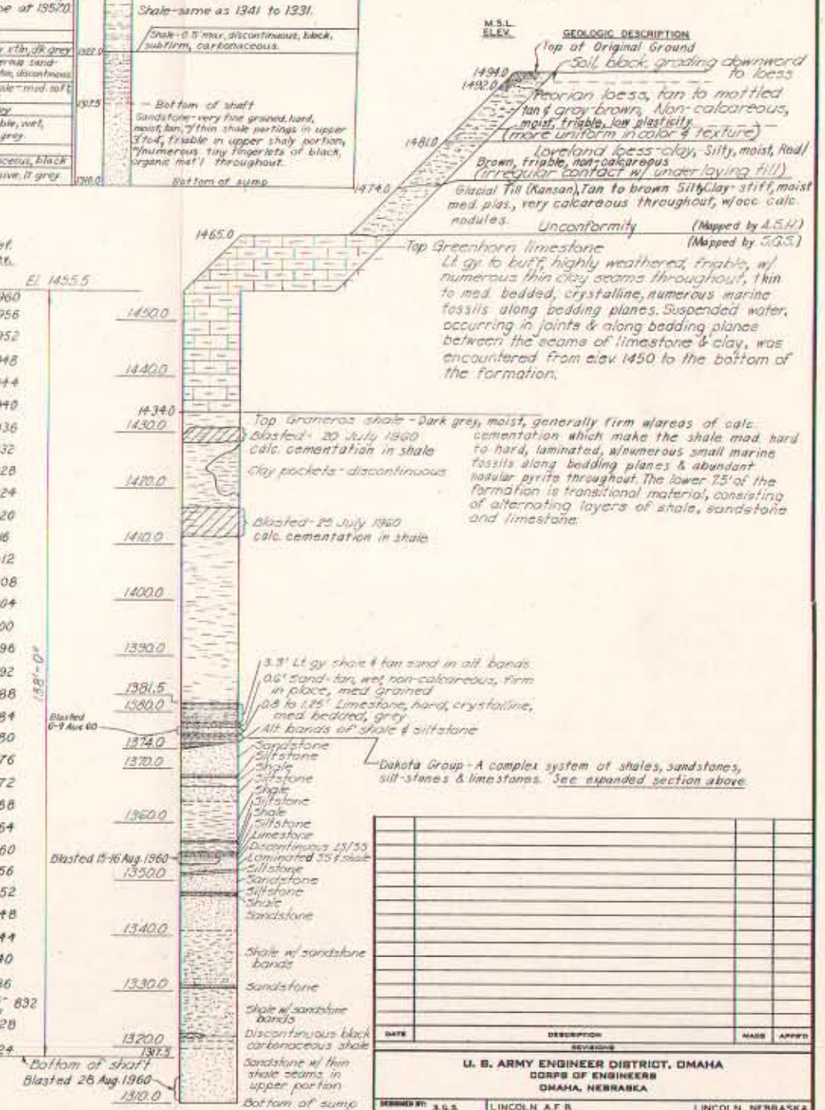
DEVELOPED SECTION
MISSILE SILO



DAKOTA GROUP - EXPANDED SECTION

Elev.	Column	Description Of Material
1374.0		Top of Dakota group
		Sandstone - soft to mod. hard, friable, laminated, generally grey/tan *Upper 1.0' emerald green.
1369.0		
1368.8		Siltstone - hard, tan
1367.0		Shale - grey, subfirm, moist
1364.0		Siltstone - mod. hard to hard, tan
		Shale - subfirm, moist, friable, thin-bedded, lt. grey, *occ. tan bands, 0.2' tan, hard siltstone at 1357.0.
1358.3		Siltstone - hard, tan
1355.3		Limestone - hard, finely sth., dk. grey
1355.1		Sandy limestone to calcareous sandstone, vs. hard, variegated grn./tan, discontinuous
1354.7		
1353.6		Interbedded sandstone & shale - mod. soft, dk. to lt. grey, moist to wet
1351.8		
1351.0		Siltstone - hard, tan/grey
		Sandstone - mod. hard, friable, wet, laminated, shaly, pyritic, dk. grey.
1347.8		Siltstone - hard, tan
1347.6		Shale - firm, moist, carbonaceous, black
1347.3		Sandstone - med. soft, massive, lt. grey
1341.0		Sandstone (continued) - mod. soft, massive, lt. grey.
		Shale - lt. grey, firm, moist, friable, fossiliferous, sandy, interbedded *numerous thin bands of sandstone.
1332.0		Thickest seam of sandstone in the shale - fallout occured below this seam
1330.7		
1327.0		Fallout zone.
		Shale - same as 1341 to 1331.
1322.0		Shale - 0.5' max., discontinuous, black, subfirm, carbonaceous.
1319.5		— Bottom of shaft
		Sandstone - very fine grained, hard, moist, tan, *thin shale partings in upper 3 to 4, friable in upper shaly portion, *numerous tiny fingerlets of black, organic matl throughout.
1310.0		Bottom of sump

Measured Section
Open cut slope
(Approx due South of working Pt)



Date	Ref. RB#	Inst	Elev.
			El. 1455.5
	1		960
2 R. Jul 60	2	R	956
	3		952
	4		948
	5		944
18 Jul 60	6		940
	7		936
	8		932
	9		928
25 Jul 60	10		924
	11		920
	12		916
	13		912
	14		908
30 Jul 60	15		904
	16		900
	17		896
	18		892
	19		888
5 Aug 60	20		884
	21		880
	22		876
	23		872
	24		868
14 Aug 60	25		864
	26		860
	27		856
	28		852
	29		848
21 Aug 60	30		844
	31		840
	32		836
F.O. Cross-section	33		832
1.5' to 2.5'	34		828
28 Aug 60	35		824

SCALE 1 INCH = 10 FEET
0' 5' 10'

THIS DRAWING HAS BEEN REDUCED TO THREE EIGHTHS THE ORIGINAL SCALE

SAFETY PAYS

THIS PLAN ACCOMPANIES CONTRACT No. DA-25-066-eng-
, MODIFICATION No.

DATE	DESCRIPTION	MADE	APP'D
	REVISIONS		

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA

DESIGNED BY: S.G.S.
DRAWN BY: R.L.A.
TRACED BY: R.L.A.
CHECKED BY: S.G.S.
SUBMITTED BY: [signature] CHIEF, GEOLOGY SECTION
APPROVED: [signature] CHIEF, PROJECTS & S. BRANCH

LINCOLN A.F.B. LINCOLN, NEBRASKA

WS-107A-1 OPERATIONAL BASE
SMS-551-6(N)-WILBER
(MISSILE SITE 6)
GEOLOGIC SECTION

APPROVED: [signature] CHIEF, ENGINEERING DIVISION
DATE: JUNE 1961
APPROVED: [signature] CHIEF, C.E. DISTRICT ENGINEER
SCALE AS SHOWN
SPEC. NO. DA-25-066-eng-
DRAWING NUMBER
AW 16-14-03

SITE 7 - YORK

LOCATION

Site 7 is located 4½ miles west of York, Nebraska on U. S. Highway 34 in York County. It lies in the NW¼ of Section 29, T11N, R3W. See Plate No. 1 in the Appendix.

SIZE

Total area of the site proper is approximately 18.1 acres with an access road 2400 feet long and 100 feet wide running from Highway 34 to the site.

PHYSIOGRAPHY, TOPOGRAPHY AND DRAINAGE

Reference elevation 1000.0 corresponds to a mean sea level elevation of 1689.0. The average mean sea level elevation of the site area is 1680.0. A maximum elevation of 1690 is at a point 1000 feet west of the shaft, and a minimum elevation of 1665 is at a point 1500 feet east of the shaft. Total relief for the area is 35 feet.

The area lies within the eastern limits of the High Plains Section of the Great Plains physiographic province. It is characterized by broad intervalley remnants of smooth fluviatile plains. The topography of the area is gently rolling to relatively level. See Figure No. 1.

The ground surface at the site slopes to the east and south. Intermittent streams drain the area to the southeast into Beaver Creek.

GEOLOGIC STRUCTURE

An erosional unconformity exists between the underlying Cretaceous bedrock formations and the overlying Pleistocene and possibly Pliocene material. A product of the erosion is a north-south trending

structural ridge of Cretaceous bedrock along western York county. Site 7 lies on the eastern flank of the ridge. As a result, the bedrock surface dips to the east, while the beds themself dip north and west. See Geologic Statistics on Page 3.

GROUND WATER

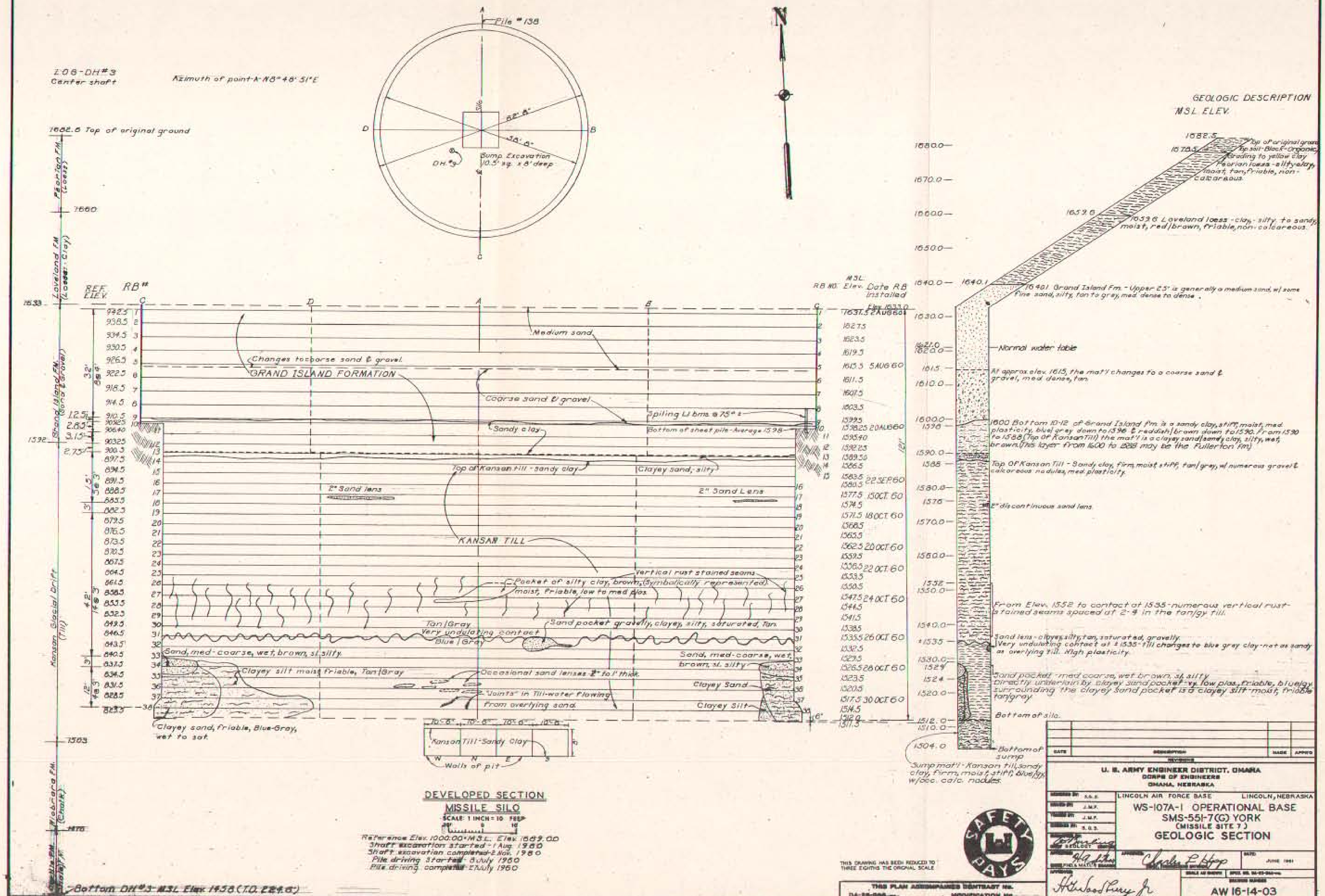
The water-bearing formation at Site 7, and over a large part of Nebraska, is the Grand Island formation. A description of the material can be found in the previous section, although it consists generally of sand and gravel.

Thickness of the Grand Island in this area, as determined from exploratory borings, ranges from 28 to 46 feet, and averages 38 feet. In the shaft itself, as exposed during excavation, the formation is 40 feet thick (see geologic section).

The static water level lies at an approximate elevation of 1621. This is 19 feet below the top of the section, leaving a saturated thickness of 21 feet.

A pumping test was conducted at the site during the period 24 through 27 January 1960. Flow rate for the entire pumping period averaged 315 gallons per minute. Piezometer tubes located 25 feet from the pumped well indicated a drawdown of 4.2 feet. Irrigation wells in the general area yield from 250 to 600 gallons per minute out of the Grand Island.

In order to sink a shaft through the section of Grand Island, provisions were made in the original plans for the following steps: first, to dewater the saturated zone, and second, to set a sheet pile cell which would prevent the loose material from flowing into the excavation. The sheet pile operation will be discussed later.


Z-08-DH#3
Center shaft
Azimuth of point A N8° 48' 51"E
Pile # 138
Sump Excavation 10.5' sq. x 8' deep
1682.8 Top of original ground
Peorian FM. (Loess)
Loveland FM. (Loess - Clay)
Grand Island FM. (Sand & Gravel)
Kansan Glacial Drift (Till)
Niobrara FM. (Chalk)
GRAND ISLAND FORMATION
Medium sand
Changes to coarse sand & gravel
Coarse sand & gravel
Spiling LJ bms @ 75°±
Bottom of sheet pile - Average 1598
Sandy clay
Top of Kansan Till - sandy clay
Clayey sand, silty
2" Sand lens
2" Sand Lens
KANSAN TILL
Vertical rust stained seams
Pocket of silty clay, brown, (symbolically represented) moist, friable, low to med plas.
Sand pocket gravelly, clayey, silty, saturated, Tan.
Tan/Gray
Very undulating contact
Blue/Gray
Sand, med-coarse, wet, brown, sl. silty.
Sand, med-coarse, wet, brown, sl. silty
Clayey silt moist friable, Tan/Gray
Occasional sand lenses 2" to 1' thick.
"Joints" in Till-water flowing from overlying sand.
Clayey Sand
Clayey Silt
Clayey sand, friable, Blue-Gray, wet to sat.
Kansan Till - Sandy Clay
Walls of pit
Bottom DH#3 - MSL Elev. 1458 (T.D. 224.6)
GEOLOGIC DESCRIPTION
MSL ELEV.
Top of original ground
Top soil - Black - Organic, grading to yellow clay
Peorian loess - silty clay, moist, tan, friable, non-calcareous.
1653.6 Loveland loess - clay, silty to sandy, moist, red/brown, friable, non-calcareous.
1640.1 Grand Island Fm. - Upper 25' is generally a medium sand, w/ some fine sand, silty, tan to grey, med. dense to dense.
Normal water table
At approx. elev. 1615, the mat'l changes to a coarse sand & gravel, med. dense, tan.
1600 Bottom 10-12' of Grand Island Fm. is a sandy clay, stiff, moist, med. plasticity, blue/grey down to 1596 & reddish/brown down to 1590. From 1590 to 1588 (Top of Kansan Till) the mat'l is a clayey sand/sandy clay, silty, wet, brown. (This layer from 1600 to 1588 may be the Fullerton Fm)
Top of Kansan Till - Sandy clay, firm, moist, stiff, tan/grey, w/ numerous gravel & calcareous nodules, med. plasticity.
2" discontinuous sand lens
From Elev. 1552 to contact at 1535 - numerous vertical rust-stained seams spaced at 2-4' in the tan/gy till.
Sand lens - clayey, silty, tan, saturated, gravelly.
Very undulating contact at ±1535 - till changes to blue grey clay - not as sandy as overlying till. High plasticity.
Sand pocket - med coarse, wet, brown, sl. silty, directly underlain by clayey sand pocket - vy. low plas., friable, blue/gy. Surrounding the clayey sand pocket is a clayey silt - moist, friable, tan/gray.
Bottom of silo.
Bottom of sump
Sump mat'l - Kansan till, sandy clay, firm, moist, stiff, blue/gy, w/occ. calc. nodules.
DEVELOPED SECTION
MISSILE SILO
SCALE: 1 INCH = 10 FEET
Reference Elev. 1000.00 = MSL. Elev. 1689.00
Shaft excavation started - 1 Aug. 1960
Shaft excavation completed - 2 Nov. 1960
Pile driving started - 8 July 1960
Pile driving completed - 21 July 1960
SAFETY PAYS
THIS DRAWING HAS BEEN REDUCED TO THREE EIGHTHS THE ORIGINAL SCALE

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA

LINCOLN AIR FORCE BASE — LINCOLN, NEBRASKA

WS-107A-1 OPERATIONAL BASE
SMS-551-7(G) YORK
(MISSILE SITE 7)
GEOLOGIC SECTION

DATE: JUNE 1961

AW 16-14-03

SITE 8 - SEWARD, NEBRASKA

LOCATION

Site 8 is located 4 miles west, 2 miles north, and ½ mile west of Seward, Nebraska. The site lies in the center of the north half of Section 15, T11N, R2E. See Plate No. 1 in the Appendix.

SIZE

Total area of the site is approximately 18 acres, with an access road 750 feet long by 100 feet wide. See Plate No. 2.

PHYSIOGRAPHY, TOPOGRAPHY AND DRAINAGE

The reference elevation 1000.0 corresponds to a mean sea level elevation of 1551.0. The average sea level elevation at the site is 1540. Total relief in the area is 80 feet, with a minimum elevation of 1465 at a point 2500 feet northeast of the shaft and maximum elevation of 1545 at a point 1800 feet southwest of the shaft.

Site 8 lies in the High Plains section of the Great Plains physiographic province. The Topography in this section tends to consist of broad intervalley remnants of smooth fluviatile plains. Locally, the terrain is generally rolling hills to level plains. See Figure No. 1 for a general view of the terrain.

The area of the site slopes gently to the northeast. Drainage is by numerous intermittent streams which flow into Lincoln Creek a mile to the northeast.

GEOLOGIC STRUCTURE

See Geologic Section on Page 3.

GROUND WATER

Two water-bearing strata lie within the vertical limits of the excavation at Site 8 - the Grand Island and the Aftonian formations.

The two are separated in this area by 30 feet of impervious Kansan till (see geologic section). The primary dewatering problem is the lowering of the water table in the Grand Island formation.

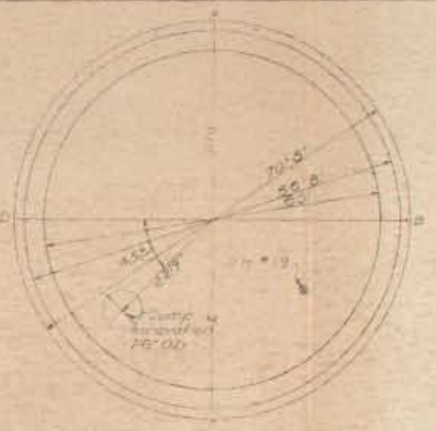
Thickness of the Grand Island, as determined from exploratory borings, ranges from 57 to 62 feet, averaging 60 feet. In the shaft itself, as exposed during excavation, the formation is 57 feet thick.

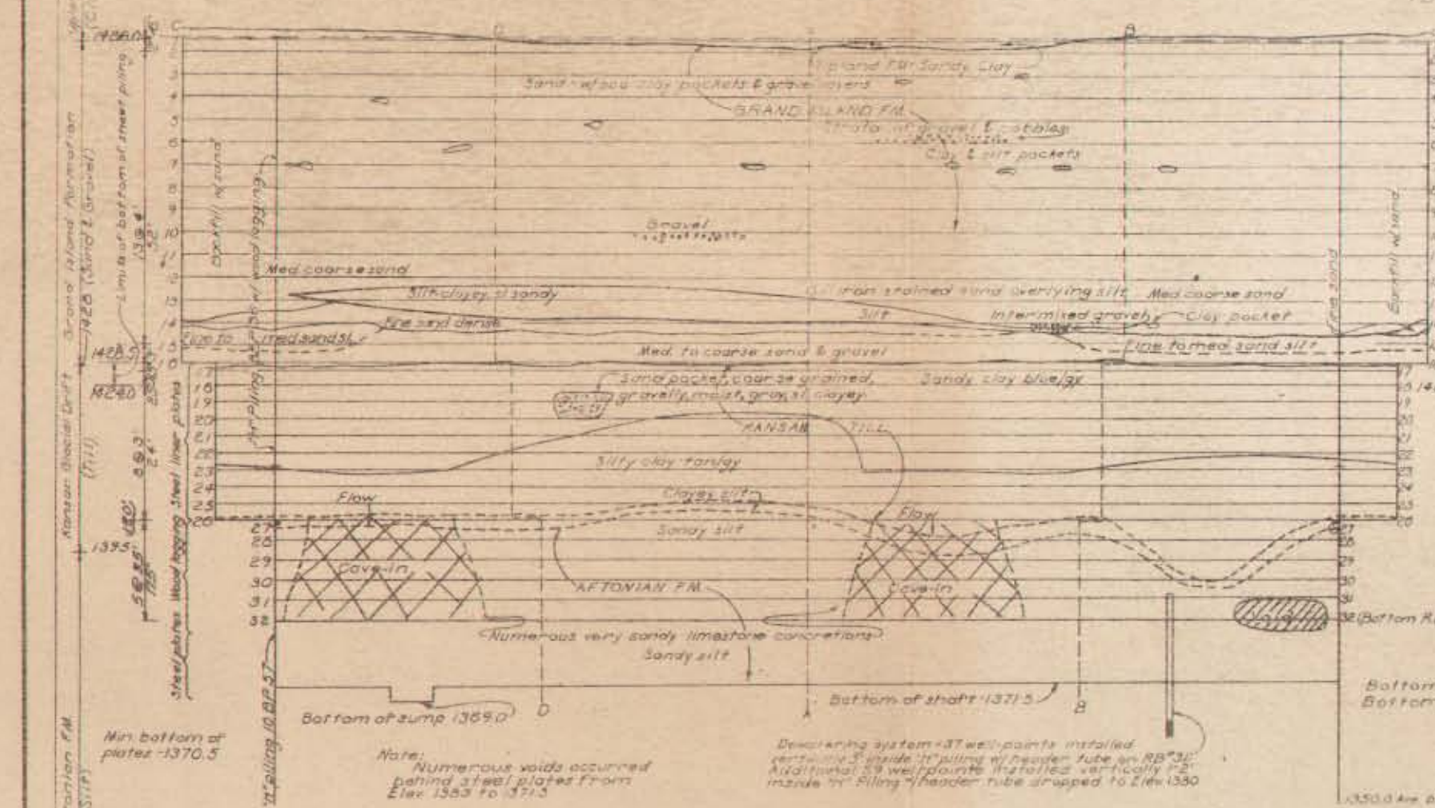
The apparent static water level lies at elevation 1468, or 19 feet below the top of the formation. This leaves a saturated thickness of 41 feet.

A pump test was conducted on the Grand Island formation at this site during the period 29 January 1960 through 1 February 1960. Pumping rate for the entire period averaged 460 gpm. Piezometer tubes located 25 feet from the pumped well indicated a maximum drawdown during the test of 7.3 feet.

Irrigation wells in the vicinity of the site have yields reported to be from 350 to 750 gpm with a maximum of 1200 gpm.

To shaft through the Grand Island section, two steps were necessary. First, the water level had to be drawn down to within at least 10 feet of the bottom of the formation. Second, a sheet pile cell had to be set which could take care of the remaining water head and which could also contain the loose material. The sheet pile phase of the operation will be discussed later.





GEOLOGIC DESCRIPTION

Original ground surface topsoil - organic clay

Peorian Loess - Silty clay, moist, stiff to friable, tan. Bottom 2' of Peorian is a sandy silt, friable, moist, tan to dk. brown

Loveland Loess-Clay - Lean to silty clay, moist, friable to stiff, tan to brown, w/ upper 4' (?) variegated reddish-brown & white.

Crete formation - Silty sand, dense, moist, tan, uncemented, fine-grained.

Upland formation - Sandy clay, low to med plasticity, moist, reddish-tan in upper 2' w/ lower a grayish tan

Grand Island FM. - Sand, loose, moist, silty, tan, fine to medium, coarse-grained toward bottom, w/occ. clay pockets & gravel seams, between 1442 & 1433.5 a clayey sandy silt lens

Silt lens - Clayey, sl sandy, stiff, wet, tan/gy

Kansan Drift (Till)
Upper portion - Sandy clay, stiff, moist, calcareous, silty, blue-gray, with some sand & gravel, isolated sand pocket, coarse-grained, moist, gravelly, sl clayey, gray.

Lower portion - silty clay, friable, moist, calc. w/ abundant calc. nodules & some fine sand & gravel, tan-gray.

Transitional zone between Kansan till & Aftonian fm. silt, sandy, friable to firm, tan to brown, moist, calc.

Aftonian Fm. - Silt, sandy, wet, dense, compact, tan, w/ calc. & layers of abundant sandy limestone concretions

Note:
Numerous voids occurred behind steel plates from Elev. 1383 to 1371.5

Dewatering system - 37 well-points installed vertically 3' inside "H" piling w/ header tube on RB #31. Additional 59 well points installed vertically 2' inside "H" piling w/ header tube dropped to Elev. 1330

DEVELOPED SECTION

MISSILE SILO

SCALE: 1 INCH = 10 FEET

Ref Elev. 1000.0 = MSL Elev. 1551.0
Shaft excavation started: 9 Aug 1960
Shaft excavation completed: 30 Jan 1961
Type E foundation

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA

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WS-107A-1 OPERATIONAL BASE
SMS-551-8 (C) - SEWARD
(MISSILE SITE 8)
GEOLOGIC SECTION

AW 18-14-03

SITE 9 - BRAINARD

LOCATION

Site 9 is located 2½ miles east of the Brainard road on U. S. Highway 30A in Butler County, Nebraska. It lies in the north half of the SW¼ of Section 3, R4E, T14N. See Plate #1.

SIZE

Total area of the site proper is approximately 18½ acres. An access road 1700 feet long and 100 feet wide runs from Highway 30A to the site.

PHYSIOGRAPHY, TOPOGRAPHY AND DRAINAGE

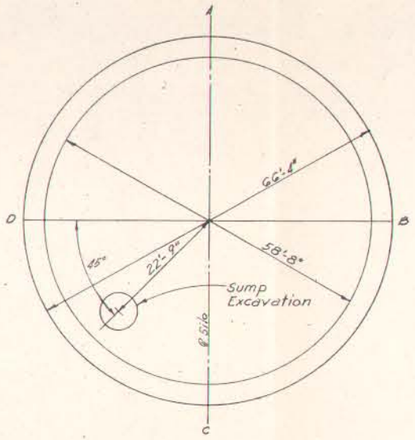
Reference elevation 1000.0 corresponds to mean sea level elevation 1652.0. Average surface elevation within the site area is 1645. Total relief in the general area is 65 feet. Maximum elevation is 1650 at a point 2000 feet southeast of the shaft and minimum elevation of 1585 at a point 2000 feet north of shaft.

The site lies in the Loess-Drift Hill region of east-central Nebraska. The regional topography is a roughly rolling hill type. (See Figure #1). The site is situated at the northern extremity of what is apparently a south-dipping, flat-topped ridge. The land drops off sharply to the west, north and east.

The local drainage pattern is radial. This condition is due to the fact that the area of the site is a regional high. Approximately 8 to 10 streams originate and radiate out from this high. Several of the streams flow directly into the Platte River 15 miles to the north. The rest flow south toward the Big Blue River.

GEOLOGY

See Geologic Section on Page 2.

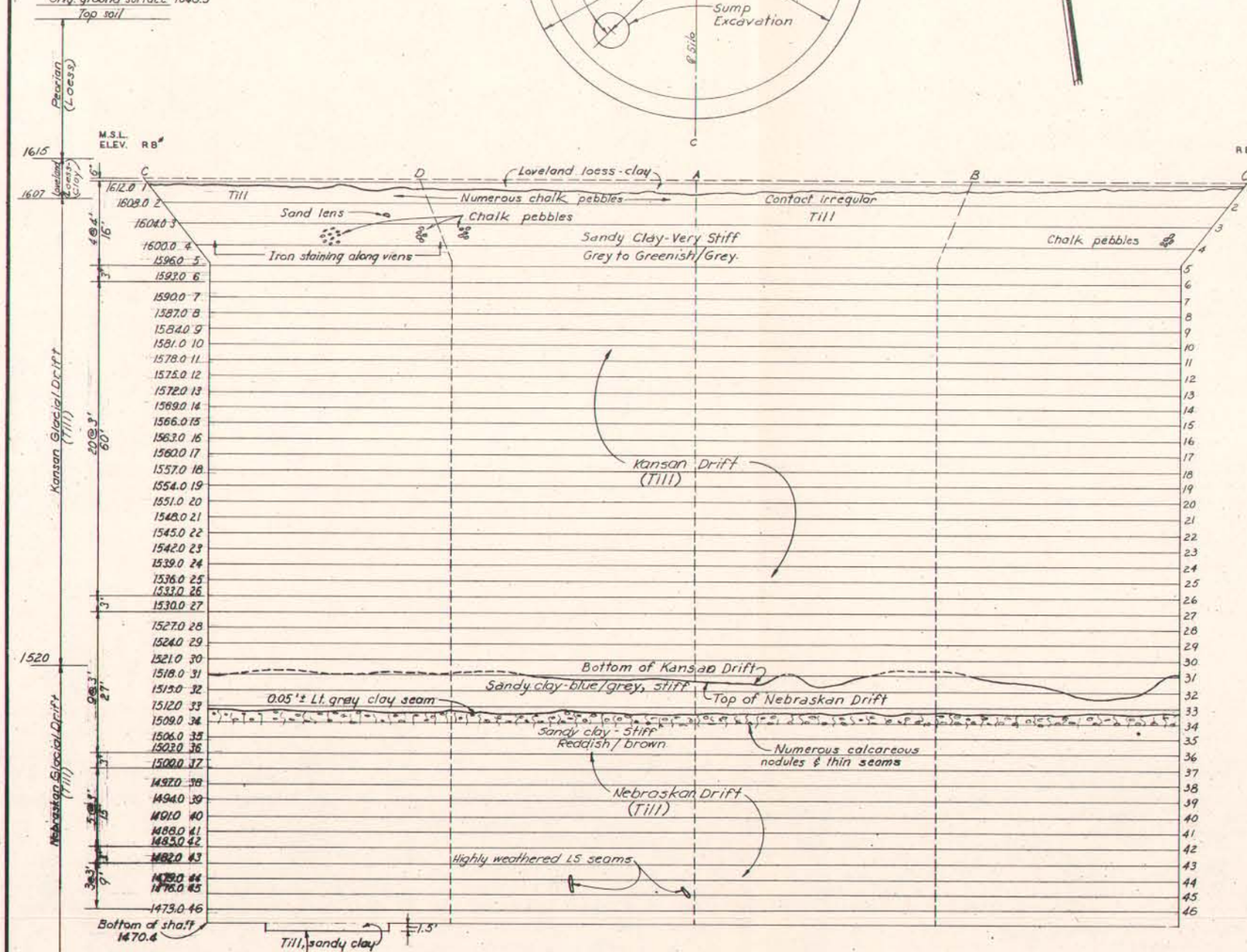


Azimuth of Point A : N8°20'15"E

LOG D.H. 1 200' NW OF SHAFT

Sump : 8' deep - 7'-6" total OD

Sump Excavation: ± 1.5' deep - 7'-6" dia.

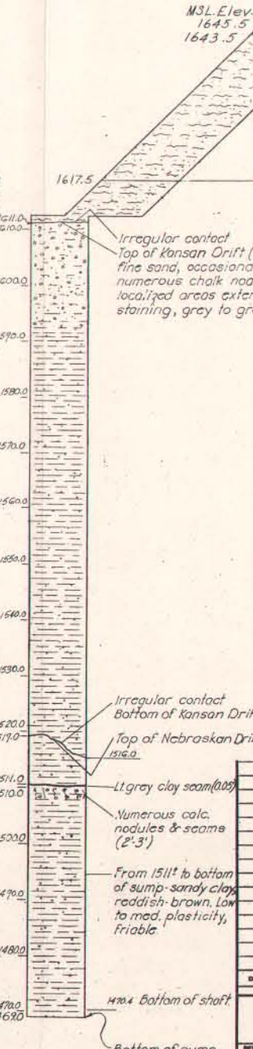


SCALE 1 INCH = 10 FEET

DEVELOPED SECTION
MISSILE SILO

Reference Elev. 1000.00' MSL Elev. 1652.00
Type 4 Foundation
Shaft Excavation Started - 19 - July 1960
Shaft Excavation Completed 16 - Aug. 1960.

GEOLOGIC DESCRIPTION



Top of Original Ground

Top soil - Clay, organic, high plasticity, dark grey

Top of Peorian Loess Clay, Stiff, Moist, Low Plasticity, Silty, Grey, W/ Heavy Rust Staining

Loveland Loess - Clay, Clay, Very Stiff, Moist, Medium To high Plasticity, Reddish/ Brown, W/ Rust Streaks.

Irregular contact
Top of Kansan Drift (Till) sandy clay, very stiff, moist, some fine sand, occasional sand and/or gravel lenses, numerous chalk nodules in upper 8' with occasional localized areas extending down to 11', some iron staining, grey to greenish-grey.

Irregular contact
Bottom of Kansan Drift

Top of Nebraskan Drift, sandy clay, stiff, damp, blue-grey

Lt grey clay seam (0.05')

Numerous calc. nodules & seams (2'-3')

From 1511' to bottom of sump - sandy clay, reddish-brown, Low to med. plasticity, friable.

DATE	DESCRIPTION	MADE	APP'D

REVISIONS

THIS DRAWING HAS BEEN REDUCED TO THREE EIGHTHS THE ORIGINAL SCALE

SAFETY PAYS

THIS PLAN ACCOMPANIES CONTRACT No. DA-25-066-eng-. MODIFICATION No.

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA

LINCOLN AIR FORCE BASE LINCOLN, NEBRASKA

WS-107A-1 OPERATIONAL BASE
SMS-551-9 (D) - BRAINARD
(MISSILE SITE 9)
GEOLOGIC SECTION

DESIGNED BY: S. G. S.
DRAWN BY: A. N. J.
TRACED BY: A. N. J.
CHECKED BY: S. G. S.
SUBMITTED BY: Geologist
APPROVED: Chief, Geology Section
APPROVED: Chief, Engineering Division
APPROVED: Deputy, U.S. District Engineer
DATE: JUNE 1961
SCALE AS SHOWN
SPEC. NO. DA-25-066-eng-
DRAWING NUMBER
AW 16-14-03

PLATE 4

SITE 10 - ELMWOOD, NEBRASKA

LOCATION

10 is located 2 miles south and 5 miles east of Elmwood, Nebraska, in the SE¼ of Section 20, T10N, R11E, in Cass County, Nebraska.

TOPOGRAPHY AND PHYSIOGRAPHY

The topography of the site and the surrounding area is gently rolling with moderate to low relief. The elevation of the original ground surface at this site was approximately 1303 feet above mean sea level. From the site the terrain dips gently northeastward into a generally eastward drainage. Westward, the land rises very slightly for a few hundred feet then dips gradually into a south-trending drainage.

Physiographically the location of Site 10 is within the Dissected Till Plains Section of the Central Lowland Province.

GEOLOGY

See Geologic Section on Page 2

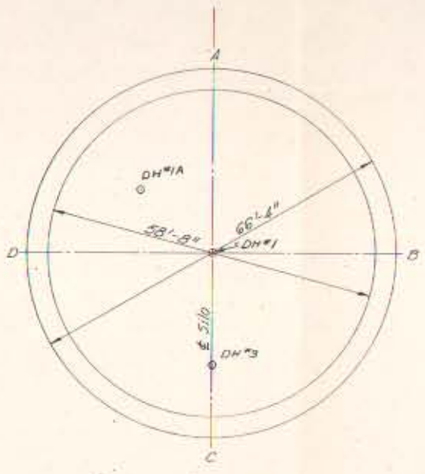
GROUND WATER

While hole was being drilled during geological exploration, the geologist observed an increase in the moisture content of the materials being recovered at a depth of 38 feet. When drilling had reached a depth of about 77 feet, water rose in this churn drill hole to 33 feet below the top of the hole; water in this hole and sloughing of material was again noted at a depth of 88 feet, elevation 1215 feet. The top of a saturated sand was logged at elevation 1213.2 feet.

On the log, a notation was made that the "material becomes wet and soft to plastic at 46.5'". This depth would be at elevation 1255.3 feet, approximately at the contact between the Loveland formation and the Kansan glacial till. The top of a saturated sand layer about 7 feet thick was at elevation 1215 feet in this boring.

CORPS OF ENGINEERS

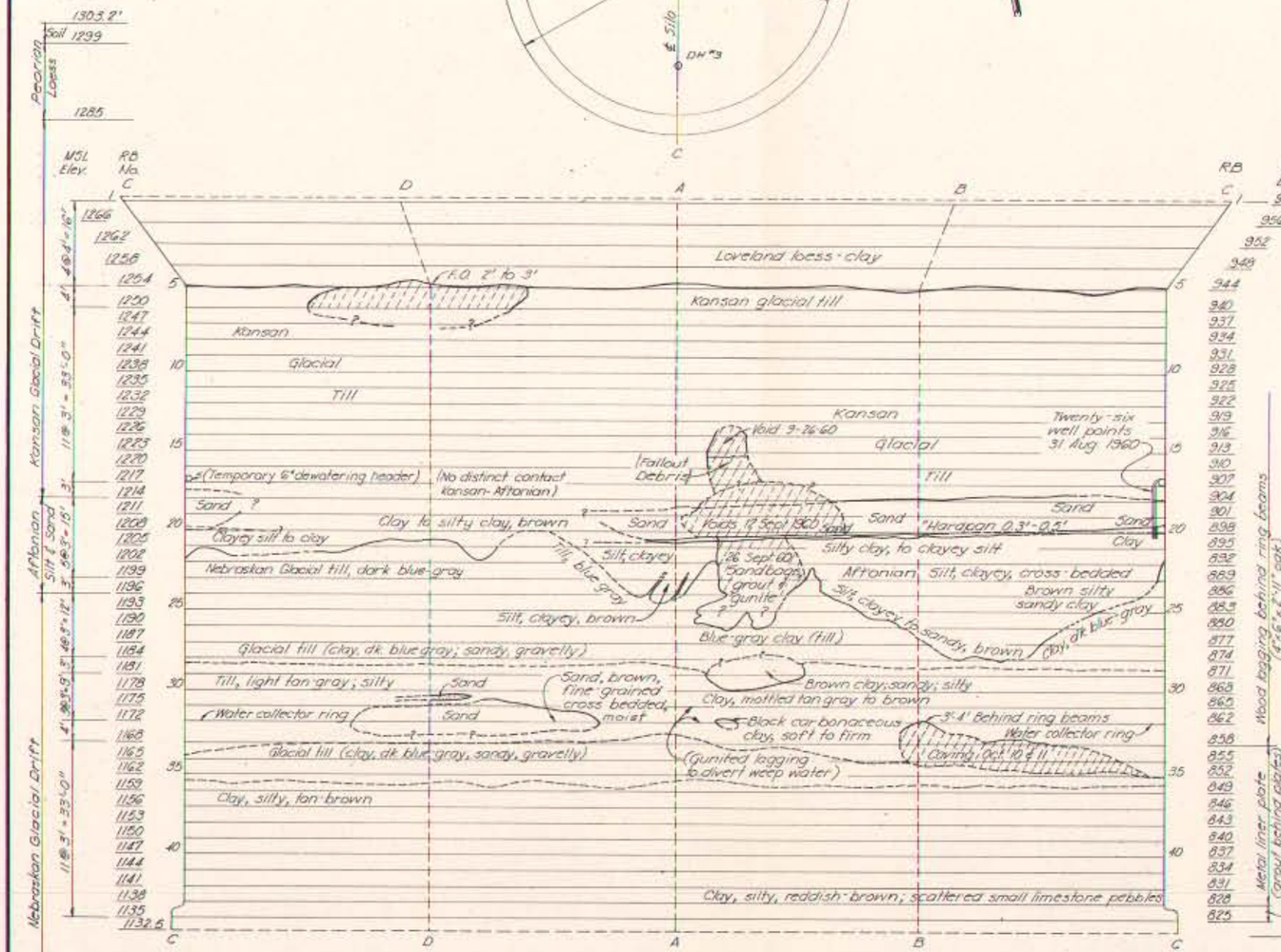
U. S. ARMY



Azimuth of Point -A- N 10° E

N

D. H. #1 Data



DEVELOPED SECTION
MISSILE SILO

Reference elevation 1000.00' = 1310.00 MSL.
Shaft excavation began 1 Aug. 1960
Shaft excavation completed 24 Oct 1960
Type I foundation

1078.1' M.S.L. Elev. (T.D. DH #1 = 225.1')

SCALE: 1 INCH = 10 FEET
10' 0 10'

M.S.L. Elev. | Geological Description

±1303' — Original ground
Soil, grading downward to loess
Peorian loess, buff to tan-gray. (Silty clay to clayey silt)

±1286.5' — Loveland loess clay (top 1286.5 - 1285.5'; uneven contact) Clay, silty, tan-brown to reddish brown.

1254' — Kansan glacial till. Clay, brown, sandy, calcareous; small limestone pebbles; moderately stiff, moist
Clay, brown mottled with light gray, stiff
Clay, tan-gray, sandy, gravelly, very calcareous; gravel size generally about ¼" to 1"; gravel is weathered chalk-like limestone, pink quartzite, igneous & metamorphic rocks. Numerous vert seams usually mineralized (manganese); clay is stiff; somewhat blocky when excavated due to breaking along the mineralized joint surfaces.
Clay (Till), mottled tan-brown, moist, stiff, sandy, calcareous, gravelly. Much of the gravel is sub-rounded limestone to about 1½" dia.; isolated limestone boulders to about one foot in dia.

1214.7' — Sand, tan to light brown; fine grained; saturated. "Hardpan" zone; sandy gravel to 0.5 ft thick.

1200.0 — Aftonian Silt, brown, sandy to clayey (Very uneven contact)
Nebraskan glacial till (clay)
Clay, (Till) dk. blue-gray, sandy, gravelly, calcareous, stiff.

Clay, light tan-gray, mottled w/ brn; isolated "pocket" of black carbonaceous clay; isolated lens of sand, brown, fine-grained, cross-bedded.
Clay (Till) dk. blue gray

1160.0 — (Transitional)
Clay, med gray to tan gray; very silty, sli sandy, non-calc. moist
Clay, tan brown to reddish brown; non-calc., moist, scattered gravel less than 3" in dia.

1132.5 — Clay, reddish brown sli silty; calcareous
1124.83 — (base of sump excavation)

THIS DRAWING HAS BEEN REDUCED TO THREE EIGHTHS THE ORIGINAL SCALE

DATE	DESCRIPTION	MADE	APPR'D

REVISIONS

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA

DESIGNED BY: A. S. H.
DRAWN BY: R. L. A.
TRACED BY: R. L. A.
CHECKED BY: A. S. H.
SUBMITTED BY: Chief, GEOLOGY BRANCH
APPROVED: Chief, ENGINEERING DIVISION
APPROVED: Chief, GEOLOGY BRANCH
APPROVED: H. W. Woodbury Jr. Dist. C. E.

LINCOLN A.F.B. LINCOLN, NEBRASKA

WS-107A-1 OPERATIONAL BASE
SMS-551-10-ELMWOOD
(MISSILE SITE 10)
GEOLOGIC SECTION

DATE: APRIL 1961
SCALE AS SHOWN
SPEC. NO. DA-25-066-eng-
DRAWING NUMBER
AW 16-14-03

THIS PLAN ACCOMPANIES CONTRACT No. DA-25-066-eng-, MODIFICATION No.

SAFETY PAYS

PLATE 1

SITE 11 - AVOCA

LOCATION

Lincoln Auxiliary Site 11 is located in the NE¼ of Section 26, T1ON, R12E, in Cass County, Nebraska. This site is about ¼ mile south of U. S. Highway 34, and 7½ miles east of State Highway 50.

TOPOGRAPHY AND PHYSIOGRAPHY

The topography of the site and surrounding area is gently rolling with moderate to low relief. The elevation of the original ground surface at this site was approximately 1184 feet above mean sea level.

Physiographically, the location of Site 11 was within the Dissected Till Plains Section of the Central Lowland Province.

GEOLOGY

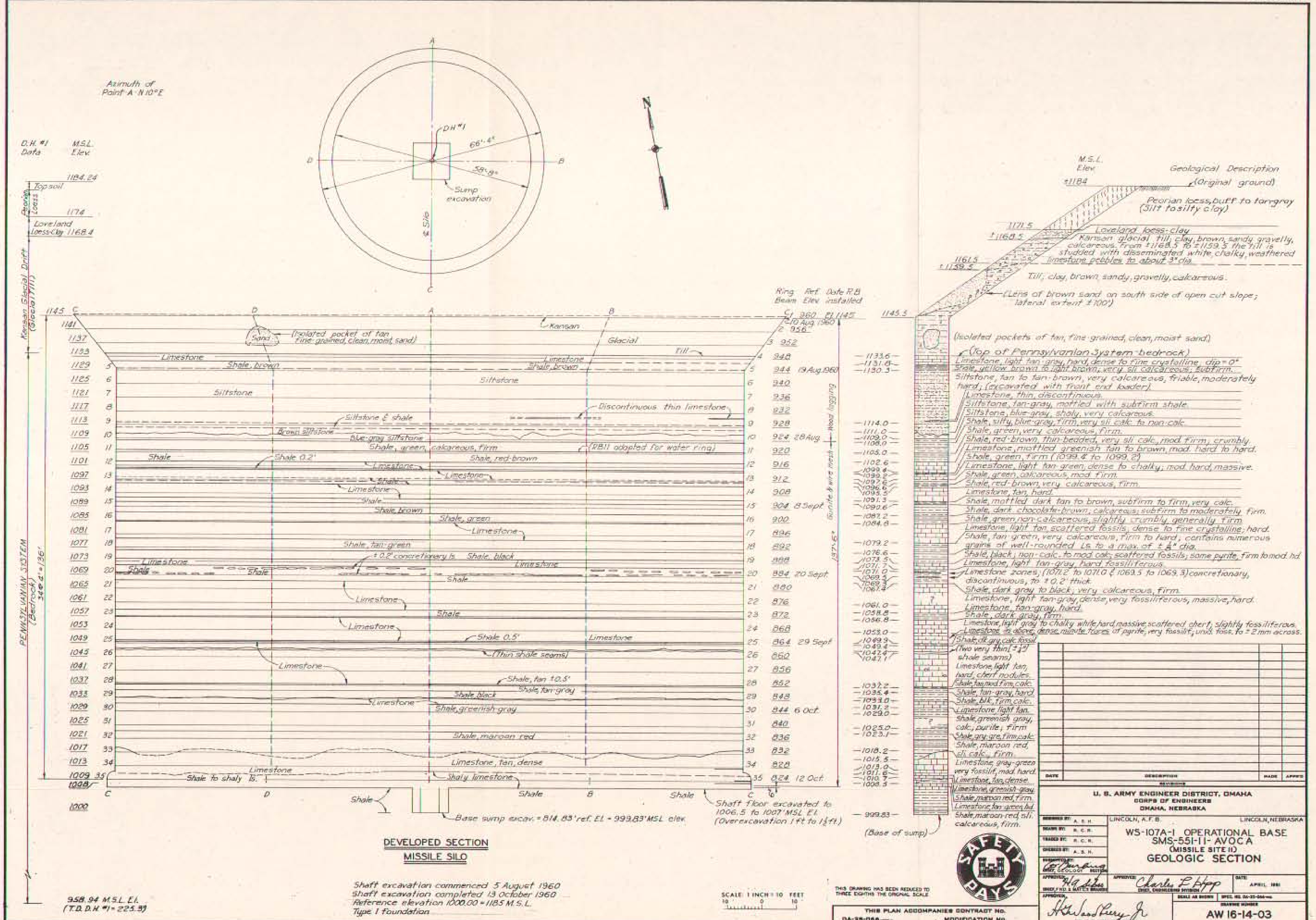
See Geologic Section on Page 3.

GROUND WATER

In drill hole 1, located at the center of the shaft excavation, a small amount of water seepage was observed between depths 26 feet and 30 feet. This water was apparently seeping from a relatively low-porosity clayey sand zone in the Kansan glacial till between depths 26 and 28 feet. A small amount of water was also encountered in a thin sand zone between depths 38 feet and 38.4 feet. An additional inflow of water into the drill hole was observed from a depth of 42 feet downward to 46 feet where a lens or pocket of saturated brown, silty sand was penetrated. Below the top of bedrock at a depth of 49.9 feet, the Star churn drill was replaced by a Failing rotary rig. During rotary drilling, no water loss was

observed between 49.9 feet and 50.5 feet, but at 50.5 feet the water loss was 100% and from 50.5 feet to 52.9 feet a water loss of 1200 gallons was recorded. Below 52.9 feet the water loss decreased, but some loss was observed down to 71.1 feet. A water loss was also observed at 110.5 feet, and through all or most of the interval from 122.6 feet to the total depth of DH-1 at 224.3 feet.

In drill hole 2, located 100 feet northwest of DH-1, a wet gravel was penetrated between depths 25.6 feet and 32.5 feet. Water from this saturated material rose to 14.6 feet below the top of the hole. This was the only saturated zone encountered in DH-2, which was drilled to a total depth of 44 feet.



Azimuth of Point A N 10° E
DH #1
66'-4"
58'-9"
Sump excavation
℄ Silo
A
B
C
D
N
D.H. #1 Data
M.S.L. Elev.
1184.24
Top soil
Peorian Loess
1174
Loveland Loess-Clay 1168.4
Kansan Glacial Drift (Glacial Till)
PENNSYLVANIAN SYSTEM (Bedrock) 34'± 4' = 136'
958.94 M.S.L. El.
(T.D. D.H. #1 = 225.3')
1145
1000
(Isolated pocket of tan fine-grained, clean, moist sand)
Sand
Kansan
Glacial
Till
Limestone
Shale, brown
Siltstone
Discontinuous thin limestone
Siltstone & shale
Brown siltstone
Blue-gray siltstone
Shale, green, calcareous, firm
(RB11 adapted for water ring)
Shale
Shale 0.2'
Shale, red-brown
Shale, brown
Shale, green
Shale, tan-green
± 0.2' concretionary ls.
Shale, black
Shale 0.5'
(Thin shale seams)
Shale, tan ± 0.5'
Shale, tan-gray
Shale, greenish-gray
Shale, maroon red
Limestone, tan, dense
Shale to shaly ls.
Shaly limestone
Ring Beam
Ref. Elev.
Date R.B. installed
960 El. 1145
10 Aug. 1960
19 Aug. 1960
28 Aug.
8 Sept.
20 Sept.
29 Sept.
6 Oct.
12 Oct.
Gunite & wire mesh - Wood lagging
137'-6"
Shaft floor excavated to 1006.5 to 1007' MSL El. (Overexcavation 1 ft to 1½ ft.)
Base sump excav. = 814.83' ref. El. = 999.83' MSL elev.
(Base of sump)
DEVELOPED SECTION
MISSILE SILO
Shaft excavation commenced 5 August 1960
Shaft excavation completed 13 October 1960
Reference elevation 1000.00 = 1185 M.S.L.
Type I foundation
SCALE: 1 INCH = 10 FEET
THIS DRAWING HAS BEEN REDUCED TO THREE EIGHTHS THE ORIGINAL SCALE
M.S.L. Elev.
Geological Description
±1184 (Original ground)
Peorian loess, buff to tan-gray (Silt to silty clay)
1171.5
Loveland loess-clay
±1168.5
Kansan glacial till; clay, brown, sandy gravelly, calcareous. From ±1168.5 to ±1159.5 the till is studded with disseminated white, chalky, weathered limestone pebbles to about 3" dia.
1161.5
±1159.5
Till; clay, brown, sandy, gravelly, calcareous.
(Lens of brown sand on south side of open cut slope; lateral extent ±100')
1145.5
(Isolated pockets of tan, fine-grained, clean, moist sand)
(Top of Pennsylvanian System bedrock)
Limestone, light tan-gray, hard, dense to fine crystalline, dip = 0°
Shale, yellow brown to light brown; very sli calcareous; subfirm.
Siltstone, tan to tan-brown, very calcareous, friable, moderately hard; (excavated with front end loader)
Limestone, thin, discontinuous.
Siltstone, tan-gray, mottled with subfirm shale.
Siltstone, blue-gray, shaly, very calcareous.
Shale, silty, blue-gray, firm, very sli calc to non-calc
Shale, green, very calcareous, firm.
Shale, red-brown, thin-bedded, very sli calc, mod firm, crumbly.
Limestone, mottled greenish tan to brown, mod. hard to hard.
Shale, green, firm (1099.4 to 1099.2)
Limestone, light tan-green, dense to chalky; mod hard, massive.
Shale, green, calcareous, mod firm.
Shale, red-brown, very calcareous, firm.
Limestone, tan, hard.
Shale, mottled dark tan to brown, subfirm to firm, very calc.
Shale, dark chocolate-brown; calcareous; subfirm to moderately firm.
Shale, green, non-calcareous, slightly crumbly, generally firm.
Limestone, light tan, scattered fossils, dense to fine crystalline; hard.
Shale, tan-green, very calcareous, firm to hard, contains numerous grains of well-rounded Ls. to a max. of ± 1/4" dia.
Shale, black; non-calc. to mod calc; scattered fossils; some pyrite, firm to mod. hd.
Limestone, light tan-gray, hard fossiliferous.
Limestone zones, (1071.2 to 1071.0 & 1069.5 to 1069.3) concretionary, discontinuous, to ± 0.2' thick.
Shale, dark gray to black; very calcareous, firm.
Limestone, light tan-gray, dense, very fossiliferous, massive, hard.
Limestone, tan-gray, hard.
Shale, dark gray, firm.
Limestone, light gray to chalky white hard massive, scattered chert, slightly fossiliferous.
Limestone as above, dense, minute traces of pyrite, very fossilif.; unid. foss. to ± 2 mm across.
Shale, dk gry calc fossil.
(Two very thin [± 1/4"] shale seams)
Limestone, light tan, hard, chert nodules.
Shale, tan, mod firm, calc.
Shale, tan-gray, hard.
Shale, blk, firm, calc.
Limestone, light tan.
Shale, greenish gray, calc.; pyrite, firm
Shale, gry-grn, firm, calc
Shale, maroon red, sli. calc., firm.
Limestone, gray-green very fossilif., mod. hard.
Limestone, tan, dense.
Limestone, greenish-gray
Shale, maroon red, firm.
Limestone, tan-green, hd.
Shale, maroon-red, sli. calcareous, firm.
SAFETY PAYS
THIS PLAN ACCOMPANIES CONTRACT No. DA-25-066-
MODIFICATION No.
DATE
DESCRIPTION
MADE
APPR'D
REVISIONS
U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA
DESIGNED BY: A. S. H.
DRAWN BY: R. C. R.
TRACED BY: R. C. R.
CHECKED BY: A. S. H.
SUBMITTED BY: CHIEF, GEOLOGY SECTION
APPROVED: CHIEF, F.N.D. & MAT'LS BRANCH
APPROVED: Charles L Hipp CHIEF, ENGINEERING DIVISION
APPROVED: H.W. Woodbury Jr COL., C.E., DISTRICT ENGINEER
LINCOLN, A.F.B.
LINCOLN, NEBRASKA
WS-107A-1 OPERATIONAL BASE
SMS-551-11-AVOCA
(MISSILE SITE 11)
GEOLOGIC SECTION
DATE: APRIL, 1961
SCALE AS SHOWN
SPEC. NO. DA-25-066-
DRAWING NUMBER
AW 16-14-03

SITE 12 - PALMYRA, NEBRASKA

LOCATION

Site 12 is located in the NW¼ of section 2, T6N, R9E, in Otoe County, Nebraska. The site is about 1 mile south and 1/4 mile east of Palmyra, Nebraska.

TOPOGRAPHY AND PHYSIOGRAPHY

The topography of the site and the surrounding area is gently rolling with moderate to low relief. The elevation of the original ground surface at this site was approximately 1198 feet above mean sea level.

Physiographically, the location of Site 12 was within the Dissected Till Plains Section of the Central Lowland Province.

GEOLOGY

See Geologic Section on Page 2.

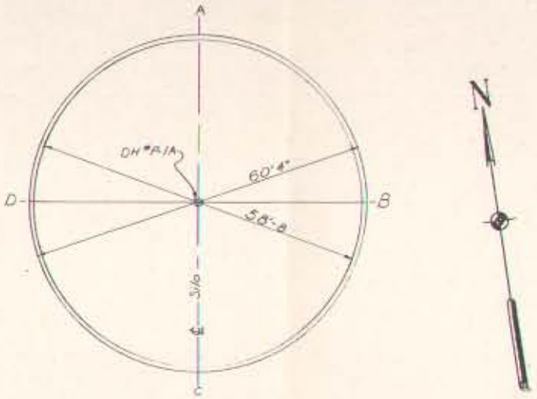
GROUND WATER

A Failing 1500 rotary rig was used for geological sampling and drilling at Site 12. The use of water for rotary drilling prevented accurate measurements of water levels during geological drilling, and a piezometer was installed to obtain water level measurements.

In one hole a sand and gravel zone was penetrated between elevations 1120 feet and 1113 feet. It was difficult to obtain sample recovery through this zone, but lost circulation during drilling indicated permeability in this zone.

In another hole the top of the sand-gravel zone was at elevation 1120.5 feet. The Contractor's logs indicated that it was necessary to pump heavy mud into the hole to stop water inflow and caving while drilling through this zone.

AZIMUTH OF POINT "A" N 10° E



EXPANDED SECTION 1043' TO 1017' M.S.L.

Elev.	Geological Description
1043.0	Shale, dark gray, fossiliferous, poorly developed thin bedding, firm.
1039.7	Limestone, alternating layers to 1" thick of light greenish-gry shale, limestone & tan-brown microcrystalline limestone.
1037.6	Shale, dk. gry, calc., firm.
1037.1	Limestone, light to gray, hard, lower 0.5' saturated with shale.
1036	Limestone, greenish-gray, hard.
1035.1	Shale, maroon-red, grading downward to grayish red; brb., generally non calcareous.
1033	Limestone, tan, gray, crystal, fossiliferous.
1031.9	Shale, mot. red, gray, gry, calc., fossiliferous.
1031	Shale, gry, calc., firm.
1030.7	Shale, maroon-red, sli. mottled with gry-green. Very fossilif., incl. crinoid stems, massive, firm.
1030.2	

Elev.	Geological Description
1020.8	Limestone, med. gry, fossiliferous, incl. crinoid stems, shell-like.
1027	Limestone, tan to light gray, hard.
1025	Shale with thin (±1mm) partings of light gry silt or silty shale, firm.
	Limestone, tan, dense, hard, massive.
1021.1	Shale, gry, firm to slightly hard, very slightly calc, massive.
1018.7	
1017.8	Shale, maroon-red, firm, slightly calcareous

(Base of sump excavation.)

Bottom of shaft excavation

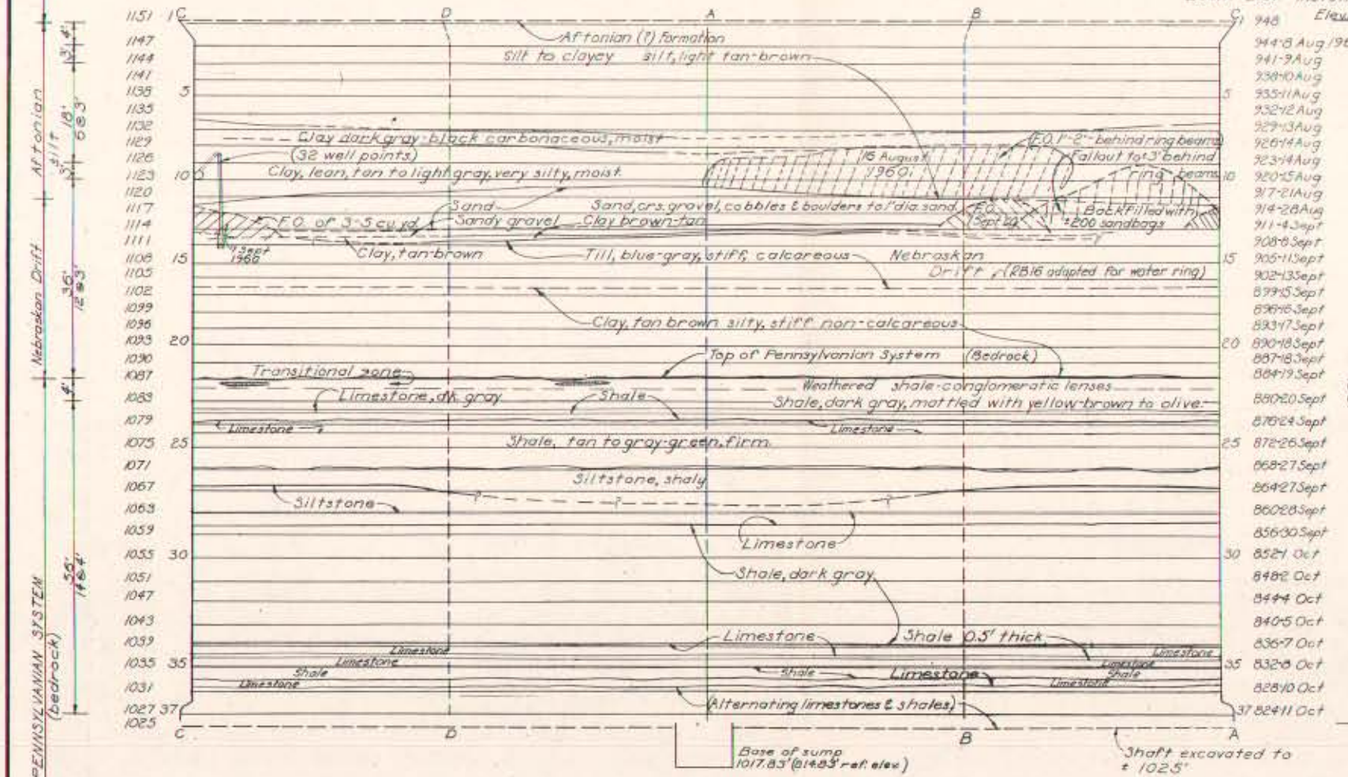
D.H.P-1A Data

M.S.L. Elev.

1198.5 — Peoria loess

1187 — Loveland loess-clay

Aftonian — Nebraskan Drift — Pennsylvanian System (Bedrock)



Ring Beam	Ref. Elev.	Date RB Installed
1	948	Elev. 1152.0
	944.6	Aug 1960
	941.9	Aug
	938.10	Aug
	935.11	Aug
	932.12	Aug
	929.13	Aug
	926.14	Aug
	923.14	Aug
	920.15	Aug
	917.21	Aug
	914.28	Aug
	911.43	Sept
	908.8	Sept
15	905.11	Sept
	902.13	Sept
	899.15	Sept
	896.16	Sept
	893.17	Sept
20	890.18	Sept
	887.18	Sept
	884.19	Sept
	881.20	Sept
	878.24	Sept
25	872.26	Sept
	868.27	Sept
	864.27	Sept
	860.28	Sept
	856.30	Sept
30	852.1	Oct
	848.2	Oct
	844.4	Oct
	840.5	Oct
	836.7	Oct
35	832.8	Oct
	828.10	Oct
37	824.11	Oct

Total depth O.H.P-1A 225.6' - Elev. 972.9' -

DEVELOPED SECTION
MISSILE SILO
SCALE: 1 INCH = 10 FEET
10 0 10

Shaft excavation commenced 1 August 1960
Shaft excavation completed 11 October 1960
Ref. elev. 1000.00' = 1203.00 M.S.L.
TYPE I FOUNDATION

M.S.L. Elev. — Geological Description

1198.5 — Soil (Original Ground)

Peoria loess, yellowish to buff to tan-gray; iron staining in some zones; non-calcareous

1187 — Loveland loess-clay, reddish-brown, moist, non-calcareous

(Transitional contact)

Aftonian ? formation. Clayey silt to silt to silty clay, tan-brown, non-calcareous, moist. Material generally stands well on vertical excavation for four or five hours after exposure to air, then begins to "flake off."

1133.5 — Clay dk gry to black, sandy, carbonaceous, moderately stiff to stiff, moist.

1130.5 — Clay, tan to light gray, lean, very silty, non-calcareous, moist.

1127.5 — Sand, tan to light brown, fine grained, saturated. On east side of shaft, the sand is gravelly. Gravel is sub-rounded to sub-angular, to max of about 1½" dia. Gravel zone at base of sand to max. 2' thick. Numerous cobbles; some boulders to 1' dia. Much of the gravel size & larger rock is pink quartzite; zone is saturated.

1121.6 — Clay, mottled brown to blue gray, sandy, gravelly, calcareous, stiff.

1112.7 — Clay dark blue-gray, calcareous, stiff to sub-firm, very thinly laminated to massive; incipient induration.

1111.9 — Clay, silty, sandy, tan-brown mottled throughout with inclusions of blue-gray clay. The inclusions are usually small (¼ - ½"), irregular in shape. Clay is very stiff to sub firm, non-calcareous.

1103.5 — (Top of Pennsylvanian bedrock) Shale, blue gray, mottled with tan brown; weathered, clay like with conglomeratic lenses.

1087 — Limestone, dark gray, moderately hard

1081.6 — Shale, mottled dark gray to olive brown, calcareous firm.

1081.0 — Limestone light tan, hard, massive.

1073.4 — Shale, tan to gray-green, calcareous, firm.

1071.1 — Siltstone, shaly; very thin alternating laminations of greenish-gray sandy siltstone & dk. gry black carbonaceous shale, sli. calc. Scattered pyrite inclusions.

1071 — Siltstone, gry, with very thin alternating laminations of black shale

1067.5 — Limestone, light tan-gray, hard

1064.5 — Shale, very thin lamination of shale & silty shale, very sli. calc; moist firm.

1063 — Shale, med. to dk. gry, poorly developed laminations, few pyrite nodules, firm.

1061.6 — Shale dark gry, sli. calc, massive firm (1052.7'-1051')

1059 — 1051'-1043' Shale, Dk gry, fossiliferous (brachiopods) along thin silty partings, scattered pyrite. Firm to sli hard, non-calc.

1056.7 — (Bottom of shaft excavation)

1051 — (Bottom of sump excav.)

1043.0

1039.7

1037.6

1037.1

1036

1035.1

1033

1031.9

1031

1030.7

1030.2

1028

-1017.83-

(See expanded section above.)

Gunite & wire mesh — Wood lagging — 12'6"

DATE	DESCRIPTION	MADE	APP'D
	REVISIONS		

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA

DESIGNED BY: A.S.H. — L.INCOLN A.F.B. — L.INCOLN, NEBRASKA
DRAWN BY: J.M.F.
TRACED BY: J.M.F.
CHECKED BY: A.S.H.

WS-107A-1 OPERATIONAL BASE
SMS-55I-12 PALMYRA
(MISSILE SITE 12)
GEOLOGIC SECTION

APPROVED: Charles L. Hopp, CHIEF, ENGINEERING DIVISION — DATE: MAY 1961

SCALE AS SHOWN — SPEC. NO. DA-25-066-eng-61

DRAWING NUMBER: AW 16-14-03

THIS DRAWING HAS BEEN REDUCED TO THREE EIGHTHS THE ORIGINAL SCALE

SAFETY PAYS

THIS PLAN ACCOMPANIES CONTRACT No. DA-25-066-eng-61 , MODIFICATION No.

PLATE 1

PART III

Construction Features.

