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CONDITION SURVEY, DYESS AIR FORCE BASE, TEXAS. (U)
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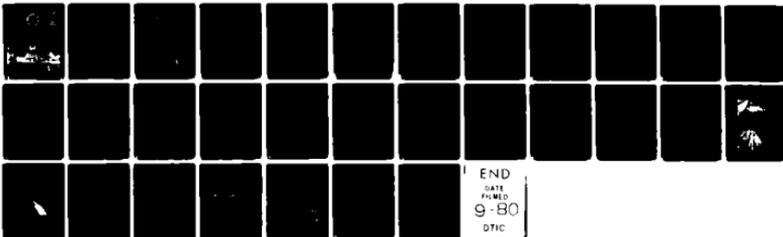
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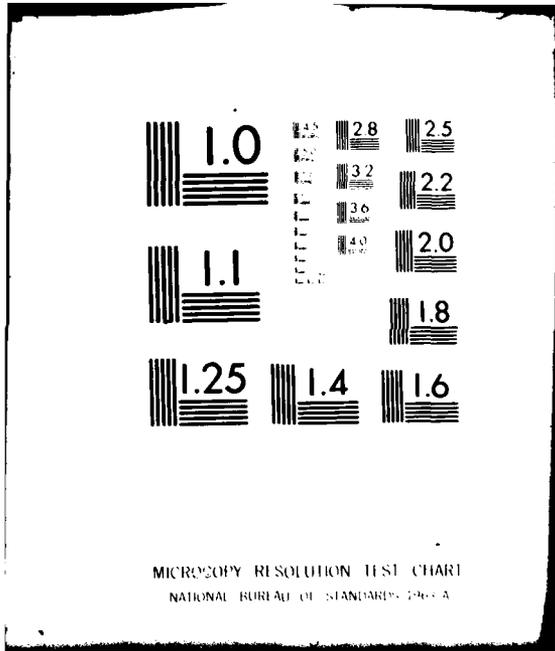
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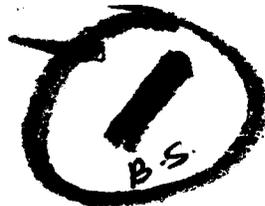
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MISCELLANEOUS PAPER S-73-43

**CONDITION SURVEY, DYESS AIR
FORCE BASE, TEXAS**

by

R. D. Jackson



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June 1973

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Conducted by U. S. Army Engineer Waterways Experiment Station
Soils and Pavements L
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Foreword

The study reported herein was conducted under the general supervision of the Engineering Design Criteria Branch, Soils and Pavements Laboratory, of the U. S. Army Engineer Waterways Experiment Station (WES), Vicksburg, Mississippi. Personnel involved in the condition survey were Messrs. R. D. Jackson, K. A. O'Connor, and S. R. Rowland, Jr. This report was prepared by Mr. Jackson under the general supervision of Messrs. J. P. Sale, R. G. Ahlvin, R. L. Hutchinson, and P. J. Vedros of the Soils and Pavements Laboratory. Appendix A was obtained from the Air Force.

COL Ernest D. Peixotto, CE, was Director of the WES during the conduct of the study and preparation of the report. Mr. F. R. Brown was Technical Director.

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Conversion Factors, British to Metric Units of Measurement

British units of measurement used in this report can be converted to metric units as follows:

<u>Multiply</u>	<u>By</u>	<u>To Obtain</u>
inches	2.54	centimeters
feet	0.3048	meters
miles (U. S. statute)	1.609344	kilometers
square inches	6.4516	square centimeters
pounds (mass)	0.45359237	kilograms
pounds (force) per square inch	0.6894757	newtons per square centimeter
Fahrenheit degrees	*	Celsius or Kelvin degrees

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* To obtain Celsius (C) temperature readings from Fahrenheit (F) readings, use the following formula: $C = (5/9)(F - 32)$. To obtain Kelvin (K) readings, use: $K = (5/9)(F - 32) + 273.15$.

CONDITION SURVEY, DYESS AIR FORCE BASE, TEXAS

Authority

1. Authority for conducting condition surveys at selected airfields is contained in amendment to FY 1972 RDTE Funding Authorization (MFS-MC-5, 16 February 1972), subject: "Air Force Airfield Pavement Research Program," from the Office, Chief of Engineers (OCE), U. S. Army, Directorate of Military Construction, dated 18 February 1972.

Purpose and Scope

2. The purpose of this report is to present the results of a condition survey performed at Dyess Air Force Base (DAFB), Texas, during 11-14 December 1972. The following two major areas of interest were considered in this condition survey:

- a. The structural condition of the primary airfield pavements.
- b. The condition of pavement repairs and the types of maintenance materials that have been used at this airfield.

3. This report is limited to a presentation of visual observations of the pavement conditions, discussion of these observations, and pertinent remarks with regard to the performance of the pavements. No physical tests of the pavements, foundations, or patching materials were performed during this survey.

Pertinent Background Data

Location and topography

4. DAFB is situated in north central Texas, approximately 6 miles* west of Abilene and 2 miles west of the original site of Tye Air Force

* A table of factors for converting British units of measurement to metric units is presented on page vii.

Base. The airfield is located in the physiographic section of the Osage Plains and lies 10-12 miles north of prominent hills that form the Callaban Divide. A vicinity map is shown in plates 1 and 2.

Geology and soils

5. The airfield is located on a relatively flat alluvial plain formed by a combination of outwash from the hills to the south and west and deposits of stream-transported sediments derived from the soft Permian strata in the region. The hills to the south are capped with limestone of the Fredericksburg group of the Lower Cretaceous period. The native subgrade soils are calcareous sandy clays (which are classified as CL material according to the Unified Soil Classification System*), with some gravelly sandy clay (CL) and fat clay (CH).

Drainage

6. The surface drainage of a major portion of the paved areas is collected in a system of ditches and catch basins located between the runway and taxiways and discharged through storm sewers and ditches. In areas where pavement grades or topographic conditions are such that surface runoff flows away from the catch basins, the drainage is handled by a peripheral system of open ditches that encircles the field and drains to the southeast. The water table is located approximately 20 ft below ground surface.

Climatic conditions

7. The climate of the area is generally mild and is typical of central Texas. The average monthly temperature has ranged from a low of approximately 33 F in January to a high of 96 F in August, with extreme temperatures having ranged from a low of 3 F to a high of 111 F. Temperature and precipitation data for 1971 are shown in table 1. The amounts of departure from normal for the 1971 temperatures and precipitation were determined using a period of record of 85 years. Total annual precipitation averages approximately 23.3 in.

* U. S. Department of Defense, "Unified Soil Classification System for Roads, Airfields, Embankments, and Foundations," Military Standard MIL-STD-619B, June 1968, U. S. Government Printing Office, Washington, D. C.

General description of airfield

8. In December 1972, the airfield facilities consisted of a N-S (16-34) runway, a parallel taxiway, a parking apron, three warm-up aprons, five connecting taxiways, a washrack, and seven maintenance hangar aprons and connecting taxiways. The runway was 300 ft wide and 13,500 ft long; the parking apron was 1,025 ft wide and 9,725 ft long; and the taxiways were 75 ft wide. A layout of the airfield is shown in plate 1. A pavement plan indicating the type pavement on each facility is shown in plate 2.

Previous reports

9. Previous reports concerning the airfield facilities at DAFB are listed below. Pertinent data were extracted from them for use in this condition survey report.

a. Condition survey reports:

- (1) Ohio River Division Laboratories, CE, "Condition Survey Report, Dyess Air Force Base, Texas," July 1958, Mariemont, Ohio.
- (2) _____, "Condition Survey Report, Dyess Air Force Base, Texas," September 1965, Cincinnati, Ohio.

b. Pavement evaluation reports:

- (1) U. S. Army Engineer Waterways Experiment Station, CE, "Airfield Pavement Evaluation Report, Abilene Air Force Base, Abilene, Texas," February 1957, Vicksburg, Mississippi.
- (2) _____, "Airfield Pavement Evaluation Report, Dyess Air Force Base, Abilene, Texas," April 1958, Vicksburg, Mississippi.
- (3) U. S. Army Engineer District, Albuquerque, CE, "Pavement Evaluation Report, Dyess Air Force Base, Texas," January 1965, Albuquerque, New Mexico.

