

EDWARDS UNDERGROUND
WATER DISTRICT

REPORT 95-09

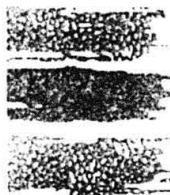
LEAK DETECTION / LOCATION SURVEY REPORT

FOR

LACKLAND AIR FORCE BASE

BEXAR COUNTY, TEXAS

FEBRUARY 27, 1995 - AUGUST 9, 1995



EDWARDS UNDERGROUND
WATER DISTRICT

6.25-7.5

October 31, 1995

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Mr. Robert A. Zancanella
Civil Engineer - Lackland Air Force Base
37 CES/CEOE
1904 Gary Ave.
Lackland Air Force Base, TX 78233

Dear Mr. Zancanella:

We are pleased to submit this final report of the leak detection survey performed on the Lackland Air Force Base water distribution systems. This report lists findings by separate categories for your convenience.

The Edwards Underground Water District (District) appreciates the cooperation and assistance you have provided during the survey. The District hopes that the information provided herein will be beneficial to the Lackland Air Force Base in identifying and targeting areas of actual water loss and potential water loss.

The District would appreciate the opportunity to recheck the remaining 62 leak site after all repairs are completed.

This survey has demonstrated the water saving potential of the Leak Detection Program. Maintaining the best possible program is vital in order to continue the successes realized. For this reason, the District is soliciting your comments, both positive and negative, and any suggestions you may have on how to improve our program.

Please respond to this request candidly, as the District cannot improve on deficiencies or support positive measures without the knowledge of such conditions.



Mr. Robert A. Zancanella
October 31, 1995 - Page 2

Should you require additional information regarding this report or have any water related questions, please do not hesitate to call.

Sincerely,



Charles E. Ahrens
Water Resources Planner III



James R. Shipley
Leak Detection Technician II

CEA:JRS/ bmc

Enclosures

cc: John P. Smith, Chief, Maintenance Engineering

Maj. Gen. Henry Hobgood, Commander 37th Training Wing

002jrs

**LEAK DETECTION / LOCATION SURVEY REPORT
FOR
LACKLAND AIR FORCE BASE
BEXAR COUNTY, TEXAS**

February 27, 1995 -- August 8, 1995

By

Mark L. McGinnis and James R. Shipley
of the
EDWARDS UNDERGROUND WATER DISTRICT
Division of Planning and Environmental Management
Leak Detection/Location Program
October, 1995



**Edwards Underground Water District
1615 N. St. Marys
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San Antonio, Texas 78212-9030
210-222-2204**

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- A. Revised Master Water System Distribution Plats

SUMMARY

On June 8, 1994, the Edwards Underground Water District (EUWD) received a request from Lackland Air Force Base (LAFB) to perform a leak detection / location survey on the main base and annex water distribution systems. A pre-survey conference was held January 19, 1995 at the base to discuss the work to be performed. It was agreed that EUWD would perform sonic leak detection on all available access points and computerized leak location as needed. A final report, including any unusual system condition found and an updated master water plat would be submitted to LAFB at the conclusion of the survey. It was further agreed that LAFB would provide EUWD with one experienced utility service person and would repair all leaks detected in a timely manner.

Mark L. McGinnis of EUWD began the survey on February 27, 1995, and the survey was concluded on August 8, 1995. Over the course of the survey, EUWD surveyed a total of 2,114 access points including 903 customer service connections, 441 fire hydrants, 720 valves, and 50 other access points covering 65.34 miles of distribution main.

Mr. McGinnis detected a total of 76 leaks. This total included 34 service valve leaks, 6 main line leaks, 20 fire hydrant leaks, 11 main valve leaks, and 5 customer side leaks. As of August 8, 1995, 14 of the 76 leaks detected over the length of the survey have been repaired. EUWD estimates 11,291 gallons of water per day has been saved by the repairs to date. The leaks discovered during the survey range from 7,200 gallons per day to numerous small service valve leaks.

As part of the survey, EUWD located 401 valves of various types, 15 fire hydrants, 24 service connections, and 2 back flow preventors not shown on the master water plats. EUWD surveyors were unable to locate 171 valves of various types, 36 yard hydrants, and 13 fire hydrants shown on the master water plats. An additional 5 items were discovered to need some type of repair or adjustment. EUWD was unable to properly survey areas on 28 plats due to various reasons.

DISCUSSION

A. Total Access Points Surveyed: 2,114

The following is an outline of the various access points used during the survey.

1. Customer service connections: 903
2. Main valves: 441
3. Fire hydrants: 720
4. Others: 50

B. Total Miles of Distribution Main Surveyed: 65.34

C. Total Leaks Detected: 76

Main line, service line, fire hydrant, and valve leaks were located by acoustic leak detection or by visual inspection. Service valve leaks and customer side leaks were located through building to building surveying.

1. Main Valves: 11
2. Service Valves: 34
3. Fire Hydrant: 20
4. Mains: 6

Subtotal: 71

5. Customer Side: 5

A detailed listing of these leaks is recorded in appendices A through E. Separate appendices are provided for each category of leak.

Leaks recorded in the appendices are listed by date detected, the approximate location, building number or street address. Estimates of water saved and dates of repairs are listed, if they were furnished by base personnel.

Appendix B (Fire Hydrant Leak List) fire hydrants noted as reseated were flushed, reseated, and estimated by Mark McGinnis of EUWD.

D. Detected Leaks Not Repaired, As of August 8, 1995: 62

Updated leak location lists were provided to base maintenance personnel on a routine basis over the course of the survey by Mr. McGinnis. Water leakage loss rate charts have been provided to base maintenance personnel to assist them in accurately estimating the amount of water saved by each leak repaired.

All areas of known or suspected leakage should be resurveyed after all repairs are complete. It is conceivable that the leak sounds from known leaks are masking sounds from additional undetected leaks. It is only through the resurvey process that these leaks can be detected, located, and repaired.

As part of our continued assessment of the Leak Detection/Location Program, the District will require a complete status report on the leaks detected in this survey, prior to placing the base on the list for resurvey. This status report should contain the date each leak was repaired and leakage estimates in gallons per day for each leak.

E. Total Estimated Water Saved by Repair of Detected Leaks in Gallons Per Day as of August 8, 1995: 11,291.2

Leakage estimates for main line, service line, fire hydrants, and valve leaks are based on hole size and system pressure in pressure per square inch. This information was furnished by LAFB personnel when EUWD was not on site at the time of repair. Totals are only recorded for leaks repaired as of August 8, 1995, with estimates.

Main Valves: 0
Service Valves: 497.2
Fire Hydrants: 840
Main: 9,954

Customer leaks were generally small. No attempt was made to estimate this leakage.

F. Uresolved Leak Sounds:

1. Plat 1156Q Femoyer at and east of Meivoher Dr. Fire Hydrant 10-17, valves 9-40 - 9-39, and one service valve. This sound is pending on fire hydrant repair ENT Circle at Spence St.
2. Plat 1256B Kelly Dr. east of Lockbourne Ave. Five spots of green grass above water main. Possible main leaks.
3. Plat 1256F Dimsted Ave. across from building 8500. Possible leak at service valve 7-68. Plat 1256 F Olmsted St. northeast of building 1288. Pending on valve repair at Olmsted St. east of building 1385.

