ENGINEERING STATEMENT
IN SUPPORT OF AN AMENDMENT
TO BNPH-20050103 AIN
AURORA COMMUNICATIONS, INC.
CARMEL VALLEY, CALIFORNIA

INTRODUCTION

This statement and the attached exhibits were prepared on behalf of Aurora Communications, Inc. (hereafter "Aurora") in support of a further amendment to BNPH-20050103AIN, an application for a new FM broadcast station at Carmel Valley, CA.

Aurora was the high bidder in Auction 37 for the allotment of Channel 290A at Carmel Valley, CA. Following the conclusion of Auction 37 and in accordance with the procedures outlined in the auction order, Aurora submitted a long-form application on FCC Form 301 for a construction permit for a new FM broadcast station at Carmel Valley. The original long-form application was amended, to specify a change in location to a site with improved transmission paths in the direction of Carmel Valley. The application was subsequently amended again to describe a correction in ground elevation with a resultant change in height above average terrain and effective radiated power.

The current version of the application was reviewed by the Audio Division staff and a deficiency letter dated August 21, 2006 was sent to Aurora indicating that the proposed facility is in violation of 47 C.F.R. §73.315 and that the application "...failed to demonstrate that the proposed 70 dBu contour provides adequate city grade coverage to Carmel Valley, CA." The staff further stated that Aurora must amend the application to specify a new site that shows compliance with 47 C.F.R. §73.315. This amendment specifies a new site as directed by the staff in its letter. The principal community

coverage issue raised in the staff's letter is discussed in this statement.

BACKGROUND

The assignment of Channel 290A to Carmel Valley was made as a result of a petition for rule making filed in March of 1999 that was designated in MM Docket No. 99-171, RM-9574. It was later published in a Notice of Proposed Rule Making ("NPRM") released in May of 1999 as a proposal to allot Channel 290A to Carmel Valley, a Census Designated Place ("CDP"), as that community's first local FM transmission service. Geographic coordinates were established for the allotment with the notation that the allotment requires a site restriction 14.9 kilometers south of the community to avoid a short spacing to the licensed operation of Channel 289B at Santa Clara, CA.

The Commission's decision to amend the FM Table to include Channel 290A at Carmel Valley was released in August 27, 1999. DA 99-1707. Buckley Communications, Inc. and Buckley Broadcasting Corporation of Monterey, Inc., the respective licensees of stations KIDD (AM) and KWAV (FM), in Monterey, CA (hereafter "Buckley"), filed comments opposing the allotment, arguing in part that the Carmel Valley area already was well served by other stations, including KIDD and KWAV. Buckley did not raise line of sight into Carmel Valley as an issue even though the same constraints on site selection as are described below existed in 1999. Buckley's arguments were rejected and the allotment was made on the basis of its providing a first local FM service to Carmel Valley. *See* DA 99-1707, page 3.

Channel 290A was added to the FM Table of Allotments as a vacant allotment and was ultimately made available to interested parties in Auction 37. There were 41 short-form 175 applications filed for Channel 290A at Carmel Valley and 19 of these

applicants participated in the bidding process. Auction 37 ended after 62 rounds of bidding with Aurora designated as high bidder for the Channel 290A. Carmel Valley allotment at the conclusion of Round 16. The interest shown by the shear number of bidders for the Carmel Valley allotment is a clear indication that Aurora was not alone in its conception that the allotment could be effectively used to serve Carmel Valley as that community's first local FM transmission service and second aural transmission service consistent with the public interest matters associated with the Commission's FM allotment priority four.

PROPOSED AMENDMENT

At the direction of the Audio Division, Aurora and the office of the undersigned conducted an exhaustive survey of the available site area in search of the optimum site for providing first local FM transmission service to the Carmel Valley CDP on Channel 290A. The new transmitter location selected for this application amendment, NAD 27 coordinates of N 36° 21' 07" and W 121° 36' 20", is shown on the map attached as Figure 1. The proposal involves erecting a new tower that will have an overall height above ground of 35 meters with the radiation center of the antenna at 30 meters AGL or 1066 meters AMSL. A three second terrain database was used to determine the eight cardinal radial average of 790 meters resulting in an HAAT of 275 meters. Since the HAAT is considerably higher than the maximum permissible height of 100 meters for a Class A FM station, it is necessary to reduce maximum ERP to 800 Watts for equivalent maximum Class A station facilities (6 kW ERP and 100 meters HAAT). Moreover, additional antenna height will only require a further reduction in ERP, which will not result in any significant improvement in service to Carmel Valley.

Restricted Location Area

The area available for a transmitter site for the Channel 290A allotment is defined on Figure 1 by three limiting boundaries. First is the limitation from the north that is created by the required distance separation to the licensed operation of FM station KVVF Channel 289B Santa Clara, CA, which restricts the potential site area to approximately 15 km south of Carmel Valley. Short spaced sites providing contour protection to KVVF, pursuant to the provisions of 47 C.F.R §73.215 were considered, however it was determined that the contour protection criteria cannot be met from any site short spaced to KVVF. Second, the site area is limited from the east by the separation requirement with the licensed operation of FM station KMJV Channel 292A Soledad, CA. Third, the location area is limited from the south and west by the boundaries of the Los Padres National Forest. A representative of the U.S.D.A. Forest Service informally advised Aurora that a proposal to build a broadcast tower within the boundaries of the Los Padres National Forest would be opposed by the Forest Service. Nevertheless, areas to the west within the forest boundaries were examined based on the remote possibility that permission to develop a broadcast operation could be obtained from the Forest Service. The potential site area is within a region of the Los Padres National Forest known as the Ventana Wilderness. This wilderness region is entirely undeveloped forestland where electrical power is not available and there are no access roads. A few trails and scatter campsites are the only resemblance of any inhabitation whatsoever. In view of the very rugged terrain, there appears to be no possibility of developing a suitable FM transmitter site within the Ventana Wilderness. Additionally, site selection within the wilderness area is also affected by more severe terrain obstructions into Carmel Valley.

The entire area available for a Channel 290A transmitter site is limited to less than one square kilometer. The area is outlined and identified on Figure 1 along with the proposed transmitter location. The site area is southeast of Carmel Valley, which

offers the best possibility for service into the Carmel Valley CDP since Carmel Valley is located in a true valley that is geographically situated with a northwest/southeast orientation. The proposed site shown on Figure 1 is not only the best location for the proposed operation, it is the only possibility for the development of a broadcast facility capable of bringing a first local FM transmission service to Carmel Valley. All other potential sites, as shown, are precluded by short spacing, major terrain obstructions or Forest Service land use restrictions.

FM Transmitter Location Compliance

The new transmitter site complies with the Commission's FM transmitter location requirement outlined in 47 C.F.R §73.315(a). Attached as Figure 2 is a tabulation of elevation and contour data for the facilities described herein. The contour distances listed on Figure 2 were determined using the Commission's standard prediction methodology described in 47 C.F.R. §73.313. A plot of the 70 and 60 dBu contours is shown on the computer generated map attached as Figure 3. The map clearly demonstrates that the entire geographic boundaries of the Carmel Valley CDP lie within the predicted 70 and 60 dBu contours.

The specified transmitter location offers the optimum transmission paths into the Carmel Valley CDP and otherwise complies with the additional requirements in 47 C.F.R. §73.315(b). While there are some terrain irregularities along the pertinent transmission paths, none is a "major" obstruction. With respect to line of sight to the community of license, 47 C.F.R. §73.315(b) provides as follows:

> "... In general the transmitting antenna of a station should be located in the most sparsely populated area available at the highest elevation available. The location of the antenna should be so chosen that line-of-sight can be obtained from the antenna over the principal city or cities to be served; in

no event should there be a major obstruction in this path."

The question of what constitutes a major terrain obstruction is made on a case-by-case basis by the Media Bureau in consultation with the FCC's Office of Engineering and Technology and on the basis of case precedent.

Aurora's new transmitter location and facility specifications will provide an adequate signal over the Carmel Valley CDP consistent with Commission precedent. In *Lion's Share Broadcasting*, 6 FCC Rcd 4465 (1991), the Commission reviewed an application by Lompoc Minority Broadcasters Partnership ('LMBP") for a new FM broadcast station at Lompoc, CA that was contested by Great Scott Broadcasting with a petition to deny. The following paragraphs were taken from *Lion's Share Broadcasting* at page 4466:

> 7. *Transmitter Location*. On January 14, 1991, Great Scott filed a petition to deny LMBP's application alleging that the engineering proposal will not provide either city grade service or line-of-sight to Lompoc, as required by 47 C.F.R §73.315. LMBP's opposition states that the proposal provides the requisite city grade coverage and that the narrow mountain peaks between the proposed transmitter site and the city of Lompoc do not constitute a "major obstruction" under §73.315(b). Based on the prediction method prescribed by the Commission's rules, LMBP's proposal would provide the requisite 70 dBu contour coverage of Lompoc, *See John R. Hughes*, 50 Fed. Reg. 5679 (February 11, 1985).
>
> 8. Section 73.315(a) of the rules requires that the transmitter location be chosen so that "a minimum field strength of 70 dBu above one µV/m (dBu), or 3.16 mV/m will be provided over the entire principal community to be served." Section 73.315(b) states, in pertinent part that "the antenna site should be so chosen that line-of-sight can be obtained from the antenna over the principal city or cities to be served; in no event should there be a major obstruction in

> this path." The Commission has allowed minor deviations of line-of-sight stating that Section 73.315(b) "does not absolutely require line-of-sight over an FM applicant's principal community." *Rush County Broadcasting Co., Inc*., 20 RR 2d 783 (1970). In *Jesse Willard Shirley*, 24 RR 2d 982 (1972), The Commission held that there was no violation of Section 73.315(b) where the city to be served was covered by the 3.16 mV/m contour despite the fact that several hills obstructed the line-of-sight into the city.
>
> 9. The Commission's propagation experts have examined the exhibits filed by Great Scott and LMBP, and have concluded that, while parts of Lompoc are not in the line-of-sight from LMBP's transmitter site and the intervening terrain would have an effect on the signal over the city, the terrain's effect would not be sufficient to render the service unsatisfactory or constitute a major obstruction. Accordingly, Great Scott's petition to deny LMBP's application will be denied.

In *Rush County Broadcasting Co., Inc.* the Commission deduced from reading of the language in 47 C.F.R. §73.315(b), "... it is clear that line-of-sight over the entire community is not an absolute requirement" and that "Minor deviations can be (and in past instances have been) tolerated".

In *Jesse Willard Shirley* the Commission stated: " Thus, it is clear that the 3.16 mV/m contour will completely encompass the city of Fayette. Several hills obstruct the line-of-sight into the city, the highest one being approximately 150 feet above the line-of-sight. It does not appear, however, that any of these hills constitute a 'major obstruction' in violation of §73.315(b) of our rules". The Commission additionally noted that "... the location of the transmitter is traceable to severe restrictions contained in our spacing rules." This is a key reference since Aurora's transmitter location is likewise severely restricted.

In addition to these precedent cases, we have reviewed a more recent

Commission action involving a “one step” application for FM broadcast station KXRS, Hemet, CA, BPH-20040205AAK. The KXRS application specified a minor change in channel, transmitter location, effective radiated power, and antenna height. Two Informal Objections were filed against granting the application on the basis that the applicant’s proposal failed to comply with 47 C.F.R. §73.315 since insufficient signal levels would be provided over the principal community. Upon review the Commission advised KXRS by letter that the application objections had been forwarded to the Commission’s propagation expert in the Office of Engineering and Technology for examination. OET concluded that there were no major terrain obstructions and that the application demonstrated compliance with 47 C.F.R. §73.315. Therefore, the Audio Division denied the Informal Objections and granted the KXRS application.

Based on the Commission’s findings in *Lion’s Share Broadcasting, Rush County Broadcasting Co., Inc., Jesse Williard Shirley* as well as in the case of the KXRS application, it is abundantly clear that intervening terrain obstructions that may create some degree of shadowing within the principal community are acceptable and that 47 C.F.R. §73.315 does not require absolute line-of-sight transmission paths over the entire principal community.