History of Airfield Pavements

Design and construction history

10. The original construction of the airfield was started in 1953 and completed in 1955. The rigid pavements constructed during this period were 15 and 16 in. thick and were designed in accordance with the

provisions of Chapters 2 and 3, Part XII, Engineering Manual for Military Construction, dated July 1951, to support a landing gear load of 100,000 lb on twin wheels spaced 37.5 in. center to center, with each wheel having a tire contact area of 267 sq in. Extensions to these pavement facilities were constructed during the 2-year period 1956-57. The rigid pavements constructed during this period were 15 to 19 in. thick and were designed (in accordance with the provisions of Interim Design Criteria for Airfield Pavement Subjected to Channelized Traffic, inclosure to OCE letter to all Divisions, subject: "Revisions to Design Criteria for Airfield Pavements," dated 15 June 1955) to support a landing gear load of 100,000 lb on the same gear configuration as that for the pavements constructed during 1953-55. Rigid pavements constructed during 1963-64 were 15 to 27 in. thick and were designed to support a single gear load of 265,000 lb on twin-twin wheels spaced 37-62-37 in., with each wheel having a tire contact area of 267 sq in. The inlay placed in taxiway 2 in 1966 was 19 in. of portland cement concrete (PCC) and was constructed in accordance with the design criteria used for the 1963-64 construction. Details of the construction history of the airfield pavements (extracted from reports referenced in paragraph 9) are presented in table 2. Pavement thicknesses, descriptions, and other details are presented in table 3.

Traffic history

11. Operations by KC-97 and B-47 aircraft at DAFB began in February 1956 and continued until December 1959 and March 1963, respectively. Available traffic records indicate that the following amounts of traffic were applied by B-47 aircraft during the cited periods: February 1956-April 1958, 235 cycles* per month; April 1958-June 1961, 424 cycles per month; and June 1961-March 1963, 179 cycles per month. Gross operating loads of the B-47 aircraft were 178,000 lb during February 1956-December 1958 and 186,000 lb during December 1958-March 1963. Traffic records indicate that an average of 78 cycles per month of KC-97 aircraft traffic were applied at 155,000-lb gross loads.

* A cycle of operation is one takeoff and one landing.

Runway construction was in progress between January 1963 and March 1964, and only the south half of the runway was in use. During this period, 235 cycles per month of C-130 aircraft traffic and 390 cycles per month of other light aircraft traffic were being applied. The B-52 aircraft arrived at DAFB on 23 December 1963. Traffic records for 1964 indicate that an average of 67 cycles per month of B-52 aircraft traffic were applied at reduced gross takeoff weights of 250,000 lb. Additional aircraft traffic prior to the runway reconstruction (January 1963) consisted of 130 cycles per month of C-130 aircraft traffic and 640 cycles per month of other light aircraft traffic. Traffic records for the years 1965-71 indicate that approximately 65 to 75 cycles per month of B-52 aircraft traffic, 75 to 85 cycles per month of KC-135 traffic, 183 cycles per month of C-130 traffic, and 468 cycles of other aircraft traffic were applied. Normal operating loads were approximately 413,000 lb for B-52's, 240,000 lb for KC-135's, 106,000 lb for C-130's, and 75,000-87,000 lb for other aircraft. The 1972 traffic records indicate that the following amounts of traffic per type of aircraft were applied: 331 cycles, B-52's; 7 cycles, C-5A's; 142 cycles, C-141's; 617 cycles, KC-135's, C-135's, and C-133's; and 17,336 cycles, other aircraft, C-130's being the predominate aircraft in this group. Normal operating loads were approximately 413,000 lb for B-52's; 712,000 lb for C-5A's; 310,000 lb for C-141's; 270,000 lb for KC-135's, C-135's, and C-133's; and 150,000 lb for other aircraft. Takeoffs and landings were about equally distributed between the runway ends. Alert exercises were conducted by B-52 and KC-135 aircraft that consisted of taxiing from the north end of the parking apron to the north end of the runway by taxiways 7 and 1, taxiing down the length of the runway, and returning to the parking apron by taxiways 5 and 7.

Conditions of Pavement Surfaces

Pavement inspection procedure

12. The following procedure was used in conducting the inspection of the rigid pavements. Representative features were selected for

detailed inspection. The features were then inspected slab* by slab, and the defects were recorded. The locations of the individual pavement features, the inspection starting points, and the directions in which the pavements were inspected (shown by arrows) are indicated in plate 1. The results of the rigid pavement survey for those features that were inspected in detail are presented in table 4. This table shows a quantitative breakdown of the various types of defects and a condition rating for each feature inspected in detail. The procedures used for determining the condition rating of a pavement are given in Appendix III, Department of the Army Technical Manual TM 5-827-3, "Rigid Airfield Pavement Evaluation," dated September 1965.

Runway

13. The PCC pavement features of the runway were in good to excellent condition based on the percentages of slabs containing no major defects. The predominate major defects on the runway were longitudinal cracks. The asphaltic concrete (AC) outside edges of the runway interior were in fair to good condition (see photos 1-5).

Taxiways

14. The primary taxiways, 1, 5, and 7 (features T1A, T2A, T3B, T7A, T8A, T10B, and T11B), were in conditions ranging from good to excellent based on the percentages of the slabs containing major defects. The taxi lane on taxiway 7 had been moved and a 26-in. inlay constructed at the present location of the taxi lane. Using only the 75 ft at the present location for the condition rating of this feature would have resulted in a rating of very good to excellent; however, using the 150-ft width resulted in a condition rating of good. Taxiway 2, which is 16- and 18-in. PCC, was in very good condition. Taxiways 3 and 4, which are AC, were in only fair condition (see photos 6 and 7).

Aprons

15. The 16-in. PCC of the parking apron (features A1B and A2B) was in very good structural condition. The predominate major defect noted was longitudinal cracking. Approximately 4.5 percent of the slabs

* A slab is the smallest unit, containing no joints, of a given pavement feature.

contained this defect. Warm-up apron A was in excellent condition, since no major defects and only one minor defect were noted. Warm-up apron C and its extension were in good structural condition. The maintenance hangar aprons surveyed were in conditions ranging from fair to very good based on the percentages of slabs containing major defects.

Maintenance

16. Maintenance of the airfield pavements at DAFB has generally consisted of spall patching, joint sealing, seal coating, and replacing some PCC slabs. The annual pavement maintenance plan for the airfield is presented as Appendix A. Listed below are contract maintenance costs since 1959:

<u>Fiscal Year</u>	<u>Amount</u>	<u>Fiscal Year</u>	<u>Amount</u>
1959	\$225,000	1967	\$135,000
1962	60,000	1968	10,000
1963	25,000	1969	10,000
1964	250,000	1971	153,000
1965	75,000	1972	325,000
1966	78,000		

Evaluation

17. A summary of the pavement evaluation is presented in table 5. Previously published pavement evaluations were updated to eliminate aircraft that are no longer in the Air Force inventory and to include aircraft that have been added to the inventory since the last pavement evaluation. The evaluation is based on the pavement thickness, flexural strength (PCC), base and subbase thickness and strength, strength of the subgrade (CBR or k value), and the structural condition of the pavement.

Conclusions

18. The following statements summarize the findings of the inspection at DAFB:

- a. The runway pavements were in good to excellent condition. The 16-in. PCC at the north end (feature R4B) was in only good condition. The other features were in either very good or excellent condition.
- b. Considerable damage to the pavement of taxiway 7 (16-in. PCC) as a result of channelized traffic of B-52 aircraft necessitated the moving of the taxi lane and replacing the 16-in. pavement in one paving lane with 26-in. PCC pavement.
- c. Joint seal materials were in good condition in some areas and in poor condition in other areas.
- d. PCC and AC patching materials had been used to repair spalled PCC slabs, and both materials were performing adequately.

Table 1

Temperature and Precipitation Data

<u>Month</u>	<u>1971 Average Temperature, F</u>	<u>Departure from Normal, F</u>	<u>1971 Precipi- tation, in.</u>	<u>Departure from Normal, in.</u>
January	46.4	1.8	0.01	-0.87
February	48.7	0.3	0.57	-0.52
March	55.1	0.1	0.04	-1.00
April	64.5	0.2	2.44	0.17
May	72.4	0.7	2.17	-2.16
June	80.4	0.1	1.78	-0.89
July	84.4	1.2	1.85	-0.43
August	76.9	-6.1	6.92	5.45
September	73.3	-2.6	5.33	3.26
October	66.0	-0.2	2.43	-0.42
November	55.0	2.0	0.76	-0.35
December	48.9	2.8	1.51	0.55
Annual	64.3	0.0	26.11	2.79

Note: Highest temperature in 1971 was 103 F on July 5; lowest temperature in 1971 was 3 F on February 8.

Table 2

Airfield Construction History

<u>Pavement Facility</u>	<u>Pavement</u>		<u>Construction</u>	
	<u>Thickness, in.</u>	<u>Type</u>	<u>Year(s)</u>	<u>Agency</u>
N-S runway				
Sta 190+00 to 200+00	16	PCC	1954	CE
Sta 200+00 to 292+00	4	AC	1953-55	CE
Sta 292+00 to 302+00	16	PCC	1954	CE
Sta 167+00 to 172+00	16 and 19	PCC	1956-57	CE
Sta 172+00 to 177+25	16	PCC	1957	CE
Sta 177+25 to 190+00	15	PCC	1957	CE
Taxiway 3	4	AC	1955	CE
Taxiway 4	4	AC	1955	CE
Taxiway 2				
Sta 2+70 to 10+00, center 25 ft replaced	4	AC	1955	CE
Sta 0+00 to 2+70	16	PCC	1956-57	CE
Sta 2+70 to 10+00	18	PCC*	1966	AF
Taxiway 5	4	AC	1955	CE
Taxiway 1				
Sta 158+8.76 to 171+15	19	PCC	1956-57	CE
Sta 171+15 to 193+90	16-19	PCC	1956-57	CE
Parking apron and taxiway 7				
Sta 193+90 to 260+00	16	PCC	1954-55	CE
Sta 260+00 to 292+00	16	PCC	1954-55	CE
Sta 292+00 to 298+15	16	PCC	1954-55	CE
Warm-up apron A	16	PCC	1955	CE
Warm-up apron B	16	PCC	1955	CE
Warm-up apron C	18	PCC	1956	CE
Blast pads	2	AC	1956-57	CE
N-S runway				
Sta 167+00 to 177+00, west side	15	PCC**	1963-64	CE
Sta 172+00 to 177+00, east side	15	PCC**	1963-64	CE

(Continued)

Note: CE denotes Corps of Engineers; AF denotes Air Force.