CONSTRUCTION FEATURES

Excavation

Construction is of steel and concrete with the facility generally underground. Construction operations involve both open cut and shaft excavation with backfill over the completed structures. The excavation and backfill phase constitutes approximately 20% of the entire work. The open cut excavation, handled with conventional earth-moving equipment, was to a depth ranging from 39.5 feet to 65 feet depending on the individual site. Shaft excavation consists of excavating a hole approximately 57 feet in diameter to a total depth of approximately 180 feet. A system of ring beam construction with wood lagging or metal liner plates is to support the walls of the shaft excavation. Sheet piling is, in some instances, required in the upper reaches of the shaft excavation.

Concrete

Upon completion of the excavation phase, the Silo concrete operation is commenced by placing a reinforced concrete footing, a gravel filter bed, and a reinforced concrete floor slab to elevation 826 (with the top of the completed Silo at reference elevation 1000.) The thickness of the floor slab varies from 6 inches to 7.5 feet depending on the Site.

Reinforced concrete walls, 2.5 feet thick are then poured to elevation 945 by utilizing slip forms on the interior surface. At elevation 945, a transition is started and the wall thickness is gradually increased to the total thickness of 9 feet. The transition area ispoured to elevation 991 by utilizing stationary wooden forms on the exterior surface and slip forms on the interior surface.

Propellant Loading System Piping and Prefabs

The PLS piping and prefab skids are furnished and installed by Paul Hardeman, Inc. Five PLS prefabs are located on level 7 and one prefab at level 8. The interconnecting piping between the vessels and prefabs is furnished and installed by Paul Hardeman, Inc.

Diesel Generators

There are two diesel generators, each weighing 20 tons, located one on level 5 and one on level 6. These are furnished under an Assigned Service Contract and installed by the prime contractor.

Launch Platform Counterweight and Drive Mechanism

The launch platform counterweights and the drive base and mechanism are installed as soon as the crib has been suspended and erection completed and before the Silo cap is placed.

General Facility Construction

As soon as the structural steel crib is substantially complete and bolted up, work is commenced on the floor grating and handrails to provide a safe working area for completion of the Silo work. The spiral stairway and ladders are installed concurrently with the grating and handrails.

Switchgear, motor control centers, panels, transformers, and other electrical equipment are placed as soon as the crib levels are ready to receive the equipment in order to facilitate the installation of tie-in conduit, cable trays, and wire connections, which are installed concurrently with equipment installation.

Heating, ventilating, and air conditioning equipment is placed as soon as the crib levels are ready to receive the equipment so that the installation of the necessary piping and electrical work can proceed.

A considerable amount of the necessary piping and ductwork has been pre-fabricated and is being installed concurrently with the equipment installation.

The personnel elevator is an Assigned Service Contract with Otis Elevator Company. The elevator is installed along with the other items of equipment after the crib is erected and before the Silo cap is poured.

Upon completion of the crib erection and installation of the major items of equipment, the Silo cap and doors are formed and poured. The Silo cap is a 9 foot thick reinforced concrete slab and the doors are 2.5 feet thick.

Final installation and check-out of all equipment and systems is completed after the Silo cap is placed. Equipment installation in the LCC is carried out concurrently with the installation of the Silo equipment.

Upon completion of the concreting to elevation 991, the vent and exhaust shafts and an 18 inch periphery wall are poured to elevation 1000.

During excavation of the Silo shaft concreting operations are carried out on the Launch Control Centers.

Structural Steel

Erection of the steel crib is started as soon as the Silo walls are complete to elevation 991. The crib is temporarily supported at the bottom of the Silo but erection does not proceed beyond the third level until after the spring hangers are installed and the crib has been suspended. PLS vessels and diesel-generators are installed as crib steel erection proceeds.

Erection of the hung floor in the LCC is started as soon as the concrete operations are complete.

Installation of PLS Vessels

There are 10 vessels on level 8 that are a part of the Propellant Loading System. These vessels as tabulated below are installed before the floor framing for level 7 is erected.

	Approx Wt.	Length	Diameter
Gaseous Oxygen Storage (2)	40 T	39'	5'
Gaseous Nitrogen Storage (1)	44.5T	37'	5'
Liquid Oxygen Storage (1)	55 T	45'	13'
Liquid Oxygen Topping (1)	11.5T	31'	8'
Liquid Nitrogen Storage (1)	15 T	24'	9'
LN/He Heat Exchanger (1)	2 T	10'	9'
Helium Ground Pressure (1)	21.5T	23'	4'
Helium In-Flight (2)	28.5T	30'	4'

The contractor used a derrick to install the PLS vessels and diesel generator sets.

PART IV

Construction and Assigned Services Contract Schedules, Starting and Completion Dates, and Associated Information.

CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE
SUMMARY CONSTRUCTION STATUS REPORT

ATLAS F (WS-107 A-1)

LINCOLN AIR FORCE BASE, DATE OF REPORT 10-15-61

CONTRACTOR SCHEDULE SITE NO. 1 SITE NAME EAGLE

PRIORITY 3 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
	12

CONTRACTOR SCHEDULE SITE NO. 2 SITE NAME NEBRASKA CITY

PRIORITY 5 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
	19

CONTRACTOR SCHEDULE SITE NO. 3 SITE NAME TECUMSEH

PRIORITY 1 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
10	

CONTRACTOR SCHEDULE SITE NO. 4 SITE NAME CORTLAND

PRIORITY 7 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
	7

CONTRACTOR SCHEDULE SITE NO. 5 SITE NAME BEATRICE

PRIORITY 6 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
23	

CONTRACTOR SCHEDULE SITE NO. 6 SITE NAME WILBER

PRIORITY 4 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
	8

CONTRACTOR SCHEDULE SITE NO. 7 SITE NAME YORK

PRIORITY 11 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
1	

CONTRACTOR SCHEDULE SITE NO. 8 SITE NAME SEWARD

PRIORITY 12 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
0	0

TOTAL CONTRACT SUMMARY

SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
0	0

CONTRACTOR SCHEDULE SITE NO. 9 SITE NAME DAVID CITY

PRIORITY 2 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
	11

CONTRACTOR SCHEDULE SITE NO. 10 SITE NAME ELMWOOD

PRIORITY 10 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
5	

CONTRACTOR SCHEDULE SITE NO. 11 SITE NAME AVOCA

PRIORITY 8 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
	10

CONTRACTOR SCHEDULE SITE NO. 12 SITE NAME PALMYRA

PRIORITY 9 | SCHEDULE | ACTUAL | 1960 1961 1962 J F M A M J J A S O N D J F M A M J | 100 | 100 WORK COMPLETED

ACTUAL STATUS	
DAYS AHEAD	DAYS BEHIND
	13

LEGEND

77 – U.S. HIGHWAY

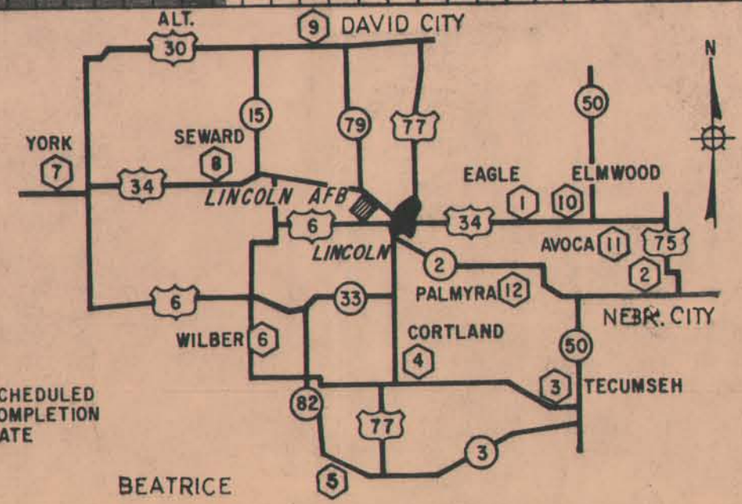
50 – STATE HIGHWAY

6 – SITE NO. & NAME

MILES FROM LINCOLN

SITE	MILES
1	24
2	48
3	56
4	28
5	41
6	48
7	55
8	30
9	50
10	47
11	44
12	25

10-13-61 MO. DAY SCHEDULED COMPLETION DATE



LINCOLN AIR FORCE BASE
NEBRASKA

FORM: ENGMA-AR-2811

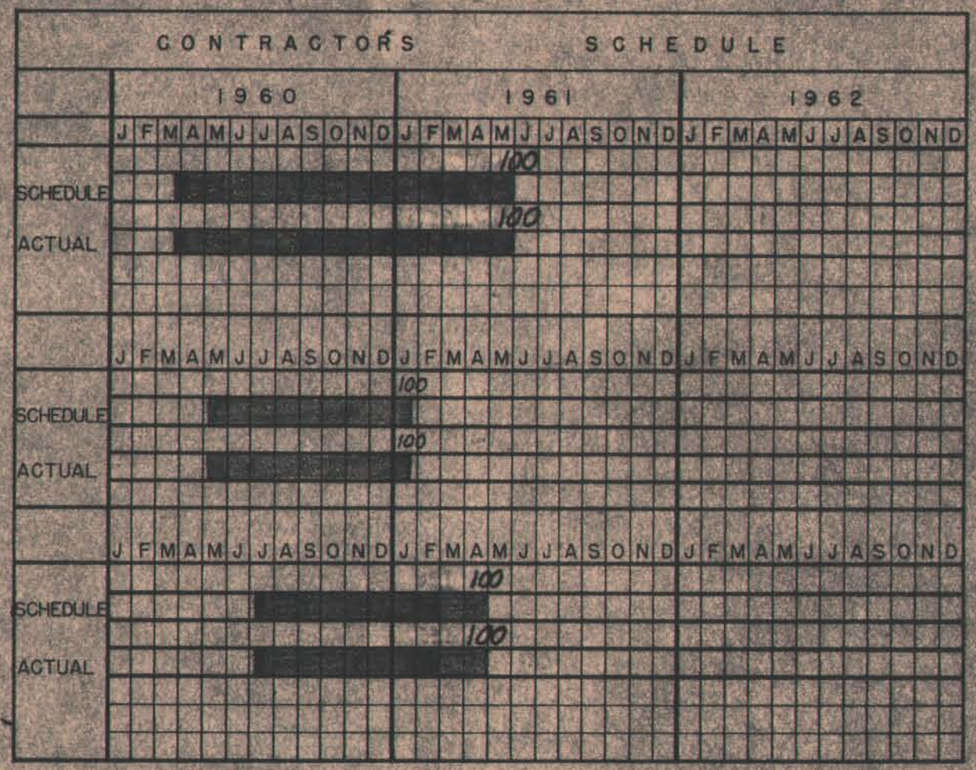
CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE
CONSTRUCTION STATUS REPORT
ON-BASE TECHNICAL SUPPORT FACILITIES
ATLAS F (WS-107 A-1)
LINCOLN AIR FORCE BASE

REPORT AS OF 10-15-61

NO.	ITEM DESCRIPTION	INSTALL & CONSTR STARTED SCHEDULE	INSTALL & CONSTR STARTED ACTUAL	INSTALL & CONSTR COMPLETED SCHEDULE	INSTALL & CONSTR COMPLETED ACTUAL	CONSTRUCTION STATUS: CONTRACTOR SCHEDULE NO OF DAYS	CONSTRUCTION STATUS: NO OF DAYS SINCE START OF SCHEDULE	CONSTRUCTION STATUS: ACTUAL STATUS DAYS AHEAD	CONSTRUCTION STATUS: ACTUAL STATUS DAYS BEHIND	PROBLEM AREA	CONTRACT AWARD DATE
A	B	C	D	E	F	G	H	I	J	K	L
	MAB & TECH SUPPLY										3-25-60
1	MAB BLDG	9-15-60	9-1-60	6-1-61	5-31-61	260	259	1			
2	TECH SUPPLY	9-15-60	9-16-60	3-15-61	3-15-61	182	182	0	0		
3	TANK FARM	3-1-61	3-1-61	5-1-61	5-1-61	62	62	0	0		
4	UTILITIES & ROADS	9-15-60	9-1-60	5-1-61	5-1-61	229	229	0	0		
5	COMM. SUPPORT	8-29-60	8-30-60	2-16-61	2-16-61	172	172	0	0		
	LOX FAC										5-10-60
6	EQUIP FOOTINGS	8-1-60	8-10-60	9-1-60	9-30-60	32	61		29		
7	TANKS & VESSELS	9-1-60	10-10-60	10-15-60	1-10-61	45	152		87		
	& PIPING	9-1-60	10-13-60	10-15-60	1-21-61	45	143		98		
8	UTILITIES & ROADS	6-21-60	6-21-60	9-30-60	10-10-60	102	112		10		
	R/V FACILITY										7-7-60
9	S & I SHOP BLDG	7-15-60	7-25-60	2-15-61	2-28-61	216	229		13		
10	SEGREGATED STORAGE BUILDING	10-1-60	8-28-60	1-1-61	2-28-61	93	151		58		
11	INERT STORAGE BLDG	9-1-60	8-26-60	11-1-60	2-15-61	66	168		102		
12	MULTI STORAGE MAG	Do Not Have at Lincoln									
13	UTILITIES & ROADS	9-1-60	8-29-60	1-1-61	12-7-60	123	98	25			

Maint Insp
Base Spons Storage
Igloo 2620

CONTRACTORS SCHEDULE



WORK COMPLETED - FINAL REPORT

ITEM	CONTRACTOR: CONTRACTOR — ADDRESS	CONTRACTOR: CONTRACT NO	A.F. DIRECTED COMPLETION DATE: ORIGINAL	A.F. DIRECTED COMPLETION DATE: REVISED	A.F. DIRECTED COMPLETION DATE: NO.	CONTRACT COMPLETION DATE: ORIGINAL	CONTRACT COMPLETION DATE: REVISED	CONTRACT COMPLETION DATE: NO.	B O D: SCHEDULE	B O D: ACTUAL
MISSILE ASSEMBLY BLDG	EBY CONSTRUCTION COMPANY P.O. Box 1864, LINCOLN, NEBR.	DA 6386			1st / 2nd	5-1-61	6-1-61	1st / 2nd		
TECH SUPPLY	〃	〃			1st / 2nd	3-15-61		1st / 2nd		4-30-61
COMM. SUPPORT	〃	〃			1st / 2nd	3-15-61		1st / 2nd		
LOX FAC	CLEVELAND CONSOLIDATED P.O. Box 732, LINCOLN, NEBR.	DA 6221			1st / 2nd	10-15-60	10-19-60	1st / 2nd		2-28-61
RE-ENTRY VEHICLE FAC	KINGERY CONSTRUCTION COMPANY 1941 'Y' STREET, LINCOLN, NEBR.	DA 6328			1st / 2nd	3-15-61		1st / 2nd		4-30-61

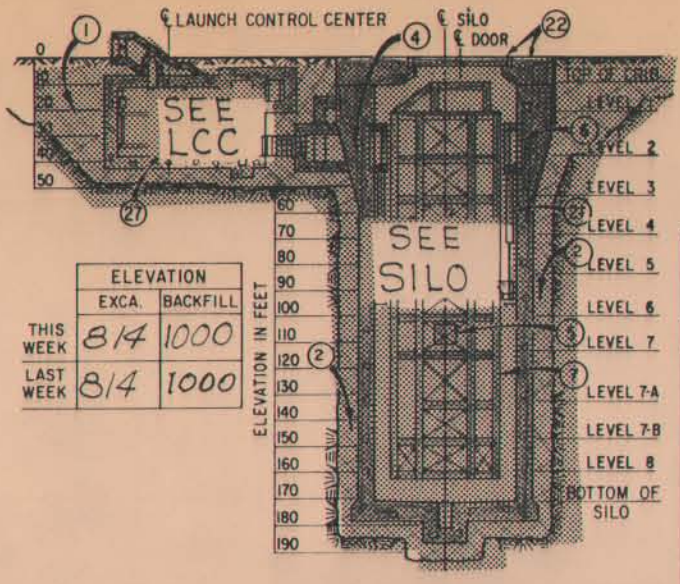
Form ENGMA-AB-28/3

RCS: ENGMA-AB-28

REPORT AS OF 10-15-61

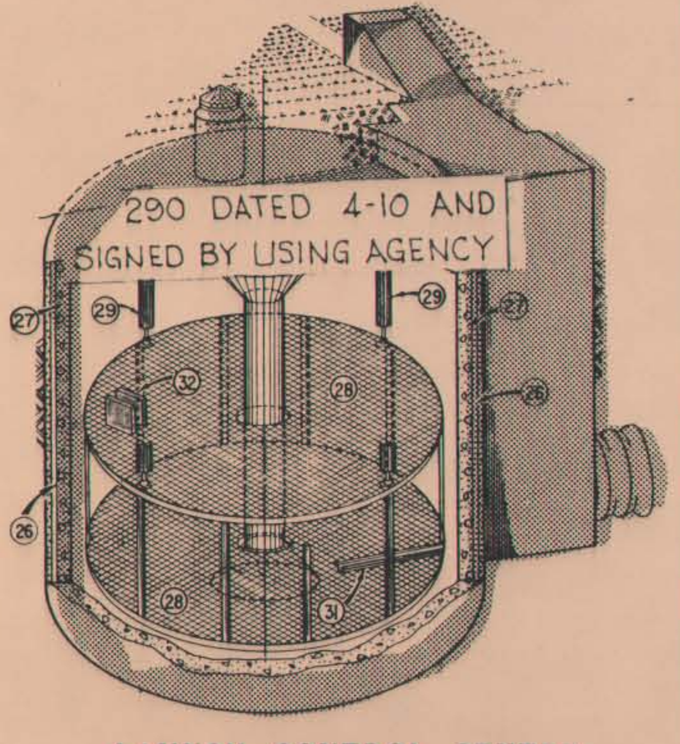
CE BALLISTIC MISSILE CONSTRUCTION OFFICE
CONSTRUCTION STATUS REPORT
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 1, SITE NAME EAGLE, PRIORITY 3

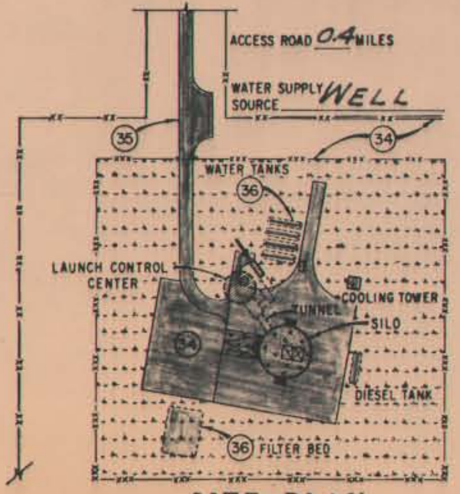


	EXCA.	BACKFILL
THIS WEEK	814	1000
LAST WEEK	814	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT (A)	NO. (B)	MILESTONE ASC & GFP EQUIP. (C)	ITEM DESCRIPTION (D)	EQUIPMENT FABRICATION STARTED (E)	FABRICATION COMPL. (F)	RECEIVED SCHEDULE (G)	RECEIVED ACTUAL (H)	INSTALL & CONSTR. STARTED SCHEDULE (I)	STARTED ACTUAL (J)	COMPLETED SCHEDULE (K)	COMPLETED ACTUAL (L)	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE (M)	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO. OF DAYS (N)	NO. OF DAYS SINCE START OF SCHEDULE (O)	ACTUAL STATUS DAYS AHEAD (P)	DAYS BEHIND (Q)	PROBLEM AREA (R)
SILO	1		EXCAVATION (OPEN CUT)					5-15-60	5-18	5-31-60	5-30		17	16	1		
SILO	2		EXCAVATION (SILO)					6-1-60	6-4	7-31-60	9-5		61	97		36	
SILO	3		REINFORCING STEEL					7-22-60	9-10	10-4-60	10-27		75	98		23	
SILO	4	*	SILO CONCRETE (EXCEPT CAP)					7-22-60	9-10	10-26-60	11-2		97	104		7	
SILO	5		COLLIMATOR EMBEDDED PLATE				9-2	9-21-60	9-21	9-26-60	9-26		6	6	0	0	
SILO	6		CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			9-20-60	9-24	10-18-60	10-18	10-22-60	10-22		5	5	0	0	
SILO	7		STEEL CRIB			9-20-60	11-8	9-22-60	10-14	12-15-60	2-21		85	153		68	
SILO	8	*	PLS PRESSURE VESSELS & VALVES			11-1-60	11-26	10-8-60	11-27	12-6-60	11-29		59	53	6		
SILO	9	*	PLS CRYOGENIC VESSELS & VALVES			11-1-60	11-29	10-8-60	11-30	12-6-60	12-2		59	56	6		
SILO	10	△	PLS PREFABS & INTERCONNECTING PIPING			10-26-60	11-1	11-28-60	1-23	2-15-61	4-28		80	152		72	
SILO	11	*	CABLE TRAYS				11-25	11-15-60	11-27	2-5-61	3-1		83	107		24	
SILO	12		COMPRESSED AIR SYSTEM			10-12-60	11-29	11-15-60	1-23	3-14-61	6-9		120	207		87	
SILO	13	△	FACILITY ELEVATOR (PERSONNEL)			11-16-60	12-5	11-16-60	12-24	1-11-61	6-27		57	224		167	
SILO	14	* △	DIESEL GENERATOR, SWITCHGEAR & PANELS			11-2-60	11-12	11-15-60	12-3	3-14-61	3-30		120	136		16	
SILO	15	* △	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			11-23-60	11-8	7-22-60	12-7	4-20-61	3-6		273	238	35		
SILO	16	△	BLAST CLOSURE			9-28-60	10-8	11-15-60	11-2	1-1-61	2-28		48	106		58	
SILO	17	△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			11-23-60	11-2	12-1-60	1-9	2-15-61	1-7		77	48	29		
SILO	18	△	LAUNCH PLATFORM COUNTERWEIGHT			1-4-61	1-7	12-1-60	1-17	2-15-61	1-31		77	62	15		
SILO	19	△	LAUNCH PLATFORM DRIVE BASE			11-30-60	12-6	12-1-60	2-6	2-15-61	2-25		77	87		10	
SILO	20	△	LAUNCH PLATFORM DRIVE MECHANISM			11-30-60	2-3	12-1-60	2-4	2-15-61	2-7		77	69	8		
SILO	21	△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			9-20-60	9-24	9-22-60	11-25	12-15-60	12-10		85	80	5		
SILO	22	* △	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			1-10-61	1-31	2-1-61	2-15	5-26-61	6-1		115	121		6	
SILO	23	△	C.B.R. FILTERS			11-23-60	11-7	11-23-60	6-7	3-8-61	6-9		106	199		93	
SILO	24	*	ELECTRICAL CONDUIT, WIRE & FIXTURES			11-29-60	12-26	7-22-60	8-2	5-26-61	5-10		309	293	16		
SILO	25		SILO COMPLETE							6-18-61	6-30		400	412		12	
LAUNCH CONTROL CENTER	26		REINFORCING STEEL					7-22-60	7-18	11-1-60	1-6		103	169		66	
LAUNCH CONTROL CENTER	27		CONCRETE INCLUDING VENTS & ENTRY					7-22-60	7-18	11-1-60	5-9		103	292		189	
LAUNCH CONTROL CENTER	28		HUNG FLOOR			8-31-60	9-28	9-1-60	9-30	10-1-60	11-1		31	62		31	
LAUNCH CONTROL CENTER	29	△	AIR CYLINDER SPRING SUPPORT			9-14-60	9-1	9-1-60	11-1	10-1-60	11-1		31	62		31	
LAUNCH CONTROL CENTER	30	△	BLAST CLOSURE			9-28-60	10-8	10-1-60	11-1	12-1-60	1-15		62	46	16		
LAUNCH CONTROL CENTER	31		CABLE TRAYS				1-5	12-15-60	1-5	1-31-61	3-3		48	79		31	
LAUNCH CONTROL CENTER	32	△	HEATING, VENTILATING & AIR CONDITIONING			11-23-60	11-8	7-22-60	2-15	2-14-61	3-3		208	225		17	
LAUNCH CONTROL CENTER	33	*	L.C.C. COMPLETE							3-7-61	3-3		229	225	4		
SITE WORK	34	*	GRADING PAVING & FENCING					5-15-60	5-19	5-5-61	6-30		356	412		56	
SITE WORK	35		ACCESS ROAD					5-15-60	5-16	4-16-61	6-24		337	406		69	
SITE WORK	36		UTILITIES					7-1-60	8-30	4-16-61	6-30		290	365		75	
SITE WORK	37	*	COMPLETION ENTIRE CONTRACT							6-18-61	6-30		400	412		12	
MISC.	38		SHOP DRAWINGS			6-15-60	9-15										
MISC.	39		MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-15										
MISC.	40		EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-15										

WORK COMPLETED ~ FINAL REPORT

NO.	PLS CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	2-6-61	6-12	4-9-61	6-16
42	LOX SYSTEM	2-1-61	5-24	4-7-61	6-30
43	LN_2 SYSTEM	2-1-61	5-24	4-9-61	6-30
44	GASEOUS He & N_2 SYSTEM	2-1-61	5-3	4-9-61	6-13

ITEM	A.F. DIRECTED COMPL. DATE ORIGINAL	REVISED	NO.	CONTRACT COMPL. DATE ORIGINAL	REVISED	NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	ACTUAL
SILO	5-12-61	5-29-61	1st	4-11-61	6-18-61	1st		
		7-3-61	2nd		3-7-61	2nd		
LCC	3-31-61		1st	3-3-61		1st		
			2nd			2nd		

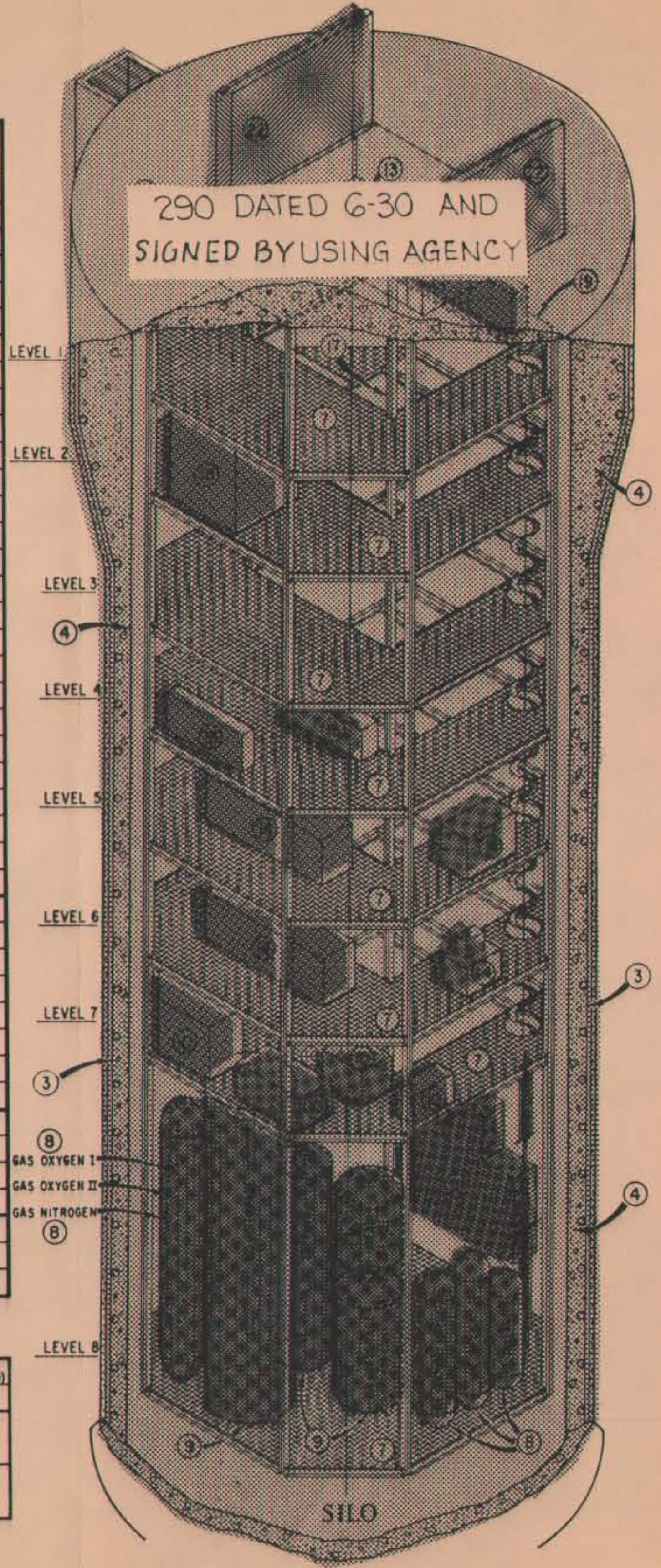
PRIME CONTRACTOR WESTERN CONTRACTING CORP CONTRACT NO. DA 6186

CONTRACT AWARD DATE 4-15-60 ESTIMATED CONTRACT COMPLETION DATE 6-30-61

CONTRACTOR SCHEDULE (1960 J F M A M J J A S O N D; 1961 J F M A M J J A S O N D; 1962 J F M A M J)

SCHEDULE: 100

ACTUAL: 100



LEGEND

ACTUAL STATUS DAYS AHEAD	DAYS BEHIND
	12

NO ENTRY REQUIRED — BEHIND SCHEDULE — INSERT NO. OF DAYS: COMPLETED COLS. N, O, P & Q — INSERT DATE: ACCOMPLISHED COLS. F, H, J, L & M — * CONTRACTUAL MILESTONE — △ ASSIGNED SERVICE CONTRACT & GOV'T FURNISHED PROPERTY. — COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

RCS: ENGMA-AB-28

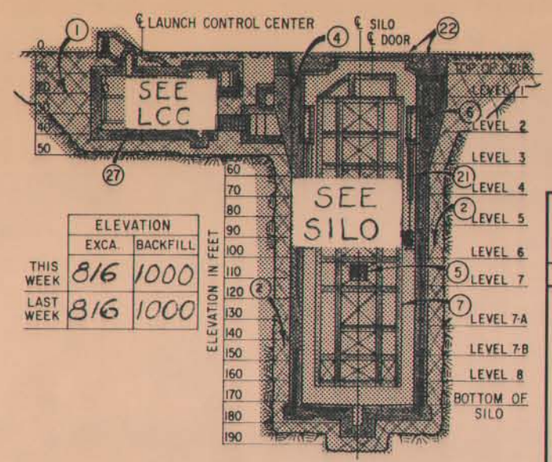
REPORT AS OF 10-15-61

CE BALLISTIC MISSILE CONSTRUCTION OFFICE

CONSTRUCTION STATUS REPORT

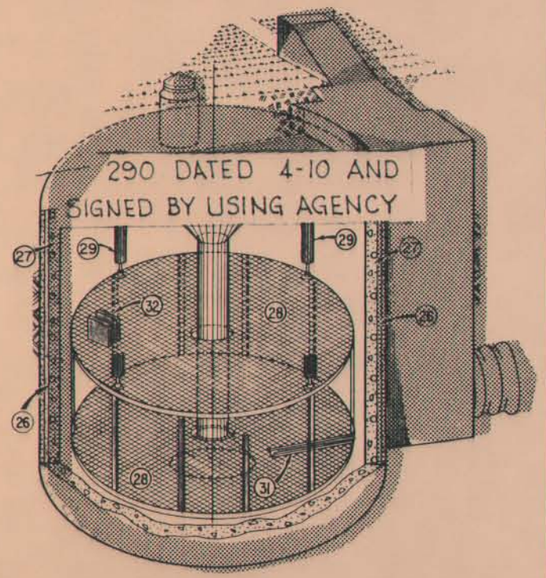
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 2, SITE NAME NEBRASKA CITY, PRIORITY 5

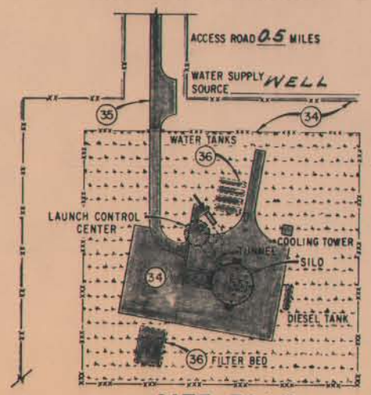


ELEVATION	EXCA.	BACKFILL
THIS WEEK	816	1000
LAST WEEK	816	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT	NO.	MILESTONE ASC & GFP EQUIP.	ITEM DESCRIPTION	EQUIPMENT FABRICATION STARTED	EQUIPMENT FABRICATION COMPL.	EQUIPMENT RECEIVED SCHEDULE	EQUIPMENT RECEIVED ACTUAL	INSTALL & CONSTR. STARTED SCHEDULE	INSTALL & CONSTR. STARTED ACTUAL	INSTALL & CONSTR. COMPLETED SCHEDULE	INSTALL & CONSTR. COMPLETED ACTUAL	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO. OF DAYS	CONSTRUCTION STATUS NO. OF DAYS SINCE START OF SCHEDULE	CONSTRUCTION STATUS ACTUAL STATUS DAYS AHEAD	CONSTRUCTION STATUS ACTUAL STATUS DAYS BEHIND	PROBLEM AREA
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SILO	(1)		EXCAVATION (OPEN CUT)					5-1-60	5-24	5-15-60	6-11		13	43		33	
	(2)		EXCAVATION (SILO)					5-16-60	6-27	9-15-60	8-22		23	99	24		
	(3)		REINFORCING STEEL					9-22-60	8-24	10-13-60	11-3		28	43		26	
	(4)	*	SILO CONCRETE (EXCEPT CAP)					9-22-60	8-25	11-5-60	11-12		45	54		7	
	(5)		COLLIMATOR EMBEDDED PLATE				7-22	10-3-60	10-3	10-6-60	10-6		4	4	0	0	
	(6)		CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			10-4-60	9-18	10-27-60	10-27	10-31-60	10-31		5	5	5	0	
	(7)		STEEL CRIB			10-4-60	11-7	11-10-60	11-23	1-25-61	2-14		77	97		20	
	(8)	*	PLS PRESSURE VESSELS & VALVES			11-9-60	2-19	10-19-60	12-11	12-14-60	12-20		62	63		1	
	(9)	*	PLS CRYOGENIC VESSELS & VALVES			11-9-60	2-19	10-19-60	12-11	12-14-60	12-22		62	64		2	
	(10)	△	PLS PREFABS & INTERCONNECTING PIPING			11-9-60	11-7	12-12-60	2-3	2-27-61	5-16		78	156		78	
	(11)	*	CABLE TRAYS				1-4	1-1-61	2-9	3-30-61	2-14		87	45	44		
	(12)		COMPRESSED AIR SYSTEM				4-21	11-15-60	2-9	3-31-61	6-15		137	213		76	
	(13)	△	FACILITY ELEVATOR (PERSONNEL)			11-30-60	12-5	11-30-60	12-27	1-25-61	6-9		57	192		135	
	(14)	* △	DIESEL GENERATOR, SWITCHGEAR & PANELS			11-16-60	1-11	1-1-61	12-26	3-30-61	3-15		89	74	15		
	(15)	* △	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			12-7-60	1-30	7-25-60	3-31	5-5-61	10-14		297	325		28	
	16	△	BLAST CLOSURE			10-12-60	9-6	1-1-61	12-1	2-14-61	12-13		45	0	64		
	(17)	△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			12-7-60	1-23	12-15-60	2-7	2-28-61	8-23		76	71	5		
	(18)	△	LAUNCH PLATFORM COUNTERWEIGHT			1-18-61	12-19	12-15-60	2-9	2-28-61	2-23		76	71	5		
	(19)	△	LAUNCH PLATFORM DRIVE BASE			12-14-60	2-25	12-15-60	2-2	2-28-61	3-8		76	84		8	
	(20)	△	LAUNCH PLATFORM DRIVE MECHANISM			12-14-60	2-26	12-15-60	3-9	2-28-61	3-11		76	87		11	
	(21)	△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			10-4-60	9-18	11-10-60	12-9	1-25-61	12-23		77	44	33		
	(22)	* △	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			1-24-61	1-16	2-15-61	3-2	6-3-61	7-5		109	141		32	
	23	△	C.B.R. FILTERS			12-7-60	11-7	12-7-60	6-20	3-22-61	6-22		106	198		92	
	24	*	ELECTRICAL CONDUIT, WIRE & FIXTURES				6-11	7-22-60	8-7	6-3-61	6-13		317	327		10	
	25		SILO COMPLETE							6-25-61	7-14		421	440		19	
LAUNCH CONTROL CENTER	(26)		REINFORCING STEEL					7-18-60	7-28	12-15-60	5-5		151	292		141	
	(27)		CONCRETE INCLUDING VENTS & ENTRY					7-18-60	7-29	12-15-60	5-6		151	293		142	
	(28)		HUNG FLOOR				9-8	9-15-60	10-18	10-14-60	11-2		30	49		19	
	(29)	△	AIR CYLINDER SPRING SUPPORT			9-28-60	9-6	9-15-60	11-28	10-14-60	11-2		30	67		37	
	30	△	BLAST CLOSURE			11-12-60	9-6	10-15-60	12-1	12-14-60	12-13		61	60	1		
	(31)		CABLE TRAYS				1-4	1-1-61	1-5	2-14-61	2-6		45	37	8		
	(32)	△	HEATING, VENTILATING & AIR CONDITIONING			12-7-60	1-30	7-23-60	1-30	2-28-61	3-15		222	236		15	
	33	*	L.C.C. COMPLETE							3-22-61	3-16		248	242	6		
SITE WORK	(34)	*	GRADING PAVING & FENCING					5-1-60	5-7	5-19-61	7-13		384	439		55	
	(35)		ACCESS ROAD					5-1-60	5-28	5-1-61	6-29		366	425		59	
	(36)		UTILITIES					6-23-60	7-13	5-1-61	7-14		313	387		74	
	37	*	COMPLETION ENTIRE CONTRACT							6-25-61	7-14		421	440		19	
MISC.	38		SHOP DRAWINGS			6-15-60	9-15										
	39		MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-15										
	40		EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-15										

WORK COMPLETED — FINAL REPORT

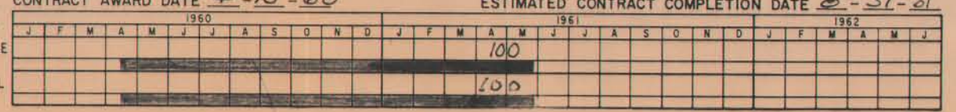
NO.	PLS CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	2-16-61	7-19	4-24-61	7-21
42	LOX SYSTEM	2-12-61	7-25	4-21-61	7-28
43	LN_2 SYSTEM	2-13-61	7-18	4-23-61	7-28
44	GASEOUS He & N_2 SYSTEM	2-12-61	7-18	4-23-61	8-2

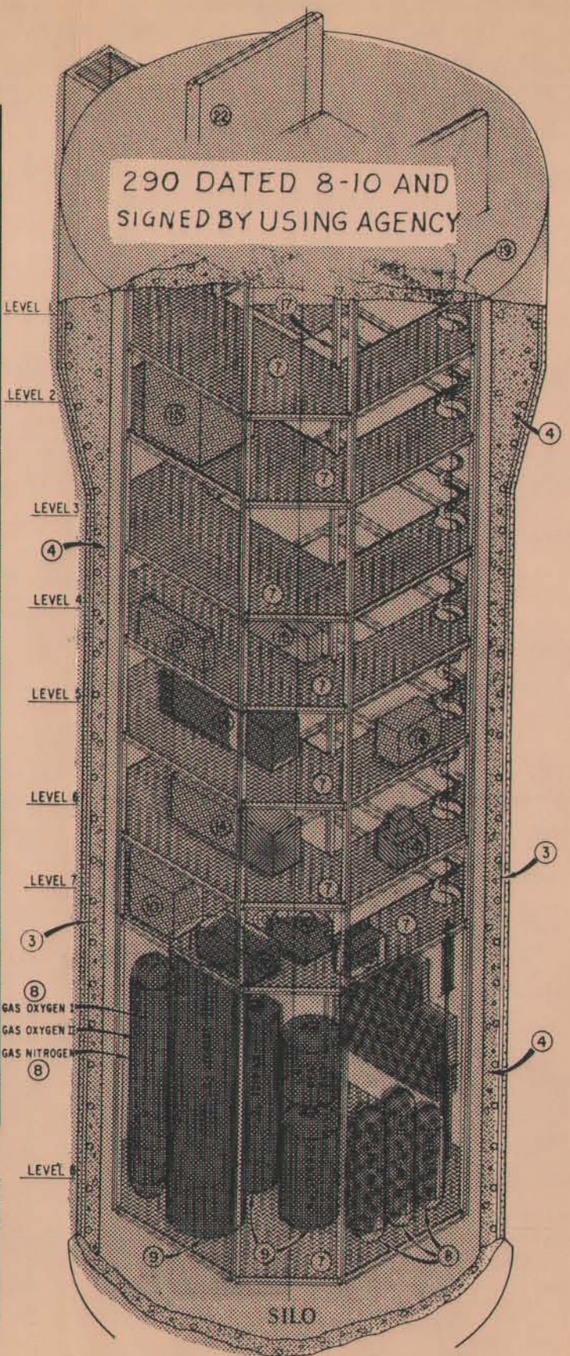
ITEM	A.F DIRECTED COMPL. DATE ORIGINAL	A.F DIRECTED COMPL. DATE REVISED	A.F DIRECTED COMPL. DATE NO.	CONTRACT COMPL. DATE ORIGINAL	CONTRACT COMPL. DATE REVISED	CONTRACT COMPL. DATE NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	BENEFICIAL OCCUPANCY DATE (BOD) ACTUAL
SILO	5-28-61	6-12-61	1st	4-25-61	5-28-61	1st		7-15-61
		7-17-61	2nd		6-25-61	2nd		
LCC	4-14-61		1st	3-17-61	3-22-61	1st		
			2nd			2nd		

PRIME CONTRACTOR WESTERN CONTRACTING CORP CONTRACT NO. DA 6186

CONTRACT AWARD DATE 4-15-60 ESTIMATED CONTRACT COMPLETION DATE 8-31-61

CONTRACTOR SCHEDULE





ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND
	19

LEGEND

- NO ENTRY REQUIRED
- BEHIND SCHEDULE
- INSERT NO. OF DAYS: COMPLETED COLS. N, O, P & Q
- INSERT DATE: ACCOMPLISHED COLS. F, H, J, L & M
- * CONTRACTUAL MILESTONE △ ASSIGNED SERVICE CONTRACT & GOV'T FURNISHED PROPERTY
- COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

RCS: ENGMA-AB-28

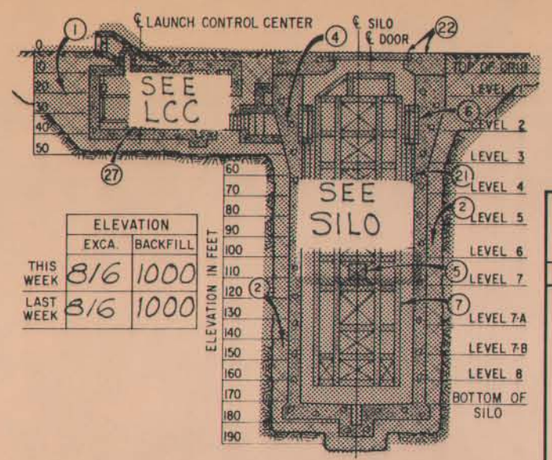
REPORT AS OF 10-15-61

CE BALLISTIC MISSILE CONSTRUCTION OFFICE

CONSTRUCTION STATUS REPORT

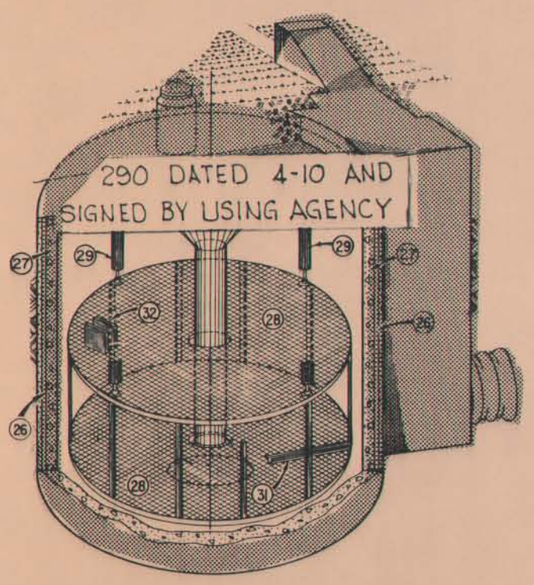
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 3, SITE NAME TECUMSEH, PRIORITY 1

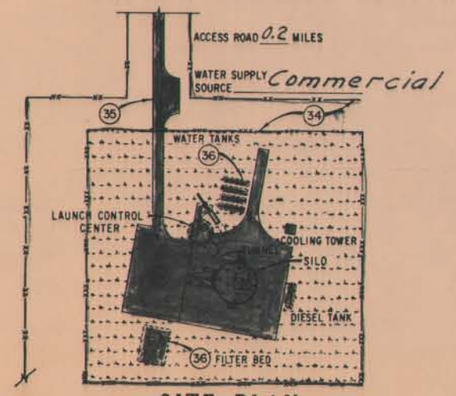


ELEVATION	EXCA.	BACKFILL
THIS WEEK	816	1000
LAST WEEK	816	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT	NO.	MILESTONE ASC & GFP EQUIP.	ITEM DESCRIPTION	EQUIPMENT FABRICATION STARTED	EQUIPMENT FABRICATION COMPL.	EQUIPMENT RECEIVED SCHEDULE	EQUIPMENT RECEIVED ACTUAL	INSTALL & CONSTR. STARTED SCHEDULE	INSTALL & CONSTR. STARTED ACTUAL	INSTALL & CONSTR. COMPLETED SCHEDULE	INSTALL & CONSTR. COMPLETED ACTUAL	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO. OF DAYS	CONSTRUCTION STATUS NO. OF DAYS SINCE START OF SCHEDULE	CONSTRUCTION STATUS ACTUAL STATUS DAYS AHEAD	CONSTRUCTION STATUS ACTUAL STATUS DAYS BEHIND	PROBLEM AREA
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SILO	(1)		EXCAVATION (OPEN CUT)					5-15-60	5-17	5-23-60	5-27		9	13		4	
	(2)		EXCAVATION (SILO)					5-24-60	6-3	8-31-60	7-17		100	55	45		
	(3)		REINFORCING STEEL					7-7-60	7-13	9-2-60	10-1		58	87		29	
	(4)	*	SILO CONCRETE (EXCEPT CAP)					7-7-60	7-23	10-7-60	10-9		93	95		2	
	(5)		COLLIMATOR EMBEDDED PLATE				8-22	8-13-60	8-12	8-22-60	8-22		10	10	0	0	
	(6)		CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			9-6-60	9-5	9-12-60	9-12	9-20-60	9-20		9	9	0	0	
	(7)		STEEL CRIB			9-6-60	10-6	10-22-60	10-17	1-7-61	12-13		78	53	25		
	(8)	*	PLS PRESSURE VESSELS & VALVES			10-26-60	11-2	9-22-60	11-1	11-22-60	11-7		62	47	15		
	(9)	*	PLS CRYOGENIC VESSELS & VALVES			10-26-60	11-10	9-22-60	11-10	11-22-60	11-12		62	52	10		
	(10)	△	PLS PREFABS & INTERCONNECTING PIPING			10-12-60	11-9	11-12-60	11-30	1-21-61	3-22		71	132		61	
	(11)	*	CABLE TRAYS				11-11	12-15-60	11-12	3-13-61	2-18		89	66	23		
	12		COMPRESSED AIR SYSTEM				11-23	11-1-60	11-4	2-28-61	2-27		120	119	1		
	(13)	△	FACILITY ELEVATOR (PERSONNEL)			11-2-60	11-20	11-2-60	12-16	12-28-60	2-16		57	107		50	
	(14)	* △	DIESEL GENERATOR, SWITCHGEAR & PANELS			10-19-60	10-14	12-15-60	11-13	3-13-61	2-18		89	66	23		
	(15)	* △	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			11-9-60	11-20	7-23-60	12-8	4-19-61	2-18		271	211	60		
	16	△	BLAST CLOSURE			9-14-60	9-23	12-1-60	12-9	1-14-61	12-0		45	10	35		
	(17)	△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			11-9-60	11-14	11-15-60	12-10	1-31-61	12-25		78	41	37		
	(18)	△	LAUNCH PLATFORM COUNTERWEIGHT			12-21-60	10-24	11-15-60	12-17	1-31-61	12-27		78	43	35		
	(19)	△	LAUNCH PLATFORM DRIVE BASE			11-16-60	11-30	11-15-60	1-11	1-31-61	2-14		78	93		15	
	(20)	△	LAUNCH PLATFORM DRIVE MECHANISM			11-16-60	12-26	11-15-60	1-11	1-31-61	2-20		78	98		20	
	(21)	△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			9-6-60	9-5	10-22-60	10-3	1-7-61	1-1		78	11	67		
	(22)	* △	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			12-13-60	12-28	1-15-61	12-3	5-20-61	5-11		126	117	9		
	23	△	C.B.R. FILTERS			11-9-60	11-18	11-9-60	12-7	2-22-61	2-17		106	101	5		
	24	*	ELECTRICAL CONDUIT, WIRE & FIXTURES				3-6	7-8-60	6-2	5-20-61	4-28		317	295	22		
	25		SILO COMPLETE							6-16-61	6-6		398	388	10		
LAUNCH CONTROL CENTER	(26)		REINFORCING STEEL					7-7-60	7-19	11-30-60	12-5		147	152		5	
	(27)		CONCRETE INCLUDING VENTS & ENTRY					7-7-60	7-28	11-30-60	12-5		147	152		5	
	(28)		HUNG FLOOR					8-15-60	10-4	9-14-60	8-31		31	77		46	
	(29)	△	AIR CYLINDER SPRING SUPPORT			8-31-60	9-6	8-15-60	10-3	9-14-60	8-1		31	109		78	
	30	△	BLAST CLOSURE			9-14-60	9-23	9-15-60	12-9	11-15-60	12-20		62	98		36	
	(31)		CABLE TRAYS				10-5	12-1-60	11-12	1-17-61	2-1		48	63		15	
	(32)	△	HEATING, VENTILATING & AIR CONDITIONING			11-9-60	11-8	7-23-60	11-26	1-31-61	2-3		93	176		3	
	33	*	L.C.C. COMPLETE							2-21-61	2-14		230	227	3		
SITE WORK	(34)	*	GRADING PAVING & FENCING					5-15-60	6-3	5-13-61	6-6		266	388		24	
	(35)		ACCESS ROAD					5-15-60	5-16	4-2-61	6-6		323	388		65	
	(36)		UTILITIES					7-1-60	11-30	4-2-61	6-6		276	341		65	
	37	*	COMPLETION ENTIRE CONTRACT							6-16-61	6-6		398	388	10		
MISC.	38		SHOP DRAWINGS			6-15-60	9-15										
	39		MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-15										
	40		EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-15										

WORK COMPLETED - FINAL REPORT

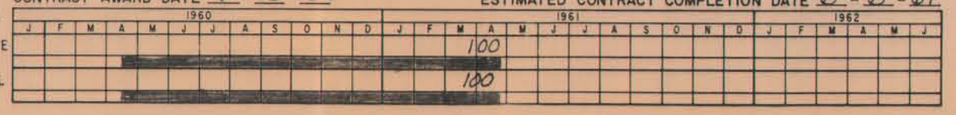
NO.	P L S CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	1-20-61	5-11	3-28-61	5-17
42	LOX SYSTEM	1-15-61	5-12	3-22-61	5-18
43	LN_2 SYSTEM	1-18-61	4-7	3-26-61	5-17
44	GASEOUS He & N_2 SYSTEM	1-17-61	3-8	3-28-61	5-15

ITEM	A.F DIRECTED COMPL. DATE ORIGINAL	REVISED	NO.	CONTRACT COMPL. DATE ORIGINAL	REVISED	NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	ACTUAL
SILO	4-28-61	5-15-61	1st	3-28-61	6-16-61	1st		
		6-19-61	2nd		2-21-61	2nd		
LCC	3-17-61		1st	2-17-61		1st		
			2nd			2nd		

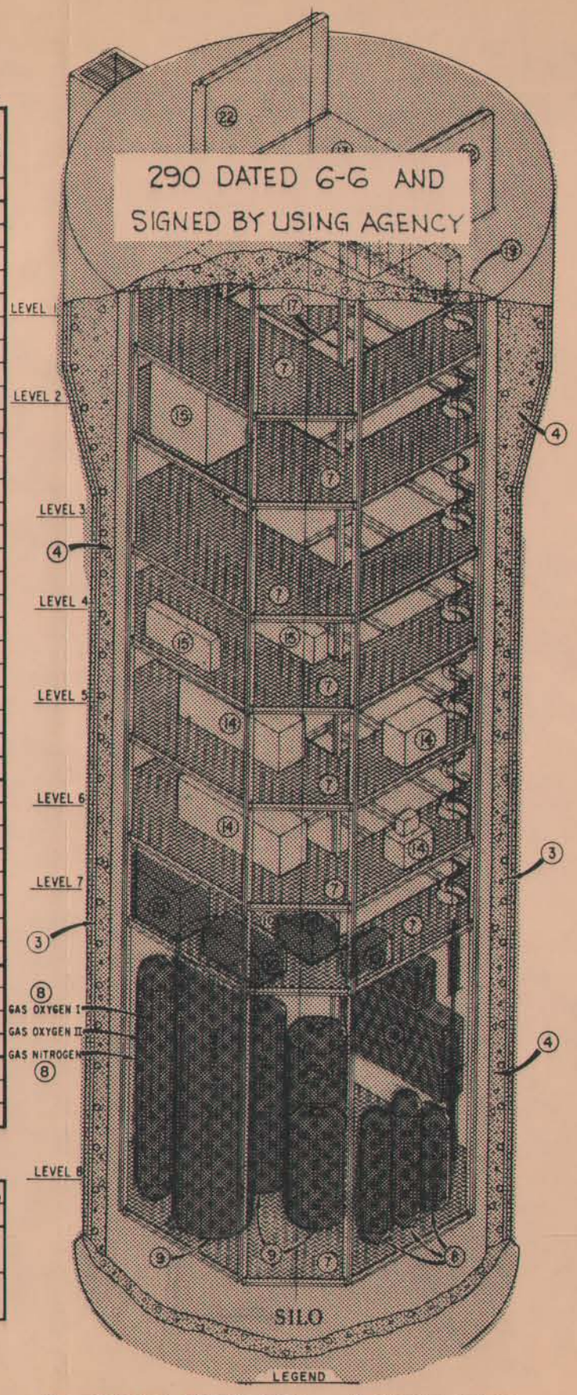
PRIME CONTRACTOR WESTERN CONTRACTING CORP CONTRACT NO. DA 6186

CONTRACT AWARD DATE 4-15-60 ESTIMATED CONTRACT COMPLETION DATE 6-6-61

CONTRACTOR SCHEDULE



ACTUAL STATUS DAYS AHEAD	DAYS BEHIND
10	



LEGEND

NO ENTRY REQUIRED

BEHIND SCHEDULE

INSERT NO. OF DAYS COMPLETED COLS. N,O,P & Q

INSERT DATE ACCOMPLISHED COLS. F,H,J,L & M

* CONTRACTUAL MILESTONE

△ ASSIGNED SERVICE CONTRACT & GOV'T FURNISHED PROPERTY

COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

RCS: ENGMA-AB-28

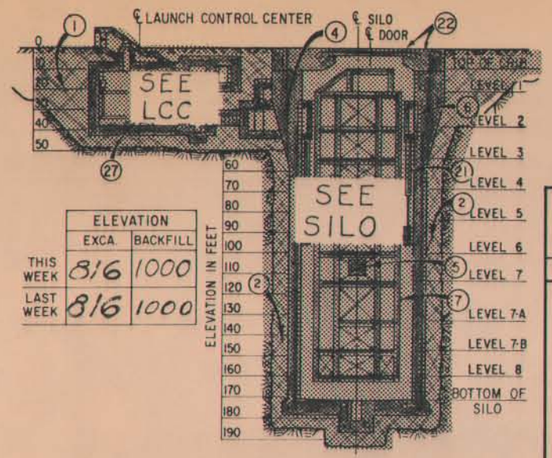
REPORT AS OF 10-15-61

CE BALLISTIC MISSILE CONSTRUCTION OFFICE

CONSTRUCTION STATUS REPORT

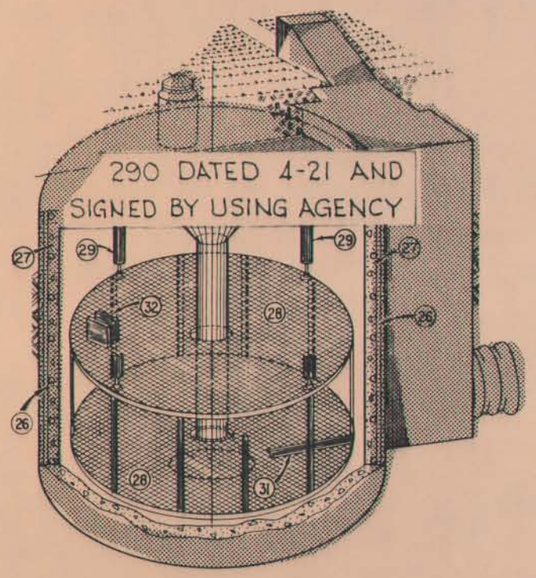
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 4, SITE NAME CORTLAND, PRIORITY 7

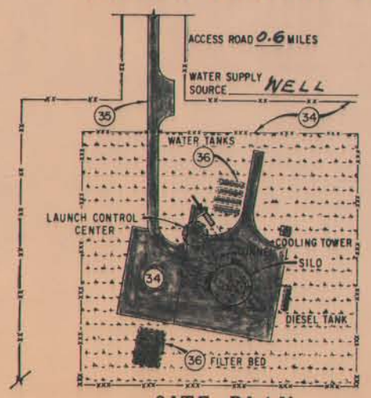


	ELEVATION EXCA	ELEVATION BACKFILL
THIS WEEK	816	1000
LAST WEEK	816	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT	NO.	MILESTONE ASC & GFP EQUIP.	ITEM DESCRIPTION	EQUIPMENT FABRICATION STARTED	EQUIPMENT FABRICATION COMPL.	EQUIPMENT RECEIVED SCHEDULE	EQUIPMENT RECEIVED ACTUAL	INSTALL & CONSTR. STARTED SCHEDULE	INSTALL & CONSTR. STARTED ACTUAL	INSTALL & CONSTR. COMPLETED SCHEDULE	INSTALL & CONSTR. COMPLETED ACTUAL	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO. OF DAYS	CONSTRUCTION STATUS NO OF DAYS SINCE START OF SCHEDULE	CONSTRUCTION STATUS ACTUAL STATUS DAYS AHEAD	CONSTRUCTION STATUS ACTUAL STATUS DAYS BEHIND	PROBLEM AREA
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SILO	(1)		EXCAVATION (OPEN CUT)					6-15-60	5-3	6-27-60	5-15		13	0	13		
	(2)		EXCAVATION (SILO)					6-28-60	5-25	9-15-60	10-4		80	99		19	
	(3)		REINFORCING STEEL					9-17-60	10-5	10-17-60	11-14		31	59		28	
	(4)	*	SILO CONCRETE (EXCEPT CAP)					9-17-60	10-3	11-10-60	11-18		55	63		8	
	(5)		COLLIMATOR EMBEDDED PLATE				7-26	10-15-60	10-15	10-26-60	10-26		12	12	0	0	
	(6)		CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			10-18-60	10-11	11-4-60	11-4	11-13-60	11-13		10	10	0	0	
	(7)		STEEL CRIB			10-18-60	11-11	11-7-60	12-3	1-22-61	1-27		77	172		95	
	(8)	*	PLS PRESSURE VESSELS & VALVES			11-26-60	12-30	11-7-60	12-30	12-25-60	12-30		49	54		5	
	(9)	*	PLS CRYOGENIC VESSELS & VALVES			11-26-60	1-3	11-7-60	12-29	12-25-60	1-3		49	58		9	
	(10)	△	PLS PREFABS & INTERCONNECTING PIPING			11-23-60	1-25	12-28-60	1-30	3-15-61	4-1		78	95		17	
	11	*	CABLE TRAYS				1-28	1-1-61	2-15	4-14-61	4-19		104	109		5	
	12		COMPRESSED AIR SYSTEM				3-7	1-15-60	3-11	4-15-61	6-14		152	212		60	
	(13)	△	FACILITY ELEVATOR (PERSONNEL)			12-14-60	1-16	12-14-60	4-11	2-8-61	6-21		57	190		133	
	(14)	* △	DIESEL GENERATOR, SWITCHGEAR & PANELS			11-30-60	12-28	1-1-61	1-3	4-14-61	3-14		109	79	26		
	(15)	* △	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			12-21-60	1-29	1-1-61	1-12	5-20-61	4-19		140	103	31		
	16	△	BLAST CLOSURE			10-26-60	10-20	1-1-61	12-2	2-14-61	2-2		25	0	25		
	(17)	△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			12-21-60	1-29	1-1-61	2-24	3-15-61	3-27		74	58	16		
	(18)	△	LAUNCH PLATFORM COUNTERWEIGHT			2-1-61	1-9	1-1-61	3-11	3-15-61	3-16		74	73		1	
	(19)	△	LAUNCH PLATFORM DRIVE BASE			12-28-60	1-8	1-1-61	3-12	3-15-61	3-29		74	88		14	
	(20)	△	LAUNCH PLATFORM DRIVE MECHANISM			12-28-60	2-7	1-1-61	3-30	3-15-61	4-1		74	91		17	
	(21)	△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			10-18-60	10-11	11-7-60	12-2	1-22-61	2-9		77	43	34		
	(22)	* △	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			2-7-61	2-16	3-1-61	4-4	6-28-61	6-22		120	114	6		
	23	△	C.B.R. FILTERS			12-21-60	1-22	12-21-60	6-27	4-5-61	6-28		109	190		84	
	24	*	ELECTRICAL CONDUIT, WIRE & FIXTURES				4-13	8-22-60	8-2	6-23-61	6-15		311	298	13		
	25		SILO COMPLETE							7-21-61	7-28		402	409		7	
LAUNCH CONTROL CENTER	(26)		REINFORCING STEEL					8-22-60	9-8	12-10-60	1-11		111	143		32	
	(27)		CONCRETE INCLUDING VENTS & ENTRY					8-22-60	9-9	12-10-60	12-20		111	121		10	
	(28)		HUNG FLOOR				7-28	10-1-60	9-17	10-31-60	10-13		31	15	16		
	(29)	△	AIR CYLINDER SPRING SUPPORT			10-12-60	9-13	10-1-60	9-12	10-31-60	10-25		31	25	6		
	30	△	BLAST CLOSURE			10-26-60	10-20	11-1-60	12-1	12-31-60	12-5		61	35	26		
	(31)		CABLE TRAYS				1-28	1-15-61	2-3	2-28-61	2-17		45	34	11		
	(32)	△	HEATING, VENTILATING & AIR CONDITIONING			12-21-60	1-29	12-23-60	1-19	3-15-61	3-20		93	72		9	
	33	*	L.C.C. COMPLETE							4-4-61	3-24		226	215	11		
SITE WORK	(34)	*	GRADING PAVING & FENCING					6-15-60	6-3	6-4-61	7-27		356	409		53	
	(35)		ACCESS ROAD					6-15-60	5-3	5-14-61	7-28		334	409		75	
	(36)		UTILITIES					7-22-60	5-31	5-14-61	7-28		257	332		75	
	37	*	COMPLETION ENTIRE CONTRACT							7-21-61	7-28		402	409		7	
MISC.	38		SHOP DRAWINGS			6-15-60	9-15										
	39		MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-15										
	40		EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-15										

WORK COMPLETED ~ FINAL REPORT

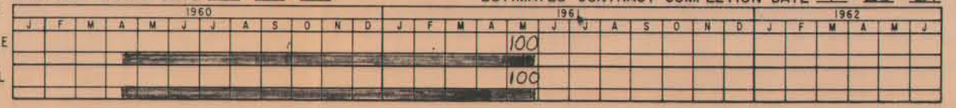
NO.	PLS CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	3-2-61	5-23	5-9-61	
42	LOX SYSTEM	2-27-61	6-18	5-9-61	
43	LN_2 SYSTEM	2-28-61	5-31	5-9-61	
44	GASEOUS He & N_2 SYSTEM	2-28-61	5-11	5-9-61	

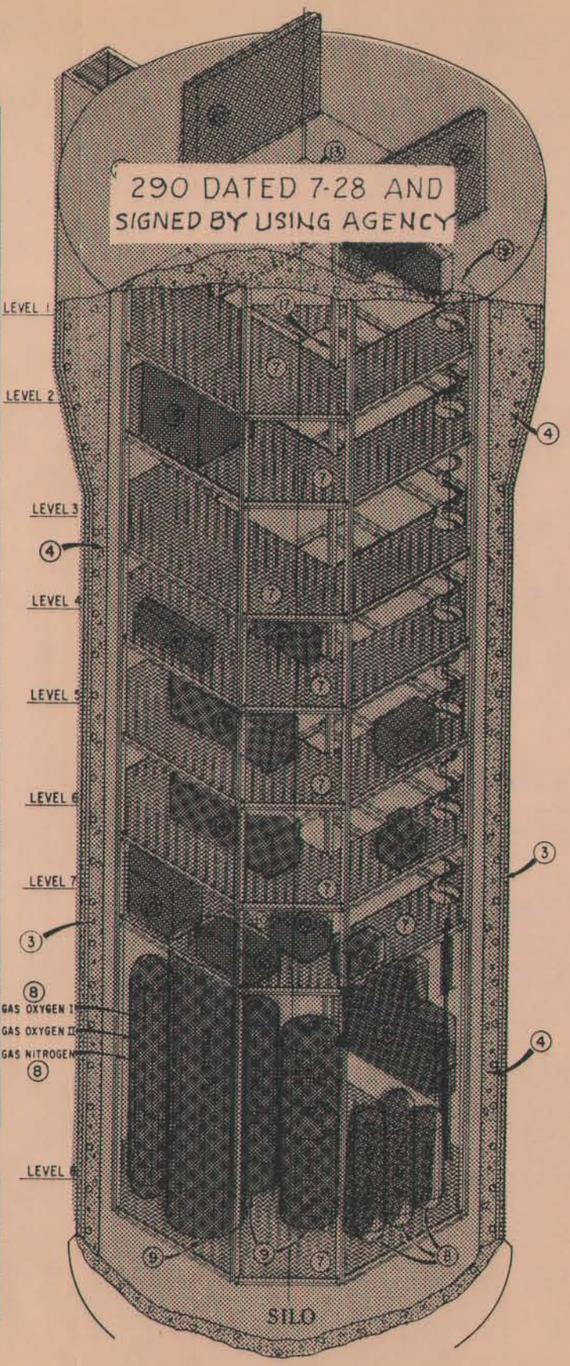
ITEM	A.F DIRECTED COMPL. DATE ORIGINAL	A.F DIRECTED COMPL. DATE REVISED	A.F DIRECTED COMPL. DATE NO.	CONTRACT COMPL. DATE ORIGINAL	CONTRACT COMPL. DATE REVISED	CONTRACT COMPL. DATE NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	BENEFICIAL OCCUPANCY DATE (BOD) ACTUAL
SILO	6-9-61	6-26-61	1st	5-9-61	7-21-61	1st		
		7-31-61	2nd		4-4-61	2nd		
LCC	4-28-61		1st	3-31-61		1st		
			2nd			2nd		