Terrain Profile Analysis

The transmission paths from Aurora’s transmitter location to the Carmel Valley CDP were evaluated in comparison to the Lompoc and Hemet, CA authorizations described above. Attached as Figure 4 is an outline map showing six radial bearings spaced at 5 degree intervals and drawn from the proposed site through the Carmel Valley CDP. Figures 4A through 4F are plots of the terrain profile along those paths. There are terrain anomalies along each profile path that result in some line-of-sight limitations, but in no case is there a “major” terrain obstruction. Figure 5 is an outline map showing two radial bearings that extend from the transmitter site, as previously

authorized in BPH-19900518MO, through the Lompoc CDP. Figures 5A and 5B are plots of the terrain profile along the two paths. The graphs show significant terrain obstructions between the transmitter site and Lompoc that severely limit the line-of sight paths from the transmitter site through Lompoc. The 26 degree radial shows Lompoc to be from 150 to 250 meters below line-of-sight and the 46 degree radial shows Lompoc to be approximately 400 meters below the line-of-sight path. Figure 6 is an outline map showing six radial bearings spaced at 5 degree intervals from the KXRS transmitter site through the Hemet CDP. Figures 6A through 6F are plots of the terrain profile along each of those paths. The profiles at bearings 170 and 175 degrees show terrain obstructions that depict the Hemet CDP to be approximately 500 meters below line-of-sight. The profile at 190 degrees has a clear line-of-sight path into Hemet while profiles at 185 and 195 show Hemet at approximately 100 meters below the line-of-sight paths. The plots of Figures 4, 5 and 6 were developed using a three second terrain database.

The conclusion that can be ascertained from these terrain studies is that Aurora's station proposal, as described in this amendment, certainly has more favorable transmission paths into the Carmel Valley CDP than the Commission previously approved for LMBP's city grade coverage of Lompoc and KXRS's service to Hemet. The applications for Lompoc and Hemet were reviewed by the Commission and were granted, over petitions to deny, with the finding that both were void of a "major" terrain obstruction and therefore were in compliance with 47 C.F.R. §73.315. Since the Commission concluded in the Lompoc case that the magnitude of the intervening terrain was not sufficient to render the service unsatisfactory, the same conclusion surely must be reached in the case of Aurora's proposal, where the terrain considerations are much more favorable. Similarly in the case of KXRS, where the examination by OET found no "major" terrain obstructions, a construction permit was issued based on a showing of compliance with 47 C.F.R. §73.315, the established precedent favors grant of Aurora's application.

As previously stated, the results of our studies concerning this application amendment establish compliance with 47 C.F.R. §73.315, in that there are no "major" terrain obstructions of the transmission paths into the Carmel Valley CDP and that the predicted service contours completely encompass the entire community. Where there are terrain irregularities and some line-of-sight limitations into parts of the Carmel Valley CDP, as the Commission found in *Lion's Share Broadcasting* for LMBP at Lompoc, CA, the terrain's effect would not be sufficient to render the service to Carmel Valley unsatisfactory or constitute a major obstruction.

Longley-Rice Analysis

Further demonstration of satisfactory service to the Carmel Valley CDP, based on a FM version of the Commission's OET Bulletin No. 69 methodology, is a Longley-Rice coverage map identified as Figure 7. The color-coded map depicts the signal level values throughout the CDP, which vary in field strength from 60 dBu to levels in excess of 80 dBu. Although Longley-Rice signal propagations are not necessarily used as the controlling factor in demonstrating compliance with 47 C.F.R. §73.315, the Commission does recognize such field strength estimations as a valid means of evaluating coverage. As shown on the map, Aurora's facility proposal is calculated to provide quality service throughout the principal community. Service to the Carmel Valley CDP was evaluated using this alternative methodology based on 0.25 km grids and 0.2 km terrain retrieval increments. The analysis results demonstrate a median signal level of 71.9 dBu, which appears to be consistent with the Commission's standard predicted method and FM Curves. Additionally, the average signal level over the entire Carmel Valley CDP is estimated to be 71.6 dBu.

CONCLUSION

As described in this statement, Aurora has responded to the Commission's deficiency letter concerning the last application amendment with a further amendment specifying a new site which provides the optimum available transmitter location to activate Channel 290A for service to Carmel Valley. It has also been demonstrated that the proposal clearly exceeds the level of service provided to its principal community than evidenced in the cases referenced above, which were all ultimately approved by the Commission. Accordingly, we feel the instant proposal can be processed and granted within the scope of the Commission's rules and policies.

Respectfully submitted,

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January, 2007

FIGURE 1

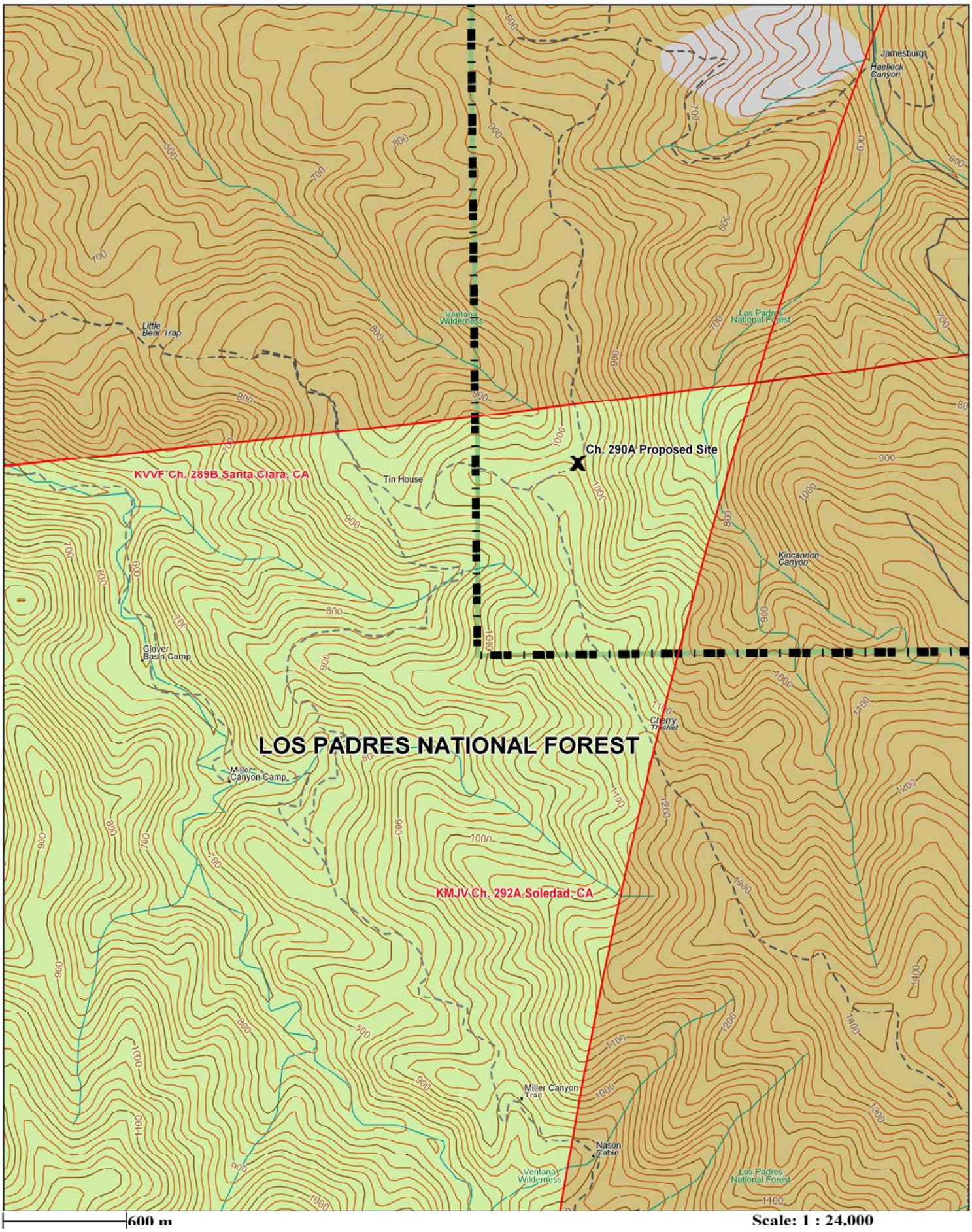
Jamesburg
Haelleck Canyon
Little Bear Trap
Ventana Wilderness
Los Padres National Forest
Ch. 290A Proposed Site
KVVF Ch. 289B Santa Clara, CA
Tin House
Kincannon Canyon
Clover Basin Camp
Cherry Trailer
LOS PADRES NATIONAL FOREST
Miller Canyon Camp
KMJV Ch. 292A Soledad, CA
Miller Canyon Trail
Nason Cabin
Ventana Wilderness
Los Padres National Forest
600 m
Scale: 1 : 24,000

FIGURE 2
ELEVATION AND CONTOUR DATA
AMENDMENT TO BNPH-20050103
CH. 290A 0.8 kW ERP 275 METERS HAAT
AURORA COMMUNICATIONS, INC.
CARMEL VALLEY, CALIFORNIA

Azimuth (degrees)	AVERAGE TERRAIN (meters)	HAAT (meters)	CONTOUR DISTANCES (in kilometers) 70 dBu	60 dBu
0	534	532	22.9	39.8
45	738	328	17.8	31.0
90	824	242	15.1	26.8
135	1071	-5.4	5.3	9.6
180	1061	5.1	5.3	9.6
225	877	189	13.4	23.8
270	828	238	15.0	26.5
315	397	670	25.8	44.9
325*	364	702	26.4	46.0
Average	**791**	**275**		

***** Radial through Carmel Valley not included in determining average values.

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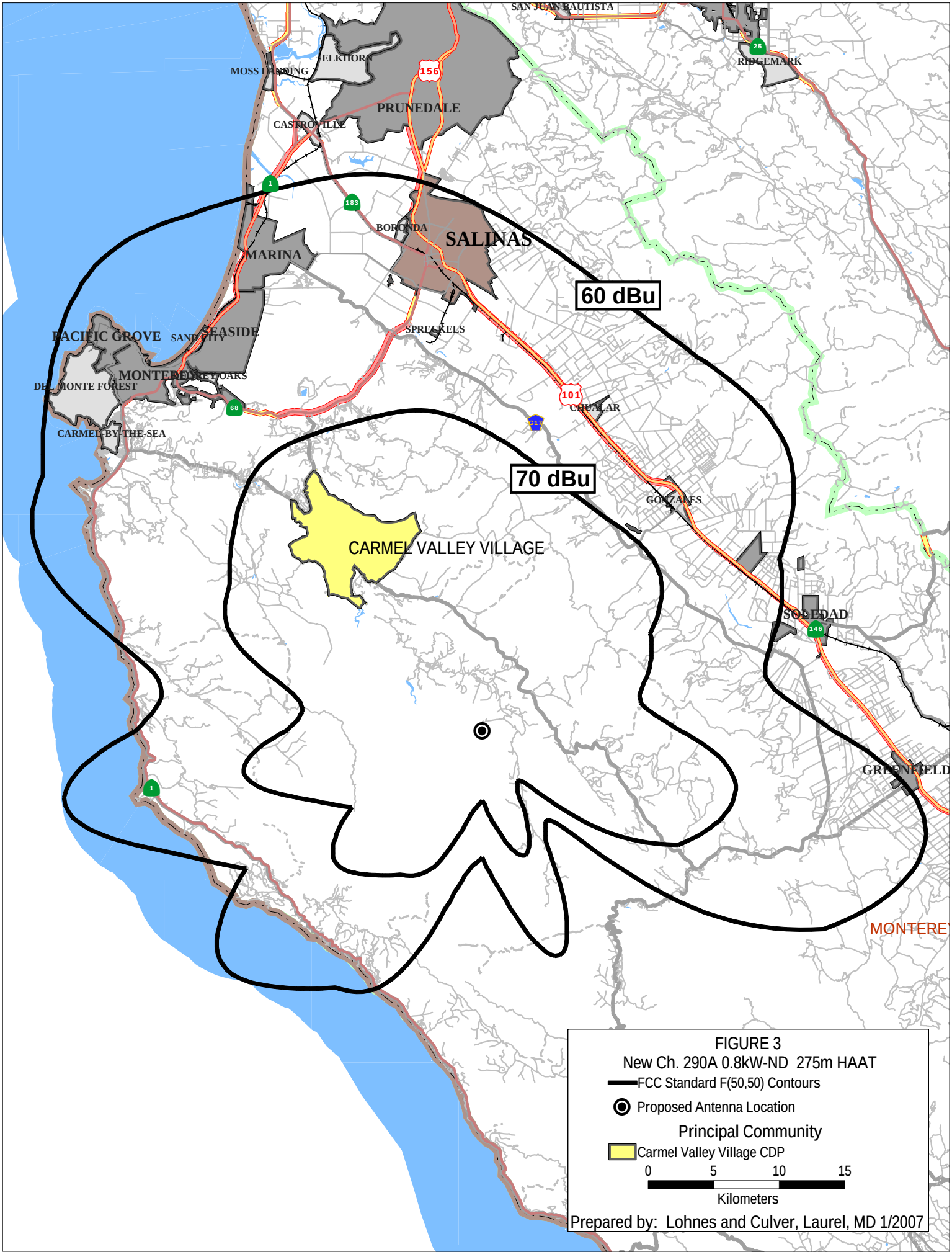
Lohnes and Culver Laurel, Maryland
January 2007


