

EXHIBIT \_\_\_\_\_

APPLICATION FOR CONSTRUCTION PERMIT  
TO INCREASE DAYTIME POWER FOR  
CLASS IV RADIO STATION KSET  
EL PASO, TEXAS

DECEMBER, 1970

WILLIAM B. CARR & ASSOCIATES  
CONSULTING ENGINEERS  
701217

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**STANDARD BROADCAST  
ENGINEERING DATA**

Name of applicant

Rio Grande Broadcasting  
Company, Inc.

1. Indicate by check mark the purpose of this application. (The items of this Section that are applicable to, and must be answered for, each category are shown to the right of the category.)

- Construct a new station
- Change station location to a different city or town
- Change power
- Change transmitter location
- Change frequency
- Change from DA to Non-DA
- Change from Non-DA to DA
- Change in antenna system (including increase in height by addition of FM or TV antenna)

All items

- Install new Auxiliary Transmitter
- Install new Alternate Main Transmitter
- Change transmitter (non type accepted)
- Change Main Studio Location to point outside city limits and not at transmitter site
- Change Hours of Operation
- Other (specify): \_\_\_\_\_

2 thru 7,  
and 10

2 thru 7

2 thru 7  
(and appropriate  
other items)

If this application is not for a new station, summarize briefly the nature of the changes proposed:

To change transmitter and increase daytime power.

2. Facilities requested

Frequency	Hours of operation	Power in kilowatts	
1340 kHz	Unlimited	Night	Day
		.25	1.0

3. Station location

State	City or town
Texas	El Paso

4. Transmitter location

State	County
Texas	El Paso
City or town	Street Address (or other identification)
El Paso	4530 Delta Street

5. Main studio location

State	County
Texas	El Paso
City or town	Street and number, if known
El Paso	904 Magoffin Avenue

6. Remote control point location

State	City or town
Texas	El Paso
Street Address (or other identification)	
904 Magoffin Avenue	

7. Transmitter

Make	Type No.	Rated Power
CCA	AM-1000D	1.0 kw

(If the above transmitter has not been accepted for licensing by the F.C.C., attach as Exhibit No. \_\_\_\_\_ a complete showing of transmitter details. Showing should include schematic diagram and full details of frequency control. If changes are to be made in licensed transmitter include schematic diagram and give full details of change.)

8. Modulation monitor

Make	Type No.
RCA Mfg. Co.	WM 43-A

9. Frequency monitor

Make	Type No.
RCA Mfg. Co.	WF 48-A

10. Antenna system, including ground or counterpoise

Non-Directional Antenna:		Directional Antenna:	
Day <input checked="" type="checkbox"/>	Night <input checked="" type="checkbox"/>	Day only (DA-D) <input type="checkbox"/>	Night only (DA-N) <input type="checkbox"/>
		Same constants and power day and night (DA-1) <input type="checkbox"/>	Different constants or power day and night (DA-2) <input type="checkbox"/>

(If a directional antenna is proposed submit complete engineering data. Show clearly whether directional operation is for day or night or both. If day and night patterns are different give full information on each pattern. This information is in addition to the information in Paragraph 10 and is submitted as Exhibit No. \_\_\_\_\_ and signed by the engineer who designed the antenna system.)

Type radiator	Height in feet of complete radiator above base insulator, or above base if grounded.
Triangular, uniform cross section, guyed	250'
Overall height in feet above ground, (without obstruction lighting)	225'
Overall height in feet above ground, (with obstruction lighting)	3960'
Overall height in feet above mean sea level, (with obstruction lighting)	3963'
If antenna is either top loaded or sectionalized, describe fully as Exhibit No. _____	
Does not apply	

Excitation \_\_\_\_\_ Series  Shunt

Geographic coordinates to nearest second.	
For direction antenna give coordinates of center of array. For single vertical radiator give tower location.	
North latitude	West longitude
31° 45' 40"	106° 26' 11"

If not fully described above, give further details and dimensions including any other antennas mounted on tower and associated isolation circuits as Exhibit No. \_\_\_\_\_ (Height figures should not include obstruction lighting.)

Submit as Exhibit No. \_\_\_\_\_ a plat of the transmitter site showing boundary lines, and roads, railroads, or other obstructions, and also layout of the ground system or counterpoise. Show number and dimensions of ground radials or if a counterpoise is used, show height and dimensions.

11. Attach as Exhibit No. \_\_\_\_\_ a sufficient number of aerial photographs taken in clear weather at appropriate altitudes and angles to permit identification of all structures in the vicinity. The photographs must be marked so as to show compass directions, exact boundary lines of the proposed site, and locations of the proposed 1000 mv/m contour for both day and night operation. Photographs taken in eight different directions from an elevated position on the ground will be acceptable in lieu of the aerial photographs if the data referred to can be clearly shown.

