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REPORT NO. DOT-TSC-OST-76-6

AN INVESTIGATION OF SITE EFFECTS ON ROADSIDE MEASUREMENT OF TRUCK NOISE

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FINAL REPORT

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U.S. DEPARTMENT OF TRANSPORTATION

OFFICE OF THE SECRETARY

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16. Abstract

Multi-microphone measurements of the passby noise emissions from three dedicated multi-axle trucks and from transient trucking were made at nine highway sites and one standard (SAE-J366b) measuring site. Measurements were made in and around Fort Wayne, Indiana, at sites of varied unobstructed configurations. Included in this report are tabulated peak RMS noise levels measured, curves of A-weighted noise levels versus offset distance, graphic noise level time history recordings, and 1/3-octave frequency spectra versus offset distance for selected events.

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PREFACE

This report documents the results of a field noise measurement program conducted at typical highway locations where noise enforcement agencies may measure motor vehicle noise. Data obtained from the program are intended to provide technical background to help define the requirements for the procedures to be used to measure truck noise at highway enforcement sites. Data are also provided to help define "standard sites" as well as noise level adjustments for an acceptable "nonstandard site."

The program was sponsored by the U.S. Department of Transportation, Office of Noise Abatement, under the direction of Mr. W. Harry Close.

Appreciation is expressed to Mr. Richard Staadt and supervisors and drivers of the International Harvester Co., Fort Wayne, Indiana, for their assistance in this measurement program. In particular, the drivers performed beyond expectations during the lengthy and tiresome measurement phase of this program.

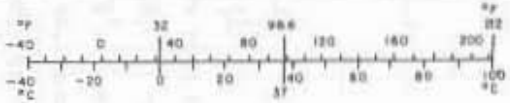
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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1. INTRODUCTION

The U.S. Department of Transportation, Transportation Systems Center (TSC), Cambridge, Massachusetts, measured the passby noise emissions from three dedicated trucks and from transient truck traffic.

Measurements were made at 10 sites in and around Fort Wayne, Indiana, during the period July 10-20, 1974. Data were measured at eight microphone locations at each site and recorded on magnetic tape.

The purpose of the program was to obtain information on the effects of topographical site variations on the measurement of noise propagation from a vehicle.

Three dedicated trucks with drivers were supplied for this program through a cooperative effort between DOT and International Harvester Co. (IH), Truck Engineering Department, Fort Wayne, Indiana.

2. MEASUREMENT PROGRAM

2.1 SITE SELECTION

Ten sites in and around Fort Wayne, Indiana, were chosen for this measurement program. Nonobstructed sites representative of a wide variety of measurement situations, on roadways which included a reasonable amount of through truck traffic, were selected.

Through the cooperation of International Harvester Co. the acoustic test pad of the IH Truck Engineering Department was included as one of the sites. The test pad was constructed to SAE-J366b specifications.[1]

General descriptions of the 10 sites follows. Complete descriptions, including photographs and topographical data, appear in Appendix A.

2.1.1 Site 1 — IH Test Pad

Relatively level area, smooth asphalt surface to 50 feet, low cut grass to 200 feet. (SAE-J366b specifications.)

2.1.2 Site 2 — Weight Station I-69 Northbound

Concrete roadway, 10-foot asphalt breakdown lane, relatively flat area with deep drainage ditch at 37 feet. Grass area back to 62 feet, concrete surface to 150 feet.

2.1.3 Site 3—Rest Area I-69 Southbound

Concrete roadway, concrete surface to 37 feet, low cut grass to 50 feet, heavy grass and steep incline to 100 feet.

2.1.4 Site 4 — Service Road Area I-69 Southbound

Concrete roadway, 10-foot asphalt breakdown lane, relatively flat area with shallow drainage ditch at 25 feet. Low cut grass to 37 feet, high grass to 62 feet, asphalt to 100 feet.

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[1] Society of Automotive Engineers, Exterior Sound Level for Heavy Trucks and Buses, SAE-J366b.

2.1.5 Site 5 – Midwestern Life US-24 East

Asphalt roadway, 10-foot gravel breakdown lane, gentle downslope with low cut grass to beyond 200 feet.

2.1.6 Site 6 – Rest Area US-30 West

Concrete roadway, relatively flat asphalt to 50 feet, drainage ditch at 62 feet, gentle rise to 100 feet with low cut grass.

2.1.7 Site 7 – Crossroad US-30 West

Concrete roadway, concrete apron to 20 feet, asphalt with loose dirt, gentle downslope. Drainage ditch on either side of crossroads.

2.1.8 Site 8 – Elevated Roadway US-24 East

Asphalt roadway, 12-foot gravel breakdown lane, flat depressed measuring area with high grass.

2.1.9 Site 9 – Depressed Roadway I-69 North

Concrete roadway, 10-foot asphalt breakdown lane, drainage ditch at 25 feet, upslope to 50 feet with medium height grass, elevated flat site with high grass/back to 200 feet.

2.1.10 Site 10 – Junction Rt. 30 and I-69 North

Concrete roadway, 10-foot asphalt breakdown lane, drainage ditch at 37 feet, gentle upslope with low cut grass back to 200 feet.

2.2 INSTRUMENT DEPLOYMENT

Eight microphones were deployed at each site: One each at 25, 37, 50, 62, 75, and 100 feet from the center of the near traveled lane at a height of 4 feet above the surface on which they were placed. Two additional microphones were placed at the 50-foot location, at heights of 8 and 12 feet.

The data measured at each microphone were recorded on three multichannel magnetic tape recorders. The recorded data were synchronized between recorders by a time code signal simultaneously

recorded on one channel in each recorder.

A Doppler radar system was used to measure the speed of the vehicle as it passed through the measurement area.

Photographs were taken of the vehicle as it moved through the measurement area utilizing a "Robot Camera." Once triggered, the camera was set to take eight photographs (one every 1/2 second). The camera was triggered manually when the vehicle was within 50 feet of the line of microphones. This trigger signal was also preserved on tape by interrupting the recorded time code for a 1 second increment.

The photographs were used to identify the type of vehicle and insure no other vehicles were in the measurement area. They could also be used to position the vehicle accurately in the measurement area relative to the recorded noise data.

2.3 MEASUREMENT METHODOLOGY

Three trucks supplied by International Harvester were dedicated to this measurement program, along with two tanker trailers fully loaded with water. The vehicles were chosen to exemplify vehicles with various type of noise sources dominant (IH-394, exhaust noise; IH-866, engine and exhaust noise; IH-843, fan noise) during the J366b acceleration test. Table 1 contains summary data for these vehicles. Complete data, including photographs, tire tread depth, weights, etc., are included in Appendix B.

Experienced IH test drivers were assigned to specific trucks for the program to eliminate operator differences between sites for the same vehicle.

Three tests were run on each vehicle: an acceleration test, a power-by test, and a coast-by test. Only the acceleration test was run at site 1 because the roadway length was insufficient to obtain high vehicle speed (55 mph).

To increase the statistical confidence of the measured data, each test on each vehicle was repeated as many as three times.

TABLE 1. GENERAL DESCRIPTION, DEDICATED TEST VEHICLES

ID	CHASSIS	ENGINE	EXHAUST	SHUTTERS	REAR TIRES	WEIGHT	MAJOR NOISE SOURCE
Bobtail Tractor							
IH-394	COF4070A	Detroit Diesel 8V71N65	Dual Vertical-Vertical	Open	General Power Jet Straight Rib		Exhaust
IH-843	F-4200	Detroit 8V71T	Single Vertical-Vertical	Closed	Goodyear Hi Miler Cross Rib		Engine & Exhaust
IH-866	F-2070A	Cummins NTC 335	Single Horizontal-Horizontal	Open	Goodyear Custom Extra Grip		Fan
Tanker Trailer							
IH-4					Goodyear Super Hi Miler Straight Rib	69,680 lb w/IH-394	
IH-14					Goodyear Super Hi Miler Straight Rib	68,740 lb w/IH-843 70,180 lb w/IH-866	

See Appendix B for complete physical descriptions and photographs.

In addition, measurements were made on transient trucks of opportunity.

During the acceleration measurements on vehicle IH-394 at site 10, it was suspected that the vehicle had developed an exhaust leak. The vehicle was worked on the next day to correct the leak and to repair a faulty rear wheel bearing. Because of this unscheduled maintenance vehicle IH-394 was not tested at site 6.