4. Plat 1256F Olmsted St. northeast of building 1288. Pending on valve repair at Olmsted St. east of building 1385.
5. Plat 1256N Range Rd. north of building S-8670. Possible leak on valve 4-4.
6. Plat 1156Q ENT Circle. Service valve to building 10330. ENT Circle at Spence St. two main valves. Pending repair of fire hydrant 10-38.

G. Field Survey Findings Vs. Master Water Plats

1. Water System Access Points That Could Not Be Located: 460

Main Line Valves	312
Blow Off Valves	1
Fire Hydrant Valves	22
Fire Hydrants:	13
Air Relief Valves	1
Service Valves	74
Yard Hydrants	36
Post Indicator Valves	1

Suspected locations were surveyed by EUWD with a ferromagnetic detector to locate buried valves. When successful, these locations were marked. It is conceivable that additional valves remain unlocated within the system. All valves box lids located were painted blue in accordance with national color codes for water valves.

A list of these items is included in appendix G.

2. Access Points Located, But Not Shown On Plats: 442

Main Line Valves:	17
Fire Hydrant Valves:	43
Fire Hydrant With Valves :	9
Fire Hydrants:	6
Service Valves:	334
Back Flow Preventor:	2
Post Indicator Valves:	5
Air Relief Valves:	2
Service Connections:	24

A list of these items is included in appendix F.

H. Miscellaneous Maintenance Needed: 4

Raise To Grade: 2

Missing Lid: 1

Unable To Open: 1

A list of these items is included in appendix H.

I. Sections of Main That Could Not Be Surveyed, Surveyed Properly, Or Were Surveyed With A Ground Microphone.

Various reasons prevented the surveying of these sections: no access points, insufficient access points, rights of ways or easements cleaning needed, accurate main locations not available, restricted areas, under construction, etc. These locations have been noted on the plats. Mains listed on the plats as abandoned in place were not surveyed unless otherwise noted.

A list of these locations is included in Appendix I.

J. Revisions To The Master Water System Distribution Plats Included With This Report

The 45 pages of Lackland Air Force Base and the Lackland Annex water system distribution plats used in these surveys have been grouped into one section.

Abbreviations Used on the Revised Distribution System Plats:

UTL	--	Unable To Locate
NR	--	Needs Repair
UTS	--	Unable To Survey
NC	--	Needs Cleaning
RTG	--	Raise To Grade
FHWV	--	Fire Hydrant With Valve
FH	--	Fire Hydrant Without Valve
PIV	--	Post Indicator Valve
ARV	--	Air Relief Valve
PRV	--	Pressure Regulating Valve
BFP	--	Back Flow Preventor

All mains were surveyed from all available access points.

All valves located were surveyed. When direct contact could not be made, a probe rod was used.

Fire hydrants labeled as fire hydrants without lead valves are hydrants where the lead valve could not be located or does not exist.

Any item circled and highlighted in yellow on the plats indicates that it was added, could not be located, or needs repair. All items are labeled on the plats.

All mains, fire hydrants, water services, and valves added to the plats are for access point accounting. The location and placement of these items on the plats are intended to indicate what was actually found during the field survey. Placement of main valves on the plat is the surveyor's best guess of what they control. Every effort was made to ensure the accuracy of these plats, but EUWD does not guarantee their accuracy.

RECOMMENDATIONS AND COMMENTS

- I. Accelerate rate of repairs on all known system leaks and maintain an ongoing program to locate and repair leaks that become visible or surface. Studies have generally shown that the life of a leak depends on soil type. In areas with sandy soil or limestone strata, for example, water from a leak may not surface near its source and may not surface at all. Clay soils are more likely to force water to the surface but even this is not always the case. Waters from leaks are often found to enter storm and sanitary sewers, as well as percolate down through soil. EUWD recommends that the base conduct periodic leak detection/location surveys, depending on the rate at which new leaks develop.
- II. Revise master water distribution plats from “As built” plans, EUWD plats, and utilizing the knowledge and expertise of long term field employee. Master plats should show locations of all main valves, fire hydrants, blow off valves, drain or flush valves, air relief valves, and pressure regulating valves. Revised plats should be made available to field maintenance supervisors for use in the operation and maintenance of the water distribution system.
- III. Implement an ongoing in-house main line valve preventive maintenance program. Inspection and operation of all system valves should be performed on a routine basis. All distribution system valves should be located, cleaned, sounded for leakage, tested, repaired or replaced as needed. The use of valve markers is recommended on valves subject to being lost or buried.

The time spent on lost, buried, or nonoperational valves, and/or the flushing of fire hydrants to reduce pressure and volume to effect leak repair is an additional major source of water loss in leak repair.

- IV. Implement an ongoing fire hydrant preventive maintenance program in-house or in conjunction with the base fire department. All hydrants should be inspected, flushed, lubricated, and painted on a routine basis. Lead valves should be installed as part of the installation on all new or replacement fire hydrants.
- V. Conduct a thorough evaluation of the base irrigation systems and the times and methods used to irrigate base common areas. EUWD surveyors observed fire hydrants being used for landscape irrigation, watering during the hottest parts of the day when evaporation rates are the highest, and obvious water runoff on to street and drains. Recognizing the need for water conservation, the base should implement policies and procedures to voluntarily comply with the City of San Antonio’s landscape watering ordinance. Consider replacing or retrofitting existing systems with state-of-the-art efficient equipment.

New irrigation systems features are now available and have shown to pay for their initial cost in as few as two years and are as follows:

Moisture sensing devices, rain sensing devices, wind sensors, low precipitation sprinklers, matched precipitation sprinklers, excess flow sensors, devices to prevent low head drainage, master valves, special controller circuits to provide varying watering schedules, repeat cycling controllers, and solid state time accurate controllers for accuracy in timing.

These system features may be costly, but if viewed in the light of how much they can save in operational costs and the fact that this type of equipment can reduce the amount of water used by 5 or 10 percent, this could be a justifiable expense. When used in conjunction with basic exterior water conservation methods, a significant amount of precious water can be saved and long term cost savings can be realized by the base. Back flow preventors should be installed on all irrigation systems to eliminate a potential source of contamination to the base potable water supply.

- VI. Review the existing water distribution system and planned water system improvements to ensure sufficient access points are in place to facilitate future leak detection/ location surveys.
- VII. Consider ductile iron pipe for the primary main line material used for new installation and main replacement. As the production cost of water increase, the need for routine system wide leak detection surveys will also increase. Leak sounds generated in metallic pipe are louder and have a tendency to travel further than those developed in non-metallic pipe. Ductile iron pipe has a proven history of long service life and its sound carrying characteristics for leak detection are far superior to any other type of pipe material.
- VIII. Water main easements and rights-of-way should be cleaned, mowed, and maintained in order to expedite leak repair and allow access by base maintenance personnel for routine visual inspection.
- IX. EUWD observed fire hydrants being used for landscape irrigation and the filling of water hauling equipment without the use of an approved reduced-pressure backflow assembly. This potentially dangerous cross connection could allow polluting or contaminating material to enter the base potable water supply. The base has the responsibility to prevent contamination of the public water system through the promulgation and enforcement of rules, regulations, and policies necessary to protect the public health. A cross connection control program is essential to ensure that the base's water supply remains safe.