PRIME CONTRACTOR WESTERN CONTRACTING CORP. CONTRACT NO. DA 6186

CONTRACT AWARD DATE 4-15-60 ESTIMATED CONTRACT COMPLETION DATE 7-28-61

CONTRACTOR SCHEDULE





ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND
	7

LEGEND

NO ENTRY REQUIRED

BEHIND SCHEDULE

INSERT NO. OF DAYS COMPLETED COLS. N, O, P & Q

INSERT DATE ACCOMPLISHED COLS. F, H, J, L & M

* CONTRACTUAL MILESTONE

△ ASSIGNED SERVICE CONTRACT & GOV'T FURNISHED PROPERTY

COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

RCS: ENGMA-AB-28

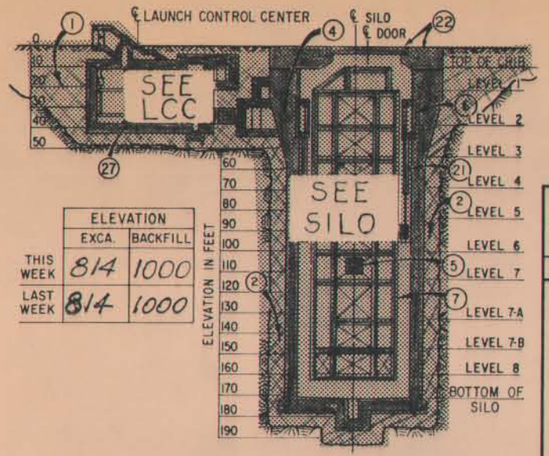
REPORT AS OF 10-15-61

CE BALLISTIC MISSILE CONSTRUCTION OFFICE

CONSTRUCTION STATUS REPORT

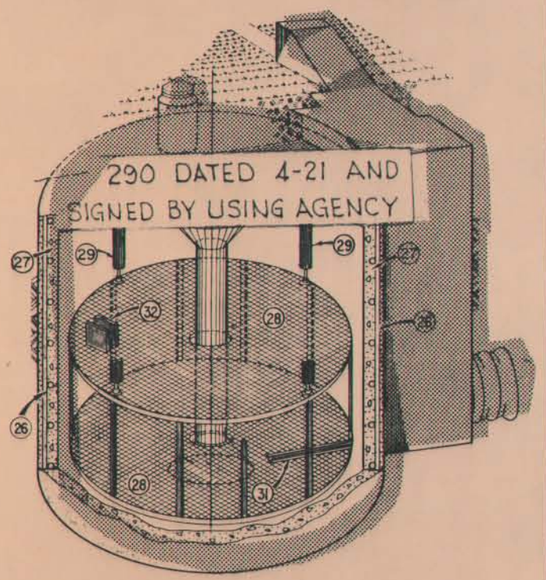
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 5, SITE NAME BEATRICE, PRIORITY 6

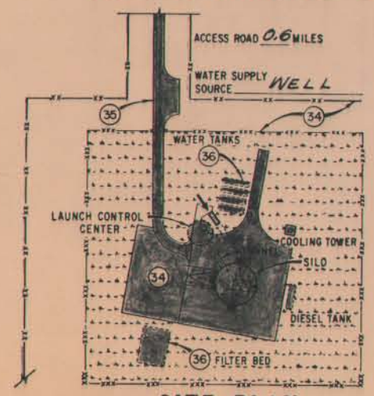


	ELEVATION	
	EXCA.	BACKFILL
THIS WEEK	814	1000
LAST WEEK	814	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT	NO.	MILESTONE ASC & GFP EQUIP.	ITEM DESCRIPTION	EQUIPMENT FABRICATION STARTED	EQUIPMENT FABRICATION COMPL.	EQUIPMENT RECEIVED SCHEDULE	EQUIPMENT RECEIVED ACTUAL	INSTALL & CONSTR. STARTED SCHEDULE	INSTALL & CONSTR. STARTED ACTUAL	INSTALL & CONSTR. COMPLETED SCHEDULE	INSTALL & CONSTR. COMPLETED ACTUAL	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO. OF DAYS	CONSTRUCTION STATUS NO. OF DAYS SINCE START OF SCHEDULE	ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND	PROBLEM AREA
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SILO	1		EXCAVATION (OPEN CUT)					6-7-60	5-3	6-23-60	5-14		17	0	17		
	2		EXCAVATION (SILO)					6-24-60	5-17	9-1-60	9-22		70	91		21	
	3		REINFORCING STEEL					9-3-60	10-2	10-20-60	11-3		48	64		16	
	4	*	SILO CONCRETE (EXCEPT CAP)					9-3-60	10-2	12-27-60	1-12		113	71	42		
	5		COLLIMATOR EMBEDDED PLATE				9-13	10-7-60	10-7	10-13-60	10-13		7	7	0	0	
	6		CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			10-11-60	9-15	10-31-60	10-31	11-4-60	11-4		5	5	0	0	
	7		STEEL CRIB			10-11-60	11-14	10-23-60	11-17	1-8-61	4-7		78	167		89	
	8	*	PLS PRESSURE VESSELS & VALVES			11-12-60	12-27	11-1-60	12-31	1-26-61	1-5		87	66	21		
	9	*	PLS CRYOGENIC VESSELS & VALVES			11-12-60	1-5	11-1-60	1-4	1-26-61	1-10		87	67	20		
	10	△	PLS PREFABS & INTERCONNECTING PIPING			11-16-60	1-12	12-18-60	1-18	3-3-61	3-28		76	101		25	
	11	*	CABLE TRAYS				1-27	1-1-61	2-14	5-17-61	6-7		137	97	40		
	12		COMPRESSED AIR SYSTEM				2-1	11-8-60	12-29	4-8-61	4-14		152	219		67	
	13	△	FACILITY ELEVATOR (PERSONNEL)			12-7-60	1-16	12-7-60	12-3	2-1-61	4-12		57	127		70	
	14	* △	DIESEL GENERATOR, SWITCHGEAR & PANELS			1-23-60	1-17	1-1-61	1-7	5-17-61	6-7		137	38	99		
	15	* △	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			12-14-60	12-29	7-22-60	8-1	6-22-61	6-14		336	328	8		
	16	△	BLAST CLOSURE			10-19-60	9-18	12-15-60	12-6	2-1-61	2-6		47	0	47		
	17	△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			12-14-60	12-7	12-8-60	12-7	3-8-61	3-6		91	65	26		
	18	△	LAUNCH PLATFORM COUNTERWEIGHT			1-25-61	1-8	12-8-60	12-8	3-8-61	2-15		91	70	21		
	19	△	LAUNCH PLATFORM DRIVE BASE			12-21-60	1-9	12-8-60	12-8	3-8-61	3-07		91	82	9		
	20	△	LAUNCH PLATFORM DRIVE MECHANISM			12-21-60	2-10	12-8-60	12-28	3-8-61	3-3		91	88	3		
	21	△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			10-11-60	9-28	10-23-60	12-1	1-8-61	2-15		78	54	24		
	22	* △	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			1-31-61	8-2	2-21-61	5-22	7-21-61	8-19		161	118	38		
	23	△	C.B.R. FILTERS			12-14-60	12-14	12-14-60	1-7	3-29-61	7-21		106	220		114	
	24	*	ELECTRICAL CONDUIT, WIRE & FIXTURES				3-28	8-25-60	9-18	7-21-61	8-23		340	319	21		
	25		SILO COMPLETE							8-13-61	7-21		433	410	23		
LAUNCH CONTROL CENTER	26		REINFORCING STEEL					8-15-60	7-6	12-1-60	11-23		109	162		53	
	27		CONCRETE INCLUDING VENTS & ENTRY					8-15-60	7-6	12-1-60	9-28		109	136		27	
	28		HUNG FLOOR				9-10	9-22-60	9-12	10-22-60	11-17		31	57		26	
	29	△	AIR CYLINDER SPRING SUPPORT			10-5-60	9-24	9-22-60	9-14	10-22-60	11-2		31	121		90	
	30	△	BLAST CLOSURE			10-19-60	9-18	10-22-60	11-27	12-22-60	12-18		62	54	8		
	31		CABLE TRAYS				10-1	1-7-61	1-30	2-21-61	3-6		46	39	7		
	32	△	HEATING, VENTILATING & AIR CONDITIONING			12-14-60	1-28	7-21-60	12-2	3-8-61	3-24		231	247		16	
	33	*	L.C.C. COMPLETE							3-28-61	3-24		226	222	4		
SITE WORK	34	*	GRADING PAVING & FENCING					6-7-60	5-9	7-8-61	7-19		397	408		11	
	35		ACCESS ROAD					6-7-60	5-3	5-7-61	7-18		335	407		72	
	36		UTILITIES					7-15-60	9-28	5-7-61	7-11		207	362		65	
	37	*	COMPLETION ENTIRE CONTRACT							8-13-61	7-21		433	410	23		
MISC.	38		SHOP DRAWINGS			6-15-60	9-15										
	39		MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-15										
	40		EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-15										

WORK COMPLETED — FINAL REPORT

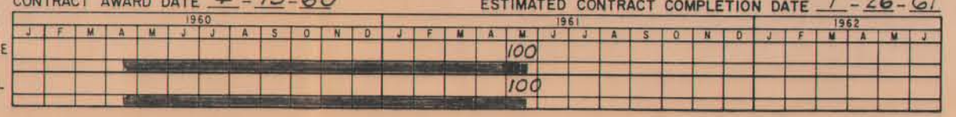
NO.	P L S CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	2-26-61	7-25	4-30-61	7-10
42	LOX SYSTEM	2-18-61	7-11	4-29-61	7-21
43	LN_2 SYSTEM	2-20-61	7-6	4-29-61	7-26
44	GASEOUS He & N_2 SYSTEM	2-19-61	6-19	5-2-61	7-26

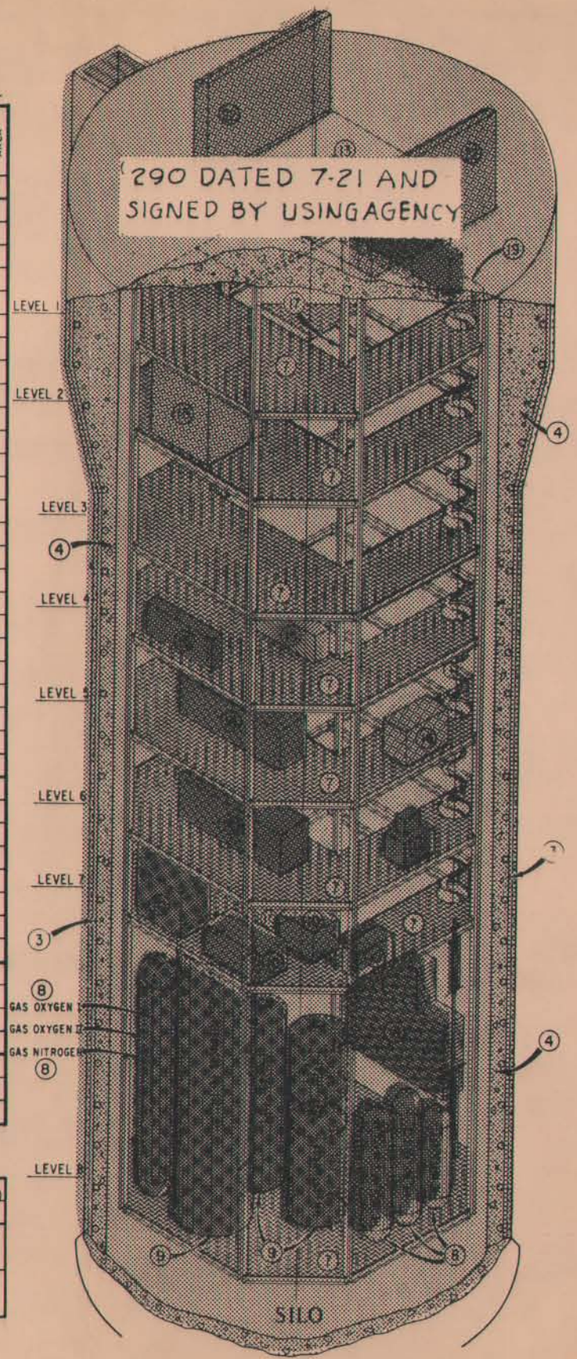
ITEM	A.F DIRECTED COMPL. DATE ORIGINAL	A.F DIRECTED COMPL. DATE REVISED	A.F DIRECTED COMPL. DATE NO.	CONTRACT COMPL. DATE ORIGINAL	CONTRACT COMPL. DATE REVISED	CONTRACT COMPL. DATE NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	BENEFICIAL OCCUPANCY DATE (BOD) ACTUAL
SILO	6-2-61	6-19-61	1ST	5-2-61	8-13-61	1ST		
		7-24-61	2ND		8-28-61	2ND		
LCC	4-21-61		1ST	3-24-61		1ST		
			2ND			2ND		

PRIME CONTRACTOR WESTERN CONTRACTING CORP CONTRACT NO. DA 6186

CONTRACT AWARD DATE 4-15-60 ESTIMATED CONTRACT COMPLETION DATE 7-26-61

CONTRACTOR SCHEDULE





ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND
23	

LEGEND

NO ENTRY REQUIRED

BEHIND SCHEDULE

INSERT NO. OF DAYS COMPLETED COLS. N, O, P & Q

INSERT DATE ACCOMPLISHED COLS. F, H, J, L & M

✱ CONTRACTUAL MILESTONE △ ASSIGNED SERVICE CONTRACT & GOV'T FURNISHED PROPERTY.

COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

RCS: ENGMA-AB-28

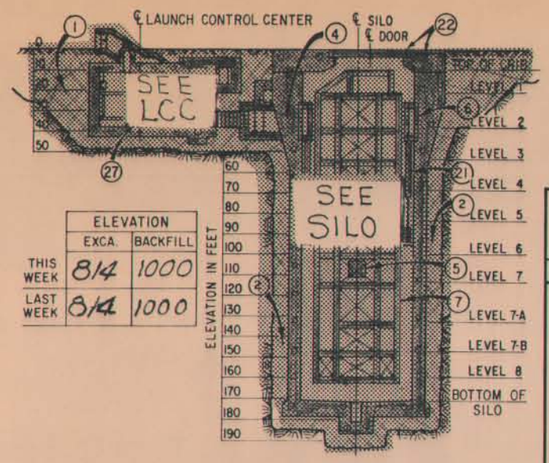
REPORT AS OF 10-15-61

CE BALLISTIC MISSILE CONSTRUCTION OFFICE

CONSTRUCTION STATUS REPORT

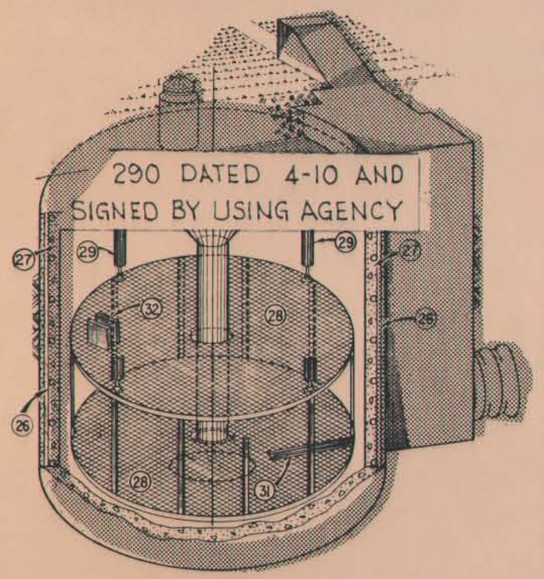
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 6, SITE NAME WILBER, PRIORITY 4

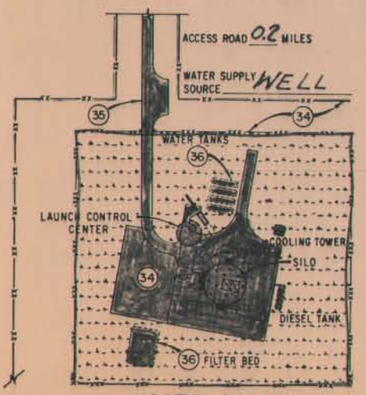


	ELEVATION EXCA.	ELEVATION BACKFILL
THIS WEEK	814	1000
LAST WEEK	814	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT	NO.	MILESTONE ASC & GFP EQUIP.	ITEM DESCRIPTION	EQUIPMENT FABRICATION STARTED	EQUIPMENT FABRICATION COMPL.	EQUIPMENT RECEIVED SCHEDULE	EQUIPMENT RECEIVED ACTUAL	INSTALL & CONSTR. STARTED SCHEDULE	INSTALL & CONSTR. STARTED ACTUAL	INSTALL & CONSTR. COMPLETED SCHEDULE	INSTALL & CONSTR. COMPLETED ACTUAL	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO. OF DAYS	CONSTRUCTION STATUS NO. OF DAYS SINCE START OF SCHEDULE	CONSTRUCTION STATUS ACTUAL STATUS DAYS AHEAD	CONSTRUCTION STATUS ACTUAL STATUS DAYS BEHIND	PROBLEM AREA
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SILO	1		EXCAVATION (OPEN CUT)					5-1-60	6-17	5-20-60	6-25		20	50		36	
	2		EXCAVATION (SILO)					5-21-60	7-8	9-15-60	3-28		118	100	18		
	3		REINFORCING STEEL					9-8-60	9-1	9-22-60	11-1		15	55		40	
	4	*	SILO CONCRETE (EXCEPT CAP)					9-8-60	9-3	10-14-60	11-5		37	57		22	
	5		COLLIMATOR EMBEDDED PLATE				9-3	9-15-60	9-15	9-27-60	9-27		13	13	0	0	
	6		CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			9-27-60	9-20	10-15-60	10-13	11-19-60	11-19		5	5	0	0	
	7		STEEL CRIB			9-27-60	11-3	11-1-60	11-9	1-15-61	3-31		76	149		73	
	8	*	PLS PRESSURE VESSELS & VALVES			11-6-60	12-6	10-15-60	12-3	11-30-60	12-6		47	53		6	
	9	*	PLS CRYOGENIC VESSELS & VALVES			11-6-60	12-6	10-15-60	12-3	11-30-60	12-7		47	54		5	
	10	△	PLS PREFABS & INTERCONNECTING PIPING			11-2-60	10-3	12-3-60	1-23	2-21-61	3-29		81	117		36	
	11	*	CABLE TRAYS				1-28	1-1-61	1-8	3-21-61	2-22		80	53	27		
	12		COMPRESSED AIR SYSTEM				2-22	10-23-60	1-8	3-23-61	4-6		152	166		14	
	13	△	FACILITY ELEVATOR (PERSONNEL)			11-23-60	1-30	11-23-60	2-3	1-18-61	3-29		57	127		70	
	14	* △	DIESEL GENERATOR, SWITCHGEAR & PANELS			11-9-60	1-25	1-1-61	12-18	3-21-61	2-20		80	51	29		
	15	* △	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			11-30-60	1-30	7-23-60	1-30	4-26-61	3-31		278	313		35	
	16	△	BLAST CLOSURE			10-5-60	10-18	12-15-60	12-6	1-31-61	12-6		48	0	57		
	17	△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			11-30-60	12-13	12-8-60	1-23	2-23-61	2-6		78	61	17		
	18	△	LAUNCH PLATFORM COUNTERWEIGHT			1-11-61	1-19	12-8-60	2-2	2-23-61	2-6		78	61	17		
	19	△	LAUNCH PLATFORM DRIVE BASE			12-7-60	1-19	12-8-60	2-11	2-23-61	4-6		78	120		42	
	20	△	LAUNCH PLATFORM DRIVE MECHANISM			12-7-60	2-14	12-8-60	3-2	2-23-61	3-9		78	92		14	
	21	△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			9-27-60	11-3	11-1-60	1-24	1-15-61	12-7		76	92	39		
	22	* △	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			1-17-61	1-16	2-7-61	2-11	6-11-61	6-4		125	118	7		
	23	△	C.B.R FILTERS			11-30-60	12-3	11-30-60	6-30	3-15-61	6-30		106	213		107	
	24	*	ELECTRICAL CONDUIT, WIRE & FIXTURES				4-1	7-15-60	8-10	6-11-61	5-31		332	321	11		
	25		SILO COMPLETE							6-22-61	6-30		418	426		8	
SITE WORK LAUNCH CONTROL CENTER	26		REINFORCING STEEL					7-15-60	8-10	12-8-60	12-15		147	154		7	
	27		CONCRETE INCLUDING VENTS & ENTRY					7-15-60	8-12	12-8-60	12-15		147	154		7	
	28		HUNG FLOOR				10-26	9-7-60	10-27	10-8-60	11-16		32	71		39	
	29	△	AIR CYLINDER SPRING SUPPORT			9-21-60	10-4	9-7-60	10-16	10-8-60	11-16		32	71		39	
	30	△	BLAST CLOSURE			10-5-60	10-18	10-8-60	11-27	12-7-60	8-14		61	68		7	
	31		CABLE TRAYS				1-28	12-23-60	1-10	2-7-61	2-7		47	47	0	0	
	32	△	HEATING, VENTILATING & AIR CONDITIONING			11-30-60	1-30	7-23-60	11-23	2-23-61	3-4		216	225		9	
	33	*	L.C.C. COMPLETE							3-13-61	3-15		242	239	3		
	34	*	GRADING PAVING & FENCING					5-1-60	7-13	5-10-61	6-30		375	426		51	
	35		ACCESS ROAD					5-1-60	6-17	4-23-61	6-19		358	415		57	
	36		UTILITIES					6-15-60	9-13	4-23-61	6-23		313	374		61	
	37	*	COMPLETION ENTIRE CONTRACT							6-22-61	6-30		418	426		8	
MISC.	38		SHOP DRAWINGS			6-15-60	9-15										
	39		MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-15										
	40		EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-15										

WORK COMPLETED - FINAL REPORT

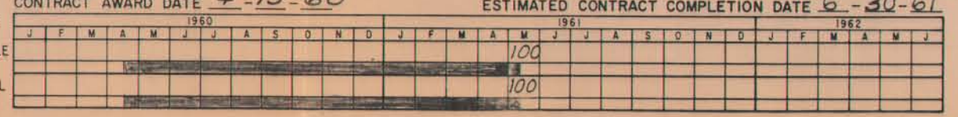
NO.	PLS CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	2-10-61	6-9	4-15-61	6-9
42	LOX SYSTEM	2-6-61	6-14	4-14-61	6-13
43	LN_2 SYSTEM	2-6-61	5-24	4-16-61	5-25
44	GASEOUS He & N_2 SYSTEM	2-6-61	4-24	4-15-61	6-9

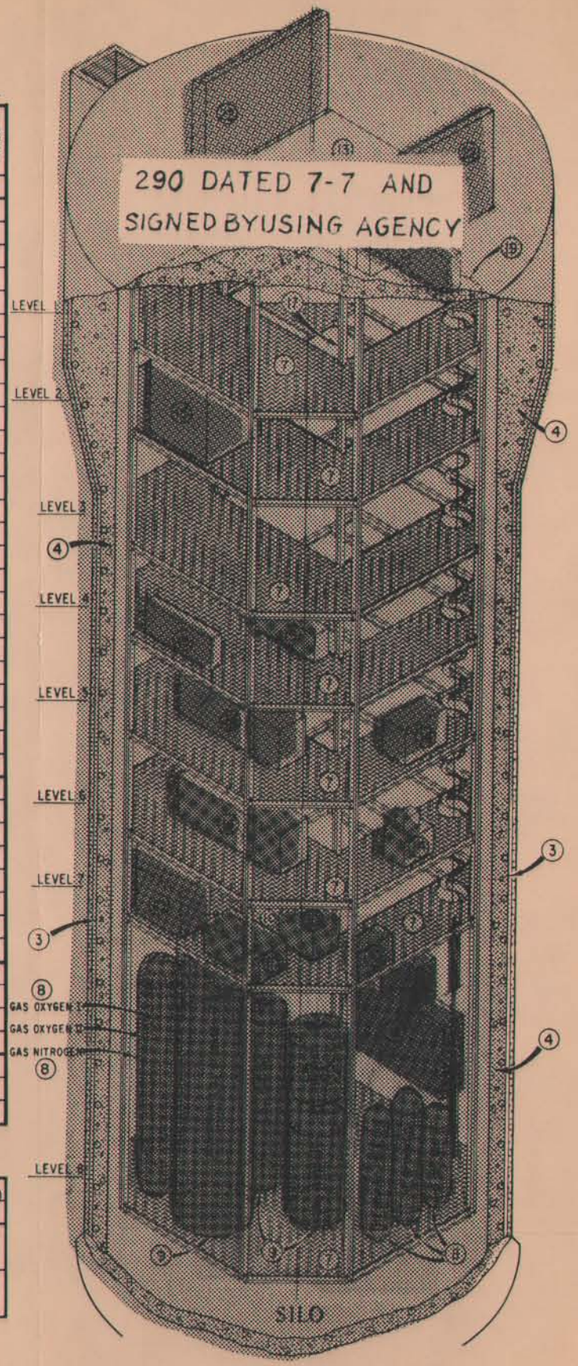
ITEM	A.F DIRECTED COMPL. DATE ORIGINAL	A.F DIRECTED COMPL. DATE REVISED	A.F DIRECTED COMPL. DATE NO.	CONTRACT COMPL. DATE ORIGINAL	CONTRACT COMPL. DATE REVISED	CONTRACT COMPL. DATE NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	BENEFICIAL OCCUPANCY DATE (BOD) ACTUAL
SILO	5-19-61	6-5-61	1st	4-18-61	6-22-61	1st		
		7-10-61	2nd		3-13-61	2nd		
LCC	4-7-61		1st	3-10-61		1st		
			2nd			2nd		

PRIME CONTRACTOR WESTERN CONTRACTING CORP CONTRACT NO. DA 6186

CONTRACT AWARD DATE 4-15-60 ESTIMATED CONTRACT COMPLETION DATE 6-30-61

CONTRACTOR SCHEDULE





LEGEND

ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND
	8

NO ENTRY REQUIRED

BEHIND SCHEDULE

INSERT NO. OF DAYS — COMPLETED COLS. N, O, P & Q

INSERT DATE — ACCOMPLISHED COLS. F, H, J, L & M

* CONTRACTUAL MILESTONE

△ ASSIGNED SERVICE CONTRACT & GOV'T. FURNISHED PROPERTY.

COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

RCS: ENGMA-AB-28

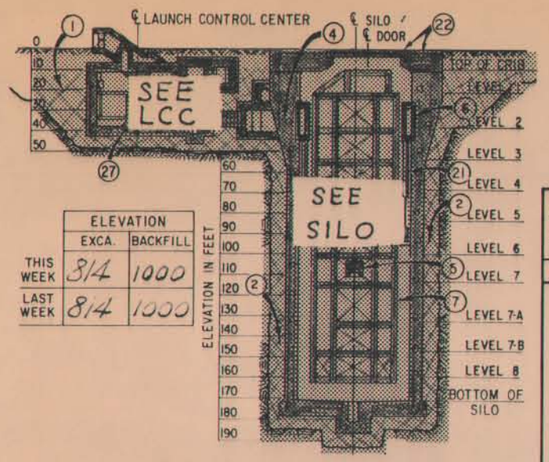
REPORT AS OF 10-15-61

CE BALLISTIC MISSILE CONSTRUCTION OFFICE

CONSTRUCTION STATUS REPORT

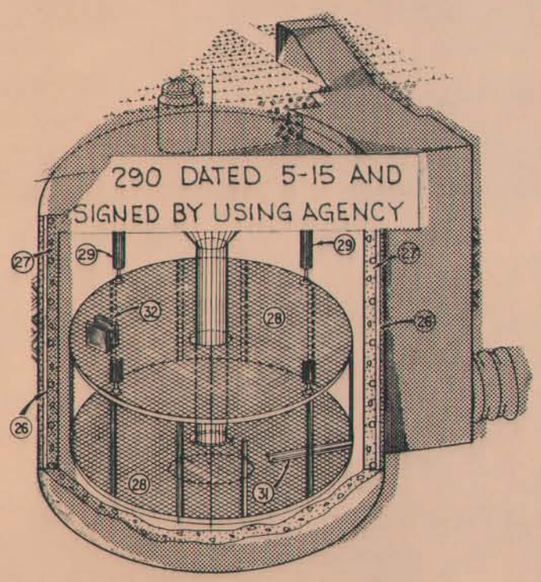
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 7, SITE NAME YORK, PRIORITY 11

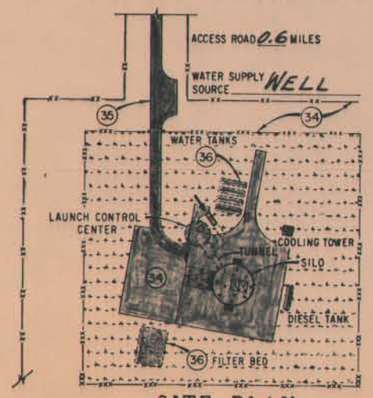


	ELEVATION	
	EXCA.	BACKFILL
THIS WEEK	814	1000
LAST WEEK	814	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT	NO.	MILESTONE ASC & GFP EQUIP	ITEM DESCRIPTION	EQUIPMENT FABRICATION STARTED	EQUIPMENT FABRICATION COMPL.	EQUIPMENT RECEIVED SCHEDULE	EQUIPMENT RECEIVED ACTUAL	INSTALL & CONSTR. STARTED SCHEDULE	INSTALL & CONSTR. STARTED ACTUAL	INSTALL & CONSTR. COMPLETED SCHEDULE	INSTALL & CONSTR. COMPLETED ACTUAL	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO. OF DAYS	CONSTRUCTION STATUS NO. OF DAYS SINCE START OF SCHEDULE	ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND	PROBLEM AREA
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SILO	(1)		EXCAVATION (OPEN CUT)					7-15-60	7-1	7-27-60	7-13		13	1	12		
	(2)		EXCAVATION (SILO)					7-28-60	8-1	10-15-60	1-1		80	77		17	
	(3)		REINFORCING STEEL					10-8-60	11-3	12-15-60	12-11		69	65	4		
	(4)	*	SILO CONCRETE (EXCEPT CAP)					10-8-60	1-4	1-6-61	2-24		91	68	23		
	(5)		COLLIMATOR EMBEDDED PLATE				11-2	11-12-60	11-12	11-16-60	11-16		5	5	0	0	
	(6)		CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			11-15-60	11-15	11-30-60	11-30	12-3-60	12-3		4	4	0	0	
	(7)		STEEL CRIB			11-15-60	12-3	12-15-60	1-26	3-22-61	3-24		98	100		2	
	(8)	*	PLS PRESSURE VESSELS & VALVES			12-26-60	2-3	1-15-61	2-8	2-19-61	2-20		36	27	9		
	(9)	*	PLS CRYOGENIC VESSELS & VALVES			12-26-60	2-9	1-15-61	2-8	2-19-61	2-17		36	28	8		
	(10)	△	PLS PREFABS & INTERCONNECTING PIPING			12-21-60	2-6	1-28-61	2-27	4-15-61	8-28		78	213		135	
	11	*	CABLE TRAYS				4-12	2-14-61	3-16	6-11-61	6-20		118	55	63		
	12		COMPRESSED AIR SYSTEM				4-27	1-15-61	4-28	6-15-61	9-8		152	237		85	
	(13)	△	FACILITY ELEVATOR (PERSONNEL)			1-18-61	4-13	1-18-61	4-3	3-15-61	6-16		57	150		93	
	(14)	* △	DIESEL GENERATOR, SWITCHGEAR & PANELS			12-28-60	1-16	2-14-61	2-15	6-11-61	5-10		118	86	32		
	(15)	* △	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			1-18-61	12-7	7-22-60	8-1	7-13-61	8-31		357	408		49	
	16	△	BLAST CLOSURE			10-23-60	10-24	1-8-61	2-10	4-8-61	9-8		91	244		153	
	(17)	△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			1-18-61	2-27	3-1-61	3-26	5-15-61	7-5		74	36	40		
	(18)	△	LAUNCH PLATFORM COUNTERWEIGHT			10-18-60	11-9	3-1-61	3-23	5-15-61	7-28		76	28	48		
	(19)	△	LAUNCH PLATFORM DRIVE BASE			1-25-61	1-18	3-1-61	3-29	5-15-61	7-6		76	37	39		
	(20)	△	LAUNCH PLATFORM DRIVE MECHANISM			1-25-61	2-17	3-1-61	4-6	5-15-61	8-6		76	37	39		
	(21)	△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			11-15-60	11-15	12-15-60	1-7	3-22-61	7-11		98	27	71		
	(22)	* △	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			3-7-61	4-18	4-20-61	4-28	8-27-61	8-8		120	111	10		
	23	△	C.B.R. FILTERS			1-18-61	7-15	1-18-61	7-15	6-8-61	8-1		142	196		54	
	24	*	ELECTRICAL CONDUIT, WIRE & FIXTURES				6-12	10-8-60	8-31	8-27-61	8-31		324	328		4	
	25		SILO COMPLETE							9-16-61	9-15		429	428	1		
LAUNCH CONTROL CENTER	(26)		REINFORCING STEEL					8-15-60	9-12	1-22-61	1-10		76	330		160	
	(27)		CONCRETE INCLUDING VENTS & ENTRY					8-15-60	9-16	1-22-61	1-11		76	231		170	
	(28)		HUNG FLOOR				9-3	11-15-60	11-29	12-15-60	12-29		31	35		4	
	(29)	△	AIR CYLINDER SPRING SUPPORT			11-9-60	10-31	11-15-60	12-1	1-15-61	12-5		62	19	43		
	30	△	BLAST CLOSURE			11-23-60	10-24	12-15-60	2-16	2-15-61	3-22		63	98		35	
	(31)		CABLE TRAYS				1-30	3-15-61	2-24	5-2-61	3-22		49	17	32		
	(32)	△	HEATING, VENTILATING & AIR CONDITIONING			1-18-61	12-7	7-22-60	1-25	5-15-61	7-12		298	295	3		
	33	*	L.C.C. COMPLETE							6-3-61	7-15		324	298	26		
SITE WORK	(34)	*	GRADING PAVING & FENCING					7-15-60	7-1	7-29-61	8-31		380	413		33	
	(35)		ACCESS ROAD					7-15-60	6-25	7-11-61	8-10		362	392		30	
	(36)		UTILITIES					9-8-60	7-17	7-11-61	9-8		307	366		59	
	37	*	COMPLETION ENTIRE CONTRACT							9-16-61	9-15		427	428	1		
MISC.	38		SHOP DRAWINGS			6-15-60	9-15										
	39		MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-15										
	40		EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-15										

WORK COMPLETED — FINAL REPORT

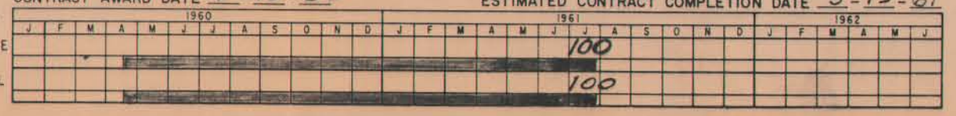
NO.	PLS CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	4-21-61	8-4	7-8-61	8-14
42	LOX SYSTEM	4-6-61	8-8	7-8-61	8-14
43	LN_2 SYSTEM	4-28-61	7-25	6-15-61	8-11
44	GASEOUS He & N_2 SYSTEM	4-8-61	7-19	7-9-61	8-28

ITEM	A.F DIRECTED COMPL. DATE ORIGINAL	A.F DIRECTED COMPL. DATE REVISED	A.F DIRECTED COMPL. DATE NO.	CONTRACT COMPL. DATE ORIGINAL	CONTRACT COMPL. DATE REVISED	CONTRACT COMPL. DATE NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	BENEFICIAL OCCUPANCY DATE (BOD) ACTUAL
SILO	8-9-61	9-30-61	1st	7-9-61	7-28-61	1st		
			2nd		9-16-61	2nd		
LCC	6-28-61		1st	6-2-61	6-3-61	1st		
			2nd			2nd		

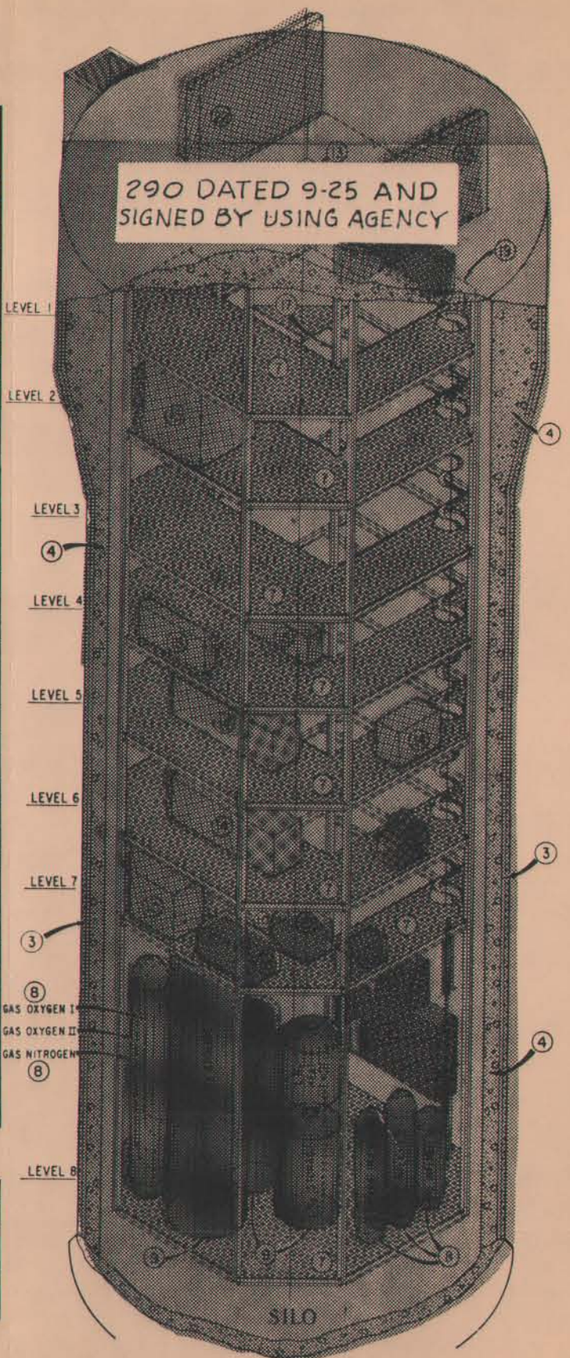
PRIME CONTRACTOR WESTERN CONTRATING CORP. CONTRACT NO. DA 6186

CONTRACT AWARD DATE 4-15-60 ESTIMATED CONTRACT COMPLETION DATE 9-15-61

CONTRACTOR SCHEDULE



ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND
1	



LEGEND

- NO ENTRY REQUIRED
- BEHIND SCHEDULE
- INSERT NO. OF DAYS — COMPLETED COLS. N, O, P & Q
- INSERT DATE — ACCOMPLISHED COLS. F, H, J, L & M
- * CONTRACTUAL MILESTONE
- △ ASSIGNED SERVICE CONTRACT & GOV'T FURNISHED PROPERTY
- COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

RCS: ENGMA-AB-28

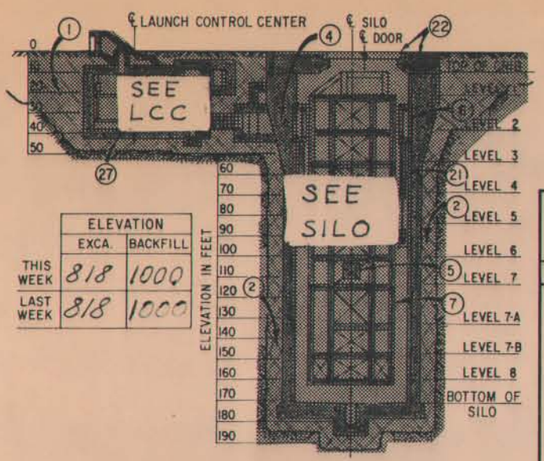
REPORT AS OF 10-15-61

CE BALLISTIC MISSILE CONSTRUCTION OFFICE

CONSTRUCTION STATUS REPORT

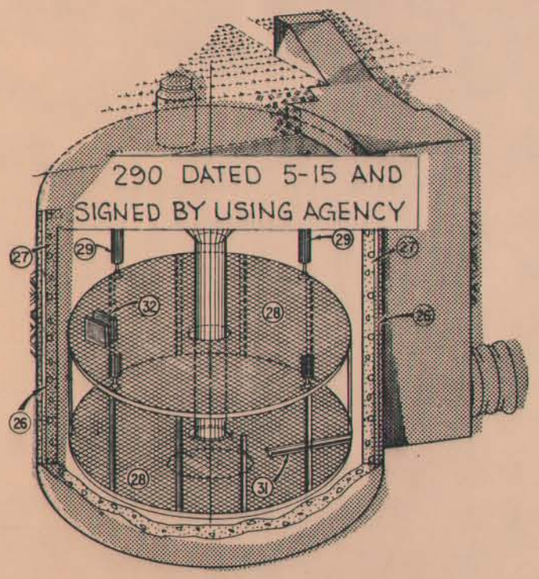
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 8, SITE NAME SEWARD, PRIORITY 12

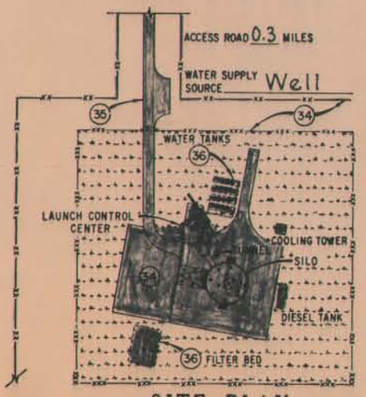


ELEVATION	EXCA.	BACKFILL
THIS WEEK	818	1000
LAST WEEK	818	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT	NO.	MILESTONE ASC & GFP EQUIP.	ITEM DESCRIPTION	EQUIPMENT FABRICATION STARTED	EQUIPMENT FABRICATION COMPL.	EQUIPMENT RECEIVED SCHEDULE	EQUIPMENT RECEIVED ACTUAL	INSTALL & CONSTR. STARTED SCHEDULE	INSTALL & CONSTR. STARTED ACTUAL	INSTALL & CONSTR. COMPLETED SCHEDULE	INSTALL & CONSTR. COMPLETED ACTUAL	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO. OF DAYS	CONSTRUCTION STATUS NO. OF DAYS SINCE START OF SCHEDULE	CONSTRUCTION STATUS ACTUAL STATUS DAYS AHEAD	CONSTRUCTION STATUS ACTUAL STATUS DAYS BEHIND	PROBLEM AREA
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SILO	1		EXCAVATION (OPEN CUT)					7-1-60	6-3	7-19-60	6-25		19	0	19		
	2		EXCAVATION (SILO)					7-20-60	8-9	11-15-60	1-31		119	196		77	
	3		REINFORCING STEEL					10-1-60	2-3	12-22-60	4-5		83	187		104	
	4	*	SILO CONCRETE (EXCEPT CAP)					10-1-60	2-6	2-21-61	4-8		144	190		56	
	5		COLLIMATOR EMBEDDED PLATE				1-19	2-16-61	2-16	2-21-61	2-21		6	6	0	0	
	6		CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			11-22-60	11-15	3-30-61	3-30	4-5-61	4-5		7	7	0	0	
	7		STEEL CRIB			11-22-60	12-6	12-22-60	5-12	4-1-61	7-14		101	205		104	
	8	*	PLS PRESSURE VESSELS & VALVES			1-1-61	2-9	1-22-61	6-3	4-7-61	6-9		76	139		63	
	9	*	PLS CRYOGENIC VESSELS & VALVES			1-1-61	2-24	1-22-61	6-7	4-7-61	6-12		76	140		64	
	10	△	PLS PREFABS & INTERCONNECTING PIPING			12-28-60	2-12	2-24-61	6-14	5-12-61	8-31		78	189		111	
	11	*	CABLE TRAYS				1-30	2-21-61	7-15	7-27-61	9-24		167	220		53	
	12		COMPRESSED AIR SYSTEM				8-5	1-22-61	7-31	6-23-61	3-23		153	245		92	
	13	△	FACILITY ELEVATOR (PERSONNEL)			1-25-61	3-31	1-25-61	3-31	3-22-61	9-25		57	244		187	
	14	* △	DIESEL GENERATOR, SWITCHGEAR & PANELS			1-4-61	1-21	2-21-61	6-15	7-27-61	9-8		167	200		33	
	15	* △	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			1-25-61	2-3	7-22-60	7-14	9-1-61	9-26		407	435		28	
	16	△	BLAST CLOSURE			11-30-60	10-27	1-15-61	7-31	4-15-61	9-11		91	240		149	
	17	△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			1-25-61	12-23	3-8-61	7-13	5-22-61	7-17		76	132		56	
	18	△	LAUNCH PLATFORM COUNTERWEIGHT			10-25-60	11-18	3-8-61	7-17	5-22-61	7-20		76	135		59	
	19	△	LAUNCH PLATFORM DRIVE BASE			2-1-61	1-16	3-8-61	7-21	5-22-61	7-25		76	140		64	
	20	△	LAUNCH PLATFORM DRIVE MECHANISM			2-1-61	2-17	3-8-61	7-21	5-22-61	7-28		76	142		66	
	21	△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			11-22-60	11-15	12-22-60	5-8	4-1-61	5-24		101	154		53	
	22	* △	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			3-14-61	8-28	5-1-61	7-18	9-23-61	9-17		146	134	12		
	23	△	C.B.R. FILTERS			1-25-61	12-15	1-25-61	8-17	6-14-61	9-18		142	216		74	
	24	*	ELECTRICAL CONDUIT, WIRE & FIXTURES				7-24	10-8-60	7-26	9-23-61	9-26		351	357		6	
	25		SILO COMPLETE							10-13-61	10-13		470	470	0	0	
LAUNCH CONTROL CENTER	26		REINFORCING STEEL					8-15-60	9-17	2-1-61	5-23		171	282		111	
	27		CONCRETE INCLUDING VENTS & ENTRY					8-15-60	9-21	2-1-61	5-24		171	283		112	
	28		HUNG FLOOR				10-28	11-22-60	11-15	12-22-60	11-20		3	0	31		
	29	△	AIR CYLINDER SPRING SUPPORT			11-16-60	10-14	11-22-60	12-1	12-22-60	12-1		31	10	21		
	30	△	BLAST CLOSURE			11-30-60	10-27	12-22-60	2-13	2-21-61	4-27		62	127		65	
	31		CABLE TRAYS				1-30	3-22-61	2-15	5-9-61	4-27		48	37	12		
	32	△	HEATING, VENTILATING & AIR CONDITIONING			1-25-61	1-30	7-22-60	2-6	5-22-61	4-27		305	280	25		
	33	*	L.C.C. COMPLETE							6-13-61	4-27		305	262	47		
SITE WORK	34	*	GRADING PAVING & FENCING					7-1-60	6-28	9-14-61	8-31		441	427		14	
	35		ACCESS ROAD					7-1-60	6-3	7-20-61	8-31		385	427		42	
	36		UTILITIES					7-22-60	8-29	7-20-61	9-28		364	434		70	
	37	*	COMPLETION ENTIRE CONTRACT							10-13-61	10-13		470	470	0	0	
MISC.	38		SHOP DRAWINGS			6-15-60	7-15										
	39		MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-15										
	40		EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-15										

WORK COMPLETED — FINAL REPORT

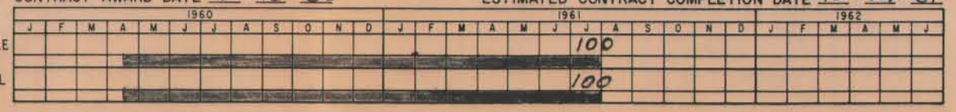
NO.	PLS CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	5-7-61	9/6	7-12-61	9/16
42	LOX SYSTEM	4-27-61	9/16	7-15-61	9/16
43	LN_2 SYSTEM	4-21-61	9/11	7-9-61	9/16
44	GASEOUS He & N_2 SYSTEM	4-24-61	9/5	7-16-61	9/11

ITEM	A.F DIRECTED COMPL. DATE ORIGINAL	A.F DIRECTED COMPL. DATE REVISED	A.F DIRECTED COMPL. DATE NO.	CONTRACT COMPL. DATE ORIGINAL	CONTRACT COMPL. DATE REVISED	CONTRACT COMPL. DATE NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	BENEFICIAL OCCUPANCY DATE (BOD) ACTUAL
SILO	8-16-61	10-7-61	1st	7-16-61	7-29-61	1st		
			2nd		10-13-61	2nd		
LCC	7-5-61		1st	6-9-61	6-13-61	1st		
			2nd			2nd		

PRIME CONTRACTOR WESTERN CONTRACTING CORP. CONTRACT NO. DA 6186

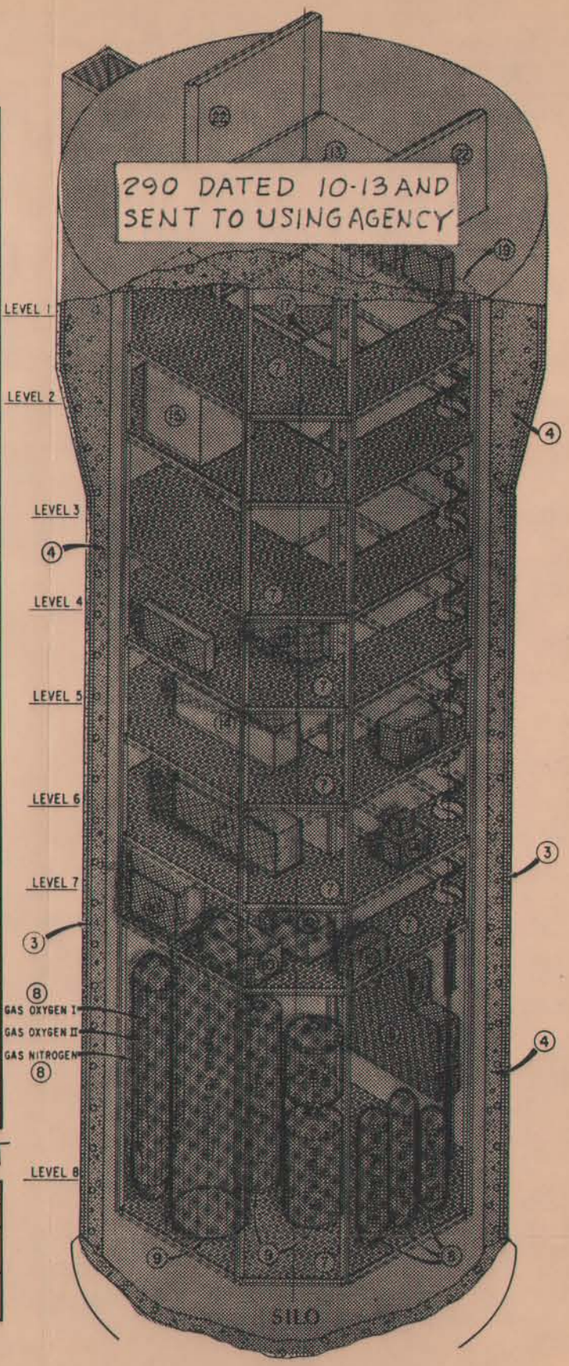
CONTRACT AWARD DATE 4-15-60 ESTIMATED CONTRACT COMPLETION DATE 10-14-61

CONTRACTOR SCHEDULE



ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND
0	0

290 DATED 10-13 AND SENT TO USING AGENCY



LEGEND

- NO ENTRY REQUIRED
- BEHIND SCHEDULE
- INSERT NO OF DAYS — COMPLETED COLS. N, O, P & Q
- INSERT DATE — ACCOMPLISHED COLS. F, H, J, L & M
- * CONTRACTUAL MILESTONE
- △ ASSIGNED SERVICE CONTRACT & GOV'T FURNISHED PROPERTY
- COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

RCS: ENGMA-AB-28

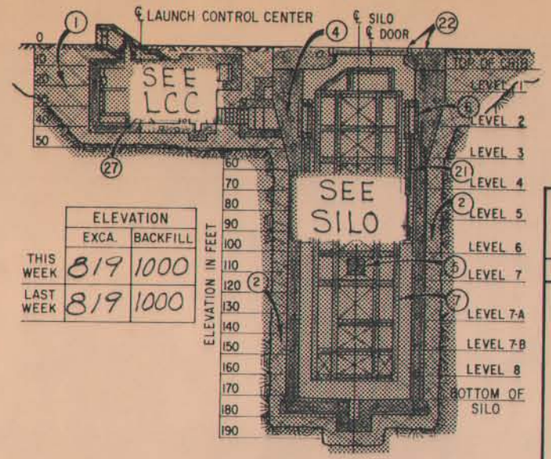
REPORT AS OF 10-15-61

CE BALLISTIC MISSILE CONSTRUCTION OFFICE

CONSTRUCTION STATUS REPORT

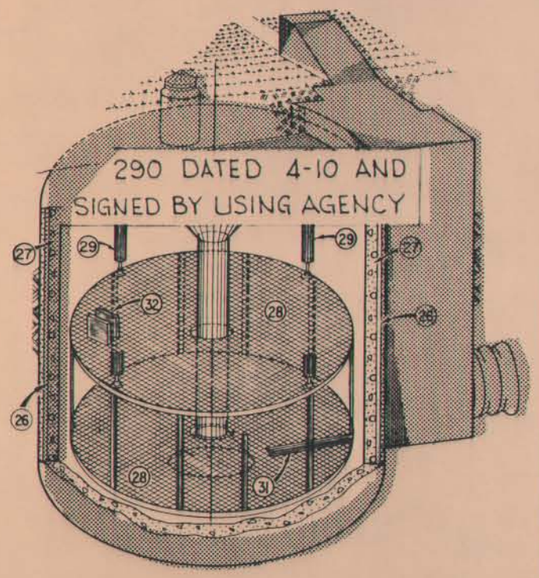
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 9, SITE NAME DAVID CITY, PRIORITY 2

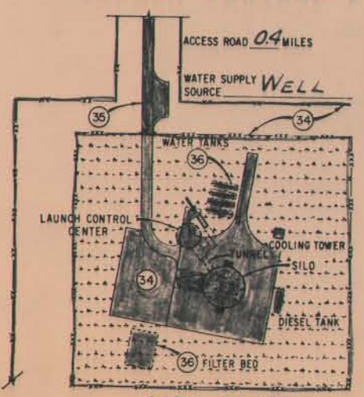


	ELEVATION	
	EXCA.	BACKFILL
THIS WEEK	819	1000
LAST WEEK	819	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT	NO.	MILESTONE ASC & GFP EQUIP.	ITEM DESCRIPTION	EQUIPMENT FABRICATION STARTED	EQUIPMENT FABRICATION COMPL.	EQUIPMENT RECEIVED SCHEDULE	EQUIPMENT RECEIVED ACTUAL	INSTALL & CONSTR. STARTED SCHEDULE	INSTALL & CONSTR. STARTED ACTUAL	INSTALL & CONSTR. COMPLETED SCHEDULE	INSTALL & CONSTR. COMPLETED ACTUAL	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO. OF DAYS	CONSTRUCTION STATUS NO. OF DAYS SINCE START OF SCHEDULE	CONSTRUCTION STATUS ACTUAL STATUS DAYS AHEAD	CONSTRUCTION STATUS ACTUAL STATUS DAYS BEHIND	PROBLEM AREA
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SILO	1		EXCAVATION (OPEN CUT)					5-22-60	6-26	6-5-60	7-7		15	49		34	
	2		EXCAVATION (SILO)					6-6-60	7-19	8-15-60	8-15		101	101	0	0	
	3		REINFORCING STEEL					7-15-60	8-18	9-10-60	10-12		58	90		32	
	4	*	SILO CONCRETE (EXCEPT CAP)					7-15-60	8-20	10-3-60	10-20		81	78		11	
	5		COLLIMATOR EMBEDDED PLATE				8-22	8-30-60	8-30	9-10-60	9-10		12	12	0	0	
	6		CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			9-13-60	9-13	9-27-60	9-27	10-8-60	10-8		12	12	0	0	
	7		STEEL CRIB			9-13-60	11-1	10-19-60	11-2	1-1-61	3-7		75	140		65	
	8	*	PLS PRESSURE VESSELS & VALVES			10-26-60	11-17	10-1-60	11-16	11-17-60	11-20		48	51		3	
	9	*	PLS CRYOGENIC VESSELS & VALVES			10-26-60	11-13	10-1-60	11-19	11-17-60	11-21		48	52		4	
	10	△	PLS PREFABS & INTERCONNECTING PIPING			10-19-60	11-24	11-18-60	1-6	1-27-61	3-28		71	140		69	
	11	*	CABLE TRAYS				1-6	12-15-60	1-6	3-8-61	3-25		84	73	11		
	12		COMPRESSED AIR SYSTEM				8-21	11-1-60	1-20	3-6-61	3-29		126	149		23	
	13	△	FACILITY ELEVATOR (PERSONNEL)			11-9-60	11-29	11-9-60	1-4	1-4-61	3-18		57	185		128	
	14	* △	DIESEL GENERATOR, SWITCHGEAR & PANELS			10-26-60	10-15	12-15-60	1-22	3-8-61	4-25		84	73	11		
	15	* △	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			11-16-60	1-6	7-23-60	12-1	4-14-61	5-18		260	294		29	
	16	△	BLAST CLOSURE			9-21-60	9-29	12-1-60	1-16	1-15-61	2-1		46	1	45		
	17	△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			11-16-60	11-29	11-22-60	1-4	2-8-61	1-5		79	45	34		
	18	△	LAUNCH PLATFORM COUNTERWEIGHT			12-28-60	11-5	11-22-60	1-4	2-8-61	1-13		79	53	26		
	19	△	LAUNCH PLATFORM DRIVE BASE			11-23-60	1-4	11-22-60	1-21	2-8-61	2-17		79	86		7	
	20	△	LAUNCH PLATFORM DRIVE MECHANISM			11-23-60	2-11	11-22-60	1-23	2-8-61	2-23		79	94		15	
	21	△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			9-13-60	11-17	10-19-60	11-18	1-1-61	1-25		75	38	37		
	22	* △	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			12-20-60	12-21	1-22-61	2-3	4-24-61	5-3		93	108		15	
	23	△	C.B.R. FILTERS			11-16-60	1-3	11-16-60	2-23	3-1-61	3-25		106	102	4		
	24	*	ELECTRICAL CONDUIT, WIRE & FIXTURES				4-12	7-15-60	7-13	4-24-61	4-28		283	285		15	
	25		SILO COMPLETE							6-15-61	6-26		390	401		11	
LAUNCH CONTROL CENTER	26		REINFORCING STEEL					7-15-60	5-12	11-23-60	1-6		132	176		44	
	27		CONCRETE INCLUDING VENTS & ENTRY					7-15-60	8-28	11-23-60	1-6		132	176		44	
	28		HUNG FLOOR				10-13	8-22-60	11-14	9-23-60	11-29		33	100		67	
	29	△	AIR CYLINDER SPRING SUPPORT			9-7-60	10-16	8-22-60	11-29	9-23-60	11-29		33	100		67	
	30	△	BLAST CLOSURE			9-21-60	9-29	9-23-60	2-16	11-23-60	1-5		62	105		43	
	31		CABLE TRAYS				1-7	12-7-60	1-6	1-24-61	3-1		49	88		39	
	32	△	HEATING, VENTILATING & AIR CONDITIONING			11-16-60	1-6	7-22-60	12-13	2-8-61	3-1		202	221		19	
	33	*	L.C.C. COMPLETE							3-1-61	3-1		230	233		3	
SITE WORK	34	*	GRADING PAVING & FENCING					5-22-60	6-28	4-28-61	4-26		342	401		59	
	35		ACCESS ROAD					5-22-60	6-28	4-9-61	6-11		323	386		63	
	36		UTILITIES					7-7-60	9-8	4-9-61	5-3		277	332		55	
	37	*	COMPLETION ENTIRE CONTRACT							6-15-61	6-26		390	401		11	
MISC.	38		SHOP DRAWINGS			6-15-60	7-15										
	39		MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-15										
	40		EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-15										

WORK COMPLETED - FINAL REPORT

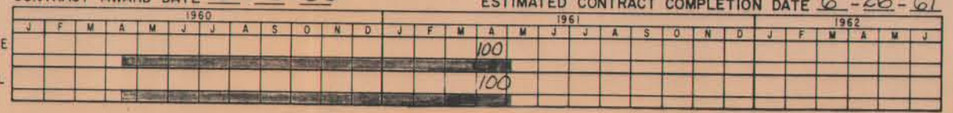
NO.	PLS CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	2-1-61	5-24	4-3-61	5-26
42	LOX SYSTEM	1-24-61	5-17	4-1-61	6-14
43	LN_2 SYSTEM	1-24-61	4-26	4-3-61	6-13
44	GASEOUS He & N_2 SYSTEM	1-23-61	4-21	4-3-61	5-26

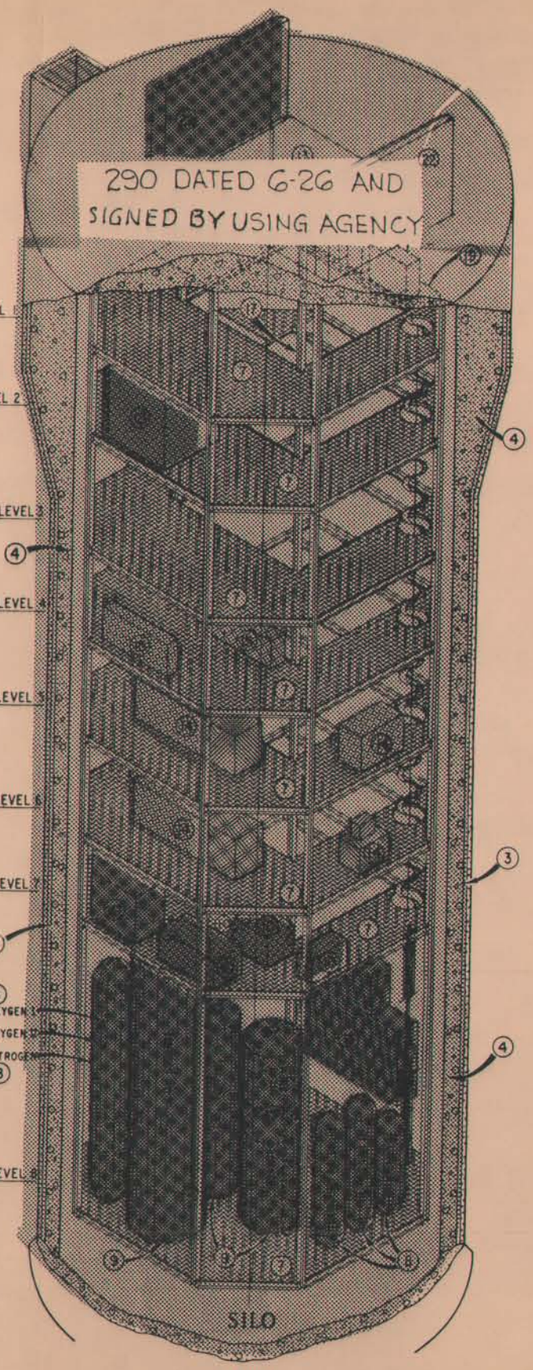
ITEM	A.F DIRECTED COMPL. DATE ORIGINAL	A.F DIRECTED COMPL. DATE REVISED	A.F DIRECTED COMPL. DATE NO.	CONTRACT COMPL. DATE ORIGINAL	CONTRACT COMPL. DATE REVISED	CONTRACT COMPL. DATE NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	BENEFICIAL OCCUPANCY DATE (BOD) ACTUAL
SILO	5-5-61	5-22-61	1st	4-4-61	6-15-61	1st		
		6-26-61	2nd		3-1-61	2nd		
LCC	3-2-61		1st	2-24-61		1st		
			2nd			2nd		

PRIME CONTRACTOR WESTERN CONTRACTING CORP CONTRACT NO. DA 6186

CONTRACT AWARD DATE 4-15-60 ESTIMATED CONTRACT COMPLETION DATE 6-26-61

CONTRACTOR SCHEDULE





LEGEND

ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND
	11

NO ENTRY REQUIRED

BEHIND SCHEDULE

INSERT NO. OF DAYS COMPLETED COLS. N, O, P & Q

INSERT DATE ACCOMPLISHED COLS. F, H, J, L & M

* CONTRACTUAL MILESTONE

△ ASSIGNED SERVICE CONTRACT & GOV'T. FURNISHED PROPERTY

COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

RCS: ENGMA-AB-28

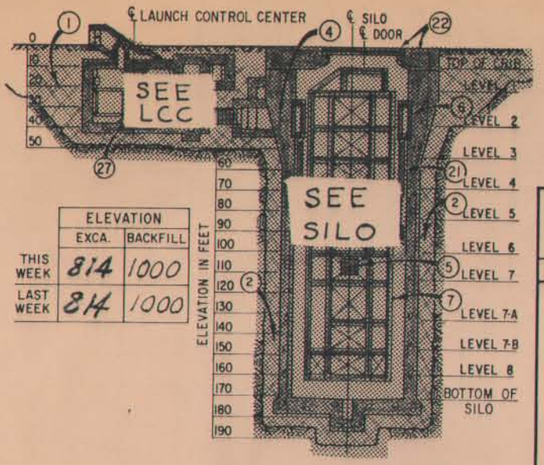
REPORT AS OF 10-15-61

CE BALLISTIC MISSILE CONSTRUCTION OFFICE

CONSTRUCTION STATUS REPORT

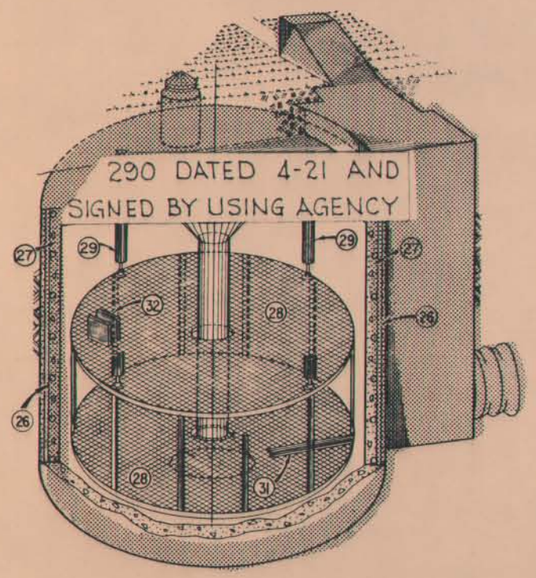
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 10, SITE NAME ELMWOOD, PRIORITY 10

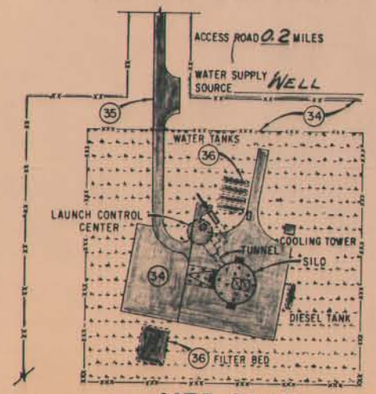


ELEVATION	EXCA.	BACKFILL
THIS WEEK	814	1000
LAST WEEK	814	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT	NO.	MILESTONE	ASC & GFP EQUIP.	ITEM DESCRIPTION	EQUIPMENT FABRICATION STARTED	EQUIPMENT FABRICATION COMPL	EQUIPMENT RECEIVED SCHEDULE	EQUIPMENT RECEIVED ACTUAL	INSTALL & CONSTR. STARTED SCHEDULE	INSTALL & CONSTR. STARTED ACTUAL	INSTALL & CONSTR. COMPLETED SCHEDULE	INSTALL & CONSTR. COMPLETED ACTUAL	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO OF DAYS	CONSTRUCTION STATUS NO OF DAYS SINCE START OF SCHEDULE	ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND	PROBLEM AREA
A	B	C		D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SILO	1			EXCAVATION (OPEN CUT)					7-1-60	6-24	7-15-60	7-14		15	14	4		
	2			EXCAVATION (SILO)					7-16-60	7-31	9-30-60	11-24		77	101		24	
	3			REINFORCING STEEL					10-1-60	10-30	12-8-60	11-30		69	61	8		
	4	*		SILO CONCRETE (EXCEPT CAP)					10-7-60	11-	1-3-61	12-4		89	59	30		
	5			COLLIMATOR EMBEDDED PLATE					11-7-60	11-7	11-10-60	11-10		4	4	0	0	
	6			CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			11-8-60	11-16	11-20-60	11-20	11-30-60	11-30		11	11	0	0	
	7			STEEL CRIB			11-8-60	12-2	12-8-60	11-5	3-15-61	7-7		78	212		114	
	8	*		PLS PRESSURE VESSELS & VALVES			12-17-60	1-16	12-8-60	1-21	2-19-61	1-23		74	47	27		
	9	*		PLS CRYOGENIC VESSELS & VALVES			12-17-60	1-18	12-8-60	1-20	2-19-61	1-25		74	49	25		
	10		△	PLS PREFABS & INTERCONNECTING PIPING			12-14-60	2-2	1-18-61	2-13	4-6-61	6-15		79	149		70	
	11	*		CABLE TRAYS				3-15	2-7-61	3-6	6-11-61	6-13		125	127		2	
	12			COMPRESSED AIR SYSTEM				2-21	1-8-61	3-22	6-6-61	5-11		150	216		66	
	13		△	FACILITY ELEVATOR (PERSONNEL)			1-11-61	1-20	1-11-61	3-26	3-8-61	7-14		57	185		128	
	14	*	△	DIESEL GENERATOR, SWITCHGEAR & PANELS			12-21-60	1-11	2-7-61	1-26	6-11-61	4-3		123	56	67		
	15	*	△	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			1-11-61	12-2	7-28-60	1-3	7-17-61	8-8		361	383		22	
	16		△	BLAST CLOSURE			11-16-60	11-7	1-1-61	2-9	4-1-61	4-6		91	6	85		
	17		△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			1-11-61	12-28	2-21-61	1-4	5-7-61	4-2		76	41	35		
	18		△	LAUNCH PLATFORM COUNTERWEIGHT			10-11-60	1-23	2-21-61	1-4	5-7-61	4-5		76	44	32		
	19		△	LAUNCH PLATFORM DRIVE BASE			1-18-61	1-27	2-21-61	1-19	5-7-61	4-13		76	68	8		
	20		△	LAUNCH PLATFORM DRIVE MECHANISM			1-18-61	2-17	2-21-61	1-19	5-7-61	4-13		76	71	5		
	21		△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			11-8-60	12-16	12-8-60	12-21	3-15-61	4-10		98	33	65		
	22	*	△	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			2-28-61	3-17	4-15-61	3-10	8-15-61	7-21		104	78	25		
	23		△	C.B.R. FILTERS			1-11-61	1-3	1-11-61	1-28	6-1-61	7-25		142	192		54	
	24	*		ELECTRICAL CONDUIT, WIRE & FIXTURES				8-15	10-1-60	8-14	8-15-61	8-25		313	313	6		
	25			SILO COMPLETE							5-31-61	8-21		432	427	5		
LAUNCH CONTROL CENTER	26			REINFORCING STEEL					8-15-60	8-27	1-15-61	9-3		154	252		98	
	27			CONCRETE INCLUDING VENTS & ENTRY					8-15-60	9-28	1-15-61	10-4		154	253		99	
	28			HUNG FLOOR				12-6	11-8-60	12-21	12-8-60	1-7		31	0	32		
	29		△	AIR CYLINDER SPRING SUPPORT			11-2-60	11-2	11-8-60	11-26	12-8-60	11-12		31	66		35	
	30		△	BLAST CLOSURE			11-16-60	11-1	12-8-60	12-7	2-7-61	2-22		62	6	56		
	31			CABLE TRAYS				12-28	3-8-61	1-6	4-25-61	2-10		49	30	19		
	32		△	HEATING, VENTILATING & AIR CONDITIONING			1-11-61	2-12	7-22-60	12-26	5-8-61	4-6		291	259	32		
	33	*		L.C.C. COMPLETE							5-31-61	4-6		314	259	55		
SITE WORK	34	*		GRADING PAVING & FENCING					7-1-60	8-4	7-30-61	8-25		392	414		17	
	35			ACCESS ROAD					7-1-60	6-28	7-11-61	8-12		372	408		32	
	36			UTILITIES					7-22-60	7-28	7-11-61	8-15		355	389		32	
	37	*		COMPLETION ENTIRE CONTRACT							9-5-61	7-31		432	427	5		
MISC.	38			SHOP DRAWINGS			7-25-60	7-16										
	39			MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-15										
	40			EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-23										

WORK COMPLETED — FINAL REPORT

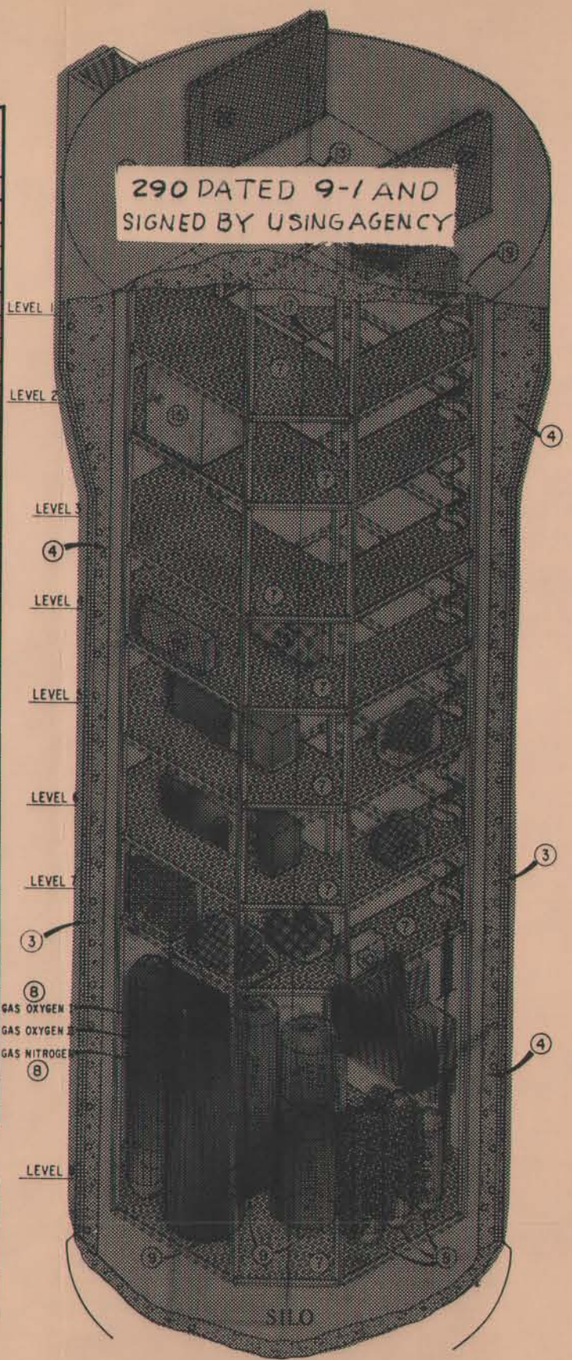
NO.	PLS CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	4-12-61	8-8	7-1-61	8-14
42	LOX SYSTEM	3-25-61	8-10	7-2-61	8-21
43	LN_2 SYSTEM	3-17-61	7-25	6-6-61	7-31
44	GASEOUS He & N_2 SYSTEM	3-30-61	7-18	7-1-61	8-28

ITEM	A.F DIRECTED COMPL. DATE ORIGINAL	A.F DIRECTED COMPL. DATE REVISED	NO.	CONTRACT COMPL. DATE ORIGINAL	CONTRACT COMPL. DATE REVISED	NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	BENEFICIAL OCCUPANCY DATE (BOD) ACTUAL
SILO	8-2-61	9-23-61	1st	7-2-61	7-28-61	1st		
			2nd		9-5-61	2nd		
LCC	6-21-61		1st	5-26-61	5-31-61	1st		
			2nd			2nd		

PRIME CONTRACTOR WESTERN CONTRACTING CORP. CONTRACT NO. DA 6186

CONTRACT AWARD DATE 5-25-60 ESTIMATED CONTRACT COMPLETION DATE 8-31-61

CONTRACTOR SCHEDULE



ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND
5	

LEGEND

NO ENTRY REQUIRED

BEHIND SCHEDULE

INSERT NO. OF DAYS COMPLETED COLS. N,O,P & Q

INSERT DATE ACCOMPLISHED COLS. F,H,J,L & M

* CONTRACTUAL MILESTONE

△ ASSIGNED SERVICE CONTRACT & GOV'T FURNISHED PROPERTY.

COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

RCS: ENGMA-AB-28

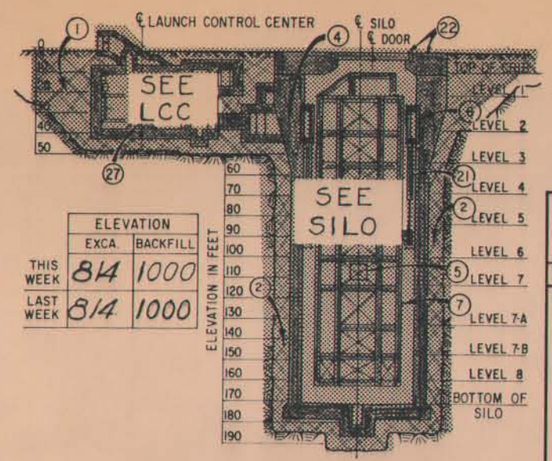
REPORT AS OF 10-15-61

CE BALLISTIC MISSILE CONSTRUCTION OFFICE

CONSTRUCTION STATUS REPORT

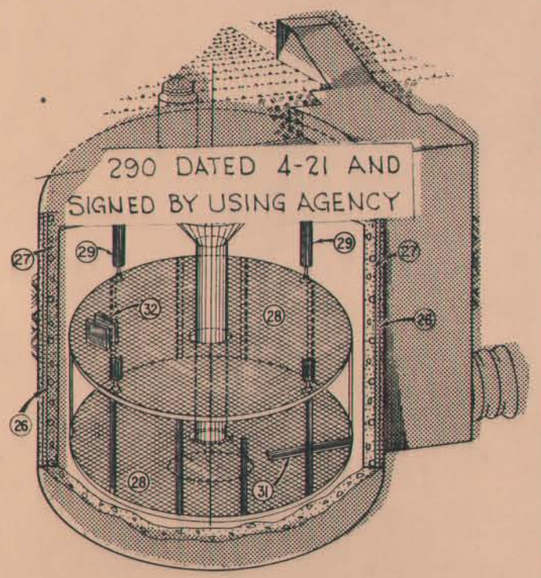
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 11, SITE NAME AVOCA, PRIORITY 8

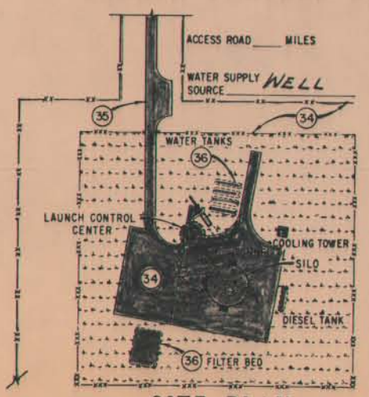


ELEVATION	EXCA.	BACKFILL
THIS WEEK	814	1000
LAST WEEK	814	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT	NO.	MILESTONE ASC & GFP EQUIP.	ITEM DESCRIPTION	EQUIPMENT FABRICATION STARTED	EQUIPMENT FABRICATION COMPL.	EQUIPMENT RECEIVED SCHEDULE	EQUIPMENT RECEIVED ACTUAL	INSTALL & CONSTR. STARTED SCHEDULE	INSTALL & CONSTR. STARTED ACTUAL	INSTALL & CONSTR. COMPLETED SCHEDULE	INSTALL & CONSTR. COMPLETED ACTUAL	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO. OF DAYS	CONSTRUCTION STATUS NO. OF DAYS SINCE START OF SCHEDULE	ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND	PROBLEM AREA
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SILO	(1)		EXCAVATION (OPEN CUT)					6-23-60	7-13	7-8-60	7-23		16	31		15	
	(2)		EXCAVATION (SILO)					7-9-60	8-8	10-1-60	10-12		85	96		11	
	(3)		REINFORCING STEEL					9-22-60	10-18	10-20-60	11-16		29	56		27	
	(4)	*	SILO CONCRETE (EXCEPT CAP)					9-22-60	10-12	11-26-60	1-30		66	60	6		
	(5)		COLLIMATOR EMBEDDED PLATE				9-13	10-28-60	10-28	10-30-60	10-30		3	3	0	0	
	(6)		CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			10-25-60	11-15	11-8-60	11-8	11-12-60	11-12		5	5	0	0	
	(7)		STEEL CRIB			10-25-60	11-20	11-7-60	12-7	1-22-61	3-28		77	142		65	
	(8)	*	PLS PRESSURE VESSELS & VALVES			12-2-60	1-9	11-15-60	1-9	1-12-61	1-10		59	57	2		
	(9)	*	PLS CRYOGENIC VESSELS & VALVES			12-2-60	1-9	11-15-60	1-9	1-12-61	CIP		59	58	1		
	(10)	△	PLS PREFABS & INTERCONNECTING PIPING			11-30-60	1-23	1-3-61	1-21	3-21-61	4-28		78	117		39	
	11	*	CABLE TRAYS				2-1	1-15-61	2-8	5-4-61	3-31		110	76	44		
	12		COMPRESSED AIR SYSTEM				3-1	11-22-60	4-28	4-22-61	8-9		152	261		109	
	(13)	△	FACILITY ELEVATOR (PERSONNEL)			12-21-60	1-20	12-21-60	2-28	2-15-61	7-31		57	223		166	
	(14)	* △	DIESEL GENERATOR, SWITCHGEAR & PANELS			12-7-60	1-12	1-15-61	1-13	5-4-61	3-2		110	47	63		
	(15)	* △	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			12-28-60	1-27	1-8-61	2-7	6-5-61	8-2		158	207		54	
	16	△	BLAST CLOSURE			11-2-60	11-2	1-1-61	1-30	2-14-61	12-7		43	0	43		
	(17)	△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			12-28-60	2-26	1-8-61	2-27	3-22-61	4-10		74	93		19	
	(18)	△	LAUNCH PLATFORM COUNTERWEIGHT			2-8-61	1-22	1-8-61	2-25	3-22-61	5-2		74	56	18		
	(19)	△	LAUNCH PLATFORM DRIVE BASE			1-4-61	1-23	1-8-61	3-15	3-22-61	3-28		74	80		6	
	(20)	△	LAUNCH PLATFORM DRIVE MECHANISM			1-4-61	2-24	1-8-61	3-3	3-22-61	3-31		74	83		9	
	(21)	△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			10-25-60	1-4	11-7-60	2-2	1-22-61	5-3		77	54	23		
	(22)	* △	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			2-14-61	3-1	3-8-61	4-19	7-18-61	7-6		133	121	12		
	23	△	C.B.R. FILTERS			12-28-60	1-17	12-28-60	6-30	4-12-61	7-3		106	188		82	
	24	*	ELECTRICAL CONDUIT, WIRE & FIXTURES				8-1	9-1-60	10-6	7-18-61	8-10		321	344		23	
	25		SILO COMPLETE							7-31-61	8-10		404	414		10	
LAUNCH CONTROL CENTER	(26)		REINFORCING STEEL					9-1-60	8-22	12-15-60	1-20		106	142		36	
	(27)		CONCRETE INCLUDING VENTS & ENTRY					9-1-60	8-22	12-15-60	1-21		106	142		36	
	(28)		HUNG FLOOR				10-10	10-8-60	10-18	11-8-60	11-5		32	32	0	0	
	(29)	△	AIR CYLINDER SPRING SUPPORT			10-19-60	11-8	10-8-60	12-2	11-8-60	12-2		32	56		24	
	30	△	BLAST CLOSURE			11-2-60	11-2	11-8-60	11-30	1-8-61	1-30		22	23	39		
	(31)		CABLE TRAYS				1-17	1-22-61	1-17	3-7-61	3-5		12	53		5	
	(32)	△	HEATING, VENTILATING & AIR CONDITIONING			12-28-60	11-29	1-1-61	12-15	3-22-61	4-6		81	96		15	
	33	*	L.C.C. COMPLETE							4-10-61	4-6		221	217	4		
SITE WORK	(34)	*	GRADING PAVING & FENCING					6-23-60	7-15	6-24-61	8-1		367	413		46	
	(35)		ACCESS ROAD					6-23-60	7-16	5-21-61	8-11		333	405		72	
	(36)		UTILITIES					7-21-60	8-3	5-21-61	8-11		308	377		72	
	37	*	COMPLETION ENTIRE CONTRACT							7-31-61	8-10		404	414		10	
MISC.	38		SHOP DRAWINGS			7-25-60	9-15										
	39		MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-16										
	40		EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-15										

WORK COMPLETED — FINAL REPORT

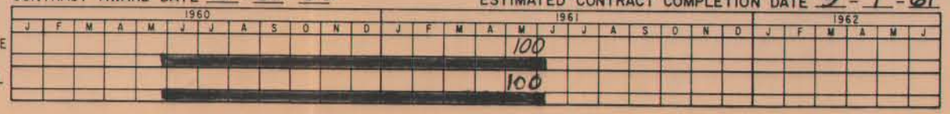
NO.	PLS CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	3-7-61	[illegible]	5-15-61	[illegible]
42	LOX SYSTEM	3-3-61	[illegible]	5-14-61	7-15
43	LN_2 SYSTEM	3-5-61	[illegible]	5-14-61	[illegible]
44	GASEOUS He & N_2 SYSTEM	3-4-61	[illegible]	5-16-61	8-31

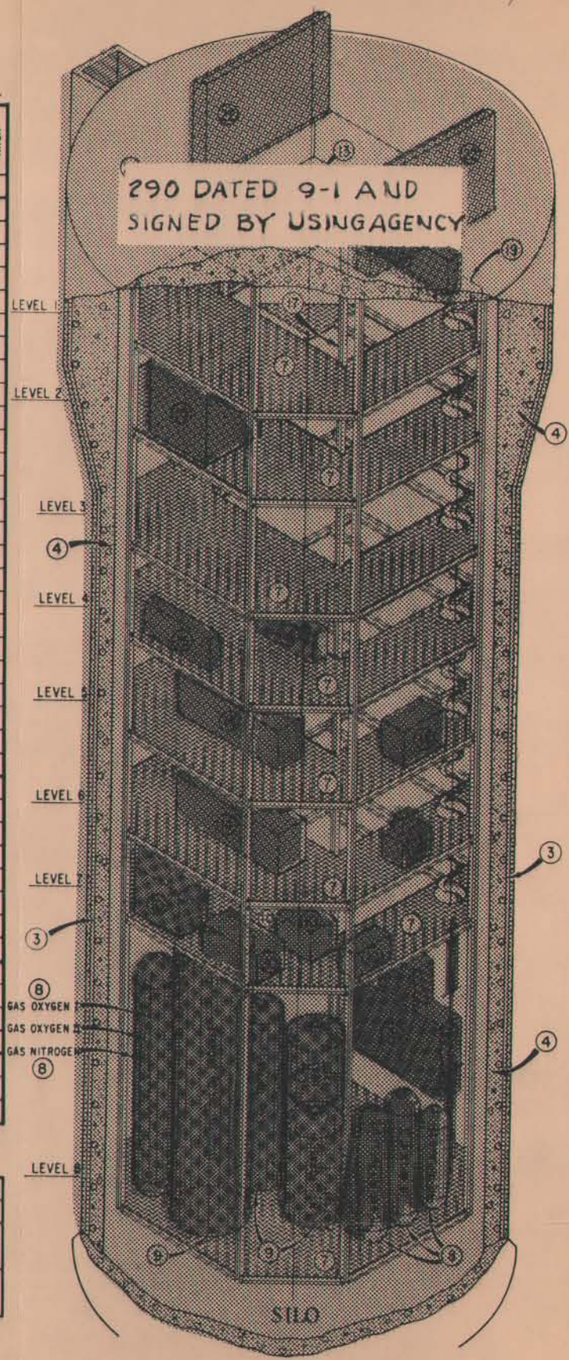
ITEM	A.F. DIRECTED COMPL. DATE ORIGINAL	A.F. DIRECTED COMPL. DATE REVISED	A.F. DIRECTED COMPL. DATE NO.	CONTRACT COMPL. DATE ORIGINAL	CONTRACT COMPL. DATE REVISED	CONTRACT COMPL. DATE NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	BENEFICIAL OCCUPANCY DATE (BOD) ACTUAL
SILO	6-16-61	7-3-61	1st	5-16-61	6-7-61	1st		8-10
		8-7-61	2nd		7-31-61	2nd		
LCC	5-5-61		1st	4-7-61	4-10-61	1st		
			2nd			2nd		

PRIME CONTRACTOR WESTERN CONTRACTING CORP. CONTRACT NO. DA 6186

CONTRACT AWARD DATE 5-25-60 ESTIMATED CONTRACT COMPLETION DATE 9-1-61

CONTRACTOR SCHEDULE





ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND
	10

LEGEND

NO ENTRY REQUIRED

BEHIND SCHEDULE

INSERT NO. OF DAYS COMPLETED COLS. N, O, P & Q

INSERT DATE ACCOMPLISHED COLS. F, H, J, L & M

* CONTRACTUAL MILESTONE

△ ASSIGNED SERVICE CONTRACT & GOV'T. FURNISHED PROPERTY

COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

RCS: ENGMA-AB-28

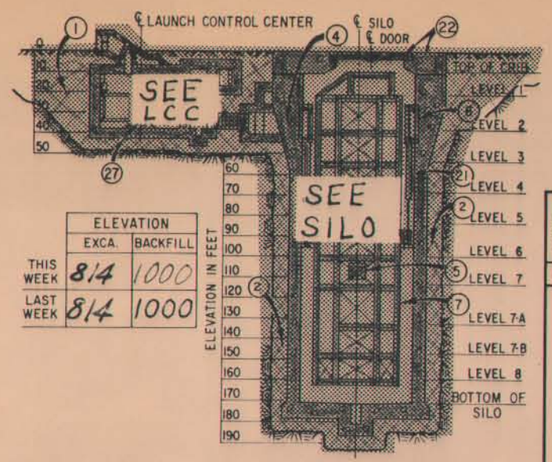
REPORT AS OF 10-15-61

CE BALLISTIC MISSILE CONSTRUCTION OFFICE

CONSTRUCTION STATUS REPORT

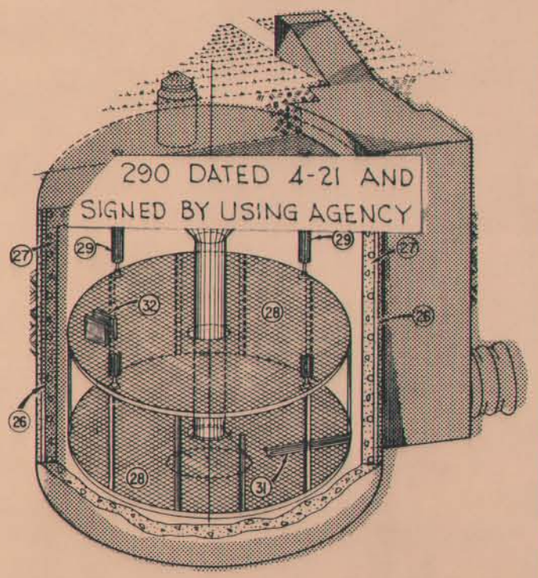
ATLAS F (WS 107 A-1)

LINCOLN AIR FORCE BASE, SITE NO. 12, SITE NAME PALMYRA, PRIORITY 9

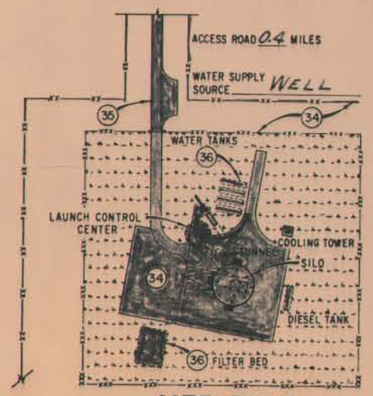


	ELEVATION EXCA.	ELEVATION BACKFILL
THIS WEEK	814	1000
LAST WEEK	814	1000

SECTIONAL ELEVATION



LAUNCH CONTROL CENTER



SITE PLAN

UNIT	NO.	MILESTONE ASC & GFP EQUIP.	ITEM DESCRIPTION	EQUIPMENT FABRICATION STARTED	EQUIPMENT FABRICATION COMPL.	EQUIPMENT RECEIVED SCHEDULE	EQUIPMENT RECEIVED ACTUAL	INSTALL & CONSTR. STARTED SCHEDULE	INSTALL & CONSTR. STARTED ACTUAL	INSTALL & CONSTR. COMPLETED SCHEDULE	INSTALL & CONSTR. COMPLETED ACTUAL	EQUIPMENT VALIDATION CERTIFIED COMPLETED CERTIFICATE	CONSTRUCTION STATUS CONTRACTOR SCHEDULE NO. OF DAYS	CONSTRUCTION STATUS NO. OF DAYS SINCE START OF SCHEDULE	CONSTRUCTION STATUS ACTUAL STATUS DAYS AHEAD	CONSTRUCTION STATUS ACTUAL STATUS DAYS BEHIND	PROBLEM AREA
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
SILO	(1)		EXCAVATION (OPEN CUT)					7-1-60	6-28	7-13-60	7-21		13	21		8	
	(2)		EXCAVATION (SILO)					7-14-60	8-1	9-15-60	10-11		64	90		26	
	(3)		REINFORCING STEEL					9-4-60	10-5	10-22-60	11-24		49	82		33	
	(4)	*	SILO CONCRETE (EXCEPT CAP)					9-4-60	10-6	11-17-60	12-27		105	87	18		
	(5)		COLLIMATOR EMBEDDED PLATE				9-18	10-22-60	10-28	10-27-60	11-23		6	6	0	0	
	(6)		CRIB SUSPENSION SYSTEM, EMBEDDED WALL BRACKET			11-1-60	11-13	11-7-60	11-17	11-25-60	12-25		19	19	0	0	
	(7)		STEEL CRIB			11-1-60	11-29	10-22-60	12-21	2-1-61	2-15		103	117		14	
	(8)	*	PLS PRESSURE VESSELS & VALVES			12-8-60	1-16	11-7-60	1-21	1-3-51	1-22		58	77		19	
	(9)	*	PLS CRYOGENIC VESSELS & VALVES			12-8-60	1-27	11-7-60	1-25	1-3-61	1-26		58	83		25	
	(10)	△	PLS PREFABS & INTERCONNECTING PIPING			12-8-60	12-6	1-12-61	2-13	3-30-61	5-25		78	134		56	
	11	*	CABLE TRAYS				2-16	1-1-61	2-28	4-25-61	3-14		115	73	42		
	12		COMPRESSED AIR SYSTEM				5-20	12-1-60	1-14	5-1-61	5-25		152	176		24	
	(13)	△	FACILITY ELEVATOR (PERSONNEL)			12-28-60	2-7	12-28-60	3-13	2-22-61	5-8		57	132		75	
	(14)	* △	DIESEL GENERATOR, SWITCHGEAR & PANELS			12-14-60	1-4	1-1-61	1-30	4-25-61	3-14		116	73	42		
	(15)	* △	HEATING, VENTILATING, AIRCONDITIONING & PUMPS			1-4-61	12-12	1-15-61	2-10	6-16-61	8-9		154	201		54	
	16	△	BLAST CLOSURE			11-9-60	11-12	11-15-60	12-17	2-15-61	1-9		93	56	37		
	(17)	△	LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS & BRACKETS			1-4-61	12-27	1-15-61	2-23	4-1-61	2-24		77	43	34		
	(18)	△	LAUNCH PLATFORM COUNTERWEIGHT			10-4-60	11-23	1-15-61	2-20	4-1-61	3-7		77	54	23		
	(19)	△	LAUNCH PLATFORM DRIVE BASE			1-11-61	1-30	1-15-61	2-14	4-1-61	3-18		77	63	14		
	(20)	△	LAUNCH PLATFORM DRIVE MECHANISM			1-11-61	2-24	1-15-61	2-14	4-1-61	3-15		77	63	14		
	(21)	△	CRIB SUSPENSION SYSTEM SPRING & BRACKET			11-1-60	12-9	10-22-60	12-14	2-1-61	1-6		103	77	26		
	(22)	* △	SILO CAP & DOORS (INCLUDING HINGE SYSTEM)			2-21-61	3-1	3-15-61	4-2	7-5-61	7-19		113	127		14	
	23	△	C.B.R. FILTERS			1-4-61	1-17	1-4-61	4-26	4-20-61	4-28		107	176		69	
	24	*	ELECTRICAL CONDUIT, WIRE & FIXTURES				5-15	9-7-60	2-7	7-5-61	8-10		302	337		35	
	25		SILO COMPLETE							7-29-61	8-11		394	407		13	
LAUNCH CONTROL CENTER	(26)		REINFORCING STEEL					8-15-60	7-12	12-15-60	5-9		122	266		144	
	(27)		CONCRETE INCLUDING VENTS & ENTRY					8-15-60	8-12	12-15-60	5-10		122	289		167	
	(28)		HUNG FLOOR				9-6	10-15-60	10-3	11-15-60	12-9		32	56		24	
	(29)	△	AIR CYLINDER SPRING SUPPORT			10-26-60	11-8	10-15-60	11-1	11-15-60	11-12		32	27	5		
	30	△	BLAST CLOSURE			11-9-60	11-12	11-15-60	11-29	1-15-61	1-29		62	46	16		
	(31)		CABLE TRAYS				2-28	2-1-61	1-10	3-14-61	2-23		42	23	19		
	(32)	△	HEATING, VENTILATING & AIR CONDITIONING			1-4-61	12-8	1-7-61	1-10	4-1-61	3-7		65	46	23		
	33	*	L.C.C. COMPLETE							4-17-61	4-6		246	235	11		
SITE WORK	(34)	*	GRADING PAVING & FENCING					7-1-60	8-11	6-15-61	8-7		350	403		53	
	(35)		ACCESS ROAD					7-1-60	6-27	5-27-61	7-15		351	380		43	
	(36)		UTILITIES					7-22-60	12-7	5-27-61	8-4		310	371		61	
	37	*	COMPLETION ENTIRE CONTRACT							7-29-61	8-11		394	407		13	
MISC.	38		SHOP DRAWINGS			7-25-60	9-15										
	39		MASTER EQUIPMENT & SPARE PARTS LIST			1-2-61	3-15										
	40		EQUIPMENT OPERATIONS & MAINTENANCE DATA			1-2-61	3-15										

WORK COMPLETED - FINAL REPORT

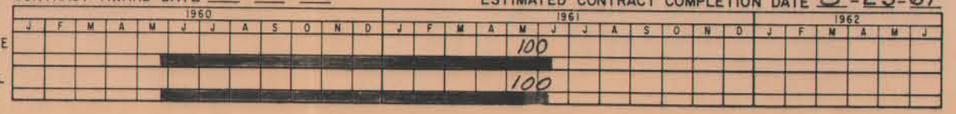
NO.	PLS CHECKOUT SCHEDULE	STARTED SCHEDULE	STARTED ACTUAL	COMPLETED SCHEDULE	COMPLETED ACTUAL
41	FUEL SYSTEM	3-16-61	8-3	5-23-61	8-4
42	LOX SYSTEM	3-12-61	8-10	5-23-61	8-11
43	LN_2 SYSTEM	3-13-61	7-19	5-23-61	7-26
44	GASEOUS He & N_2 SYSTEM	3-13-61	7-17	5-23-61	8-7

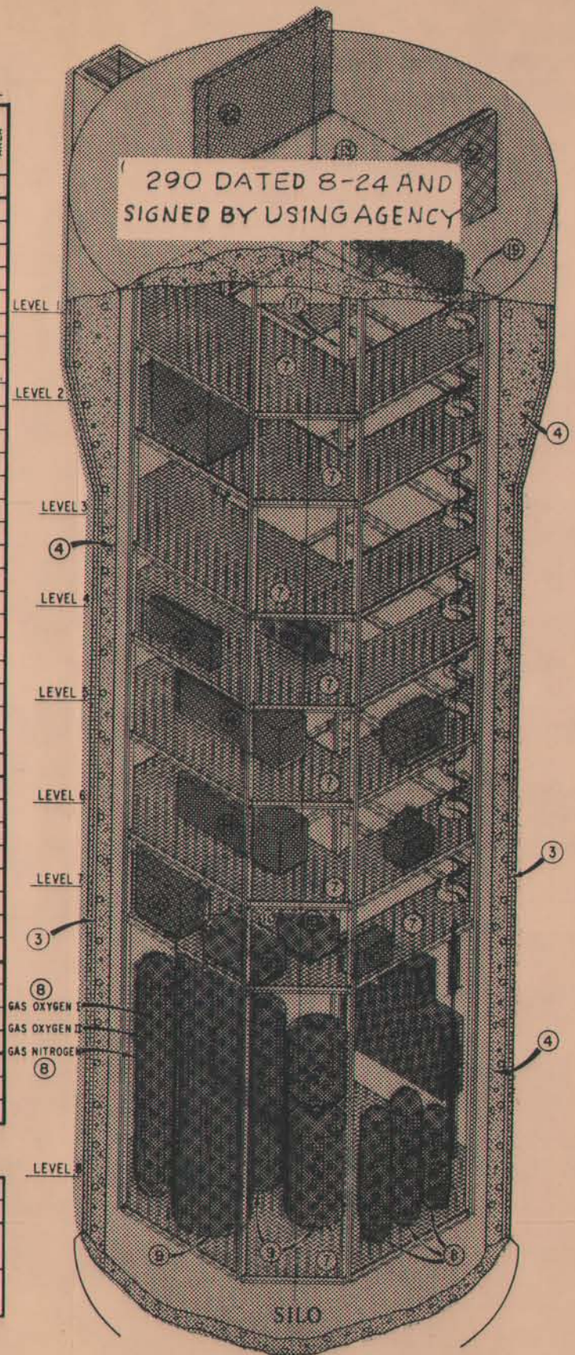
ITEM	A.F DIRECTED COMPL. DATE ORIGINAL	A.F DIRECTED COMPL. DATE REVISED	A.F DIRECTED COMPL. DATE NO.	CONTRACT COMPL. DATE ORIGINAL	CONTRACT COMPL. DATE REVISED	CONTRACT COMPL. DATE NO.	BENEFICIAL OCCUPANCY DATE (BOD) SCHEDULE	BENEFICIAL OCCUPANCY DATE (BOD) ACTUAL
SILO	6-23-61	7-10-61 8-14-61	1st 2nd	5-23-61	6-13-61 7-25-61	1st 2nd		8-11
LCC	5-12-61		1st 2nd	4-14-61	4-17-61	1st 2nd		

PRIME CONTRACTOR WESTERN CONTRACTING CORP CONTRACT NO. DA 6186

CONTRACT AWARD DATE 5-25-60 ESTIMATED CONTRACT COMPLETION DATE 8-23-61

CONTRACTOR SCHEDULE





ACTUAL STATUS DAYS AHEAD	ACTUAL STATUS DAYS BEHIND
	13

LEGEND

- NO ENTRY REQUIRED
- BEHIND SCHEDULE
- INSERT NO. OF DAYS — COMPLETED COLS. N,O,P & Q
- INSERT DATE — ACCOMPLISHED COLS. F,H,J,L & M
- * CONTRACTUAL MILESTONE
- △ ASSIGNED SERVICE CONTRACT & GOV'T. FURNISHED PROPERTY.
- COLUMN "R" EXPLANATION CONTAINED IN ACCOMPANYING NARRATIVE REPORT

FORM: ENGMA-AB-28/2

EXPERIENCE DATA, LINCOLN A.F.B., ATLAS F

SITE Nº	BOTTOMED OUT	PHASE OVER	SILO RE-BAR		PHASE OVER	SILO CONCRETE		PHASE OVER	HAUNCH SECTION FORMS & RE-BAR		PHASE OVER	HAUNCH CONCRETE		PHASE OVER	CRIB STEEL PILE-1 (Levels 8,7-B,7-A,7)		PLACE LOX TANK	CRIB-STEEL PILE-2 (Levels 6,5)		CRIB STEEL PILE-3 (Levels 4,3,2,1)		PHASE OVER	SILO CAP & DOORS (Form & Pour)		TOTAL Nº
	Date	Days	Dates	Days	Days	Dates	Days	Days	Dates	Days	Days	Dates	Days	Days	Dates	Days	(Days)	Dates	Days	Dates	Days	Days	Dates	Days	Days
3	17 Jul (52)	19	5 Aug 16 Aug	11/30	6/36	2400 22 Aug 1300 31 Aug	8.5/45	3/48	3 Sep 2 Oct	29/77	3/80	1500 5 Oct 2000 9 Oct	4.2/84	8/92	17 Oct 27 Oct	10/102	12 Nov (26)	28 Oct 14 Nov	17/120	5 Nov 10 Dec	35/146	55/201	3 Feb 11 May	97/298	6 Jun 376
9	15 Aug (51)	13	28 Aug 7 Sep	10/23	6/29	2100 13 Sep 0300 20 Sep	6.3/35	5/40	25 Sep 12 Oct	17/57	4/61	1915 16 Oct 2230 20 Oct	4.1/65	13/78	2 Nov 15 Nov	13/91	21 Nov (19)	6 Nov 3 Dec	27/109	3 Dec 29 Dec	26/135	36/171	3 Feb 9 May	95/266	26 Jun 365
1	5 Sep (111)	14	19 Sep 26 Sep	7/21	6/27	0930 2 Oct 1145 8 Oct	6.1/33	2/35	10 Oct 27 Oct	17/52	2/54	1930 29 Oct 2030 2 Nov	4.0/58	11/69	14 Nov 3 Dec	19/88	2 Dec (18)	1 Dec 7 Dec	6/94	4 Dec 10 Jan	37/126	36/162	15 Feb 1 Jun	106/268	30 Jun 409
6	28 Aug (73)	22	19 Sep 27 Sep	8/30	5/35	1450 2 Oct 1330 8 Oct	6.0/41	2/43	10 Oct 1 Nov	22/65	2/67	1035 3 Nov 2230 5 Nov	2.5/69	9/78	15 Nov 9 Dec	24/102	7 Dec (22)	18 Nov 14 Dec	26/101	14 Dec 24 Jan	41/148	18/166	11 Feb 4 Jun	113/279	7 Jul 385
2	22 Aug (91)	39	30 Sep 5 Oct	5/44	4/48	1715 9 Oct 2220 14 Oct	5.2/53	2/55	16 Oct 8 Nov	23/78	2/80	1800 10 Nov 1430 14 Nov	3.9/84	9/93	23 Nov 23 Dec	30/123	21 Dec (28)	22 Dec 31 Dec	9/131	23 Dec 10 Feb	49/172	45/217	27 Mar 5 Jul	100/317	14 Jul 417
5	22 Sep (143)	12	4 Oct 12 Oct	8/20	3/23	1430 15 Oct 0430 22 Oct	6.6/29	2/31	23 Oct 5 Nov	13/44	3/47	0240 9 Nov 1400 12 Nov	3.5/51	15/66	27 Nov 28 Dec	31/97	6 Jan (41)	6 Dec 14 Jan	39/114	27 Dec 3 Feb	38/134	22/156	25 Feb 18 Jun	113/269	21 Jul 445
4	4 Oct (155)	11	15 Oct 20 Oct	5/16	3/19	2100 23 Oct 1830 28 Oct	4.9/24	1/25	29 Oct 14 Nov	16/41	1/42	0945 15 Nov 0220 18 Nov	2.7/45	21/66	9 Dec 19 Dec	10/76	3 Jan (25)	15 Dec 10 Jan	26/98	20 Dec 10 Mar	80/157	25/182	4 Apr 22 Jun	79/261	28 Jul 452
11	12 Oct (92)	11	23 Oct 27 Oct	4/15	3/18	2230 30 Oct 0330 5 Nov	5.2/23	1/24	5 Nov 16 Nov	11/35	1/36	1530 17 Nov 1345 20 Nov	2.9/39	17/56	7 Dec 20 Dec	13/69	11 Jan (36)	17 Dec 13 Jan	27/93	20 Dec 16 Feb	58/127	60/187	17 Apr 6 Jul	80/267	1 SEPT 416
12	11 Oct (106)	11	22 Oct 27 Oct	5/16	3/19	2145 30 Oct 0230 6 Nov	6.2/25	1/26	6 Nov 25 Nov	19/45	1/46	1300 26 Nov 1630 29 Nov	3.2/49	29/78	28 Dec 9 Jan	12/90	28 Jan (31)	9 Jan 31 Jan	22/112	23 Jan 25 Feb	33/137	55/192	21 Apr 19 Jul	90/282	24 AUG 424
10	24 Oct (123)	12	5 Nov 9 Nov	4/16	4/20	2300 12 Nov 2400 17 Nov	5.0/25	1/26	18 Nov 30 Nov	12/38	2/40	0830 2 Dec 1230 4 Dec	2.2/42	32/74	5 Jan 19 Jan	14/88	25 Jan (20)	12 Jan 28 Jan	16/97	20 Jan 31 Mar	70/159	40/199	10 May 21 Jul	72/271	1 SEPT 437
7	1 Nov (124)	11	12 Nov 17 Nov	5/16	3/19	2345 19 Nov 1830 25 Nov	5.8/25	1/26	27 Nov 11 Dec	14/40	1/41	0830 12 Dec 2200 14 Dec	2.6/44	43/87	26 Jan 7 Feb	12/99	11 Feb (16)	7 Feb 14 Feb	7/106	7 Feb 22 Mar	43/142	35/177	26 Apr 8 Aug	104/281	16 SEPT 429
8	31 Jan (243)	13	13 Feb 21 Feb	8/21	1/22	2000 21 Feb 0615 26 Feb	4.4/26	22/48	20 Mar 5 Apr	16/64	1/65	1400 6 Apr 2320 8 Apr	2.4/67	34/101	12 May 31 May	19/120	10 Jun (29)	1 Jun 21 Jun	21/141	2 Jun 14 Jul	42/164	1/165	15 Jul 11 SEPT	58/223	13 OCT 470

Thru 2400 15 OCT 1961

FINAL REPORT

DELIVERY SCHEDULE
ASSIGNED SERVICES CONTRACT ITEMS
WS 107-A1 OPERATIONAL BASE, LINCOLN AIR FORCE BASE
D&J - Delivery at job site
I C - Installation complete

SQUADRON NO. 551

ASSIGNED SERVICE CONTRACT ITEMS		Site-1	Site-2	Site-3	Site-4	Site-5	Site-6	Site-7	Site-8	Site-9	Site-10	Site-11	Site-12
1 AIR CYLINDER SPRING SUPPORT FOR FLOOR SUPPORT SYSTEM		31Aug 1960	7Sept 1960	14Sept 1960	21Sept 1960	28Sept 1960	5Oct 1960	12Oct 1960	19Oct 1960	26Oct 1960	2Nov 1960	9Nov 1960	16Nov 1960
2 BLAST CLOSURES		14Sept 1960	21Sept 1960	28Sept 1960	5Oct 1960	12Oct 1960	19Oct 1960	26Oct 1960	2Nov 1960	9Nov 1960	16Nov 1960	23Nov 1960	30Nov 1960
3 PROPELLANT LOADING SYSTEM PREFABS & INTERCONNECTING PIPING	D&J	12Oct 1960	19Oct 1960	26Oct 1960	2Nov 1960	9Nov 1960	16Nov 1960	23Nov 1960	30Nov 1960	7Dec 1960	14Dec 1960	21Dec 1960	28Dec 1960
	I C	15Mar 1961	22Mar 1961	29Mar 1961	5Apr 1961	12Apr 1961	19Apr 1961	26Apr 1961	3May 1961	10May 1961	17May 1961	24May 1961	31May 1961
4 DIESEL GENERATORS, SWITCH-GEAR AND PANELS		19Oct 1960	26Oct 1960	2Nov 1960	9Nov 1960	16Nov 1960	23Nov 1960	30Nov 1960	7Dec 1960	14Dec 1960	21Dec 1960	28Dec 1960	4Jan 1961
5 FACILITY ELEVATOR	D&J	2Nov 1960	9Nov 1960	16Nov 1960	23Nov 1960	30Nov 1960	7Dec 1960	14Dec 1960	21Dec 1960	28Dec 1960	11Jan 1961	18Jan 1961	25Jan 1961
	I C	28Dec 1960	4Jan 1961	11Jan 1961	18Jan 1961	25Jan 1961	1Feb 1961	8Feb 1961	15Feb 1961	22Feb 1961	8Mar 1961	15Mar 1961	22Mar 1961
6 HEATING, VENTILATING, AIR CONDITIONING EQUIPMENT AND PUMPS		9Nov 1960	16Nov 1960	23Nov 1960	30Nov 1960	7Dec 1960	14Dec 1960	21Dec 1960	28Dec 1960	4Jan 1961	11Jan 1961	18Jan 1961	25Jan 1961
7 SILO OVERHEAD DOOR HINGE SYSTEM		13Dec 1960	20Dec 1960	10Jan 1961	17Jan 1961	24Jan 1961	31Jan 1961	7Feb 1961	14Feb 1961	21Feb 1961	28Feb 1961	7Mar 1961	14Mar 1961

DELIVERY SCHEDULE

GOVERNMENT FURNISHED PROPERTY (GFP)

LINCOLN AIR FORCE BASE

SQUADRON NO. 551

GFP EQUIPMENT		SITES											
		1	2	3	4	5	6	7	8	9	10	11	12
CRIB SUSPENSION SYSTEM & WALL BRACKETS	EID 9274 FIG. A 1127	6 Sept 1960	13 Sept 1960	20 Sept 1960	27 Sept 1960	4 Oct 1960	11 Oct 1960	18 Oct 1960	25 Oct 1960	1 Nov 1960	8 Nov 1960	15 Nov 1960	22 Nov 1960
LAUNCH PLATFORM COUNTERWEIGHTS	EID 9269 FIG. A 1131	9 Aug 1960	16 Aug 1960	23 Aug 1960	30 Aug 1960	6 Sept 1960	13 Sept 1960	20 Sept 1960	27 Sept 1960	4 Oct 1960	11 Oct 1960	18 Oct 1960	25 Oct 1960
LAUNCH PLATFORM COUNTERWEIGHT GUIDERAILS AND BRACKETS	EID 9288 FIG. A.1129	9 Nov 1960	16 Nov 1960	23 Nov 1960	30 Nov 1960	7 Dec 1960	14 Dec 1960	21 Dec 1960	28 Dec 1960	4 Jan 1961	11 Jan 1961	18 Jan 1961	25 Jan 1961
LAUNCH PLATFORM DRIVE MECHANISM LAUNCH PLATFORM DRIVE BASE	EID 9290 FIG. A 1130	16 Nov 1960	23 Nov 1960	30 Nov 1960	7 Dec 1960	14 Dec 1960	21 Dec 1960	28 Dec 1960	4 Jan 1961	11 Jan 1961	18 Jan 1961	25 Jan 1961	1 Feb 1961
CBR FILTERS		9 Nov 1960	16 Nov 1960	23 Nov 1960	30 Nov 1960	7 Dec 1960	14 Dec 1960	21 Dec 1960	28 Dec 1960	4 Jan 1961	11 Jan 1961	18 Jan 1961	25 Jan 1961

COMPLETION SCHEDULE

WS-107-A1 OPERATIONAL BASE, LINCOLN AIR FORCE BASE

CONTRACTOR: WESTERN CONSTRUCTION SQUADRON NO. 551 DATE OF AWARD: 15 April 1960

Item No.	Items of Work	SITES											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Complete Launching Silo Concrete, (except cap)	1 Sept 1960	8 Sept 1960	15 Sept 1960	22 Sept 1960	29 Sept 1960	6 Oct 1960	13 Oct 1960	20 Oct 1960	27 Oct 1960	8 Dec 1960	15 Dec 1960	22 Dec 1960
2	Complete Propellant Loading System Vessels Installation in Final Location	18 Oct 1960	25 Oct 1960	1 Nov 1960	8 Nov 1960	15 Nov 1960	22 Nov 1960	29 Nov 1960	6 Dec 1960	13 Dec 1960	24 Jan 1961	31 Jan 1961	7 Feb 1961
3	Complete Diesel-Generator Installation	17 Jan 1961	24 Jan 1961	31 Jan 1961	7 Feb 1961	14 Feb 1961	21 Feb 1961	28 Feb 1961	7 Mar 1961	14 Mar 1961	25 Apr 1961	2 May 1961	9 May 1961
4	Complete Installation of Cable Trays and Switchgear	17 Jan 1961	24 Jan 1961	31 Jan 1961	7 Feb 1961	14 Feb 1961	21 Feb 1961	28 Feb 1961	7 Mar 1961	14 Mar 1961	25 Apr 1961	2 May 1961	9 May 1961
5	Complete Installation of Silo Heating, Ventilating and Air Conditioning	17 Feb 1961	24 Feb 1961	3 Mar 1961	10 Mar 1961	17 Mar 1961	24 Mar 1961	31 Mar 1961	7 Apr 1961	14 Apr 1961	26 May 1961	2 June 1961	9 June 1961
6	Complete LCC except Testing and Leveling of Air Cylinder Spring Supports for Suspended Floor System	17 Feb 1961	24 Feb 1961	3 Mar 1961	10 Mar 1961	17 Mar 1961	24 Mar 1961	31 Mar 1961	7 Apr 1961	14 Apr 1961	26 May 1961	2 June 1961	9 June 1961
7	Complete Installation of Silo Electrical Conduit, Wiring and Fixtures	7 Mar 1961	14 Mar 1961	21 Mar 1961	28 Mar 1961	4 Apr 1961	11 Apr 1961	18 Apr 1961	25 Apr 1961	2 May 1961	13 June 1961	20 June 1961	27 June 1961
8	Complete Silo Cap and Door	7 Mar 1961	14 Mar 1961	21 Mar 1961	28 Mar 1961	4 Apr 1961	11 Apr 1961	18 Apr 1961	25 Apr 1961	2 May 1961	13 June 1961	20 June 1961	27 June 1961
9	Complete Grading, Paving, Yard Work, and Fencing	28 Mar 1961	4 Apr 1961	11 Apr 1961	18 Apr 1961	25 Apr 1961	2 May 1961	9 May 1961	16 May 1961	23 May 1961	2 July 1961	9 July 1961	16 July 1961
10	Completion of entire work	28 Mar 1961	4 Apr 1961	11 Apr 1961	18 Apr 1961	25 Apr 1961	2 May 1961	9 May 1961	16 May 1961	23 May 1961	2 July 1961	9 July 1961	16 July 1961

STATUS OF SYSTEMS TEST
ATLAS F LAUNCH FACILITIES

LINCOLN AREA

DATE Nov 21 1961

	SYSTEM		SITE NUMBER									
			3	9	1	6	12	10	7	5
1	DIESEL GENERATORS & SWITHGEAR	SCH								
		ACT	4/21	5/11	5/20	5/27	6/2	6/16	7/22	8/3	9/14
2	UTILITY AIR	SCH								
		ACT	6/5	7/21	8/2	7/6	8/11	8/4	8/9	9/12	9/21	10/5
3	UTILITY WATER	SCH								
		ACT	6/2	6/16	6/24	7/3	7/28	8/3	8/4	8/9	9/7	9/13	10/6
4	FACIL ELECT PR 480 & 120/208 V1	SCH								
		ACT	6/28	8/14	7/14	6/21	7/28	8/30	9/26	9/26	10/5
5	EMERGENCY LIGHTING	SCH								
		ACT	7/26	8/24	8/4	8/28	9/20	9/20	9/15	10/12
6	GAS DETECTORS	SCH								
		ACT	8/13	9/15	9/14	10/2	9/26	9/6	9/29	10/10
7	BLAST DOORS	SCH								
		ACT	6/8	6/7	7/12	6/30	7/28	8/28	9/7	10/4
8	EMERGENCY WATER	SCH								
		ACT	5/25	6/7	6/21	6/27	7/28	8/8	9/6	9/19	10/4
9	BLAST PROTECTION	SCH								
		ACT	11/2	10/21	10/31	10/18	10/28	10/13	10/25	10/15
10	GENERAL PLUMBING & PUMPS	SCH								
		ACT	6/28	10/4	8/3	10/16	9/29	9/20	9/12	10/5
11	AIR CONDITIONING	SCH								
		ACT	9/13	10/5	9/25	10/16	9/29	10/5	9/28	10/6
12	HEATING & VENTILATING	SCH								
		ACT	11/2	10/26	10/13	10/16	11/1	10/18	10/27	10/20
13	AUTOMATIC GATE OPERATOR	SCH								
		ACT	6/27	6/27	7/14	7/3	7/28	8/10	9/25	9/26	10/5
14	FIRE DETECTION & SUPPRESSION	SCH								
		ACT	6/5	6/19	6/21	6/21	8/4	8/31	9/6	9/18	10/4
15	PERSONNEL WARNING & ALARM	SCH								
		ACT	6/5	6/6	6/20	6/28	7/28	8/28	9/8	9/19
16	FACIL. REMOTE CONTROL PANEL	SCH								
		ACT	7/10	7/17	6/27	6/30	7/28	8/30	9/11	10/5
17	48-VOLT D.C.	SCH								
		ACT	5/29	6/7	6/16	7/3	7/28	10/4	9/8	10/9
18	TELEVISION	SCH								
		ACT	5/27	6/27	7/25	6/30	7/28	9/12	9/3	8/2
19	AIR CYLINDER SPRING SUP.	SCH								
		ACT	7/20	7/4	6/8	8/25	9/1	9/1	9/19	10/
20	FACIL. ELEVATOR	SCH								
		ACT	5/22	6/13	6/27	7/6	7/28	8/17	9/1	9/

PART V

SECTION 1

History of the Prime Construction Contract.

Also see:

Annex E - Resume of Western Contract

Annex F - Record of Final Negotiations with Paul Hardeman and Western Contracting Corporation on PLS Contract

Annex M - Summary of Costs on Basic Contract Modifications, Claims and Associated Contracts.

Annex L - Analysis of Missile Base Construction Costs

SECTION 2

History of Supporting Facilities and Other Contracts.

Colonel John E. Minahan discusses contractual matters with John C. W. Carroll, Chief, Engineering and Technical Branch (left) and Harold Anderson, Chief, Contract Administration Branch.

1. Contract No. DA-25-066-eng-6186, MS-107A-1, Facility Contract, Western Contracting Corporation.

a. Modifications

(1) There is no equal substitute for an agreement between the contractor and the Government on the price and time considerations incident to contract changes in advance of the order to proceed with the changed work. This concept is well accepted and is traditional with the Corps of Engineers. In keeping with this, the contractor's representatives were advised at the pre-construction meeting of the urgency of getting proposals in timely. They were further advised that, because many extensive changes were anticipated they should have an independent unit set up within their organization to handle the massive modification problem. Contractor's key personnel acknowledged that they were aware that this would be a big workload and stated that they would be set up to handle it expeditiously.

(2) Proposals for the initial proposed modifications were submitted promptly by the contractor. Negotiations were under way when the usefulness of the proposals and Government estimates were voided by implementation of the contract option to expand the scope of the contract to twelve sites. In order to avoid a consequent delay in prosecution of the work, it became necessary to implement the changes before negotiations could be resumed. Because of the magnitude and complexity of these initial changes and the additional changes generated early in the contract and the implicit need to avoid undue delays or potential delays in completion of the Launch

Complexes, the aforementioned concept of pre-award negotiation was set aside in favor of issuance of initial orders on virtually all changes at the earliest possible time with the price and time considerations left for subsequent resolution.

(3) The initial orders for the first five modifications were issued simultaneously on 6 June 1960; one more change was implemented in June, two more in Julyand twelve during August. In addition to these twenty modifications which involve changes in the work under the contract, modifications Nos. 11 and 12 which pertain to adding sites 10, 11, and 12 to the contract and modification 35 which covers acceleration to recover excusable delay which occurred early in the project were implemented during this period. Further growth of changes is shown on Exhibit A.

(4) During the above period and continuing into November extensive efforts were expended to reach settlement by negotiation. Agreements were reached on seven minor changes of the 37 changes then in effect and on Modifications Nos. 11 and 12; no agreements were reached on any other significant changes. It became increasingly apparent during this period that the contractor's representatives were extremely reluctant to commit the contractor to a firm proposal or negotiated settlement on any major change. It appeared likely that this was attributable to factors being encountered in fabrication and construction which pointed toward costs greatly in excess of those originally contemplated, further complicated by continued receipt of complex inter-related changes. It was reasonably evident that contractor's representatives were unable to accurately appraise

the probable effect of these changes in the cost of performing the work. These conclusions have since been reaffirmed; in this regard refer to subparagraph A.1.c. below.

(5) About the middle of November, Contractor's representatives first broached the question of interim payments to Area Office personnel. At this time virtually no progress was being made toward setting up negotiations, due largely to the Contractors reluctance, subsequently found justifiable (see subparagraph A.1.c. below), to offer and support firm proposals. In the latter part of November, the Government took strong measures to elicit proposals from the contractor; this action culminated in transmittal to the contractor on 1 December 1960 of advance copies of five proposed unilateral modifications. This action produced proposals from the contractor on 2 and 3 December which compared quite favorably with the estimate on which the proposed unilateral price was based except for a separately stated item for "impact". Review and discussion with the contractor of these proposals with particular regard to the "impact" feature, led to the conclusion that the Government estimates did not provide compensation commensurate with the overall effect of the changes. In the face of the need for review of the Government estimates, a conservative interim payment policy was promptly instituted to lessen the Contractor's cost burden on unresolved modifications; interim payment items totaling $2,436,000.00 were established during December 1960.

(6) Extensive review of Government estimates during December 1960 and January 1961 disclosed that the "impact" feature

was a major factor in costs properly attributable to changes and brought about recognition of the fact that an accurate appraisal of these costs could not be made promptly. Consequently an "all-out" program of interim payments, reductions in retained percentages, and deferment of Liquidated Damages was then instituted; the value of interim payment items was increased to $3,574,766.00 by the end of February 1961. Further information on contract amount, interim payment item amount, and contractor earnings is shown in exhibit "B". At this time, 80 modifications had been implemented, 20 of which had been successfully negotiated; of these 20 only Nos. 11 and 12 were of any appreciable magnitude. Other significant modifications are itemized in Exhibit "C".

(7) Beginning in February 1961 the number of separate changes ordered began to rise more rapidly. This was due primarily to the multitude of minor errors and discrepancies which came to light during the in-silo phases of the work. Most of these changes, were of minor nature; only about five of the 125 separate changes generated after 21 January 1961 were significant. However, the great number of changes, together with the already seriously complicated array of unresolved modifications made separate resolution of individual changes, eventually all of which were in some way inter-related to one or more other changes, virtually impossible. The number of successfully negotiated modifications was increased during this period by only ten to approximately thirty.

(8) On 1 May 1961 the contractor presented in conference with Government representatives a composite proposal covering all changes, exclusive of changes in Assigned Services subcontract work, for Site 3 only. Although the results of the meeting were inconclusive as to the acceptability of this proposal, it was apparent that the composite approach represented the most feasible method of evaluating and reaching timely agreement on equitable price and time adjustments, giving proper consideration to all of the cost and time factors properly attributable to the changes.

(9) Negotiation proceeded on the composite approach for Site 3 from 23 June to 3 August 1961, at which time it became apparent that it would be feasible and necessary to expand the scope of negotiations to all twelve sites to take advantage of the time savings and consistent approach inherent in discussing repetitive operations. Accordingly, on 5 September the contractor submitted a composite proposal for all twelve sites and negotiations began on 12 September 1961. During the course of these negotiations it became apparent that certain claims were so inter-related to the modifications under discussion that the adjustment for those claims which had been found to be valid could not be determined separately. The scope of negotiation was expanded to include consideration of valid claims. Negotiation continued virtually continuously until 6 October 1961 at which time substantial agreement was reached between the Contracting Officer and Contractor Principals and the matter was remanded to the Area Engineer to work out, with Contractor's Project representatives, details of settlement. This task was completed on 14 November 1961. (For further details, see Modification No. 102 file.)

(10) Negotiations on all outstanding modifications and claims in connection with the Propellant Loading System Assigned Services Subcontract were concluded on 12 October 1961. Negotiation on all outstanding modifications and claims in connection with the other sixteen Assigned Service Subcontract items were concluded on 20 November 1961.

(11) Two pending modifications have been generated since 6 November 1961 as follows (both are settled and completely executed):

(a) Delete requirement to install "Cannon" Plugs on PLS Cable No. 107: Agreement reached by negotiation on 12 December 1961.

(b) Adjust contract price for Coring of Doors at Site 4: Contractors proposal is in accordance with Clause 9c of the contract and is acceptable.

(12) There are no other unresolved modifications or claims pending.

b. Claims (DA-6186)

(1) Although no claims were presented before 1 July 1960, work under the contract was falling behind schedule and the contractor informally indicated that the causes of such delays as were being experienced were excusable. Consequently, on 1 July 1960, the Contractor was instructed to submit information on all alleged excusable delays to permit evaluation and appropriate action thereon by the Government. The Contractor responded on 6 July, claiming 245 Site-days for specific items such as unusually

severe weather in May and June, strikes, changed conditions, etc. and filed notice of possible delays due to various other causes. In response to this, and after conferring with the Contractor, the Government advised the Contractor that of the 245 site-days claimed, 88 were allowable. The Contractor was further directed to accelerate the work to overcome these delays and modification No. 35 was issued to provide payment in the amount of $517,386.00 for "Acceleration to Overcome All Clause 5c Delays Incurred Prior to 20 July 1960". This unilateral modification was protested by the Contractor (C-37); the initial protest proposal was $1,380,630.00, subsequently revised by the contractor to $7,052,570.52. Resolution of the dispute was not achieved until October of 1961 (at the time of composite negotiation previously cited) due largely to the relation of it to the other significant claims cited hereinafter.

(2) During July, August, September and October 1960, the Contractor submitted numerous miscellaneous claims for time and/or money, the most significant of which were the claims for acceleration of cryogenic and pressure vessels prompted by CC-5 directives issued on 10 September 1960. The Contractor also gave advance notice of forthcoming claims due to alleged design deficiencies and changed conditions in connection with shafting operations and deficiencies in the Crib Steel Drawings.

(3) In November the Contractor formally presented eight claims alleging design deficiencies and changed conditions with regard to the shafting phase of the work at Sites 1, 2, 4, 5,

7, 8, 10 and 12. A total of 381 site-days additional time and $3,496,043.52 additional compensation were claimed (C-1, 2, 3, 4, 5, 6, 7 and 8). Decisions on these claims were rendered by the Contracting Officer in the early part of February 1961, denying each of the salient features of each of the eight claims in its entirety. These decisions were promptly appealed by the Contractor.

(4) Having bottomed out the shaft for Site 8, the Contractor submitted the last of the general shafting claims (a relatively minor claim alleging a specific changed condition at Site 6 was denied and not appealed) on February 1961 (C-29), alleging, in addition to similar allegations previously lodged with regard to the upper reaches of the shaft (C-6), design deficiencies and changed conditions in lower reaches of Site 8. The Contracting Officers decision rendered thereon in April was favorable on most points raised by the Contractor. In response the Contractor submitted a proposal in June 1961 requesting $842,413.48 and sixty (60) calendar days additional time.

(5) Near the end of March 1961, the Contracting Officer met with all Contractor principals and after extensive discussion of the shafting claims on which adverse decisions had been rendered, informally found favorably on certain points and agreed to reconsider his decisions on all of the claims upon receipt of detailed declarations from the contractor.

(6) In May the Contractor submitted his declaration on C-4 (Site 5) and in August 1961 the Contracting Officer vacated his previous decision thereon and found favorably on various features of the claim. The Site 5 claim had been selected as

the first to be restudied as its elements would serve in large measure as precedents for the majority of the design deficiency allegations of the other claims, except as regarded the sheet pile cell in the upper reaches of Sites 7 and 8. Hence the Contractor also submitted in May his declaration on C-6 (Site 8, Upper Reaches) and although the Contractor was not formally so advised prior to the final phase of the composite negotiation, the previous decision that this sheet pile cell was not inadequately designed as the contractor alleged, was sustained. Changed conditions were found to exist in the upper reaches of Site 8 and Site 7.

(7) Detailed declarations on the other six shafting claims (C-1, 2, 3, 5, 7 and 8) were submitted by the Contractor in September 1961. These were disposed of by agreement in the final phase of the composite negotiation in early October 1961 on the basis of precedents established in the declaration and decision on C-4. The briefest possible summary permits the following resume of findings:

(a) The shafting procedures designed and specified by the Government were inadequate where and to the extent that use of ring beams backed with liner plates or wood lagging were used to penetrate friable materials which were found to be cohesionless and did not therefore exhibit the self-supporting characteristics required for the unsupported exposure necessary to place successive ring beams and back-up.

(b) The exclusion of specific dewatering provisions for various shafts where presence of water was known constituted a design deficiency where and to the extent dewatering of the

material encountered proved necessary for successful penetration of the strata using the specified shafting procedure.

(c) The design of the sheet pile cells for the upper reaches of Sites 7 and 8 are adequate and any losses sustained by the Contractor in placing the cells or as a result of his failure to achieve the specified penetration must be presumed attributable to his fault or negligence, not compensible under the contract.

(d) Various other losses were found to be attributable to the contractors failure to fulfill his obligations and therefore not compensible under the contract.

(e) Various specific changed conditions such as water courses, impervious lenses, etc. were found to exist.

(f) The effects of these shafting claims on the Contractors operations and administration of the contract is profound. Not the least of these effects is the fact that, because resolution was not achieved promptly, the cost of acceleration accruing to the Government's account as a result of the acceleration order (C-37) and modifications implemented on a no-additional-time basis far exceeded the amount foreseeable prior to resolution of the claims to be meritorious. The effect of other significant changes found such as Furnishing Power for the Propellant Loading System and Elevator Installers (C-36), acceleration costs for PLS vessels (C-14, 15, and 21) was generally limited to the specific item involved and was not a significant factor in the overall effort. Many discrepancies in the crib steel drawing

were discovered and corrected; the effect of these, although certainly sizeable, is not clearly distinguishable from the numerous design changes in this work.

c. Modifications and Claims Relationship Problems.

(1) The Contractor's pre-construction selection of a Site 5, 4, 1, 6, 2, 3, 8, 7, 9 construction sequence was designed to provide the broadest experience, consistent with overall completion requirements, in the de-watering and shafting techniques particularly suited to the project. Planning to sink four shafts concurrently, the Contractor selected Site 4 as a de-watering prototype; Site 6 as a rock-mining prototype and Sites 5 and 1 as comparative "norms". The Contractor started open-cut at Sites 4 and 5 on 3 May and 2 May 1960 respectively, intending to move his two open-cut spreads next to Sites 1 and 6 to set up the shafting operations for the first four sites. In deference to Air Force objections to this sequence, the Contractor was advised by Corps of Engineers representatives, on 3 May 1960, that completion in numerical sequence was necessary. Since flexibility existed with the time frame prior to milestone 1, a final decision on starting sequence was withheld. As a consequence of further Air Force participation, however, the Contractor was directed on 12 May 1960, (when open-cut at Sites 4 and 5 was nearing completion) to pursue the numerical sequence. Hence, upon completion of open-cut at Sites 4 and 5 about 15 May 1960, the Contractor moved the open-cut spreads to Sites 1 and 3 and added a third spread at Site 2. This action may have had an effect on the Contractor's operations from the very beginning of the project, such as: accelerated open-cut

at Sites 4 and 5 to free the equipment to start at two of the (numerically) earlier sites; bringing in a third spread; and accelerated open-cut at Sites 1, 2 and 3 to fit the numerical sequence requirement. As this has the effect of eliminating a "norm", it becomes impossible to ascertain the extent of acceleration attributable to the mandatory sequence, and to evaluate accurately the loss in shafting operations attributable to disruption of the learning curve.