Measurements were made at the 10 sites in the following order: sites 1, 2, 3, 4, 9, 10, 6, 7, 8, 5.

2.3.1 Acceleration Test Per SAE-J366b

With the exception of site 1 (IH Test Pad), the configurations of the test sites did not necessarily meet the site requirements of the SAE-J366b standard. The bobtail vehicles, however, were driven through each of the sites in conformance to the test procedure; i.e.,

1. An acceleration point was established 50 feet before the line of microphones.
2. An end point was established 100 feet beyond the acceleration point.
3. The vehicle, warmed to normal operation temperature, approached the acceleration point at no more than two-thirds governed engine speed.
4. Upon reaching the acceleration point (the front bumper of the vehicle being the reference point) the throttle was immediately opened to maximum fuel condition, the gears having been preselected to achieve maximum rated engine speed in the area 10 feet beyond the line of microphones and the established end point without exceeding a speed of 35 mph.

The acceleration test was performed on both sides of the vehicles at site 1 and only on the right side of the vehicles at all other sites.

At each of the sites the acceleration test was performed when no other vehicles were on the roadway. This required extreme care and precision by the drivers.

In general, the test vehicles were driven on the near traveled lane (lane 1); however, at several of the sites, as traffic conditions permitted, the acceleration test was also performed on the next lane over (lane 2). Thus the test vehicle was moved approximately 12 feet farther away from the microphone array, effectively changing the characteristics of the test site by adding 12 feet of hard surface between the test vehicle and the microphones.

Tabulations of the peak RMS noise levels measured for the three test vehicles for the acceleration tests per SAE-J366b procedures are tabulated in Appendix C. Tables C-1 through C-10 contain data from sites 1 through 10, respectively. The speed data tabulated are the measured speeds of the vehicles at: (1) the acceleration point, (2) a point directly in line with the microphones, and (3) at the end point.

Tables C-11 through C-13 contain the average and standard deviation for the above data for the three test vehicles; i.e., IH-843, IH-866, and IH-394, respectively.

Graphic noise level time histories and 1/3-octave band frequency spectra of a selected event for each vehicle at five of the sites (1,4,7,8,9) for the acceleration test are included in Appendix D, Figures D-1 through D-5.

The noise level time-history consists of data measured at the 50-foot microphone location. Indicated on the chart are the acceleration point (test vehicle 50 feet from the line of microphones) and the starting point of a 1/2-second period of noise data chosen for spectral analysis. The 1/3-octave frequency spectra are tabulated for these selected events directly below the appropriate graphic history. In addition the tabulations include the change in the noise spectra, referenced to 50 feet, as measured at 37,62, and 100 feet, and analyzed over the same 1/2-second period.

2.3.2 Power-By/Coast-By Tests

At every site except site 1 the noise emissions were measured from each vehicle during high speed power-by and coast-by runs. For these tests, tanker-trailers fully loaded with water (70,000 lb) were coupled to the test vehicles, and the tandem combinations were tested at sites 2 through 10. For consistency, since only two tankers were available for this program, the tests were scheduled so that the same tanker was always used with a particular test vehicle at all sites.

For the power-by test the tandem combination was driven past the measurement site in the near traveled lane (lane 1) at approximately 55 mph and at the maximum governed engine speed.

The coast-by test was performed by powering each vehicle to a speed sufficient to coast by the measuring site, under its own momentum, at approximately 55 mph (also in lane 1). The driver was instructed to cut engine power at a point 250 feet before the line of microphones.

Tabulations of the peak RMS A-weighted noise levels measured for the three loaded test vehicles for the power-by and coast-by tests are presented in Appendix E. Tables E-1 through E-9 contain data obtained at sites 2 through 10, respectively.

Tables E-10 through E-15 contain the average and standard deviation for the above data for the three fully-loaded test vehicles: IH-843 with Tanker No. 14, IH-866 with tanker No. 14, and IH-394 with tanker No. 4.

Figures D-6 and D-7 in Appendix D contain graphic noise level time-histories of selected events for each test vehicle, as measured at site 7 for the loaded vehicle power-by and coast-by tests, respectively.

The graphic history consists of noise data measured at the 50-foot microphone location. Indicated on the chart is the starting point of a 1/2-second period of noise data chosen for spectral analysis. The 1/3-octave frequency spectra are tabulated for the three test vehicles directly below the appropriate graphic history.

In addition the tabulation includes the change in the noise spectra, referenced to 50 feet, as measured at 37,62, and 100 feet, and analysed over the same 1/2-second time period.

2.3.3 Transient Truck Tests (Opportunity Data)

Noise emissions from the pass-by of transient trucking were measured at sites 2 through 10. Measurements were taken of trucks passing through the measurement area that were reasonably "clean"; that is, trucks that passed through the measurement area without other traffic or noise source within 200 feet of the truck being measured.

Speed, type of vehicle and type of exhaust were recorded for each vehicle.

Tables F-1 through F-9 in Appendix F contain the peak RMS noise levels measured for a number of vehicles at sites 2 through 10 at the eight microphone locations.

3. DISCUSSION

3.1 GENERAL

Nine highway sites and one standard SAE-J366b measuring site were selected for the purpose of this program. The three vehicles tested were chosen to exemplify vehicles with various types of noise sources dominant during the low speed J366b acceleration test: vehicles IH-843, engine and exhaust dominant; IH-866, fan dominant; and IH-394, exhaust dominant.

Vehicle IH-394 was equipped with the relatively quiet rib-type rear tires; vehicles IH-843 and IH-866 were equipped with lug-type tires and thus their noise should be tire-dominant at higher speeds.

The average noise level data, tabulated in Appendixes C and E, for each of the dedicated vehicles at each site, have been plotted versus the offset distance in Appendix G to compare the acceleration, power-by, and coast by tests; i.e., Figures G-1 through G-9, vehicle IH-843; Figures G-10 through G-18, vehicle IH-866; Figures G-19 through G-26, vehicle IH-394.*

These comparison curves show clearly, for vehicles IH-843 and IH-866, the expected dominance of tire noise during the high-speed coast-by tests. The SAE-J366b test procedure was established to eliminate, insofar as possible, the effects of tire noise during truck measurements, since it is essentially a maximum acceleration test at low passby speed. Thus, the J366b measurements at the standard site (site 1) underestimate the open road (power-by) levels of a vehicle with conventional crossbar tires by 3 to 5 dB. In the case of vehicle IH-394 (which had relatively quiet rib tires at all positions), the J366b test at site 1 represents reasonably well the open road noise characteristics.

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*No comparison curves were drawn for site 1 since insufficient roadway at the standard site precluded making power-by and coast-by tests. Note also that no data are given at site 6 for vehicle IH-394.

3.2 SITE CATEGORIZATION

The sites selected were categorized subjectively as "hard" or "soft" (up to the 50-foot point) as follows:

Sites 1, 7, 6, and 3 – "hard"

Sites 4, 10, and 5 – "soft"

Sites 2, 8, and 9 – "soft" (with large topographical changes)

The surface of the "hard" sites differed from the standard site (site 1, smooth level asphalt to 50 feet, low-cut grass beyond) as follows: site 7, concrete roadway with rough asphalt and loose dirt to 50 feet and beyond; site 6, concrete roadway with rough asphalt to 50 feet and low-cut grass beyond; site 3, concrete roadway with concrete back to 37 feet and short-cut grass to 50 feet.

To compare these "hard" sites to the standard site, the averaged acceleration data from Appendix C for each test vehicle have been plotted versus offset distance in Figures G-27, G-30, and G-33. These curves directly compare the effect of the site on the measured data for each dedicated test vehicles. No corrections have been applied to the data to account for variations in microphone height relative to the roadway. (In all cases the microphones were set to a height of 4 feet above the ground on which they were placed.)

Note from Figures G-27, G-30, and G-33 that, through an offset distance of 62 feet, the data for each vehicle are closely grouped, exhibiting differences relative to site 1 of less than 2 dB. Beyond 62 feet, especially at site 3, large topographical changes can be shown to cause excursions in the decay rate of the data. In general, the curves suggest that site 1 is the loudest, and therefore the hardest, of the sites to 50 feet. Although the character of site 3 changed beyond 37 feet (concrete to low-cut grass) these data depict it as a hard site in good agreement with site 1.