X. Install meters on all water services, even if the consumer is not to be billed. Set reasonable and prudent standards for each type of water use. There is no inducement to the consumer to conserve or use water wisely when water is supplied without charge or without limits. The potential benefits of metering to the base are numerous:

- Conservation of a precious and valuable resource.
- Potential reduction in water consumption and related water and wastewater treatment costs.
- Allows the base to identify and verify all water use to determine water system efficiency.
- Gives the base the information needed to select and implement programs to enhance efficiency, prevent waste, and foster water conservation.
- Water saved by conservation may allow the base to defer capital construction expenditures for new water supplies and water system improvements. The life of water pumping and treatment equipment can be extended because the equipment will not be forced to work as hard to meet demand. For the same reasons, maintenance and operating cost can also be reduced.

XI. After a thorough review of the surveyor's field notes, it is the opinion of the Edwards Underground Water District that Lackland Air Force Base should increase its efforts towards water conservation and water leak repair. The vast majority of the leaks reported to the base as early as March of 1995 are still unrepaired as of August 8, 1995. It is impossible to accurately estimate the amount of water currently being lost through leakage at Lackland Air Force Base, but it is obvious that a substantial amount of water is being lost. With each passing day that the leaks remain unrepaired the volume of leakage continues to increase. This is an unfortunate waste of a precious resource.



James R. Shipley
Leak Detection Technician I



Mark L. McGinnis
Leak Detection Technician II

**LACKLAND AIR FORCE BASE
SERVICE VALVE LEAK LIST / 1995
APPENDIX A**

Page 1 of 2

<u>Line #</u>	<u>Date</u>	<u>Address</u>	<u>Loss G.P.M.</u>	<u>Date Repaired</u>	<u>Comments</u>
1	2/28	216 East Ridge		Pending	
2	2/28	112 East Ridge		Pending	
3	2/28	108 East Ridge		Pending	
4	2/28	107 East Ridge		Pending	
5	2/28	104 East Ridge		Pending	
6	2/28	109 East Perimeter		Pending	
7	2/28	114 East Perimeter		Pending	
8	2/28	205 East Perimeter		Pending	
9	2/28	307 East Ridge		Pending	
10	3/7	P-108 Medina Base Rd.		Pending	Near front gate
11	4/3	S-2954		Pending	Behind building
12	4/3	2857 Luke Blvd.		Pending	
13	4/3	Holloman Ave. Between Fire Hydrants 2-43 - 2-44		Pending	
14	5/3	P-1050 Kelly Rd.		Pending	
15	5/3	P-1003 Main Gate East		Pending	
16	5/10	106 Kellack		Pending	
17	5/10	206 Bolling St.		Pending	
18	5/10	313 Bergstrom Ct.		Pending	
19	5/10	213 Bolling St.		Pending	

**LACKLAND AIR FORCE BASE
SERVICE VALVE LEAK LIST / 1995
APPENDIX A**

Page 2 of 2

<u>Line #</u>	<u>Date</u>	<u>Address</u>	<u>Loss G.P.M.</u>	<u>Date Repaired</u>	<u>Comments</u>
1	2/28	216 East Ridge		Pending	
20	5/10	311 Bolling Ct.		Pending	
21	5/10	Holloman Ave		Pending	Valve to parade field
22	5/11	Bong Ave.		Pending	Valve to parade field restroom
23	5/8	512 Fairchild St.		Pending	
24	5/10	201 Bolling St.		Pending	
25	6/22	Harmon @ Lowry Ct.		Pending	
26	6/22	5037 Gary Ave.		Pending	
27	6/22	Wurtsmith St.		Pending	Valve To Tennis Courts
28	3/7	P-14 Eagle Dr.	120	Unk.	
29	3/7	1902 Kelly Park	8.6	Unk.	
30	5/26	10500 Metzger Dr.		Pending	
31	5/26	10050 Keesler Dr.		Pending	
32	5/26	Craig Ave.		Pending	Valve to sprinkler system
33	5/26	Kenly Ave.		Pending	Valve to old beverage building
33	5/26	101 Kellack		Pending	

**LACKLAND AIR FORCE BASE
FIRE HYDRANT LEAK LIST
APPENDIX B**

Page 1 of 2

<u>Line #</u>	<u>Date</u>	<u>Address</u>	<u>Loss G.P.M.</u>	<u>Date Repaired</u>	<u>Comments</u>
1	2/23	216 Base View	360	Unk.	Replaced
2	3/7	At P-400		Pending	Plat 1056P
3	5/3	3rd Ave @ Craig St.	Unk	5/22	Replaced
4	5/8	Dimstead		Pending	Hyd 1-57
5	4/10	Holloman	120	5/24	Hyd 2-46 Reseated
6	4/10	Holloman	120	5/24	Hyd. 3-46 Reseated
7	4/10	Goodfellow St.		Pending	Hyd. 2-39
8	4/10	Kenly Rd.		Pending	Across From Shopette
9	4/12	Larson St.		Pending	Hyd. 2-54
10	4/12	Tyndill St.		Pending	Hyd. 2-66
11	6/22	Scott @ Shaw		Pending	Hyd. 10-14
12	6/22	Craig Ave.		Pending	Hyd. 7-29
13	6/22	George Ave.		Pending	Hyd. 5-30
14	6/22	Range Rd.		Pending	Hyd. 8-71
15	6/22	Craig Ave. @ 9th.	120	Unk.	Hyd. 8-4
16	6/1	10300 ENT Circle		Pending	Hyd. 10-38
1	6/5	Mc Guire St. @ Carswell		Pending	Hyd. 7-27
18	6/12	4447 Andrews Rd.		Pending	Hyd. 7-40
19	6/12	Andrews Rd.	120	Unk.	Hyd 7-40 Reseated

**LACKLAND AIR FORCE BASE
FIRE HYDRANT LEAK LIST
APPENDIX B**

Page 2 of 2

<u>Line #</u>	<u>Date</u>	<u>Address</u>	<u>Loss G.P.M.</u>	<u>Date Repaired</u>	<u>Comments</u>
20	6/10	6368 Barnes Ave		Pending	

**LACKLAND AIR FORCE BASE
MAIN VALVE LEAK LIST
APPENDIX C**

Page 1 of 1

<u>Line #</u>	<u>Date</u>	<u>Address</u>	<u>Loss G.P.M.</u>	<u>Date Repaired</u>	<u>Comments</u>
1	4/11	Bong Ave		Pending	Valve 6-75
2	5/8	51465 Mc Cord St.		Pending	Valve 7-11
3	5/8	1603 Fairchild		Pending	Valve 3
4	5/8	203 Bergstrom Ct.		Pending	Behind 203
5	5/5	8674 Range Rd.		Pending	Valve 4-8
6	5/8	P-1410 McCord St.		Pending	Valve 7-31
7	5/10	P-11306 Bolling Ct.		Pending	Valve 8-8
8	6/22	8165 Bong Ave		Pending	Valve 8-21
9	6/13	Bolling St.		Pending	Valve 8-21
10	6/13	Luke Blvd. @ Carswell		Pending	Valve 13-43
11	6/13	Olmsted Ave.		Pending	East of 1385