(2) In July 1960, the Contractor claimed excusable delays for, among other things, the Government directed sequence change cited above, changed conditions and inadequate designs in shafting at various sites, and errors in crib steel supplemental design drawings. The extent of many of these delays could not be accurately determined as the effect would be continuing in nature. To insure timely completion of the project, the Contractor was directed on 8 August 1960 to overcome the delays by acceleration and concurrent operations. The acceleration necessary to overcome those delays subsequently determined excusable, would be for the Government's account and those delays determined to be inexcusable would be for the Contractor's account. Increased size of shifts, multiple shifts, Saturday, Sunday and holiday work were utilized to attempt to forestall further slippage as further delaying factors were encountered. Requirements for additional lighting facilities, maintenance, electrical power and safety facilities came into being. Inefficiency resulted from increased crews (including inability to obtain qualified supervisors and labor), increased hours per day, increased days per week and multiple shifts. As operations were carried forward on a concurrent

basis, the benefits of learning cycle which would arise from transferring a work force with supervisory personnel from site to site was all but completely eliminated. So many excusable delays had in fact been accumulated that it was impossible for the Contractor to overcome them completely before the full effect of numerous changes in crib steel, mechanical, electrical and other in-silo work came into being. Consequently, the effect of these delays carried over into the concrete work and in-silo phase of the project.

(3) The weight of the shock hanger insert plates was changed to the extent that an entirely different support system was needed to support these members during the slip-form operations. Aside from this, changes in the concrete work were relatively minor; however, certain other changes were made to the anchor system for imbedded items which, together with the change in the support requirements for the shock hanger insert plates, required threading the bars into place rather than the normal 'in-face' placement thereof. The extent of the interference is difficult to isolate and evaluate cost-wise. Aside from the effects carried forward from the previous work and the intangibles noted above, the most significant changes which effected the cost of the concrete work were those which changed the tolerance requirements for imbedded items. These tolerances were refined far beyond requirements normal to concrete imbedded items. The cost of such intangibles is virtually impossible to predict;

after-the-fact evaluation affords little improvement in the estimator's ability to fix a fair cost for the effect of the increased tolerance requirements, which effect not only the setting of the member itself, but also the care and rate with which slip-form operations can proceed and the difficulties in setting up the slip-form.

(4) The specifications provided that supplemental design drawings for crib steel would be furnished to the Contractor within forty-five (45) days after Notice to Proceed on the Contract and further provided that fabrication of the steel for the crib structures would proceed upon receipt of these drawings. Notice to Proceed having been acknowledged on 15 April 1960, the supplemental design drawings were to be furnished to the Contractor by 30 May 1960. The initial issue of supplemental design drawings was furnished to the Contractor on 30 May 1960. This initial issue already reflected revisions to the crib steel made in Modifications Numbers 3, 4, and 6 which were the first of numerous changes in the crib steel originating very early in the contract. It was subsequently determined that these drawings were deficient in so many respects that fabrication could not proceed on the basis of these "original" drawings. Corrected supplemental design drawings were received on 12 July 1960. These contained numerous changes and corrections. Further changes were introduced in the third revision of 1 August 1960 (which were incorporated into the contract by Modification No. 32) and by Modifications Numbers 14, 15, and 23. The effect of these first seven (7) Modifications was an increase

in the weight of the silo crib steel by approximately 40% and extensive changes in connection details. These factors, together with the deficiencies in the "original" issue of supplemental design drawings, substantially increased the amount of work involved in fabrication to the structural crib steel, and delayed the start of fabrication to the extent that timely completion thereof, exceeded the fabricator's capability. To insure timely completion, the Contractor was ordered to "farm-out" portions of the work to other fabricators. The problems inherent in fixing a fair price for this is in itself readily apparent and inasmuch as changes in the crib steel continued after fabrication had started, much re-fabrication was necessary. Steel was shipped for the early sites without the latest changes (of a continuous flow of changes); hence, it was necessary to sort through the steel, segregate those members needing further changes, make those changes in the field or ship the members to a nearby plant for re-work. During erection, a great number of dimension and detail errors, recorded in over 200 pieces of correspondence between the Area Office and the Contractor, came to light. This condition, imposed on schedule already complicated by the delays cited herein, caused great losses in crew productivity as a result of time idled or fruitlessly expended attempting to fit-up incompatible members. This, of course, is in addition to the time consumed in making the necessary field revisions and validation of the resultant "Field-cut and fit" crib. Again the benefits of a learning curve which would result from the transfer of work forces experienced in erection of the basic crib, validation, and erection of miscellaneous

members from site to site was all but eliminated. The costs thus arising out of overcoming the various delays, (through the field-construction as well as the shop-fabrication avenues of approach to the in-silo phase of the work) became inextricably woven together defeating the feasibility of isolating one from the other. Hence, resolution of the whole is dependent upon the resolution of the parts, some of which, being claims, involve questions of fact which must be resolved before (and if) the question of an adjustment is approached. The problem of estimating a fair cost for the various changes under these circumstances increases geometrically in proportion to the number of previous factors effecting it and the continuing flow of changes and delaying factors. The crib steel being a fundamental pre-requisite to successful completion and co-ordination of the other in-silo work, which must be compatible with the configuration and progress of the crib, the effect of the changes in the crib steel carry through to the other in-silo work.

(5) As a result of changes and excusable delays, back-fill operations could not be sufficiently advanced (by the time installation of PLS vessels was otherwise feasible) to permit the Contractor to utilize his originally intended plan for using two truck cranes. In order to avoid undue delay in PLS and other follow-on work as well as in the vessel installation itself, it was necessary to erect special derricks (3 units, 12 set-ups) to set the vessels. This could not be accurately foreseen, nor was a prompt after-the-fact determination (that the

cost stood against the Government) feasible, due to the myriad delays that had cost this work into this circumstance.

(6) Modification No. 17, which includes extensive revisions in the facility-piping and electrical work, was implemented shortly before the start of the in-silo mechanical and electrical work. The Contractor had elected in each case to accomplish as much pre-fabrication as possible to take advantage of cost and time savings inherent in this procedure. Hence, these changes had a substantial effect on the cost of this work. Approximately 50% of the pipe spools had been fabricated and of these, approximately 75% were changed by the modification. Time being of the essence, sizable engineering and planning costs were expended to re-instate production in the pipe shop as quickly as possible. To avoid delays inherent in procurement of new material, existing spools were salvaged, often at a more-than-new-material cost. Continuous flow of subsequent changes, although relatively minor, sustained the re-work program throughout the installation phase. Similar conditions prevailed as regards the electrical work, but since pre-fabrication had not advanced to the same degree, a lesser effect was felt. The initial problem of assaying the cost of the basic change, considered in the light of the accelerated program already under way due to previous changes and delays, was further complicated by the problem of assaying the cost of re-work, engineering, and re-fabrication and further complicated by a continuing flow of changes.

(7) Modification Numbers 73, 75 and 85 issued in January 1961, changed a large majority of the pipe and duct hangers. These changes were necessary because the hangers as designed did not fit the piping and ductwork as changed by earlier modifications; i.e., Modification No. 17. Prior to issuance of the modification, many man and equipment hours were lost because the pre-fabricated piping would not fit the hangers. As an example, a misfit problem would idle a crew of five or six men while one man field-fabricated a hanger. If the period of idleness would be of long duration, the men would be shifted to another item of work. However, time would be lost in this shift. The frequency and duration of such periods of idleness and the effect of the delays and interferences on follow-on and concurrent work, cannot be determined accurately. To avoid the long delays inherent in the procurement of new hangers, the Contractor was instructed to implement these modifications only where a "field-fix" had not already been accomplished. That these changes precluded a reasonable predetermination of cost, is self-evident.

(8) The various unfortunate combinations of circumstances, the most significant of which are set forth above, made administration of this contract extremely difficult; out of this situation arose the decision to approach the resolution of modifications and claims in the manner indicated in subparagraph A.1.a(9) above.

EXHIBIT A
MODIFICATION GROWTH
CONTRACT NO. DA-6186

WESTERN CONTRACTING CORP.
CEBMCO-LINCOLN AREA OFFICE

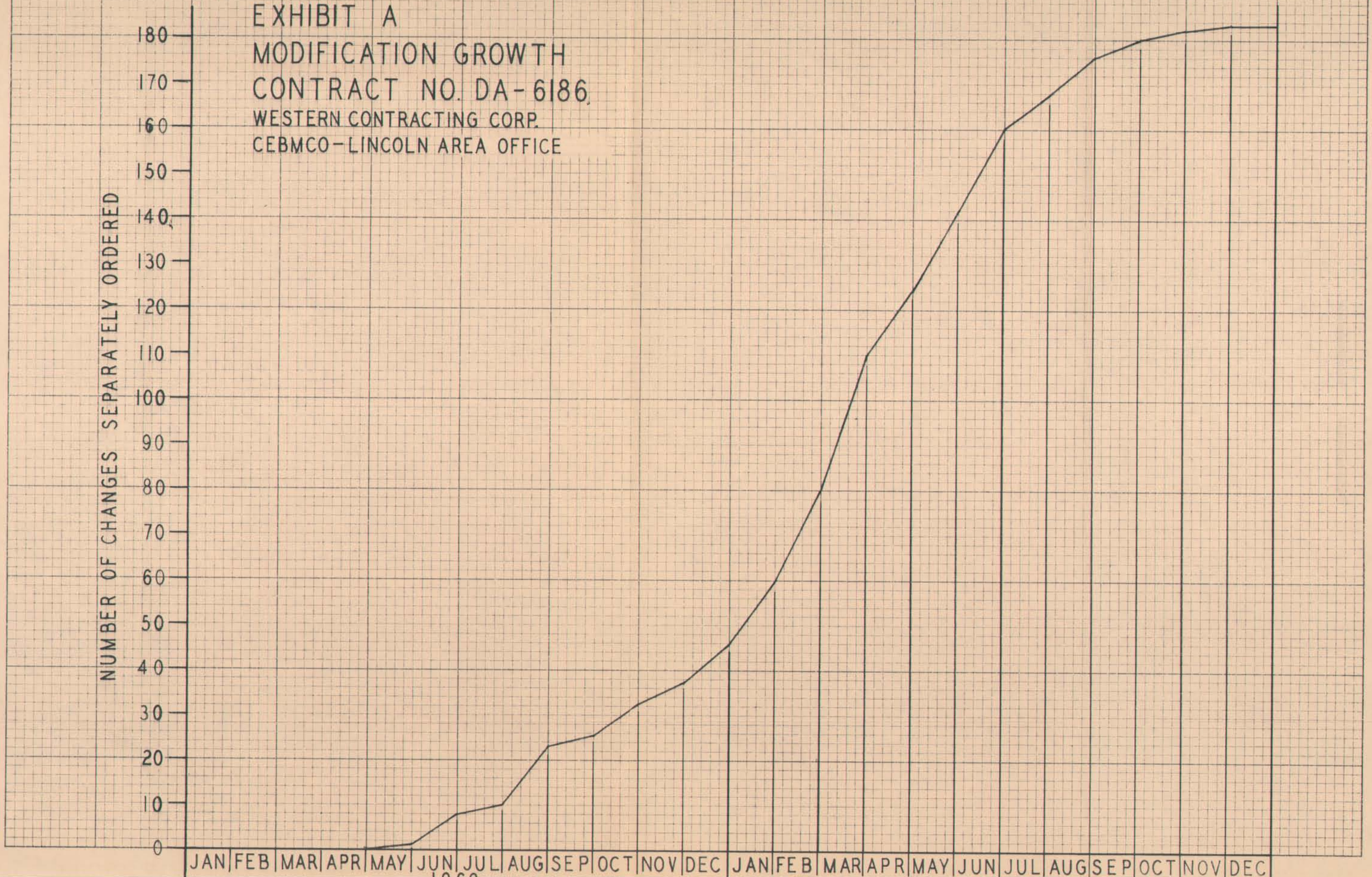


EXHIBIT B
COST GROWTH
CONTRACT NO. DA-6186
WESTERN CONTRACTNG CORP.
CEBMCO-LINCOLN AREA OFFICE

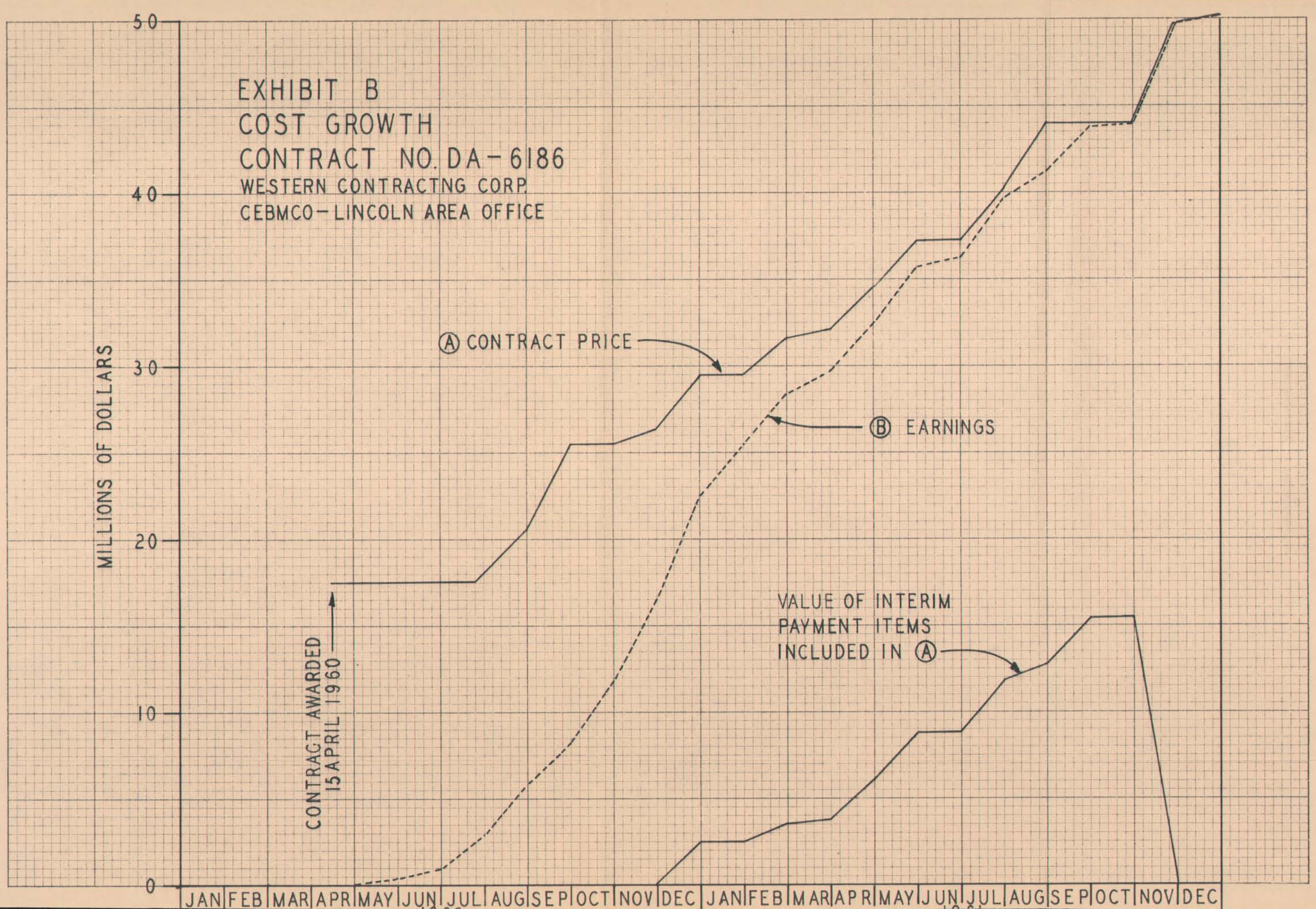


EXHIBIT C

SIGNIFICANT MODIFICATIONS

CONTRACT NO. DA-25-066-eng-6186

6 Pages

1. Modification No. 11 increased the number of sites to be constructed under the Contract from 9 to 12 in accordance with the option provided in specification paragraph SC-64. It was initiated by the Using Agency (Change Order Conference No. 232) in the early part of May 1960. The Contractor was directed to proceed with material procurement on 25 May 1961. Negotiations were concluded ($5,580,000.00) on 29 September 1960.

2. Modification No. 12 covers the site-adaptation (except Utility Services) of the Site 2, 6 and 5 drawings used with Modification No. 11 to exercise the option of construction of Sites 10, 11 and 12. It's origin is the same as Modification No. 11. The Contractor was directed to proceed with the work on 17 June 1960. Negotiations were concluded ($1,033,000.00) on 29 September 1960.

3. Modification No. 57 covers the site-adaptation of the utility services for Sites 2, 6 and 5, to sitting requirements of Sites 10, 11 and 12. It's origin is the same as modification Nos. 11 and 12. The Contractor was directed to proceed with the work on 29 November 1960. Negotiations were concluded ($265,000.00) on 12 September 1961.

4. Modification No. 82 is an administrative instrument covering the assignment to the Prime Contractor of all Assigned Services Contracts except the Propellant Loading System and does not in itself cover changes to the work. It was initiated in December 1960 following the assignments effected earlier by the respective Contracting Officers (for the ASC and Facility Contracts.) Negotiations were concluded ($2,438,117.63) on 20 November 1961.

5. Modification No. 92 is an administrative instrument covering the assignment to the Prime Contractor of the Propellant Loading System Assigned Services Contract (Item 3 only) and does not in itself cover changes to the work. It was initiated in January 1961 following the assignment effected by the respective Contracting Officers in September 1960. Negotiations were concluded ($1,618,905.36) on 12 October 1961.

6. Modification No. 35 covers acceleration and concurrent operations ordered to overcome excusable delays which occurred in May, June and July 1960. It was issued unilaterally by the Contracting Officer in September 1960 and promptly protested by the Contractor. The matter was reopened to encompass the delays found excusable through resolution of the shafting claims and disposed of in the composite settlement. The final adjustments in price and time are part of the total adjustments made in modifications Nos. 102 and 107 respectively which are primarily administrative instruments, covering the composite agreements, hence negotiations are considered to have been concluded on 6 October 1961; the same applies to all modifications set forth hereinafter.

7. Modification No. 3 covers numerous changes to the crib steel, tension equalizers, tolerances on door actuators and provides silo door breakaway cylinders and relocation of electrical equipment. It was initiated by the using Agency (CCC 157) in April 1960. The Contractor was directed to proceed with the

changed work on 6 June 1960. The issuance of this and other crib steel modifications together with the deficiencies in the initial issue of crib steel supplementary design drawing caused extensive reordering of material, refabrication and acceleration to overcome inherent delays. (See "Modifications and Claims Relationship Problems", hereinbefore).

8. Modification No. 4 provides for numerous changes to the crib steel, blast closures and process vessels. It was initiated by the Using Agency (CCC 168) in March 1960. The Contractor was directed to proceed with changed work on 6 June 1960.

9. Modification No. 6 provides for numerous changes to the crib steel and extensive mechanical and electrical changes to sump piping, diesel jacket water system, utility piping, heat exchangers and tanks. It was initiated by the Using Agency (CCC 181) in April 1960. The Contractor was directed to proceed with the changed work on 16 June 1960.

10. Modification No. 15 provides for electrical changes to remote control panels, cable trays and wiring, door openings, crib suspension brackets, location damper insert plates, guard rails, gratings, monorails, and access ladders. It was initiated by the Using Agency (CCC 236) in May 1960. The Contractor was directed to proceed with the changed work on 20 July 1960.

11. Modification No. 16 changes the sizes, material, and location of PLS pipe support insert plates. It was initiated by the Using Agency (CCC 261) in June 1960. The Contractor was directed to proceed with the changed work on 14 July 1960.

12. Modification No. 17 provides for numerous major mechanical, electrical, and structural changes which had a far reaching effect on the progress of work on this Contract (see paragraph A.1.c(6) hereinbefore). It was initiated by the Using Agency (COC 227) in May 1960. The Contractor was directed to proceed with the changed work on 20 September 1960.

13. Modification No. 23 provides for additional support steel for the facility elevator guide rails, equipment, and doors and miscellaneous changes in work platforms, generator enclosures and crib steel. It was initiated by the Using Agency (COC 300) in June 1960. The Contractor was directed to proceed with the changed work on 12 August 1960.

14. Modification No. 32 substituted the third issue of crib steel supplementary Design Drawings for the effected contract drawings, thereby confirming the requirement for extensive revisions to the crib steel to comply with these revised S.D. drawings which included many extensive changes not reflected on the contract drawings. It was initiated by the Corps of Engineers in July 1960. The Contractor was directed to proceed with the changed work on 5 August 1960.

15. Modification No. 42 furnishes supplementary instructions for installation of Government furnished property and provides for miscellaneous changes to crib steel and the electro-magnetic screening. It was initiated by the Using Agency (COC 417) in September 1960. The Contractor was directed to proceed with the changed work on 13 December 1960.

16. Modification No. 58 provides for the addition of water treatment plants for all sites. It was initiated in October 1960 by the Corps of Engineers to fulfill revised criteria requirements of the Using Agency. The Contractor was directed to proceed with the additional work on 12 December 1960.

17. Modification No. 68 changes the diesel generator supports, overhead door cylinder brackets, overhead door actuator brackets and insert plates, crib suspension brackets and provides for numerous changes in insulation for heating, ventilating, and air conditioning duct work. It was initiated by the Using Agency (CCC 494) in November 1960. The Contractor was directed to proceed with the changed work on 27 January 1961.

18. Modification No. 79 provides for changes in the electromagnetic pulse protection launch platform guide rollers missile erection system, guying for process tanks, water chiller units and electrical work in battery room of the Launch Control Center. It was initiated by the Using Agency in November 1960. The Contractor was directed to proceed with the changed work on 6 March 1961.

19. Field Order No. 3 covers the positioning, drilling, and making up the connection assemblies for the launch platform drive base mechanism. It was initiated by the Using Agency (FCCC 2) in January 1960. The Contractor was directed to proceed with the changed work on 8 February 1961.

20. Modification No. 96 strengthens the launch platform guide rail supports. It was initiated by the Using Agency (CCC 586) in February 1961. The Contractor was directed to proceed with the changed work on 25 April 1961.

21. Modification No. 101 covers extensive design changes in the air washer dust collector system and piping. It was initiated by the Using Agency (CCC 610) in March 1961. The Contractor was directed to proceed with the changed work on 2 June 1961.

2. Contract No. DA-25-066-eng-6221, Liquid Oxygen Plant, Cleveland Consolidated Division of Cleveland Electric Company.

a. Modifications: Fifteen numbers were assigned, two of which were cancelled, leaving thirteen modifications on this Contract. None of these are significant; the cummulative value of all modifications is approximately $9,200.00.

b. Claims: Four claims were generated, all of which involved time extension requests only. Three were ultimately withdrawn by the contractor; the fourth one is covered by Modification No. 15.

c. This contract has been closed out.

3. Contract No. DA-25-066-eng-6328, Re-Entry Vehicle Facilities, Kingery Construction Company.

a. Modifications: Eleven numbers were assigned, two of which were cancelled, leaving nine modifications on this Contract. None of these are significant; the cumulative value of all modifications is approximately $13,700.00.

b. Claims: Four claims were generated, three of which involved time extension requests only leaving one request for an unspecified amount for directed corrective work on backfill. All four claims were ultimately withdrawn by the Contractor.

c. This Contract has been closed out.

4. Contract No. DA-25-066-eng-6386, Missile Assembly and Technical Supply Buildings, Martin K. Eby Construction Company, Inc.

a. Modifications: Twenty-four modifications were issued, for a total value of approximately $106,400.00. Modification No. 9, which is the only significant modification on this Contract accounts for approximately $86,600.00 of the total. Modification No. 9 which covers substantial changes in the Missile Assembly Building floor plan, was initiated by the Using Agency (CCC 486) in October 1960. The Contractor was directed to proceed with the changed work on 2 December 1961. Agreements on the adjustments in price and time (31 calendar days on Missile Assembly Building) were reached in negotiations which were concluded on 10 April 1961.

b. Claims: Four claims were generated, all of which involved requests for additional payment. All were found meritorious and have been covered by modifications providing payment of approximately $5,000.00.

c. This Contract has been closed out.

5. Contract No. DA-25-066-eng-6997, Safety Platforms, Denver Steel and Iron Works. "(By letter dated 9 January 1961, CEBMCO instructed the Lincoln Area Office to undertake negotiation with Western Contracting Corporation to provide the safety platforms by modification to Contract No. DA-6186. The Area's request of 21 January elicited a 7 February proposal of $246,582.88 from Western. The Area's 9 February recommendation to advertise the work was concurred in by CEBMCO on 17 February; reproducibles were forwarded to Omaha District on 4 March and Contract DA-6997 was awarded for $56,989.20 on 12 May 1961)".

a. Modifications: Two modifications were issued for a total value of $9,865.00.

b. Two claims were generated. The $315.00 found allowable on the first claim for removing and replacing silo covers is by modification No. 2. The second claim involving the determination of the substantial completion dates is under review by the Contracting Officer (15 March 1962 status).

c. All work under this Contract is complete and it is anticipated that administrative actions prerequisite to closing out the contract will be completed in April 1962.

6. Contract No. DA-25-066-eng-7056, Fuel Catchment Tank Systems. "(The Fuel Catchment Tank System was designated as proposed Modification No. 24 to Contract No. DA-6186 as a result of Change Order Conference No. 308, 28 June 1960. In October, CEBMCO advised that a review conference was scheduled for 25 November and on 24 November CEBMCO advised that the design was complete but the change might be cancelled. The proposed mdofication was cancelled in February, 1961. The work was advertised for separate contract in May and Contract No. DA-7056 was awarded in June 1961)".

a. Modifications: Aside from modification No. 4 which changed the design location of the valve pit and, by virtue of the resultant piping change, seriously delayed work under this Contract, only three minor field changes have been ordered. In addition, four modifications involving sequence changes and time adjustments have been initiated. Because of the numerous claims being generated, negotiations of modification and administration of this Contract in general has been and will continue to be very difficult.

b. Claims: Eleven separately identifiable claims have been generated, seven for time extensions only, three minor claims for additional time and payment for interference and directed corrective action, and one claim for an unspecified amount of money and time in connection with shoring of the existing Diesel Fuel Storage tanks. The latter may prove to be a significant claim.

c. Work under the Contract is seriously behind schedule and should be completed in April 1962.

7. Contract No. DA-25-066-eng-7682, Silo Floor Slab (Site 7) Sides Construction Company.

a. Modifications: Of the two modifications generated to date, only the first which provides extensive changes to the key and reinforcing steel, is significant. It was initiated by the Using Agency (FCCC 38, 39 and 20) in December 1961. Agreement was reached with the Contractor in negotiation on 20 December 1961 and notice to proceed was issued on 26 December 1961. This modification increases the contract price by approximately one-third ($57,750.00 for modification No. 1 versus $173,000.00 original Contract price) with no change in Contract time. Negotiations were concluded on the second modification 11 January 1962; adjustments agreed upon are $5,100.00 and (largely because of the delay in decision on the change) a seven day extension of the contract time.

b. No Claims have been generated on this Contract; the work is complete.

8. Contract No. DA-25-066-eng-5160, Blast Closure Sleeves, M. W. Mills Construction Inc. (Schedule G Group II only applies to Lincoln AFB).

a. One modification was initiated by the Corps of Engineers in December 1961 to adjust the design to field conditions encountered. Agreement was reached ($18,450.00) on 19 December 1961 and notice to proceed was issued on 26 December 1961.

b. One claim unique to the work at Lincoln has been lodged (Claims and other Contract matters that involve several bases are handled by CEBMCO) for excusable delays. This claim was negotiated on 21 February 1962 and is being incorporated into a modification.

c. All work under this contract is complete and it is anticipated that administrative actions prerequisite to closing out the contract with respect to Lincoln AFB will be completed in April 1962.

9. Contract No. DA-23-028-3ng-5229, Installation of Blast Closure Modification Kits, E. K. Jenkins, Inc. (Schedule III, Item 3-1b only applies to Lincoln AFB). The contract was awarded on 9 January 1962. No modifications or claims have been generated (15 March 1962 status). All work under this contract is complete and it is anticipated that administrative actions prerequisite to closing out the contract with respect to Lincoln AFB will be completed in April 1962.

10. Contract No. DA-04-203-eng-5862, Blast Detection System, I.T.T. Kellogg: Inasmuch as this Contract covers work at many Titan and Atlas bases, Contract Administration is being handled by the San Francisco District, which hold Contracting Officer responsibility and authority for this Contract.

PART VI

SECTION 1

General Contractors
- Organization Chart
- Financial Statement
- Typical Equipment
- Fabricating Facilities

SECTION 2

Assigned Services Contracts

SECTION 3

Subcontractors

SECTION 4

Description and Sources of Concrete by Sites.

SECTION 5

Comments on Effectiveness of Subcontractors' Operations.

SECTION 6

Labor Union Agreements

WESTERN CONTRACTING CORPORATION

EXECUTIVE COMMITTEE
M.B. Jones - Executive Director
M.F. Warner - Vice Pres. & Chief Engr.
M.F. Travis - Project Manager
M.G. Shaller - Ass't Project Manager

- Project Manager — M.F. Travis
  - Asst. Project Mgr. — M.G. Shaller
    - Personnel-Safety — A.S. Barker
      - Clerical — M. Sliger; B. Barker
    - Office Manager — L.B. Rolling
      - Project Accountant — C.L. Krig
        - Paymaster — L. Vath
          - Timekeeper — Claytor; Surface; Hagos; Tate; Thrane; Spieker; Slaughter
          - Payroll Typist — Sickel; Kersting
        - Receptionist-Typist — Luxem; Fox; Vath
          - Service — Alanswurth
          - Stenographer — Pobanz; Johnson; Knollenberg
          - Engr. Aide Sup'v. — A. Ullrich
        - Asst. Proj. Acct. — Olson
          - Payable Clerk — L. Hawn; E. Powell
            - Acct. Typist — Smith
        - Cost Accountant — Granger
        - Purchasing — H. Rhodus
          - Purchasing Clerk — R. Tucker
          - Warehouse — M. Hablitzell
          - Mtl. Clerk — J. Lang
    - Admin. Asst. — C.N. Cox
    - Helicopter Pilots — B. Keller; J. Brenan
    - Construction Supt. — M.G. Shaller
      - Earthwork
        - General Supt. — G. James
          - Grading — D. Sliger
          - Drainage — E. Christenson
          - Surfacing — L. Furlong
          - Shop — K. Tangerman
          - Back Fill — D. Greer
      - Erection
        - General Supt. — P. Day
          - Struct. Steel — General Supt. — F. Vivant
      - Concrete
        - General Supt. — C. Johnson
          - Carp. Shops — F. Willard
          - Pour Supt. — K. Worthen
          - Place & Finish — E.B. Keffer
          - Place & Finish — C. Lick
          - Batch Plant Supt. — A. Krage
    - Consulting Engineer — Architectural - W. Spence
    - Mechanical
      - Eng'r. & Design — Section Chief — O Riordan
        - Mech. Engr. — M. Duncan
        - Mech. Engr. — J. Millburn
        - Mech. Engr. — J. Askari
      - Contract Adm. — Section Chief — F. Nordeen
        - Mech. Eng'r. — F. Whitely
        - Mech. Engr. — W. Cordes
        - Mtl. Clerk — C. Ruhan
      - Field Eng'r. — Section Chief — D Clabridge
        - Mech. Eng'r. — Marsch
        - Mtl. Expediter — A. Fox
        - Bgging Supt. — F Sherman
      - Qual. Control — Section Chief — Recruitment
        - Engineer — R. Miller
        - Engineer — W. Dibble
        - Engineer — Recruitment
      - Construction — General Sup't. — T. Pearson
        - Site Sup'ts.
          1. Smith
          2. Tucker
          3. Ingram
          4. Beckerbauer
          5. Martin
          6. Cunningham
          7. Lockhorn
          8. Eberspacher
          9. Harlow
          10. Hurley
          11. Landauer
          12. Wilson
      - Shop #1 — Sup't. — R. Carter
        - Warehouse #1 — Expediter — Cohen
        - Shop #2 — Sup't. — J. Kimler
          - Warehouse #2 — Expeditor — S. Anderson
    - Mech.-Elect. Manager — C.L. Myers
      - Co Ordinator — R. Raymond
      - Elect. Supt. — H.M. Dodd
      - Mech. Supt. — F.E. Helms
    - Co Ordinator — D.M. Sinclair
      - Assigned Service Contracts Govt. Furnished Equipment
      - Expediting Eng'r. — J.E. Keefe
        - Office Engineer — W. Payne
          - Field Engineer — G.R. Brophy
      - Modifications — W.F. Boyle
        - Office Engineer — R.D. Maxwell
          - Cost Engineer — L.N. Selby
          - Drafting — F. Nunopian; J. Murphy
    - Chief Engineer — R.A. Fleming
      - Project Engineer — W.F. Boyle
        - Mtl. Engineer — N. White
        - Eng'r. Aides — A. Tisdale; C. Evetkin; J. Schmaeding; G. Halverstadt
        - Office Engineer — R.C. Mieszon
    - Area Engineer
      - Site 1, 10, 11 — W. Mitchell
        - Survey 10, 11 — J. Nowak
          - Survey 1 — D. Nowak
            - Eng'r. Aides — 1 Harms; 10 Lempka; 11 Hentka
      - Site 2, 3, 12 — I.R. Hastie
        - Survey 2, 3 — C. Ida
          - Survey 12 — Wehling
            - Eng'r. Aides — 12 Thorp; 2 Pettingill; 3 Holland
      - Site 4, 5, 6 — C.H. Anderson
        - Survey 5, 6 — B. Cushingham
          - Survey 4 — R. Spangler
            - Eng'r. Aides — 4 Fisher; 5 Ricelli; 6 Dallman
      - Site 7, 8, 9 — R.W. Holt
        - Survey 7, 9 — P. Faris
          - Survey 8 — R. Steagar
            - Eng'r. Aides — 8 Curet; 7 Meredith; 9 Dolen
    - Field Engineer
      - Sight Tube — L. Murphy
        - Survey Crew — O. Burns
      - Grading-Utilities — W. Bennett
        - Survey Crew — B. Anderson
    - Area Supt. — M. Young
      - Equip. Maint. — K. Liggett
        - Grading — L. Martin
        - Cranes — R. Moody
        - Vehicles — C. Andersen
      - Site 1
        - Site Supt. — R. Berry
          - Craft Supt. — E. Hunt
      - Site 10
        - Site Supt. — L. Woosley
          - Craft Supt. — V. Ward
      - Site 11
        - Site Supt. — C. Anstey
          - Craft Supt. — R. Eisenmann
    - Area Supt. — M. Abrams
      - Site 2
        - Site Supt. — R. Friese
          - Craft Supt. — R. Edwards
      - Site 3
        - Site Supt. — R. Sitnor
          - Craft Supt. — E. Shaver
      - Site 12
        - Site Supt. — G. Adams
          - Craft Supt. — S. Neal
    - Area Supt. — W. King
      - Site 4
        - Site Supt. — N. Holbush
          - Craft Supt. — D. Owens
      - Site 5
        - Site Supt. — B. Bentley
          - Craft Supt. — C. Raitz
      - Site 6
        - Site Supt. — D. Richelle
          - Craft Supt. — V. Johnson
    - Area Supt. — E. Brooks
      - Site 7
        - Site Supt. — R. Green
          - Craft Supt. — C. Hawn
      - Site 8
        - Site Supt. — S. Miller
          - Craft Supt. — R. Pierson II
      - Site 9
        - Site Supt. — C. Estill
          - Craft Supt. — M. Dennerlein
    - J. Nutt
      - Electrical — Power Engineering
      - Unmustering — Morebeach Inc.
    - Subcontractors
      - Painting — Bergle-Chilcutt
    - H. Haviland
      - Reinforcing Steel — Sheffield Steel
      - Slipform Concrete — Hanson-Kershner

WESTERN CONTRACTING CORPORATION 400 BENSON BLDG. P. O. BOX 644 SIOUX CITY, IOWA LINCOLN, NEBR.	CONTRACT DA-25-066-ENGR-6186 WS-107A1 OPERATIONAL BASE LINCOLN A. F. B., NEBRASKA
DESIGN BY DRAWN BY R.C.M. 9-11 CHECK BY SUBMITTED BY	TITLE: ORGANIZATION CHART
DATE	SCALE: DATE: DWG. NO. PAGE OF

WESTERN CONTRACTING CORPORATION
Sioux City, Iowa

FINANCIAL STATEMENT

The financial statement shown on the following page is as of 31 December 1959. Western is now under a current working load with Aetna Casualty & Surety Company of Hartford, Connecticut in the approximate amount of $50,000,000.00. Western had an assurance that they may secure to their qualifying limit of $22,000,000.00 on each additional bid without reinsuring with other sureties. Western is capable of borrowing an unusual amount up to $9,000,000.00. Principle banking reference is First National Bank of Chicago.

ASSETS

CASH IN BANKS			$ 2,614,517.56
U. S. GOVERNMENT BONDS			266,737.52
ACCOUNTS RECEIVABLE			885,511.07
UNCOMPLETED CONTRACTS IN PROCESS			1,302,911.51
Cost to Date		$ 5,824,261.18	
Less-Amount Collected and Due from Contracting Agencies		4,521,349.67	
SECURITIES			
Life Insurance—Cash Value			155,937.00
PREPAID ITEMS			34,740.96
TOTAL QUICK ASSETS			$ 5,260,355.62
EQUIPMENT AND PROPERTY INVESTMENTS		$15,301,027.36	
Construction Equipment	$15,155,210.43		
Property	145,816.93		
Less Reserves		11,230,679.08	4,070,348.28
TOTAL ASSETS			$ 9,330,703.90

LIABILITIES

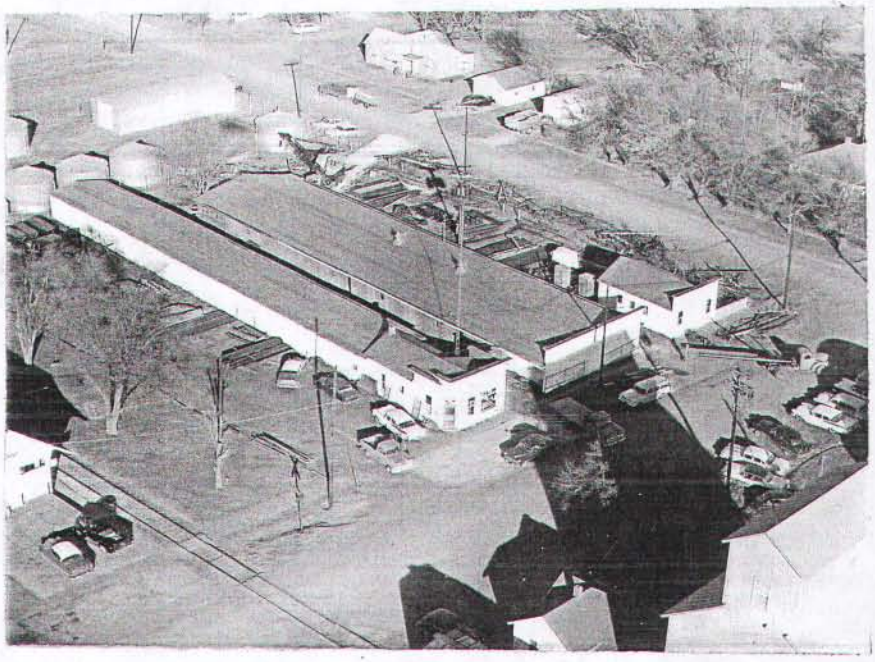
ACCOUNTS PAYABLE			$ 1,282,784.11
RESERVE FOR TAXES			956,051.51
TOTAL QUICK LIABILITIES			$ 2,238,835.62
CAPITAL STOCK		$ 1,768,000.00	
SURPLUS		5,323,868.28	
NET WORTH			$ 7,091,868.28
TOTAL LIABILITIES			$ 9,330,703.90

View of Western Contracting Corporation Building utilized by their engineering department.

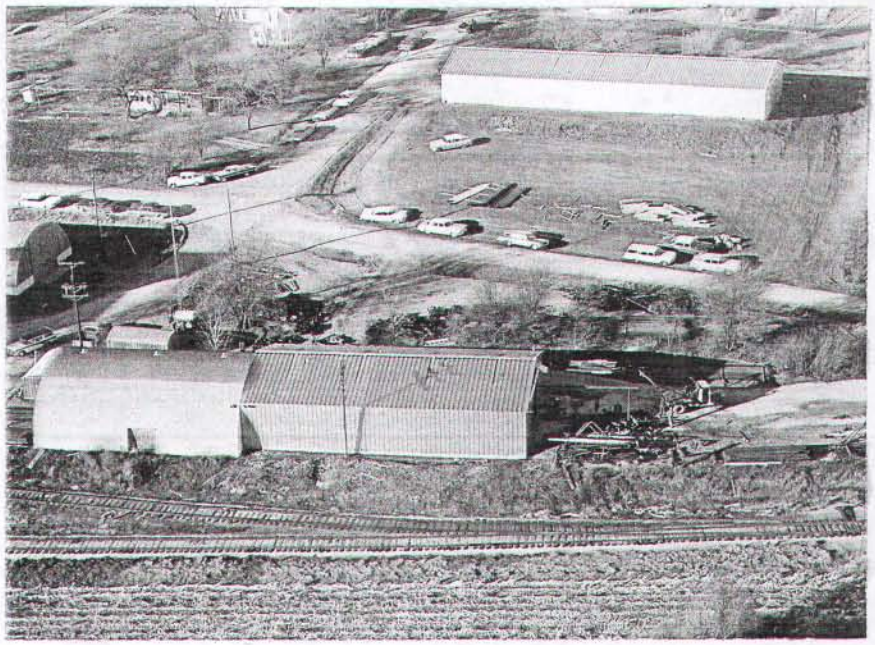
View of main foyer of Western's office facilities. Mason Travis, Project Manager standing in rear.

View of one of Western Contracting Corporation's buildings used during construction. It also served as their warehouse.

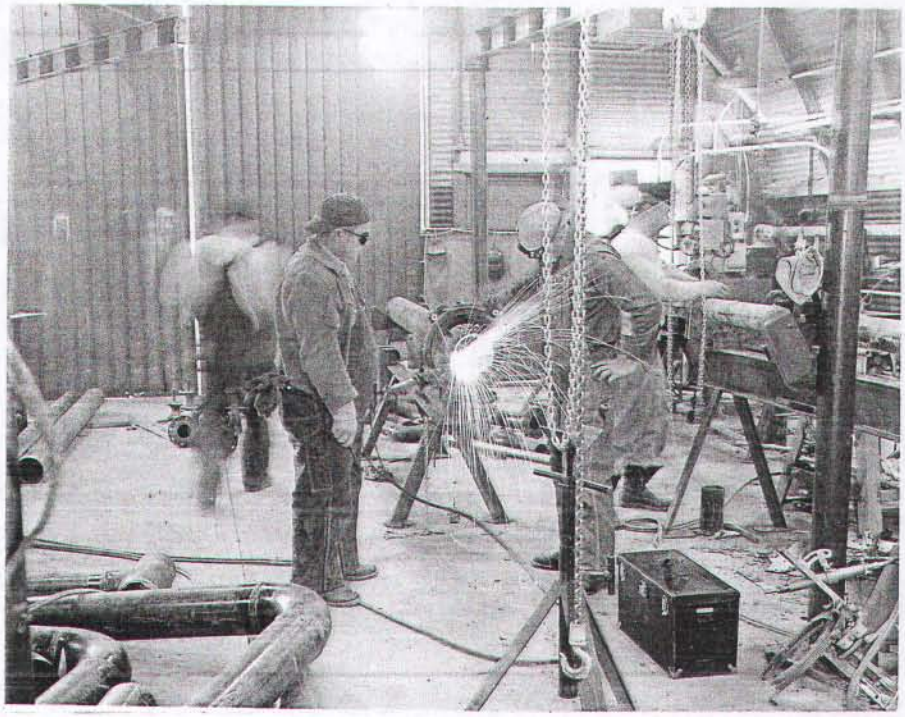
View of Western's warehouse in building shown above.



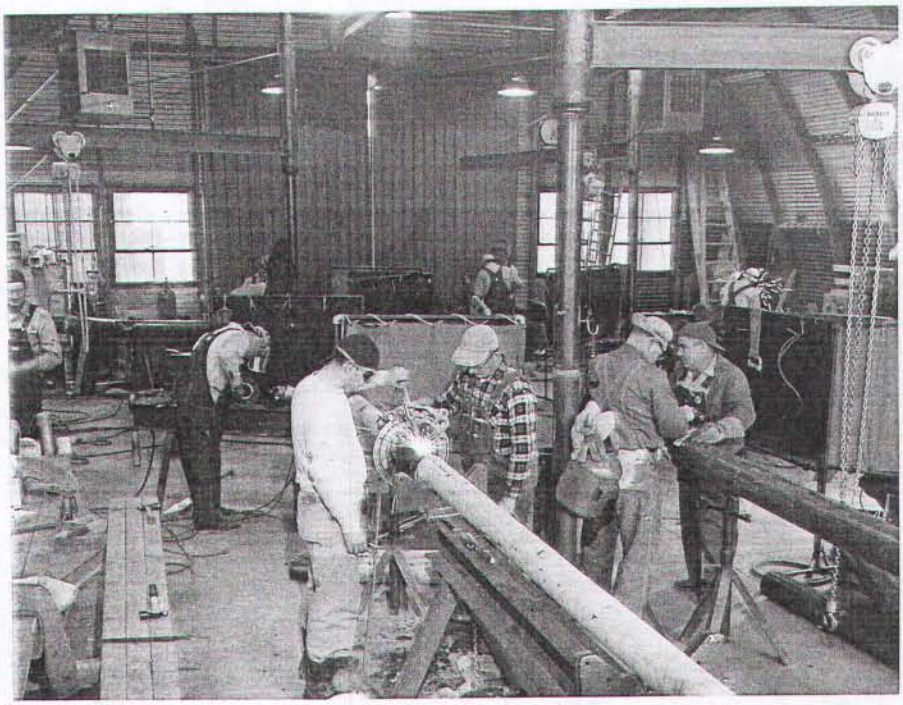
WCC. Aerial view to the northeast shows the Cortland, Nebraska pipe shop and storage area. Contractor leased the right half of the long center structure for this work and storage area is shown to the right of building. Note long joint of large diameter pipe being handled by winch truck.

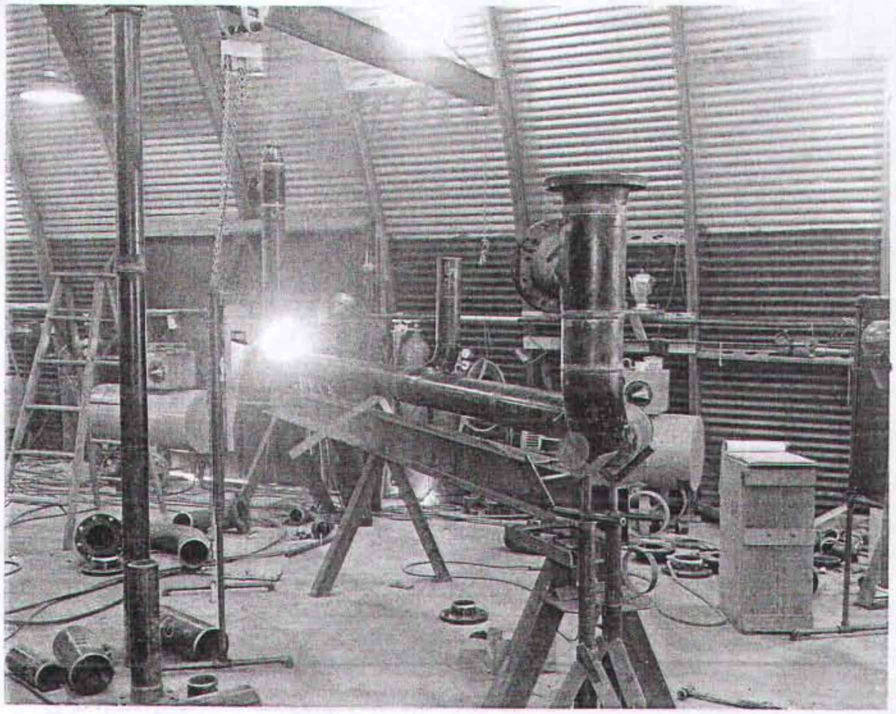


WCC. Aerial view to the north shows facilities used at Elmwood, Nebraska for pipe fabrication shop. Note pipe stored in foreground to the right of buildings. Warehouse upper right.

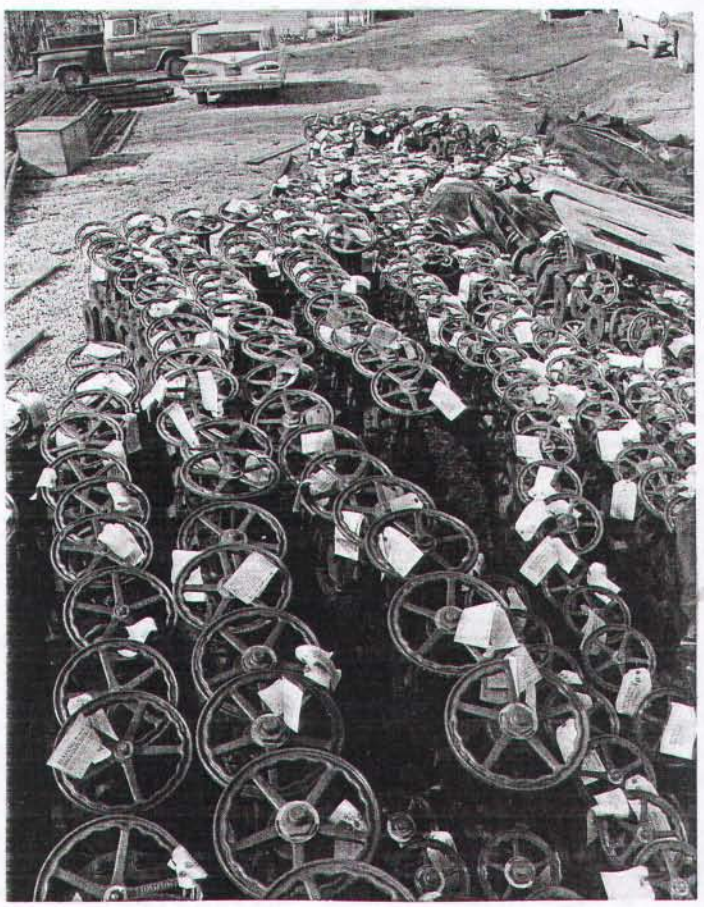


WCC. Two views of Crouse oxygen-acetylene beveling machine in operation at the finned pipe shop.





HCC. Photo of Elmwood Pipe Fabrication Shop shows fabrication of 8" pipe.



HCC. Storage of valves at warehouse area.

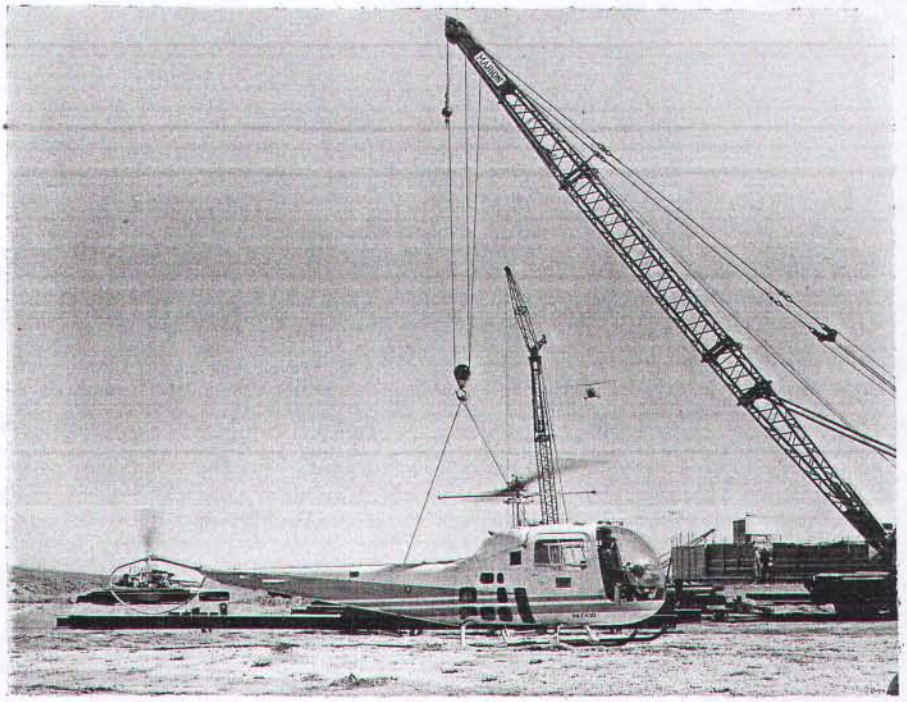
A TYPICAL LIST OF EQUIPMENT REQUIRED BY WESTERN CONTRACTING CORPORATION

Number As of 15 Aug. 60	Description
	1. Excavation
6	Crane (50 Ton) Clamshell (3 Yd.) Marion Type 93-M Diesel
2	Crane (50 Ton) Clamshell (3 Yd.) Bucyrus Erie 54-B Diesel
2	Crane (50 Ton) Clamshell (3 Yd.) Bucyrus Erie 51-B Diesel
2	Crane, Truck, (80 Ton) Clamshell (3 Yd.) P & H 775 TC Diesel
14	Crane, Truck, 30 Ton, Marion 37M Diesel
1	Hydrocrane, 5 Ton, Bucyrus Erie W/International Truck
2	Compressors, 600 cfm Gardner Denver, Diesel
12	Compressors, 350 cfm Gardner Denver, Diesel
1	Drill, Portable Tractor-Air Gardner Denver, RP123
1	Drill, Auger 10" Ko-Mo
12	Jackhammers
36	Air Spades
14	Pumps, High Pressure, Flyght
24	Pumps, 3"-4"-6" Gas Electric
12	Blowers, Electric 3,000 cfm
5	Front End Loaders, Caterpillar, Model 977-2½ Yd. Diesel
3	Front End Loaders, Caterpillar, Model 955-1 3/4 Yd. Diesel
3	Front End Loaders, International Harvester HD-15 1 3/4 Yd. Diesel
2	Front End Loaders, Caterpillar, D-4 1 Yd. Diesel
5	Scrapers, Twin Power, Euclid TS-18 24 Yd. Cap Diesel
1	Scraper Euclid S-7 7 Yd. Capacity Diesel
2	Scrapers Caterpillar DW-15 - 10 Yd. Diesel
4	Tractors, Caterpillar D-9 - Dozers
4	Tractors, International Harvester TD-15 Dozers
4	Motor Patrols Caterpillar #12
2	Compactors, Lima
1	Clambucket Blaw Knox 3½ Yd.
7	Clambucket Blaw Knox 3 Yd.
3	Clambucket Blaw Knox 2½ Yd.
1	Pile Driver and Leads - Diesel

Number As of 15 Jun. 60	Description
	II. Concrete
6	Concrete Batch Plant Complete (50 cyd/hr) Portable
4	Permanent Concrete Batch Plants Complete
15	Truck Transit Mixers, Concrete
2	Railroad Cement Unloading Augers
2	Railroad Aggregate Unloading Systems Complete
2	Front End Loaders, 2 cy. yd. Pneumatic W/Shakers, Michigan 175
2	Gunite Machines, Truck Mounted Ridley
6	Concrete Buckets & Hoppers
	III. Automotive and Trucks
48	Truck Pickups, Chevrolet, ½ Ton w/radio
17	Truck, Platform, Chevrolet, 2 Ton
12	Sedans and Stationwagons, Chevrolet
12	Trucks, Fire, 2,000 Gal. Cap., International Harvester
24	Trucks, End Dump, 10 Yd. Capacity Tandems
3	Trucks, Water, 3,000 Gal. Capacity, International Harvester
10	Trucks, A-Frame Winch, 4 Ton Capacity, International Harvester
1	Truck Semi-Tractor - 50 Ton Capacity, International Harvester
10	Trucks, Aggregate 10 Ton Capacity, Tandem Trucks, Cement Bulk
	IV. Overhead
25	Trailers, Office - 10' x 55' Frontier House
12	Trailers, Laboratory - 10' x 34' Frontier
36	Trailers, Warehouse Vans - 8' x 32'
1	Helicopter, Bell
2	Generators, 250 KW, Portable Diesel
2	Generators, 100 KW, Portable Diesel
12	Radio, Base Station, 30 Watt
40	Radio, Portable, 20 Watt
3	Vans, Lubricating - Complete
37	Welders, Electric - 300 amp.
3	Welders, Truck Mounted, 300 amp.

Number As of 15 Aug. 60	Description
2	Unwatering Equipment, Moretrench
30	Unwatering Submersible Wells
8	Unwatering Well Point System
1	Carpenter Shop Complete
2	Pipe Fabrication Shops Complete
1	Reinforcing Steel Equipment - Subcontract
1	Slip Form Concrete Equipment - Subcontract
1	Electrical Equipment - Subcontract with large shop in vicinity of Lincoln where a subetential part of conduit and frames were fabricated.

Two types of Bell Helicopters used by Western Contracting Corporation. W. Photos.



ASSIGNED SERVICE CONTRACTS

Contract Number	Procurement District	Contract	
4240	KC	Facility Elevator	Otis Elevator Company, 260 11th Avenue, New York, New York
4247	KC	Switchgear and Panels	General Electric Company, P.O.Box 2331 Denver 1, Colorado
4264	KC	Diesel Generators	White Diesel Engine Division, The White Motor Company, 1401 Sheridan Avenue, Springfield, Ohio
4326	KC	Blast Closures (LCC & Silo)	Henry Pratt Company, 319 W. Van Buren Street, Chicago 7, Illinois
4334	KC	Air Cylinder Spring Support for Floor Support System	Boeing Airplane Company, Wichita Division, 3801 South Oliver, Wichita, Kansas
4341	KC	Silo Overhead Door Hinge System	Boeing Airplane Company, Wichita Division, 3801 South Oliver, Whichita, Kansas
4439	KC	Chemical, Biological & Radiological Filters	Mine Safety Appliances Company, 201 North Braddock, Pittsburgh 8, Pennsylvania
5712	FW	Package Water Chiller Units and Rotary Pumps	A. M. Lockett & Company, Limited, 1701 Mercantile, Dallas Building, Dallas 1, Texas
5719	FW	Cooling Towers	Water Cooling Equipment Company, 8601 N. Hampshire Road, St. Louis 23, Missouri
5726	FW	Centrifugal & Turbine Pumps	Dean Hill Corporation, 4000 E. 16th St., Indianapolis 7, Indiana

Contract Number	Procurement District	Contract	
5733	FW	Sewage Pumps	Sempco Corporation, 347 W. 16th Street Salt Lake City 15, Utah
5740	FW	Submersible Pumps	Wintroath Pumps (Division of Worthington Corporation), 1100 South Meridan Avenue, Alhambra, California
4747	FW	Air Washer Dust Collector Units	Joy Manufacturing Company, 7425 Harry Hines Boulevard, Dallas 20, Texas
5754	FW	Air Conditioning Fan Coil Units	The Trane Company, 2nd & Cameron Avenue, LaCrosse, Wisconsin
5761	FW	PLS Prefabs & Interconnecting Piping	Paul Hardeman, Inc., 10579 Dale Avenue, Stanton, California
5784	FW	Centrifugal Fans	Clarage Fan Company, 619 Porter Street, Kalamazoo, Michigan
5791	FW	Axial Flow Fans	L. J. Wing Manufacturing Company, Division of Aero Supply Manufacturing Company, Inc., North Stiles Street, Linden, New Jersey
5798	FW	Propeller Type Fan	The Harvey P. Bortram Company, 2225 Bogen Street, Cincinnati 22, Ohio

KC = Kansas City District
FW = Fort Worth District

WESTERN CONTRACTING CORPORATION SUBCONTRACTORS

NAME	SUBCONTRACT	COST
Armco Drainage & Metal Products, Inc. 2910 Halliday Square Topeka, Kansas	Furnishing & Installing the Pumphouses	$ 55,487.06
Armstrong Contracting & Supply Company 2526 Summit Street Kansas City 8, Missouri	Pipe Covering and Insulation	353,724.17
Barber-Colman Company 2344 Hampton Avenue St. Louis 10, Missouri	Controls for Ventilating and Air-Conditioning Equipment	235,000.00
Beagle-Chilcutt Painting Co. P. O. Box 215 Kansas City, Missouri	Painting	179,202.94 (approx.)
Crouse Ready-Mix, Inc. Audubon, Iowa	Mix Concrete for Sites No. 3, 4 and 6	105,482.25
Cyclone Fence, American Steel & Wire Division, U.S. Steel Corporation P. O. Box 542 Omaha, Nebraska	Boundary and Security Fencing	157,623.84
Duetz & Crow Concrete Corporation Marshall, Minnesota	Mix Concrete for Sites No. 7, 8 and9	95,049.21
Hansen-Kashner Company P. O. Box 1784 Fresno, California	Slip Forming Silo Concrete	122,652.90 (Paid to Date)
Harold Dean & Sons 218029 Nine-Mile Road St. Claire Shores, Michigan	Covering & Hauling of Excavated Material at the Sites	286,470.00
Iowa Sheet Metal Contractors P. O. Box 1612 Des Moines 21, Iowa	Sheet Metal & Duct Work	642,524.20
Kelly Well Company 617 East 7th Street Grand Island, Nebraska	Install Vertical Deep-Well Turbine Pumps	12,005.00

Layne Western Company 4430 Commercial Avenue Omaha 10, Nebraska	Dewatering Wells	$ 17,379.95
Nebraska Testing Laboratory 4453 South 67th Street Omaha, Nebraska	Laboratory Testing & Blending of Road aggregate materials and other associated laboratory tests	5,120.00
Omaha Testing Laboratories 511 South 20th Street Omaha, Nebraska	Testing of Concrete Materials	6,029.52
Sheffield Steel Division Armco Steel Company Kansas City, Missouri	Reinforcing Steel Work	2,954,793.14
Power Engineering Company P. O. Box 146 623 Jackson Street Sioux City, Iowa	Electrical Work	3,269,881.34
Lincoln Steel Corporation 315 West "O" Street Lincoln, Nebraska	Erect Prefabricated Metal Building	14,235.00
Meints Brothers Construction Company 901 Grant Street Beatrice, Nebraska	Excavating, trenching and backfilling. Placing water supply lines and sewers	164,936.21
Perry Landscaping Company, Inc. Route 4 Council Bluffs, Iowa	Seeding, Fertilizing & Mulching	32,320.00
Peterson Carpet Company 1115 K Street Lincoln, Nebraska	Tile in LCC Building	26,039.16
Alfred Williams & Associates 417 South Jackson Grand Island, Nebraska	Asphalt Surfacing of Roads to Sites	47,926.20

CONCRETE BATCHING PLANTS

Site 1: The concrete batching plant consisting of Butler equipment, was set up in Eagle and was checked out for satisfactory operation on 15 July 1960. Capacity about 60 yards per hour.

Site 2: Plant used was one owned by Otoe Concrete Products in Nebraska City. This plant had been converted to semi-automatic operation and was complete with Butler equipment and ready for operation on 21 July 1960. Capacity about 75 yards per hour.

Site 3: Plant was on site and owned by Crouse Ready Mix. Semi-automatic controls were installed using Minneapolis-Honeywell recorders and Baldwin-Limar Hamilton load-cells. Much difficulty was encountered before plant configuration was changed. The scales were checked out finally on 30 July 1960 to meet specifications. Plant capacity due to size of cement augar was about 35 yards per hour.

On 11 August 1960, it was found that this plant would not operate to make a small pour on center column of LCC which was ready and scheduled for 8 August 1960. The plant was rechecked and finally placed into operation and work accomplished.

Site 4: This plant was the same type as at Site 3 except that this plant was checked out for satisfactory operation 24 July 1960. Capacity was about 50 yards per hour.

Site 5: Plant was commercial plant in Beatrice owned by Beatrice Concrete Products. It was a Johnson plant equipped with all Johnson scales and recorders. This plant had a capacity of about 80 yards per hour and was in excellent condition. It was checked and found ready for use on 5 July 1960.

Site 6: A portable plant was mined on site on 9 August 1960 owned by Deutz and Crow Incorporated of Marshall, Minnesota. Permanent power was not available on the site initially; however, Western did get plant in operation using a portable electric generator. On inspection of the plant on 10 August 1960, it appeared to be in good condition with all equipment on site except a protex dispenser. It was a 100-yard-per hour plant but was probably capable of about 50 yards per hour at best.

Sites 7 and 8: Western Contracting Corporation advised that it had purchased a plant to be operated by Deutz and Crow Company on site. Plants delivered the first part of September 1960.

Site 9: Plant was a portable unit furnished by Deutz and Crow Company and was installed on the site about 21 July 1960. On 10 and 11 August 1960, they were attempting to hook-up and get plant in shape for calibration. On 10 August 1960, a portable generator was not of sufficient capacity to operate plant. Power Engineering did not have power to the plant. Commercial power was available about 11 August 1960 after which the plant was tested out and placed in operation.

Sites 10 and 11: These two sites were served by a plant located in Weeping Water. This plant was owned by Cass Concrete Products Company which was a subsidiary of Otoe Concrete Products from Nebraska City. This was a new Butler plant fully equipped and produced about 75 yards per hour. This was set up and ready to operate on 25 July 1960.

Site 12: The same plant which provided concrete for Site 1 provided concrete for this site also. The following pages have photographs of some of these installations.

18 AUG 60

TABULATION OF MATERIAL SOURCES FOR CONCRETE BY SITE - 18 August 1960

	Limen Richie Sand-Gravel from Louisville Plant	Limen Richie Sand Gravel from Cullom Plant	Limen Richie Sand-Gravel from Valley Plant	Crushed Limestone from Hoppers Brothers at Weeping Water	Ash Grove Type I Cement Louisville	Ideal Type I Cement	Air Entraining Agent Protex from Autoline at Denver	Batch Plant on Site	Batch Plant off Site	Batch Plant Owner
Site 1	X			X	X		X		X	ABEL READY MIX - Lincoln
Site 2		X		X	X		X		X	OTOE CONCRETE PRODUCTS - Nebr. City
Site 3		X		X		X	X	X		#CROUSE READY MIX - Audubon, Iowa
Site 4			X	X		X	X	X		#CROUSE READY MIX - Audubon, Iowa
Site 5		X		X	X		X		X	BEATRICE CONCRETE PRODUCTS - Beatrice
Site 6		X		X		X	X	X		DEUTZ & CROW READY MIX
Site 7		X		X		X	X	X		WESTERN CONTRACTING - Sioux City, Ia.
Site 8		X		X		X	X	X		WESTERN CONTRACTING - Sioux City, Ia.
Site 9			X	X		X	X	X		DEUTZ & CROW READY MIX - Marshall, Minnesota
Site 10	X			X	X		X		X	CASS CONCRETE PRODUCTS - Louisville
Site 11	X			X	X		X		X	CASS CONCRETE PRODUCTS - Louisville
Site 12	X			X	X		X		X	ABEL READY MIX - Lincoln

Crouse Ready Mix taken over by Western Contracting Corp. Dec1960

SITE 4. CORTLAND, NEBRASKA. 3 Aug. 60. View facing west shows general area of batch mixing plant. #39124.

SITE 7. YORK, NEBRASKA. Contractors batch mixing plant. #41857.

SITE 6. WILBER, NEBRASKA. 6 Oct 60. Northeast view shows Western Contracting Corporation batch plant at job site. Special trucks used for hauling cement in foreground. #40873.

SITE 6. WILBER, NEBRASKA. 2 Nov 61. Northeast view shows closeup of batch plant. #41827.

SITE 9, BRAINARD, NEBRASKA. 3 Aug. 60. #39152.
Two views of Contractors Batch Mixing plant at Site.
SITE 9, BRAINARD, NEBRASKA. 3 Nov. 60. #41862

EFFECTIVENESS OF THE SUBCONTRACTORS OPERATIONS

The Western Contracting Corporation handled directly a majority of the work with the many problems associated therewith. The matter of subcontracted work, except for the electrical work subcontracted to Power Engineering Company of Sioux City, Iowa, was secondary to the prime contractors problems.