Similar curves for each test vehicle were drawn (Figures G-28, G-31, and G-34) to compare the standard "hard" site (site 1) with the subjectively classified soft sites (sites 4, 10, and 5). Note the close grouping of the data from the "soft" sites for each

vehicle. Note also that through 50 feet the levels measured at sites 4, 10, and 5 were generally lower than the levels from the standard hard site; therefore, the soft site classification appears valid. Again, no corrections were applied to the data for variations in microphone height relative to the roadway.

Average acceleration noise data from sites 2, 8, and 9 were also plotted (Figures G-29, G-32, and G-35) to compare data for each vehicle versus the standard site, site 1. Because of site topography and microphone height relative to the roadway, there is no reasonable grouping of the data.

Similar curves to the above could be drawn for the power-by and coast-by tests for each vehicle, with essentially similar results.

3.3 SITE CORRECTIONS

To obtain correction factors which reflect the effect of the site on the measured noise data, the acceleration data measured at 50 feet for all three test vehicles were averaged together. The difference in the average level relative to the average level measured at the standard site (site 1) was plotted in Figure 1a (uncorrected curve). For the purposes of this plot the data have been grouped by the site's subjective "hard" to "soft" characteristic. The position of each site on the abscissa of the chart was determined by the deviation of the microphone height relative to a reference plane 4 feet above the level of the roadway. (Coast-by and power-by data are shown in Figure 2.) A plot of the microphone height deviation from this reference plane is included in Figure 1b.

Note that the uncorrected data for the "hard" sites are in good agreement with each other. With the exception of data from sites 5, 8, and 9, the uncorrected "soft" site data also agree with one another and are approximately 2.2 dB below that measured at the hard site.

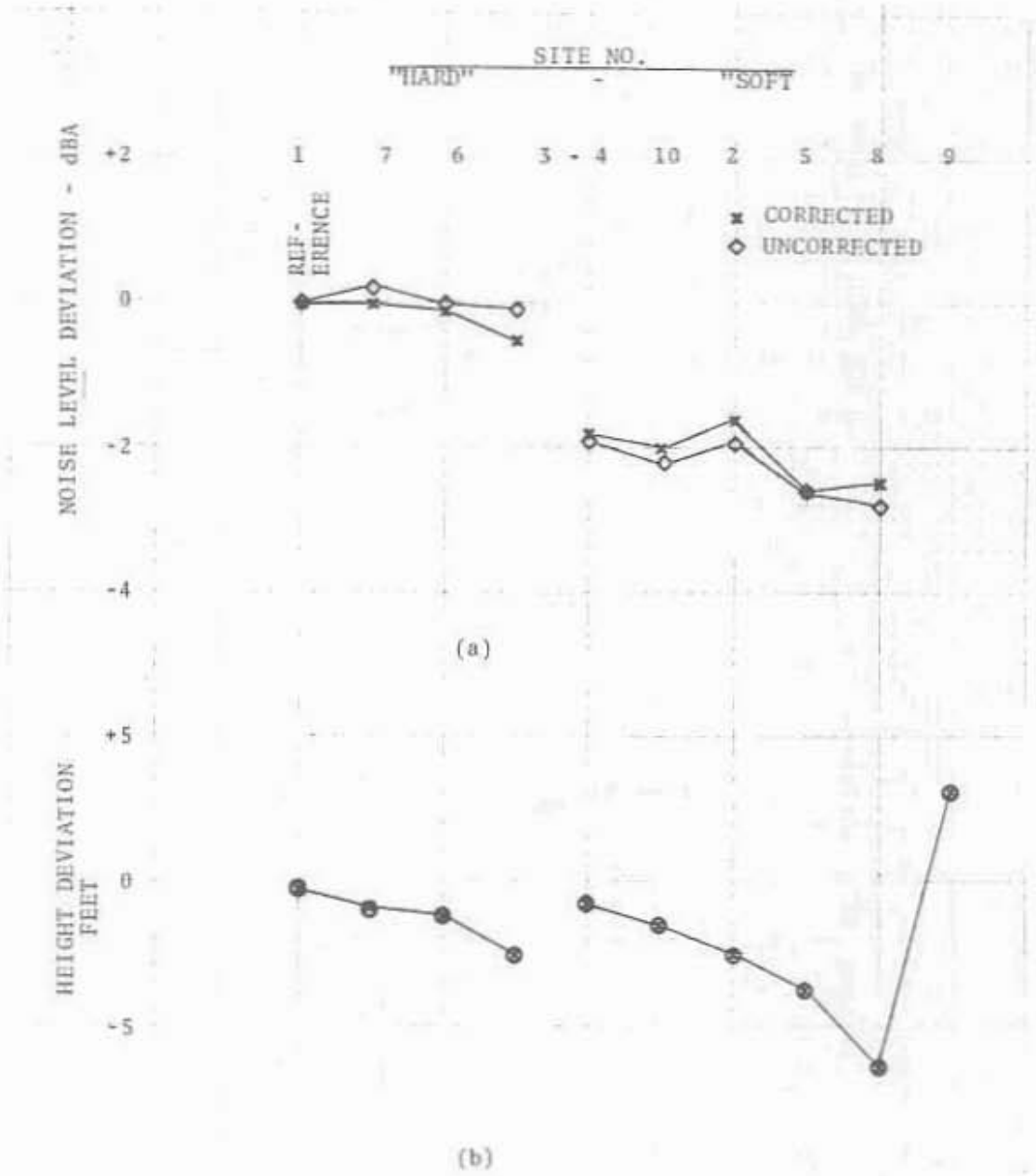

Figure 1. Deviation Curves at 50 feet (a) Average Acceleration Noise Level Deviation Reference to Level at Standard Site 1 (b) Microphone Height Deviation Reference to a Plane 4 Feet Above Roadway