## 12. Allocation Studies

- A. Attach as Exhibit No. \* map or maps, having reasonable scales, showing the 1000, 25, 5, 2, normally protected and interference-free contours in mv/m for both day and night operation both existing and as proposed by the application. (NOTE: The 2 mv/m night contour need not be supplied if service is not rendered thereto.)
- B. (1) For daytime operation, attach as Exhibit No. \* an allocation study, utilizing Figure M-3 of the Rules or an accurate full scale reproduction thereof and using pertinent field strength measurement data where available, a full scale exhibit of the entire pertinent area to show the following:
- (a) Normally protected, the interference-free, and the interfering contours for the proposed operation along all azimuths.
  - (b) Complete normally protected and interference-free contours of all other proposals and existing stations to which objectionable interference would be caused.
  - (c) Interfering contours over pertinent arcs of all other proposals and existing stations from which objectionable interference would be received.
  - (d) Normally protected and interfering contours over pertinent arcs of all other proposals and existing stations which require study to show the absence of objectionable interference.
  - (e) The 0.1 mv/m groundwave contour of Class 1-B stations and appropriate studies to establish compliance with Section 73.187 when operation is proposed on a U. S. Class 1-B channel.
  - (f) Plot of the transmitter location of each station or proposal requiring investigation, with identifying call letters, file numbers, and operating or proposed facilities.
  - (g) Properly labeled longitude and latitude degree lines, shown across entire exhibit.
- (2) For daytime operation, when necessary to show more detail, attach as Exhibit No. \* an additional allocation study, utilizing World or Sectional Aeronautical charts to clearly show interference or absence thereof.
- (3) For daytime operation, attach as Exhibit No. \* a tabulation of the following:
- (a) Azimuths along which the groundwave contours were calculated for all stations or proposals shown on allocation study exhibits required by Paragraph 12B above.
  - (b) Inverse distance field strength used along each azimuth.
  - (c) Basis for ground conductivity utilized along azimuths specified in (3) (a). If field strength measurements are used, the measurements must be either submitted or be properly identified as to location in Commission files.
- C. For nighttime operation, attach as Exhibit No. ON file, allocation data to include the following:
- (1) Proposed nighttime limitation to other existing or proposed stations with which objectionable interference would result, as well as those other proposals and existing stations which require study to clearly show absence of objectionable interference
  - (2) All existing or proposed nighttime limitations which enter into the nighttime R.S.S. limitation of each of the existing or proposed facilities investigated under C (1) above.
  - (3) All existing and proposed limitations which contribute to the R.S.S. nighttime limitation of the proposed operation, together with those limitations which must be studied before being excluded.
  - (4) A detailed interference study plotted upon an appropriate scale map if a question exists with respect to nighttime interference to other existing or proposed facilities along bearings other than on a direct line toward the facility considered.
  - (5) Utilizing an appropriate scale map, clearly show the normally protected and interference-free contours of each of the existing and proposed stations which would receive nighttime interference from the proposed operation.
  - (6) The detailed basis for each nighttime limitation calculated under C (1) (2) (3) and (4) above, including a copy of each pertinent radiation pattern in the vertical plane and basis therefor.

13. Attach as Exhibit No. \* tables of the areas and populations within the contours included in Paragraph 12 (A) above, as well as within the normally protected and interference-free contours of each station or proposed operation to which interference would be caused according to the Commission Rules.

(NOTE: See the Standard Broadcast Technical Standards. All towns and cities having populations in excess of those given in Section 3.182(g) are not to be included in the tabulation of populations within the service contours. The latest Census Minor Civil Division maps are to be used in making population counts, subtracting any towns or cities not receiving adequate service, and where contours cut a minor division assuming a uniform distribution of population within the division, to determine the population included in the contours unless a more accurate count is made.)

14. Attach as Exhibit No. \* map or maps having reasonable scales clearly showing the following:

(a) Proposed antenna location

(b) General character of the city or metropolitan district, particularly the retail business, wholesale business, manufacturing, residential, and unpopulated areas (by symbols, cross-hatching, colored crayons, or other means)

(c) Heights of buildings or other structures and terrain elevations in the vicinity of the antenna, indicating the location thereof.

(d) Transmitter location and call letters of all radio stations (except amateur) and the location of established commercial and government receiving stations within 2 miles of the proposed transmitter location. Call letters and locations of broadcast stations, including FM and television, within 5 miles must be shown.

(e) Terrain

15. If this application is for modification of construction permit state briefly as Exhibit No. \* the present status of construction and indicate when it is expected that construction will be completed.

\* See Engineering Statement

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

Date December 21, 1970

Signature

*William B. Carr*  
(check appropriate box below)

- Technical Director       Chief Operator  
 Registered Professional Engineer  
 Consulting Engineer

ENGINEERING STATEMENT OF WILLIAM B. CARR OF THE FIRM OF  
WILLIAM B. CARR AND ASSOCIATES IN CONNECTION WITH THE  
APPLICATION OF RIO GRANDE BROADCASTING COMPANY, INC.  
FOR CONSTRUCTION PERMIT TO INCREASE THE DAYTIME POWER  
OF RADIO STATION KSET, EL PASO, TEXAS

INTRODUCTION

I, William B. Carr, am an engineer associated with the firm of William B. Carr and Associates, Consulting Engineers, with offices located at 4028 Daley, Fort Worth, Texas. I am a graduate from The University of Texas with a Bachelor of Science Degree in Electrical Engineering and a Registered Professional Engineer in the State of Texas. My qualifications as an engineer are a matter of record with the Federal Communications Commission. This firm has been retained by Rio Grande Broadcasting Company, Inc., licensee of Radio Station KSET, El Paso, Texas, to prepare the necessary engineering to increase their daytime power with all other operating parameters remaining the same.