SAN JUAN BAUTISTA
MOSS LANDING
ELKHORN
PRUNEDALE
CASTROVILLE
RIDGEMARK
BORONDA
SALINAS
MARINA
60 dBu
PACIFIC GROVE
SAND CITY
SEASIDE
SPRECKELS
DEL MONTE FOREST
MONTEREY OAKS
CHUALAR
CARMEL-BY-THE-SEA
70 dBu
GONZALES
CARMEL VALLEY VILLAGE
SOLEDAD
GREENFIELD
MONTEREY
FIGURE 3
New Ch. 290A 0.8kW-ND 275m HAAT
FCC Standard F(50,50) Contours
Proposed Antenna Location
Principal Community
Carmel Valley Village CDP
0 5 10 15
Kilometers
Prepared by: Lohnes and Culver, Laurel, MD 1/2007

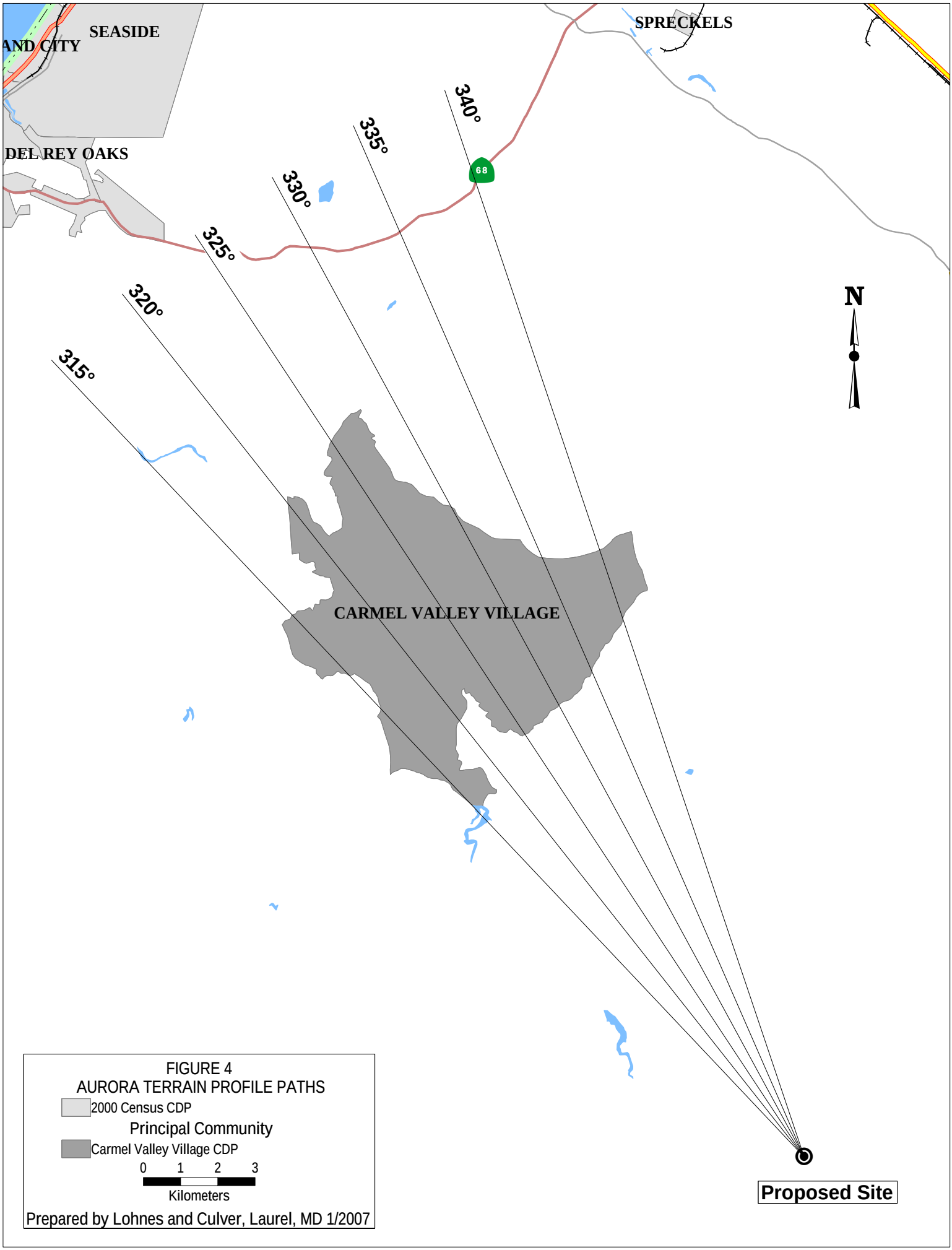


FIGURE 4
AURORA TERRAIN PROFILE PATHS