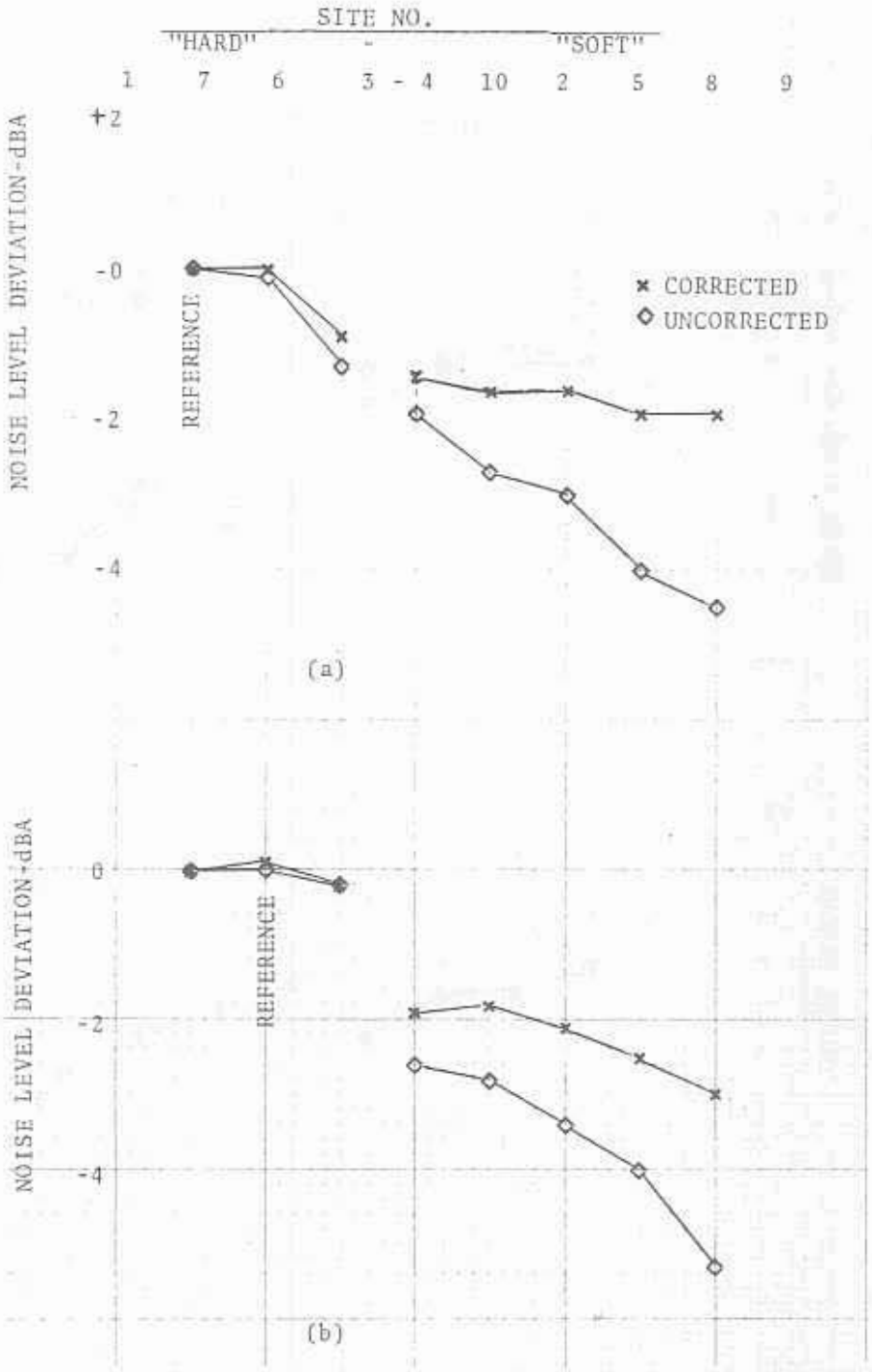

Figure 2. Deviation Curves at 50 Feet (a) Coast-By Test — Average Noise Level Deviation Reference to Level at Site 7 (b) Power-By Test — Average Noise Level Deviation Reference to Level at Site 7

Since data are available at the 50-foot microphone location in the vertical axis (microphones at 4, 8, and 12 feet above the ground) a correction was obtained and applied to the above curves to correct the data for the differences in microphone height. To obtain these corrections, the data measured at the 8- and 12-foot high microphones for all three test vehicles have been averaged together and the difference relative to the average level measured at the 4-foot height plotted in Figure 3a. The data have been grouped by site as above. These curves give a measure of the change in the noise data with height above the microphone set at 4 feet above the ground at each measurement site.

Data measured at the 4-foot microphone were corrected for their deviation in height relative to a plane 4 feet above the roadway by linear interpolation between these curves (Figure 3a). The corrected curve is plotted in Figure 1a. Since all three microphones at 50 feet at site 9 were in excess of 3 feet above the 4-foot reference plane, no corrections were possible by the above scheme, and site 9 is disqualified from further analysis.

As shown by the corrected curve of Figure 1a, hard sites 7 and 6 remain in good agreement with the standard hard site. Site 3, however, shows a correction of 0.5 dB in the direction of a less hard site, which tends to agree with the physical configuration of the site which was partially grass to 50 feet. Sites 4, 10, and 2 are in good agreement with one another and show a correction of 2 dB in the direction of a less noisy or "soft" site. Sites 5 and 8 show a correction of 2.6 dB in the direction of a less noisy or soft site. It was expected that the corrected curves for sites 5 and 8 would be in closer agreement with those for sites 4, 10, and 2. However, it is noted that the breakdown lane at sites 4, 10, and 2 adds 12 feet of asphalt between the source and microphone, whereas at sites 5 and 8 the breakdown lane is a soft shoulder made up of gravel with loose pebbles. This, in addition to the fact that both sites 5 and 8 were depressed at 50 feet and beyond, and that site 8 was covered with high coarse grass and

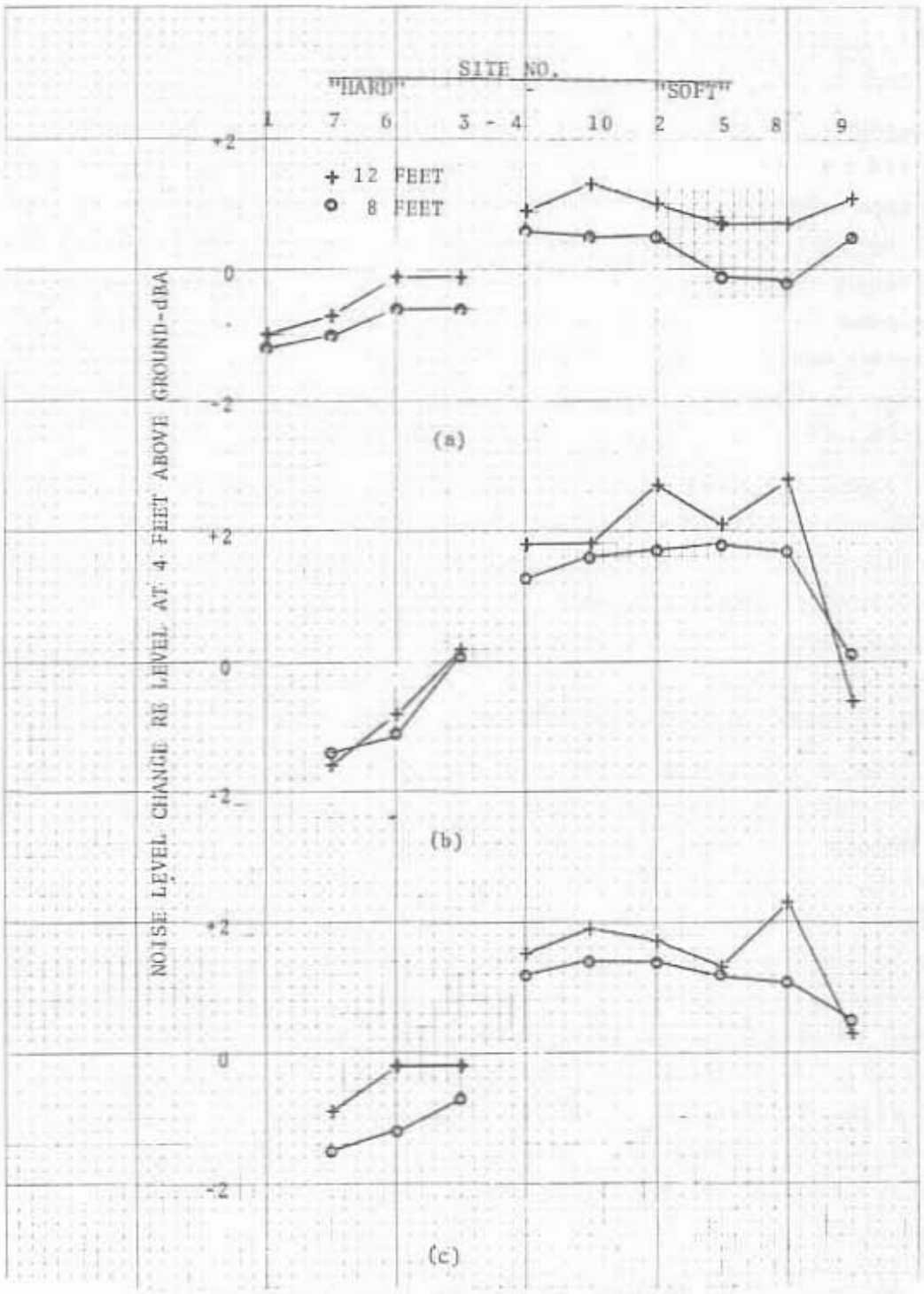

Figure 3. Average Noise Level Change Vs. Height Above Ground at 50 Feet — Reference to Level 4 Feet Above Ground
(a) Acceleration Test (b) Coast-By Test
(c) Power-By Test

weeds, could cause site 5 and 8 to appear "softer" than sites 4, 10, and 2.

Similar curves for the coast-by and power-by tests have been plotted in Figures 2a and b and corrected with the elevation data curves of Figure 3b and c. These curves have been plotted using the data at site 7 as a reference since no power-by and coast-by tests were possible at site 1. The above acceleration data show that site 7 qualifies as a hard site in excellent agreement with the standard site (site 1).

The corrected curves for the coast-by and power-by data at 50 feet also show good agreement between hard sites 7 and 6. Site 3 is again shown to tend toward a softer site. As with the acceleration data plotted in Figure 1a, the coast-by and power-by data for sites 4, 10, and 2 show good agreement to one another, with sites 5 and 8 tending toward being more soft.