* Inlay.

** New construction.

Table 2 (Continued)

Pavement Facility	Pavement		Construction	
	Thickness, in.	Type	Year(s)	Agency
N-S runway (Continued)				
Sta 177+00 to 292+00, each side	4	AC**	1963-64	CE
Sta 175+00 to 177+00, center 50 ft	26-22-26	PCC*	1963-64	CE
Sta 177+00 to 200+00, center 50 ft	26-18-26	PCC*	1963-64	CE
Sta 200+00 to 292+00, center 75 ft	18	PCC*	1963-64	CE
Sta 200+90 to 292+00, each side between widening and inlay	3/4-4	AC	1963-64	CE
Sta 292+00 to 298+25, east side, 50-ft widening	15	PCC**	1963-64	CE
Sta 292+00 to 302+00, west side, 50-ft widening	15	PCC**	1963-64	CE
Taxiway 1				
Sta 165+66.26 to 193+90, center 25 ft	27	PCC*	1963-64	CE
Taxiway 5				
Sta 298+15 to 310+71.24	23	PCC†	1963-64	CE
Taxiway 7				
Sta 193+90 to 298+15, 25-ft-wide section	26	PCC*	1963-64	CE
Warm-up apron A	23	PCC†	1963-64	CE
Warm-up apron C addition	18	PCC**	1963-64	CE
N-S runway				
Sta 167+75 to 172+00	23	PCC**	1963-64	CE
Sta 298+25 to 302+00	23	PCC**	1963-64	CE
Addition to washrack	15	PCC**	1963-64	CE

* Inlay.

** New construction.

† Reconstruction.

Table 1
SUMMARY OF PHYSICAL PROPERTY DATA

CHASSIS NO., TESTS	FACILITY			OVERLAY PAVEMENT			PAVEMENT			BASE			SUBGRADE		GENERAL CHARACTER OF AREA CONSIDERED
	FACILITY NUMBER AND IDENTIFICATION	LENGTH FT	WIDTH FT	THICK IN.	DESCRIPTION	FLEX. STR. PSI	THICK IN.	DESCRIPTION	FLEX. STR. PSI	THICK IN.	CLASSIFICATION	CBR OR K	CLASSIFICATION	CBR OR K	
81A	W-8 runway Sta 167+00 to 177+75 Sta 167+75 to 169+25 Sta 169+25 to 172+00	75 150 275	50 150 100				19	Portland cement concrete	800	6	Clayey-sandy gravel (70) and clayey gravelly sand (80)		Fat clay with sandy clay (CU)	10	81A-1000
82A	W-8 runway Sta 172+00 to 173+00 Sta 173+00 to 174+00 Sta 174+00 to 177+00	125 375	varies 50				23	Portland cement concrete	780	6	Sandy gravel (70-20) and (80-0) cement treated crushed limestone (70-15)		Lean clay with sandy clay (CU) some clayey top 1/2" line treated	10	81A-1000
83	W-8 runway Sta 177+00 to 177+00 Sta 177+00 to 177+00	1,000 500	50 50				15	Portland cement concrete	500	1	Clayey-sandy gravel (70) and clayey gravelly sand (50)		Lean clay with sandy clay (CU)	10	81A-1000
84	W-8 runway Sta 177+00 to 177+00 Sta 177+00 to 177+00 Sta 177+00 to 177+00 Sta 177+00 to 177+00	500 500 500 500	50 50 50 varies				17	Portland cement concrete	800		Clayey-sandy gravel (70) and clayey gravelly sand (50)		Lean clay with sandy clay (CU)	10	81A-1000
85	W-8 runway interior Sta 177+00 to 180+00	175	50				26-22-25	Portland cement concrete	760		Lean clay with sandy clay (CU) some clayey top 1/2" line treated		Lean clay with sandy clay (CU)	10	81A-1000
86	W-8 runway interior Sta 177+00 to 180+00	1,300	75				15	Portland cement concrete	900	6	Clayey-sandy gravel (70) and clayey gravelly sand (50)		Lean clay with sandy clay (CU)	10	81A-1000
87	W-8 runway interior Sta 180+00 to 200+00	1,000	75				17	Portland cement concrete	740		Lean clay with sandy gravelly sand (50)		Lean clay with sandy clay (CU)	10	81A-1000
88	W-8 runway interior Sta 200+00 to 240+00	1,000	75				18	Portland cement concrete	750	77	Clayey-sandy gravel (70) and clayey gravelly sand (50) cement treated		Lean clay with sandy clay (CU)	10	81A-1000
89	W-8 runway inside edges Sta 177+00 to 177+00	1,100	varies				6	Asphaltic concrete		1 12 22	Crushed limestone Subbase 1 Subbase 2		Fat clay with sandy clay (CU)	10	81A-1000
90	W-8 runway interior Sta 177+00 to 180+00	1,100	75				18	Portland cement concrete	940	18	Clayey-sandy gravel (70-20) top 1/2" cement treated		Lean and sandy clay (CU)	10	81A-1000
91	W-8 runway inside edges Sta 177+00 to 180+00	1,100	110.0				4	Asphaltic concrete		10 10	Crushed limestone Subbase 1 Subbase 2		Lean clay with sandy clay (CU)	10	81A-1000
92	W-8 runway inside edges Sta 180+00 to 180+00	1,000	50				15	Portland cement concrete	800	6	Clayey-sandy gravel (70) and clayey gravelly sand (50) cement treated		Lean clay with sandy clay (CU)	10	81A-1000

81A-1000
81A-1000

Table 3 - continued
SUMMARY OF PHYSICAL PROPERTY DATA

DRESS AFB, TEXAS	FACILITY				OVERLAY PAVEMENT				PAVEMENT				BASE CLASSIFICATION	CBR OR K	SUBGRADE CLASSIFICATION	CBR OR K	GENERAL CONDITION AS CONSIDERED	
	FACILITY NUMBER AND IDENTIFICATION				THICK. IN.	DESCRIPTION	FLEX. STR. PSI	THICK. IN.	DESCRIPTION	FLEX. STR. PSI	THICK. IN.	DESCRIPTION						FLEX. STR. PSI
	LENGTH FT	WIDTH FT	THICK. IN.	DESCRIPTION														
RLB	IL-S runway; 2nd 500 ft.	500	200															
RLSA	S end and 1st 500 ft. S end	500	200															
T1A	Taxiway 1 Sta 169+28.76 to 169+66.26 Sta 169+00.26 to 171+15	737.5	75															
T2A	Taxiway 1 Inlay Sta 169+66.26 to 193+90	2,823.74	25															
T3B	Taxiway 1 outside lanes Sta 171+15 to 193+90	3,127.5	25															
T4C	Taxiway 2	270	75															
T5C	Taxiway 2, center section	730	25															
T6C	Taxiway 2, remaining sections Taxiway 3	730 1,000	50 75															
T7A	Taxiway 7 Inlay Sta 193+90 to 298+15	10,425	Varies															
T8A	Taxiway 5 Sta 298+15 to 317+47.24	1,876.24	75															
T9C	Taxiway 4 Taxiway 2	1,300 50	75 50															
A1E	Parking apron A Taxiway 7, 75-ft-wide east edge and 50-ft wide west edge	6,410	1,025															
A1E	Parking apron B Taxiway 7, 75-ft-wide east edge and 50-ft wide west edge	4,115	1,025															
A1E	Warm-up apron A	Varies	Varies															
A-2	Warm-up apron B	Varies	Varies															
A-2	Warm-up apron C	Varies	Varies															