Looking at the work, overall, the Power Engineering Company did an excellent job. Their ability to secure materials, supplies and equipment was demonstrated many times by their expeditiousness. Power's major problem was securing an adequate number of skilled electricians. In this aspect, they were slow, however.

The Barber Coleman Company employed an electrical subcontractor, but later had to utilize their own people. There was a certain void between the work the Power Engineering Company felt was their responsibility and that which was to be done by the Barber Coleman Company; however, an amicable arrangement was worked out with good cooperation.

After considerable pressure, and possibly through our own efforts, they finally were able to secure men who came from many parts of the country with the consequent mixed results.

There were two subcontractors that did not finish their work. The Hansen-Kashner Company, the slip-forming contractor, of Fresno, California, failed to provide the proper results. Western Contracting Corporation took over this work and completed it satisfactorily.

The other subcontractor was the Crouse Ready Mix Company

which was selected to provide concrete for Sites 3 and 4. This work was also taken over by the general contractor.

The heating and ventilating contractor, Iowa Sheet Metal Company, did an excellent job, with a minimum of difficulty with the other subcontractors.

It is believed that all things considered, the Western Contracting Corporation did an excellent job. They had a group of subcontractors that were responsible and with the two exceptions indicated, did an exceedingly fine job.

WESTERN CONTRACTING CORPORATION'S UNION AGREEMENTS

The following is a list of Western's Union Agreements.

1. International Hod Carrier's Building and Common Laborer's Union of America, Local No. 1140 of Omaha, Nebraska.

2. United Brotherhood of Carpenters and Joiners of America, Local Union No. 1187 of Grand Island, Nebraska

3. Omaha Carpenters District Council.

4. United Brotherhood of Carpenters and Joiners of America, Local Union No. 2002 of Beatrice, Nebraska.

5. Omaha Carpenters District Council.

6. Carpenters International Union of America, Local No. 1055 of Lincoln, Nebraska.

7. United Brotherhood of Carpenters and Joiners of America Local Union No. 856 of Columbus, Nebraska.

8. Steamfitters Local No. 464 of Omaha, Nebraska.

9. Plumbers and Steam Fitters Local Union No. 88 of Lincoln, Nebraska.

10. Central Conference of Teamsters and Local Union No. 608, Affiliated with the International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America. (Warehousemen Only).

11. Central Conference of Teamsters and Local Union No. 608, Affiliated with the International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America. (Chauffeurs only).

12. International Union of Operating Engineers, Local No. 571 of Omaha, Nebraska. (Heavy-Highway Construction Douglas and Sarpy Counties, Nebraska).

13. International Union of Operating Engineers, Local No. 571 of Omaha, Nebraska.

14. International Association of Bridge, Structural and Ornamental Iron Workers, Local No. 21 of Omaha, Nebraska.

15. International Brotherhood of Electrical Workers, Washington, D.C. (Installation, Repair and Maintenance.)

LABOR UNION CONTRACTS POWER ENGINEERING COMPANY

1. Local 265, International Brotherhood of Electrical Workers, 5545 Cornhusker Highway, Lincoln, Nebraska.

2. Local 22, International Brotherhood of Electrical Workers, 1336 Saddle Creek Road, Omaha, Nebraska.

PART VII

Organization, Personnal, Functions and Relations with other Agencies

SECTION 1

Organizational and Command Changes

SECTION 2

CEBMCO, Headquarters, Los Angeles, Organization Charts

SECTION 3

Lincoln Area Organization Charts, Personnel

SECTION 4

Organization of Omaha District, Corps of Engineers, during the beginning of Atlas F Construction in Lincoln Area.

SECTION 5

SATAF Organization

SECTION 6

Relationship with SATAF and Other Agencies

SECTION 7

GD/A Organization

ORGANIZATIONAL AND COMMAND CHANGES

7 January 1960, Omaha D. O. No. 1, dated 6 January 1960:

1. Colonel John J. Haley was designated Deputy District Engineer which in addition to other duties was specifically assigned primary responsibility for prosecuting of all work for the U. S. Air Force Ballistic Missile Division, Air Research and Development Command of USAF.

2. Lt. Colonel Hal L. Schroeder was designated as Assistant Deputy District Engineer.

17 February 1960, Omaha D. O. No. 7, dated 15 February 1960:

1. Lt. Colonel Hal L. Schroeder, in addition to other duties was designated Area Engineer, Omaha Area, taking place of Lt. Colonel Robert B. Burlin who was relieved.

2. The Lincoln Resident Office was redesignated Lincoln Area Office.

3. Major Lester J. Henderson was designated Acting Area Engineer, Lincoln Area.

1 April 1960, Omaha D.O. No. 17, dated 1 April 1960:

The supervision of construction at the Ft. McPherson National Cemetery, Maxwell, Nebraska, was assigned to the Area Engineer, Lincoln Area Office.

15 April 1960, Omaha D. O. No. 19, dated 8 April 1960:

1. The Omaha Area with Headquarters at Mead, Nebraska, was abolished. All responsibilities and functions formerly assigned to the Omaha Area were transferred to the Lincoln Area, Lincoln, Nebraska.

2. Lt. Colonel Hal L. Schroeder was assigned as Area Engineer, Lincoln Area, vice Major Lester J. Henderson relieved, but who remained assigned to the Lincoln Area, Lincoln, Nebraska.

3. Major Louis A. Delatour was assigned to the Lincoln Area with duty station at Mead, Nebraska.

15 July 1960, Omaha D.O. No. 26, dated 14 July 1960:

1. The Omaha Area with Headquarters at Mead, Nebraska, was established with J. C. Patterson assigned as Area Engineer.

2. The Omaha Area was responsible for supervision of Offutt AFB, ICBM Construction and related activities. Lincoln Area is hereby relieved of these (Offutt AFB) responsibilities.

16 July 1960, Omaha D. O. No. 27, dated 16 July 1960:

Colonel Harry G. Woodbury, Jr. assumed the duties of District Engineer at Omaha, Nebraska, vice Colonel David G. Hammond, who was relieved.

2 August 1960, General Orders No.21, Headquarters, Department of Army, OCE, dated 2 August 1960 established the Corps of Engineers Ballistic Missile Construction Office (CEBMCO) and gave to the Commanding General, CEBMCO, the mission of directing that portion of the Air Force Ballistic Missile program assigned to the Corps of Engineers.

See Annex for copy of letter dated 2 August 1960 from Chief of Engineers, OCE, which gives the directives.

29 August 1960, Omaha District Order No. 30, dated 23 August 1960:

All work of the District Office associated with the prosecution of the ICBM program was placed on a 44-hour week. Each operating official was made responsible for the determination of the number of employees in his organization that are required to expedite the ICBM work and to employ a sufficient work force on a 44-hour week basis to prosecute the ICBM program to the fullest extent possible.

30 September 1960, Omaha District Order No. 35, dated 30 September 1960:

Colonel John E. Minahan was assigned as Area Engineer, Lincoln Area, vice Lt. Colonel Hal L. Schroeder who was relieved and assigned as Executive Officer, Lincoln Area.

1 November 1960, Omaha District Order No. 37, dated 14 October 1960:

District Order No. 30, covering the 44-hour week for the prosecution of the ICBM program was revoked.

7 November 1960, Omaha District Order No. 40:

Effective 15 November 1960, the Lincoln, Nebraska Resident Engineer Office was discontinued. The responsibility for supervisory and administering all work in the Lincoln Area which was not transferred to CEBMCO was assigned to the Offutt Area Office.

20 June 1961, CEBMCO General Order No. 1; OCE Special Orders No. 32, dated 13 June 1961:

Colonel T. J. Hayes assumed command of CEBMCO.

Major General Alvin C. Welling, whose place he took, was designated Deputy for Site Activation Ballistic System Division.

26 February 1962, CEBMCO G.O. No. 2; OCE Special Order 7, dated 30 January 1962:

Colonel E. E. Wilhoyt, Jr. assumed command of CEBMCO, vice Colonel Thomas J. Hayes.

Colonel Hayes, Commander of CEBMCO, will be moved from this command to be Commander of the newly organized U. S. Corps of Engineers Office for Support of the National Aeronautics and Space Agency (NASA) with Headquarters in the Office of the Chief of Engineers, in Washington, D. C.

19 March 1962, Omaha District Order No. 62-11, assigned the Area Engineer, Offutt Area, Offutt Air Force Base, responsibility for supervision and inspection of new construction contracts to be awarded at Atlas "F" Missile facilities for the Lincoln AFB.

It also stated that responsibility for existing construction contracts at these facilities remains under CEBMCO Office pending further announcements.

1 January 1962, CEBMCO Special Order No. 1, dated 3 January 1962:

1. Colonel John E. Minahan relieved as Area Engineer, Lincoln Area Engineer, and assigned as Military Assistant to the Commanding Officer, CEBMCO.

2. Lt. Colonel Lester J. Henderson designated Area Engineer, Lincoln Area Office.

3. Lt. Colonel Hal L. Schroeder relieved as Executive Officer, Lincoln Area Office, and assigned as Special Assistant to the Director, Atlas "F" Construction Directorate, with station at Lincoln, Nebraska.

1 March 1962: Lt. Colonel Hal L. Schroeder reverted to civilian life on 1 March 1962. It was announced that he was selected to be the Civilian Engineer for the Salt-Wahoo Watershed Project, which is now being started by the Corps of Engineers, Omaha District.

The Lincoln Area Office, CEBNCO, will be phased out on or about 12 May 1962.

ORGANIZATION POSITION CHARTS

CORPS OF ENGINEERS

BALLISTIC MISSILE CONSTRUCTION OFFICE

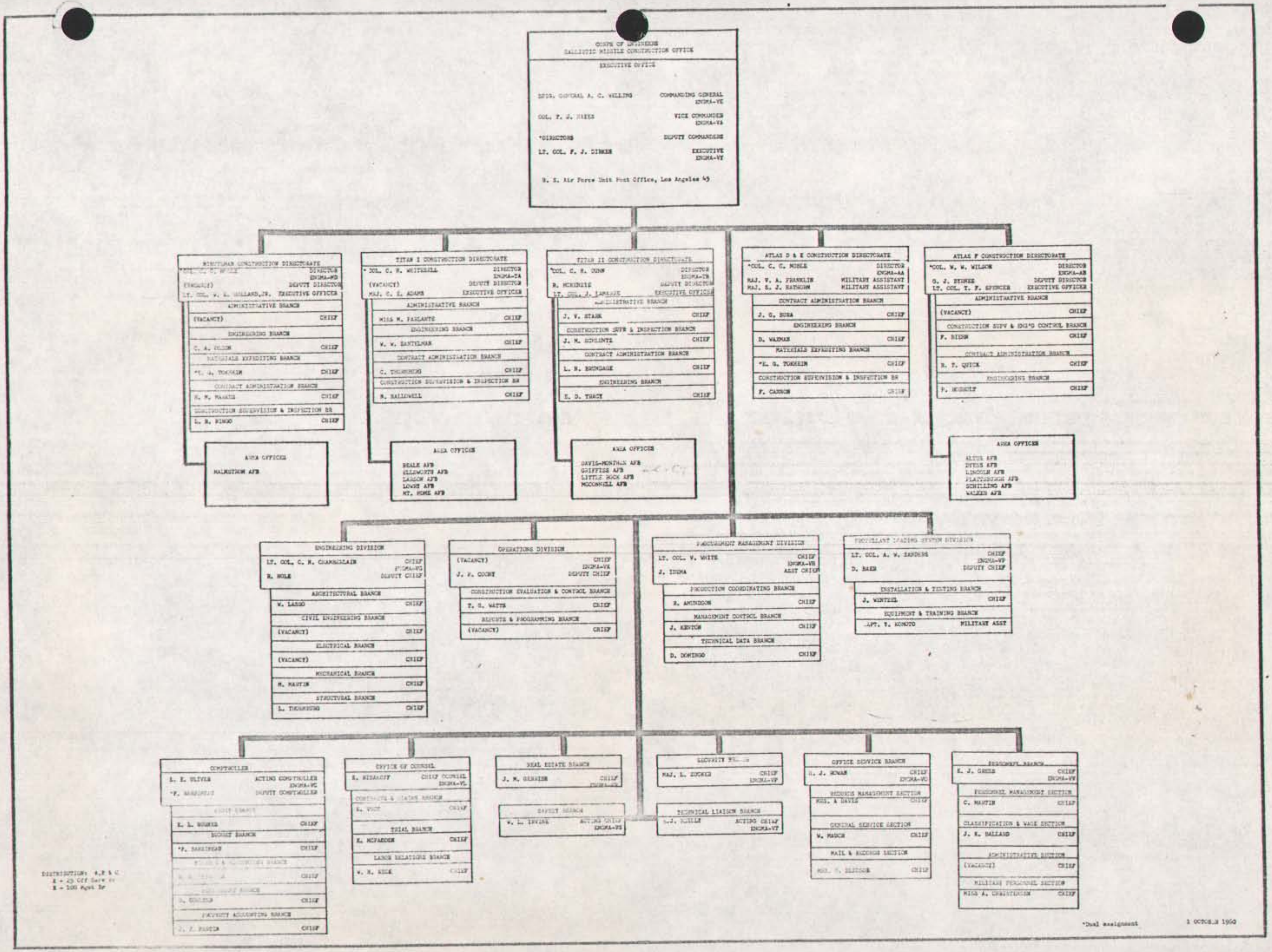
LOS ANGELES, CALIFORNIA

Major General Alvin C. Welling, first Commander of CEBMCO, later to become Deputy for Site Activation Ballistic System Division of Air Force.

Colonel Thomas J. Hayes III, who assumed Command of CEBMCO upon General Wellings advancement. Colonel Hayes was a former Omaha District Engineer.

Colonel E. E. Wilhoyt, Jr.
Commanding Officer of CEBMCO

Colonel N. W. Wilson, Director, Atlas F Directorate, CEBMCO to whom the Lincoln Area reports.


CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE
EXECUTIVE OFFICE
BRIG. GENERAL A. C. WELLING COMMANDING GENERAL ENGMA-VE
COL. F. J. HAYES VICE COMMANDER ENGMA-VA
*DIRECTORS DEPUTY COMMANDERS
LT. COL. F. J. DIRKEN EXECUTIVE ENGMA-VY
U. S. Air Force Unit Post Office, Los Angeles 45
MINUTEMAN CONSTRUCTION DIRECTORATE
(VACANCY) DEPUTY DIRECTOR
LT. COL. W. E. HOLLAND, JR. EXECUTIVE OFFICER
ADMINISTRATIVE BRANCH
(VACANCY) CHIEF
ENGINEERING BRANCH
C. A. OLSON CHIEF
MATERIALS EXPEDITING BRANCH
*E. G. TORKEIN CHIEF
CONTRACT ADMINISTRATION BRANCH
CHIEF
CONSTRUCTION SUPERVISION & INSPECTION BR
L. R. RINGO CHIEF
AREA OFFICES
MALMSTROM AFB
TITAN I CONSTRUCTION DIRECTORATE
*COL. C. R. WHITESELL DIRECTOR ENGMA-TA
(VACANCY) DEPUTY DIRECTOR
MAJ. C. E. ADAMS EXECUTIVE OFFICER
ADMINISTRATIVE BRANCH
MISS M. FARLANTE CHIEF
ENGINEERING BRANCH
W. W. SANTELMAN CHIEF
CONTRACT ADMINISTRATION BRANCH
C. THORNBURG CHIEF
CONSTRUCTION SUPERVISION & INSPECTION BR
R. HALLOWELL CHIEF
AREA OFFICES
BEALE AFB
ELLSWORTH AFB
LARSON AFB
LOWRY AFB
MT. HOME AFB
TITAN II CONSTRUCTION DIRECTORATE
*COL. C. R. DUNN DIRECTOR ENGMA-TB
R. MCKENZIE DEPUTY DIRECTOR
LT. COL. J. LAPASSE EXECUTIVE OFFICER
ADMINISTRATIVE BRANCH
J. V. STARK CHIEF
CONSTRUCTION SUPV & INSPECTION BRANCH
J. M. SCHLINTZ CHIEF
CONTRACT ADMINISTRATION BRANCH
L. N. BRUNDAGE CHIEF
ENGINEERING BRANCH
E. D. TRACY CHIEF
AREA OFFICES
DAVIS-MONTHAN AFB
GRIFFISS AFB
LITTLE ROCK AFB
MCCONNELL AFB
ATLAS D & E CONSTRUCTION DIRECTORATE
*COL. C. C. NOBLE DIRECTOR ENGMA-AA
MAJ. V. A. FRANKLIN MILITARY ASSISTANT
MAJ. S. J. RATHORN MILITARY ASSISTANT
CONTRACT ADMINISTRATION BRANCH
J. G. BURA CHIEF
ENGINEERING BRANCH
D. WAXMAN CHIEF
MATERIALS EXPEDITING BRANCH
*E. G. TORKEIN CHIEF
CONSTRUCTION SUPERVISION & INSPECTION BR
F. CARSON CHIEF
ATLAS F CONSTRUCTION DIRECTORATE
*COL. W. W. WILSON DIRECTOR ENGMA-AB
G. J. BYRNES DEPUTY DIRECTOR
LT. COL. T. F. SPENCER EXECUTIVE OFFICER
ADMINISTRATIVE BRANCH
(VACANCY) CHIEF
CONSTRUCTION SUPV & ENG'G CONTROL BRANCH
F. BIEHN CHIEF
CONTRACT ADMINISTRATION BRANCH
R. T. QUICK CHIEF
ENGINEERING BRANCH
CHIEF
AREA OFFICES
ALTUS AFB
DYESS AFB
LINCOLN AFB
PLATTSBURGH AFB
SCHILLING AFB
WALKER AFB
ENGINEERING DIVISION
LT. COL. C. R. CHAMBERLAIN CHIEF ENGMA-VG
R. HOLE DEPUTY CHIEF
ARCHITECTURAL BRANCH
W. LASSO CHIEF
CIVIL ENGINEERING BRANCH
(VACANCY) CHIEF
ELECTRICAL BRANCH
(VACANCY) CHIEF
MECHANICAL BRANCH
M. MARTIN CHIEF
STRUCTURAL BRANCH
L. THORNBURG CHIEF
OPERATIONS DIVISION
(VACANCY) CHIEF ENGMA-VK
J. P. COONY DEPUTY CHIEF
CONSTRUCTION EVALUATION & CONTROL BRANCH
T. G. WATTS CHIEF
REPORTS & PROGRAMMING BRANCH
(VACANCY) CHIEF
PROCUREMENT MANAGEMENT DIVISION
LT. COL. V. WHITE CHIEF ENGMA-VB
J. IDEMA ASST CHIEF
PRODUCTION COORDINATING BRANCH
R. AMUNDSON CHIEF
MANAGEMENT CONTROL BRANCH
J. KENTON CHIEF
TECHNICAL DATA BRANCH
D. DOMINGO CHIEF
PROPELLANT LOADING SYSTEM DIVISION
LT. COL. A. W. SANDERS CHIEF ENGMA-VP
D. BAER DEPUTY CHIEF
INSTALLATION & TESTING BRANCH
J. WENTZEL CHIEF
EQUIPMENT & TRAINING BRANCH
CAPT. T. KOMOTO MILITARY ASST
COMPTROLLER
L. E. ULIVLE ACTING COMPTROLLER ENGMA-VC
DEPUTY COMPTROLLER
E. L. BOURKE CHIEF
BUDGET BRANCH
*F. SARGINEAN CHIEF
CHIEF
CHIEF
PROPERTY ACCOUNTING BRANCH
CHIEF
OFFICE OF COUNSEL
E. NISAKOFF CHIEF COUNSEL ENGMA-VL
CHIEF
TRIAL BRANCH
E. MCFADDEN CHIEF
LABOR RELATIONS BRANCH
W. R. EDGE CHIEF
REAL ESTATE BRANCH
J. M. GERRISH CHIEF
SAFETY BRANCH
W. L. IRVINE ACTING CHIEF ENGMA-VS
MAJ. L. ZUCKER CHIEF ENGMA-VF
TECHNICAL LIAISON BRANCH
ACTING CHIEF ENGMA-VT
OFFICE SERVICE BRANCH
R. J. ROWAN CHIEF ENGMA-VO
RECORDS MANAGEMENT SECTION
MRS. A DAVIS CHIEF
GENERAL SERVICE SECTION
W. MASON CHIEF
MAIL & RECORDS SECTION
CHIEF
PERSONNEL BRANCH
E. J. GREEN CHIEF ENGMA-VW
PERSONNEL MANAGEMENT SECTION
C. MARTIN CHIEF
CLASSIFICATION & WAGE SECTION
J. K. BALLARD CHIEF
ADMINISTRATIVE SECTION
(VACANCY) CHIEF
MILITARY PERSONNEL SECTION
MISS A. CHRISTENSEN CHIEF
DISTRIBUTION: A, B & C
B - 25 Off Serv
B - 100 Mgmt Br
*Dual assignment
1 OCTOBER 1960

WEAPONS SYSTEM CONSTRUCTION DIRECTORATE
ATLAS "F"

EXECUTIVE OFFICE

DIRECTOR	W.W. WILSON	COL
DEPUTY DIRECTOR	G.J. BYRNES	GS-15
EXECUTIVE OFFICER	T.F. SPENCER	LT.COL
MILITARY ASST	W.B. GRAHAM	LT.COL
SECRETARY	M.A. DOWNER	GS-7
SECRETARY	G. DILLARD	GS-6

LIAISON GROUP

FIELD REP LIAISON	F.W. ROBSON	MAJ
LIAISON HQTRS.	D.W. MARKS	CAPT/MAJ
LIAISON CME		GS-14
SECRETARY		GS-6

ENGINEERING BRANCH

SUPR. GEN ENGR	P. ROSHOLT	GS-14
SUPR GEN ENGR	A.L. MAIER	GS-13
SECRETARY	M. TOSLAND	GS-5
CLERK-TYPIST	J.M. GIRAS	GS-4

CIVIL SECTION

CIVIL ENGR	W.K. STEWART	GS-13
CIVIL ENGR	W.B. MEISTER	GS-12

MECHANICAL SECTION

MECH ENGR	C.J. TEEPLE	GS-13
MECH ENGR	L.G. STARR	GS-12

ELECTRICAL SECTION

ELECT ENGR	H. WALLACE	GS-13
ELECT ENGR		GS-12

ENGINEERING SERV. SECTION

SUPR CIVIL ENGR	J. PETERSON	GS-13
CIVIL ENGR (ESTIMATOR)	J. PATTERSON	GS-12
ARCH'T ENGR (ESTIMATOR)	O. WILLIAMS	GS-12
ENGR DRAFTSMAN		GS-7
ENGR DRAFTSMAN		GS-6
ENGR STENO	C. IRWIN	GS-5
CLERK STENO		GS-4
CLERK-TYPIST	A. PALUMBO	GS-4

CONTRACT ADMINISTRATION BRANCH

SUPR CME	R.T. QUICK	GS-14
SUPR CME	C.D. CARTER	GS-13
GEN ENGR	T. COON	GS-13
ADMIN ASST	A.V. PINTO	GS-9
SECRETARY	L.G. SMITH	GS-5

CONTR., FUNDS CONTROL & REPORTS

BUDGET OFFICER	ROE	GS-12
CONTRACT CLERK	C. STOKES	GS-6
CONTRACT CLERK	G.F. STONER	GS-6
CONTRACT CLERK	H. JOHNSON	GS-5
CONTRACT CLERK	W.K. SHUTES	GS-5
STATISTIC CLERK	E.V. KRANZ	GS-5

MODIFICATION SECTION

SUPR CME	W.J. MOUNTZ	GS-13
CONTRACT SPEC CME		GS-12
CLERK-TYPIST	H.K. DRAUDE	GS-4
CLERK-TYPIST	C.B. REMER	GS-4

ADMIN. COORDINATORS

CONTR SPEC CME-PLATTSB.		GS-12
CONTR SPEC CME-LING.-	M. DREYLING	GS-12
CONTR SPEC CME-SCHILL.		GS-12
CONTR SPEC CME-ALTUS -	D. DRURY	GS-12
CONTR SPEC CME-DYESS -		GS-12
CONTR SPEC CME-WALKER-		GS-12

ADMINISTRATIVE OFFICE BRANCH

ADMIN OFF		GS-12
ADMIN ASST	L. SULLIVAN	GS-9
SUPV. CLERK	L. KUKHAHN	GS-6
SECRETARY	F. SIMMONS	GS-5
PERSONNEL CLK	P. O'DONNELL	GS-4
CLERK-TYPIST	C. McDONNELL	GS-4
CLERK-TYPIST	W.D. LEONARD	GS-4
DRIVER	S. FOX	WB-4

CONSTRUCTION SUPERVISION & ENGR. CONTROL BRANCH

SUPR CME	F. BIEHN	GS-14
SUPR CME	L. MILLER	GS-13
SUPR CME	D. SMITH	GS-13
SECRETARY	P. GREEK	GS-5
CLERK-STENO	S.A. MAIBIE	GS-4
CLERK-TYPIST	J. COURTNEY	GS-4

ENGR. CONTROL COORDINATORS

PROJ. MGR CME-LINCOLN-	C. MOORE	GS-13
PROJ. MGR CME-PLATTSBURGH-	V. MOORE	GS-13
PROJ. MGR CME-DYESS-	D. LANE	GS-13
PROJ. MGR CME-SCHILLING-	R MILLER	GS-13
PROJ. MGR CME-ALTUS-	N. BLECKMAN	GS-13
PROJ. MGR CME-WALKER-	J. PATRICK	GS-13

CIVIL SECTION

CIVIL ENGR	G. SIMMONS	GS-13

MECHANICAL SECTION

MECH ENGR	E. UNDERDAHL	GS-13

ELECTRICAL SECTION

ELECT ENGR	J. EINERSON	GS-13

MATERIALS EXPEDITING SEC.

SUPR PROD SPEC	W. McAULEY	GS-13
PROD SPEC	P. CLOUGHERTY	GS-12
PROD SPEC	H. HASTINGS	GS-12
STAT CLERK	F. REINISCH	GS-6

PROGRESS & REPORTS SEC.

SUPR CME	K. SMITH	GS-12
ASST CME	M. SCUDDER	GS-11
ENGR TECH	N. PERSKY	GS-9
STAT ASST	T. BAILEY	GS-7
STAT DRAFTSMAN	R KERSEY	GS-5
CLERK-TYPIST	H. BROADWATER	GS-4

PRESENT ORGANIZATION

OFFICER

DIRECTOR	COLONEL	
EXECUTIVE OFFICER	LT/COL	
MILITARY ASSISTANT	LT/COL	
FIELD REP LIAISON OFFICER	MAJOR	
LIAISON OFFICER	MAJOR	

TOTAL OFFICER = 5

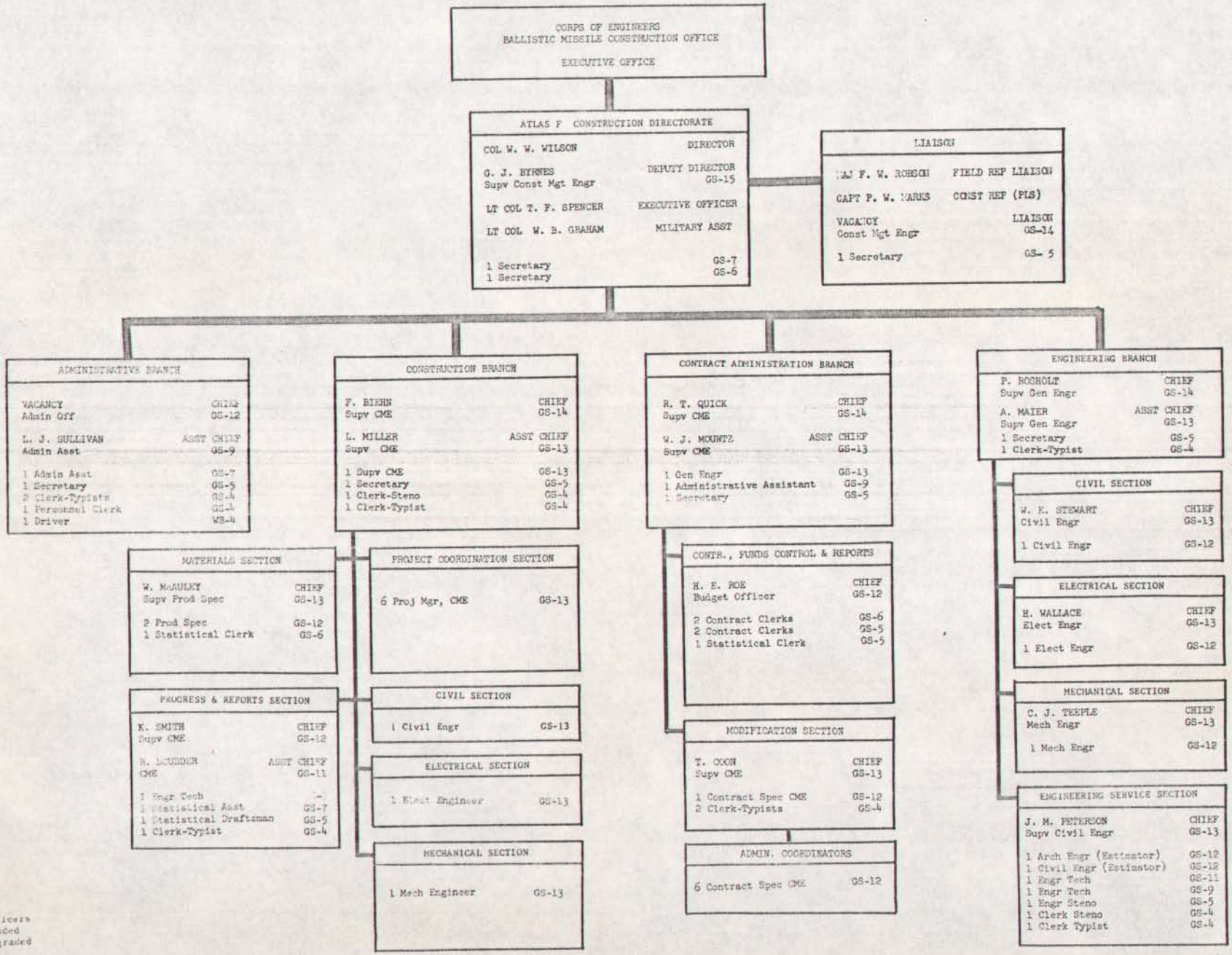
CIVILIAN

GS-15	1
GS-14	4
GS-13	20
GS-12	17
GS-11	1
GS-9	3
GS-7	3
GS-6	7
GS-5	9
GS-4	11
WB-4	1

TOTAL CIV = 77

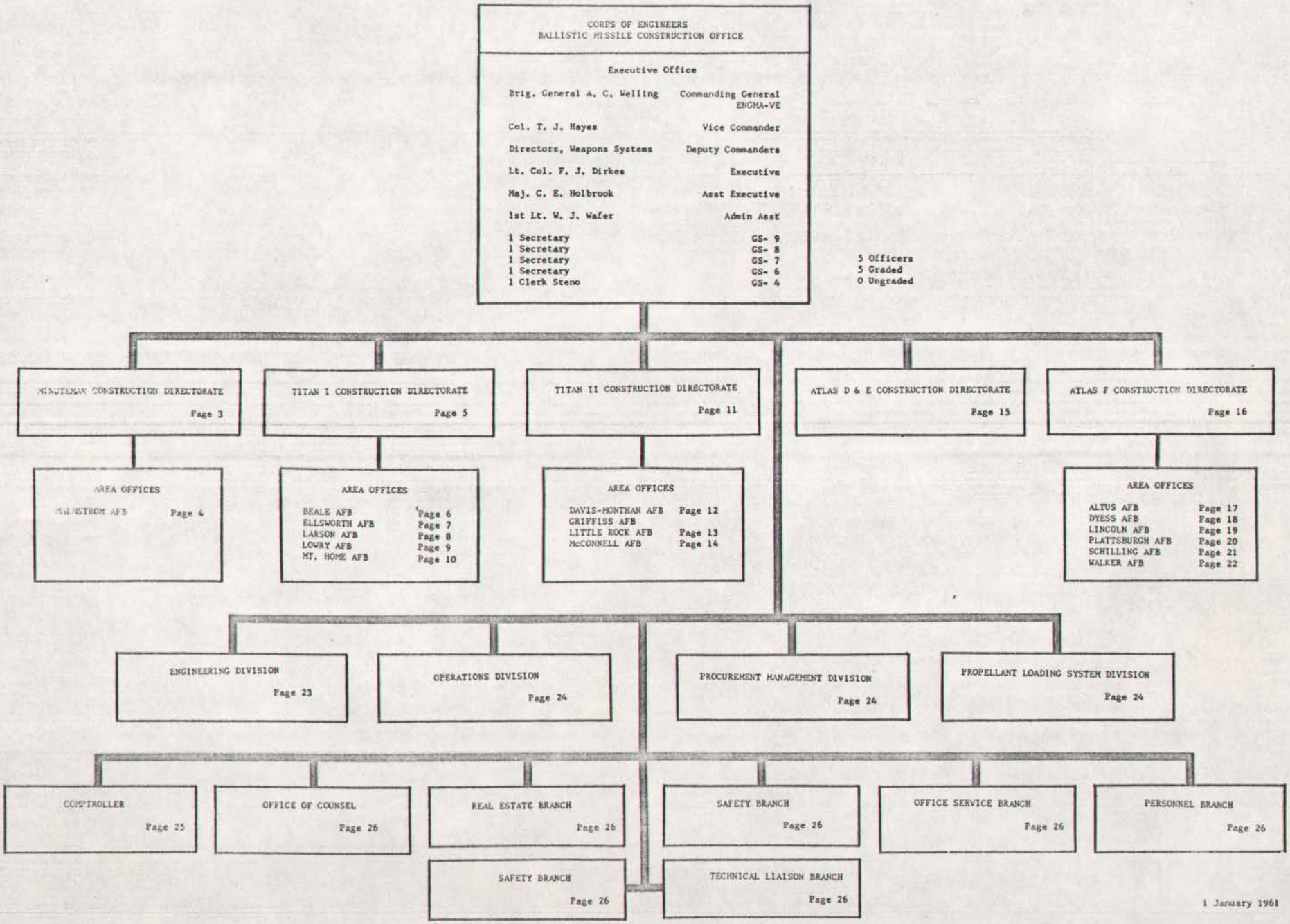
FINAL TOTAL:
5 OFFICERS
77 CIVILIANS

7 DEC. 1960
D.C.K.



5 Officers
76 Graded
1 Ungraded

1 January 1961


CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE
Executive Office
Brig. General A. C. Welling — Commanding General ENGMA-VE
Col. T. J. Hayes — Vice Commander
Directors, Weapons Systems — Deputy Commanders
Lt. Col. F. J. Dirkes — Executive
Maj. C. E. Holbrook — Asst Executive
1st Lt. W. J. Wafer — Admin Asst
1 Secretary GS- 9
1 Secretary GS- 8
1 Secretary GS- 7
1 Secretary GS- 6
1 Clerk Steno GS- 4
5 Officers
5 Graded
0 Ungraded
MINUTEMAN CONSTRUCTION DIRECTORATE Page 3
TITAN I CONSTRUCTION DIRECTORATE Page 5
TITAN II CONSTRUCTION DIRECTORATE Page 11
ATLAS D & E CONSTRUCTION DIRECTORATE Page 15
ATLAS F CONSTRUCTION DIRECTORATE Page 16
AREA OFFICES
MALMSTROM AFB Page 4
AREA OFFICES
BEALE AFB Page 6
ELLSWORTH AFB Page 7
LARSON AFB Page 8
LOWRY AFB Page 9
MT. HOME AFB Page 10
AREA OFFICES
DAVIS-MONTHAN AFB Page 12
GRIFFISS AFB
LITTLE ROCK AFB Page 13
McCONNELL AFB Page 14
AREA OFFICES
ALTUS AFB Page 17
DYESS AFB Page 18
LINCOLN AFB Page 19
PLATTSBURGH AFB Page 20
SCHILLING AFB Page 21
WALKER AFB Page 22
ENGINEERING DIVISION Page 23
OPERATIONS DIVISION Page 24
PROCUREMENT MANAGEMENT DIVISION Page 24
PROPELLANT LOADING SYSTEM DIVISION Page 24
COMPTROLLER Page 25
OFFICE OF COUNSEL Page 26
REAL ESTATE BRANCH Page 26
SAFETY BRANCH Page 26
OFFICE SERVICE BRANCH Page 26
PERSONNEL BRANCH Page 26
SAFETY BRANCH Page 26
TECHNICAL LIAISON BRANCH Page 26
1 January 1961

CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE

1 January 1961

EXECUTIVE OFFICE

BRIG. GENERAL A. C. WELLING	COMMANDING GENERAL ENGMA-VE
COL. T. J. HAYES	VICE COMMANDER ENGMA-VA
*DIRECTORS	DEPUTY COMMANDERS
LT. COL. F. J. DIRKSE	EXECUTIVE ENGMA-VI
MAJ. C. E. HOLBROOK	ASSISTANT EXECUTIVE
1ST LT. W. J. WAFER	ADMINISTRATIVE ASSISTANT

MINUTEMAN CONSTRUCTION DIRECTORATE (ENGMA-MD)
*Col. C. T. Noble — Director

ADMINISTRATIVE BRANCH	
Mrs. M. Keogh	Chief
CONSTRUCTION BRANCH	
L. E. Ringo	Chief
CONTRACT ADMINISTRATION BRANCH	
(Vacancy)	Chief
ENGINEERING BRANCH	
C. A. Blake	Chief

AREA OFFICES
Malmstrom AFB

TITAN I CONSTRUCTION DIRECTORATE (ENGMA-TA)
*Col. C. H. Whitesell — Director

ADMINISTRATIVE BRANCH	
Miss M. Perlotte	Chief
CONSTRUCTION BRANCH	
N. Hallowell	Chief
CONTRACT ADMINISTRATION BRANCH	
C. Thornburg	Chief
ENGINEERING BRANCH	
W. W. Kantzlowe	Chief

AREA OFFICES
Davis AFB
Kilsworth AFB
Larson AFB
Lowry AFB
Mt. Home Afb

TITAN II CONSTRUCTION DIRECTORATE (ENGMA-TU)
*Col. C. H. Dunn — Director

ADMINISTRATIVE BRANCH	
J. T. Stark	Chief
CONSTRUCTION BRANCH	
J. M. Schlunts	Chief
CONTRACT ADMINISTRATION BRANCH	
L. H. Broadage	Chief
ENGINEERING BRANCH	
E. D. Tracy	Chief

AREA OFFICES
Davis-Monthan AFB
Griffiss AFB
Little Rock AFB
McConnell AFB

ATLAS S&E CONSTRUCTION DIRECTORATE (ENGMA-AA)
*Col. C. C. Noble — Director

CONSTRUCTION BRANCH	
F. Cannon	Chief
CONTRACT ADMINISTRATION BRANCH	
J. G. Bura	Chief
ENGINEERING BRANCH	
D. Waxman	Chief

ATLAS F CONSTRUCTION DIRECTORATE (ENGMA-AB)
*Col. W. W. Wilson — Director

ADMINISTRATIVE BRANCH	
(Vacancy)	Chief
CONSTRUCTION BRANCH	
F. Biehn	Chief
CONTRACT ADMINISTRATION BRANCH	
K. T. Quick	Chief
ENGINEERING BRANCH	
P. Rosholt	Chief

AREA OFFICES
Altus AFB
Dyess AFB
Lincoln AFB
Plattsburgh AFB
Schilling AFB
Walker AFB

ENGINEERING DIVISION (ENGMA-VC)
Lt. Col. C. H. Chamberlain — Chief

ARCHITECTURAL BRANCH	
W. E. Lacso	Chief
CIVIL ENGINEERING BRANCH	
A. T. Bjerk	Chief
ELECTRICAL BRANCH	
R. F. Erickson	Chief
FOUNDATION & MATERIALS BRANCH	
G. E. Roberts	Chief
MECHANICAL BRANCH	
F. L. Martin	Chief
STRUCTURAL BRANCH	
L. O. Thornburg	Chief

OPERATIONS DIVISION (ENGMA-VE)
Lt. Col. J. L. Fishback — Chief

CONSTRUCTION CONTROL & EVALUATION BRANCH	
T. G. Watts	Chief
REPORTS & PROGRAMMING BRANCH	
E. R. Harrington	Chief

PROCUREMENT MANAGEMENT DIVISION (ENGMA-VH)
Lt. Col. F. W. White — Chief

PRODUCTION COORDINATING BRANCH	
R. Amundson	Chief
MANAGEMENT CONTROL BRANCH	
J. W. Kenton	Chief
TECHNICAL DATA BRANCH	
D. J. Dondrgo	Chief

PROPELLANT LOADING SYSTEM DIVISION (ENGMA-VF)
Lt. Col. A. W. Sanders, Jr. — Chief

INSTALLATION & TESTING BRANCH	
J. Wentzel	Chief
EQUIPMENT & TRAINING BRANCH	
Capt. Y. Komoto	Chief

COMPTROLLER (ENGMA-VC)
L. E. Oliver — Acting Comptroller

AUDIT BRANCH	
E. L. Hughes	Chief
BUDGET BRANCH	
V. Barrineau	Chief
FISCAL & ACCOUNTING BRANCH	
R. R. Reynolds	Chief
MANAGEMENT BRANCH	
G. Coulter	Chief
TREASURY ACCOUNTING BRANCH	
J. J. Martin	Chief

OFFICE OF COUNSEL (ENGMA-VL)
J. Sibbaroff — Counsel

CONTRACT & CLAIMS BRANCH	
E. Vach	Chief
LEGAL BRANCH	
R. Hamilton	Chief
LABOR RELATIONS BRANCH	
W. H. Rice	Chief

REAL ESTATE BRANCH (ENGMA-VR)
J. M. Cerrish — Chief

REAL ESTATE BRANCH (ENGMA-VR)	
W. L. Tucker	Chief

SECURITY BRANCH (ENGMA-VM)
Maj. L. Zucker — Chief

TECHNICAL LIAISON BRANCH (ENGMA-VT)
(Vacancy) — Chief

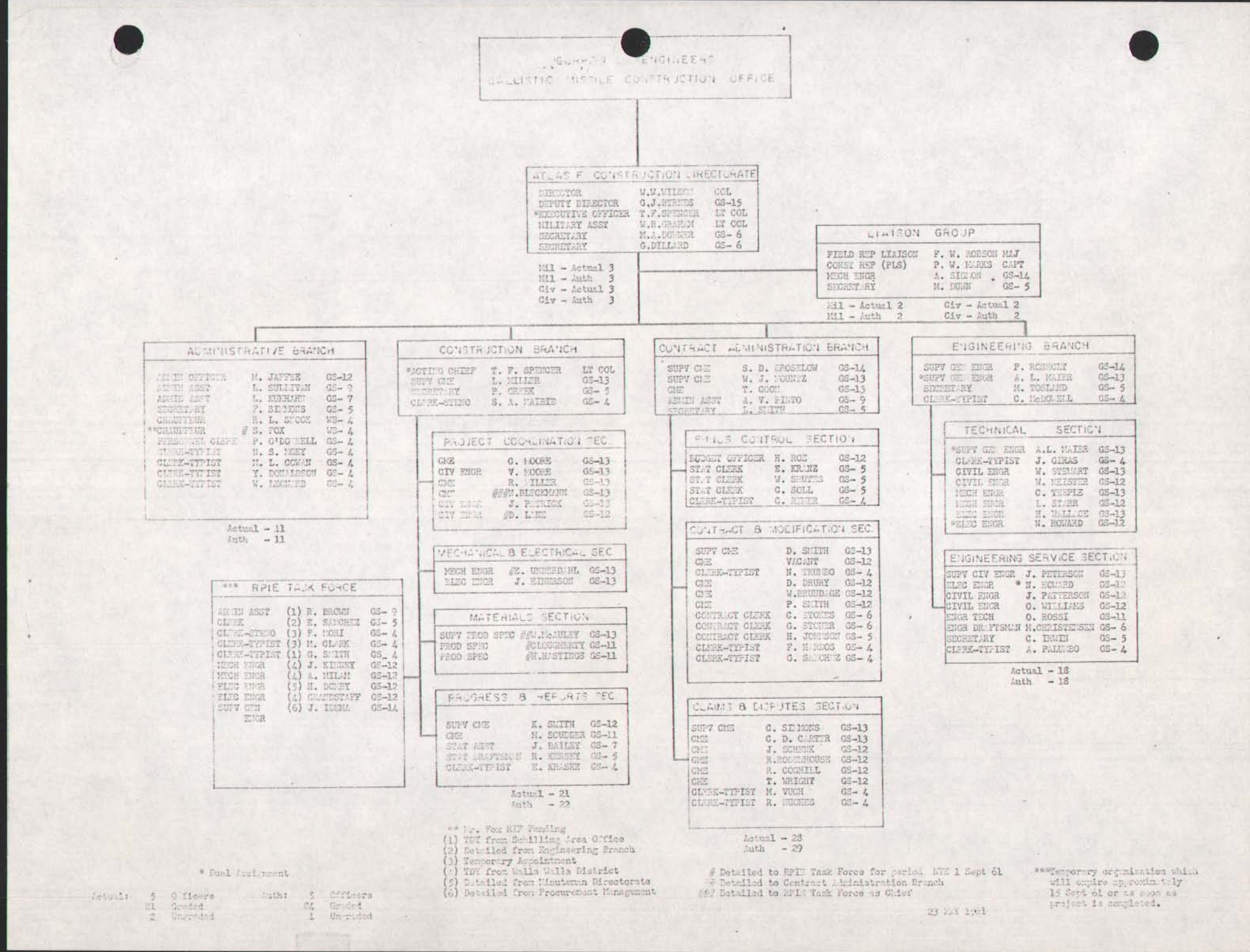
OFFICE SERVICE BRANCH (ENGMA-VO)
H. J. Bowan — Chief

RECORDS MANAGEMENT SECTION	
Mrs. A. Davis	Chief
GENERAL SERVICE SECTION	
W. C. Mauch	Chief
MAIL & RECORDS SECTION	
Mrs. E. T. Bledsoe	Chief
VEHICLE MANAGEMENT SECTION	
(Vacancy)	Chief

PERSONNEL BRANCH (ENGMA-VV)
E. J. Greas — Chief

EMPLOYEE UTILIZATION SECTION	
C. D. Martin	Chief
CLASSIFICATION & WAGE SECTION	
J. E. Ballard	Chief
ADMINISTRATIVE SECTION	
Miss K. Willis	Chief
MILITARY PERSONNEL SECTION	
Miss A. Christensen	Chief

* Dual assignment



** Mr. Fox RIF Pending
(1) TDY from Schilling Area Office
(2) Detailed from Engineering Branch
(3) Temporary Appointment
(4) TDY from Walla Walla District
(5) Detailed from Minuteman Directorate
(6) Detailed from Procurement Management

Detailed to RPIE Task Force for period NTE 1 Sept 61
Detailed to Contract Administration Branch
Detailed to RPIE Task Force as Chief

***Temporary organization which will expire approximately 15 Sept 61 or as soon as project is completed.

* Dual Assignment

Actual:	5	Officers	Auth:	5	Officers
	21	Graded		24	Graded
	2	Ungraded		1	Ungraded

23 MAY 1961

COMMANDER, [redacted]MCO

ATLAS F CONSTRUCTION DIRECTORATE

Directs all construction; serves as Contracting Officer. Directs operations of Area Offices, serves as CofE construction contact with USAF. Directs program for other technical & training facilities through appropriate District Engineers.

ADMINISTRATIVE BRANCH

Provides administrative support services.

CONSTRUCTION BRANCH

Performs surveillance of construction to assure conformance with contract provisions, progress, and quality of work. Assists in solving field problems & disseminates information to construction projects. Provides technical assistance to Area Offices.

CONTRACT ADMIN. BRANCH

Advertises & issues all contracts, conducts pre-award surveys & issues award notices. Prepares & distributes modifications & obligating & commitment documents. Prepares current working estimates. Prepares letters of award & notices to proceed.

ENGINEERING BRANCH

Provides engineering support. Monitors development of plans, specifications, & estimates. Participates in design review & change order & criteria conferences. Serves Directorate on technical matters & provides technical assistance to Area Offices

Area Offices

ALTUS AFB

Exercises supervision & engineering control of construction.

DYESS AFB

Exercises supervision & engineering control of construction.

LINCOLN AFB

Exercises supervision & engineering control of construction.

PLATTSBURGH

Exercises supervision & engineering control of construction.

SCHILLING AFB

Exercises supervision & engineering control of construction.

WALKER AFB

Exercises supervision & engineering control of construction.

2 June 1961

CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE

Executive Office

COLONEL T. J. HAYES	Commander ENGMA-VZ
Directors, Weapons Systems	Deputy Commanders
LT. COL. A. W. SANDERS, JR.	Assistant for Operations
LT. COL. F. J. DIRKES	Executive
MAJ. C. E. HOLBROOK	Admin Officer
1ST LT. W. J. WAFER	Admin Asst
1 Secretary (Steno)	GS-9
1 Secretary (Steno)	GS-7
1 Secretary (Steno)	GS-6
1 Clerk-Steno	GS-4

5 Officers
4 Graded
0 Ungraded

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- TITAN I CONSTRUCTION DIRECTORATE — Page 5
  - AREA OFFICES
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    - ELLSWORTH AFB — Page 7
    - LARSON AFB — Page 8
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    - DYESS AFB — Page 17
    - LINCOLN AFB — Page 18
    - PLATTSBURGH AFB — Page 19
    - SCHILLING AFB — Page 20
    - WALKER AFB — Page 21
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- OPERATIONS DIVISION — Page 23
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- SAFETY BRANCH — Page 25

1 July 1961

CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE

EXECUTIVE OFFICE

COL. T. J. HAYES	COMMANDER ENGMA-PE
*DIRECTORS, WEAPON SYSTEMS	DEPUTY COMMANDERS
LT. COL. A. W. SAUNDERS, JR.	ASSISTANT FOR OPERATIONS
LT. COL. F. J. DINEEN	EXECUTIVE
MAJ. C. E. HOLBROOK	ADMINISTRATIVE OFFICER
1ST LT. W. J. WAYNE	ADMINISTRATIVE ASSISTANT

MINUTEMAN CONSTRUCTION DIRECTORATE (ENGMA-MD)
*Col. C. C. Noble — Director

- ADMINISTRATIVE BRANCH — Mrs. M. Novak — Chief
- CONSTRUCTION BRANCH — L. R. Riego — Chief
- CONTRACT ADMINISTRATION BRANCH — R. J. Fita — Chief
- ENGINEERING BRANCH — C. A. Olson — Chief

AREA OFFICES
Malmstrom AFB

TITAN I CONSTRUCTION DIRECTORATE (ENGMA-TA)
*Col. C. H. Whitesell — Director

- ADMINISTRATIVE BRANCH — Miss M. Farlanta — Chief
- CONSTRUCTION BRANCH — N. Hallowell — Chief
- CONTRACT ADMINISTRATION BRANCH — C. Thornburg — Chief
- ENGINEERING BRANCH — F. Wolfe — Acting Chief
- CONTROL AND MANAGEMENT BRANCH — Maj. J. L. Hanshaw — Acting Chief

AREA OFFICES
Beale AFB
Ellsworth AFB
Ismson AFB
Lowry AFB
Mt. Home AFB

TITAN II CONSTRUCTION DIRECTORATE (ENGMA-TB)
*Col. C. H. Dunn — Director

- ADMINISTRATIVE BRANCH — J. V. Stark — Chief
- CONSTRUCTION BRANCH — J. M. Schluntz — Chief
- CONTRACT ADMINISTRATION BRANCH — L. H. Brundage — Chief
- ENGINEERING BRANCH — E. D. Tracy — Chief

AREA OFFICES
Davis-Monthan AFB
Little Rock AFB
McConnell AFB

ATLAS F CONSTRUCTION DIRECTORATE (ENGMA-AB)
*Col. W. W. Wilson — Director

- ADMINISTRATIVE BRANCH — H. Jaffee — Chief
- CONSTRUCTION BRANCH — Lt. Col. T. F. Spencer — Acting Chief
- CONTRACT ADMINISTRATION BRANCH — S. T. Broscious — Chief
- ENGINEERING BRANCH — F. Rosholt — Chief

AREA OFFICES
Altus AFB
Dyess AFB
Lincoln AFB
Plattsburgh AFB
Schilling AFB
Walker AFB

ENGINEERING DIVISION (ENGMA-VG)
Lt. Col. C. H. Chamberlain — Chief

- ARCHITECTURAL BRANCH — W. R. Lasso — Chief
- CIVIL ENGINEERING BRANCH — A. C. Bjork — Chief
- ELECTRICAL BRANCH — H. F. Erickson — Chief
- FOUNDATION & MATERIALS BRANCH — G. D. Roberts — Chief
- MECHANICAL BRANCH — M. L. Martin — Chief
- STRUCTURAL BRANCH — L. O. Thornburg — Chief

OPERATIONS DIVISION (ENGMA-VK)
Lt. Col. J. L. Fishback — Chief

- CONTRACT SUPPORT BRANCH — T. G. Watts — Chief
- REPORTS & PROGRAM BRANCH — E. R. Harrington — Chief

PROCUREMENT MANAGEMENT DIVISION (ENGMA-VH)
Lt. Col. V. W. White — Chief

- PRODUCTION COORDINATING BRANCH — R. Anninson — Chief
- MANAGEMENT CONTROL BRANCH — J. W. Kenton — Chief

PROPELLANT SYSTEMS DIVISION (ENGMA-VP)
Maj. D. D. Malkow — Acting Chief

- TITAN BRANCH — D. C. Baer — Chief
- ATLAS BRANCH — J. B. Wentzel — Chief

CONTROLLER (ENGMA-VC)
L. E. Oliver — Comptroller

- AUDIT BRANCH — E. L. Hughes — Chief
- BUDGET BRANCH — F. Burrineau — Chief
- FINANCE & ACCOUNTING BRANCH — R. R. Reynolds — Chief
- MANAGEMENT BRANCH — L. A. Brahos — Chief
- PROPERTY ACCOUNTING BRANCH — J. J. Martin — Chief

OFFICE OF COUNSEL (ENGMA-VL)
S. Ribakoff — Counsel

- CONTRACT & CLAIMS BRANCH — E. Woch — Chief
- TORT BRANCH — E. McFadden — Chief
- LABOR RELATIONS BRANCH — W. H. Rice — Chief

REAL ESTATE BRANCH (ENGMA-VR)
J. M. Gerrish — Chief

SECURITY BRANCH (ENGMA-VM)
Lt. Col. L. Zucker — Chief

SAFETY BRANCH (ENGMA-VS)
W. L. Irvine — Chief

OFFICE SERVICE BRANCH (ENGMA-VO)
L. C. Hall — Chief

- RECORDS MANAGEMENT SECTION — Mrs. A. Davis — Chief
- GENERAL SERVICE SECTION — W. C. Mauch — Chief
- MAIL & MESSAGE SECTION — Mrs. E. T. Bledsoe — Chief
- VEHICLE MANAGEMENT SECTION — F. Brown — Chief

PERSONNEL BRANCH (ENGMA-VV)
* C. D. Martin — Acting Chief

- EMPLOYEE UTILIZATION SECTION — * C. D. Martin — Chief
- CLASSIFICATION & WAGE SECTION — J. K. Ballard — Chief
- ADMINISTRATIVE SECTION — Miss K. Willis — Chief
- MILITARY PERSONNEL SECTION — Miss A. Christenson — Chief

Col Hayes assumed command 20 June 61

* Dual assignment

1 July 1961

CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE

EXECUTIVE OFFICE

ATLAS F CONSTRUCTION DIRECTORATE

COL W. W. WILSON	DIRECTOR
G. J. BYRNES	DEPUTY DIRECTOR
Supv Const Mgt Engr	GS-15
*LT COL T. F. SPENCER	EXECUTIVE OFFICER
LT COL W. B. GRAHAM	MILITARY ASST
2 Secretary (Steno)	GS-6

LIAISON GROUP

MAJ F. W. HOBSON	FIELD REP LIAISON
CAPT P. W. MARKS	CONSTRUCTION REP
1 Mech Engr (Gen)	GS-14
1 Secretary (Steno)	GS-5

ADMINISTRATIVE BRANCH

N. JAFFEE	CHIEF
Admin Off	GS-12
L. J. SULLIVAN	ASST CHIEF
Admin Off	GS-9
1 Admin Asst	GS-7
1 Secretary (Steno)	GS-5
4 Clerk-Typist	GS-4
1 Mail & File Clk (Typing)	GS-4
1 Chauffeur	WB-4

CONSTRUCTION BRANCH

*LT COL T. F. SPENCER	ACTING CHIEF
L. H. MILLER	ASST CHIEF
Supv CME	GS-13
1 Secretary (Steno)	GS-5
1 Clerk-Steno	GS-4

PROJECT COORDINATION SECTION

4 CME	GS-13
#1 CME	GS-13
#1 Civil Engr	GS-12

ELECTRICAL & MECHANICAL SECTION

1 Elec Engr	GS-13
1 Mech Engr	GS-13

MINUTEMAN TASK FORCE

1 Clerk-Steno	GS-4
1 Clerk-Typist	GS-4
3 Clerk-Typist	GS-3
3 Laborer	WB-2

MATERIALS SECTION

##M. E. McAULEY	CHIEF
Supv Prod Spec	GS-13
#2 Prod Spec	GS-11

PROGRESS & REPORTS SECTION

K. C. SMITH	CHIEF
Supv CME	GS-12
M. R. SCUDDER	ASST CHIEF
CME	GS-11
1 Stat Asst	GS-7
1 Stat Draftsman	GS-5
1 Clerk-Typist	GS-4

CONTRACT ADMINISTRATION BRANCH

S. D. BROSELOW	CHIEF
Supv CME	GS-14
W. J. MOUNTZ	ASST CHIEF
Supv CME	GS-13
1 CME	GS-13
1 Admin Asst	GS-9
1 Secretary (Steno)	GS-5

FUNDS CONTROL SECTION

H. E. ROE	CHIEF
Budget Analyst	GS-12
3 Stat Clk (Typing)	GS-5
1 Clerk-Typist	GS-4

CONTRACT & MODIFICATION SECTION

D. W. SMITH	CHIEF
Supv CME	GS-13
3 CME	GS-12
2 Contract Clerk	GS-6
1 Contract Clerk	GS-5
2 Clerk-Typist	GS-4
1 Clerk-Typist	GS-4

CLAIMS & DISPUTES SECTION

2 CME	GS-13
4 CME	GS-12
2 Clerk-Typist	GS-4

ENGINEERING BRANCH

P. A. ROSHOLT	CHIEF
Supv Gen Engr	GS-14
*A. L. MAIER	ASST CHIEF
Supv Gen Engr	GS-13
1 Secretary (Steno)	GS-5
1 Clerk-Typist	GS-4

TECHNICAL SECTION

*A. L. MAIER	CHIEF
Supv Gen Engr	GS-13
1 Civil Engr	GS-13
1 Elec Engr	GS-13
1 Mech Engr	GS-13
1 Civil Engr	GS-12
1 Mech Engr	GS-12
1 Clerk-Typist	GS-4

ENGINEERING SERVICE SECTION

J. H. PETERSON	CHIEF
Supv Civil Engr	GS-13
N. L. HOWARD	ASST CHIEF
Elect Engr	GS-12
2 Civil Engr	GS-12
1 Engrg Tech	GS-11
1 Engrg Draftsman	GS-6
1 Secretary	GS-5
1 Clerk-Typist	GS-4

* Dual Assignment

\# Detailed to MMTF Task Force.

\#\# 1 Supv Prod Spec detailed to Contract & Modification Section

\#*\# Temporary organization which will require approximately 1 Sep 61 or sooner, depending on workload.

5 Officers
84 Graded
4 Ungraded

JULY 1961

CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE

ATLAS F CONSTRUCTION DIRECTORATE

DIRECTOR	W.W.WILSON	COL
DEPUTY DIRECTOR	G.J.BYRNES	GS-15
*EXECUTIVE OFFICER	T.F.SPENCER	LT COL
MILITARY ASST	W.B.GRAHAM	LT COL
SECRETARY	M.A.DOWNER	GS-6
SECRETARY	G.DILLARD	GS-6

Mil - Actual 3
Mil - Auth 3
Civ - Actual 3
Civ - Auth 3

LIAISON GROUP

FIELD REP LIAISON	F.W.ROBSON	MAJ
CONST REP (PLS)	P.W.MARKS	CAPT
MECH ENGR	A.SIGMON	GS-14
SECRETARY	F. SIMMONS	GS-5

Mil - Actual 2
Mil - Auth 2
Civ - Actual 2
Civ - Auth 2

ADMINISTRATIVE BRANCH

ADMIN OFFICER	M. JAFFEE	GS-12
ADMIN OFFICER	L. SULLIVAN	GS-9
ADMIN ASST	L. KUEHAHN	GS-7
CLERK-TYPIST	P. O'DONNELL	GS-4
CLERK-TYPIST	N. S. MOEY	GS-4
MAIL&FILE CLK	Y. DONALDSON	GS-4
CHAUFFEUR (1)	H. McCARTHY	WB-4

Actual - 7
Auth - 7

CONSTRUCTION BRANCH

*ACTING CHIEF	T. F. SPENCER	LT COL
SUPV CNE	L. MILLER	GS-13
SECRETARY	P. GREEN	GS-5

PROJECT COORDINATION SEC.

CNE	V. MOORE	GS-13
CNE	R. MILLER	GS-13
CNE	### H. ELTERMANN	GS-13
CNE	# D. LANE	GS-12

MATERIALS SECTION

SUPV PROD SPEC	##W.McAULEY	GS-13
PROD SPEC	##.HASTINGS	GS-11

PROGRESS & REPORTS SEC.

SUPV CNE	K. SMITH	GS-12
CNE	M. SCUDDER	GS-11
STAT ASST (5)	J. BAILEY	GS-7
STAT DRAFTSMAN	A. KENNEY	GS-5
CLERK-TYPIST	E. KRASKE	GS-4

Actual - 13
Auth - 13

*** RPIE TASK FORCE

CLERK (2)	E. SANCHEZ	GS-5
CLERK-TYPIST	M. CLARK	GS-4
MECH ENGR (4)	A. MILAM	GS-12
CLERK-TYPIST (3)	C. SKIRLICK	GS-3
LABORER (3)	H. DeSENTEL	W-2
LABORER (3)	D. HARRISON	W-2
LABORER (3)	N. MESSINGER	W-2
LABORER (3)	M. COURTNEY	W-2

Actual - 6
Auth - 6

CONTRACT ADMINISTRATION BRANCH

SUPV CNE	S. D. BROSLOW	GS-14
SUPV CNE	W. J. MOUNTZ	GS-13
CNE	T. COON	GS-13
ADMIN ASST(6)	A. V. PINTO	GS-9
SECRETARY	L. SMITH	GS-5

FUNDS CONTROL SECTION

STAT CLERK	E. KRANZ	GS-5
STAT CLERK	W. SHUTES	GS-5
STAT CLERK	C. SOLL	GS-5
CLERK-TYPIST	C. REMER	GS-4

CONTRACT & MODIFICATION SEC.