Without similar elevation data at other offset distances it is not possible to plot and correct similar curves. However, inspection of data from selected sites where the microphone height was reasonably close to the 4-foot reference plane lends credence to the above analysis. For example, at sites 4, 10, and 12, the microphones offset 62 and 75 feet were within 1 foot on the 4-foot reference plane, and the uncorrected data yield an average soft site correction for the power-by data of 1.8 and 1.9 dB, respectively, versus the uncorrected hard site data of site 7. (Note that site 7 was subjectively hard to 50 feet and soft beyond.) Only the microphone at 37 feet at site 4 was close to the 4-foot reference plane; here the uncorrected data yield a 1.4 dB soft site correction.

Based on the above discussion it appears reasonable to apply corrections to measured noise data to account for the physical makeup of the measuring site. It is further reasonable to classify the site subjectively "hard" or "soft."

Classification of the sites in this measurement program was initially applied in a gross manner as follows:

Sites 1, 7, 6, and 3 "hard"

Sites 4, 10, 2, 5, 8, and 9 – "soft"

(Site 9 has since been disqualified because the microphones at 50 feet were in excess of 7 feet above the roadway.)

As in the case of site 3, not all sites are totally hard or even totally soft. A site should therefore be classified subjectively as to its predominance between the roadway and the measuring point. So as not to penalize unfairly the motor carriers in the case of highway tests, a site should be classified as "predominantly hard" if at least 50 percent of the surface of the measurement area between the microphone and the roadway is hard. Lesser amounts would lead to a "predominantly soft" category.

Once classified in this simple manner corrections applied for highway test (power-by) at 50 feet would be:

at 50 feet

Hard	– sites 1, 7, and 6	– 0 dB
Predominantly Hard	– sites 3	– 0 dB
Predominantly Soft	– sites 4, 10, and 2	– 2.0 dB
Soft	- sites 5 and 8	– 2.5 dB

The site classification and correction, based on the limited information available and assuming that height corrections of Figure 2 hold at other offset distances, would be:

at 37 feet

Hard	– sites 1, 7, 6, and 3	– 0 dB
Predominantly Hard	– sites (none)	– 0 dB
Predominantly Soft	– sites 4, 10, and 2	– 1.5 dB
Soft	– sites 5 and 8	– 2.8 dB

Note that because of the paved breakdown lane, sites 4, 10, and 2 are approaching the 50 percent limit imposed above for a predominantly hard classification with the microphone set at 37 feet.

at 75 feet

Hard	– Sites (none)	– 0 dB
Predominantly Hard	– Sites 1, 7, and 6	– 0 dB
Predominantly Soft	– Sites 4, 10, and 2	– 1.0 dB
Soft	– Site 5 and 8	– 1.5 dB

Site 3 has been disqualified because of site topography at 75 feet.

On the basis of the data for the 50-foot microphone position, it would appear that the 2 dB correction factor between "hard" and "soft" test sites (i.e., "hard" site data minus 2 dB equals "soft" site data or vice versa) contained in the DOT Interstate Motor Carrier Noise Emission Compliance Regulations is reasonable.

Additional questions which need to be investigated but which were not specifically addressed in this study include: (1) the sufficiency of a single correction factor which applies to all microphone positions once the site has been determined to be either "hard" or "soft" according to the criteria established in the DOT compliance regulations, and (2) the possible need to expand the classification of test sites, e.g., hard, predominantly hard, predominantly soft, soft, etc., and establish correction factors for each category.

Data from this study provide some insight into these problem areas. For instance, if the height corrections shown in Figure 2 for the 50-foot microphone location are considered to hold for other offset distances, then the actual correction factors to be applied would be different for each offset distance. Since the intervening terrain is different for each microphone position, this seems a reasonable conclusion. Also, it would appear that there is some merit to further subdividing test sites in order to better describe their characteristics. Obviously, additional research specifically designed to address these questions is necessary before more definitive conclusions can be drawn.

APPENDIX A

SITE DESCRIPTION, PHOTOGRAPHS, AND TOPOGRAPHICAL DATA

TABLE A-1. SUMMARY DATA - SITE TOPOGRAPHY AT MICROPHONE LOCATIONS, FT. WAYNE IN, JULY 10-20, 1974

SITE NO.	DESCRIPTION	MICROPHONE STATION	ELEVATION WITH RESPECT TO ROADWAY
1.	IH Test Site Std. SAE-J366B Measurement Site	25	-0.29 ft
		37	-0.23 ft
		50	-0.25 ft
		62	-0.15 ft
		75	-0.02 ft
		100	-0.25 ft
2.	Weight Station I-69 Northbound (Grass to 62 ft and cement beyond)	25	-2.31 ft
		37	-5.08 ft
		50	-2.52 ft
		62	-1.04 ft
		75	-0.77 ft
		100	-0.29 ft
3.	Rest Area I-69 (Cement to 37 ft and grass beyond)	25	-1.05 ft
		37	-1.75 ft
		50	-2.58 ft
		62	-3.85 ft
		75	+ .58 ft
		100	+4.00 ft
4.	Service Road Area 3 miles South of Site 3 (Grass to 75 ft, hot top to 100 ft and grass beyond)	25	-1.99 ft
		37	- .89 ft
		50	- .71 ft
		62	+ .10 ft
		75	+ .37 ft
		100	- .21 ft
5.	Midwestern Life Ins. U.S. 24 (Grass)	25	-2.33 ft
		37	-3.21 ft
		50	-3.77 ft
		62	-4.46 ft
		75	-5.13 ft
		100	-5.71 ft

TABLE A-1. SUMMARY DATA - SITE TOPOGRAPHY AT MICROPHONE LOCATIONS (CONTINUED)

SITE NO.	DESCRIPTION	MICROPHONE STATION	ELEVATION WITH RESPECT TO ROADWAY
6.	U.S. 30 Rest Area (Cement roadway, hot top to 50 ft and grass beyond)	25	- .31 ft
		37	- .73 ft
		50	-1.12 ft
		62	-2.64 ft
		75	-1.43 ft
		100	- .14 ft
7.	U.S. 30 & Kroemer Road Crossroad, hard packed dirt.	25	- .24 ft
		37	- .57 ft
		50	- .96 ft
		62	-1.33 ft
		75	-1.64 ft
		100	-2.05 ft
8.	U.S. 24 East of Site 5 (Grass)	25	-3.72 ft
		37	-5.57 ft
		50	-6.44 ft
		62	-6.27 ft
		75	-6.51 ft
		100	-6.90 ft
9.	I-69 1.2 Mile South of Dupont Road (Grass)	25	-2.37 ft
		37	+ .27 ft
		50	+3.07 ft
		62	+2.87 ft
		75	+3.04 ft
		100	+3.09 ft
10.	U.S. 30 and I-69	25	-2.25 ft
		37	-3.53 ft
		50	-1.49 ft
		62	-1.08 ft
		75	- .47 ft
		100	+ .53 ft