**LACKLAND AIR FORCE BASE
MAIN LINE LEAK LIST
APPENDIX D**

Page 1 of 1

<u>Line #</u>	<u>Date</u>	<u>Address</u>	<u>Loss G.P.M.</u>	<u>Date Repaired</u>	<u>Comments</u>
1	3/1	307 East Ridge	2,664	Unk.	
2	3/1	Range Rd.	90	6/7/95	Leaking repair clamp
3	3/1	Range Rd.	7,200	6/5/95	Full circle break.
4	3/7	P-145 Eagle Dr.	N/A	Unk.	
5	6/5	7423 Selfridge Ave.		Pending	
6	6/5	Luke Blvd. @ Gary Ave		Pending	Behind bleachers near service valve

**LACKLAND AIR FORCE BASE
CUSTOMER SIDE LEAK LIST
APPENDIX E**

Page 1 of 1

<u>Line #</u>	<u>Date</u>	<u>Address</u>	<u>Comments</u>
1	2/28	212 Base View	Hose Bib
2	2/28	213 Base View	Hose Bib
3	2/28	220 East Ridge	Hose Bib
4	2/28	105 East Perimeter	Hose Bib
5	2/28	219 East Perimeter	

**LACKLAND AIR FORCE BASE
ADDED TO PLATS / 1995
APPENDIX F**

Page 1 of 8

<u>Line #</u>	<u>Plat #</u>	<u>Location</u>	<u>Item</u>	<u>Number</u>
1	1056 L	To P471	Service Valve	1
2	1056 K	At P431	Service Valve	1
3	1056 J	At P495	Service Valve	1
4	1056 J	At P485	Service Valve	1
5	1156 A	Near Voyager to P130	Service Valve	1
6	1156 A	Voyager Dr. east of Apollo Dr.	2 Service Valves	2
7	1156 A	Eagle Dr. between P-111 - P110	F.H. w/Valve	1
8	1055 R	To P203	Service Valve	1
9	1155 P	South of P201	Service Valve	1
10	1155 P	To Fire Hydrant 2-3	Fire Hydrant Valve	1
11	1155 P	To Fire Hydrant 2-2	Fire Hydrant Valve	1
12	1155 P	To Fire Hydrant 2-1	Fire Hydrant Valve	1
13	1155 P	At P105	Service Valve	1
14	1055 C	East of 913	F.H. w/Valve	1
15	1157 N	Southwest of P4370	Service Valve	1
16	1257 A	Perimeter Rd. north of 4550	Main Valve	1
17	1257 A	South of 4883	Air Relief Valve	1
18	1257 E	To Goat Farm	Service Valve	1
19	1257 E	To P4905	Service Valve	1

**LACKLAND AIR FORCE BASE
ADDED TO PLATS / 1995
APPENDIX F**

Page 2 of 8

Line #	Plat #	Location	Item	Number
20	1257 E	North of P4905	Service Valve	1
21	1156 R	Military Dr. north of Berquist	Service Valve	1
22	1156 R	Kaesler Ave. east of 10070	Service Valve	1
23	1156 R	ENT Circle	Fire Hydrant Valve	1
24	1156 R	Spence St.	Post Indicator Valve	1
25	1156 R	Harmon at 10265	Post Indicator Valve	1
26	1156 R	Harmon near Lowery Ct.	1 Service Valve, 1 Main Valve	2
27	1156 R	Harmon southeast of 10056	Fire Hydrant	1
28	1156 R	Keesler Ave. southeast of 10050	Main Valve	1
29	1156 R	Military Dr. near 10016	Fire Hydrant Valve	1
30	1256 D	Kenly Ave. north of Pepperrel St.	F.H. w/Valve and Fire Hydrant	2
31	1256 D	To 4602	Service Valve	1
32	1256 D	Perimeter Rd. to 3885	F.H. w/Valve	1
33	1256 D	Pepperrel St. at Fire Hydrant 3-26	Fire Hydrant Valve	1
34	1256 D	Perimeter Rd. to 3885	Service Valve	1
35	1256 D	Luke Blvd. at Fire Hydrant 3-9	Fire Hydrant Valve	1
36	1256 D	Holloman at Luke Blvd.	Fire Hydrant Valve	1

**LACKLAND AIR FORCE BASE
ADDED TO PLATS / 1995
APPENDIX F**

Page 3 of 8

Line #	Plat #	Location	Item	Number
37	1256 D	Ladd St. at Fire Hydrant 3-24	Fire Hydrant Valve	1
38	1256 H	Ladd St. at Fire Hydrant 3-3	Fire Hydrant Valve	1
39	1256 H	At R.V. Parking	24 Service Connections	24
40	1256 H	At 2847-50	5 Service Valves	5
41	1256 H	At 2855-2865	5 Service Valves	5
42	1256 H	West of RV Parking	2 Service Valves	2
43	1256 H	At tee 18	1 Backflow Preventor, 1 Valve, 1 Service Valve	3
44	1156 L	Femoyer St. south of 10902	Fire Hydrant Valve	1
45	1156 L	ENT Circle east of 10658	Main Valve	1
46	1156 L	To 10441	Service Valve	1
47	1156 L	Metzyer west of 10416	Service Valve	1
48	1156 L	Femoyer south of 10501	Service Valve	1
49	1156 Q	Femoyer at 10203	Fire Hydrant Valve	1
50	1156 Q	Luke Blvd. to 6576	Main Valve	1
51	1156 Q	Carswell across from 9142	Fire Hydrant Valve	1
52	1156 Q	Luke Blvd. at Hughes Ave.	Air Relief Valve	1
53	1156 Q	Hughes Ave. at Hensley	Fire Hydrant Valve	1

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Line #	Plat #	Location	Item	Number
54	1156 Q	Hughes Ave. at Kirtland	Fire Hydrant Valve	1
55	1156 Q	Hughes Ave. at Maxwell	Fire Hydrant Valve	1
56	1256 C	Gary Ave. north of 6129	Service Valve	1
57	1256 C	George Ave. to 6226	Service Valve	1
58	1256 C	Craig Ave.	1 Main Valve, 1 Service Valve	2
59	1256 C	Goodfellow at Holloman	Fire Hydrant	1
60	1256 C	Holloman north of Kenly	Fire Hydrant Valve	1
61	1256 C	Tindall to 2313	1 Main Valve, 2 Service Valves	3
62	1256 C	Kenly to NCO Club	Post Indicator Valve	1
63	1256 C	2569 at Kenly	1 Main Valve, 2 Service Valves	3
64	1256 C	West of 2569	Service Valve	1
65	1256 G	East and west of 2443	2 Fire Hydrant Valves	2
66	1256 G	Tindall at Biggs	Service Valve	1
67	1256 G	Yount Circle to 2720	Service Valve	1
68	1256 G	Road to Kelly at Leon Creek	F.H. w/Valve	1
69	1256 L	To Saddle Club	Service Valve	1