SUPV CNE	D. SMITH	GS-13
CLERK-TYPIST	C. LEETCH	GS-4
CNE	D. DRURY	GS-12
CNE	W.BRUNDAGE	GS-12
CNE	P. SMITH	GS-12
CONTRACT CLERK	C. STOKES	GS-6
CONTRACT CLERK	G. STONER	GS-6
CONTRACT CLERK	H. JOHNSON	GS-5
CLERK-TYPIST	F. HARDOS	GS-4
CLERK-TYPIST	G. SANCHEZ	GS-4

CLAIMS & DISPUTES SECTION

SUPV CNE	C. SIMMONS	GS-13
CNE	C. D. CARTER	GS-13
CNE	J. SCHENK	GS-12
CNE	R.RODENHOUSE	GS-12
CNE	R. COGHILL	GS-12
CNE	T. WRIGHT	GS-12
CLERK-TYPIST	M. VUCH	GS-4
CLERK-TYPIST	R. HUGHES	GS-4

Actual - 27
Auth - 27

ENGINEERING BRANCH

SUPV GEN ENGR	P. ROSBOLT	GS-14
SUPV GEN ENGR	A. L. MAIER	GS-13
SECRETARY	M. TOSLAND	GS-5
CLERK-TYPIST	C. McDOWELL	GS-4

TECHNICAL SECTION

*SUPV GEN ENGR	A.L.MAIER	GS-13
CLERK-TYPIST	J. GIRAS	GS-4
CIVIL ENGR	W. STEWART	GS-13
CIVIL ENGR	W. MEISTER	GS-12
MECH ENGR	C. TREPLE	GS-13
MECH ENGR	L. STARR	GS-12
ELEC ENGR	H. WALLACE	GS-13
*ELEC ENGR	N. HOWARD	GS-12

ENGINEERING SERVICE SECTION

SUPV CIV ENGR	J. PETERSON	GS-13
ELEC ENGR	*N. HOWARD	GS-12
CIVIL ENGR	J. PATTERSON	GS-12
CIVIL ENGR	O. WILLIAMS	GS-12
ENGR TECH	O. ROSSI	GS-11
ENGR DRAFTSMAN	M.CHRISTENSEN	GS-6
SECRETARY	C. IRWIN	GS-5
CLERK-TYPIST	A. PALUMBO	GS-4

Actual - 18
Auth - 18

* Dual Assignment

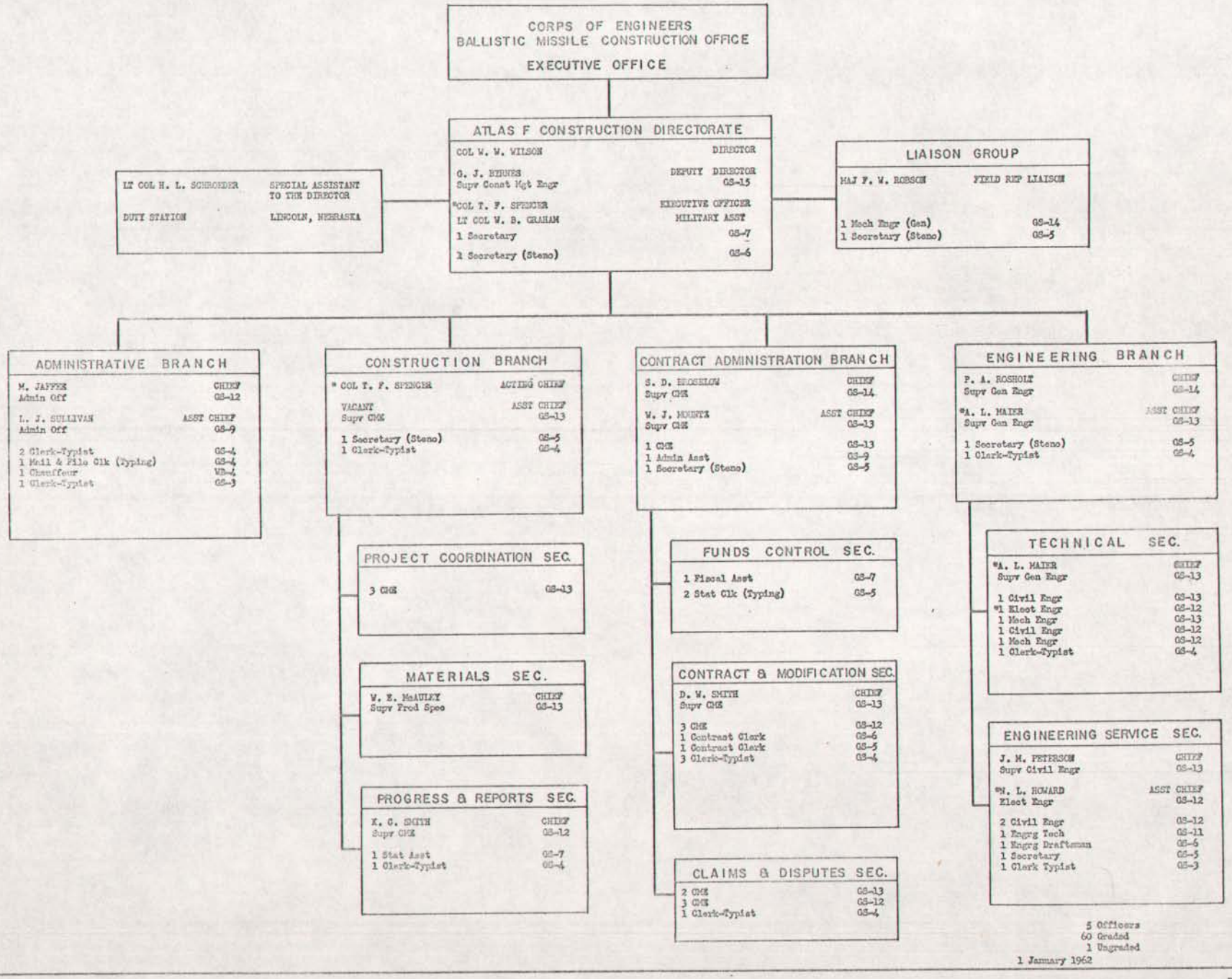
Actual:	5	Officers
	71	Graded
	5	Ungraded
Auth:	5	Officers
	73	Graded
	5	Ungraded

(1) Detailed from Office Service Branch
(2) Detailed from Engineering Division
(3) Temporary Appointment
(4) TAT from Walla Walla District
(5) Detailed to Claims and Disputes Section
(6) Detailed to Funds Control Section

\# Detailed to RPIE Task Force
Detailed to Contract Administration Branch
Detailed to RPIE Task Force as Chief

***Temporary organization which will be transferred to Titan II approximately 15 September 1961.

15 AUGUST 1961



5 Officers
60 Graded
1 Ungraded
1 January 1962

CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE

EXECUTIVE OFFICE

COL. T. J. HAYES	COMMANDER AND DIRECTOR
*DIRECTOR, WEAPONS SYSTEMS	DEPUTY COMMANDER
COL. A. W. SANDERS, JR.	ASST FOR OPERATIONS
LT. COL. F. J. DIPPEL	EXECUTIVE
MAJ. C. E. HOLBROOK	ADMINISTRATIVE OFFICER
MAJ. H. C. LITTLEFIELD	PROGRAM CONTROL OFFICER
1ST LT. W. J. WAFER	ADMINISTRATIVE ASSISTANT

SPECIAL ASSISTANTS
Col. J. S. Meahan, CE Asst to Commander

BOARDS AND COMMITTEES
Board for Prequalification of Bidders
Incentive Awards Committee
Standing Grievance Committee

ENGINEER INSPECTION GENERAL - LAFB
Col. H. R. Howell ENGIG-L

MINUTEMAN CONSTRUCTION DIRECTORATE (ENCMA-MD)
*Col. C. C. Noble Director

- ADMINISTRATIVE BRANCH — O. F. Meyers, Chief
- CONSTRUCTION BRANCH — L. E. Ringo, Chief
- CONTRACT ADMINISTRATION BRANCH — R. J. Pitt, Chief
- ENGINEERING BRANCH — C. A. Olson, Chief
- CONTROL AND MANAGEMENT BRANCH — Lt. Col. S. J. McThorn, Chief

AREA OFFICES
Malmstrom AFB
Ellsworth AFB
Minot AFB

TITAN I CONSTRUCTION DIRECTORATE (ENCMA-TA)
*Col. C. H. Whitesell Director

- ADMINISTRATIVE BRANCH — Miss M. Farienta, Chief
- CONSTRUCTION BRANCH — N. Hallowell, Chief
- CONTRACT ADMINISTRATION BRANCH — C. Thornburg, Chief
- ENGINEERING BRANCH — F. Wolfe, Chief
- CONTROL AND MANAGEMENT BRANCH — Maj. J. L. Henshaw, Chief

AREA OFFICES
SEALE AFB
KILLOUGHTN AFB
LARSON AFB
MT. HOME AFB
RESIDENCY
DENVER BUILDING DETACHMENT

TITAN II CONSTRUCTION DIRECTORATE (ENCMA-TB)
*Col. C. H. Dunn Director

- ADMINISTRATIVE BRANCH — J. V. Stark, Chief
- CONSTRUCTION BRANCH — J. M. Schlunts, Chief
- CONTRACT ADMINISTRATION BRANCH — L. H. Brundage, Chief
- ENGINEERING BRANCH — E. D. Tracy, Chief

AREA OFFICES
Davis-Monthan AFB
Little Rock AFB
McConnell AFB

ATLAS F CONSTRUCTION DIRECTORATE (ENCMA-AB)
*Col. W. W. Wilson Director

- ADMINISTRATIVE BRANCH — M. Jaffee, Chief
- CONSTRUCTION BRANCH — Lt. Col. T. F. Spencer, Acting Chief
- CONTRACT ADMINISTRATION BRANCH — S. Broselow, Chief
- ENGINEERING BRANCH — P. Rosholt, Chief

AREA OFFICES
Altus AFB
Dyess AFB
Lincoln AFB
Plattsburgh AFB
Schilling AFB
Walker AFB

ENGINEERING DIVISION (ENCMA-VG)
Lt. Col. C. H. Chamberlain Chief

- ARCHITECTURAL BRANCH — W. S. Lasso, Chief
- CIVIL ENGINEERING BRANCH — R. C. Dyer, Chief
- ELECTRICAL BRANCH — H. F. Erickson, Chief
- FOUNDATION & MATERIALS BRANCH — G. B. Roberts, Chief
- MECHANICAL BRANCH — M. L. Martin, Chief
- STRUCTURAL BRANCH — L. O. Thornburg, Chief

OPERATIONS DIVISION (ENCMA-VK)
Maj. C. D. Hargreaves Chief

- CONTRACT SUPPORT BRANCH — F. R. Meyers, Chief
- REPORTS BRANCH — W. W. Santelmann, Chief
- PROGRAM COORDINATION BRANCH — F. G. Scherrer, Chief

PROCUREMENT MANAGEMENT DIVISION (ENCMA-VH)
Lt. Col. V. W. White Chief

- PRODUCTION COORDINATING BRANCH — R. Amundson, Chief
- MANAGEMENT CONTROL BRANCH — J. W. Kenton, Chief

PROPELLANT SYSTEMS DIVISION (ENCMA-VP)
Maj. Y. Komoto Acting Chief

- TITAN BRANCH — D. C. Baer, Chief
- ATLAS BRANCH — J. B. Wentzel, Chief

COMPTROLLER (ENCMA-VC)
I. E. Oliver Comptroller

- AUDIT BRANCH — E. L. Hughes, Chief
- BUDGET BRANCH — F. Berrineau, Chief
- FINANCE & ACCOUNTING BRANCH — H. H. Reynolds, Chief
- MANAGEMENT BRANCH — L. A. Brahms, Chief
- PROPERTY ACCOUNTING BRANCH — J. J. Martin, Chief

OFFICE OF COUNSEL (ENCMA-VL)
S. Ritzkoff Counsel

- CONTRACT & CLAIMS BRANCH — E. Yuch, Chief
- TRIAL BRANCH — S. McFadden, Chief
- LABOR RELATIONS BRANCH — W. T. Moe, Chief

REAL ESTATE BRANCH (ENCMA-VR)
J. H. Gerrish Chief

PARITY BRANCH (ENCMA-VJ)
W. L. Irwin Chief

SECURITY BRANCH (ENCMA-VM)
Lt. Col. L. Zucker Chief

OFFICE SERVICE BRANCH (ENCMA-VO)
L. C. Hall Chief

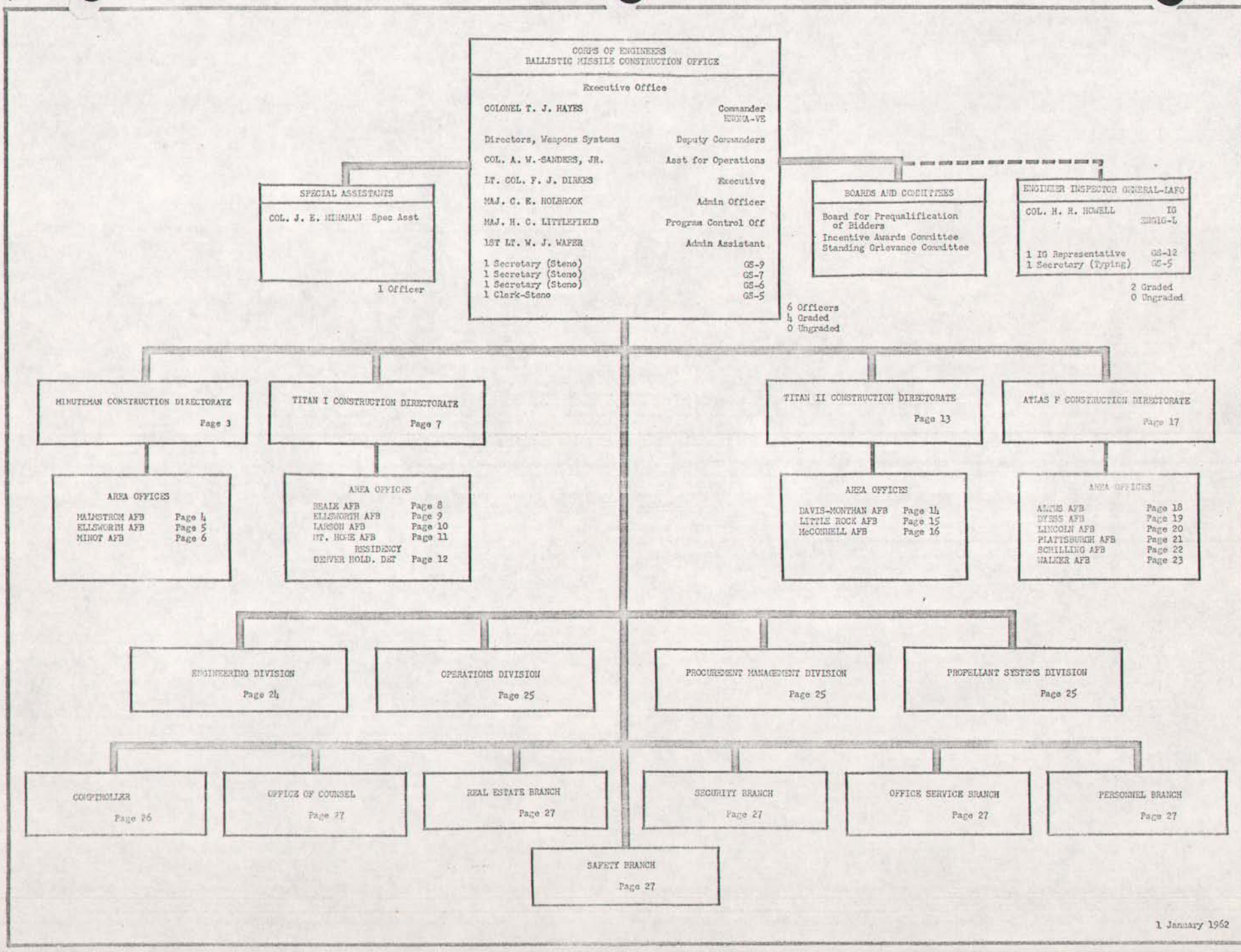
- RECORDS MANAGEMENT SECTION — Mrs. A. Davis, Chief
- GENERAL SERVICE SECTION — W. C. Mauch, Chief
- MAIL & RECORDS SECTION — Mrs. E. T. Bledsoe, Chief
- VEHICLE MANAGEMENT SECTION — F. Brown, Chief

PERSONNEL BRANCH (ENCMA-VV)
* C. D. Martin Chief

- EMPLOYEE UTILIZATION SECTION — C. D. Martin, Chief
- CLASSIFICATION & WAGE SECTION — J. E. Ballard, Chief
- ADMINISTRATIVE SECTION — Miss K. Willis, Chief
- EMPLOYEE RELATIONS & CONTACT SECTION — Vacancy, Chief
- MILITARY PERSONNEL SECTION — Miss A. Christensen, Chief

* Dual assignment

1 January 1962



1 January 1962

CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE

ATLAS F CONSTRUCTION DIRECTORATE

DIRECTOR	W.W.WILSON	COL
DEPUTY DIRECTOR	G.J.BYRNES	GS-15
* EXEC OFFICER	T.F.SPENCER	COL
MILITARY ASST	W.B.GRAHAM	LT COL
SECRETARY	M.A.DOWLER	GS-7
SECRETARY	G.DILLARD	GS-6

SPECIAL ASST to the DIRECTOR — H.L.SCHROEDER — LT COL

DUTY STATION — LINCOLN, NEBR.

LIAISON GROUP

FIELD REP LIAISON	F.W.ROBSON	MAJOR
MECH ENGR (GEN)	A.C.SIGMON	GS-14
CLERK-STENO	E.N.CONKLIN	GS-4

ADMINISTRATIVE BRANCH

ADMIN OFFICER	L.J.SULLIVAN	GS-9
CLERK-TYPIST	P.B.O'DONNELL	GS-4
CLERK-TYPIST	R.A.HUGHES	GS-4
MAIL&FILE CLERK	Y.S.DONALDSON	GS-4
CLERK-TYPIST	P.A.ALLEN	GS-3
CHAUFFEUR	J.H.JACKSON	W-4

CONSTRUCTION BRANCH

* ACTING CHIEF	T.F.SPENCER	COLONEL
CNE	R.W.MILLER	GS-13
CNE	V.B.MOORE	GS-13
(1) SUPV PROD SPEC	W.E.McAULEY	GS-13
(2) SECRETARY	P.GREEK	GS-5

PROGRESS & REPORTS SECTION

SUPV CNE	K.C.SMITH	GS-12
(3) STAT ASST	J.T.BAILEY	GS-7
CLERK-TYPIST	E.J.KRUSKE	GS-4

CONTRACT ADMINISTRATION BRANCH

SUPV CNE	S.D.BROSELOW	GS-14
SUPV CNE	W.J.HURTZ	GS-13
CNE	T.R.COON	GS-13
(4) ADMIN ASST	A.V.PINTO	GS-9
SECRETARY	L.G.SMITH	GS-5

FUNDS CONTROL SECTION

FISCAL ASST	E.V.POWLER	GS-7
CLERK (Typ)	W.K.SHUTES	GS-5
CLERK (Typ)	C.D.SOLL	GS-5

CONTRACT & MODIFICATION SEC.

SUPV CNE	D.W.SMITH	GS-13
CNE	D.H.DRURY	GS-12
CNE	P.E.SMITH	GS-12
CONTRACT CLERK	G.F.STONER	GS-6
CONTRACT CLERK	H.T.JOHNSON	GS-5
CLERK-TYPIST	C.A.LEETCH	GS-4
CLERK-TYPIST	F.E.HARDGS	GS-4
CLERK-TYPIST	G.J.SANCHEZ	GS-4

CLAIMS & DISPUTES SECTION

SUPV CNE	C.W.SIMMONS	GS-13
CNE	J.A.SCHENK	GS-12
CNE	T.H.WRIGHT	GS-12
(5) CNE	R.W.COGHILL	GS-12
CLERK-TYPIST	M.E.VUCH	GS-4

ENGINEERING BRANCH

SUPV GEN ENGR	P.A.ROSHOLT	GS-14
* SUPV GEN ENGR	A.L.MAINE	GS-13
SECRETARY	M.D.TOSLAND	GS-5

TECHNICAL SECTION

* SUPV GEN ENGR	A.L.MAINE	GS-13
CIVIL ENGR	W.K.STEWART	GS-13
CIVIL ENGR	W.B.[illegible]	GS-12
MECH ENGR	C.J.TEPPLE	GS-13
MECH ENGR	L.G.STARR	GS-12
* ELEC ENGR	N.L.HOWARD	GS-12
CLERK-TYPIST	J.M.GIRAS	GS-4

ENGINEERING SERVICE SECTION

SUPV CIV ENGR	J.M.PETERSON	GS-13
* ELEC ENGR	N.L.HOWARD	GS-12
CIVIL ENGR	J.PATTERSON	GS-12
(6) ENGR TECH	O.A.ROSSI	GS-11
ENGR DFTSMN	M.CHRISTENSEN	GS-6
SECRETARY	C.D.IRWIN	GS-5
CIVIL ENGR	R.RODENHOUSE	GS-12

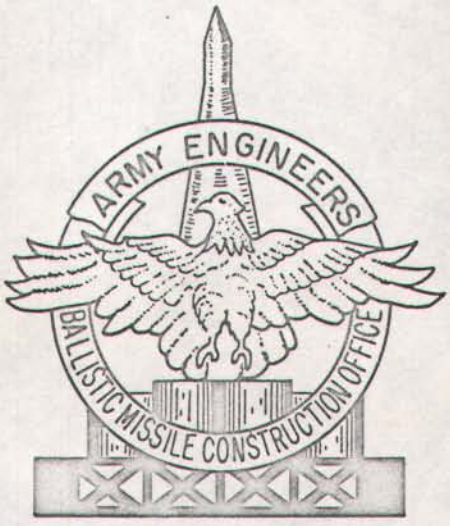
Actual: 5 Officers, 53 Graded, 1 Ungraded — Auth: 5 Officers, 56 Graded, 1 Ungraded

* Dual Assignment

(1) Working in Contract Administration Branch
(2) Detailed to Executive Office, CENDO
(3) Detailed to Claims & Disputes Section
(4) Detailed to Funds Control Section
(5) RIF date extended to allow for extended TDY to Plattsburgh, N.Y.
(6) RIF date extended to allow for detail to Titan II Directorate, RPIE

5 FEBRUARY 1962

ORGANIZATION POSITION CHARTS



CORPS OF ENGINEERS

BALLISTIC MISSILE CONSTRUCTION OFFICE

LINCOLN AREA OFFICE

Lt. Colonel Henderson, Area Engineer, and John C. W. Carroll, Chief, Engineering & Technical Branch, discuss the installation aspects of the Fuel Catchment Tank.

Colonel John E. Minahan, former Lincoln Area Engineer, now Military Assistant to Commander, CERRCO headquarters.

Lt. Colonel Hal L. Schroeder, who first entered the missile program as Assistant Deputy District Engineer to Colonel Haley on the ICBM program. Later he became Area Engineer at Offutt and Lincoln and the Special Assistant to Director, Atlas F, stationed at Lincoln. He is now retired as of 1 Mar 62 and is Manager-Engineer for the Salt-Wahoo Watershed District, Lincoln, Nebraska

CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE
ATLAS F CONSTRUCTION DIRECTORATE

LINCOLN AREA OFFICE
LINCOLN, NEBRASKA

LT COL LESTER J. HENDERSON	AREA ENGINEER
1 Secretary (Steno)	GS-5

ADMINISTRATION BRANCH

DOMINIC J. KULA	CHIEF
Supv Admin Officer	GS-11
FRANK H. STANDER	ASST CHIEF
Supv Admin Asst	GS- 9
1 Supply Clerk	GS- 5
1 Personnel Clerk	GS- 4
2 Laborers	W- 3

CONSTRUCTION BRANCH

E. T. GARRETT	CHIEF
Supv Const Engr (Gen)	GS-12
*1 Supv Const Repr (Gen)	GS-12
1 Clerk-Stenographer	GS- 3

CONTRACT ADMINISTRATION BRANCH

HAROLD D. ANDERSON	CHIEF
Supv Const Mgmt Engr (Gen)	GS-13
EDWARD J. DONAHUE	ASST CHIEF
Supv Const Engr (Gen)	GS-12
1 Const Mgmt Engr (Gen)	GS-11
1 Const Engrg Techn	GS- 7
1 Clerk (Funds Control)	GS- 4

ENGINEERING BRANCH

JOHN C. W. CARROLL	CHIEF
Civil Engineer (Gen)	GS-12
CAPT ROBERT A. BUSH (1ST SECTION)	
2 Supv Const Mgmt Engr (Gen)	GS-12
1 Const Mgmt Engr (Gen)	GS-11
1 Civil Engineer (Gen)	GS-11
1 Const Repr (Gen)	GS-11
*1 Mechanical Engineer	GS-11
*1 Engrg Technician (Estimating)	GS- 9
1 Clerk-Stenographer	GS- 4

VALIDATION & TESTING SECTION

JOHN M. CLEMA	CHIEF
Electrical Engineer (Gen)	GS-12
2 Engrg Techn (Elec)	GS-11
1 Engrg Techn (Mech)	GS-11
*1 Engrg Techn (Mech)	GS-11
1 Engrg Techn (Mech)	GS- 9

PLS SECTION

Byron W. Oldham	
Inspector (Missiles)	GS-11

INSPECTION SECTION

# E. T. GARRETT	CHIEF
Supv Const Engr (Gen)	GS-12
1 Supv Const Engr (Gen)	GS-12
1 Supv Const Engr (AF)	GS-12
6 Supv Const Repr (Gen)	GS-12
*1 Const Repr (B&U)	GS-11
2 Const Repr (Gen)	GS- 9
1 Engrg Techn (Mech)	GS- 9

*On TDY at other installations
Dual Assignment

2 Officers
11 Graded
2 Ungraded

1 January 1962

CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE

ATLAS F CONSTRUCTION DIRECTORATE

LINCOLN AREA OFFICE
LINCOLN, NEBRASKA

COL JOHN B. MINAHAN	AREA ENGR
L. PHILIP THERIAULT	DEP AREA ENGR
Supv Const Engr (Gen)	GS-15
LT COL HAL L. SCHROEDER	EXEC OFFICER
1ST LT P. R. DeMAAGD	LIAISON OFFICER
1 Secretary (Steno)	GS-5
1 Clerk Steno	GS-4

OFFICE OF COUNSEL

FRANK RIDA	CHIEF
Attorney-Advisor (Contract)	GS-13
1 Admin Asst (Labor Relations)	GS-7
1 Clerk-Steno	GS-4

SAFETY BRANCH

MAJ EDWARD F. BRADY	CHIEF

ADMINISTRATIVE BRANCH

DOMINIC J. KUIA	CHIEF
Supv Admin Officer	GS-11
[illegible]	ASST CHIEF
Supv Admin Asst	GS-9
1 Supply Clerk	GS-5
1 Procurement Clerk	GS-4
1 Mail & File Clerk	GS-3
1 Clerk-Steno	GS-5
4 Clerk-Typist	GS-3
1 Office Machine Opr	GS-2
2 Laborer	W-3

CONSTRUCTION BRANCH

ALVAH L. REED, JR.	CHIEF
Supv Const Engr (Gen)	GS-14
JOHN P. SHIELDS, JR.	ASST CHIEF
Supv Const Engr (Gen)	GS-12
1 Supv Const Engr (Gen)	GS-12
1 Elec Engr (Gen)	GS-12
1 Engr Tech (Materials)	GS-12
2 Engr Tech (Elec)	GS-11
1 Engr Tech (Mech)	GS-11
2 Mech Engr (Gen)	GS-9
1 Engr Tech (Off Engr)	GS-9
1 Clerk-Typist	GS-3

CONTRACT ADMINISTRATION BRANCH

HAROLD D. ANDERSON	CHIEF
Supv Const Mgmt Engr (Gen)	GS-13
CARL M. STEWART, JR.	ASST CHIEF
Supv Const Mgmt Engr (Gen)	GS-12
2 Supv Engr Tech (Off Engr)	GS-12
2 Const Mgmt Engr (Gen)	GS-11
2 Const Mgmt Engr (Gen)	GS-9
1 Engr Tech (Off Engr)	GS-9
1 Const Engr Tech	GS-7
1 Clerk (Funds Control)	GS-4
1 Clerk-Steno	GS-4
3 Clerk-Steno	GS-3

ENGINEERING BRANCH

LLOYD A. DOSCHA	CHIEF
Supv Gen Engr	GS-13
3 Supv Const Mgmt Engr (Gen)	GS-12
1 Civil Engr (Gen)	GS-12
1 Mech Engr (Gen)	GS-11
1 Civil Engr	GS-11
1 Const Rep (Gen)	GS-11
1 Engr Tech (Off Engr)	GS-9
1 Const Mgmt Engr (Gen)	GS-9
1 Clerk-Steno	GS-4
2 Clerk-Typist	GS-3

PLS BRANCH

MAJ LESTER J. HENDERSON	CHIEF
1 Supv Mech Engr (Ord)	GS-13
1 Mech Engr (Gen)	GS-12
2 Mech Engr	GS-9
1 Mech Engr	GS-7
1 Clerk-Steno	GS-3

TESTING SECTION

1ST LT FRED L. FARNSWORTH	CHIEF

PLANNING & REPORTS SECTION

CAPT EDWARD C. FIKE	CHIEF

MATERIALS SECTION

CAPT ROBERT A. BUSH	CHIEF
1 Engr Tech (Est)	GS-9

SEWARD RESIDENT OFFICE

CARL J. LENANDER, JR.	RES ENGR
Supv Const Engr (Gen)	GS-12
3 Supv Const Engr (Gen)	GS-12
1 Const Rep (Gen)	GS-11
1 Inspector (Missiles)	GS-11
1 Engr Tech (Elec)	GS-9
1 Mech Equip Inspector	GS-9
5 Const Rep (Gen)	GS-9
1 Const Insp (S & U)	GS-7

CORTLAND RESIDENT OFFICE

EARL T. GARRETT	RES ENGR
Supv Const Engr (Gen)	GS-12
1 Supv Const Engr (Gen)	GS-12
2 Supv Const Rep (Gen)	GS-12
2 Const Rep (Gen)	GS-11
1 Inspector (Missiles)	GS-11
6 Const Rep (Gen)	GS-9
1 Mech Engr (Gen)	GS-9
1 Const Insp (Earthwork)	GS-7

EAGLE RESIDENT OFFICE

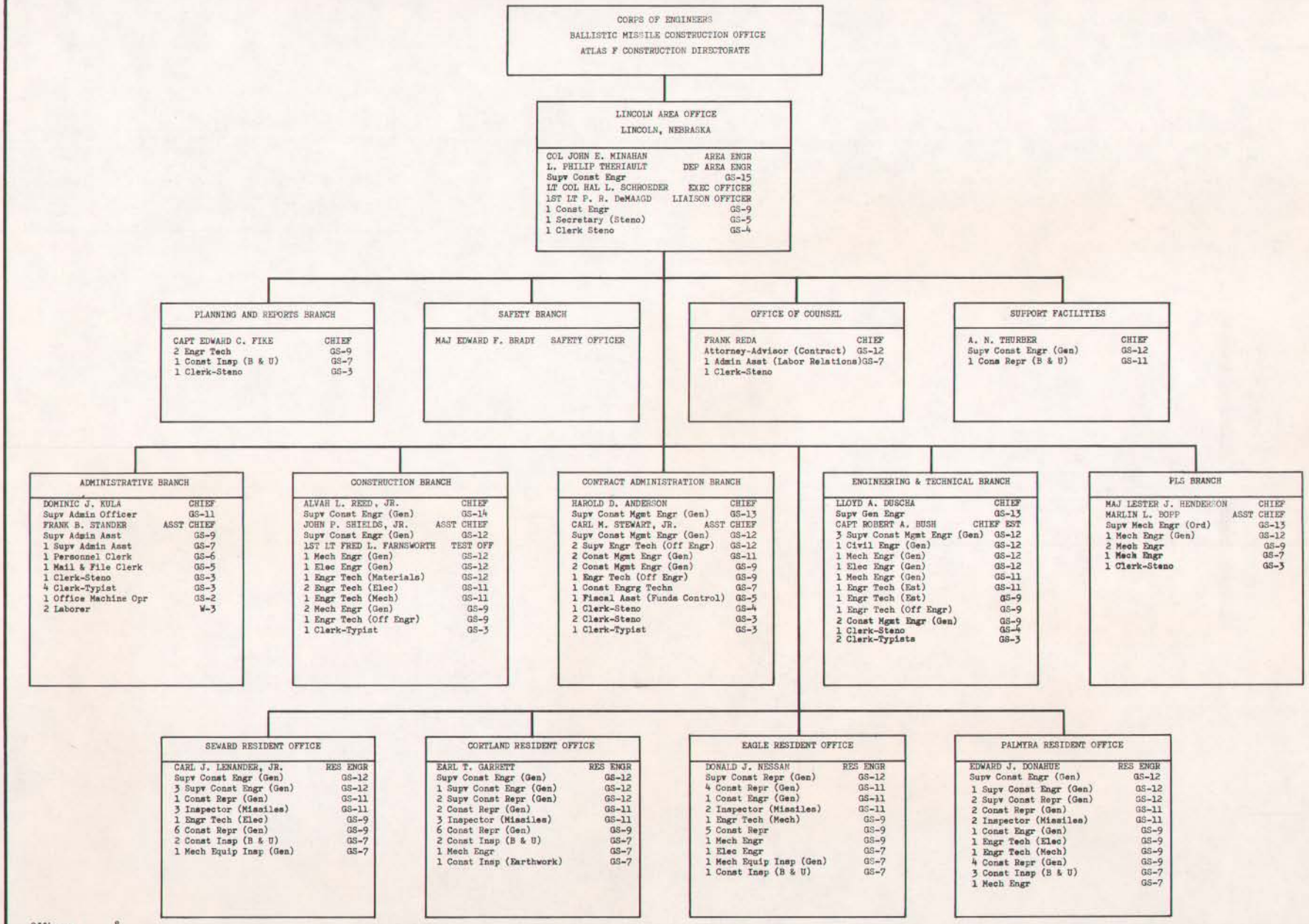
DONALD J. NESSAN	RES ENGR
Supv Const Rep (Gen)	GS-12
4 Const Rep (Gen)	GS-11
1 Elec Engr (Gen)	GS-11
1 Engr Tech (Mech)	GS-9
4 Const Rep (Gen)	GS-9
1 Mech Engr	GS-9
1 Mech Equip Insp (Gen)	GS-7

PALMYRA RESIDENT OFFICE

EDWARD J. DONAHUE	RES ENGR
Supv Const Engr (Gen)	GS-12
1 Supv Const Engr (Gen)	GS-12
2 Supv Const Rep (Gen)	GS-12
2 Const Rep (Gen)	GS-11
1 Inspector (Missiles)	GS-11
1 Const Engr (Gen)	GS-9
1 Engr Tech (Elec)	GS-9
1 Engr Tech (Mech)	GS-9
3 Const Rep (Gen)	GS-9
2 Const Insp (S & U)	GS-7
1 Mech Engr	GS-7

6 Officers
122 Graded
2 Ungraded

1 JULY 1961


CORPS OF ENGINEERS
BALLISTIC MISSILE CONSTRUCTION OFFICE
ATLAS F CONSTRUCTION DIRECTORATE
LINCOLN AREA OFFICE
LINCOLN, NEBRASKA
COL JOHN E. MINAHAN AREA ENGR
L. PHILIP THERIAULT DEP AREA ENGR
Supv Const Engr GS-15
LT COL HAL L. SCHROEDER EXEC OFFICER
1ST LT P. R. DeMAAGD LIAISON OFFICER
1 Const Engr GS-9
1 Secretary (Steno) GS-5
1 Clerk Steno GS-4
PLANNING AND REPORTS BRANCH
CAPT EDWARD C. FIKE CHIEF
2 Engr Tech GS-9
1 Const Insp (B & U) GS-7
1 Clerk-Steno GS-3
SAFETY BRANCH
MAJ EDWARD F. BRADY SAFETY OFFICER
OFFICE OF COUNSEL
FRANK REDA CHIEF
Attorney-Advisor (Contract) GS-12
1 Admin Asst (Labor Relations) GS-7
1 Clerk-Steno
SUPPORT FACILITIES
A. N. THURBER CHIEF
Supv Const Engr (Gen) GS-12
1 Cons Repr (B & U) GS-11
ADMINISTRATIVE BRANCH
DOMINIC J. KULA CHIEF
Supv Admin Officer GS-11
FRANK B. STANDER ASST CHIEF
Supv Admin Asst GS-9
1 Supv Admin Asst GS-7
1 Personnel Clerk GS-6
1 Mail & File Clerk GS-5
1 Clerk-Steno GS-3
4 Clerk-Typist GS-3
1 Office Machine Opr GS-2
2 Laborer W-3
CONSTRUCTION BRANCH
ALVAH L. REED, JR. CHIEF
Supv Const Engr (Gen) GS-14
JOHN P. SHIELDS, JR. ASST CHIEF
Supv Const Engr (Gen) GS-12
1ST LT FRED L. FARNSWORTH TEST OFF
1 Mech Engr (Gen) GS-12
1 Elec Engr (Gen) GS-12
1 Engr Tech (Materials) GS-12
2 Engr Tech (Elec) GS-11
1 Engr Tech (Mech) GS-11
2 Mech Engr (Gen) GS-9
1 Engr Tech (Off Engr) GS-9
1 Clerk-Typist GS-3
CONTRACT ADMINISTRATION BRANCH
HAROLD D. ANDERSON CHIEF
Supv Const Mgmt Engr (Gen) GS-13
CARL M. STEWART, JR. ASST CHIEF
Supv Const Mgmt Engr (Gen) GS-12
2 Supv Engr Tech (Off Engr) GS-12
2 Const Mgmt Engr (Gen) GS-11
2 Const Mgmt Engr (Gen) GS-9
1 Engr Tech (Off Engr) GS-9
1 Const Engrg Techn GS-7
1 Fiscal Asst (Funds Control) GS-5
1 Clerk-Steno GS-4
2 Clerk-Steno GS-3
1 Clerk-Typist GS-3
ENGINEERING & TECHNICAL BRANCH
LLOYD A. DUSCHA CHIEF
Supv Gen Engr GS-13
CAPT ROBERT A. BUSH CHIEF EST
3 Supv Const Mgmt Engr (Gen) GS-12
1 Civil Engr (Gen) GS-12
1 Mech Engr (Gen) GS-12
1 Elec Engr (Gen) GS-12
1 Mech Engr (Gen) GS-11
1 Engr Tech (Est) GS-11
1 Engr Tech (Est) GS-9
1 Engr Tech (Off Engr) GS-9
2 Const Mgmt Engr (Gen) GS-9
1 Clerk-Steno GS-4
2 Clerk-Typists GS-3
PLS BRANCH
MAJ LESTER J. HENDERSON CHIEF
MARLIN L. BOPP ASST CHIEF
Supv Mech Engr (Ord) GS-13
1 Mech Engr (Gen) GS-12
2 Mech Engr GS-9
1 Mech Engr GS-7
1 Clerk-Steno GS-3
SEWARD RESIDENT OFFICE
CARL J. LENANDER, JR. RES ENGR
Supv Const Engr (Gen) GS-12
3 Supv Const Engr (Gen) GS-12
1 Const Repr (Gen) GS-11
3 Inspector (Missiles) GS-11
1 Engr Tech (Elec) GS-9
6 Const Repr (Gen) GS-9
2 Const Insp (B & U) GS-7
1 Mech Equip Insp (Gen) GS-7
CORTLAND RESIDENT OFFICE
EARL T. GARRETT RES ENGR
Supv Const Engr (Gen) GS-12
1 Supv Const Engr (Gen) GS-12
2 Supv Const Repr (Gen) GS-12
2 Const Repr (Gen) GS-11
3 Inspector (Missiles) GS-11
6 Const Repr (Gen) GS-9
2 Const Insp (B & U) GS-7
1 Mech Engr GS-7
1 Const Insp (Earthwork) GS-7
EAGLE RESIDENT OFFICE
DONALD J. NESSAN RES ENGR
Supv Const Repr (Gen) GS-12
4 Const Repr (Gen) GS-11
1 Const Engr (Gen) GS-11
2 Inspector (Missiles) GS-11
1 Engr Tech (Mech) GS-9
5 Const Repr GS-9
1 Mech Engr GS-9
1 Elec Engr GS-7
1 Mech Equip Insp (Gen) GS-7
1 Const Insp (B & U) GS-7
PALMYRA RESIDENT OFFICE
EDWARD J. DONAHUE RES ENGR
Supv Const Engr (Gen) GS-12
1 Supv Const Engr (Gen) GS-12
2 Supv Const Repr (Gen) GS-12
2 Const Repr (Gen) GS-11
2 Inspector (Missiles) GS-11
1 Const Engr (Gen) GS-9
1 Engr Tech (Elec) GS-9
1 Engr Tech (Mech) GS-9
4 Const Repr (Gen) GS-9
3 Const Insp (B & U) GS-7
1 Mech Engr GS-7
Officers 8
Civilians 149
Graded 147
Ungraded 2
1 May 1961

ORGANIZATION CHART

LINCOLN AREA

SAFETY BRANCH

Job No. 7760	Safety Engineer Brady, Edward F. Major, CE	GS-12

OFFICE OF COUNSEL

Job No. 7678	Attorney-Adviser (Contract) Reda, Frank	GS-12
Job No. 7690	Clerk-Steno	GS- 4

AREA ENGINEER — Colonel, CE

Minahan, John E.

Job No. (6654-a)	Deputy Area Engineer Theriault, L. Philip (GS-14)	GS-15
	Executive Officer Schroeder, Hal L.	Lt. Col, CE
Job No. 7565	Const Engr # Pond, Duane E.	GS- 7
Job No. 7341	Secretary (Steno) Cook, Cruzita V.	GS- 5
Job No. 7682	Clerk-Steno Kraus, Karen J.	GS- 4

MILITARY ASSISTANTS

Liaison Officer Henderson, Lester J.	Major, CE
PLS Officer # Farnsworth, Fred L. (1st Lt)	Capt, CE
Construction Officer Bush, Robert A.	Capt, CE
Construction Officer Fike, Edward C.	Capt, CE
Construction Officer	1st Lt, CE
Construction Officer	1st Lt, CE

CONTRACT ADMINISTRATION BRANCH

Job No. 7346-a	Supv Const Mgmt Engr (Gen) Anderson, Harold D.	GS-13
Job No. 7595-a	Supv Const Mgmt Engr (Gen) Stewart, Carl M. Jr	GS-12
Job No. 7631-a	Supv Const Mgmt Engr (Gen) Bryan, George R.	GS-12
Job No.	Engrg Techn (Cont Mod) Mason, Judd A.	GS-12
Job No. 7257	Const Mgmt Engr (Gen) Tilley, Frederick L.	GS-11
Job No. 7257	Const Mgmt Engr (Gen) Coghill, Robert W.	GS-11
Job No. 7662	Const Mgmt Engr (Gen) Braunsroth, Douglas D.	GS- 9
Job No. 7662	Const Mgmt Engr (Gen)	GS- 9
Job No. 7374	Engrg Techn (Off Engr) Mc Allister, Glenn S.	GS- 9
Job No.	Engrg Aid (Off Engr)	GS- 7
Job No. 6814	Fiscal Asst (Funds Con) Griepentrog, Lorena I.	GS- 5
Job No. 7384	Clerk-Steno Kubat, Betty A.	GS- 4
Job No. 7384	Clerk-Steno Rettig, Barbara C.	GS- 4
Job No. 7746	Clerk-Steno Carpenter, Doris E.	GS- 3
Job No. 7375	Clerk-Typist	GS- 3
Job No. 7375	Clerk-Typist	GS- 3

P. L. S. BRANCH

Job No. 7641-a	Supv Mech Engr (Ord) ## Bopp, Marlin L.	GS-13
Job No. 7334	Mech Engr (Gen) ## Hargrave, Gaylen K.	GS-12
Job No. 7274	Mechanical Engr ## Bell, Larry E.	GS- 9
Job No. 7735	Mechanical Engr ## Joslyn, Allan W.	GS- 9
Job No. 7251	Engrg Techn (Mech) ## Eich, Albert H.	GS- 9
Job No. 7688	Clerk-Steno Louis, Jeanette M.	GS- 3

PLANNING & REPORTS BRANCH

Job No. 7696-a	Supv Const Mgmt Engr (Gen)	GS-11
Job No.	Engrg Techn (Off Engr)	GS- 9
Job No. 7692	Clerk-Steno Burcham, Janet M.	GS- 3

ENGINEERING & TECHNICAL BRANCH

SEE ATTACHED SHEET A

CONSTRUCTION BRANCH

SEE ATTACHED SHEET B & C

BASE RESIDENT OFFICE (SUPPORT FACILITIES),

SEE ATTACHED SHEET A

\# Denotes personnel who have attended PLS School in Denver

\## Denotes experienced personnel who are thoroughly qualified in PLS procedures

ADMINISTRATIVE BRANCH

Job No. (7254-a)	Supv Admin Officer Kula, Dominic J. (GS-11)	GS-12
Job No. 7681-a	Supv Admin Asst Stander, Frank B.	GS- 9
Job No. 6393-a	Supv Admin Asst Kruse, Elmer D.	GS- 7
Job No. 7597	Admin Asst (Labor Relat) O'Grady, Charles J.	GS- 7
Job No. 7255	Personnel Clerk Brunsvold, Kenneth K.	GS- 5
Job No. 7256	Mail & File Clerk Hamilton, Howard A.	GS- 5
Job No.	Reproduction Mach Opr	GS- 4
Job No. 6741	Clerk-Steno	GS- 3
Job No. 6743	Clerk-Typist Cudaback, David E.	GS- 3
Job No. 7557	Clerk-Typist Eller, Barbara J.	GS- 3
Job No. 7557	Clerk-Typist Hatcher, Betty I.	GS- 3
Job No. 7689	Clerk-Typist Cast, Rebecca J.	GS- 3
Job No. 7680	Clerk-Typist Forman, Anna L.	GS- 1
Job No. 7357	Office Machine Opr Tivey, Frank H.	GS- 2
Job No. 6394	Laborer Bauman, Frederick L.	W-3502-3
Job No. 6394	Laborer Finley, Maynard F.	W-3502-3
Job No. 6394	Laborer Snowden, Norman T.	W-3502-3

OCTOBER 1960

ORGANIZATION CHART

AREA ENGINEER

ENGINEERING & TECHNICAL BRANCH

Job No. 6739-s	Supv Gen Engr Duscha, Lloyd A.	GS-13
Job No.	Supv Gen Engr	GS-12

Job No. 7486-s	Supv Const Mgmt Engr (Gen) Jones, William T.	GS-12
Job No. 7486-s	Supv Const Mgmt Engr (Gen) Maddux, Francis M.	GS-12
Job No. 7486-s	Supv Const Mgmt Engr (Gen) Wilson, Ben J.	GS-12
Job No. 7238	Civil Engineer (Gen) Carroll, John C. W.	GS-12
Job No. 7237	Mech Engr (Gen)	GS-12
Job No. 7236	Elec Engr (Gen) Michal, Leon V.	GS-12
Job No. 7683	Materials Engr Munch, Anthony V.	GS-12
Job No. 7451	Engrg Techn (Materials) ONeill, Joseph J.	GS-12
Job No. 7253	Mech Engr (Gen) Thielke, Robert E.	GS-11
Job No.	Elec Engr (Gen)	GS-11
Job No. 7731	Engrg Techn (Estimating) Barr, Gene E.	GS-11
Job No.	Engrg Techn (Off Engr)	GS-11
Job No.	Civil Engr Parks, Charlie J. Jr	GS- 9
Job No. 14	Const Mgmt Engr (Gen)	GS- 9
Job No.	Engr Aid	GS- 9
Job No. 7419	Engrg Aid (Gen) Hammond, Richard B.	GS- 7
Job No. 7419	Engrg Aid (Gen)	GS- 7

Job No.	Draftsman	GS- 7
Job No. 7379	Clerk-Steno Fencl, Dorothy E.	GS- 4
Job No. 7380	Clerk-Typist Irwin, Carol J.	GS- 3

BASE RESIDENT OFFICE (SUPPORT FACILITIES)

Job No. 5522-s	Supv Const Engr (Gen) Thurber, Alleyene N.	GS-12

Job No. 6319	Const Repr (Gen) Cook, Franklin D.	GS-11
Job No. 6319	Const Repr (B & U) Kohler, Arthur T.	GS-11
Job No. 6396	Const Repr (Roadways) # Bowen, Clarence F. Jr	GS- 9
Job No. 7095	Engrg Aid (Gen) # Jensen, Waldean E.	GS- 5

# Denotes personnel who have attended PLS School in Denver

OCTOBER 1960 - A

ORGANIZATION CHART

AREA ENGINEER

CONSTRUCTION BRANCH

Job No. (6655-s)	Supv Const Engr (Gen) Reed, Alvah L. Jr (GS-13)	GS-14

SEWARD RESIDENT OFFICE

COORTLAND RESIDENT OFFICE

EAGLE RESIDENT OFFICE

PALMYRA RESIDENT OFFICE

Job No. (7259-s)	Supv Const Engr (Gen) Shields, John P. Jr (GS-12)	GS-13
Job No. 7334	Mech Engr (Gen)	GS-12
Job No. 7394	Elec Engr (Gen) # Clemm, John M.	GS-12
Job No.	Mech Engr (Gen)	GS-11
Job No. 7390	Const Mgmt Engr (Gen)	GS-11
Job No. 6606	Engrg Tech (Elec) # Davis, Edward E.	GS-11
Job No. 6606	Engrg Tech (Elec) # Salzbrener, Otto F.	GS-11
Job No. 7263	Engrg Tech (Mech) # Peller, Peter	GS-11
Job No. (6542)	Mechanical Engr # Hunter, Nathaniel (GS-7)	GS- 9
Job No. 6542	Mechanical Engr	GS- 9
Job No.	Elec Engr	GS- 9
Job No.	Elec Engr	GS- 9
Job No.	Engrg Tech (Off Engr) Ruckle, Maurice L.	GS- 9
Job No. 7395	Const Engr (Gen)	GS- 9
Job No. 7747	Clerk-Typist Watson, Patricia D.	GS- 3
Job No. 7377	Clerk-Steno	GS- 3

CONSTRUCTION BRANCH

SEWARD RESIDENT OFFICE

Job No. (6744-s)	Supv Const Engr (Gen) Leaander, Carl J. Jr (GS-12)	GS-13
Job No. 7242	Const Engr (Gen)	GS-11
Job No. 7347	Const Repr (Gen) Serikaku, Wallace S.	GS-11
Job No. 7483	Engrg Techn (Elec) Coffey, John W.	GS- 9
Job No. 7483	Engrg Techn (Elec) # Kraemer, Maynard P.	GS- 9
Job No. 6001	Const Insp (B & U)	GS- 7

SITE 7 - YORK

Job No.	Supv Const Engr (Gen)	GS-12
Job No. 7347	Const Repr (Gen) Rogalla, John F.	GS-11
Job No. 7648	Inspector (Missiles)	GS-11
Job No. 7250	Const Repr (Gen) Arnold, Charles W.	GS- 9
Job No. 7250	Const Repr (Gen) # Nelson, Thomas A.	GS- 9
Job No. 6001	Const Insp (B & U) Smith, Leland H.	GS- 7

SITE 8 - SEWARD

Job No.	Supv Const Engr (Gen)	GS-12
Job No. 7242	Const Engr (Gen) Ellis, Edgar D.	GS-11
Job No. 7648	Inspector (Missiles) ## Banta, Paul S.	GS-11
Job No. 7250	Const Repr (Gen) # Connor, John F.	GS- 9
Job No. 7250	Const Repr (Gen) # Wilkinson, Bill F.	GS- 9
Job No. 6001	Const Insp (B & U) Flynn, Patrick E.	GS- 7

SITE 9 - DAVID CITY

Job No.	Supv Const Engr (Gen)	GS-12
Job No. 7347	Const Repr (Gen) Halterman, Edwin E.	GS-11
Job No. 7648	Inspector (Missiles)	GS-11
Job No. 7250	Const Repr (Gen) Burks, Francis E.	GS- 9
Job No. 7250	Const Repr (Gen) # Lawton, Roscoe W.	GS- 9
Job No. 6001	Const Insp (B & U) Howard, Archie J. Jr	GS- 7

CORTLAND RESIDENT OFFICE

Job No. (6744-s)	Supv Const Engr (Gen) Garrett, Earl T. (GS-12)	GS-13
Job No. 7242	Const Engr (Gen)	GS-11
Job No. 7347	Const Repr (Gen)	GS-11
Job No. 7648	Inspector (Missiles) Harle, Loyal F.	GS-11
Job No. 7483	Engrg Techn (Elec)	GS- 9
Job No. 6001	Const Insp (B & U) Bailey, Loyd H.	GS- 7
Job No. 7273	Mech Equip Insp # Taylor, John G.	GS- 7

SITE 4 - CORTLAND

Job No.	Supv Const Engr (Gen) Carlson, Cecil A.	GS-12
Job No. 7242	Const Engr (Gen) Brigham, David R.	GS-11
Job No. 7250	Const Repr (Gen) # Castrodad, Victor M.	GS- 9
Job No. 7250	Const Repr (Gen) # Tally, James A.	GS- 9
Job No. 7735	Mechanical Engr ## Graham, William D.	GS- 7
Job No. 6001	Const Insp (B & U) Scott, Cleo D.	GS- 7

SITE 5 - BEATRICE

Job No. 11-s (7347)	Supv Const Repr (Gen) Deadman, Richard W. Sr (GS-11)	GS-12
Job No. 7242	Const Engr (Gen)	GS-11
Job No. 7648	Inspector (Missiles)	GS-11
Job No. 7250	Const Repr (Gen) Harlan, Floyd D.	GS- 9
Job No. 7250	Const Repr (Gen) Steckler, James L.	GS- 9
Job No.	Const Insp (Earthwork) Ryan, Wallace L.	GS- 7

SITE 6 - WILBER

Job No.	Supv Const Engr (Gen)	GS-12
Job No. 7347	Const Repr (Gen) DeMar, William E.	GS-11
Job No. 7648	Inspector (Missiles)	GS-11
Job No. 7250	Const Repr (Gen) McGlothlin, Charles F.	GS- 9
Job No. 7250	Const Repr (Gen) Shelgren, Clarence A.	GS- 9
Job No. 7250	Const Repr (Gen) Weaver, Cecil B.	GS- 9

EAGLE RESIDENT OFFICE

Job No. (7556-s)	Supv Const Repr (Gen) Nesaan, Donald J. (GS-12)	GS-13
Job No. 7242	Const Engr (Gen)	GS-11
Job No. 7347	Const Repr (Gen)	GS-11
Job No. 7251	Engrg Techn (Mech) # Preisinger, Frank	GS- 9
Job No. 7565	Const Engr Hartrick, Harold F.	GS- 7
Job No. 7273	Mech Equip Insp (Gen) # Whistler, Oakley F.	GS- 7

SITE 1 - EAGLE

Job No.	Supv Const Engr (Gen)	GS-12
Job No. 7347	Const Repr (Gen) Drake, Jay J.	GS-11
Job No. 7250	Const Repr (Gen) # Nelson, Efner O.	GS- 9
Job No. 7250	Const Repr (Gen) Mellor, Harry F.	GS- 9
Job No. 7735	Mechanical Engineer ## Stutesman, Harley L. Jr	GS- 7
Job No. 6001	Const Insp (B & U) Joslyn, George A.	GS- 7

SITE 10 - ELMWOOD

Job No.	Supv Const Engr (Gen)	GS-12
Job No. 7242	Const Engr (Gen) Scott, Cecil D.	GS-11
Job No. 7648	Inspector (Missiles)	GS-11
Job No. 7440	Const Engr (Gen) # Nelson, Loural A.	GS- 9
Job No. 7250	Const Repr (Gen) # Hofer, Samuel M.	GS- 9
Job No. 7274	Mechanical Engr Finkle, William A.	GS- 9

SITE 11 - AVOCA

Job No.	Supv Const Engr (Gen)	GS-12
Job No. 7242	Const Engr (Gen) Craven, George C.	GS-11
Job No. 7648	Inspector (Missiles)	GS-11
Job No. 7250	Const Repr (Gen) # Hauth, Robert P.	GS- 9
Job No. 7250	Const Repr (Gen) Stevens, Francis F.	GS- 9
Job No. 6001	Const Insp (B & U) # Mertz, Adolph W.	GS- 7

PALMYRA RESIDENT OFFICE

Job No. (6744-s)	Supv Const Engr (Gen) Donahue, Edward J. (GS-12)	GS-13
Job No. 7242	Const Engr (Gen)	GS-11
Job No. 7347	Const Repr (Gen) Cramer, Obed E.	GS-11
Job No. 7251	Engrg Techn (Mech) # Waterworth, Farris L.	GS- 9
Job No. 7483	Engrg Techn (Elec) Wildeng, Raymond T.	GS- 9
Job No. 6001	Const Insp (B & U) Mitchell, Thomas A.	GS- 7

SITE 2 - NEBRASKA CITY

Job No. (7242)	Supv Const Engr (Gen) Lauritsen, Kenneth F. (GS-11)	GS-12
Job No. 7242	Const Engr (Gen)	GS-11
Job No. 7648	Inspector (Missiles) Oldham, Byron W.	GS-11
Job No. 7250	Const Repr (Gen) Clark, Harold W.	GS- 9
Job No. 7250	Const Repr (Gen) # Feldhousen, Robert W.	GS- 9
Job No. 6001	Const Insp (B & U) Zimmerman, Kenneth C.	GS- 7

SITE 3 - TECUMSEH

Job No.	Supv Const Engr (Gen)	GS-12
Job No. 7242	Const Engr (Gen) Sweet, Gordon F.	GS-11
Job No. 7648	Inspector (Missiles)	GS-11
Job No. 7250	Const Repr (Gen) Bruce, Kenneth J.	GS- 9
Job No. 7250	Const Repr (Gen) # Phillips, Walter L.	GS- 9
Job No. 6001	Const Insp (B & U)	GS- 7

SITE 12 - PALMYRA

Job No. 11-s (7347)	Supv Const Repr (Gen) Buntrock, Elmer K. (GS-11)	GS-12
Job No. 7242	Const Engr (Gen)	GS-11
Job No. 7250	Const Repr (Gen) # Current, Olna W.	GS- 9
Job No. 7250	Const Repr (Gen) Keyes, William R.	GS- 9
Job No. 7735	Mechanical Engr ## De Vos, Francis J.	GS- 7
Job No. 6001	Const Insp (B & U) Wiggin, Clayton A.	GS- 7

PERSONNEL STRENGTH

DATE	CIVILIAN STRENGTH	MILITARY STRENGTH	MONTH OF	GOVERNMENT MAN-HOURS(est.)
4/1/60	23	2	Apr	3,621
5/1/60	24	2	May	4,233
6/1/60	43	2	June	4,929
7/1/60	67	2	July	5,084
8/1/60	72	2	Aug	5,560
9/1/60	110	5	Sept	8,955
10/1/60	138	5	Oct	11,475
11/1/60	140	6	Nov	19,311
12/1/60	151	8	Dec	26,437
1/1/61	153	8	Jan	23,556
2/1/61	156	8	Feb	29,521
3/1/61	157	8	Mar	28,189
4/1/61	149	8	Apr	26,732
5/1/61	141	8	May	25,247
6/1/61	133	8	June	22,797
7/1/61	125	8	July	30,498
8/1/61	110	8	Aug	17,102
9/1/61	85	7	Sept	13,390
10/1/61	70	5	Oct	11,661
11/1/61	62	4	Nov	15,416
12/1/61	48	4	Dec	6,682
1/1/62	40	2	Jan	7,008
2/1/62	25	2	Febr	5,068
3/1/62	19	2	Mar	3,275

GRADUATE ENGINEER TRAINEES ON TOUR
DURING CONSTRUCTION OF ATLAS FACILITIES

TRAINEE	ASSIGNMENT	DATE COMPLETED
Grasso, Joseph J. Elec. Engineer - GS-5 Job. No. 7503	Site 7, York	12 Nov 60
Owens, Edward S. Mech. Engineer - GS-5 Job No. 7501	Site 3, Tecumseh	10 Dec 60
Pierson, Gary K. Civil Engineer - GS-7 Job No. 7500	Site 8, Seward	7 Jan 61
Schlaht, Terry F. Civil Engineer - GS-5 Job No. 7499	Site 9, David City	19 Nov 60
Schlenker, Richard K. Civil Engineer - GS-5 Job No. 7499	Planning & Reports Branch	14 Jan 61
Staley, Gary B. Civil Engineer -GS-5 Job No. 7499	Site 6, Wilber	12 Nov 60
Woods, Jerome M. Mech. Engineer - GS-5 Job No. 7501	Construction Branch	10 Dec 60
Behrens, Richard F. Civil Engineer - GS-7 Job No. 7500	Engrg & Tech Branch	23 Apr 61
Flint, Robert L. Jr. Civil Engineer - GS-7 Job No. 7500	Contract Admin. Branch	14 May 61
Kovalenko, Gerald E. Mech. Engineer - GS-7 Job No. 7502	Site 3, Tecumseh	5 Aug 61
Ballard, William F. Civil Engineer - GS-5 Job No. 7499	Engrg & Tech Branch	11 Jun 61

PROPELLANT LOADING SYSTEM SCHOOL
ATTENDEES

Pond, Duane E.	Constr. Engr, GS-7
Farnsworth, Fred L.,	1st Lt.
Bopp, Marlin L.	Supv Mech Engr (Ord), GS-13
Hargrave, Gaylen K.	Mech Engr (Gen), GS-12
Bell, Larry E.	Mech Engr, GS-9
Joslyn, Allan W.	Mech Engr, GS-9
Eich, Albert H.	Engrg Tech (Mech), GS-9
Bowen, Clarence F., Jr.	Const Repr, GS-9
Jensen, Waldean E.	Engrg Aid, GS-5
Clema, John M.	Elec Engr (Gen), GS-12
Davis, Edward E.	Engrg Tech (Elec), GS-11
Salzbrener, Otto F.	Engrg Tech (Elec), GS-11
Peller, Peter	Engrg Tech (Mech), GS-11
Hunter, Nathaniel	Mech Engr, GS-9
Kraemer, Maynard P.	Engrg Tech (Elec), GS-9
Nelson, Thomas A.	Const Repr (Gen), GS-9
Connor, John F.	Const Repr (Gen), GS-9
Wilkinson, Bill F.	Const Repr (Gen), GS-9
Lawton, Roscoe, W.	Const Repr (Gen), GS-9
Taylor, John G.	Mech Equip Insp, GS-7
Castrodad, Victor M.	Const Repr (Gen), GS-9
Tally, James A.	Const Repr (Gen), GS-9
Graham, William D.	Mech Engr, GS-9
Preisinger, Frank	Engrg Tech (Mech), GS-9
Whistler, Oakley F.	Mech Equip Insp (Gen), GS-9
Nelson, Efner C.	Const Repr (Gen), GS-9
Stutesman, Harley L. Jr.	Mech Engr, GS-9
Nelson, Loural A.	Const Engr (Gen), GS-9
Hofer, Samuel M.	Constr Repr (Gen), GS-9
Hauth, Robert P.	Const Repr (Gen), GS-9
Mertz, Adolph W.	Const Insp (R&U), GS-7
Waterworth, Farris L.	Engrg Tech (Mech), GS-9
Feldhousen, Robert W.	Const Repr (Gen), GS-9
Phillips, Walter L.	Const Repr (Gen), GS-9
Current, Olna W.	Const Repr (Gen), GS-9
DeVos, Francis J.	Mech Engr, GS-9

APPROVED BY ATLAS F CONSTRUCTION DIRECTORATE
10 May 1961

STATEMENT OF FUNCTIONS FOR THE LINCOLN AREA OFFICE, ATLAS F CONSTRUCTION DIRECTORATE

General: The Lincoln Area Office is the parent organization of several site offices designated as project or resident offices which perform a variety of supervision and inspection functions at designated sites. These projects and residencies report directly to the Area Engineer; however, their activities are coordinated by the elements of the Area Office having functional responsibility. For example, the Engineering Branch is their Technical Supervisor on functions normally assigned to the Engineering Branch. Project and Resident Engineers will be responsive to instructions from Technical, Administrative, and Advisory elements. However, the Construction Branch is the coordinator of all actions required of Project and Resident Offices by elements of the Area Office. Therefore, any requests made by elements should be coordinated through the Construction Branch prior to being issued to the field. In the case of routine recurring requests, special arrangements may be made to contact the field direct.

OFFICE OF THE AREA ENGINEER

Directs administration, supervision and inspection of all contract construction work assigned to the Area Office.

Deputy Area Engineer

1. Assists the Area Engineer, and acts as the Area Engineer during periods when the Area Engineer is absent from the Area.

2. Provides direction to the technical and advisory and administrative staff in all matters of a technical nature.

Executive Officer

1. Assists the Area Engineer and the Deputy Area Engineer in a staff capacity in delegated matters not requiring the immediate or personal attention of those officials.

2. Normally, assumes duties which include coordination, review or approval of matters where guidelines of action have been clearly defined.

3. Serves as focal point in all matters relating to the Administrative and Advisory staff.

4. Coordinates matters of organization, personnel staffing and space allocation.

5. During absence of Area Engineer, acts as the authorized representative of the Contracting Officer.

6. Performs such specific duties as the Area Engineer may assign.

Military Assistant

1. Serves as the principal Administrative Assistant to the Area Engineer's Office.

2. Coordinates in those matters relating to overall administration where executive action is required.

3. Supervises military personnel administration as directed.

4. Performs additional duties as specifically assigned.

SAFETY BRANCH

1. Assists the Area Engineer in administration of the Corps of Engineers Safety Program within the Area.

2. Provides for frequent safety inspections at all work sites.

3. Advises the Area Engineer of potential safety hazards on all sites which he is unable to have corrected.

4. Prescribes and coordinates a balanced program of Safety activities.

5. Assures prompt reporting of accidents.

6. Prepares formal reports of findings with recommended corrective action on all accidents and serious hazards which hamper efficient uninterrupted construction progress.

OFFICE OF COUNSEL

1. Assists and advises the Area Engineer and his supporting elements on legal matters except Real Estate.

2. Renders staff advice in the negotiation and preparation of contractual documents and reviews all contract actions for legal sufficiency.

OFFICE OF COUNSEL - Continued

3. Prepares necessary action concerning all contractual and non-contractual claims for the Area.

4. Processes settlement of contractual documents as delegated by the Office of Counsel, CEBMCO.

5. Prepares action on appeals made by contractors to decisions made by the Contracting Officer or Contracting Officer's representative.

6. Prepares litigation reports as required.

7. Performs labor relations functions, assuring enforcement of contract labor standards and promoting good working relationships between the Corps of Engineers, organized labor and contractors.

8. Receives, reviews, and initiates necessary action on all contractors' payrolls.

ADMINISTRATIVE BRANCH

1. Furnishes administrative services to all elements of the Area and Project and Resident Offices as required.

2. Processes all incoming and outgoing communications.

3. Maintains the Area general files, and maintains special files as required.

4. Provides for the establishment and operation of electrical communications facilities.

5. Operates the motor pool.

6. Monitors Security Program, Management Improvement Program, and other similar special activities as assigned.

ADMINISTRATIVE BRANCH - Continued

7. Monitors civilian personnel program for the Area, time and attendance reporting, maintenance of leave records, and other related records and reports.

8. Handles property and supply functions, including procurement, accounting, issuance of supplies and other related activities.

9. Supervises custodial services.

10. Processes Area budget, Area cost records, and Area cost reporting.

11. Provides stenographic and typist assistance to other branches when required.

12. Monitors imprest fund and small purchase procedures for the Area.

13. Provides reproduction services.

14. Prepares transportation requests, travel orders, bureau vouchers, and arranges transportation and reservations as required.

15. Assumes initial responsibility for any function not assigned to another Branch.

CONTRACT ADMINISTRATION BRANCH

1. Assists the Area Engineer in the supervision of all contract administration work for contracts assigned to the Area Office.

2. On receipt of recommendations from the Construction Branch, Engineering Branch, CEBMCO and SATAF, initiates change order action with the contractor, conducts negotiations and prepares and distributes modification documents. Initiates and carries to completion administrative modifications.

CONTRACT ADMINISTRATION BRANCH - Continued

3. Maintains budget control of contract construction cost.

4. Prepares contractor pay estimates from information received from the Construction Branch and from the contractor.

5. Prepares progress reports from information received from the Construction Branch.

6. Initiates action, maintains records, and prepares reports for all expediting of construction materials.

7. Reviews specifications prior to bid openings and furnishes Engineering Branch with comments for addenda changes.

8. Maintains a register of proposed Change Orders and modifications within the Area Office.

9. Furnishes monthly to Administration Branch current and projected contractor's earnings for incorporation into Area cost reports.

10. Insures a property list included in the construction transfer documents is in proper form for property accounting.

11. Prepares for signature all ENG Forms 290 and related transfer documents and provides for the distribution of ENG Forms 290 and other documents required in conjunction with transfer of construction.

12. Prepares reports required by EM 415-4-331.

13. Prepares justification for additional funds when the need is generated by proposed modifications or claims.

14. Assists the Office of Counsel in preparing findings of fact and in the resolution of contractor claims.

CONTRACT ADMINISTRATION BRANCH - Continued

15. Assists the Office of Counsel in processing contract terminations and negotiation of settlement.

16. Contacts Project and Resident Engineers and other elements of the Area Office and the Atlas F Directorate as necessary in connection with processing of contract modifications.

CONSTRUCTION BRANCH

1. Supervises and inspects all contract construction work assigned to the Area Office.

2. Coordinates and formulates construction schedules for effective prosecution of the work.

3. Coordinates changes to meet existing field changes.

4. Assists as requested in the preparation of estimates, the negotiation of modifications, and the review and settlement of contractual claims.

5. Compiles daily reports of work accomplished, decisions made, action taken, working conditions, comments on progress, and evaluates the current status of all construction.

6. Coordinates closely with the Safety Branch and takes expeditious action to implement safety features agreed to be necessary.

7. Monitors as-built drawings concurrently as the work is completed.

8. Conducts inspector training program.

9. Supervises the operations of Project Engineers and Resident Engineers and conducts frequent inspections of construction activities.

CONSTRUCTION BRANCH - Continued

10. Provides Contract Administration Branch with feeder reports upon which pay estimates and progress reports are based.

11. Reviews all proposed changes for construction feasibility and time and acceleration impact, making appropriate recommendation to the Contract Administration Branch.

12. Arranges for all transfers of construction to the using agency, providing Contract Administration Branch with necessary data required from the field for preparation of ENG Form 290 and related transfer documents.

13. Promptly advises Engineering Branch of any conflicts in design deficiencies as soon as they are noted.

14. Reviews plans and specifications prior to bid openings and furnishes comment as to desirable addenda changes to the Engineering Branch.

15. Establishes and furnishes to Contract Administration Branch construction completion and acceptance dates.

16. Directs the Area Survey crew.

17. Arranges for photographs of project features at important stages of progress.

PIS BRANCH

1. Assists the Area Engineer by providing specialized technical advice on the procurement, installation, and testing of propellant loading systems.

PLS BRANCH - Continued

2. Acts as the liaison element with the PLS Division of CEBMCO.

3. Provides technical advice during the construction, installation and field operational testing stage for final acceptance.

4. Coordinates activities of PLS inspectors and provides PLS inspection service to operational sites.

5. Conducts PLS inspector training.

6. Coordinates with all branches of the Area in phases of their work involving PLS equipment or materials.

ENGINEERING BRANCH

1. Provides general engineering and specialized technical services in support of construction activities.

2. Provides for the procurement, receipt, technical review, approval and proper distribution of plans, specifications, shop drawings and material samples.

3. Supervises contracts for services of A-Es and special consultants in connection with its field of responsibility.

4. Furnishes technical advice and assistance for special tests as required.

5. Initiates or reviews requests for changes in design to meet existing conditions.

6. Prepares revised plans and specifications, Government cost estimates, and other engineering data required for contract modifications for other than silo facility contracts.

ENGINEERING BRANCH - Continued

7. Performs emergency design and prepares supplemental drawings, layout sheets and similar material for field offices.

8. Performs miscellaneous drafting for all elements of the Area Office.

9. Maintains current as-built drawings, using data obtained from Construction Branch.

10. Maintains the record set of contract plans and specifications.

11. Maintains shop drawing record files.

12. Maintains a suspense register for samples, shop drawings, test results and similar data required under each contract, and insures timely receipt and approval.