Radio Station KSET is presently authorized to operate on 1340 kHz with a power of 250 watts using a nondirectional antenna, unlimited time, in El Paso, Texas. Radio Station KSET proposes to increase its daytime operating power to 1,000 watts while retaining its nighttime power of 250 watts. KSET presently shares an antenna system with Radio Station KERP, El Paso, Texas, operating on 920 kHz, 1,000 watts

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nondirectional daytime and 500 watts directional nighttime. With KSET's present antenna system an increase in daytime power to 1,000 watts would produce an unattenuated field of 205 mV/m. No other changes in the antenna system or operating parameters are proposed for Radio Station KSET. An increase in KSET's daytime power should in no way affect the operation of Radio Station KELP as the filters previously installed are capable of handling the additional KSET power.

#### SOIL CONDUCTIVITY

According to the Federal Communications Commission M-3 Soil Conductivity Map El Paso is situated in a region assigned a soil conductivity of 4 and 8 millimhos per meter. Computation of all the proposed KSET coverage contours as well as the pertinent contours of other stations considered for interference were made by use of the M-3 soil conductivity map shown in Figure A.

In cases where signals traversed soils of different conductivity the distance to each contour was determined by the "equivalent distance method" in accordance with the Federal Communications Commission Rules and Regulations.

#### CHANNEL CONSIDERATIONS

Figure A is an allocation map prepared on an official Federal Communications Commission M-3 Soil Conductivity Map and shows the  
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interference considerations with the neighboring stations on the same channel as well as adjacent channels. A detailed discussion of interference is given in the following section. Both the present and proposed 0.5 and 0.025 mV/m contours for KSET are shown in Figure A.

#### INTERFERENCE CONSIDERATIONS

KSET's frequency (1340 kHz) is a local channel; therefore, the daytime conditions of allocation prevail. These conditions are reflected in Figure A. Table I is a list of stations considered for interference to or from the proposed KSET operation. Each station considered is studied separately below:

KSIL, Silver City, New Mexico - As shown in Figure A no interference exists either way between the proposed contours of Station KSET. A separation of 11 miles exists between the proposed KSET 0.5 mV/m contour and the present 0.025 mV/m contour of Station KSIL. The proposed 0.025 mV/m contour of Station KSET falls short by 10 miles of the 0.5 mV/m contour of KSIL.

KRRR, Ruidoso, New Mexico - KRRR presently operates on 1340 kHz with a power of 1.0 kw daytime and 0.25 kw nighttime. KRRR is presently authorized to shift frequencies to 1360 kHz with a power of 5 kw daytime. However, for the purpose of interference considerations KRRR's present operation on 1340 kHz was considered. KRRR's present 0.025 mV/m contour falls short of the proposed 0.5 mV/m contour of KSET by 1.1 miles. Likewise, KSET's proposed 0.025 mV/m contour falls short of KRRR's present 0.5 mV/m contour by 0.1 miles. Thus, no interference will exist between the two facilities.



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KVKM, Monahans, Texas - Station KVKM operates on a frequency of 1330 kHz with a power of 5,000 watts non-directional daytime and 1,000 watts directional nighttime. The proposed 0.5 mV/m contour of Radio Station KSET is separated by 120.5 miles from the 0.5 mV/m contour of KVKM. Thus, no prohibited overlap exists between the proposed operation of KSET and KVKM.

Co-channel interference was calculated on the basis of a ratio of 20:1 of desired to undersired signal. The interference ratio of 10 kHz separation was taken as 1:1 and 30:1 for signals of 20 kHz removed. These ratios are in accordance with the Federal Communications Commission Rules and Regulations for prohibited overlap.

#### SIGNAL SERVICE TO THE CITY OF EL PASO

With the present daytime power of Radio Station KSET the 25 mV/m signal does not totally encompass the main business district. However, with the increase in daytime power the proposed 25 mV/m daytime contour of KSET will encompass the main business district. The nighttime service will remain the same as that now provided by KSET.

#### POPULATION AND AREA SERVED

All land areas within each contour was determined by the use of a compensating polar planimeter or circular area formulas as per good engineering practices. Population data was taken from publications of the 1960 Census by the United States Department of Commerce, Bureau of Census, Final Report PC(1)-45A with pertinent contours plotted on minor civil division maps.