2000 Census CDP

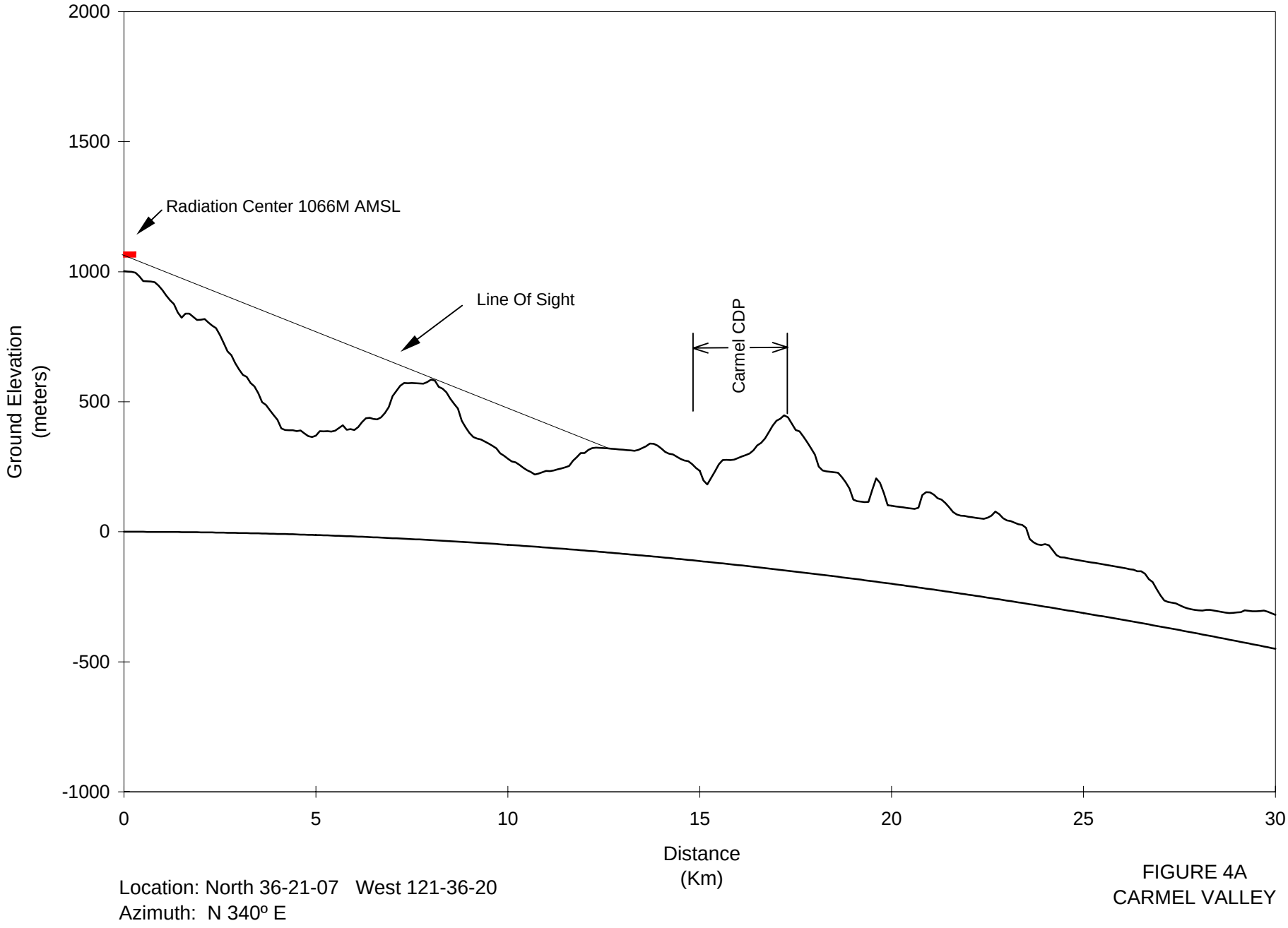
Principal Community

Carmel Valley Village CDP

0 1 2 3

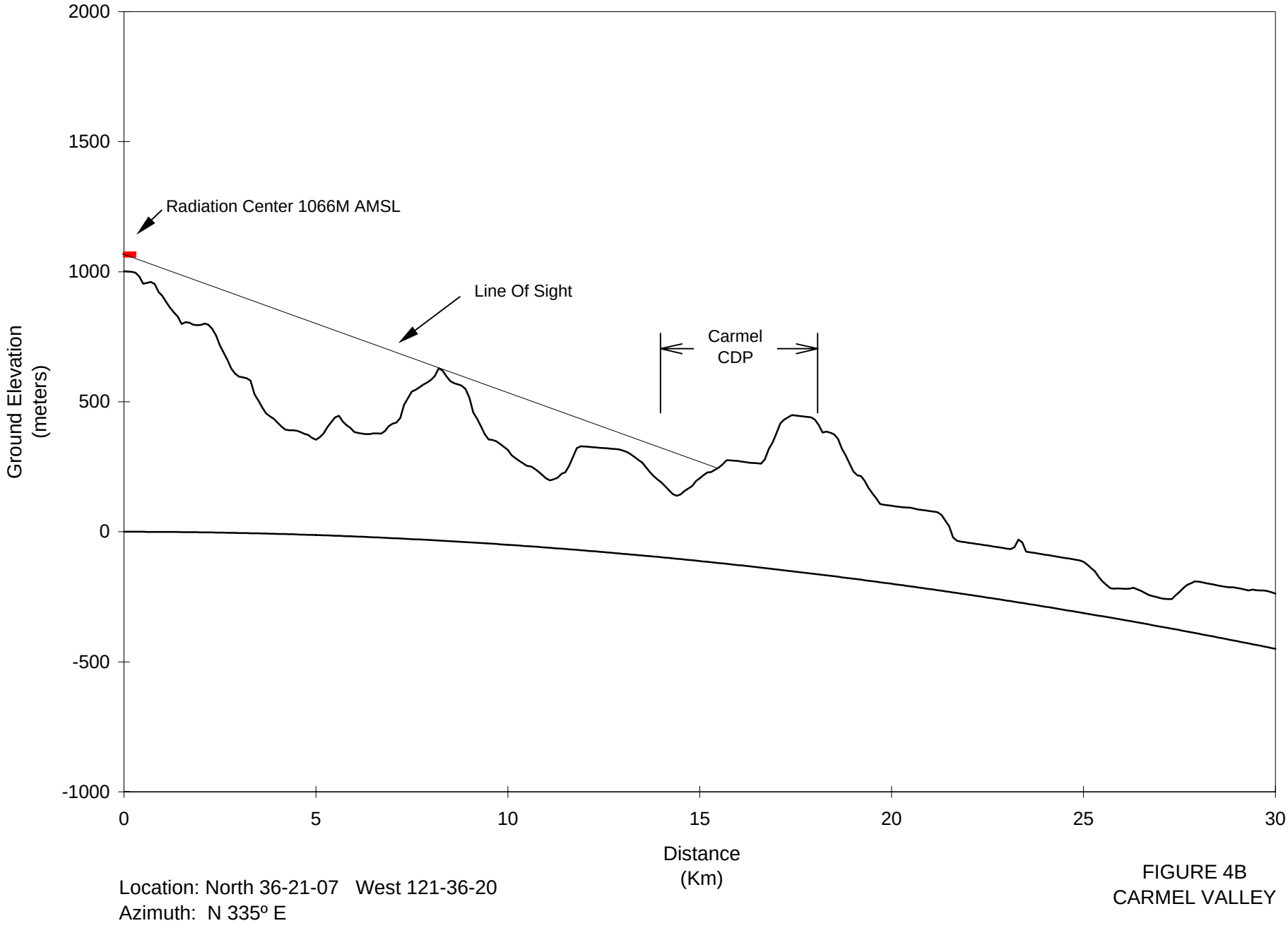
Kilometers

Prepared by Lohnes and Culver, Laurel, MD 1/2007



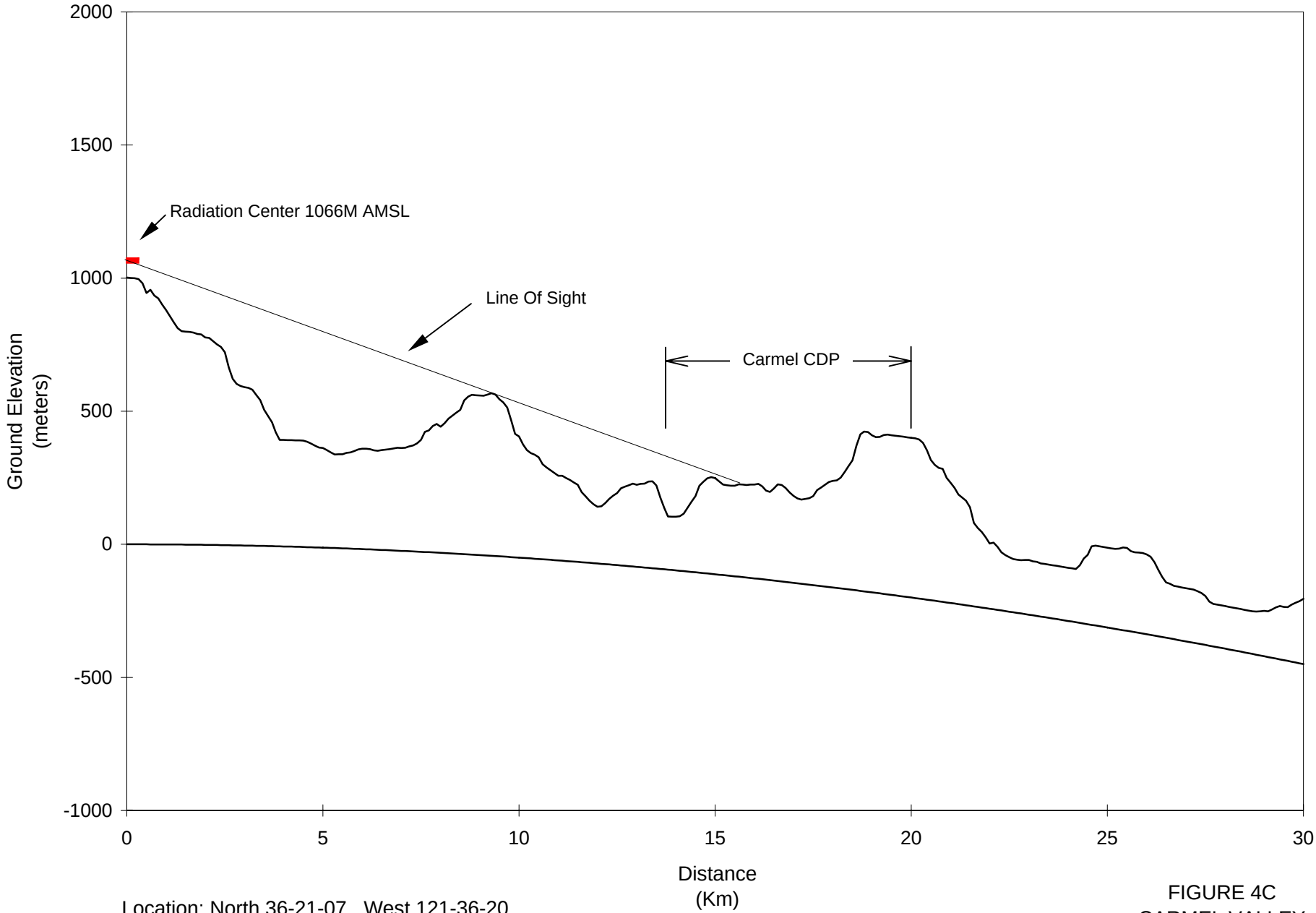
Location: North 36-21-07 West 121-36-20
Azimuth: N 340º E

FIGURE 4A
CARMEL VALLEY



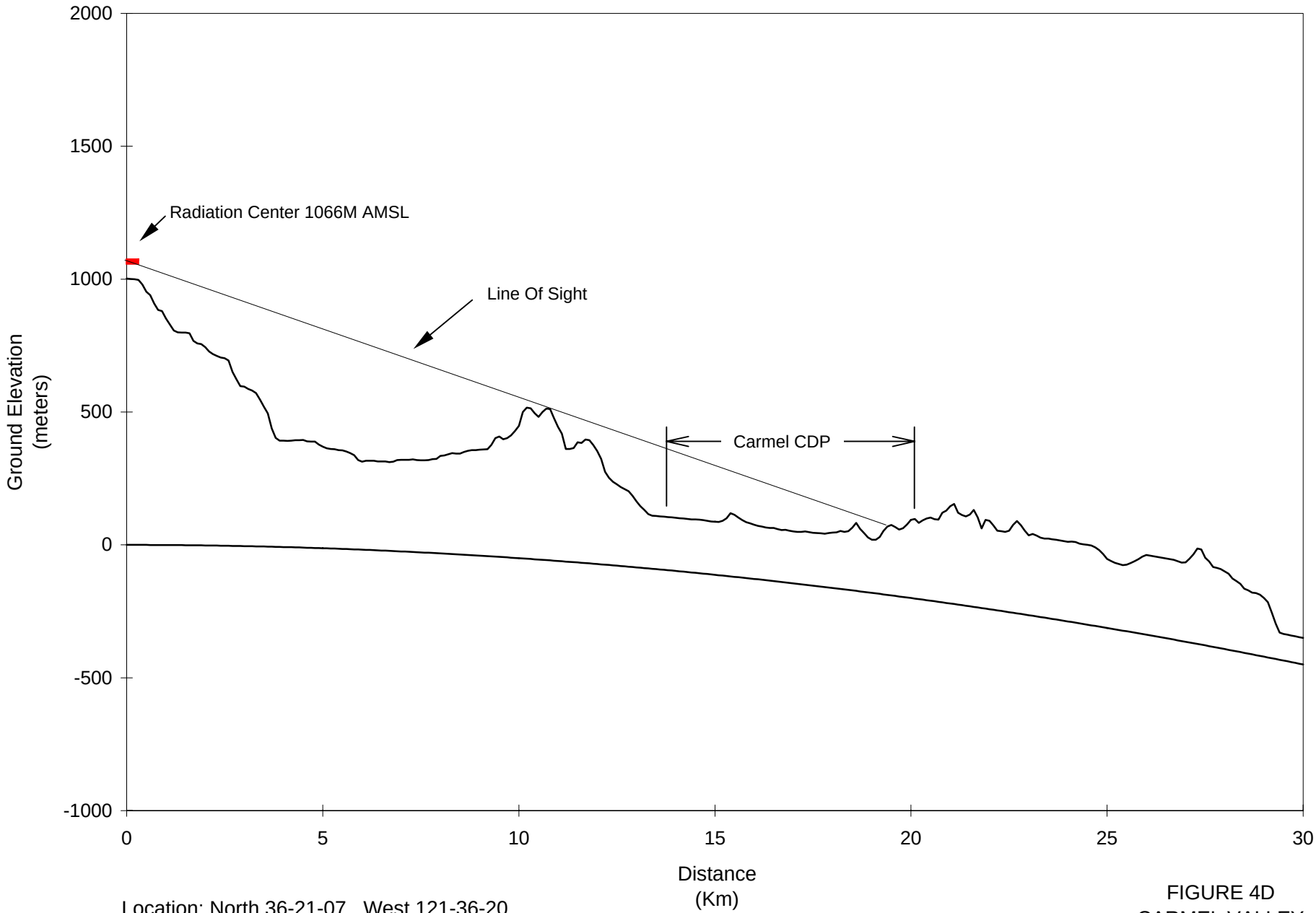
Location: North 36-21-07 West 121-36-20
Azimuth: N 335º E

FIGURE 4B
CARMEL VALLEY



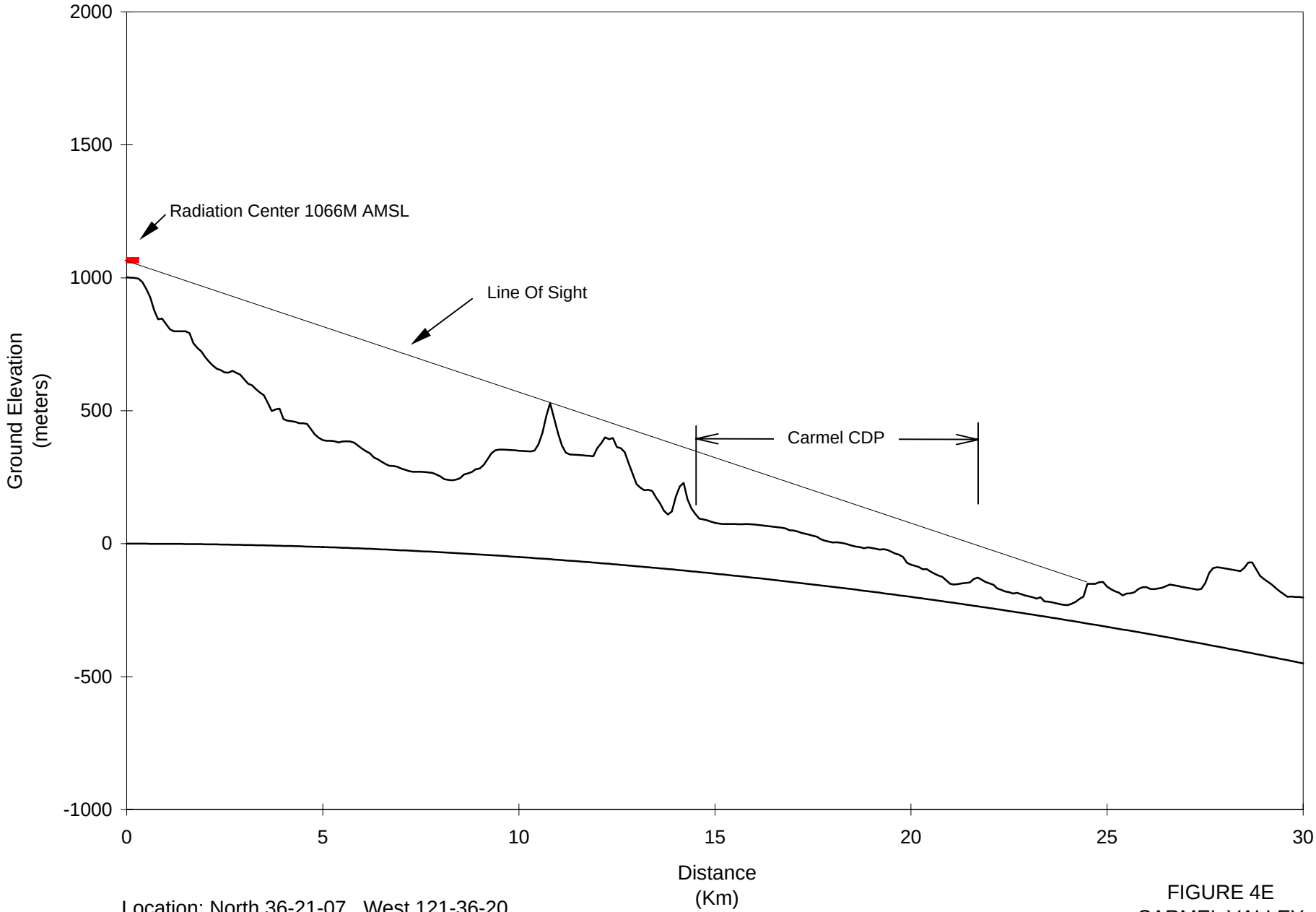
Location: North 36-21-07 West 121-36-20
Azimuth: N 330º E