Table 1 - Continued
SUMMARY OF PHYSICAL PROPERTY DATA

Dist. 173, Texas	FACILITY			OVERLAY PAVEMENT			PAVEMENT			BASE			SUBGRADE		GENERAL CONDITION OF AREA CONSIDERED
	FACILITY NUMBER AND IDENTIFICATION	LENGTH FT	WIDTH FT	THICK. IN.	DESCRIPTION	FLEX. STR. PSI	THICK. IN.	DESCRIPTION	FLEX. STR. PSI	THICK. IN.	CLASSIFICATION	CBR OR K	CLASSIFICATION	CBR OR K	
A-2	Accession upon addition	Varies	Varies				12	Portland cement concrete	750		Sandy gravel (75-25) and (75-25) cement treated		Lean and sandy clay (CL) with some fat clay (CH) top 6" lime treated	100	Good
A-3	Sanitation	275	150				16	Portland cement concrete	700		Clayey-sandy gravel (CG) and clayey gravelly sand (SC)		Fat clay (CH) with sandy clay (CL)	100	
A-4	Sanitation	70	10				15	Portland cement concrete	700		Clayey-sandy gravel (CG) and clayey gravelly sand (SC)		Fat clay (CH) with sandy clay (CL)	100	
A-5	Maintenance hangar apron, 1/2 mile and access taxiways	Varies	Varies				15	Portland cement concrete	700		Sandy gravel (75-25) cement treated and (75-25) gravelly sand (SC)		Lean and sandy clay (CL) with some fat clay (CH) top 6" lime treated	100	
A-6	Maintenance hangar apron, 1/2 mile and access taxiways	Varies	Varies				15	Portland cement concrete	700		Clayey-sandy gravel (CG) and clayey gravelly sand (SC)		Fat clay (CH) with sandy clay (CL)	100	
A-7	Plaza pad, north end	150	300				2	Asphaltic concrete			Graded limestone select material		Lean clay (CL) with clayey sand (S)	125	Fair
A-8	Overrun, north end	450	300					Double bituminous surface treatment			Stabilized aggregate Subbase		Lean stabilized subgrade		Fair
A-9	Blat pad, south end	150	300				2	Asphaltic concrete			Graded limestone select material		Lean clay (CL) with clayey sand (S)	125	Fair
A-10	Overrun, south end	450	300					Double bituminous surface treatment			Stabilized aggregate Subbase		Lean stabilized subgrade		Fair

Table 4 (Continued)

DATE: December 1972		SUMMARY OF DATA - RIGID PAVEMENT CONDITION SURVEY												AIRFIELD, DRESS AFB, TEXAS														
NO.	FEATURE DENOMINATION	SLAB SIZE FT.	APPROX NO. OF SLABS	PAVE. THICK IN.	NO. OF SLABS CONTAINING INDICATED DEFECTS													% OF SLABS NO DEFECTS	% OF SLABS NO MAJOR DEFECTS	CONDITION								
					I	-	\	Δ	*	K	S	J	J	↓	↓	◆	M				P	O	C	D				
A7A	Taxiway 5	25 by 25	213	23																				99.5	100	Excellent		
A1B	Parking apron A	25 by 25	437	14	218	63	62	12	7	113	17	15	24												90.5	94.5	Very good	
A2B	Parking apron B	25 by 25	468	16	341	75	79	14	2	239	11	8	32												88.8	92.7	Very good	
A3B	Warm-up apron A	25 by 25	230	23																					99.5	100	Excellent	
A4B	Warm-up apron C	25 by 25	127	17																						72.2	75.1	Fair
A5B	Warm-up apron C and extension	25 by 25	214	18	15	5	9	1		10															81.7	85.9	Good	
A6B	Washrack	25 by 25	66	15	23	6	4		1	8															93.0	93.0	Poor to failed	
A10B	Maintenance hangar apron 2	25 by 25	211	21	30	9	8			8			1												78.1	80.9	Good	
A10B	Maintenance hangar apron 3	25 by 25	97	15	15	4	2		1	20		1	3	3											65.9	77.3	Fair	
A10B	Maintenance hangar apron 4	25 by 25	297	14	23	10	5	5	5	1		2	7												83.1	86.1	Good	

REMARKS:

I LONGITUDINAL CRACK	M MAP CRACKING
- TRANSVERSE CRACK	P PUMPING JOINT
\ DIAGONAL CRACK	O POP-OUT
Δ CORNER BREAK	C UNCONTROLLED CONTRACTION CRACK
* SHATTERED SLAB	D "D" CRACKING
K KEVED JOINT FAILURE	
S SHRINKAGE CRACK	
J SCALING	
↓ SPALL ON TRANSVERSE JOINT	
↓ SPALL ON LONGITUDINAL JOINT	
◆ CORNER SPALL	
◆ SETTLEMENT	

Table 5
SUMMARY OF PAVEMENT EVALUATION

NAME OF AIRFIELD		DATE OF EVALUATION		LOAD-CARRYING CAPACITY IN LB OF GROSS PLANE LOAD FOR INDICATED LANDING GEAR TYPES AND CONFIGURATIONS														REMARKS
MONTH		YEAR		TRICYCLE ARRANGEMENT														
NO.	DESIGNATION	PAVEMENT OPERATIONAL USE	1	2	3	4	5	6	7	8	9	10	BICYCLE					
			SINGLE 100-PSI TIRE PRESSURE	SINGLE 100-PSI CONTACT AREA	TW 20-IN. C-C 20-PSI CONTACT AREA EACH TIRE	SINGLE TANDER 40-IN. SPACING 400-PSI CONTACT AREA EACH TIRE	TW 37-IN. C-C 20-PSI CONTACT AREA EACH TIRE	TW 44-IN. C-C 20-PSI CONTACT AREA EACH TIRE	TWIN TANDER 33 IN. x 40 IN. 20-PSI CONTACT AREA EACH TIRE	C-5A GEAR CONFIGURATION	TWIN TWIN SPCC 37.42-37 20-PSI CONTACT AREA EACH TIRE							
B1A	R-S runway, sta 167+00 to 172+00	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	290,000+	330,000+	380,000+	800,000+	420,000						
B1A	Taxiway 1, sta 158+88.76 to 165+66.24 and sta 165+66.26 to 171+15																	
B2A	R-S runway, sta 167+75 to 172+00 and sta 298+65 to 302+00	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	510,000						
B3A	Taxiway 5, sta 298+15 to 310+71.24																	
B4B	R-S runway interior, 2nd 570 ft, N end	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	265,000	330,000	380,000+	800,000+	350,000						
B5S	R-S runway inlay, sta 175+00 to 177+00	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	510,000						
B6C	Runway inlays, sta 177+00 to 179+00	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	520,000						
B11C																		
B14E	R-S runway, 2nd 500 ft, S end	Capacity	155,000	85,000+	155,000+	210,000	200,000+	235,000	290,000	380,000+	800,000+	310,000						
B2Z	Parking apron F Outside edges of taxiway 7																	
B15A	R-S runway, 1st 500 ft, S end	Capacity	155,000	85,000+	155,000+	210,000	200,000+	195,000	250,000	330,000	800,000+	290,000						
B2A	Taxiway 1 inlay, sta 165+66.26 to 173+90	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	600,000+						

Note: + sign denotes allowable gross loading greater than maximum gross weight of any existing aircraft having indicated gear configuration.

Table 5 (Continued)
SUMMARY OF PAVEMENT EVALUATION

NAME OF AIRFIELD		DATE OF EVALUATION		LOAD-CARRYING CAPACITY IN LB OF GROSS PLANE LOAD FOR INDICATED LANDING GEAR TYPES AND CONFIGURATIONS													REMARKS
Dyess AFB		1970		TRICYCLE ARRANGEMENT										BICYCLE			
MONTH	YEAR	PAVEMENT OPERATIONAL USE	1	2	3	4	5	6	7	8	9	10	11	12			
NO.	DESIGNATION		SINGLE 100-PSI TIRE PRESSURE CONTACT AREA	SINGLE 100-SQ-IN. CONTACT AREA	TR 28-IN. C-C 28-SQ-IN. CONTACT AREA EACH TIME	TR 28-IN. C-C 40-SQ-IN. CONTACT AREA EACH TIME	TR 37-IN. C-C 40-SQ-IN. CONTACT AREA EACH TIME	TR 44-IN. C-C 60-SQ-IN. CONTACT AREA EACH TIME	TR 44-IN. C-C 80-SQ-IN. CONTACT AREA EACH TIME	TR 51-IN. C-C 80-SQ-IN. CONTACT AREA EACH TIME	TR 51-IN. C-C 100-SQ-IN. CONTACT AREA EACH TIME	TWIN TWIN SPCS 7-42-37 287-SQ-IN. CONTACT AREA EACH TIME					
T4C	Taxiway 2 (F00 Fortition)	Capacity	155,000+	85,000+	155,000+	170,000+	200,000+	330,000	330,000+	380,000+	800,000+	430,000					
T5C	Taxiway 2 (F00)	Capacity	155,000+	85,000+	155,000+	200,000+	200,000+	330,000+	330,000+	380,000+	800,000+	440,000					
T6C	Taxiway 2 (AC portion) and taxiway 3	Capacity	155,000+	85,000+	155,000+	180,000	200,000+	300,000	300,000	300,000	500,000+	310,000					
T7A	Taxiway 7 Inlay	Capacity	155,000+	85,000+	155,000+	200,000+	200,000+	330,000+	330,000+	380,000+	800,000+	590,000					
T8C	Taxiways 1 and 6	Capacity	155,000+	85,000+	155,000+	180,000	200,000+	300,000	310,000	360,000	800,000+	340,000					
A15	Parking apron A outside edges of taxiway 7	Capacity	155,000	85,000+	155,000+	200,000	200,000+	345,000	310,000	380,000+	800,000+	320,000					
A4B	Warm-up apron B	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	540,000					
A3F	Warm-up apron A	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	310,000	330,000+	380,000+	600,000+	410,000					
A5B	Warm-up apron C	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	300,000	330,000+	380,000+	800,000+	390,000					
A6B	Warm-up apron C addition	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	300,000	330,000+	380,000+	800,000+	390,000					
A7C	Calibration hardstand	Capacity	150,000	85,000+	155,000+	205,000	200,000+	230,000	290,000	380,000+	800,000+	310,000					
A8B	Maintenance hangar aprons 1-5 and access taxiways	Capacity	135,000	85,000+	155,000+	185,000	200,000+	200,000	260,000	360,000	800,000+	280,000					
A9F	Maintenance hangar addition	Capacity	145,000	85,000+	155,000+	200,000	200,000+	225,000	280,000	380,000	800,000+	300,000					
A11E	Maintenance hangar aprons 6 and 7 and access taxiways	Capacity	130,000	85,000+	155,000+	180,000	200,000+	200,000	250,000	340,000	800,000+	265,000					