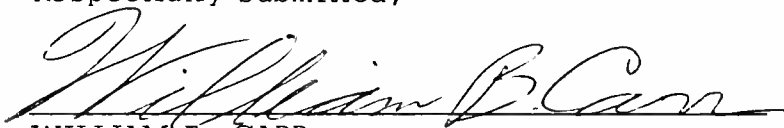
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When a contour cut a division the population was evenly proportioned according to the measured area of the division within the contours. Cities within the 0.5 mV/m contour, but outside the 2 mV/m contour, that have a population of 2,500 or more were excluded from the count. Tables II and III show the present and proposed area and contour served. The population within the 1,000 mV/m contours both present and proposed were obtained by count of persons residing in the area.

CONCLUSIONS

It is shown by this engineering statement that no objectionable overlap or interference will be caused to any existing or proposed operations by KSET increasing its daytime power to 1,000 watts. It is our conclusion that the operation of Radio Station KSET is in full accord and compliance with the Federal Communications Commission Rules and Regulations.

Respectfully submitted,



WILLIAM B. CARR  
 Registered Professional Engineer  
 State of Texas

Subscribed and sworn to before me  
 this 21st day of December, 1970



Notary Public in and for Tarrant County, Texas  
 My Commission expires June, 1971

RADIO STATION KSET  
EL PASO, TEXASPRESENT OPERATION

Frequency	1340 kHz
Power	250 watts nondirectional
Type of tower	Uniform cross-section, guyed, series-fed tower
Tower height above insulator	250' without lighting 253' with lighting
Tower height above ground	255' without lighting 258' with lighting
Tower height above mean sea level	3960' without lighting 3963' with lighting
Ground system *	32' x 32' ground screen plus 120 radial 250' long except as extended west as part of existing KELP ground system.
Inverse distance field	102.5 mV/m
Geographic coordinates	31° 45' 40" North Latitude 106° 26' 11" West Longitude

\* Tower is southeast (No. 3) tower of existing KELP array. Ground system is existing KELP ground system.

RADIO STATION KSET  
EL PASO, TEXASPROPOSED OPERATION

Frequency	1340 kHz
Power	1.0 kw daytime, nondirectional 0.25 kw nighttime, nondirectional
Type of tower	Uniform cross-section, guyed, series-fed tower
Tower height above insulator	250' without lighting 253' with lighting
Tower height above ground	255' without lighting 258' with lighting
Tower height above mean sea level	3960' without lighting 3963' with lighting
Ground system *	32' x 32' ground screen plus 120 radial 250' long except as extended west as part of existing KELP ground system.
Inverse distance field	205 mV/m for 1 kw
Geographic coordinates	31° 45' 40" North Latitude 106° 26' 11" West Longitude

\* Tower is southeast (No. 3) tower of existing KELP array. Ground system is existing KELP ground system.

TABLE I

RADIO STATION KSET  
EL PASO, TEXAS

TABULATION OF UNATTENUATED FIELDS AND CONDUCTIVITIES USED

<u>Call</u>	<u>Location</u>	<u>Frequency</u>	<u>Facility</u>	<u>Basis for Conductivity</u>	<u>Inverse Distance Field</u>
KSET, existing	El Paso, Texas	1340	0.25 kw, unlimited	M-3	102.5
KSET, proposed	El Paso, Texas	1340	1 kw-D 0.25 kw-N	M-3	205
KSIL	Silver City, New Mexico	1340	1 kw-D 0.25 kw-N	M-3	194
KRRR	Ruidoso, New Mexico	1340	1 kw-D 0.25 kw-N	M-3	186
KVKM	Monahans, Texas	1330	5 kw-D 1 kw-DA-N	20 mile proof M-3 beyond 20 mi	490 (proof)