FIGURE 4C
CARMEL VALLEY



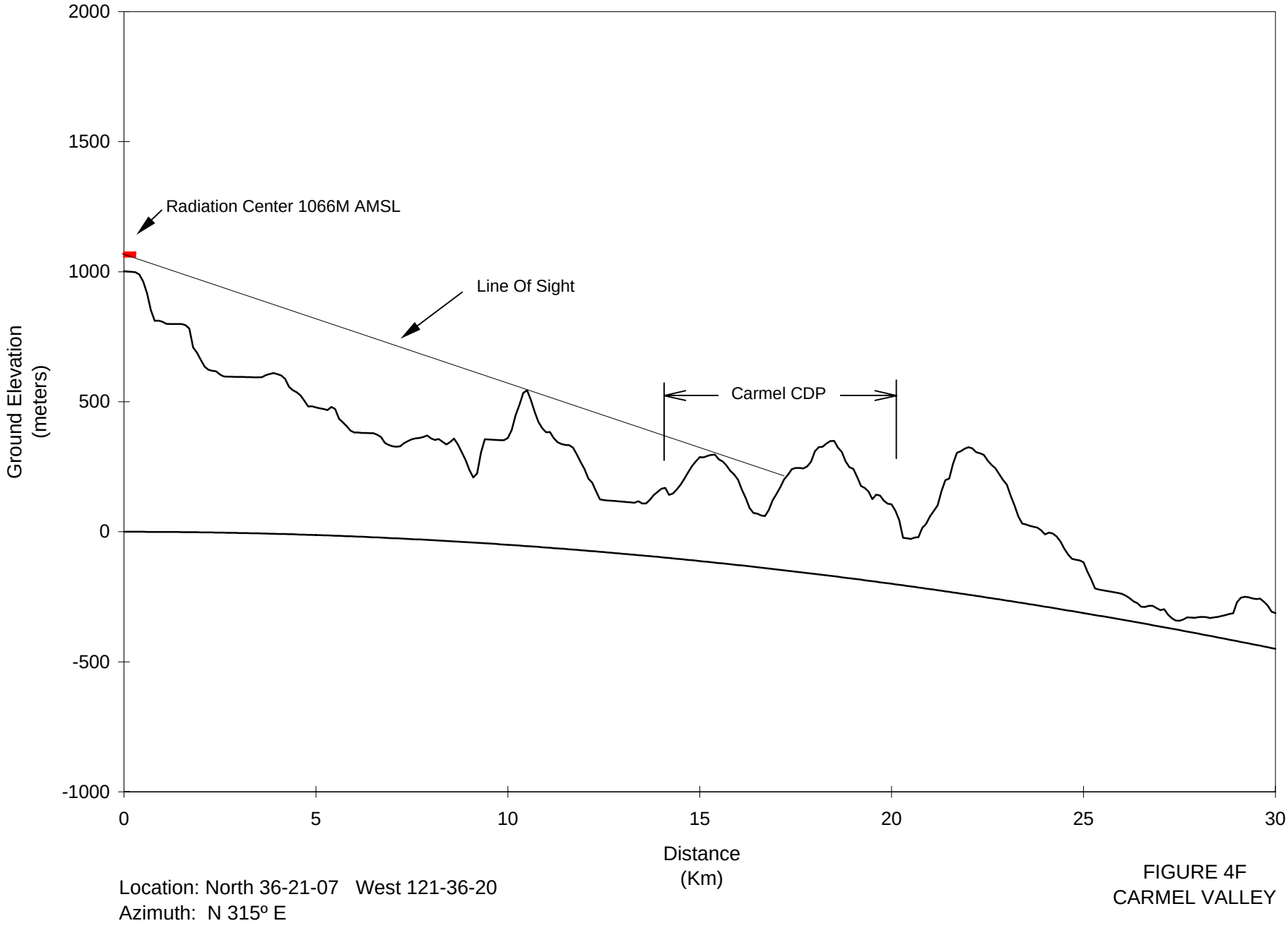
Location: North 36-21-07 West 121-36-20
Azimuth: N 325º E

FIGURE 4D
CARMEL VALLEY



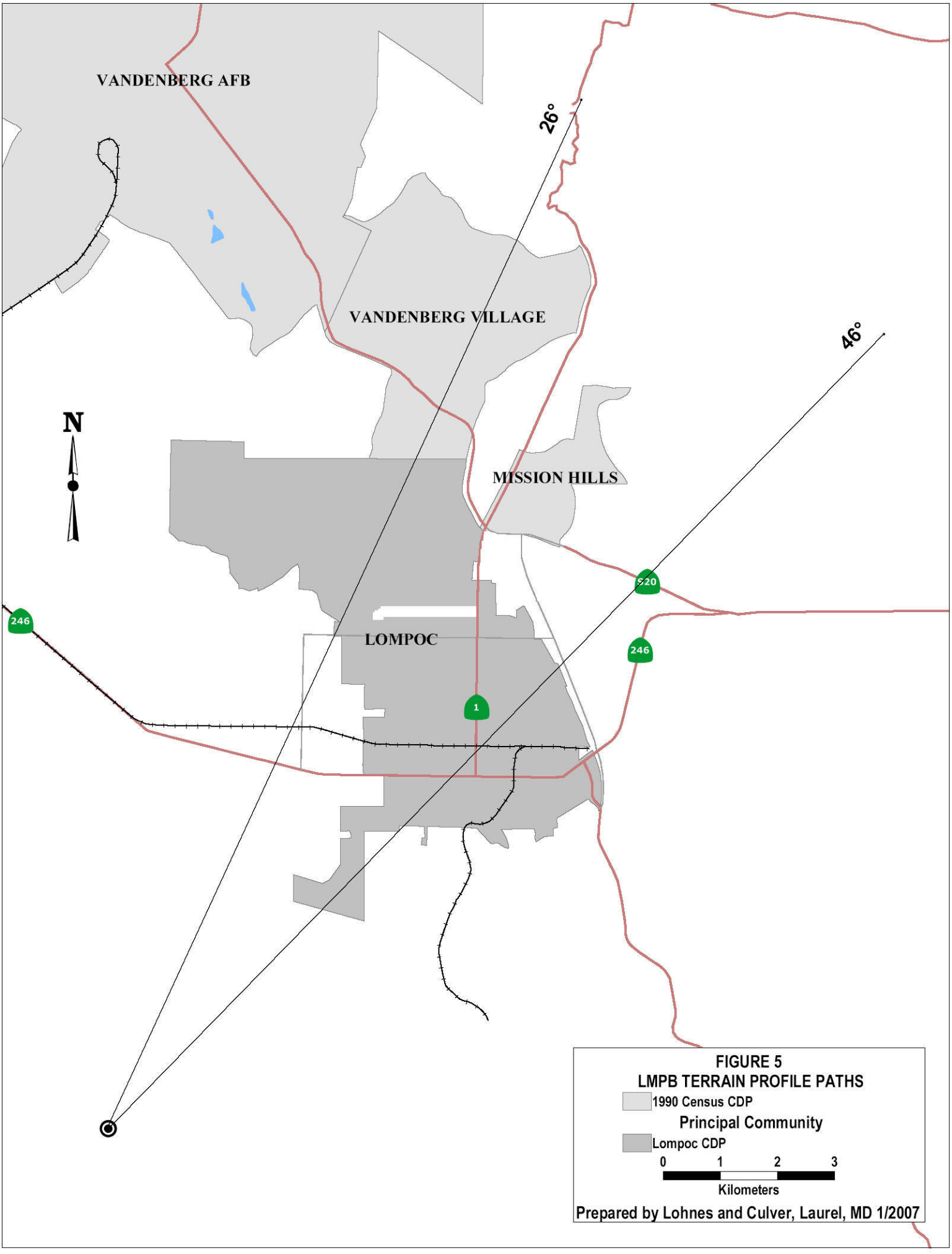
Location: North 36-21-07 West 121-36-20
Azimuth: N 320º E