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Line #	Plat #	Location	Item	Number
70	1156 P	Trumper west of 9122	Fire Hydrant Valve	1
71	1156 P	Hughes Ave. at Trumper	1 Main Valve, 1 Fire Hydrant Valve	2
72	1156 P	Carswell west of 9016	1 Fire Hydrant Valve, 1 Backflow Preventor	2
73	1156 P	Hughes Ave. west of 6612	Fire Hydrant Valve	1
74	1156 P	To 6408	Service Valve	1
75	1156 P	Trueman St. north of 6408	Service Valve	1
76	1156 P	Hughes Ave. at Patrick	Service Valve	1
77	1156 P	Hughes Ave. north of Wurtsmith	Service Valve	1
78	1256 B	Northwest of 6300	1 F.H. Valve, 1 Service Valve	2
79	1256 B	Nellis St. at T540	2 Service Valves	2
80	1256 B	Nellis St. at Barnes Ave.	Main Valve	1
81	1256 B	Steward St. at P5612	Service Valve	1
82	1256 B	Patrick St. south of P5612	Service Valve	1
83	1256 B	North of Wurtsmith and Barnes Ave.	Service Valve	1
84	1256 B	George Ave. west of P5146	F.H. w/Valve, 2 Service Valves	3
85	1256 B	George Ave. at Trumper	Service Valve	1

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<u>Line #</u>	<u>Plat #</u>	<u>Location</u>	<u>Item</u>	<u>Number</u>
86	1256 B	Wright Plaza at Gary Ave.	2 Service Valves	2
87	1256 B	Hartney Ave. to T5037	Service Valve	1
88	1256 B	Craig Ave. north of Sheppard	Fire Hydrant Valve	1
89	1256 B	Bong Ave. at Reese St.	Fire Hydrant Valve	1
90	1256 B	Kelly Dr. across from 2300	Fire Hydrant Valve	1
91	1256 B	Lochhourne Ave. to 1000	Service Valve	1
92	1256 B	McChord St. east of Lockhourne Ave	Fire Hydrant Valve	1
93	1256 F	East of and west of Fairchild St.	92 Service Valves	92
94	1256 F	To 1201	Service Valves	1
95	1256 F	At 1400	2 Service Valves, 1 Main Valve	3
96	1256 F	To 1508	Service Valve	1
97	1256 F	Dimsted Pl. at McChord	Main Valve	1
98	1256 F	North of Selfridge east of 8210	Service Valve	1
99	1256 F	Selfridge Blvd. north of 8350	2 Main Valves	2
100	1256 F	Dimsted Ave. near 8410	Post Indicator Valve	1
101	1256 F	Dimsted Ave. across from 1528	Fire Hydrant Valve	1
102	1256 K	East of Ferson Loop	16 Service Valves	16

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<u>Line #</u>	<u>Plat #</u>	<u>Location</u>	<u>Item</u>	<u>Number</u>
103	1256 K	1650' east of 8700 on Range Rd.	Fire Hydrant Valve	1
104	1156 N	Tinker St. south of Patrick	Service Valve	1
105	1156 N	Tinker St. west of 7427	Fire Hydrant	1
106	1156 N	Tinker St. north of 7633	2 Service Valves	2
107	1156 N	Southwest of 7428	Fire Hydrant Valve	1
108	1156 N	Craw Ave. south of 7435	Fire Hydrant	1
109	1156 N	Tinker St. at 7364	Service Valve	1
110	1156 N	Tinker St. north of 7364	Fire Hydrant Valve	1
111	1156 N	Carswell Ave. to 7348	Service Valve	1
112	1156 N	Carswell Ave. north of 7348	F.H. w/Valve	1
113	1156 N	Carswell Ave. at 7341	F.H. w/Valve	2
114	1256 A	Carswell Ave. north of Tinker St.	Fire Hydrant	1
115	1256 A	Southeast of Reese and Hughes Ave.	9 Service Valves	9
116	1256 A	Selfridge Blvd. west of Walker Ave.	Fire Hydrant Valve	1
117	1256 A	Walker Ave. southwest of 546	Fire Hydrant Valve	1
118	1256 A	Walker Ave. to 5548	Service Valve	1
119	1256 A	Selfridge Blvd. at Barnes	Fire Hydrant Valve	1
120	1256 A	Barnes west of 5275	Fire Hydrant Valve	1
121	1256 A	George Ave. at Selfridge Blvd.	Fire Hydrant Valve	1

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<u>Line #</u>	<u>Plat #</u>	<u>Location</u>	<u>Item</u>	<u>Number</u>
122	1256 A	George Ave. west of 5160	Fire Hydrant Valve	1
123	1256 A	South of 5162	Fire Hydrant Valve	1
124	1256 A	Hartney Ave. east of 5057	Fire Hydrant Valve	1
125	1256 A	South of 5074	Fire Hydrant Valve	1
126	1256 E	Bolling Ave. at MacDill	F.H. w/Valve	1
127	1256 E	North of Bergstrom CT	2 Main Valves	2
128	1256 E	Hartney Ave. south of 506	Fire Hydrant Valve	1
129	1256 E	Bong Ave. to 8265	Service Valve	1
130	1256 E	East of Kellack	132 Service Valves	132
131	1256 N	To 58850	Service Valve	1
132	1256 N	To 58860	Service Valve	1
133	1256 N	To 58672	Service Valve	1
134	1256 D	Craw Ave. to 7370	Service Valve	1
135	1256 D	Knight to 7390	Service Valve	1
136	1256 D	Carswell Ave. to 7290	Post Ind. Valve	1
137	1256 D	To 7595	Service Valve	1
138	1256 D	To 7529	2 Service Valves	2
139	1256 D	To 7593	2 Service Valves	2
140	1256 D	East of 7488	Fire Hydrant Valve	1

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Line #	Plat #	Location	Item	Number
1	1056 L	Valve to P471	Valve	1
2	1056 K	Valve to P468	Valve	1
3	1056 K	Southeast of P468	4 Valves	4
4	1056 K	South of P468	2 Valves	2
5	1056 K	South of P468	Fire Hydrant Valve	1
6	1056 K	Southeast of Fire Hydrant 4-9	2 Service Valves	2
7	1056 K	At P431	Fire Hydrant Valve	1
8	1056 K	To P431	2 Service Valves	2
9	1056 K	Southeast of S430	Blow Off Valve	1
10	1056 K	At P435	Valve to 471	1
11	1156 B	Eagle Dr.	2 Valves	2
12	1056 J	To P485	Valve	1
13	1056 N	West of P341	Air Relief Valve	1
14	1156 A	To P156	2 Valves	2
15	1156 A	Southeast of P147	Valve	1
16	1156 A	South of P147	Valve	1
17	1156 A	East of P118	3 Valves/1 F.H.	4
18	1156 A	East of P119	2 Valves	2
19	1156 A	South of P118	Valve	1