TABLE II

RADIO STATION KSET  
EL PASO, TEXAS

AREAS AND POPULATIONS OF PRESENT OPERATION

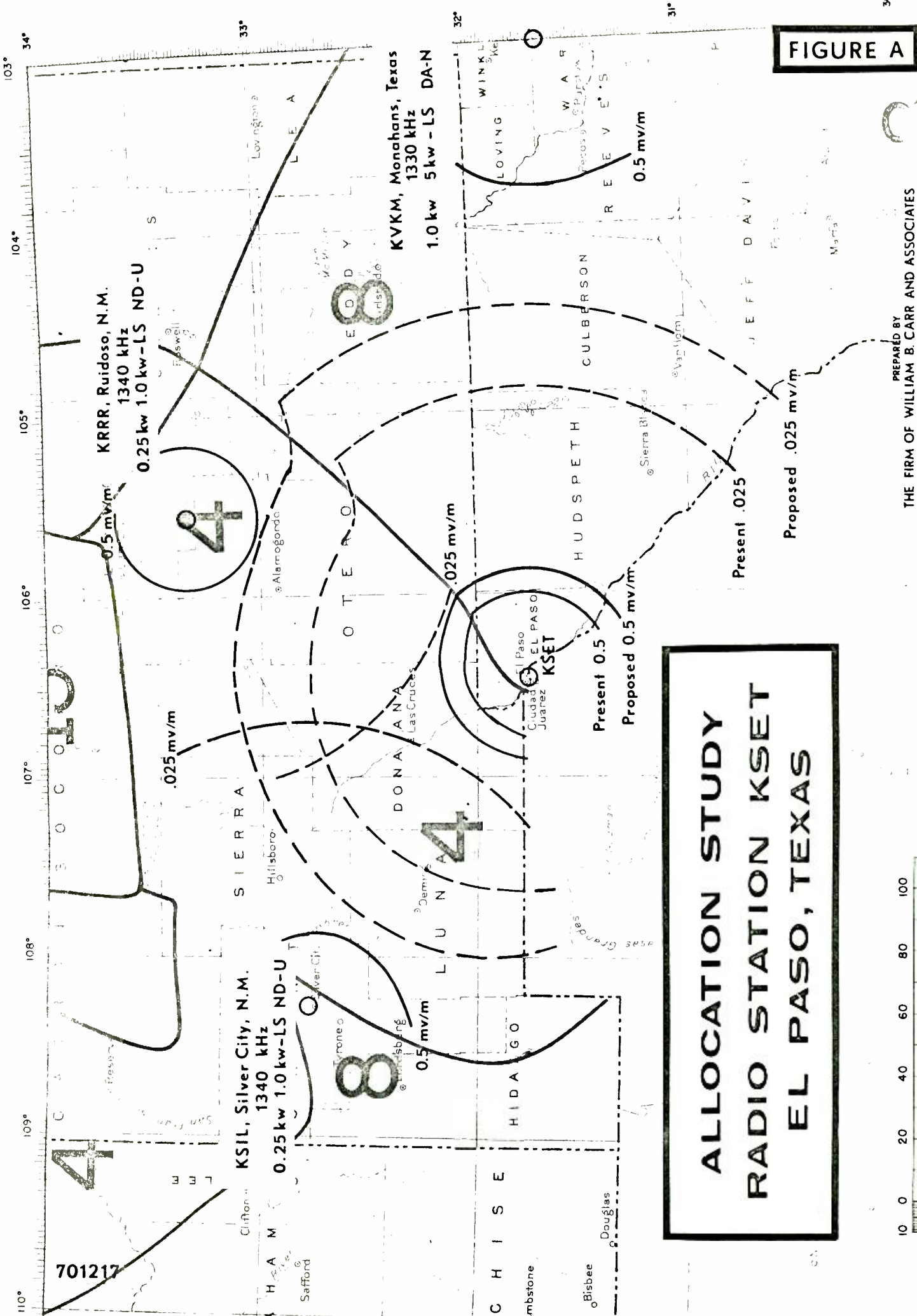
<u>Contour</u>	<u>Area-Sq Mi</u>	<u>Population Served</u>
1000 mV/m	0.05	6
25	16	95,898
5	110	255,621
2	295	291,045
0.5	1030	306,958

TABLE III

RADIO STATION KSET  
EL PASO, TEXAS

AREAS AND POPULATIONS OF PROPOSED OPERATION

<u>Contour</u>	<u>Area-Sq Mi</u>	<u>Population Served</u>
1000 mV/m	0.11	237
25	40	172,689
5	228	272,962
2	540	302,283
0.5	1950	320,820