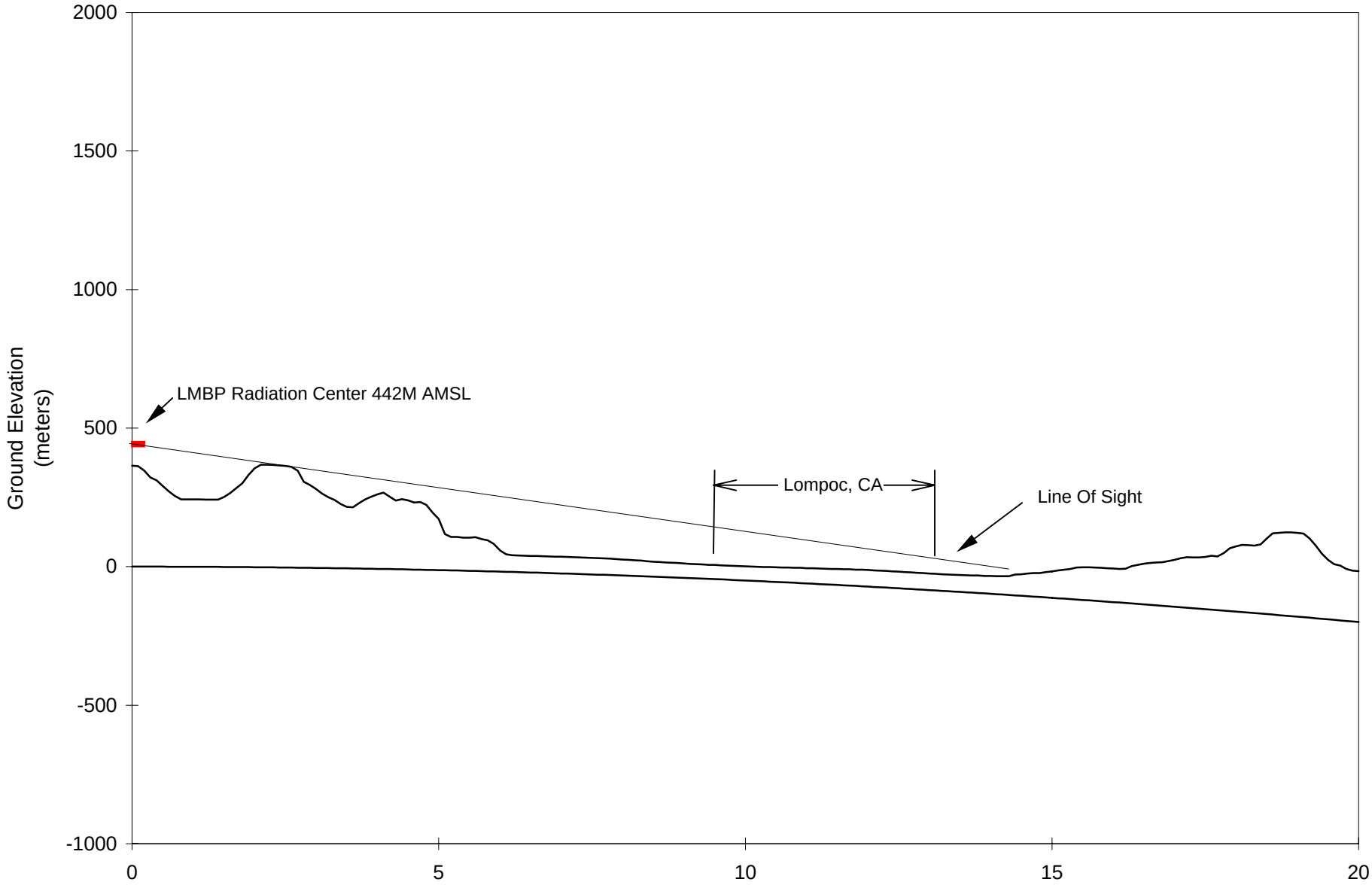
FIGURE 4E
CARMEL VALLEY



Location: North 36-21-07 West 121-36-20
Azimuth: N 315º E

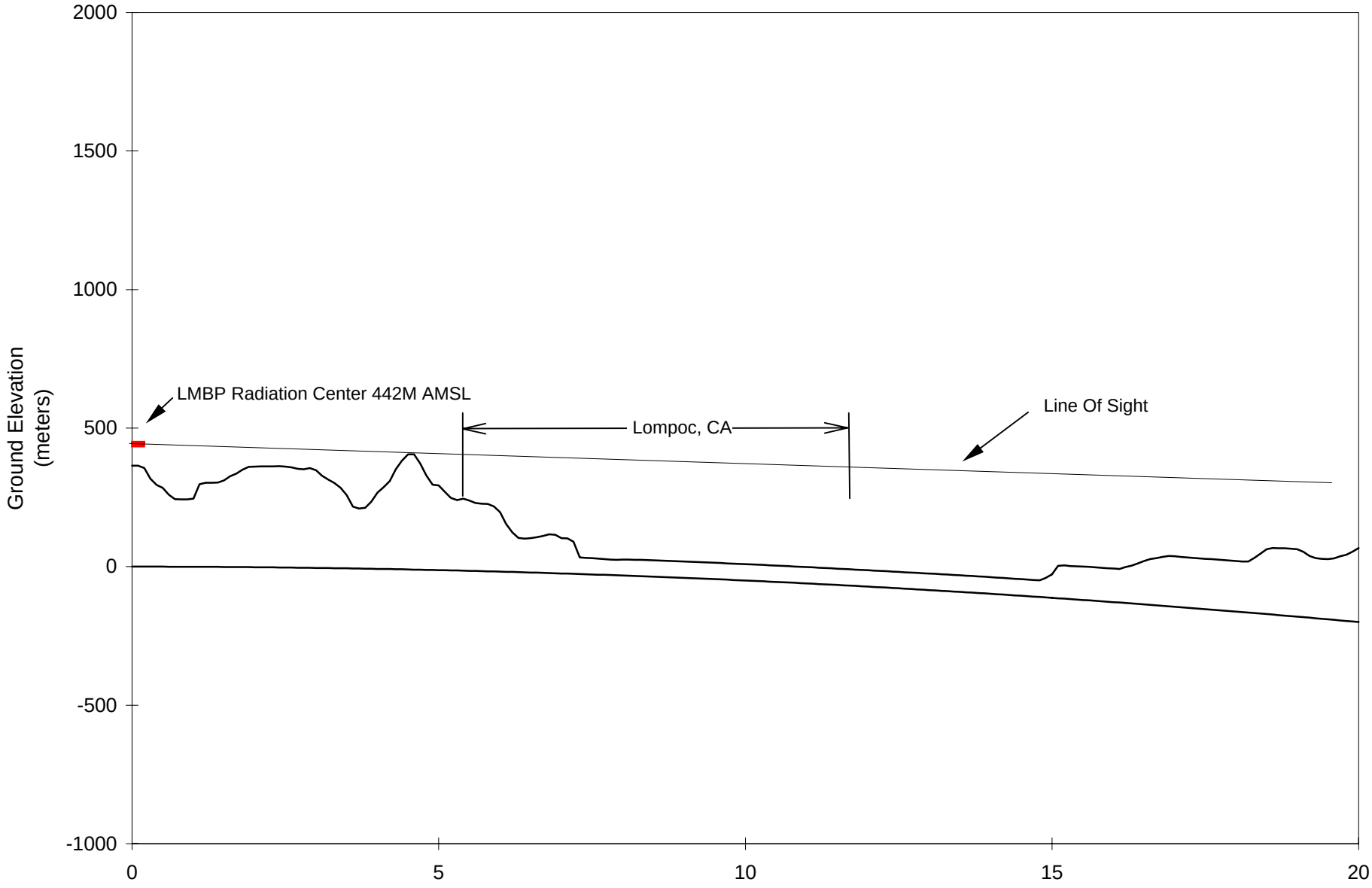
FIGURE 4F
CARMEL VALLEY


VANDENBERG AFB
VANDENBERG VILLAGE
MISSION HILLS
LOMPOC
26°
46°
N
246
1
246
FIGURE 5
LMPB TERRAIN PROFILE PATHS
1990 Census CDP
Principal Community
Lompoc CDP
0 1 2 3
Kilometers
Prepared by Lohnes and Culver, Laurel, MD 1/2007



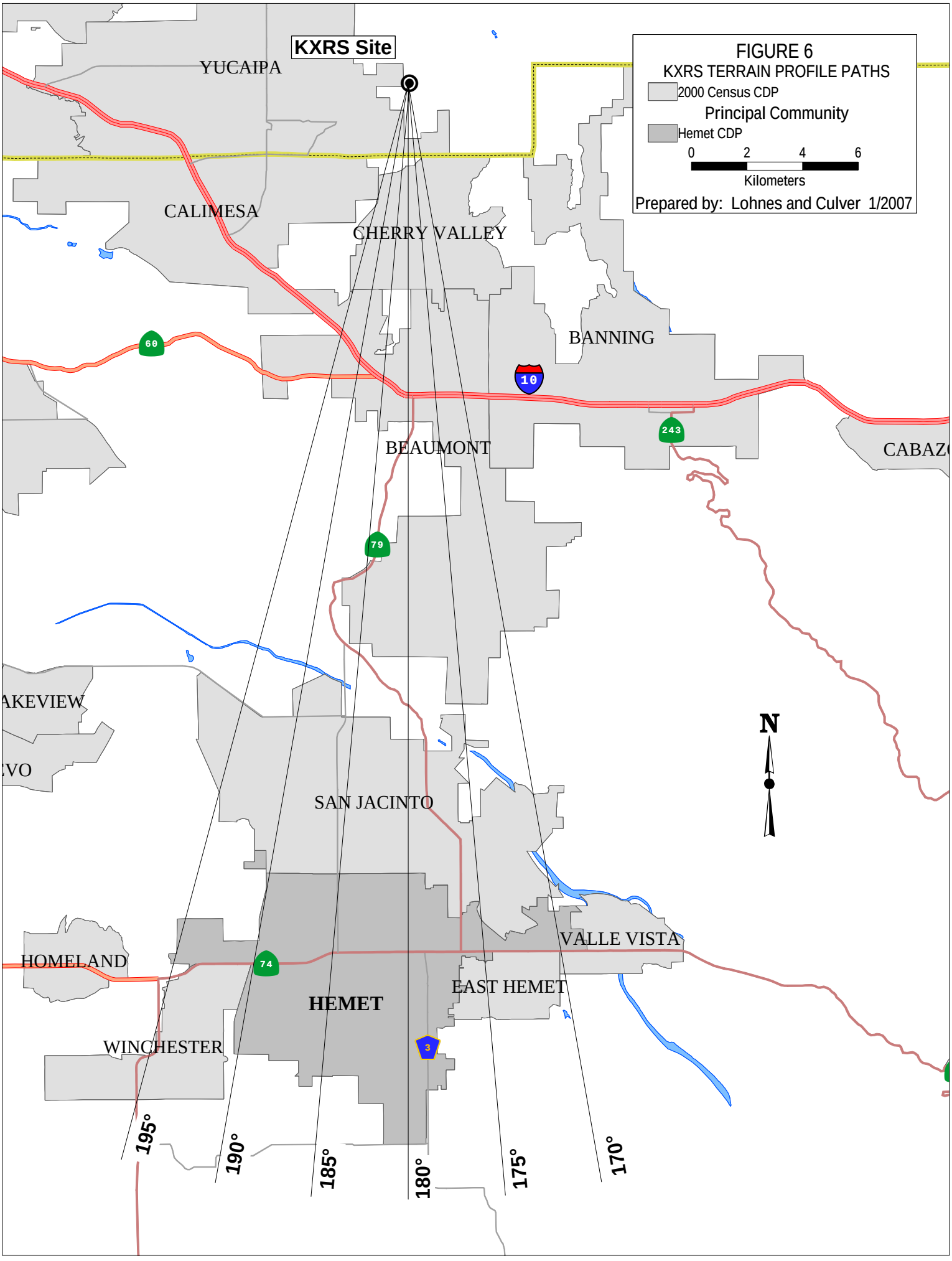
Location: North 34-35-01 West 120-31-53
Azimuth: N 26º E