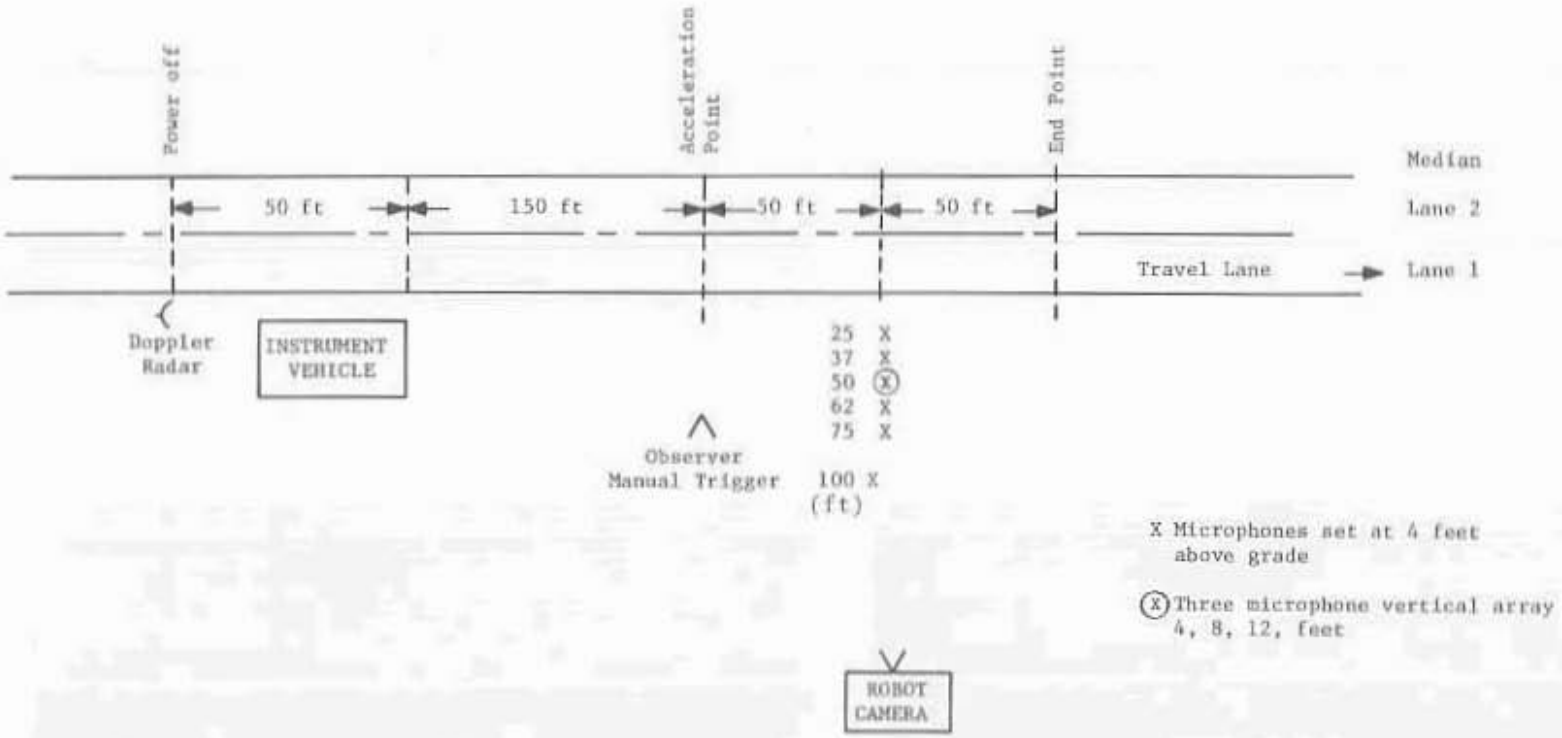

Figure A-1. Plan View, Measuring System Locations – Ft. Wayne IN, July 10-20, 1974

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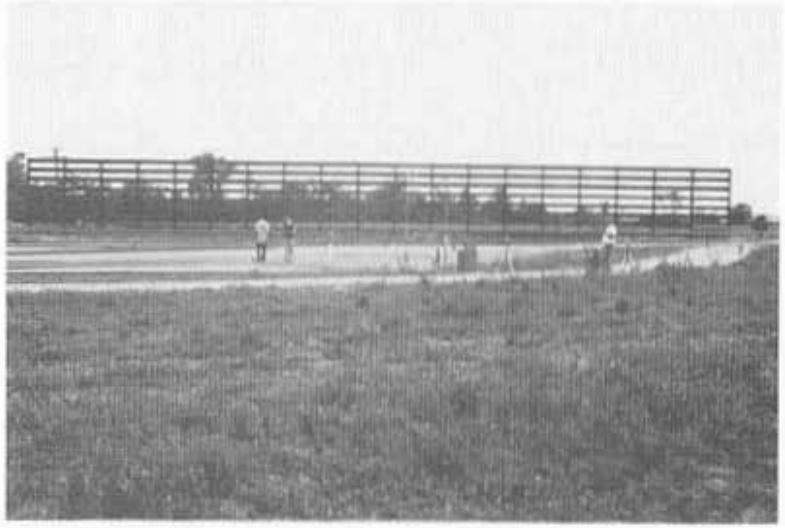

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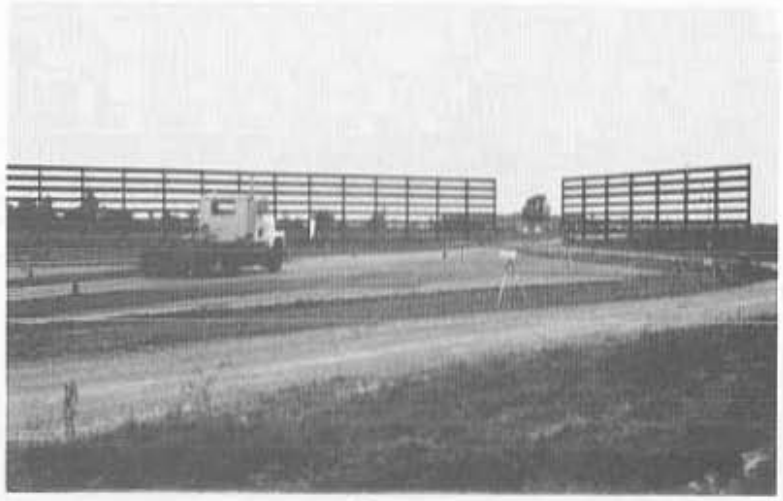

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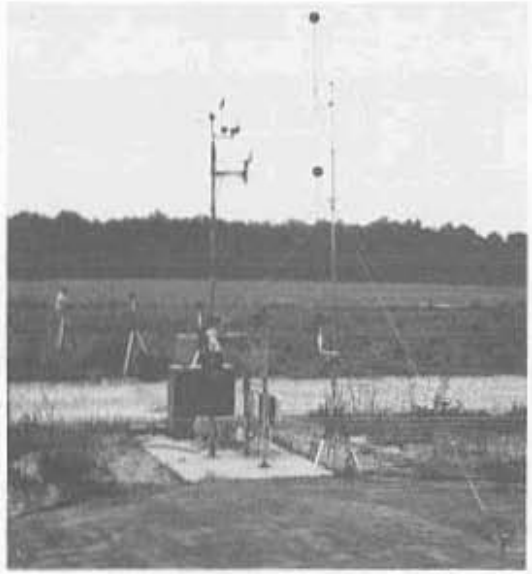
Figure A-2. Site 1 — Photographs and Schematic Layout, Ft. Wayne IN



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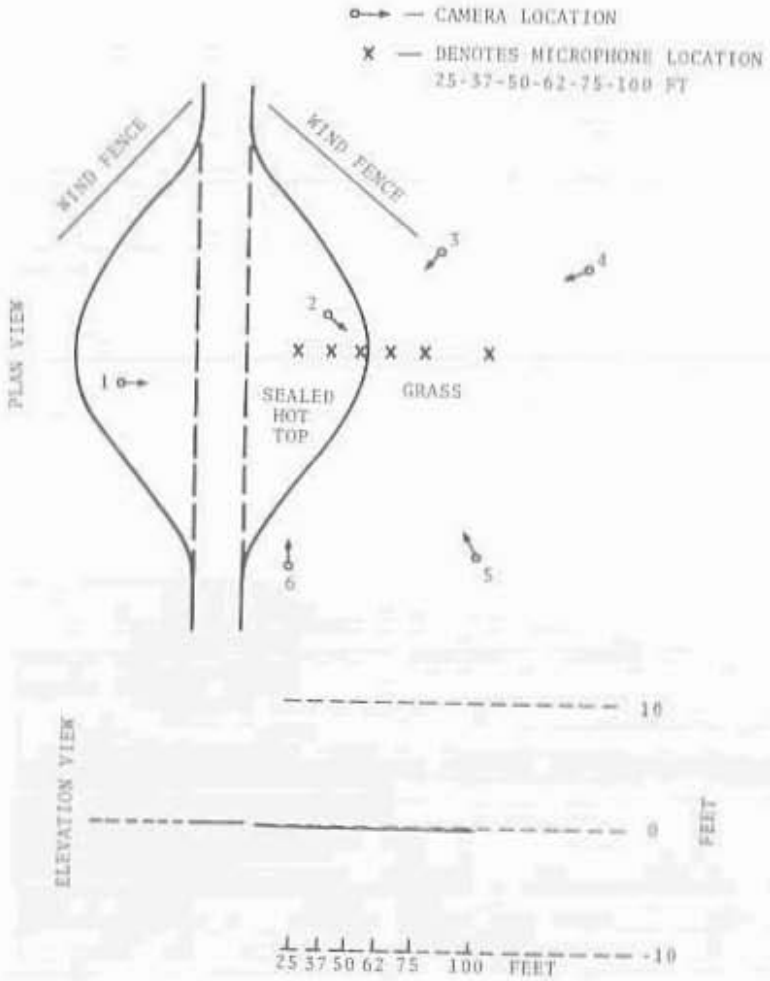