**FIGURE A**

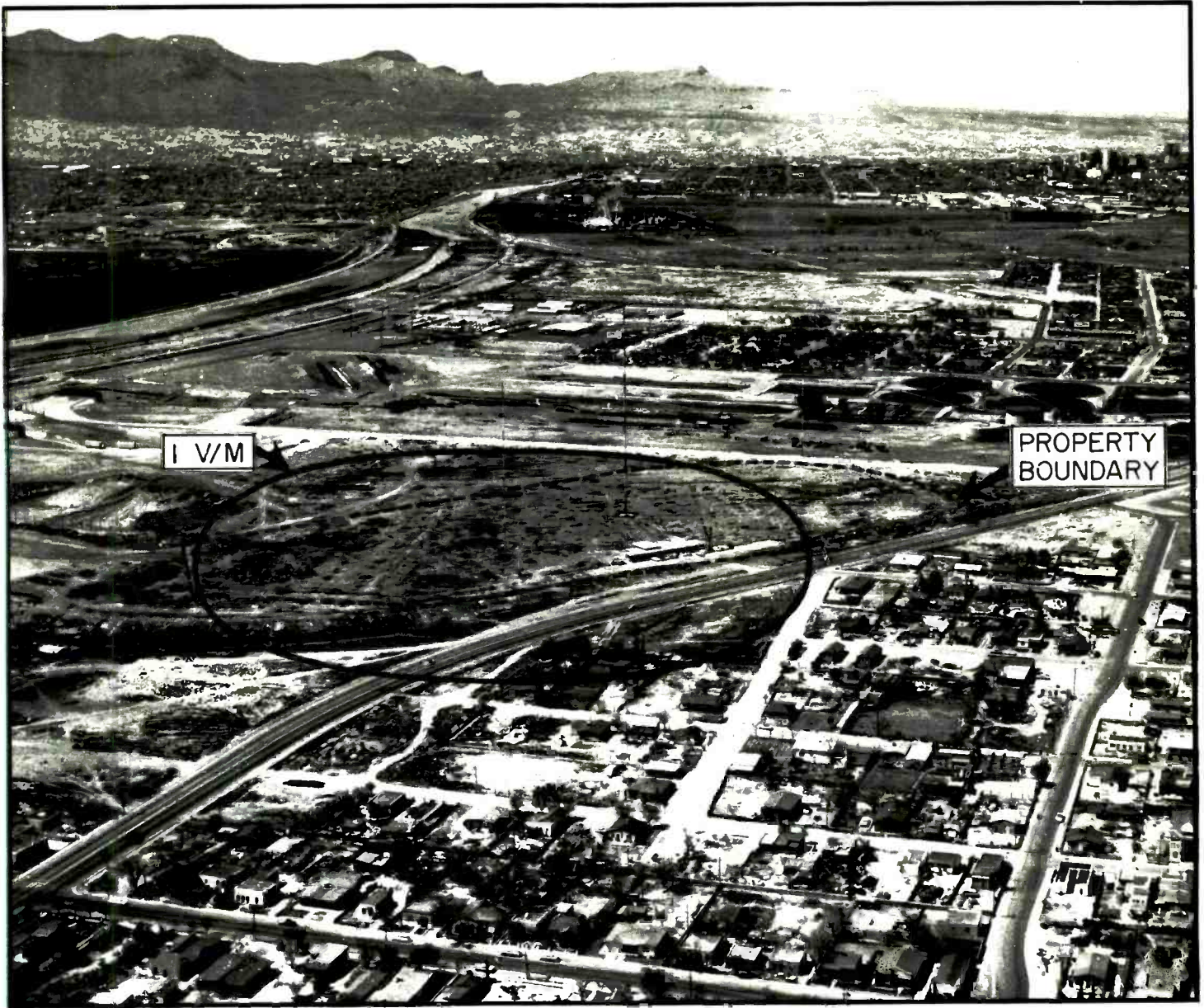
**ALLOCATION STUDY  
RADIO STATION KSET  
EL PASO, TEXAS**