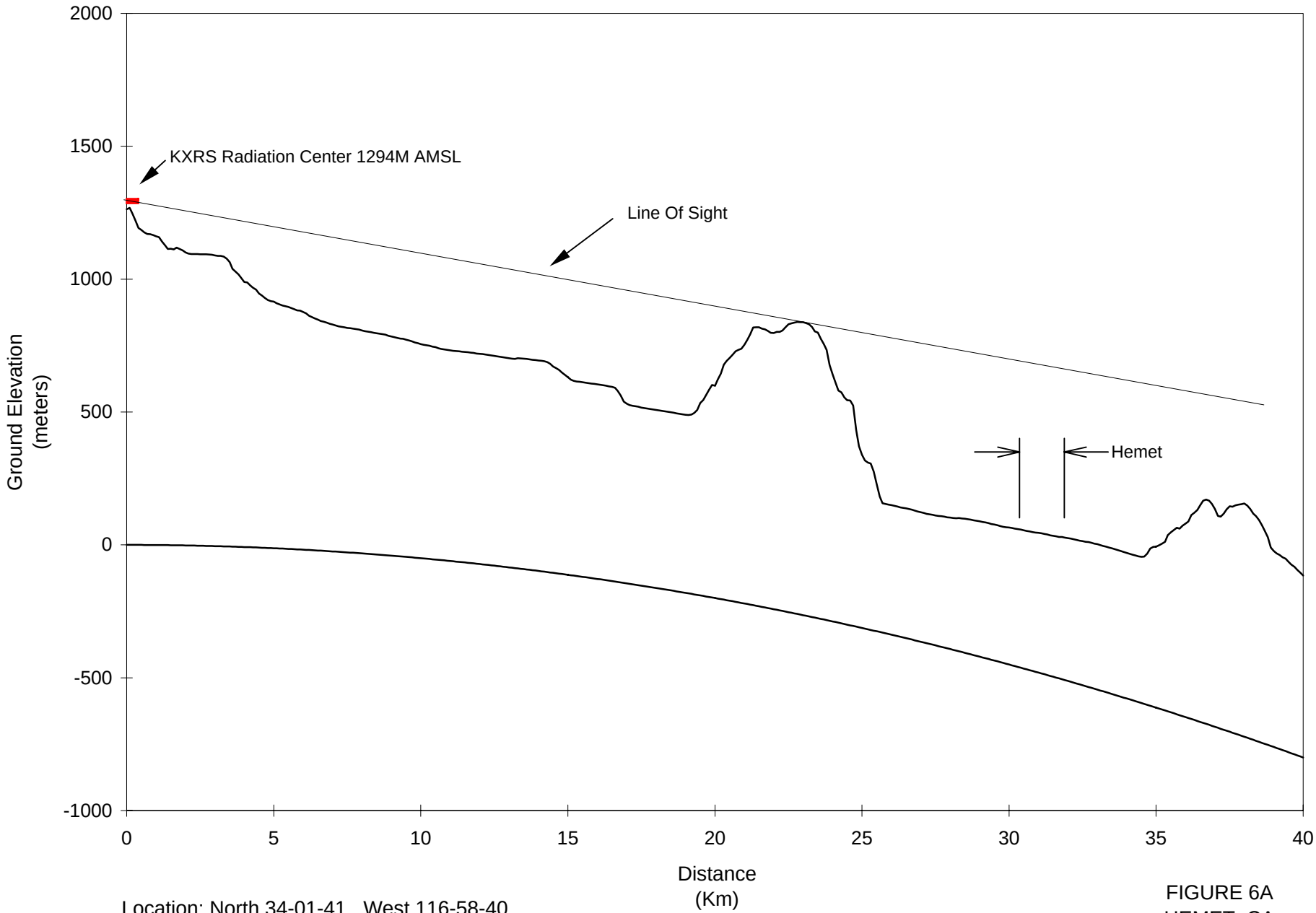
FIGURE 5A
LOMPOC, CA



Location: North 34-35-01 West 120-31-53
Azimuth: N 46º E

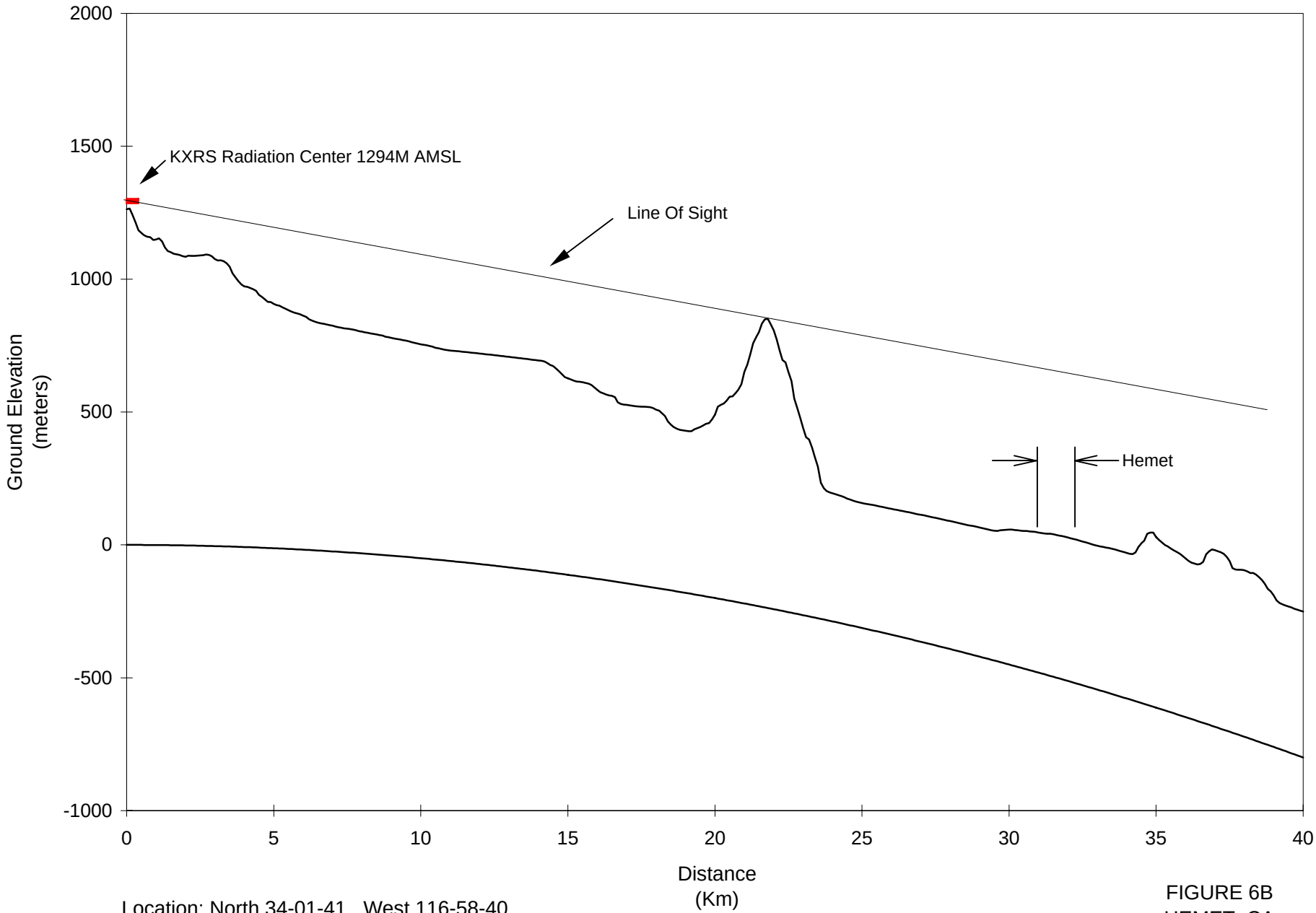
FIGURE 5B
LOMPOC, CA


KXRS Site
YUCAIPA
CALIMESA
CHERRY VALLEY
BANNING
BEAUMONT
SAN JACINTO
HEMET
EAST HEMET
VALLE VISTA
HOMELAND
WINCHESTER
AKEVIEW
VO
CABAZ
60
10
243
79
74
3
N
195°
190°
185°
180°
175°
170°
FIGURE 6
KXRS TERRAIN PROFILE PATHS
2000 Census CDP
Principal Community
Hemet CDP
0 2 4 6
Kilometers
Prepared by: Lohnes and Culver 1/2007



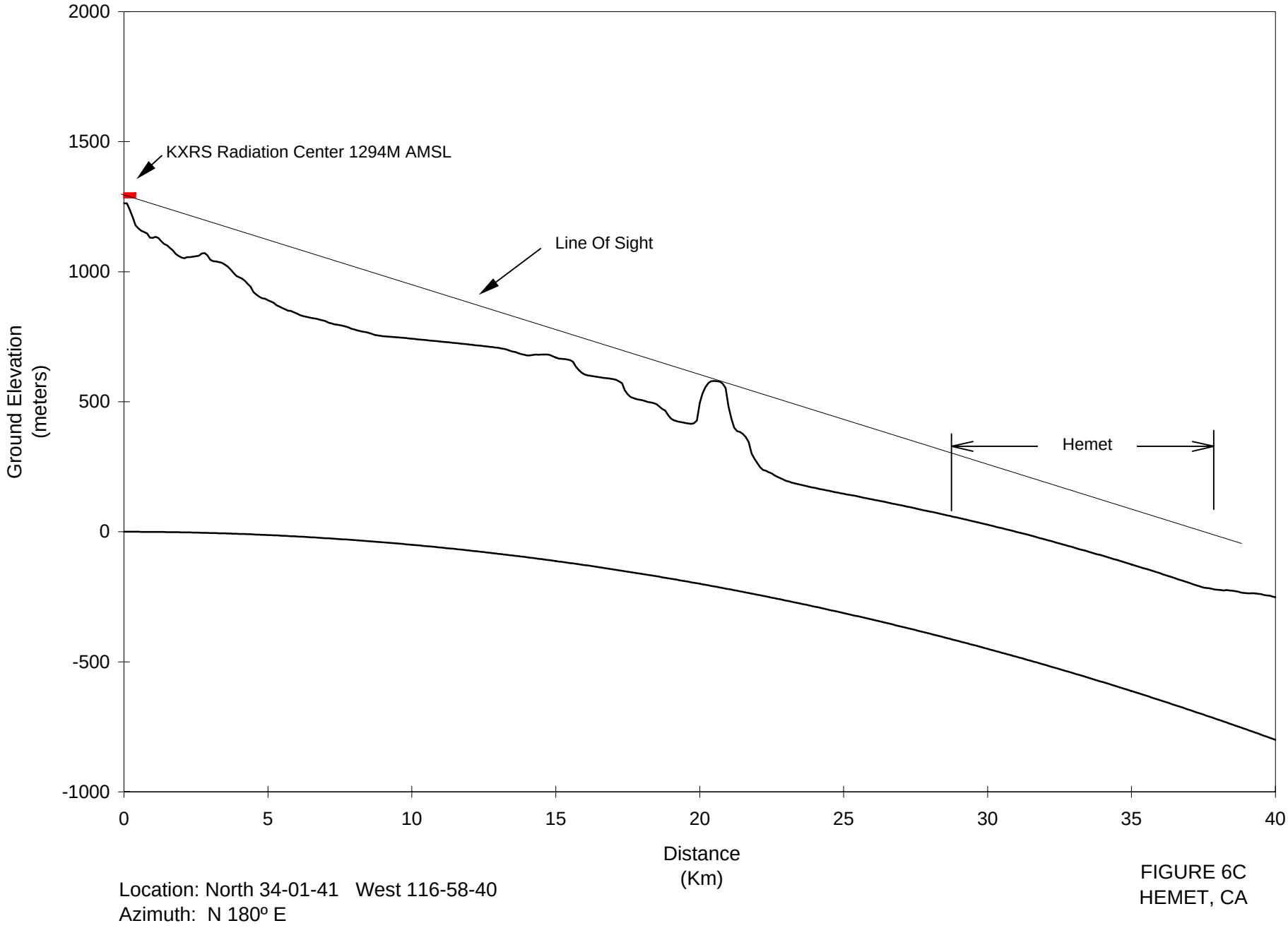
Location: North 34-01-41 West 116-58-40
Azimuth: N 170º E

FIGURE 6A
HEMET, CA



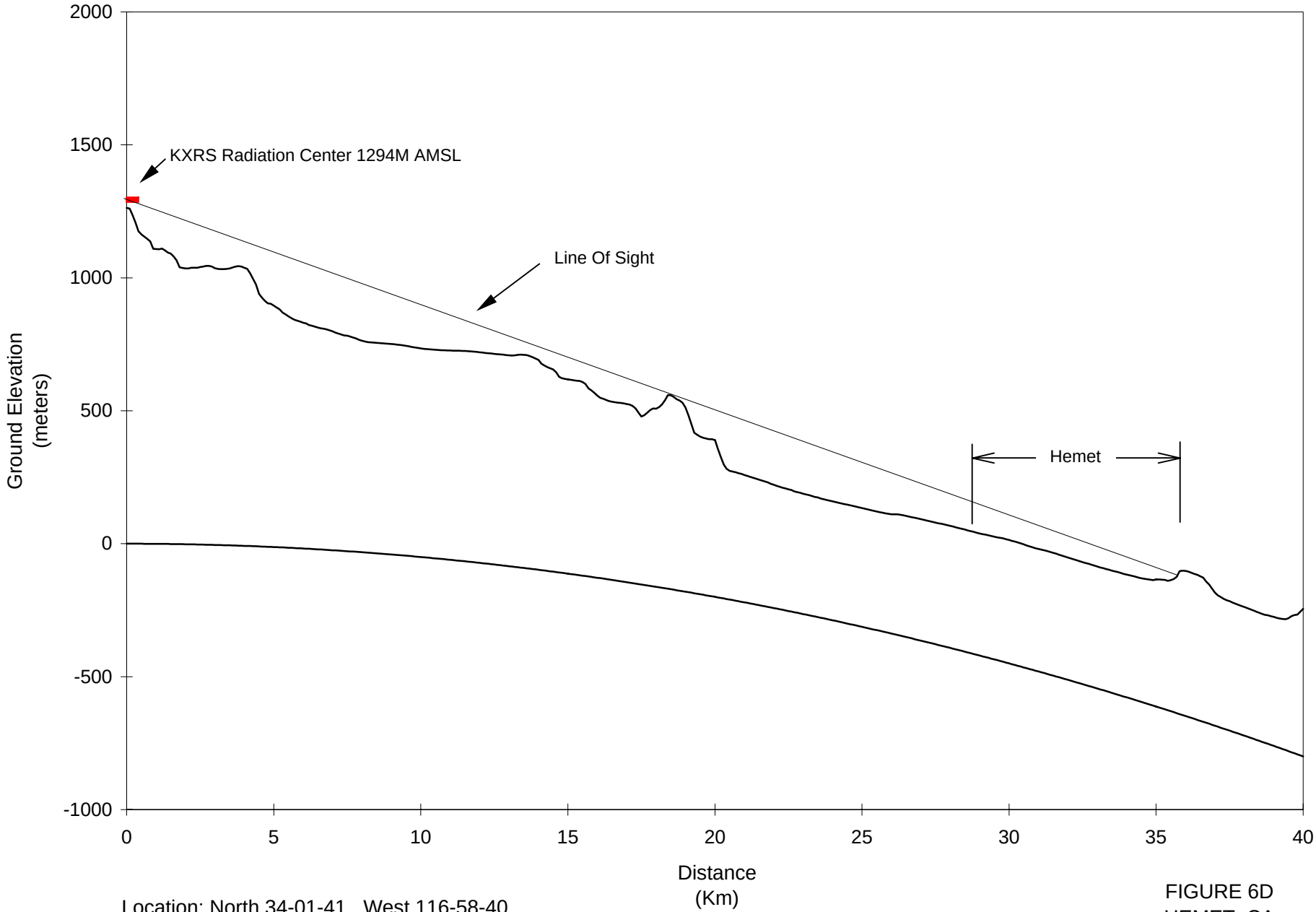
Location: North 34-01-41 West 116-58-40
Azimuth: N 175º E