Figure A-2. Site 1 — Photographs and Schematic Layout, Ft. Wayne IN (Continued)

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Figure A-3. Site 2 — Photographs and Schematic Layout, Ft. Wayne IN

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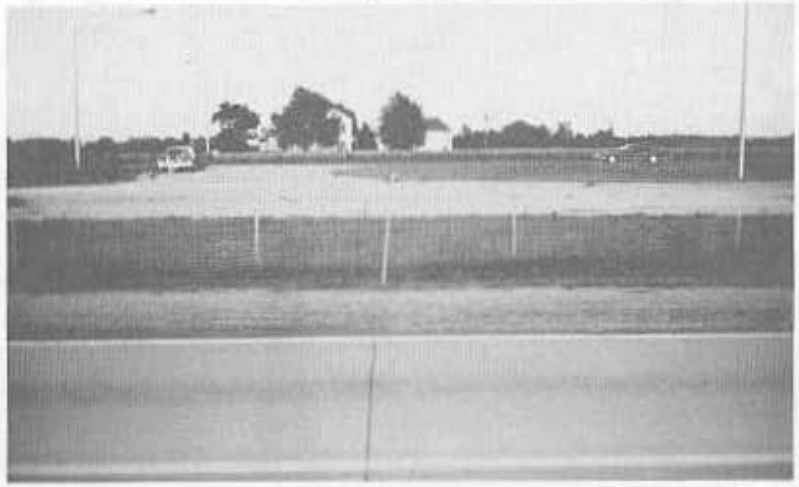

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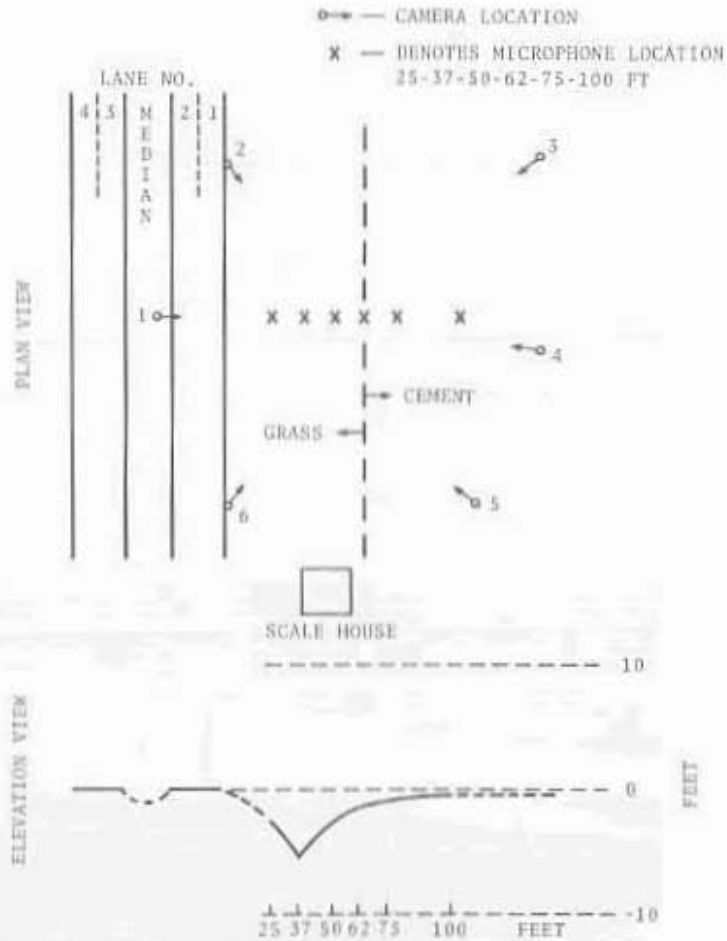

See Fig. A-12 for complete site topography.

Figure A-3. Site 2 — Photographs and Schematic Layout, Ft. Wayne IN (Continued)

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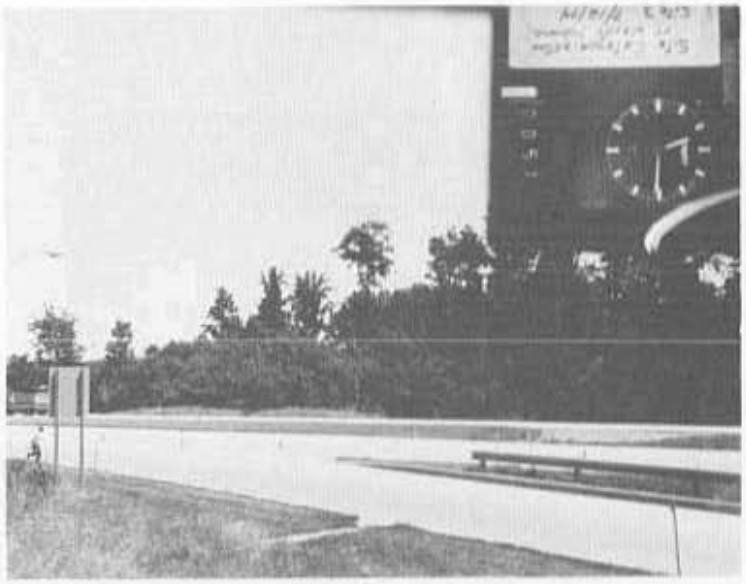

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Figure A-4. Site 3 – Photographs and Schematic Layout, Ft. Wayne IN

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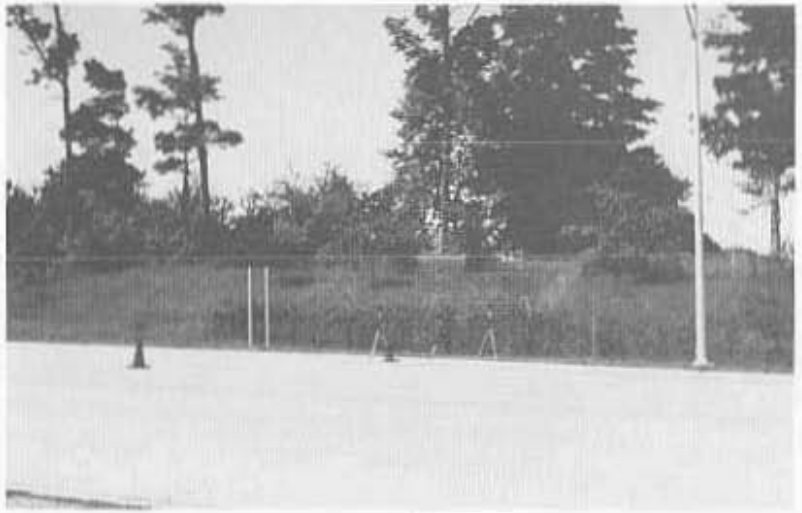