PREPARED BY  
THE FIRM OF WILLIAM B. CARR AND ASSOCIATES  
CONSULTING ENGINEERS  
FT. WORTH, TEXAS

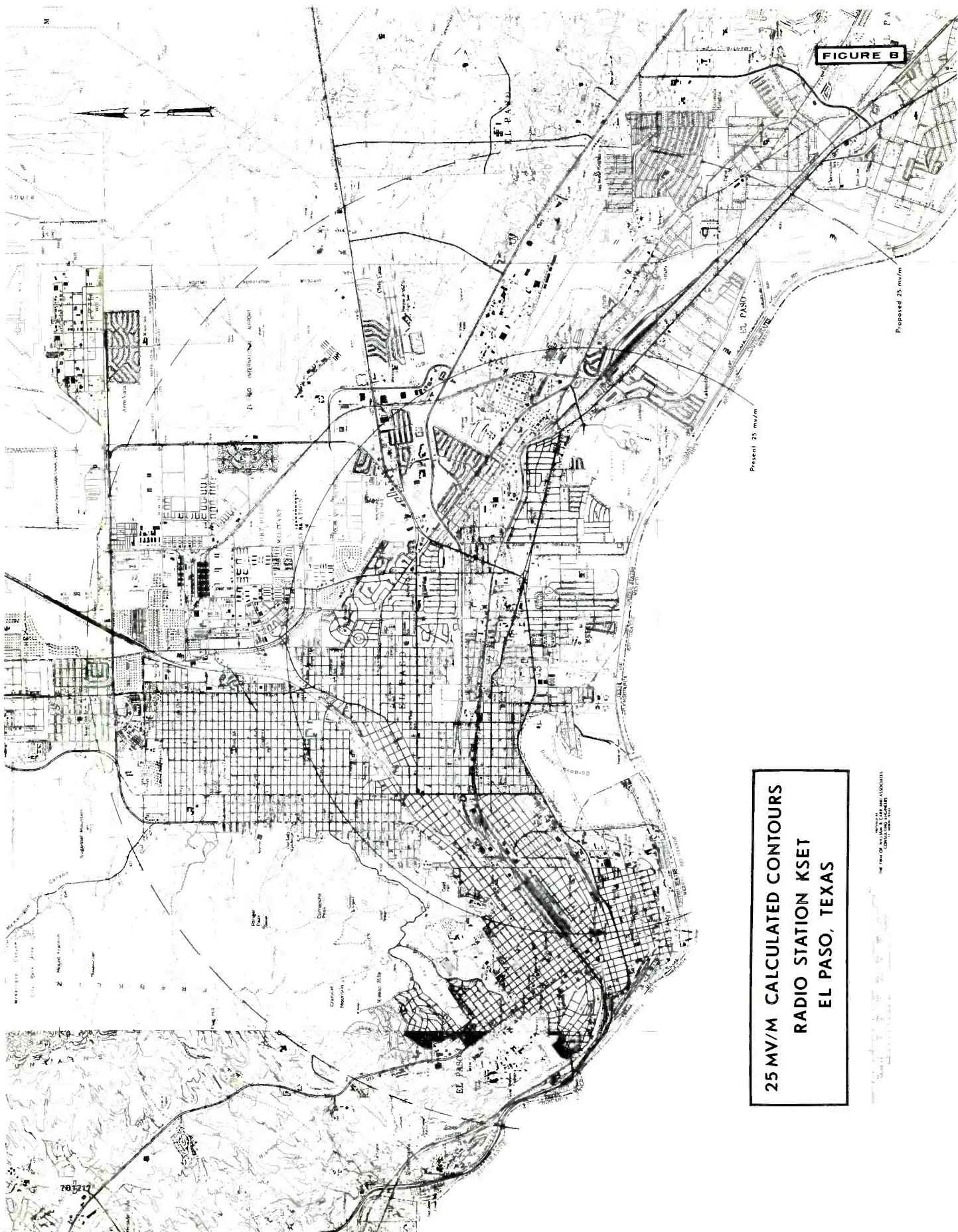
10 0 20 40 60 80 100

R R A S C H I L H U A H U A





AERIAL VIEW LOOKING WEST  
(MARCH, 1962)