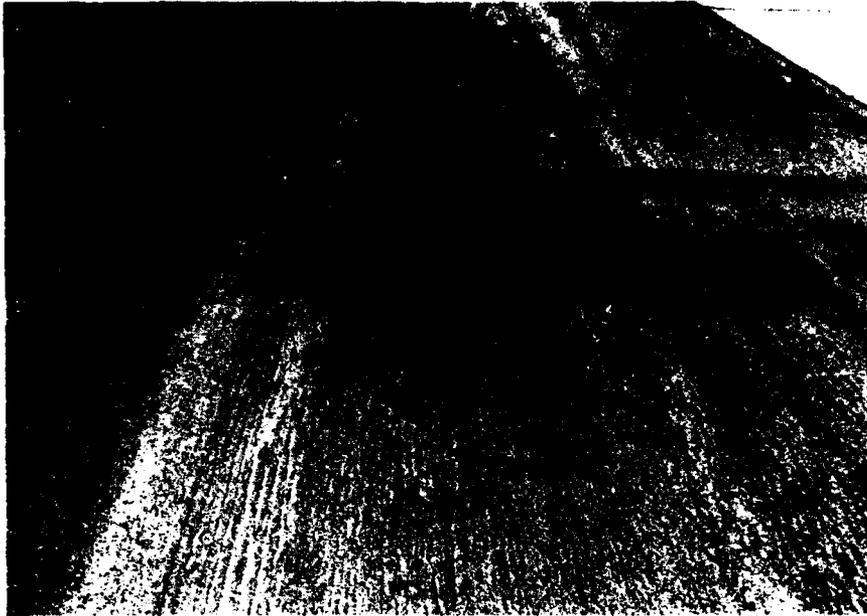


Photo 1. AC portion of runway near north end, east side

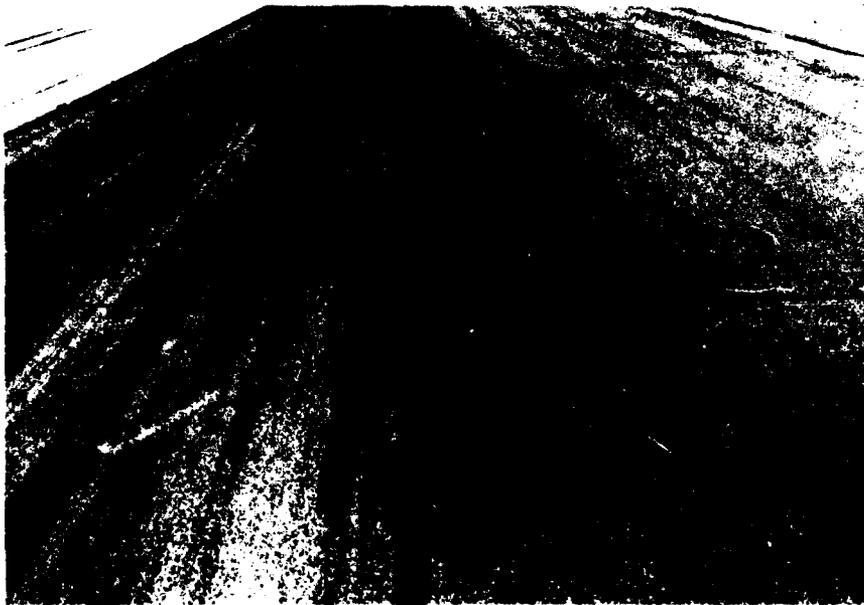


Photo 2. AC portion of runway, 5000 ft from north end,
west side

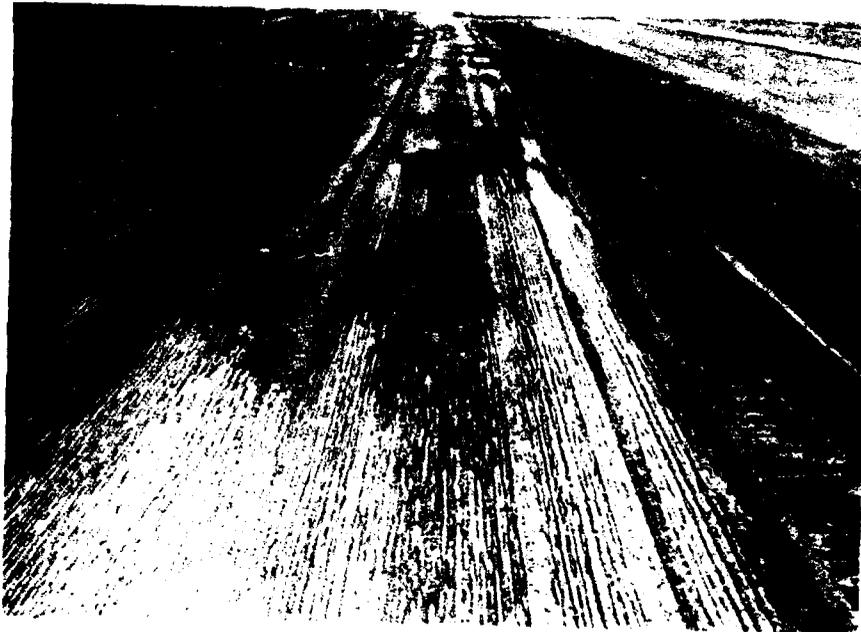


Photo 3. AC portion of runway, 5000 ft from north end,
east side

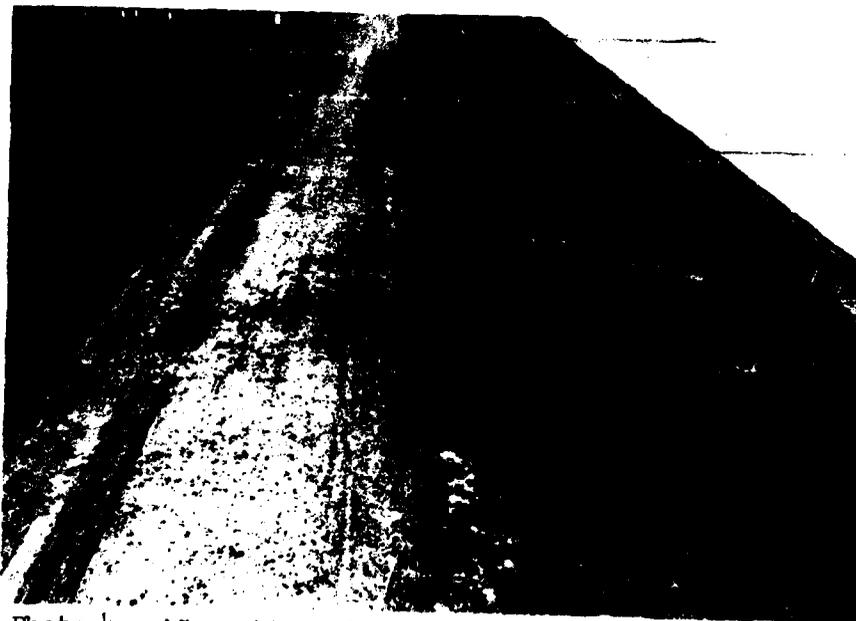


Photo 4. AC portion of runway, 6000 ft from south end,
east side



Photo 5. AC portion of runway, 4000 ft from south end,