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Line #	Plat #	Location	Item	Number
20	1156 A	South of P141	Valve and F.H.	2
21	1156 A	To P111	Service Valve	1
22	1156 A	To P110	Service Valve	1
23	1156 A	To P122	Service Valve	1
24	1156 A	South of P122	Valve	1
25	1055 R	To P232	Service Valve	1
26	1055 R	To P230	Service Valve	1
27	1055 R	Medina Base Rd. south of P230	Valve	1
28	1155 P	To P220	Valve	1
29	1155 P	To P218	Valve	1
30	1155 P	West Perimeter Rd. @ P631	Fire Hydrant Valve	1
31	1155 P	East Ridge @ West Perimeter Rd.	Valve	1
32	1155 P	East Perimeter Rd. @ P643	Fire Hydrant Valve	1
33	1155 H	East of P690	2 Valves	2
34	1155 H	Across from P663	Fire Hydrant Valve	1
35	1055 C	To 946	Service Valve	1
36	1157 N	Southwest of P4370	2 Valves	2
37	1257 E	East of Goat Farm	Valve	1
38	1257 E	South of Service Rd.	Valve	1

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Line #	Plat #	Location	Item	Number
39	1156 M	Hughes Ave.	2 Valves	2
40	1156 R	Scott Dr. Valve 9-21 and south of valve of 9- 21	2 Valves	2
41	1156 R	Scott Dr. Valve 9-18 and south of valve 9-18	2 Valves	2
42	1156 R	Scott Dr. Valve 9-52	Valve	1
43	1156 R	North of ENT Circle valve 9-48	Valve	1
44	1156 R	To 10230	Service Valve	1
45	1156 R	Northeast of 10215	Valve	1
46	1156 R	Harmon Dr. southeast of Hughes Ave.	Valve	1
47	1156 R	Harmon Dr. south of 10175	3 Valves	3
48	1156 R	Langley Court @ Harmon Dr.	Valve	1
49	1156 R	Harmon Dr. east of 10056	Valve	1
50	1156 R	Keesler Ave. southeast of 10050	Valve	1
51	1156 R	Spence St. south of 10215	3 Valves	3
52	1156 R	To 10230	Service Valve	1
53	1156 R	Hughes Ave. east of Harmon Dr.	Valve	1
54	1156 R	Hughes Ave. east of Arnold Circle	Valve	1
55	1156 R	Military Dr. north of 10016	Valve	1

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Line #	Plat #	Location	Item	Number
56	1256 D	Berquist Dr.	Valve	1
57	1256 D	West of Wilford Hall	1 Valve, 1 F.H.	2
58	1256 D	In parking lot east of Wilford Hall	3 Valves	3
59	1256 D	Perimeter Rd. near 4957	2 Valves	2
60	1256 D	Pepperrell St. west of Holloman Ave.	1 Valve, 1 F.H.	3
61	1256 D	Pepperrell St. east of Kenly Ave.	Valve	1
62	1256 D	To 4610	Service Valve	1
63	1256 D	Pepperrell St. at Perimeter Rd.	2 Valves	2
64	1256 D	Bong Ave. north of Luke Blvd.	Valve	1
65	1256 D	Luke Blvd. west of Holloman Ave.	2 Valves	2
66	1256 D	Holloman Ave. south of Luke Blvd.	2 Valves	2
67	1256 D	Holloman Ave. north of Luke Blvd.	Valve	1
68	1256 D	To 3460	Service Valve	1
69	1256 D	Kenly Ave. north of Luke Blvd.	Valve	1
70	1256 D	Southeast of 3746	2 Valves	2
71	1256 D	Ladd St. at 3748	2 Valves	2
72	1256 D	Between 3612, 3614, 3616 and 3618	4 Valves	4
73	1256 D	South of 3612 Luke Blvd.	Valve	1
74	1256 H	Foster Ave. north of Luke Blvd.	Valve	1

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Line #	Plat #	Location	Item	Number
75	1256 H	North of 3812	Valve	1
76	1256 H	RV Parking Area	2 F.H., 3 Valves	5
77	1256 H	Southeast of Green 16	Valve	1
78	1256 H	North of Tee 14	2 Valves	2
79	1256 H	Southeast of Tee 18	Valve	1
80	1256 M	North of Green 14	3 Valves	3
81	1256 M	South of Tee 12	3 Valves	3
82	1256 M	Near Green 12	3 Valves	3
83	1256 M	At Practice Tee	Valve	1
84	1156 G	West of 10810	2 Valves	2
85	1156 G	West of 10652	Valve	1
86	1156 G	ENT Circle	4 Valves	4
87	1156 G	ENT Circle To 10440	Service Valve	1
88	1156 G	Kingsley Dr. at McDill Dr.	1 Valve/1FH Valve	2
89	1156 G	South of 10534	2 Valves/1F.H. Valve	3
90	1156 G	To 10442	Service Valve	1
91	1156 G	Femoyer St. south of 10501	Valve	1
92	1156 G	Metzger Dr. south of Femoyer St.	Valve	1

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Line #	Plat #	Location	Item	Number
93	1156 G	To 9282	Valve	1
94	1156 G	Luke Blvd. east of 9272	Valve	1
95	1156 Q	To 10334 Hughes Ave.	Service Valve	1
96	1156 Q	Hughes Ave. to 10416	Service Valve	1
97	1156 Q	Femoyer St. south of 10416	2 Valves	2
98	1156 Q	To 10312	Service Valve	1
99	1156 Q	To 10302	Service Valve	1
100	1156 Q	Femoyer St. at Hughes Ave.	Valve	1
101	1156 Q	Femoyer St. southwest of 10300	Valve	1
102	1156 Q	Femoyer St. at Meivoher Dr.	Valve	1
103	1156 Q	Spence St. south of 10230	3 Valves	3
104	1156 Q	Femoyer St. south of 10201	2 Valves	2
105	1156 Q	West of 6485	Valve	1
106	1156 Q	Carswell Ave. to 9085	Valve	1
107	1156 Q	Luke Blvd. east of Carswell Ave.	Valve	1
108	1156 Q	Hughes Ave. north of Luke Blvd.	Valve	1
109	1156 Q	Luke Blvd. to 6576	Valve	1
110	1156 Q	Walker Ave. at Hensly	Valve	1

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Line #	Plat #	Location	Item	Number
111	1156 Q	Between Kirtland, Barnes Ave., Walker Ave. and Maxwell St.	Valve	1
112	1156 Q	Walker Ave. south of Connally St.	Valve	1
113	1156 Q	Luke Blvd. at Barnes Ave.	Valve	1
114	1156 Q	Barnes Ave. at 6330	F.H. Valve	1
115	1156 Q	Kirtland southeast of 6359	Valve	1
116	1256 C	Craig Ave.	5 F.H., 1 Valve	6
117	1256 C	Military Dr. south of troop walk	Valve	1
118	1256 C	Gary Ave. south of Maxwell St.	2 Valves	2
119	1256 C	George Ave. south of 6132	2 Valves	2
120	1256 C	Gary Ave. southeast of 6129	2 Valves	2
121	1256 C	To 6126 Gary Ave.	Service Valve	1
122	1256 C	Bong Ave. south of Goodfellow St.	Valve	1
123	1256 C	Bong Ave. at reviewing stand	Valve	1
124	1256 C	Bong Ave. to 2106	Service Valve	1
125	1256 C	Bong Ave. to 2105	Service Valve	1
126	1256 C	Goodfellow St. at Fire Hydrant 2-32	Valve	1
127	1256 C	Holloman north of 2387	F. H. Valve	1
128	1256 C	Holloman east of 2387	Valve	1