13. Operates Area soils, concrete, and materials testing laboratory.

14. Supervises contracts for AE services or testing services in connection with its field of responsibility.

15. Performs technical and engineering approvals of soils, concrete, and other materials.

16. Resolves conflicts in design and, where necessary, recommends Change Order action to Construction Branch.

17. Furnishes estimating support to Contract Administration Branch.

18. Assists as requested in negotiation of modifications and the review of a settlement of contractual changes.

19. Performs engineering inspections of construction to insure adequate construction standards in compliance with all design criteria.

ENGINEERING BRANCH - Continued

20. Maintains liaison with architect-engineer, using agency, Atlas F Directorate, supporting district, and other concerned agencies on engineering and technical matters.

21. Maintains master equipment list.

22. Assembles, reviews, and transmits RPIE technical data and provisioning material.

23. Controls Government and contractor-supplied materials and equipment, and expedites and administers the Defense Materials System to insure timely arrival of materials and equipment.

24. Contacts manufacturers and suppliers and assists in obtaining delivery by required dates.

Colonel David E. Hammond former Omaha District Engineer at the time Lincoln Area Office was established.

Colonel Harry G. Woodbury, Jr., Omaha District Engineer during major portion of Lincoln Area ICBM Construction.

1 July 1960

Reports Control Symbol
ENGSP-C-1

OMAHA DISTRICT

EXECUTIVE OFFICE

*Col. Harry G. Woodbury, Jr. — District Engineer — Rm 403 Ext. 2115 (MRHVE)

Col. John J. Haley — Deputy District Engineer — Rm 411 Ext 2118 (MRHVY)

Lt.Col. John M. Fransrand — Asst. Dist. Engineer — Rm 402 Ext 2116 (MRHVY)

Major Edmund R. Preston Jr. — Executive Officer — Rm 404 Ext 2116 (MRHVY)

Milton Micke — Executive Assistant — Rm 405 Ext 2119 (MRHVY)

1709 Jackson St, Omaha 2, Nebr. JAckson 7900

*Assumed Command 16 July 1960

ELECTRONIC DATA PROCESSING SERVICE CENTER

R. L. Renner — Chief — 2nd Floor Ext 2441 (MRHVD)

SPECIAL ASSISTANTS

Gabriel M. Komet — Security Spec(Gen) — Rm 406 Ext 2289 (MRHVZ)

R.G. Leonard — Tech Liaison Asst — Rm 410 Ext 2121 (MRHVT)

BOARDS

Board of U. S. Civil Service Examiners
Incentive Awards Committee
Standing Grievance Committee

ADMINISTRATIVE SUPPORT

Army Map Depository

E.W. Hall — Chief — 30 & Port St. — 8-241

ADVISORY AND ADMINISTRATIVE STAFF

OFFICE OF THE COMPTROLLER

Lester O. Ritter — Compt — Rm 406 Ext 2137 (MRHVC)

BUDGET BRANCH

E. R. Willats — Chief — Rm. 101 Ext. 2166 (MRHCB)

FINANCE & ACCOUNTING BRANCH

W. M. Wilson — Chief — Rm 103 Ext 2151 (MRHCF)

MANAGEMENT BRANCH

W.P. Kuehner — Chief — Rm 406 Ext 2122 (MRHCM)

PROPERTY ACCOUNTING BRANCH

J. F. Coughlin — Chief — Rm 101 Ext 2395 (MRHCI)

TECHNICAL LIAISON BRANCH

R.G. Leonard — Chief — Rm 410 Ext 2121 (MRHVT)

SAFETY BRANCH

J. J. Veatch — Chief — Rm 411 Ext 2367 (MRHVA)

OFFICE OF COUNSEL

V. J. Murphy — Dist Counsel — Rm. 302 Ext 2170 (MRHVL)

PERSONNEL BRANCH

B. J. Hayes — Chief — 420 So 18 St Ext 2177 (MRHVP)

OFFICE SERVICE BRANCH

E. M. Blanchard — Chief — Lobby Ext 2126 (MRHVO)

TECHNICAL STAFF

SUPPLY DIVISION

M. T. Montgomery — Chief — Rm 501 Ext 2371 (MRHVS)

CONTRACT BRANCH

C. M. Orr — Chief — Rm 501 Ext 2172 (MRHSC)

MATERIALS CONTROL BRANCH

R. F. Wysuph — Chief — Rm 501 Ext 2378 (MRHSM)

PROCUREMENT BRANCH

G. M. Langford — Chief — Rm 501 Ext 2375 (MRHSP)

CONSTRUCTION DIVISION

S. L. Price — Chief — Rm 308 Ext 2194 (MRHVK)

T. E. Huddleston — Asst. Chief — Rm 308 Ext 2195 (MRHVK)

CONST. SERVICE BRANCH

O. F. Wilcox — Chief — Rm. 307 Ext. 2210 (MRHCO)

CIVIL CONSTRUCTION BRANCH

A. E. Meehan — Chief — Rm. 307 Ext. 2200 (MRHKC)

CONTRACT ADMIN. BRANCH

J. K. Riggs — Chief — Rm. 307 Ext. 2225 (MRHKF)

MILITARY CONSTRUCTION BRANCH

C. J. Heim — Chief — Rm. 307 Ext. 2239 (MRHKM)

OPERATIONS BRANCH

L. F. Otto — Chief — Rm. 305 Ext. 2370 (MRHKA)

*ENGINEERING DIVISION

J. D. Ackerman — Chief — 3rd Floor Ext 2251 (MRHVG)

C. L. Hipp — Asst. Chief — 3rd Floor Ext 2253 (MRHVG)

SERVICE BRANCH

D. G. Warman — Chief — 3rd Floor Ext 2261 (MRHGA)

MILITARY DESIGN BRANCH

R. F. Rader — Chief — 2nd Floor Ext 2340 (MRHGM)

PLANNING & REPORTS BRANCH

R. H. Wisthop — Chief — 2nd Floor Ext 2313 (MRHGR)

CIVIL DESIGN BRANCH

E. Soucek — Chief — 4th Floor Ext 2262 (MRHGD)

DRAFTING BRANCH

C. R. London — Chief — 3rd Floor Ext 2360 (MRHGK)

FOUNDATION & MATERIALS BRANCH

H. A. Sikes — Chief — 3rd Floor Ext 2307 (MRHGF)

PROGRAM DEVELOPMENT BRANCH

M. O. Ellis — Chief — 3rd Floor Ext 2250 (MRHGX)

REAL ESTATE DIVISION

D. Kent — Chief — Rm. 409 Ext. 2400 (MRHRE)

L. P. Lawton — Asst Chief — Rm. 409 Ext. 2413 (MRHRE)

PLANNING & CONTROL BRANCH

D. F. Birch — Chief — Rm 409 Ext 2419 (MRHRC)

APPRAISAL BRANCH

O. W. Kern — Chief — Rm 409 Ext. 2426 (MRHRF)

ACQUISITION BRANCH

H.T. Wooter — Chief — Rm 409 Ext 2405 (MRHRO)

MANAGEMENT & DISPOSAL BRANCH

P. O. Stewart — Chief — Rm 409 Ext 2406 (MRHRM)

Dual Assignment

* Located in:-
Feidley Building
121 South 16th Street

FIELD OFFICES

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OMAHA DISTRICT EXECUTIVE OFFICE

FIELD OFFICES

FORT RANDALL DAM AND RESERVOIR PICKSTOWN, SOUTH DAKOTA

D. G. Kretsinger	Area Engr
Sup Gen Engr	GS-13
1 Sup Elect Engr	GS-12
1 HydoElectPwrSupt	GS-11
1 Reservoir Mgr	GS-11
1 Asst Reservoir Mgr	GS-10
1 Sup Admin Asst	GS-9
1 Biologist	GS-9
1 Sup Fire Fighter	GS-7
1 Eng Aid	GS-6
1 Purchasing Agent	GS-6
1 Clerk	GS-6
1 Clerk-Steno	GS-4
2 Clerk-Typing	GS-4
1 Supply Clerk	GS-3
4 Guards	GS-3
1 Tour Leader	GS-3
5 Pwplt Foreman	S-8
1 Elect Pwhse Foreman	S-8
1 Pwhse Mechn Foreman	S-8
1 Equipt Opr Foreman	S-6
1 Launch Opr	S-5
1 Engr Equipt Mechn	W-11
9 Pwplt Opr	W-11
2 Pwhse Elect	W-11
2 Pwhse Mechn	W-11
1 [illegible]	W-11
1 Engr Equipt Mech	W-11
1 Crane Opr	W-11
2 Cabinet Maker	W-10
1 Util Repr & Opr	W-10
1 Electrician	W-10
1 Grad Equipt Opr	W-10
2 Painter	W-9
1 Auto Mechn	W-9
6 Pwplt Opr	W-9
2 Control Dam Opr	W-9
2 Pwhse Elect	W-9
3 Pwplt Mechn	W-9
5 Tractor Opr	W-7
2 Pwplt Opr	W-7
1 Pwhse Mechn Hlp	W-5
2 Truck Driver	W-4
8 Laborer	W-3

20 Graded
5[illegible] Ungraded

GAVINS POINT DAM & RESERVOIR YANKTON, SOUTH DAKOTA

Robert E. Roper	Area Engr
Hydro Pwr Proj Sup	GS-12
1 Hydro Pwr Proj Sup	GS-11
1 Sup Const Engr (Gen)	GS-11
1 Reservoir Mgr	GS-11
1 Biologist	GS-9
1 Admin Asst	GS-8
1 Supply Clk	GS-4
1 Clerk-Typist	GS-3
2 Tour Leader	GS-3
5 Pwplt Opr Fore	S-8
1 Pwhse Elect Fore	S-8
1 Hydro Pwhse Mech Fore	S-8
1 Maintenance Fore	S-6
1 Launch Opr	S-5
5 Pwplt Opr	W-11
2 Pwhse Electrician	W-11
2 Hydro Pwhse Mech	W-11
1 Eng Equipt Opr	W-10
[illegible]	W-9
[illegible]	W-9
1 Eng Equipt Opr	W-8
[illegible]	W-6
7 Laborer	W-3

10 Graded
36 Ungraded

CHEYENNE AREA F. E. WARREN AIR FORCE BASE CHEYENNE, WYOMING

Sidney T. Martin	Area Engr
Colonel C.E.	
James M. Peixotto	Military Asst
Major C.E.	
J. C. Patterson	Asst Area Engr
Sup Const Engr (Gen)	GS-14
1 Sup Const Engr (Gen)	GS-13
1 Sup Engr (Gen)	GS-13
1 SupConstMgmtEngr(Gen)	GS-13
4 Sup Const Engr (Gen)	GS-12
1 Sup Engr (Gen)	GS-12
2 Mechn Engr (Gen)	GS-12
1 Material Engr	GS-12
1 Elect Engr (Gen)	GS-12
2 Const Mgmt Engr (Gen)	GS-12
2 SupConstMgmtEngr(Gen)	GS-12
7 Sup Const Engr (Gen)	GS-12
1 Sup Const Engr (AF)	GS-12
1 Attorney (Gen)	GS-12
1 Sup Admin Off	GS-11
6 Eng Tech (Mechn)	GS-11
4 Eng Tech (Elect)	GS-11
2 Mechn Engr (Gen)	GS-11
3 Elect Engr (Gen)	GS-11
2 Const Mgmt Engr (Gen)	GS-11
1 Eng Tech (Ser)	GS-11
2 Eng Tech (Off Engr)	GS-11
6 Const Repr (Gen)	GS-11
3 Const Engr (Gen)	GS-11
1 Sup Admin Asst	GS-9
1 Const Mgmt Engr (Gen)	GS-9
1 Mechn Engr (Gen)	GS-9
1 Eng Techn (Est)	GS-9
1 Eng Techn (Matls)	GS-9
1 Fiscal Asst (Fund Cont)	GS-9
1 Admin Asst (Labor Rel)	GS-9
1 Eng Techn	GS-9
14 Const Repr (Gen)	GS-9
1 Photographer (Gen)	GS-7
1 Const Inspt (B&U)	GS-7
1 Const Inspt (B&U)	GS-6
1 Personnel Clk	GS-6
1 Supply Clerk	GS-6
2 Secretary-Steno	GS-5
1 Mail & File Clerk	GS-4
1 Clerk (Gen)	GS-4
1 Mail & File Clerk	GS-3
2 Clerk-Steno	GS-3
2 Clerk-Typist	GS-3
1 Telephone Opr	GS-3
2 Laborer	W-3
#1 Elect Engr	GS-7
#2 Mechn Engr	GS-7
#1 Mechn Engr	GS-5

95 Graded
[illegible] Ungraded

LINCOLN AREA LINCOLN, NEBRASKA

Hal L. Schroeder	Area Engr
Lt Col CE	
F. L. Theriault	Asst Area Engr
Sup Const Engr(Gen)	GS-14
L. J. Henderson	Military Asst
Major CE	
Louis A. Delatour	Military Asst
Major CE	
2 Sup Const Engr (Gen)	GS-13
1 SupConstMgmtEngr(Gen)	GS-13
1 Sup Engr (Gen)	GS-13
1 SupConstMgmtEngr(Gen)	GS-12
1 Eng Techn (Mt'ls)	GS-12
1 Civil Engr (Gen)	GS-12
2 Elect Engr	GS-12
5 Sup Const Engr (Gen)	GS-12
1 Materials Engr	GS-12
2 Mechn Engr	GS-12
1 Eng Techn (Mechn)	GS-11
11 Const Repr (Gen)	GS-11
6 Const Engr (Gen)	GS-11
1 Eng Techn	GS-11
1 Const Mgmt Engr (Gen)	GS-11
1 Sup Admin Off	GS-11
1 Eng Techn (Elect)	GS-11
1 Const Engr (Gen)	GS-9
4 Eng Techn (Mechn)	GS-9
1 Eng Techn (Off Engr)	GS-9
14 Const Repr (Gen)	GS-9
1 Const Inspt (Gen)	GS-7
2 Sup Admin Asst	GS-7
2 Mechn Engr	GS-7
1 Const Engr (Gen)	GS-7
1 Eng Techn	GS-7
2 Mechn Equipt Inspt	GS-7
1 Secretary (Steno)	GS-5
1 Clerk, Personnel	GS-5
1 Mail & File Clk	GS-5
1 Fiscal Asst (Fund Cont)	GS-5
2 Eng Aid (Sur)	GS-5
1 Civil Engr	GS-4
1 Mechn Engr	GS-4
2 Clerk-Steno	GS-4
4 Clerk-Typist	GS-3
1 Mechn Engr	GS-3
4 Clerk-Steno	GS-3
2 Laborer	W-3
#1 Elect Engr	GS-7
#1 Mechn Engr	GS-7
#1 Civil Engr	GS-7
#2 Civil Engr	GS-5
#5 Mechn Engr	GS-5
#1 Elect Engr	GS-5

65 Graded
2 Ungraded

[illegible] C.U.N.S.

1 July 60

DISTRICT OFFICE

OMAHA DISTRICT

EXECUTIVE OFFICE

Col. David G. Hammond	District Engineer MRHVE
Col. John J. Haley	Deputy Dist Engineer MRHVY
Lt.Col. John M. Frassrand	Asst Dist Engineer MRHVY
Major Edmund R. Preston Jr.	Executive Officer MRHVY
Milton Micke	Executive Assistant GS-13
1 Secretary (Gen)	GS-6
1 Secretary (Gen)	GS-5

3 Graded
0 Ungraded

ELECTRONIC DATA PROCESSING SERVICE CENTER

R.L. Renner	Chief
Sup Gen Engr	GS-13
1 Civil Engr	GS-11
1 Mathematician	GS-11
1 AdmAsst(ProiSchdCont)	GS-8
1 Civil Engr (Gen)	GS-7
2 D.C. Programmer	GS-7
2 Comp Equip Opr	GS-4
2 Mathematician	GS-3
1 Card Punch Opr	GS-3

12 Graded
0 Ungraded

SPECIAL ASSISTANTS

Gabriel M. Domet
Security Specialist (Gen) GS-11

1 Security Spec(Gen) GS-7

* R.G. Leonard
Tech Liaison Asst GS-12

2 Graded
0 Ungraded

BOARDS

Board of U.S. Civil Service Examiners
Incentive Awards Committee
Standing Grievance Committee

ADMINISTRATIVE SUPPORT

ARMY MAP DEPOSITORY

E.W. Hall	Chief
Sup Map Dep	GS-9
2 Sup Map Dep	GS-8
3 Map Dep Asst	GS-5
1 Map Dep Asst	GS-3

7 Graded
0 Ungraded

ADVISORY AND ADMINISTRATIVE STAFF

OFFICE OF THE COMPTROLLER	TECH LIAISON	SAFETY	OFFICE OF COUNSEL	PERSONNEL	OFFICE SERVICE
Page 4	Page 5	Page 5	Page 5	Page 5	Pages 5 & 6

* Dual Assignment

TECHNICAL STAFF

SUPPLY DIVISION

M. T. Montgomery, Chief
Sup Supply Officer

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CONSTRUCTION DIVISION

S. L. Price, Chief
Sup. Const. Mgmt. Engr. (Gen)

T. E. Huddleston, Asst. Chief
Sup. Const. Mgmt. Engr. (Gen)

Pages 8 & 9

ENGINEERING DIVISION

J. O. Ackerman, Chief
Sup. Civil Engr.

C. L. Hipp, Asst. Chief
Sup. Civil Engr.

Pages 10 to 14 Incl.

REAL ESTATE DIVISION

D. Kent, Chief
Sup Real Property Off.

L. Y. Lawton, Asst Chief
Real Prop Off.

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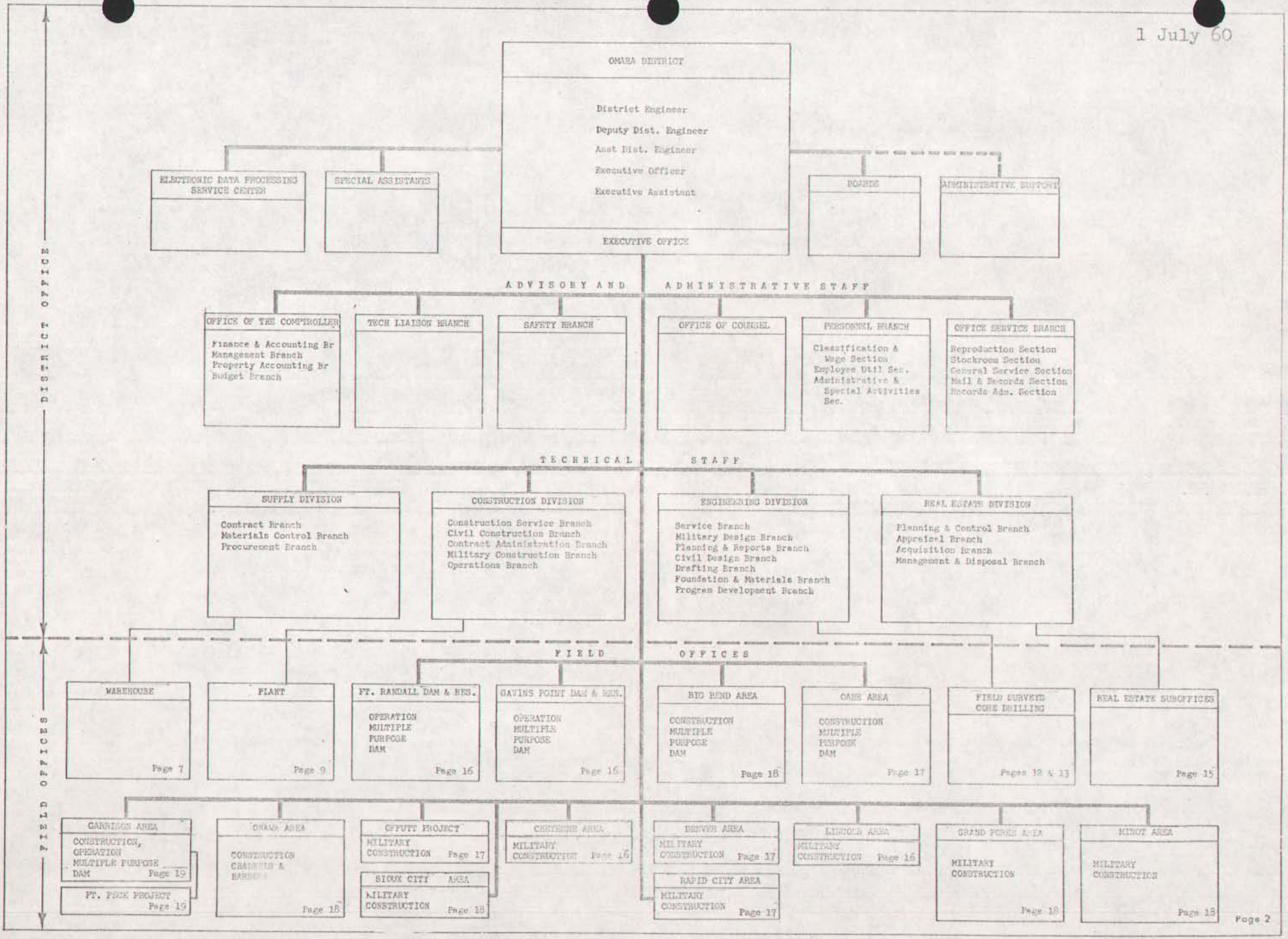

DISTRICT OFFICE
FIELD OFFICES
OMAHA DISTRICT
District Engineer
Deputy Dist. Engineer
Asst Dist. Engineer
Executive Officer
Executive Assistant
EXECUTIVE OFFICE
ELECTRONIC DATA PROCESSING SERVICE CENTER
SPECIAL ASSISTANTS
BOARDS
ADMINISTRATIVE SUPPORT
ADVISORY AND ADMINISTRATIVE STAFF
OFFICE OF THE COMPTROLLER
Finance & Accounting Br
Management Branch
Property Accounting Br
Budget Branch
TECH LIAISON BRANCH
SAFETY BRANCH
OFFICE OF COUNSEL
PERSONNEL BRANCH
Classification & Wage Section
Employee Util Sec.
Administrative & Special Activities Sec.
OFFICE SERVICE BRANCH
Reproduction Section
Stockroom Section
General Service Section
Mail & Records Section
Records Adm. Section
TECHNICAL STAFF
SUPPLY DIVISION
Contract Branch
Materials Control Branch
Procurement Branch
CONSTRUCTION DIVISION
Construction Service Branch
Civil Construction Branch
Contract Administration Branch
Military Construction Branch
Operations Branch
ENGINEERING DIVISION
Service Branch
Military Design Branch
Planning & Reports Branch
Civil Design Branch
Drafting Branch
Foundation & Materials Branch
Program Development Branch
REAL ESTATE DIVISION
Planning & Control Branch
Appraisal Branch
Acquisition Branch
Management & Disposal Branch
FIELD OFFICES
WAREHOUSE
Page 7
PLANT
Page 9
FT. RANDALL DAM & RES.
OPERATION
MULTIPLE PURPOSE DAM
Page 16
GAVINS POINT DAM & RES.
OPERATION
MULTIPLE PURPOSE DAM
Page 16
BIG BEND AREA
CONSTRUCTION
MULTIPLE PURPOSE DAM
Page 18
OAHE AREA
CONSTRUCTION
MULTIPLE PURPOSE DAM
Page 17
FIELD SURVEYS CORE DRILLING
Pages 12 & 13
REAL ESTATE SUBOFFICES
Page 15
GARRISON AREA
CONSTRUCTION, OPERATION MULTIPLE PURPOSE DAM
Page 19
FT. PECK PROJECT
Page 19
OMAHA AREA
CONSTRUCTION CHANNELS & HARBORS
Page 18
OFFUTT PROJECT
MILITARY CONSTRUCTION
Page 17
SIOUX CITY AREA
MILITARY CONSTRUCTION
Page 18
CHEYENNE AREA
MILITARY CONSTRUCTION
Page 16
DENVER AREA
MILITARY CONSTRUCTION
Page 17
RAPID CITY AREA
MILITARY CONSTRUCTION
Page 17
LINCOLN AREA
MILITARY CONSTRUCTION
Page 16
GRAND FORKS AREA
MILITARY CONSTRUCTION
Page 18
MINOT AREA
MILITARY CONSTRUCTION
Page 18

Left to right: H. D. Laverentz, Black & Veatch; C. F. Huggins, Bechtel Corporation; M. S. Winders, Bechtel Corporation; Colonel V. L. Hastings, SATAF Commander; Lt. Colonel Hubert Miller, SATAF Deputy Commander; Major H. B. Arnold, SATAF Deputy for Facilities; Captain Nolan Chafin, SATAF Chief, Surveillance Branch; Hugh Smith, Bechtel Corporation; John D. Prien, Jr., SATAF Construction Management Engineer. Taken at turn-over ceremonies of Site 8 to SATAF.

SATAF WAHOO

ORGANIZATION & FUNCTIONAL CHART

A 8 SEP 1961

COMMANDER
COL HASTINGS, Vernon L. EXT 310 & 311
DEPUTY COMMANDER
LtCol MILLER, Hubert E. EXT 475, 510, 511

Is responsible to the Deputy for Site Activation for the successful activation of his site, including construction, installation and checkout, and its turnover to SAC in an acceptable operational condition in accordance with program schedules.

DIRECTOR PROGRAM MANAGEMENT
Major DONAHOE, Paul J. EXT 339

1. Is responsible to the SATAF Commander for maintaining a dynamic system to insure rapid and concise knowledge of the status and problems of the complete site activation effort.
2. Maintains the SATAF control room. Guides this medium, through communications capability, with other nerve centers of HDC to expeditiously solve problems to insure operational dates are met.

DIRECTOR OF ADMINISTRATIVE SERVICES
Captain ARMON, Raymond L. EXT 338
CWO W-2 FITCAVAGE, Alexander A. EXT 443

1. Is responsible to the SATAF Commander for providing administrative support during all phases of site activation.
2. Maintains files, provides classified document control, provides mail services, performs the morning report function.
3. Maintains overall staff supervision over security aspects of site activation and coordinates with the agencies concerned to avoid duplicating effort and conflicting instructions.
4. Determines resources required for HDC Detachment in terms of manpower, facilities, equipment and funding.
5. Prepares budget estimates and monitors execution of the financial plan for SATAF operating costs.

DIRECTOR OF FIELD OPERATIONS
Major MARSHALL, Richard W. EXT 200

Responsible to the SATAF Commander for:
1. Overall Engineering of site activation operations.
2. Maintains contacts with weapon system contractors to determine technical problems being encountered.
3. Management of the test and demonstration milestones being conducted.

CONFIGURATION CONTROL
Captain PALMER, W.G. EXT 370

Responsible to the Director of Field Operations for assisting the SATAF Commander in informing the CCB of compatibility changes required by field conditions, which affect other sites.

FACILITIES ENGINEERING
Major ARNOLD, H.B. EXT 3209 LAFB

Responsible to the SATAF Commander thru the Director of Field Operations for the technical adherancy of facilities during construction phase of the Weapon System Program. Responsible for surveillance and represents SATAF at facility inspections.

COMMUNICATIONS
Major HAYS, J.K. EXT 313

Responsible for supporting the Director of Field Operations in the installation of the necessary communications.

OPERATIONS CONTROL
Captain THOMPSON, J.J. EXT 200

Responsible to the Director of Field Operations for activation of the Launch Complexes, to include coordination of production, scheduling, securing resolution of major problems at the Launch Complexes.

OPERATIONAL FUNCTIONS OF SITE & MAB OFFICERS
1. Reports through Operations Control to the Director of Field Operations.
2. Is the SATAF Commander's representative at the Group Complex.
3. Is responsible for Air Force management and engineering at the Complex Group level.

MAB - Captain GIFFORD, L.D. EXT 370/413
GROUP A - Capt. GOODHAMER, K.G. EXT 484
2dLt CLEAVER, G.C.
Complex #1 EXT 3102
Complex #10 EXT 2572
Complex #11 EXT 2532
GROUP B - Capt. PERKINS, C.C. EXT 484
Complex #12 EXT 2582
Complex #2 EXT 3112
Complex #9 EXT 3012
GROUP C - Capt. STARK, F. E. EXT 413
Complex #4 EXT 2562
Complex #5 EXT 3122
Complex #6 EXT 3022
GROUP D - Capt. PIMENTEL, F.T. EXT 370
Complex #3 EXT 3002
Complex #7 EXT 2542
Complex #8 EXT 2582

DEPUTY FOR LOGISTICS
Lt Col DEDRICK, John W. EXT 249

A. Is responsible to the SATAF Commander for assuring the timely intergration of logistical support.

B. Serves as the field representative of the appropriate AMA in furnishing supply, maintenance and transportation support to the SATAF during the site activation phase and to SAC during the operational phase.

LOGISTICS BRANCH
D.J. JONES EXT 287

Provide supply, maintenance and transportation support during activation phase. Responsible for inventory and transfer of MAB Property at time of turnover and render such follow-on support as may be required by the Weapon System Manager.

MAINTENANCE ENGINEERING BRANCH
EXT 484

Provide engineering assistance during I&C and responsible for follow-on engineering support as may be required by Weapon System Manager.

DEPUTY FOR CONTRACT ADMINISTRATION
Lt. Col BAHR, Albert S. EXT 207

A. Is responsible to the SATAF Commander for assuring the timely execution of the Air Force procurement and production services for the site activation program.

B. Serves as the field representative of the Contract Management Region in administering all Air Force contracts and subcontracts; production and quality control; labor relations; industrial Government property management and industrial security for the SATAF.

CONTRACT ADMINISTRATION BRANCH
MR. FLOWER, Claude J.B. EXT 261

Responsible to the Deputy for Contract Administration for the administration of all SATAF contracts in regard to coordinating policy matters with contractors, major commands, and other Department of Defense activities, approves or disapproves within limitations of contractual provisions, all contractor activities requiring such approval. Coordinates and recommends all requests for contractual changes or deviations. Maintains current and accurate status of program expenditures.

PRODUCTION BRANCH
Captain ROTH, Paul H. EXT 260

Responsible to the Deputy for Contract Administration for maintaining surveillance over contractor's production GOE delivery and installation, manpower utilization and necessity and justification for approved facilities. Expedites critical material and assigns priority designations.

QUALITY CONTROL BRANCH
Mr. BROWSON, A.J. EXT 244

Responsible to the Deputy for Contract Administration for evaluating the contractor's inspection systems thru the use of check lists and Air Force Plan provided in AMC Manual 74-1 and the inspection and acceptance of supplies consecurate with the terms of the contract.

LABOR RELATIONS BRANCH
Mr. GROGAN, John N. EXT 389

Responsible to the Deputy for Contract Administration for information and advice on all labor matters. Insures inclusion and compliance with labor laws as appropriate. Participates with the SATAF Commander on the Missile Site Labor Committee.

INDUSTRIAL PROPERTY BRANCH
Mr. BATE, August M. EXT 389

Responsible to the Deputy for Contract Administration for exercising surveillance over the control, accounting, usage analysis, control, and maintenance of Government property in possession of the contractors. Represents the ACO to insure that the contractors are providing adequate property accounting procedures and that the best interests of the Government are adequately protected.

DEPUTY FOR CONSTRUCTION
Col. MIRAHAN, John E. GR 7-8993 E-1 LAFB

A. Is responsible to the SATAF Commander for assuring the timely accomplishment of the construction operation into the site activation program.

B. Serves as the field representative of the Construction Director in directing and administering the execution of the construction contracts.

CONSTRUCTION BRANCH
Major HENDRICKS, Lester J. EXT 25

Is responsible to the Deputy for Construction for assuring the timely accomplishment of the construction operation for the site activation program.

CONTRACT ADMINISTRATION BRANCH
Mr. ANDERSON, Harold D. EXT 16

Is responsible to the Deputy for Construction for administration of the construction contracts. Examines contractors payroll data and takes action with contractors to correct discrepancies, if required.

ENGINEERING BRANCH
Mr. BUSCHA, Lloyd A. EXT 14

Is responsible to the Deputy for Construction for recommending changes to drawings, mainly to conform with local conditions. Cooperates with contractors top supervisors in establishment of safety program and insures compliance therewith.

DEPUTY FOR ENGINEERING
Major MARSHALL, Richard W. EXT 200

Is responsible to the SATAF Commander for:
1. Equipment and facility configuration control.
2. Management of weapon system turnover procedures.
3. Assists in resolving technical problems including mechanical facilities design problems.
4. Chairs field change order conferences. Monitors distribution of revised plans and specifications, shop drawings.
5. Insures that equipment and facility configuration control is maintained.
6. Supervision and control of the A/E services group assigned to him.
7. Provides membership to Technical Approval Team.

CONFIGURATION CONTROL BRANCH
Captain PALMER, Walter G. EXT 370

Responsible to the Deputy for Engineering to insure that equipment and facility configuration control is maintained. Monitors field changes to insure that non are introduced which are the approval responsibility of the appropriate CCB.

FACILITIES ENGINEERING BRANCH
Maj. ARNOLD, Howard B. EXT 3209 LAFB
Capt. CHAFIN, Nolan

Responsible to the SATAF Commander through the Deputy for Engineering for the technical acceptance for the construction phase of the Site Activation. Assists in resolving facilities design problems.

WEAPON SYSTEM ENGINEERING BRANCH
Captain THOMPSON, Joseph J. EXT 200

Is responsible to the Deputy for Engineering for maintaining contact with appropriate Weapon System program Office for Technical Information and instructions. Assists in resolving technical problems.

MISSILE CHECKOUT & TRAINING
Captain GIFFORD, L.D. EXT 370/413

Responsible to the Deputy for Engineering, through the Weapon System Engineering Branch, for all aspects of missile checkout and training for the SATAF.

MISSILE & SILO ELECTRICAL & ELECTRONICS
Captain PERKINS, Calvin C. EXT 484

Responsible to the Deputy for Engineering, through the Weapon System Engineering Branch, for all aspects of electrical and electronic systems for the SATAF.

REENTRY VEHICLE & SAFETY
Captain STARK, Floyd E. EXT 413

Responsible to the Deputy for Engineering, through the Weapon System Engineering Branch, for all aspects of Reentry Vehicle and Safety matters for the SATAF.

GUIDANCE
Captain PIMENTEL, Frank T. EXT 370/413

Responsible to the Deputy for Engineering, through the Weapon System Engineering Branch, for all aspects of Guidance matters for the SATAF.

PLS & CRYOGENICS
Captain GOODHAMER, Kenneth G. EXT 484
2nd Lt CLEAVER, Gerald C.

Responsible to the Deputy for Engineering, through the Weapon System Engineering Branch, for all aspects of PLS and cryogenics for the SATAF.

DEPUTY FOR COMMUNICATIONS
Major HAYS, J.K. EXT 313

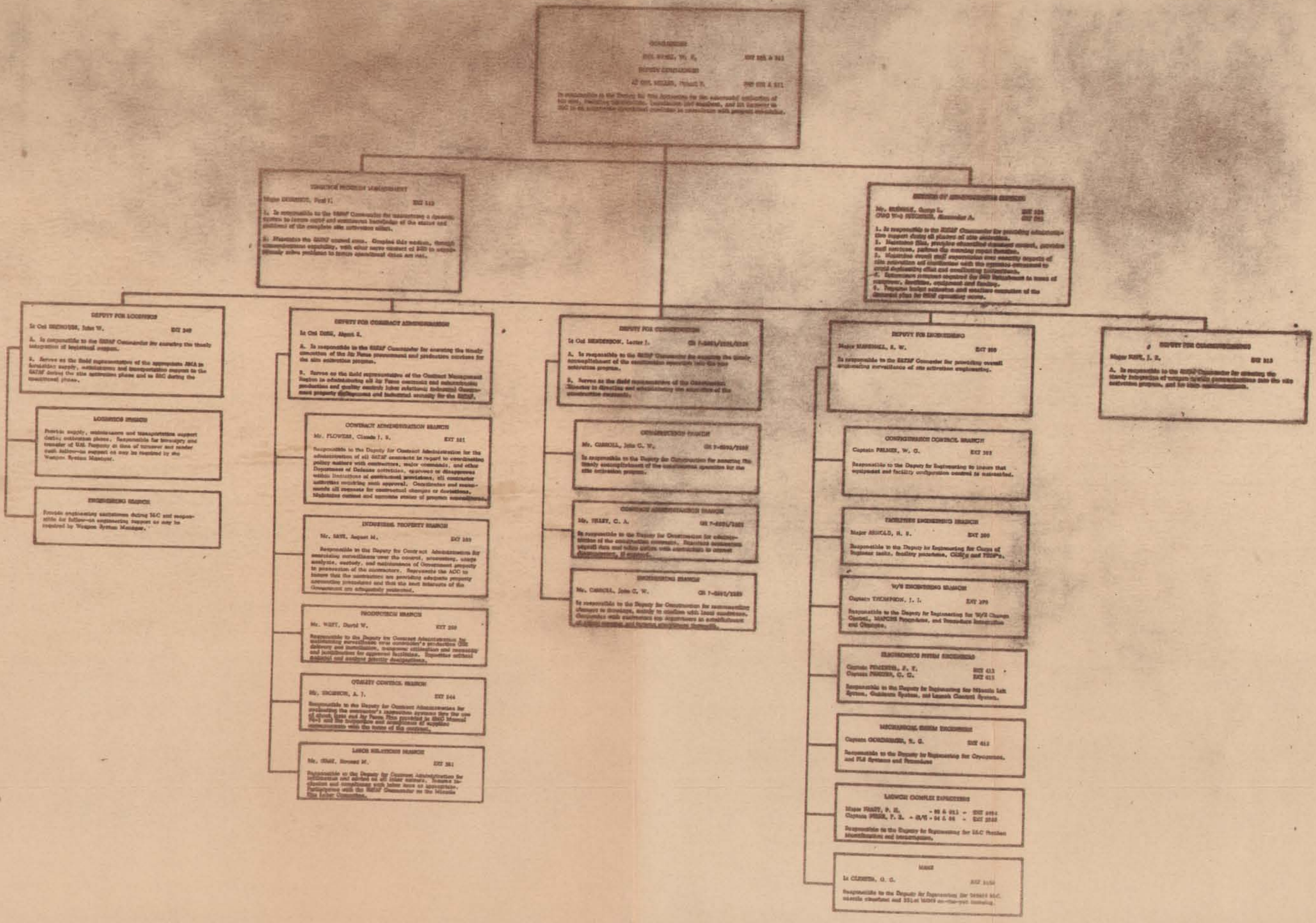
A. Is responsible to the SATAF Commander for assuring the timely integration of weapon system communications into the site activation program, and for base communications.

B. The field representative of the OCAMA region provides technical guidance to the ACO in the administration of communications contracts.

WEAPON SYSTEM BRANCH
Is responsible to the Deputy for Communications for assuring the timely integration of weapon systems communications into the site activation program.

SUPPORT BRANCH
Is responsible to the Deputy for Communications for providing all support communications normally furnished by the host base.

SATAF WAHOO
ORGANIZATION & FUNCTIONAL CHART



U. S. AIR FORCE AGENCIES

AIR MATERIEL COMMAND

Site Activation Task Force

1. Responsible for the successful activation of site, including construction, installation, checkout, and its turnover to SAC in acceptable operational condition in accordance with program schedules.

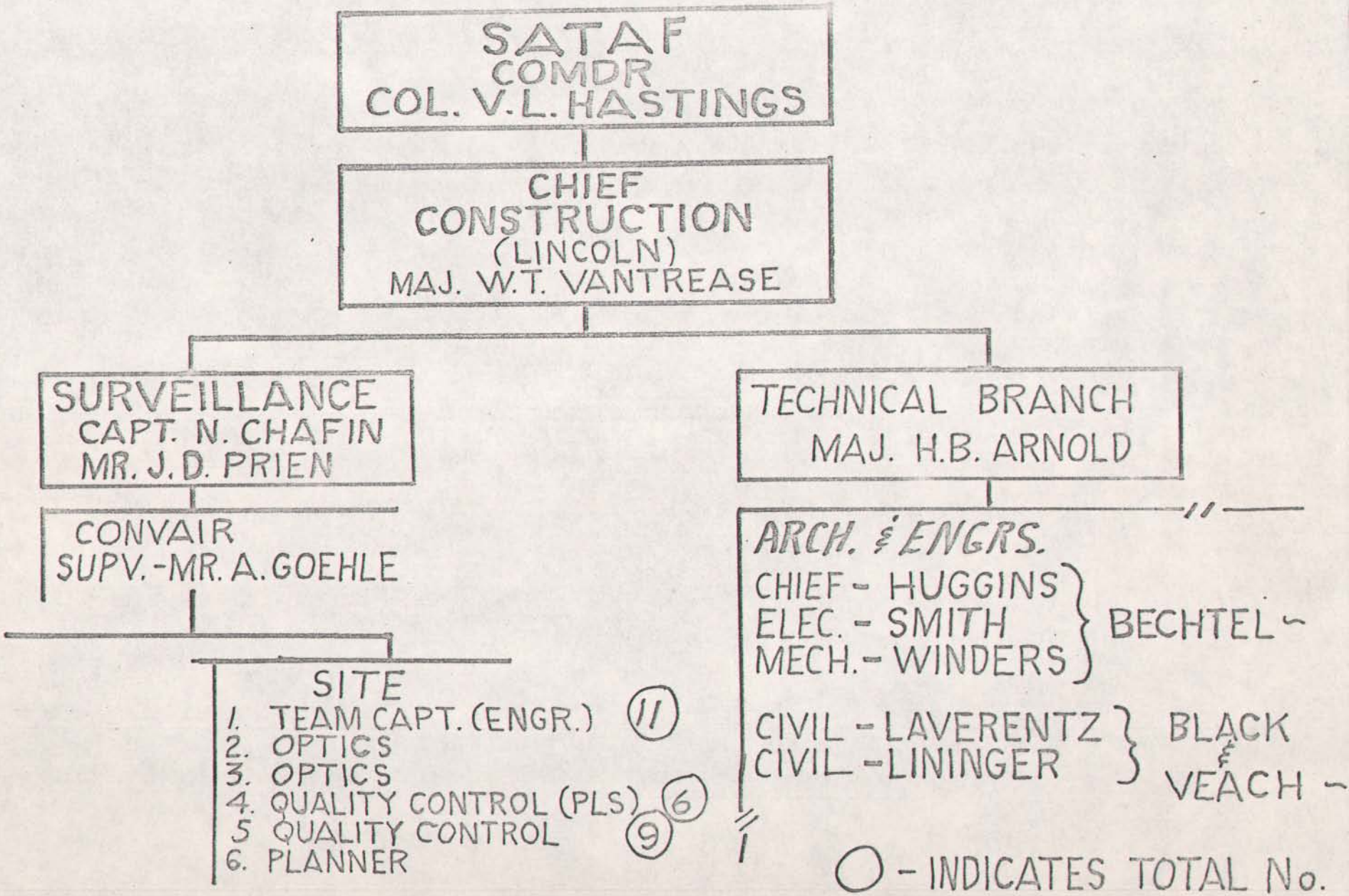
2. Exercises management control over two subordinate offices: Project Control Office and Administrative Services Office.

3. Exercises operational control over three detachments: Ballistic Missile Division Detachment, Contract Management Region Detachment and Air Materiel Area Detachment.

4. Maintains Liaison with Corps of Engineers.

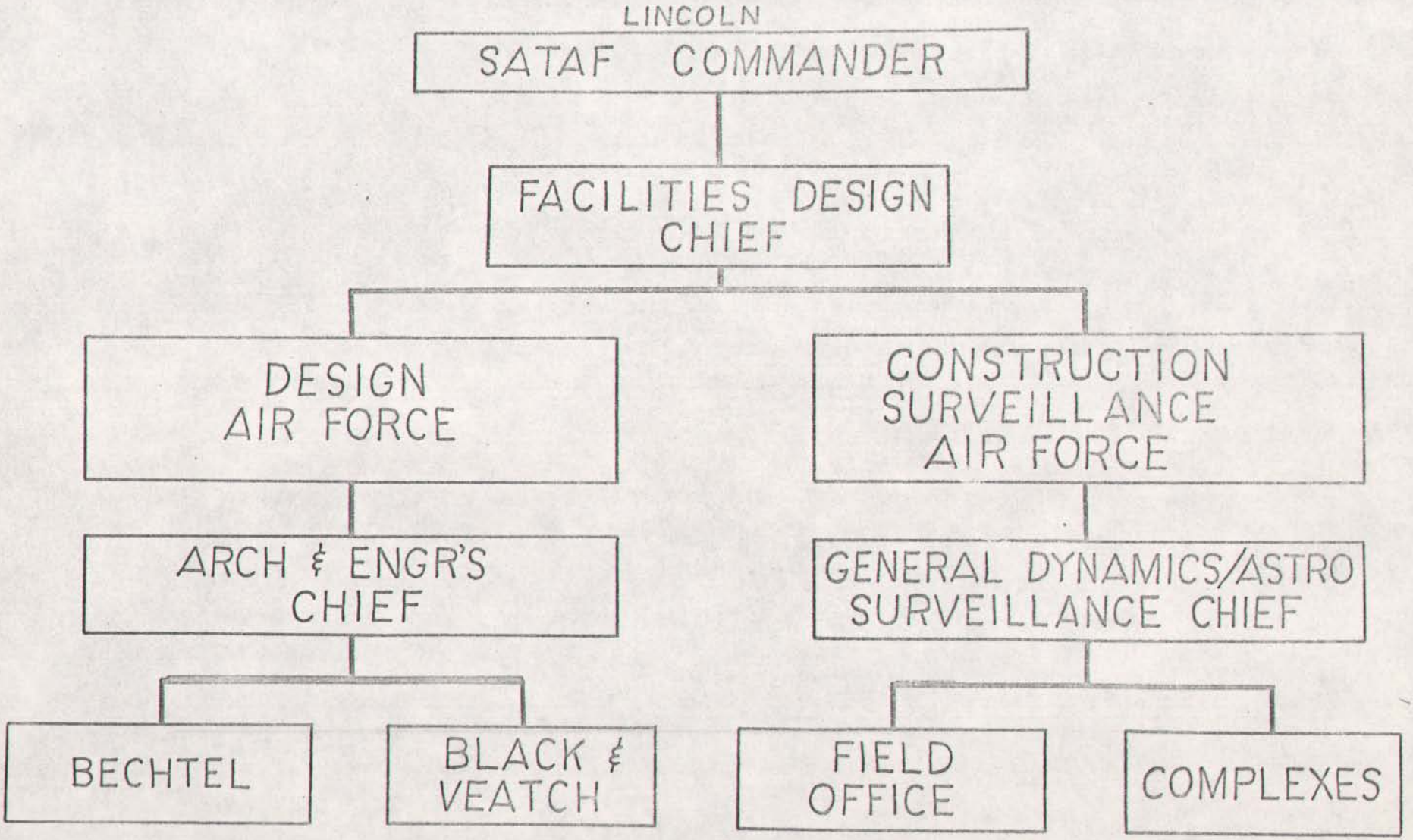
5. Implements program requirements established by the Executive Management Agency.

6. Exercises operational control, including assignment of tasks, designation of objectives, administration of and necessary direction over the detachments of: Contract management personnel provided by the Western Contract Management Region; designated AMA (LSM) logistics personnel and AFBMD engineering personnel.


SATAF
COMDR
COL. V.L. HASTINGS
CHIEF
CONSTRUCTION
(LINCOLN)
MAJ. W.T. VANTREASE
SURVEILLANCE
CAPT. N. CHAFIN
MR. J.D. PRIEN
CONVAIR
SUPV.-MR. A. GOEHLE
SITE
1. TEAM CAPT. (ENGR.) (11)
2. OPTICS
3. OPTICS
4. QUALITY CONTROL (PLS) (6)
5 QUALITY CONTROL (9)
6. PLANNER
TECHNICAL BRANCH
MAJ. H.B. ARNOLD
ARCH. & ENGRS.
CHIEF - HUGGINS
ELEC. - SMITH
MECH. - WINDERS
BECHTEL
CIVIL - LAVERENTZ
CIVIL - LININGER
BLACK & VEACH
O - INDICATES TOTAL No.

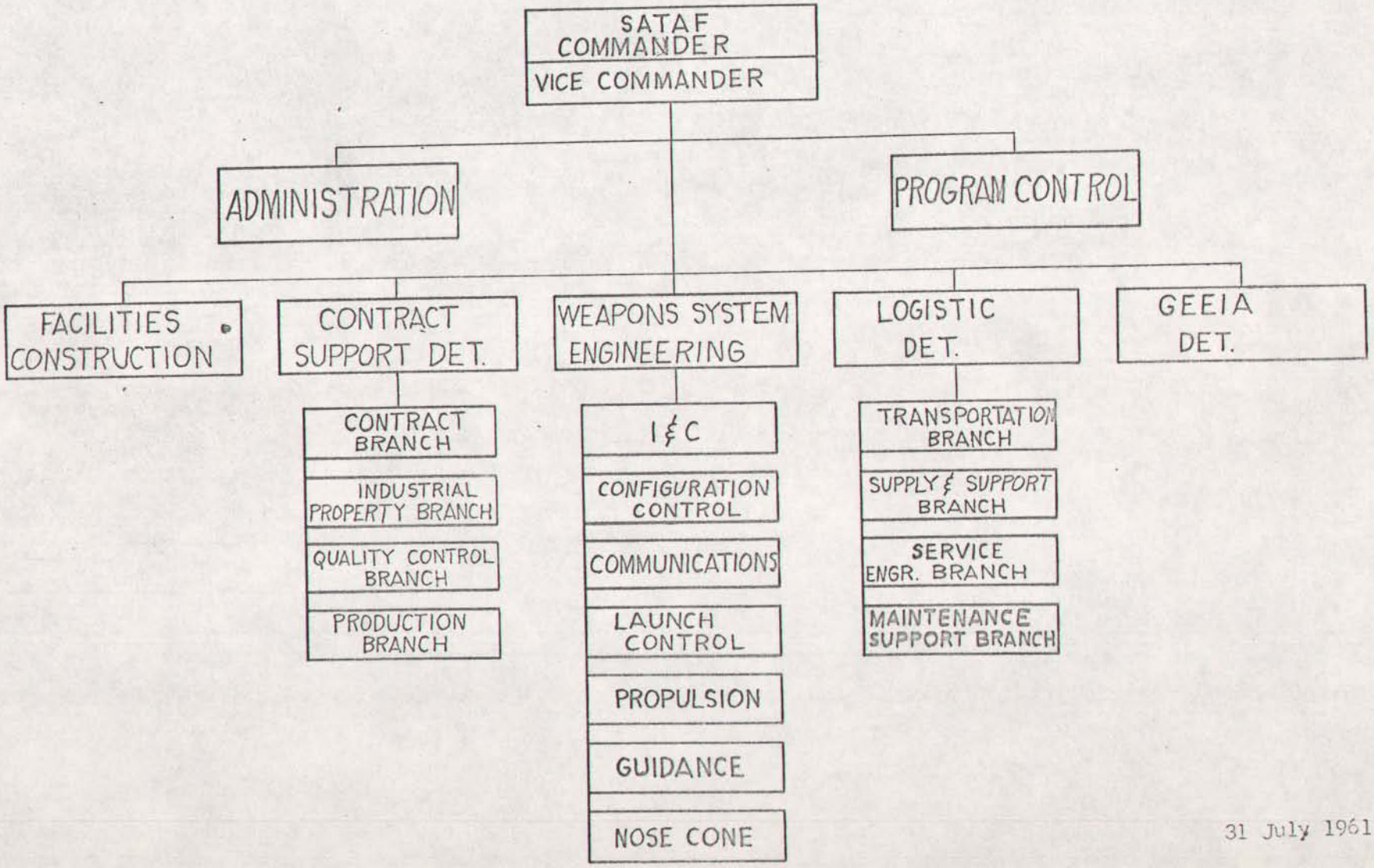
31 July 1961

CONSTRUCTION SURVEILLANCE
SATAF WAHOO



31 July 1961

ORGANIZATION
LINCOLN SATAF



31 July 1961

RELATIONSHIP WITH SATAF

1. Relationship:

In addition to the title and duties of Area Engineer, the Area Engineer obtained the title of Deputy for Construction for the SATAF on about 15 October 1961. Since the inception of this joint organization our relationship with the SATAF has continued to be both amiable and workable, as its been all along. The Area Engineers (Deputy for Construction) job description follows:

2. Job Description:

a. The Area Engineer (Deputy for Construction, under SATAF) is responsible to the SATAF Commander for assuring the timely accomplishment of the construction operation for the site activation program.

b. Operates as the field representative of the Construction Director.

c. Administers construction contracts. Inspects work under his jurisdiction; gathers and records contract data; prepares reports and contractor's payment estimates.

d. Assures compliance with contract requirements, including modifications. Accomplishes construction in accordance with approved progress schedules and contractual completion dates.

e. Recommends changes to drawings, mainly to conform with local conditions.

f. Enforces labor provisions of his construction contracts. Examines contractor's payroll data and takes action with contractors to correct discrepancies, if required.

g. Issues change orders on approved changes and prepares cost estimates for modifications. As contracting officer's representative, negotiates costs of modifications and processes contractor's claims.

h. Enforces safety provisions of the contract. Cooperates with contractors top supervisors in establishment of safety program and follows through during life of the contract to insure compliance therewith.

i. Provides the Deputy for Engineering with continual data reflecting actual field conditions for incorporation into as-built drawings.

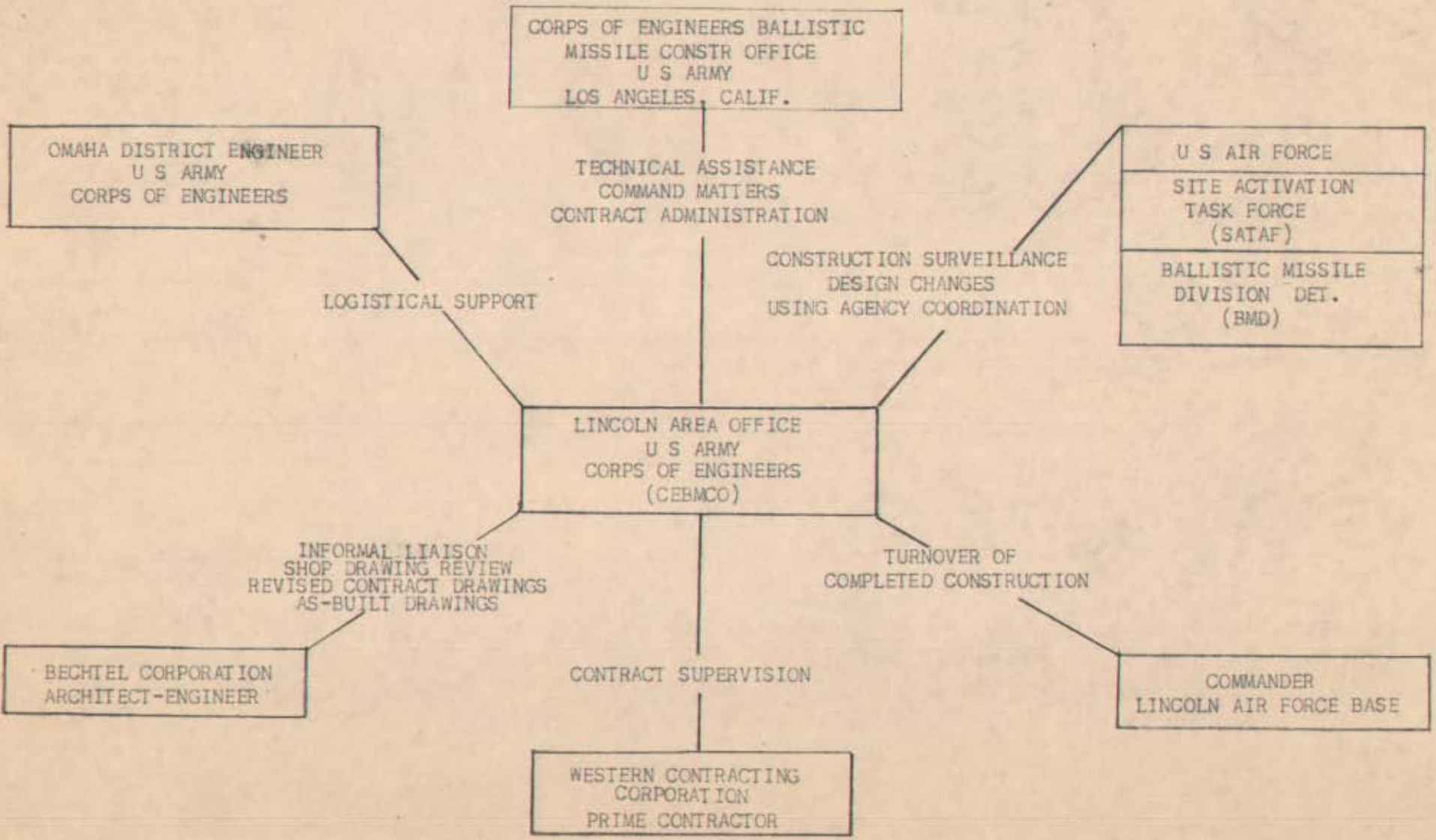
j. In conjunction with the SATAF Commander, works out joint occupancy agreements.

k. Schedules pre-final and final acceptance inspections.

3. Organizational Chart:

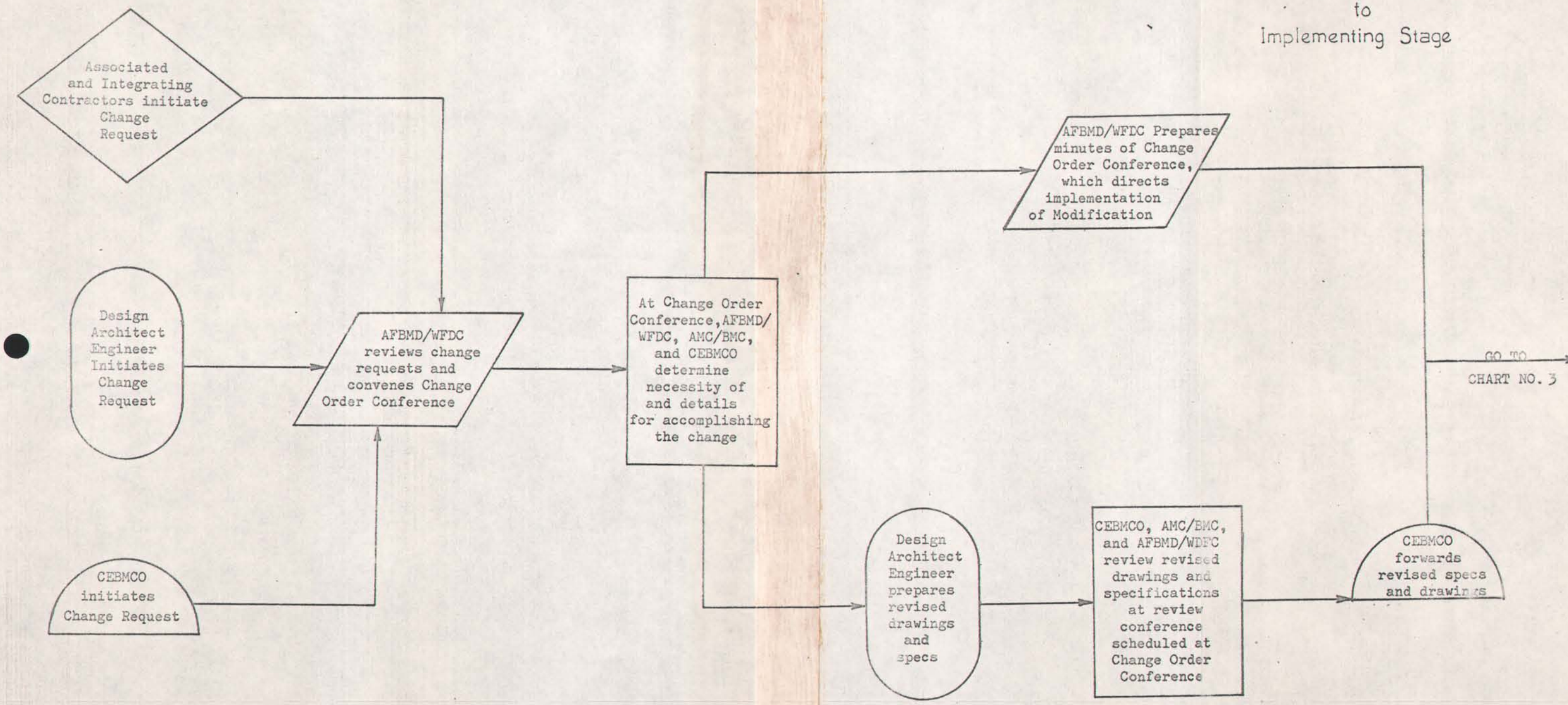
Next page shows the Organizational Chart for the local SATAF with the key personnel listed.

INTER-AGENCY RELATIONSHIPS
LINCOLN AREA OFFICE (CEBMCO)

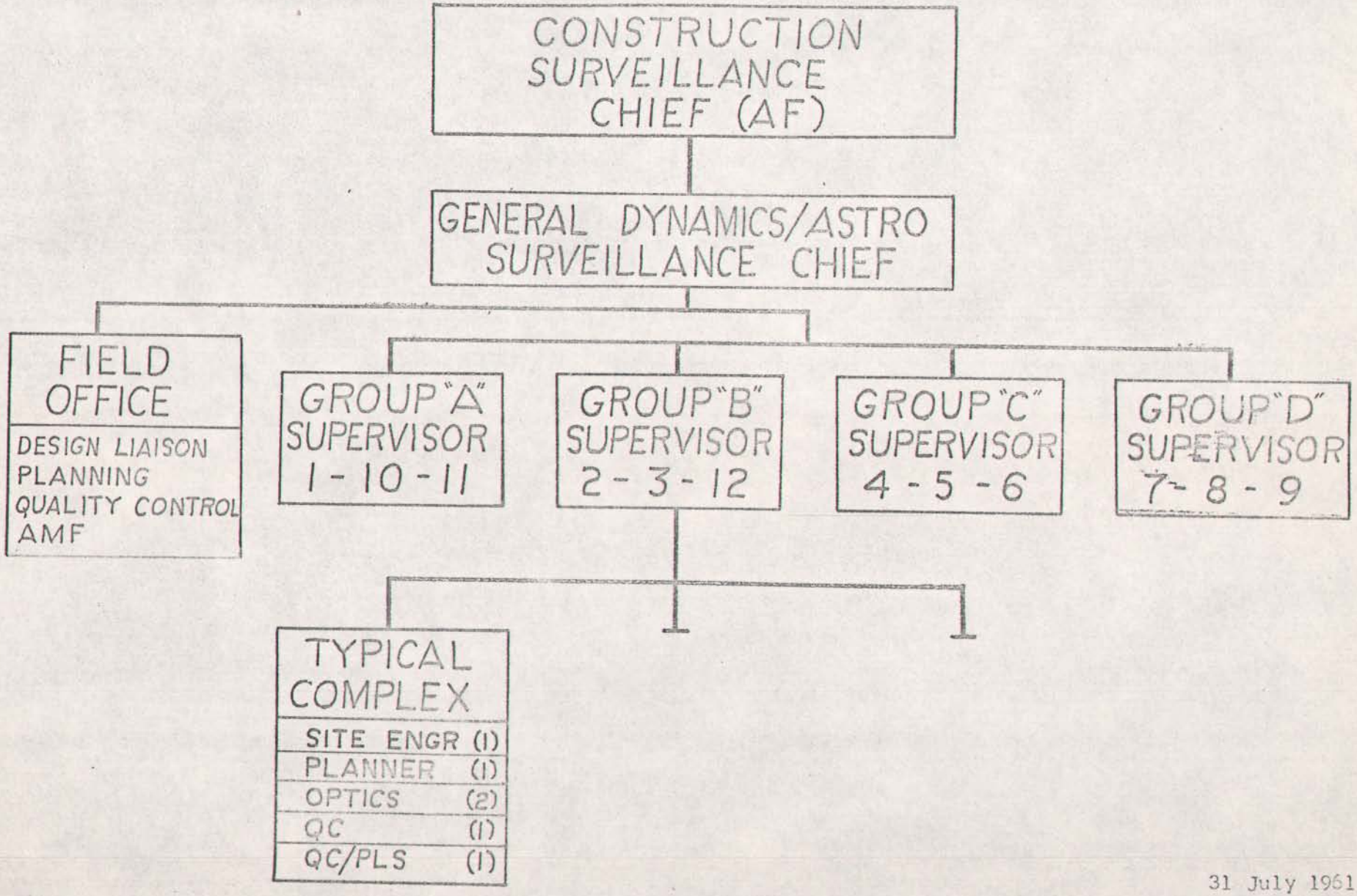


FLOW CHART Nº 1

Design Changes
from
Initiation Stage
to
Implementing Stage



CONSTRUCTION SURVEILLANCE



31 July 1961

GENERAL DYNAMICS/ASTRONAUTICS
Lincoln Air Force Base
Dept. 616-4
13 October 1961

	Direct	Indirect	Total
On Board	77	25	102
On Loan to Golden Ram	30		
Other	5		

CHIEF, QUALITY CONTROL
C. M. Tyner

INSPECTION SUPERVISOR
Launch Complex Gps. A & D
C. V. Pereira

STENO SECY.
Doris Sevier

INSPECTION SUPERVISOR
Launch Complex Gps. B & C
R. E. Reed

DEPT. CLERK
Ann Triggs

COMPLEX SUPV.
Complex 1
F. Racy
ASST. SUPVR.
M. D. Pederson
IMFT Mech
D. E. Roberts(F)
F. Knester
IMFT Elec
M. Ramos

COMPLEX SUPVR.
Complex 10
H. L. Daniel
ASST. SUPVR.
H. L. Stouse
IMFT Mech
D. G. Sperry
IMFT Elec
K. B. Turner
M. A. Vitek

COMPLEX SUPVR.
Complex 11
B. E. Sheitman
ASST. SUPVR.
C. E. Lester
IMFT Mech
P. Bourdon (F)
R. T. Sherman
C. R. Lewis
IMFT Elec
J. H. Mitten

COMPLEX SUPVR.
Complex 2
B. T. Boone
ASST. SUPVR.
C. H. Sproull
IMFT Mech
H. Rickabaugh (F)
C. Steinhauser
IMFT Elec
D. LaBrooque (F)

COMPLEX SUPVR.
Complex 3
B. R. Wadsworth
ASST. SUPVR.
G. E. Meyers
IMFT Mech
D. E. Wright (F)
R. F. Kappel (F)
S. Mendenhall(F)
R. A. Grant
IMFT Elec
C. E. Presnall(F)

COMPLEX SUPVR.
Complex 12
C. F. Gillarist
ASST. SUPVR.
A. E. Attig
IMFT Mech
F. Phillips (F)
G. Rubalcava(F)
IMFT Elec
C. J. Potter

COMPLEX SUPVR.
Complex 7
A. A. Carpenter
ASST. SUPVR.
W. F. Harper
(Insp. in Chg.)
IMFT Mech
J. D. Sewell (F)
IMFT Elec
J. Frederick (F)
D. H. Adams (F)

COMPLEX SUPVR.
Complex 8
D. Oliver
ASST. SUPVR.
A. G. Willis
IMFT Mech
E. D. Carden (F)
J. H. Tise (F)
IMFT Elec
G. Rischard (F)

COMPLEX SUPVR.
Complex 9
Dan Grunstrom
ASST. SUPVR.
J. A. Madden
IMFT Mech
R. W. Curwell (F)
V. C. Prestage
IMFT Elec
C. F. Ziamba (F)

COMPLEX SUPVR.
Complex 4
J. S. Yoakum
ASST. SUPVR.
C. E. Wheary
IMFT Mech
K. Brasher (F)
L. Sadler (F)
J. Pound (F)
IMFT Elec
W. E. Hahn

COMPLEX SUPVR.
Complex 5
J. A. Hawke
ASST. SUPVR.
K. L. Curtis
IMFT Mech
H. Hollingsworth(F)
J. D. Meyers (F)
R. E. Cravens
IMFT Elec
R. E. Haley

COMPLEX SUPVR.
Complex 6
J. R. Hobes
ASST. SUPVR.
C. H. Townsend
IMFT Mech
J. Hartwig (F)
T. R. Ott (F)
E. Panlette (F)
IMFT Elec
J. R. Weiler