**FIGURE B**

**25 MV/M CALCULATED CONTOURS  
 RADIO STATION KSET  
 EL PASO, TEXAS**

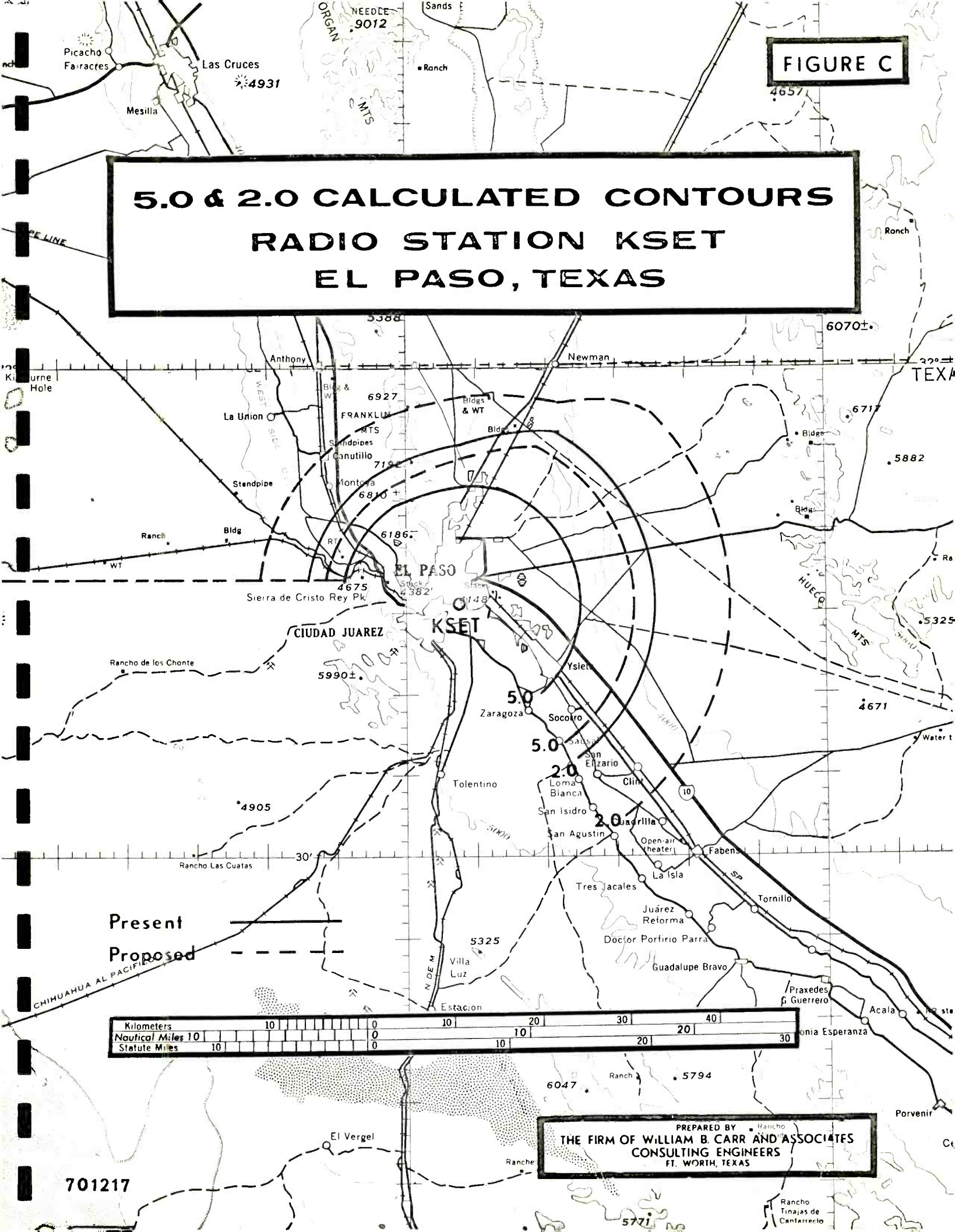
THE FIRM OF WALKER, HAYES & ASSOCIATES  
 CONSULTING ENGINEERS

Proposed 25 mv/m

Present 25 mv/m

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# 5.0 & 2.0 CALCULATED CONTOURS RADIO STATION KSET EL PASO, TEXAS



Present ———  
Proposed - - - -

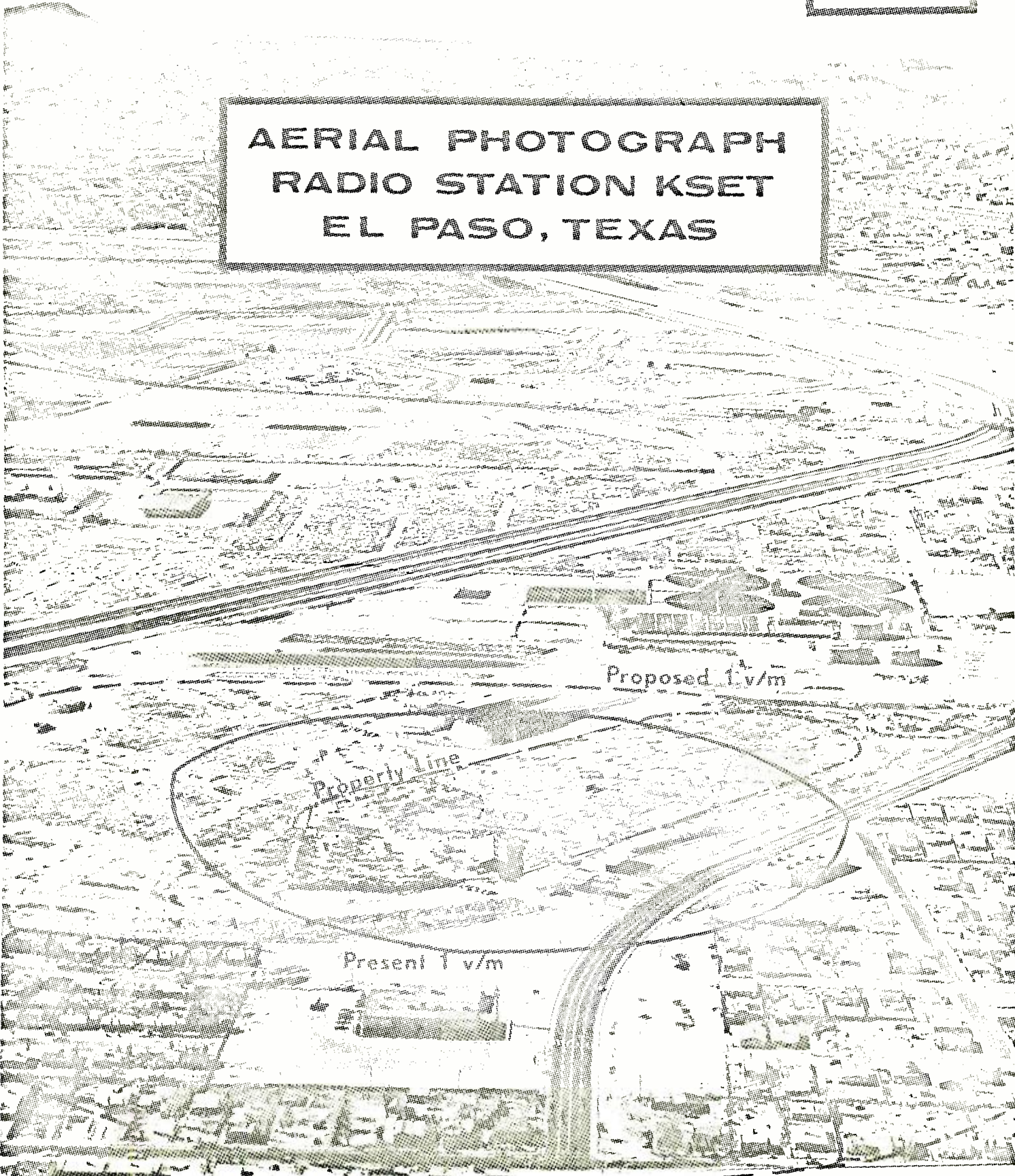


PREPARED BY  
THE FIRM OF WILLIAM B. CARR AND ASSOCIATES  
CONSULTING ENGINEERS  
FT. WORTH, TEXAS

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FIGURE D

AERIAL PHOTOGRAPH  
RADIO STATION KSET  
EL PASO, TEXAS





# PLOT PLAN RADIO STATION KSET EL PASO, TEXAS