west side



Photo 6. General view of taxiway 3

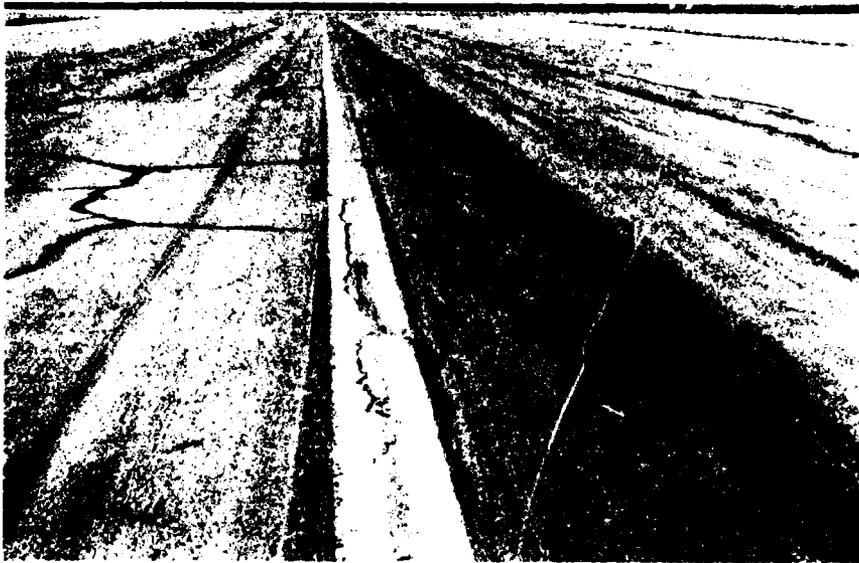
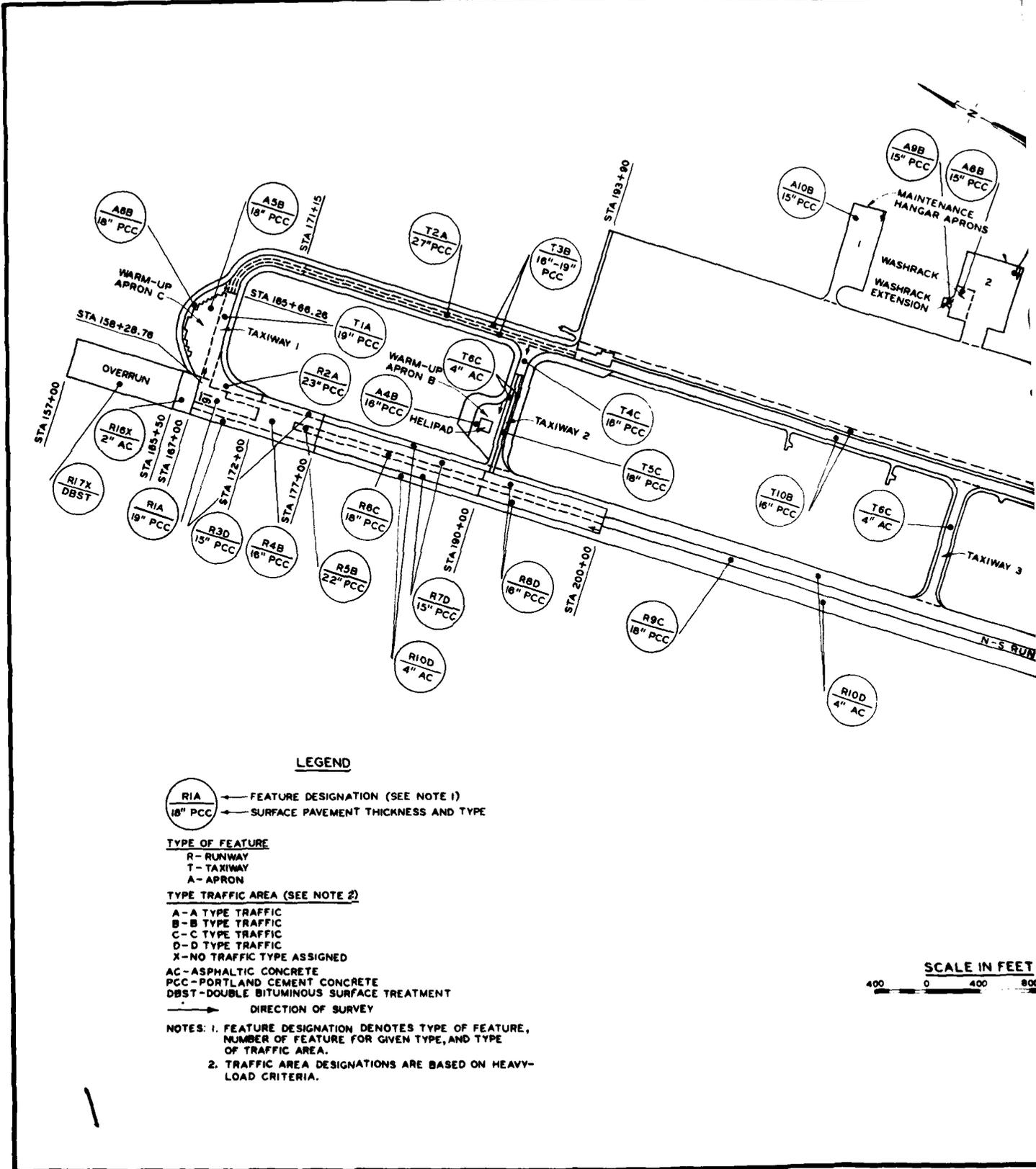


Photo 7. General view of taxiway 4



LEGEND

TYPE OF FEATURE

R - RUNWAY
 T - TAXIWAY
 A - APRON

TYPE TRAFFIC AREA (SEE NOTE 2)

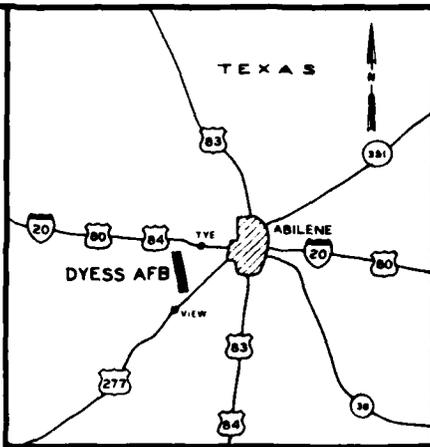
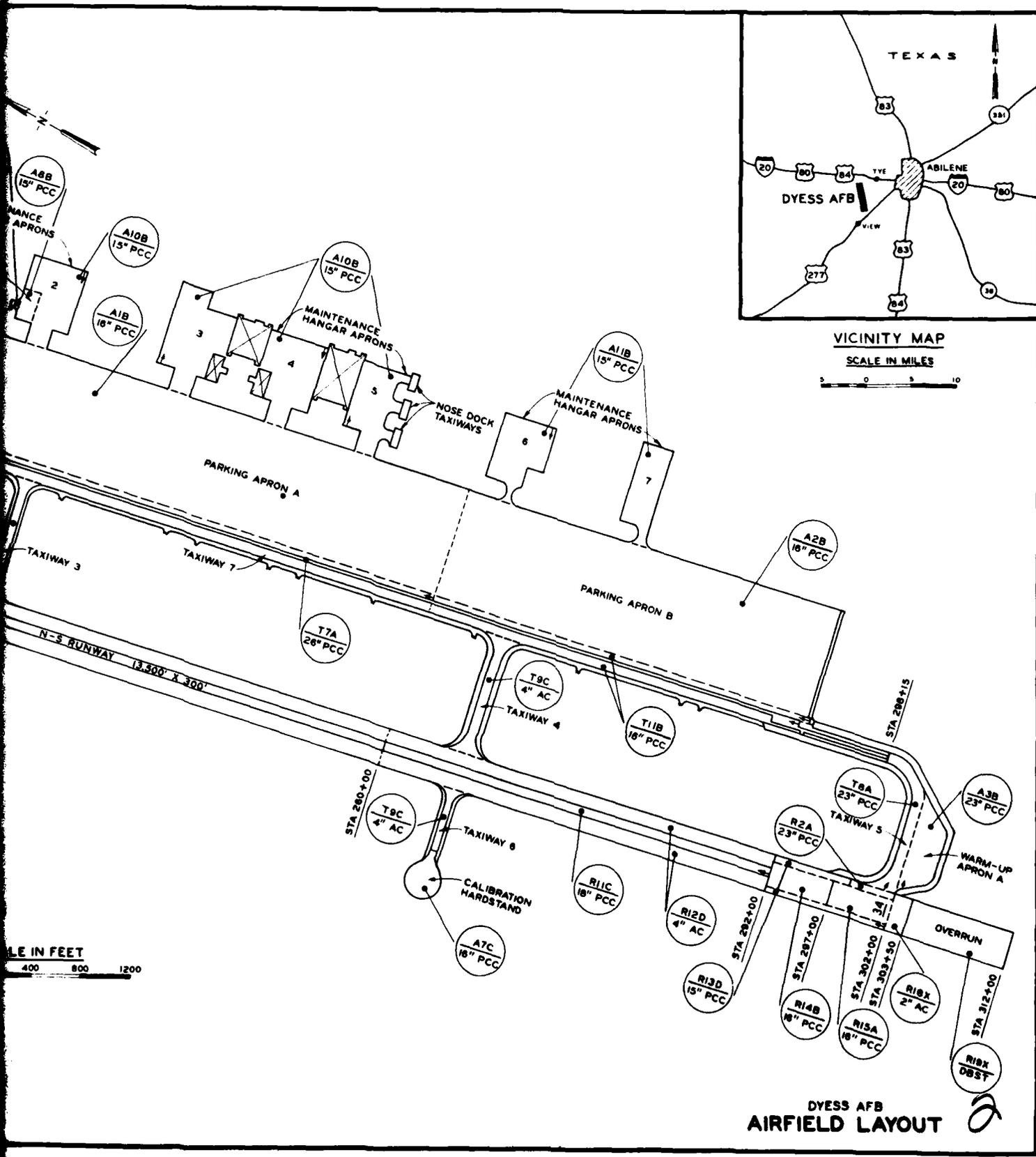
A - A TYPE TRAFFIC
 B - B TYPE TRAFFIC
 C - C TYPE TRAFFIC
 D - D TYPE TRAFFIC
 X - NO TRAFFIC TYPE ASSIGNED