FIGURE 6B
HEMET, CA



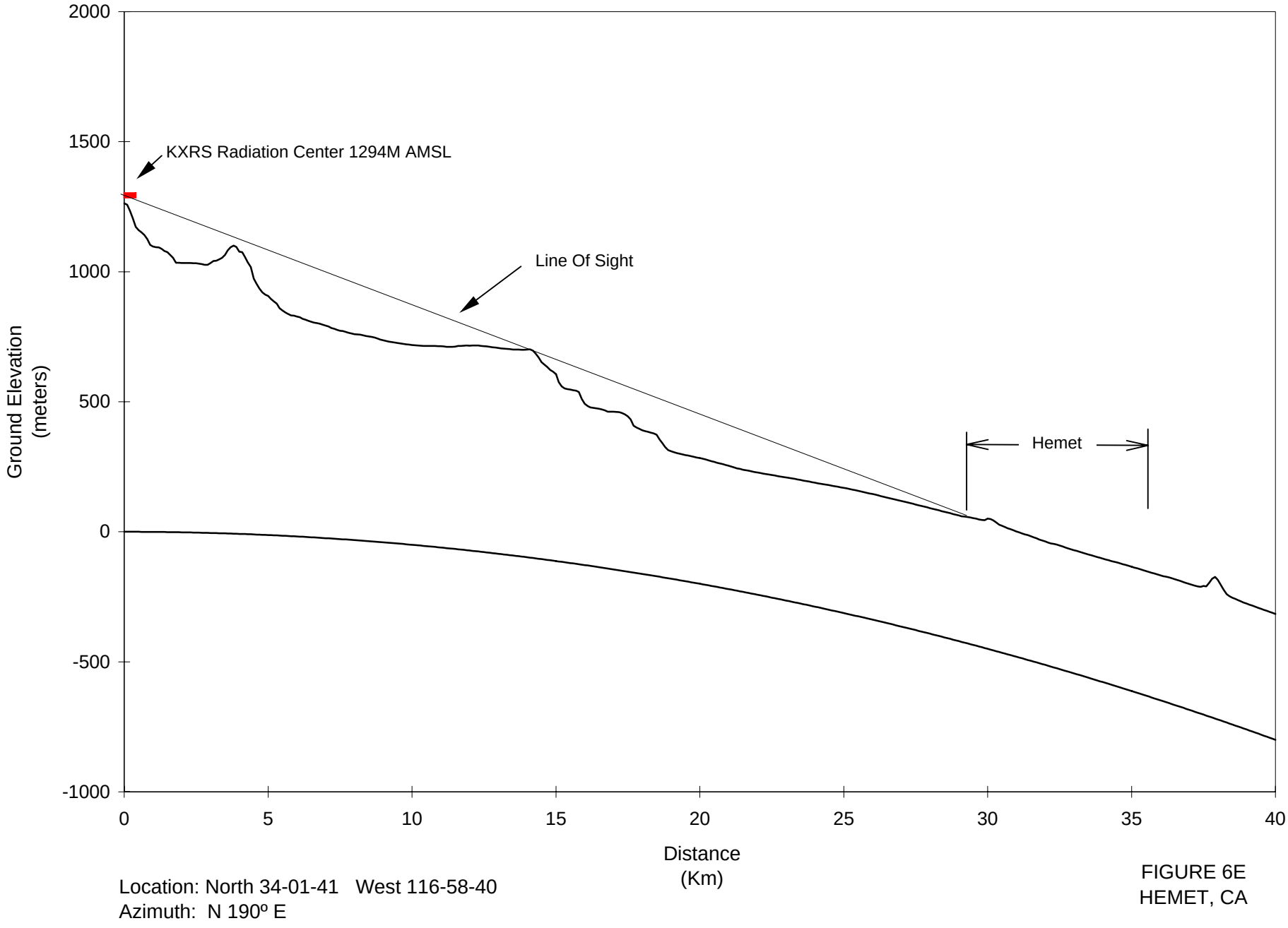
Location: North 34-01-41 West 116-58-40
Azimuth: N 180º E

FIGURE 6C
HEMET, CA



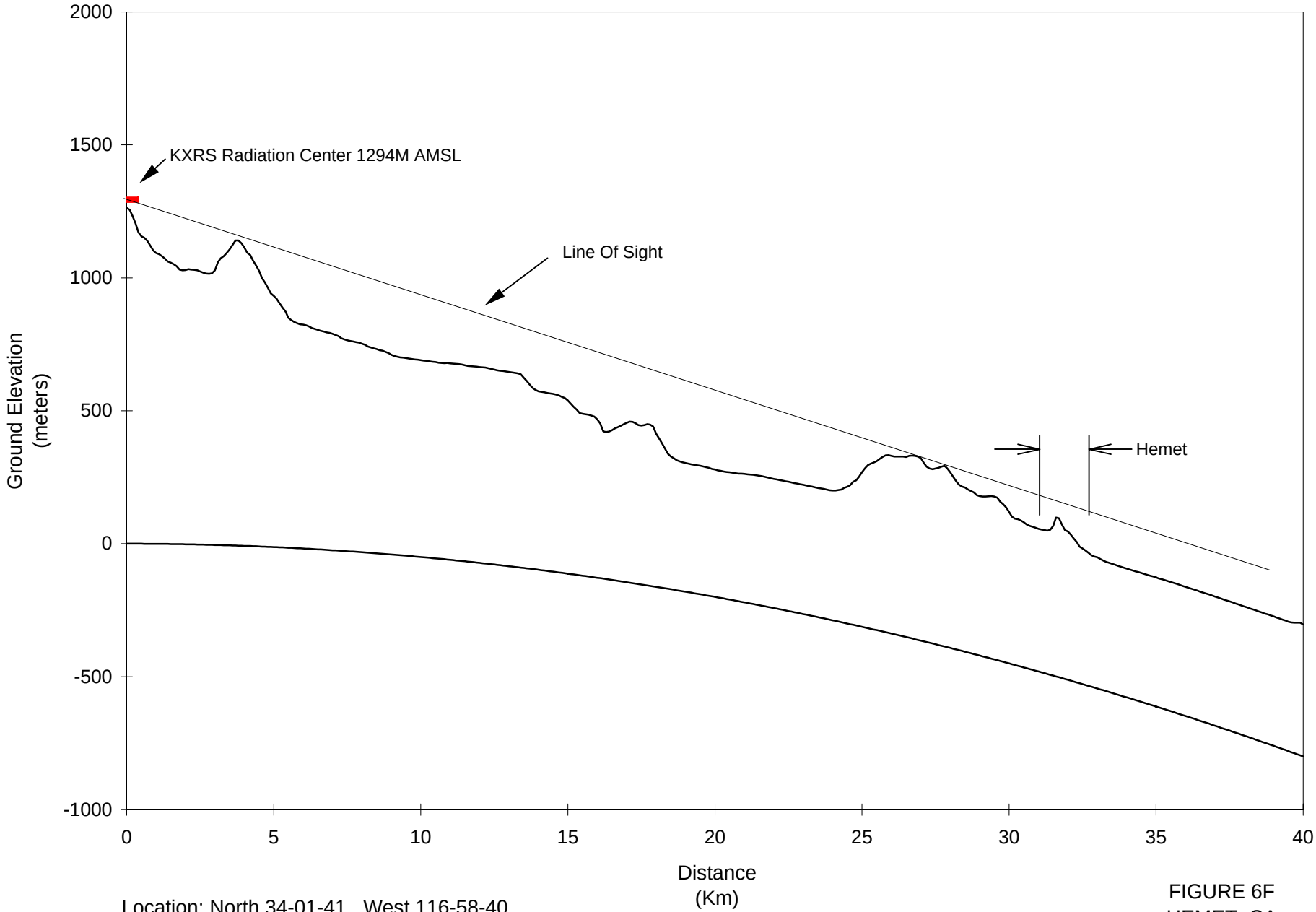
Location: North 34-01-41 West 116-58-40
Azimuth: N 185º E

FIGURE 6D
HEMET, CA



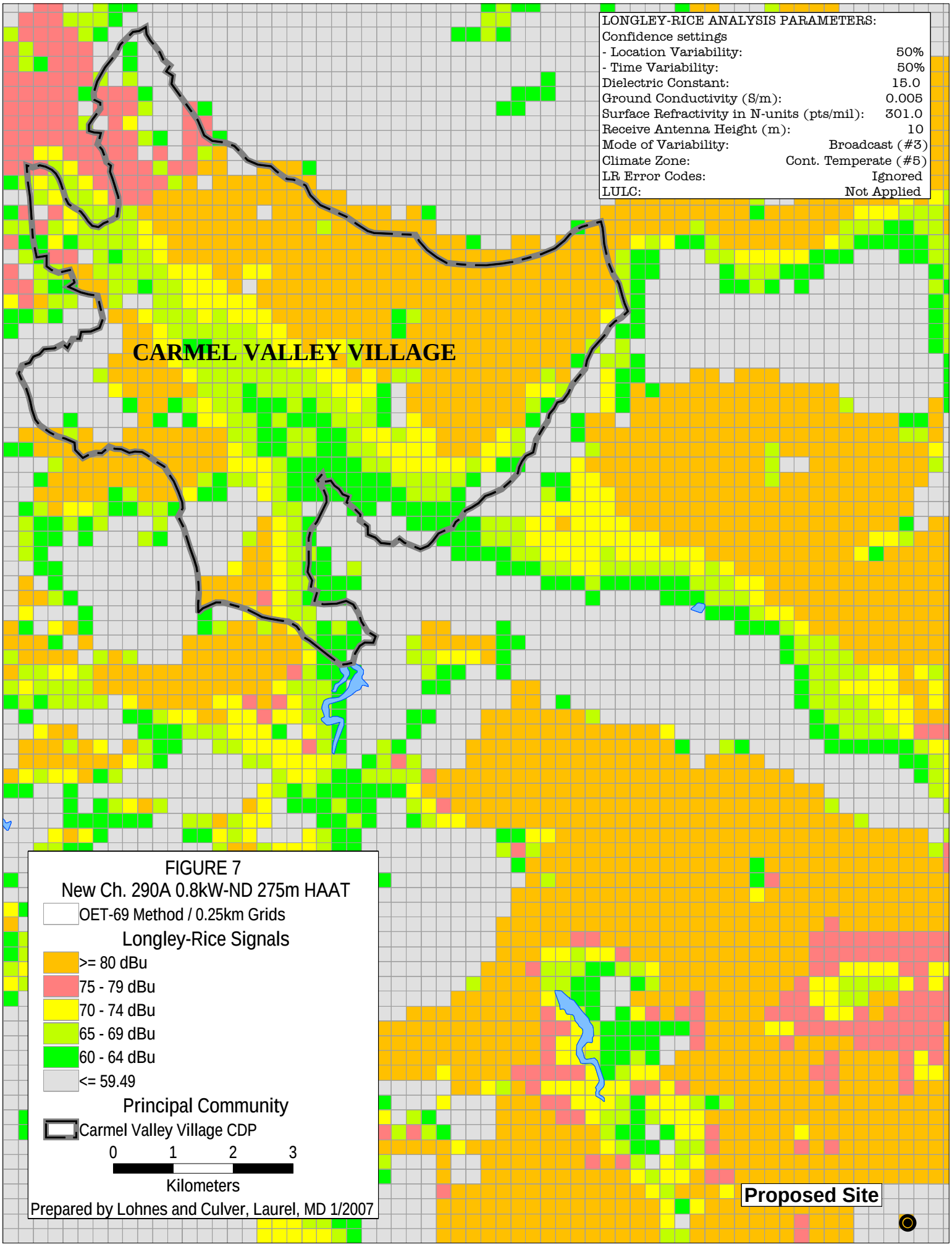
Location: North 34-01-41 West 116-58-40
Azimuth: N 190º E

FIGURE 6E
HEMET, CA



Location: North 34-01-41 West 116-58-40
Azimuth: N 195º E

FIGURE 6F
HEMET, CA


LONGLEY-RICE ANALYSIS PARAMETERS:
Confidence settings
- Location Variability: 50%
- Time Variability: 50%
Dielectric Constant: 15.0
Ground Conductivity (S/m): 0.005
Surface Refractivity in N-units (pts/mil): 301.0
Receive Antenna Height (m): 10
Mode of Variability: Broadcast (#3)
Climate Zone: Cont. Temperate (#5)
LR Error Codes: Ignored
LULC: Not Applied
CARMEL VALLEY VILLAGE
FIGURE 7
New Ch. 290A 0.8kW-ND 275m HAAT
OET-69 Method / 0.25km Grids
Longley-Rice Signals
>= 80 dBu
75 - 79 dBu
70 - 74 dBu
65 - 69 dBu
60 - 64 dBu
<= 59.49
Principal Community
Carmel Valley Village CDP
0 1 2 3
Kilometers
Prepared by Lohnes and Culver, Laurel, MD 1/2007
Proposed Site