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Line #	Plat #	Location	Item	Number
129	1256 C	To 2350	Service Valve	1
130	1256 C	Between Kenly Ave. and Holloman	Valve	1
131	1256 C	Kenly Ave. north of NCO Club	Valve	1
132	1256 C	Kenly Ave.	4 Valves	4
133	1256 G	Near green 18	4 Valves	4
134	1256 G	Fire Hydrant 2-86	F.H. Valve	1
135	1256 G	Practice Green	Valves	1
136	1256 G	To 2878	2 Valves	2
137	1256 G	Dimsted Place to driving range	Valve	1
138	1256 G	Kenly Ave.	3 Valves	3
139	1256 G	Larson at Kenly Ave.	Valve	1
140	1256 G	Third St. to 2521	Service Valve	1
141	1256 G	To 2418	2 Service Valves	2
142	1256 G	To 2506	Service Valve	1
143	1256 G	Dimsted at Tindall	1 Valve/1FH Valve	2
144	1256 G	North of Yount Court	Valve	1
145	1256 G	Road to Kelly at Leon Creek	2 Valves	2
146	1256 L	East of green 5	2 Valves	2
147	1256 L	North of Leon Creek	Valve	1

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Line #	Plat #	Location	Item	Number
148	1256 L	Road to Kelly	4 Valves	4
149	1156 K	Northeast of 9228	2 Valves	2
150	1156 K	North of 9228	Valve	1
151	1156 K	To 9410	Service Valve	1
152	1156 K	South of 9410	Valve	1
153	1156 K	South of 9310	Valve	1
154	1156 P	Carswell Ave. across from 9120	Valve	1
155	1156 P	Hughes Ave. to 9028	Service Valve	1
156	1156 P	Truemper St. at Hughes Ave.	3 Valves	3
157	1156 P	Walker Ave. north of Truemper	Valve	1
158	1156 P	Truemper at Walker Ave.	Valve	1
159	1156 P	Barnes Ave. at 9016	Valve	1
160	1156 P	At 4418	2 Valves	2
161	1156 P	To 6415	Valve	1
162	1156 P	Hughes Ave. at McGuire St.	Valve	1
163	1156 P	McGuire St. to 7206	Service Valve	1
164	1156 P	McGuire St. to 7000	Service Valve	1
165	1156 P	Nellis St. at 7309	Valve	1
166	1156 P	Hughes Ave. to 7012	Service Valve	1

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Line #	Plat #	Location	Item	Number
167	1156 P	To 7228	Service Valve	1
168	1156 P	To 7226	Service Valve	1
169	1156 P	To 7024	Service Valve	1
170	1156 P	To 7022	Service Valve	1
171	1156 P	To 7228-26	Valve	1
172	1156 P	To 7024-22	Valve	1
173	1156 P	Hughes Ave. at Patrick St.	Valve	1
174	1156 P	Carswell Ave. to 7241	Service Valve	1
175	1156 P	Carswell Ave. to 7245	Service Valve	1
176	1156 P	Hughes Ave. south of Patrick St.	Valve	1
177	1156 P	Hughes Ave. at Wurtsmith	Valve	1
178	1156 P	South of 5616	2 Service Valves, 1 Fire Hydrant	3
179	1156 P	Nellis St. to 5506	1 Service Valve, 1 Post Indust. Valve	2
180	1156 P	Nellis St. south of 5401	Valve	1
181	1256 B	Truemper north of 6300	Valve	1
182	1256 B	South of 6221	Valve	1
183	1256 B	Nellis St. at Barnes Ave.	1 Fire Hydrant, 2 Valves	3

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<u>Line #</u>	<u>Plat #</u>	<u>Location</u>	<u>Item</u>	<u>Number</u>
184	1256 B	Patrick St. at Barnes Ave.	Valve	1
185	1256 B	At P5725	2 Valves	2
186	1256 B	Wurtsmith east of Walker Ave.	Service Valve	1
187	1256 B	George Ave. across from P5146	2 Service Valves	2
188	1256 B	Barnes Ave. south of Patrick St.	Valve	1
189	1256 B	Steward St. at T5311	Service Valve	1
190	1256 B	Nellis St. at George Ave.	Fire Hydrant Valve	1
191	1256 B	Gary Ave. across from T5100	Valve	1
192	1256 B	Gary Ave. across from P5008	Valve	1
193	1256 B	Hartney Ave. north of P5006	Fire Hydrant, F.H. Valve, 2 Valves	4
194	1256 B	South of T2100	Valve	1
195	1256 B	Sheppard east of Craig Ave.	Valve	1
196	1256 B	Bong Ave. at 3 Rd. St.	Valve	1
197	1256 B	Reese St. west on Bong Ave.	Valve	1
198	1256 B	Selfridge gate	2 Valves	2
199	1256 B	Kelly Dr. across from 2300	Valve	1
200	1256 B	Lockbourne Ave. across from 1000	Valve	1
201	1256 B	South of 1209	Valve	1

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Line #	Plat #	Location	Item	Number
202	1256 B	Northeast of Lockbourne Ave. and West Ave.	2 Valves	2
203	1256 B	North of Olmsted St. and Lockbourne Ave.	3 Valves	3
204	1256 F	Northwest of 1201	2 Valves	2
205	1256 F	Northeast of 1201	Valve	1
206	1256 F	Dimsted Pl. south of Kelly Dr.	Valve	1
207	1256 F	Kelly Dr. east of Dimsted	Valve	1
208	1256 F	Southeast of 1415	2 Valves	2
209	1256 F	West of 1410	Valve	1
210	1256 F	Southwest of 1410	2 Valves	2
211	1256 F	South of 1209	2 Valves	2
212	1256 F	McChord northwest of 1355	Valve	1
213	1256 F	Dimsted Ave. south of Fairchild	Valve	1
214	1256 F	McChord St. at Dimsted Ave.	4 Valves	4
215	1256 F	North of 14605	3 Valves	3
216	1256 F	To 1351	Service Valve	1
217	1256 F	To 1352	Service Valve	1
218	1256 F	To 1354	Service Valve	1
219	1256 F	To 1365	Service Valve	1

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Line #	Plat #	Location	Item	Number
220	1256 F	Northwest of 1285	Valve	1
221	1256 F	Reese St. southwest of 1385	Fire Hydrant Valve	1
222	1256 F	Selfridge St. north of 8350	2 Valves	2
223	1256 F	Pucket Ave. at 8450	Fire Hydrant Valve	1
224	1256 F	Northwest of Reese St. at Dimsted Ave.	Fire Hydrant Valve	1
225	1256 F	Dimsted Ave. to 8410	Service Valve	1
226	1256 F	Dimsted Ave. south of 8410	Valve	1
227	1256 F	Dimsted Ave. at Pucket Ave.	Valve	1
228	1256 F	Dimsted Ave. at Range Rd.	Valve	1
229	1256 F	East and West of Fairchild Ave.	16 Yard Hydrants	16
230	1256 F	West of 1568	4 Valves	4
231	1256 F	West of 1555	Valve	1
232	1256 F	North of 1561	Valve	1
233	1256 F	West of 1561	Valve	1
234	1256 F	To 1612	Service Valve	1
235	1256 F	To 1618	Service Valve	1
236	1256 F	North of 1622	Valve	1
237	1256 F	North of 1644	Valve	1