AC - ASPHALTIC CONCRETE
 PCC - PORTLAND CEMENT CONCRETE
 DBST - DOUBLE BITUMINOUS SURFACE TREATMENT
 → DIRECTION OF SURVEY

NOTES: 1. FEATURE DESIGNATION DENOTES TYPE OF FEATURE, NUMBER OF FEATURE FOR GIVEN TYPE, AND TYPE OF TRAFFIC AREA.
 2. TRAFFIC AREA DESIGNATIONS ARE BASED ON HEAVY-LOAD CRITERIA.

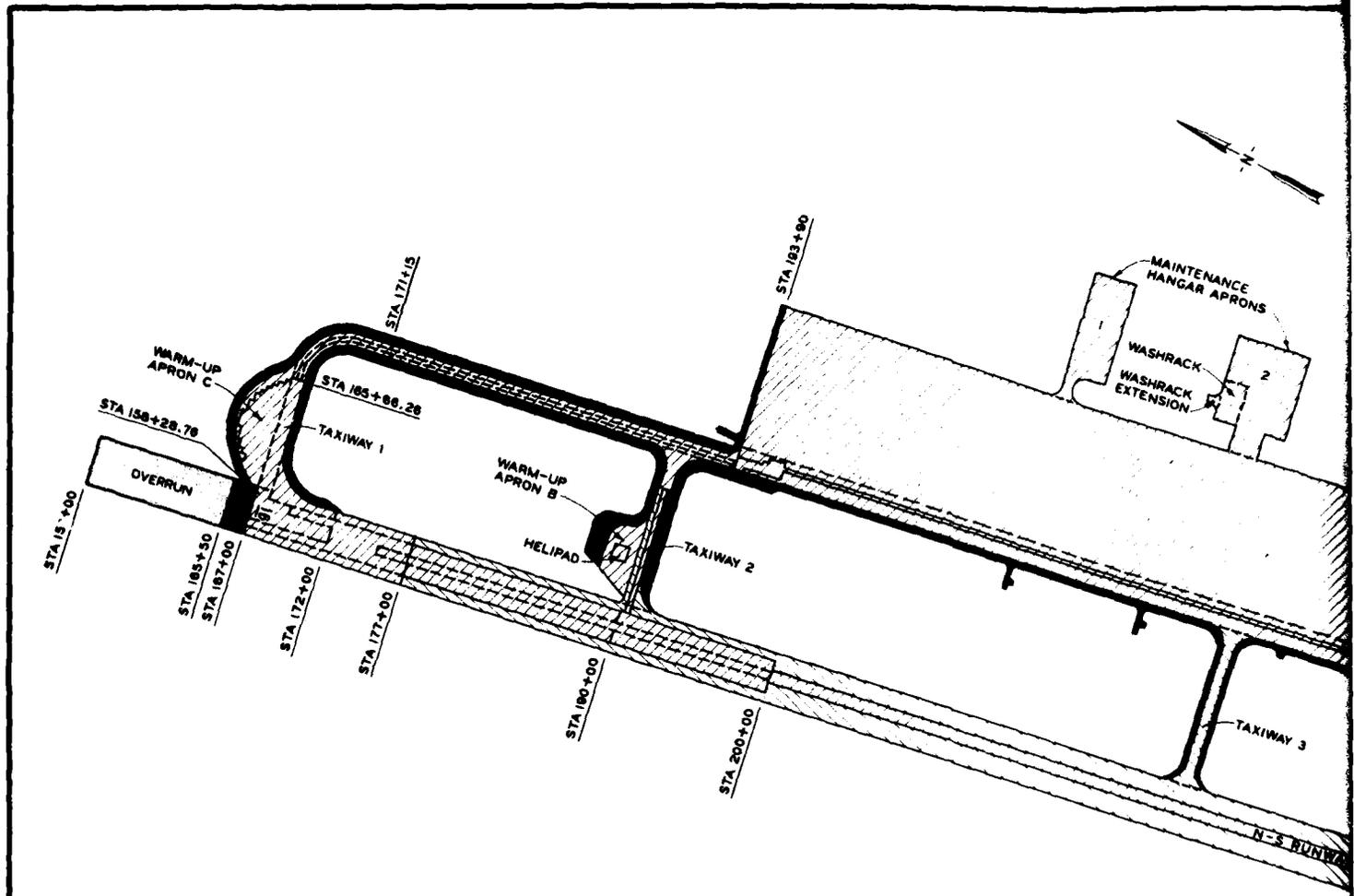
SCALE IN FEET





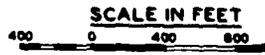
SCALE IN FEET
400 800 1200

DYESS AFB
AIRFIELD LAYOUT

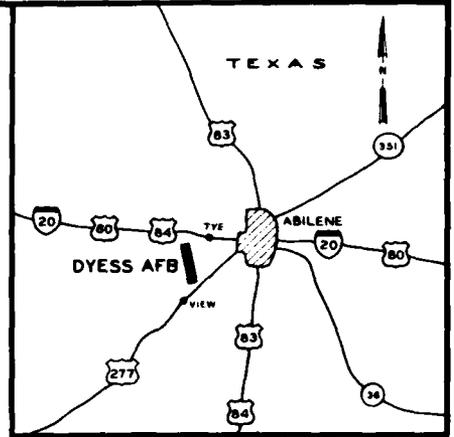


LEGEND

-  PORTLAND CEMENT CONCRETE
-  ASPHALTIC CONCRETE (AC)
-  DOUBLE BITUMINOUS SURFACE TREATMENT
-  BLAST PAVEMENT (AC-NON TRAFFIC)

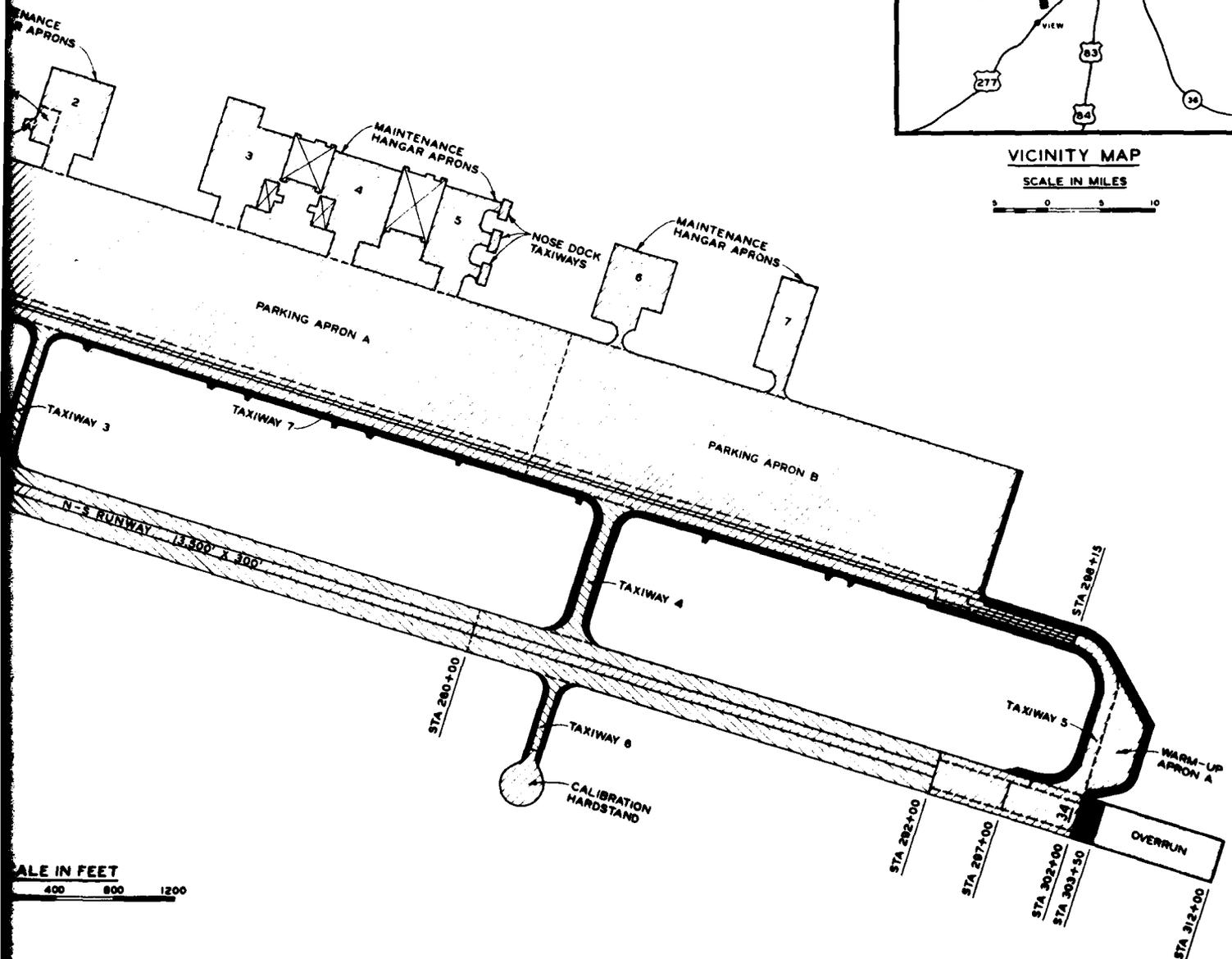


1



VICINITY MAP

SCALE IN MILES



SCALE IN FEET

400 800 1200

DYESS AFB
PAVEMENT PLAN

2

APPENDIX A: DAFT ANNUAL PAVEMENT MAINTENANCE PLAN

Fac No.	Description	Pavement Type	Year Const.	Exist. Condition	Inspecti. Requirements	Maint. Priority	Maint & Repair History	Present or Proposed Maint & Repair
540	Runway, Prim/Inst: (25,400' X 300') Sta. 167+00 to 177+00 (Center 200) - First 500' - 19" thick on 6" select base; Second 500' - 18" thick on 6" select base.	Rigid Heavy	1964	Satis.	Daily P&G Monthly P&G Bi-monthly E&C	1-A	Project DYS 29-1-5, Patch & Joint Seal, 1967. Minor repara by in-house, FY 69 through FY 70. Subler removal by in-house, FY 72 & 73. Project DYS 43-9"A", Random Crack Seal, 1970.	Min & repara by in-house, FY 73 through FY 75. Replace center slabs (8' X 12') with rigid, heavy keel, 19" thick, seal joints by contract, FY 74.
540	Sta. 167+00 to 177+00 (50' wdn ea side) - 15" thick on 6" cem. stab. base on 6" lime stab. subgrade.	Rigid Heavy	1964	Sat. s.	Daily P&G Monthly P&G Bi-monthly E&C	1-A	Minor repara by in-house, FY 70 through FY 72. Project DYS 46-7, Joint Seal & Minor Repara, 1967.	Minor repara by in-house, FY 73 through FY 75. Project DYS 46-7, Joint Seal, FY 74.
	Sta. 177+00 to 190+00 (75' width ea side of 50' wide keel) - 15" on 6" select base.	Rigid Heavy	1956	Satis.	Daily P&G Monthly P&G Bi-monthly E&C	1-A	Minor repara by in-house, FY 66 through FY 72. Project DYS 46-7, Joint Seal & Minor Repara, 1967. Project DYS 43-9"A", Random Cracks Seal, 1970.	Minor repara by in-house through FY 75. Project DYS 08-2, Joint Seal, FY 74. Stabilize Culvert Backfill, FY 74.
540	Sta. 177+00 to 200+00 (50' wide center line keel) 18" on 8" lime stab. subgrade.	Rigid Heavy	1954	Satis.	Daily P&G Monthly P&G Bi-monthly E&C	1-A	Project DYS 46-7, Joint Seal & Minor Repara, 1967. Minor repara by in-house, FY 71 & 72. Project DYS 43-9"A", Random Crack Seal, 1970. Project DYS 29-3, 50' Widen Keel, 1974.	Min & repara by in-house, FY 73 through FY 75. Project DYS 08-2, Joint Seal, FY 74.
540	Sta. 190+00 to 200+00 (75' width ea side of 50' wide keel) - 16" on 6" select.	Rigid Heavy	1954	Satis.	Daily P&G Monthly P&G Bi-monthly E&C	1-A	Project DYS 46-7, Joint Seal 1967. Minor repara by in-house, FY 71 & 72. Project DYS 43-9"A", Random Crack Seal, 1970.	Min & repara by in-house through FY 75. Project DYS 08-2, Joint Seal by contract, FY 74. Project DYS 73-1, Level Depression, FY 74.
540	Sta. 200+00 to 292+00 (Center 75') - 18" on 6" cem. stab. base on 27" sub-base north of Sta. 260+00 and 23" sub-base south of Sta. 260+00	Rigid Keel Heavy	1964	Satis.	Daily P&G Monthly P&G Bi-monthly E&C	1-A	Project DYS 46-7, Joint Seal, 1967. DYS 43-9"A", Random Crack Seal, 1970. Minor repara by in-house, FY 71 & 72.	Min & repara by in-house, FY 73 through FY 75.
540	Sta. 292+00 to 302+00 (Center 200') - 16" thick on 6" compacted subgrade.	Rigid Heavy	1954	Satis.	Daily P&G Monthly P&G Bi-monthly E&C	1-A	Minor repara by in-house, FY 71 & 72. Project DYS 46-7, Joint Seal & Minor Repara, 1967.	Minor repara by in-house through FY 75. Project DYS 08-2, Joint Seal, FY 74.
540	Sta. 292+00 to 302+00 (50' Wdn ea side) - 15" thick on 6" cem. stab. base on 6" lime stab. subgrade.	Rigid Heavy	1954	Satis.	Daily P&G Monthly P&G Bi-monthly E&C	1-A	Project DYS 46-7, Joint Seal & Minor Repara, 1967. Minor repara by in-house, FY 71 & 72. Wdn by MCP, 1964.	Minor repara by in-house, FY 73 through FY 75. Project DYS 08-2, Joint Seal & Seal, 1966.
539	Runway Prim/Inst. 177+00 to 292+00 (50' wdn ea side) (177+00 to 260+00 - 55") (260+00 to 292+00 - 46")	Flex Heavy Type "D"	1964	Satis.	Daily P&G Monthly P&G Bi-monthly E&C	1-A	Project DYS 46-7, Slurry Seal, 1967. Project DYS 43-9"A", Crack Seal, 1970. Wdn by MCP, 1964.	Project DYS 17-1, Seal Coat, FY 73.
539	Sta. 200+00 to 223+00 (41' wide strip ea side Keel - 51").	Flex Heavy Type "D"	1954	Unsatis.	Daily P&G Monthly P&G Monthly E&C	1-A	Seal coat by contract, FY 66. Crack Seal by contract, 1970. Minor repara by in-house, FY 71 & 72.	Stabilize Base & Resurface by contract, FY 74. Repara by in-house, FY 73 through FY 75. Project DYS 17-1, Seal Coat, FY 73.
539	Sta. 223+00 to 292+00 (41' strip ea side keel 42").	Flex Heavy Type "D"	1954	Satis.	Daily P&G Monthly P&G Monthly E&C	1-A	Seal Coat by contract, FY 66. Crack Seal by contract, 1970. Minor repara by in-house through FY 72. Project DYS 72-2, Cement Stab. Base & Resurface, FY 72.	Minor repara by in-house, FY 73 through FY 75.
531	T/W No. 1 - 19'	Rigid Heavy	1956	Satis.	Daily P&G Bi-monthly P&G Quarterly E&C	1-B	Project DYS 47-7, Seal Joints & Patch, 1967. Minor repara by in-house, FY 69 through FY 71. Project DYS 28-3, Keel, 1964.	Minor repara and crack seal by in-house, FY 73 through FY 75. Project DYS 09-2, Joint Seal by contract, FY 74. Complete replacement of center slab (25' wide) with rigid, heavy keel to support U.S. Aircraft, FY 74.
532	T/W No. 2 - 18" keel, 56" Flex.	Flex with Rigid Keelitt	1954	Satis.	Weekly P&G Quarterly P&G Quarterly E&C	1-C	Project DYS 72-5, Rigid Keel, 1964. Project DYS 47-7, Seal Coat, 1967.	Project DYS 16-1, Seal Coat, FY 74.

(Continued)

- * Work covered by FY 63 MCP project to widen runway to 300' and replace 75' width of flexible pavement with rigid, heavy, keel was completed in 1964.
- ** Work covered by Project DYS 29-3, to replace rigid pavement with new rigid, heavy, between stations 17500 and 20000 was completed in 1964.
- † Work covered by O&M Project DYS 28-3 to replace part center slabs (25' wide) with new rigid, heavy keel was completed in 1964.
- ‡ Project DYS 72-5 to replace 25' width of flex pavement with rigid keel was completed by contract in 1964.