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<u>Line #</u>	<u>Plat #</u>	<u>Location</u>	<u>Item</u>	<u>Number</u>
238	1256 K	North of P1812	2 Valves, 1 F.H. Valve, 1 F.H.	4
239	1256 K	East of P1701	Valve	1
240	1256 K	East of Ferson Loop	3 Yard Hydrants	3
241	1256 K	West of P1708	Valve	1
242	1256 K	Range Rd. 150' west of 8700	Valve	1
243	1256 K	Range Rd. 1500' west of 8700	2 Valves	2
244	1156 N	Tinker St. northwest of 7560	2 Valves	2
245	1156 N	To 7429	2 Service Valves	2
246	1156 N	To 7435	Service Valves	1
247	1156 N	Craw Ave. east of 7436	Fire Hydrant Valve	1
248	1156 N	Andrews Ave. west of 7454	2 Service Valves	2
249	1156 N	Andrews Ave. west of 7450	2 Valves	2
250	1156 N	Andrews Ave. west of 7456	Service Valve	1
251	1156 N	Craw Ave. to 7448	Service Valve	1
252	1156 N	Craw Ave. to 7352	Service Valve	1
253	1156 N	Craw Ave. to 7453	Service Valve	1
254	1156 N	Craw Ave. to 7354	Service Valve	1
255	1156 N	Craw Ave. to 7358	Service Valve	1

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Line #	Plat #	Location	Item	Number
256	1156 N	Craw Ave. at Tinker	Valve	1
257	1156 N	Craw Ave. to 7364	Service Valve	1
258	1156 N	Cheli Ln. north of 7342	Valve	1
259	1156 N	From 7345	Service Valve	1
260	1156 N	Carswell Ave. north of Cheli Ln.	4 Valves	4
261	1156 N	Carswell Ave. east of 7355	Fire Hydrant Valve	1
262	1256 A	Hughes Ave. southwest of 5758	Valve	1
263	1256 A	Hughes Ave. south of 5575	Valve	1
264	1256 A	Hughes Ave. at Gott St.	Valve	1
265	1256 A	North of Gott, southeast of Hughes	Valve	1
266	1256 A	Tinker St. at 7362	1 Valve, 1 Service Valve	2
267	1256 A	Walker Ave. at 5548	Service Valve	1
268	1256 A	Walker Ave. at Gott St.	Valve	1
269	1256 A	Barnes Ave. southwest of 5275	Valve	1
270	1256 A	To 8485	Service Valve	1
271	1256 A	George Ave. east of 5275	Valve	1
272	1256 A	To 5187	Service Valve	1
273	1256 A	To 5184	Service Valve	1

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<u>Line #</u>	<u>Plat #</u>	<u>Location</u>	<u>Item</u>	<u>Number</u>
274	1256 A	Hartney Ave. east of 5057	Valve	1
275	1256 A	Hartney Ave. north of 5060	Valve	1
276	1256 E	8th Ave.	Valve	1
277	1256 E	West of 5075	Valve	1
278	1256 E	Craig Ave. at 10th Ave.	Fire Hydrant	1
279	1256 E	Kellack Rd. at 816	Valve	1
280	1256 E	East of Kellack Rd.	10 Yard Hydrants	10
281	1256 E	Bolling Ave. at 11320	Valve	1
282	1256 E	East of 11214	Valve	1
283	1256 J	At T 8668	Valve	1
284	1256 N	Range Rd. north of 58670	2 Valves	2
285	1256 N	South of 58674	Valve	1
286	1256 D	Craw Ave. north of 7378	4 Valves	4
287	1256 D	Craw Ave. south of 7378	Valve	1
288	1256 D	Craw Ave. at Knight St.	Valve	1
289	1256 D	Knight St. at Carswell	Valve	1
290	1256 D	Carswell Ave. to fire training grounds	Service Valve	1
291	1256 D	North of 7498	Valve	1
292	1256 D	West of 7492	Valve	1

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<u>Line #</u>	<u>Plat #</u>	<u>Location</u>	<u>Item</u>	<u>Number</u>
293	1256 D	South of 7492	Valve	1
294	1256 D	To 7496	3 Valves	3
295	1256 D	East of 7593	Valve	1
296	1256 D	South of 7488	7 Yard Hydrants	7
297	1155 R	Craw Ave. to 7368	Service Valves	1
298	1155 R	Craw Ave. to 7466	Service Valve	1
299	1155 R	Craw Ave. to 7471	Service Valve	1

**LACKLAND AIR FORCE BASE
REPAIRS NEEDED
APPENDIX H**

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<u>Line #</u>	<u>Plat #</u>	<u>Address</u>	<u>Item</u>	<u>Comment</u>
1	1156 A	Mercury Dr. to P100	2 Valves	Raise to Grade
2	1155 P	To P220	Service Valve	Raise to Grade
3	1156 N	Craw St. at 7356	Service Valve	Missing Lid
4	1156 N	Carswell Ave. to 7355	Service Valve	Unable to Open Valve Box

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<u>Line #</u>	<u>Plat #</u>	<u>Address</u>	<u>Reason</u>
1	1056 L	PVC main to 5470	No access points
2	1056 K	Around bldgs. P421, P425, P426, P427, P428, P440, P441, P442, P443 and P444	Restricted area
3	1056 K	Copper line to P471 and P472	No access points
4	1056 P	Copper line to P472	No access points
5	1056 P	Near P421 and P184	Restricted area
6	1156 B	Around P181, P183 and P185	Restricted area
7	1056 J	Copper line to P485	No access points
8	1056 N	Around 300, 301, 302, 305, 306, 307, 308, 309, 310, 311, 313, 316, 318, 320, 321, 322, 326, 330, 333, 390, 242 and 235	Restricted area
9	1156 A	Around S213, P215, P220, P221 and P224	Restricted area
10	1055 M	8" main along Patrol Rd.	No access points
11	1055R	8" main along Patrol Rd.	No access points
12	1155 P	2" main to old sewer treatment plant	Insufficient access points
13	1055 G	8" PVC main along Patrol Rd.	Insufficient access points
14	1055 L	8" PVC main along Patrol Rd.	Insufficient access points
15	1155 C	Service to P710 - P720	Insufficient access points
16	1257 E	2" PVC to goat farm	No access points
17	1257 E	Main to P4905	No access points

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<u>Line #</u>	<u>Plat #</u>	<u>Address</u>	<u>Reason</u>
18	1257 E	4 mains south of Service Rd.	No access points
19	1257 J	4" main on golf course	No access points
20	1156 R	6" PVC main west of Wilford Hall to P4370	Insufficient access points
21	1156 R	12" PVC main west of Wilford Hall to Bong Ave.	Insufficient access points
22	1256 H	All golf course mains	Insufficient access points
23	1256 H	2" PVC to goat farm	Insufficient access points
24	1256 M	All golf course mains	Insufficient access points
25	1256 G	All golf course mains	Insufficient access points
26	1256 L	All golf course mains	Insufficient access points
27	1256 L	Main along the Rd. to Kelly AFB	Insufficient access points
28	1256 K	Range Rd. east of 8700	Insufficient access points