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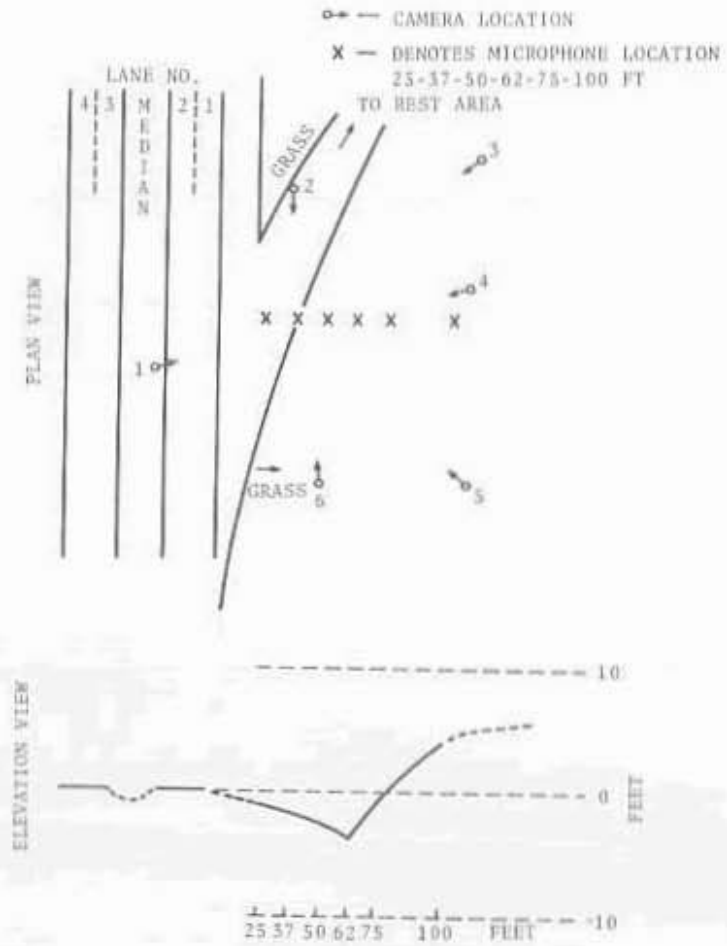

See Fig. A-13 for complete site topography.

Figure A-4. Site 3 — Photographs and Schematic Layout, Ft. Wayne IN (Continued)

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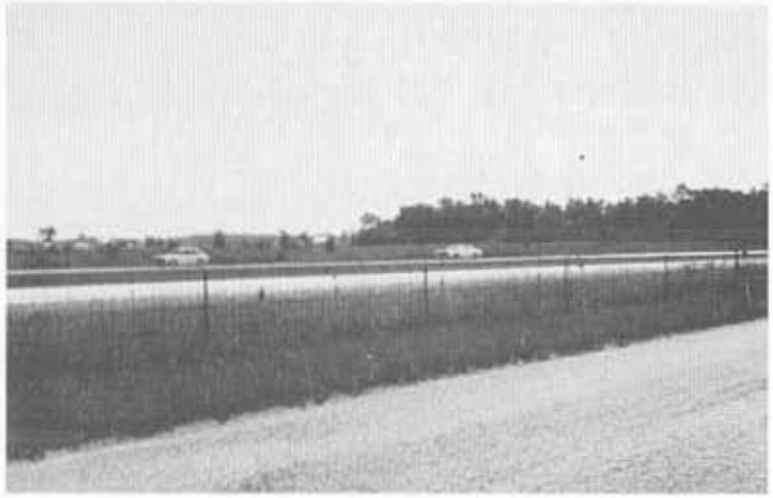

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Figure A-5. Site 4 - Photographs and Schematic Layout, Ft. Wayne IN

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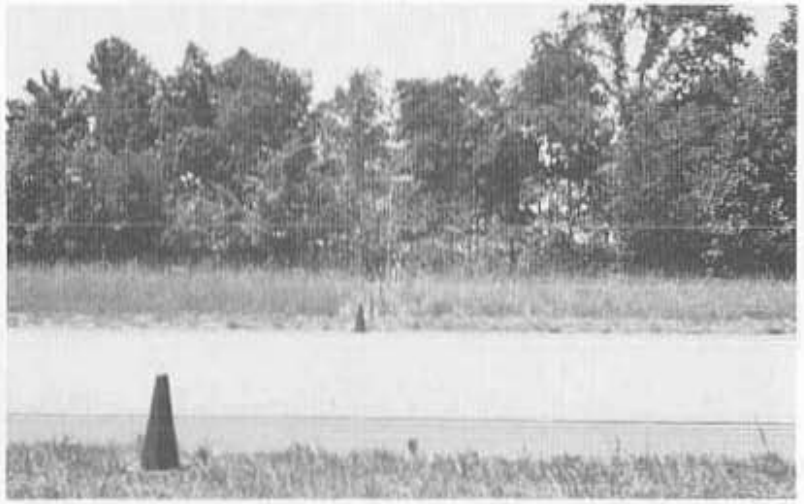

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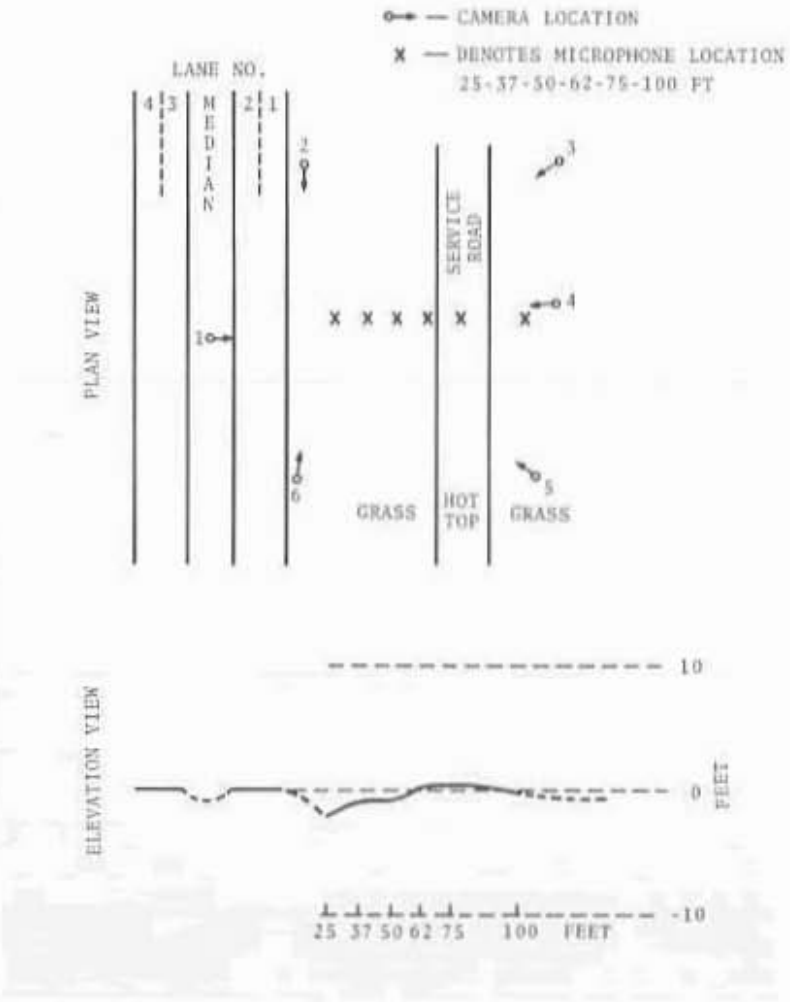
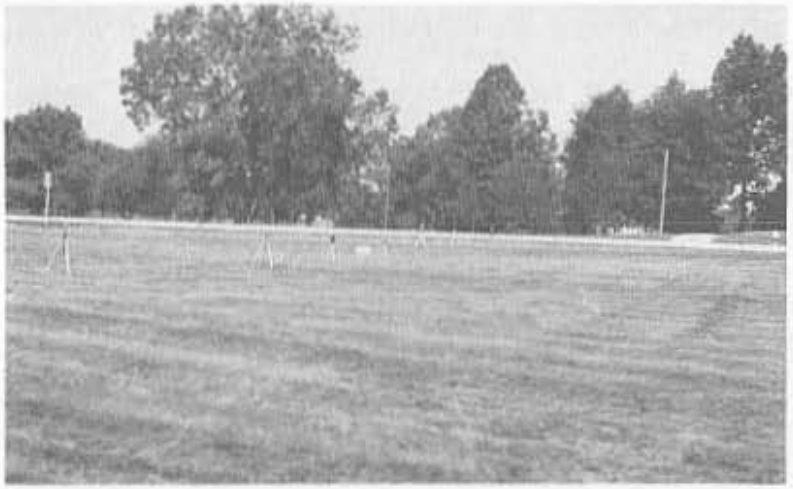


See Fig. A-14 for complete site topography.

Figure A-5. Site 4 — Photographs and Schematic Layout, Ft. Wayne IN (Continued)

4

5



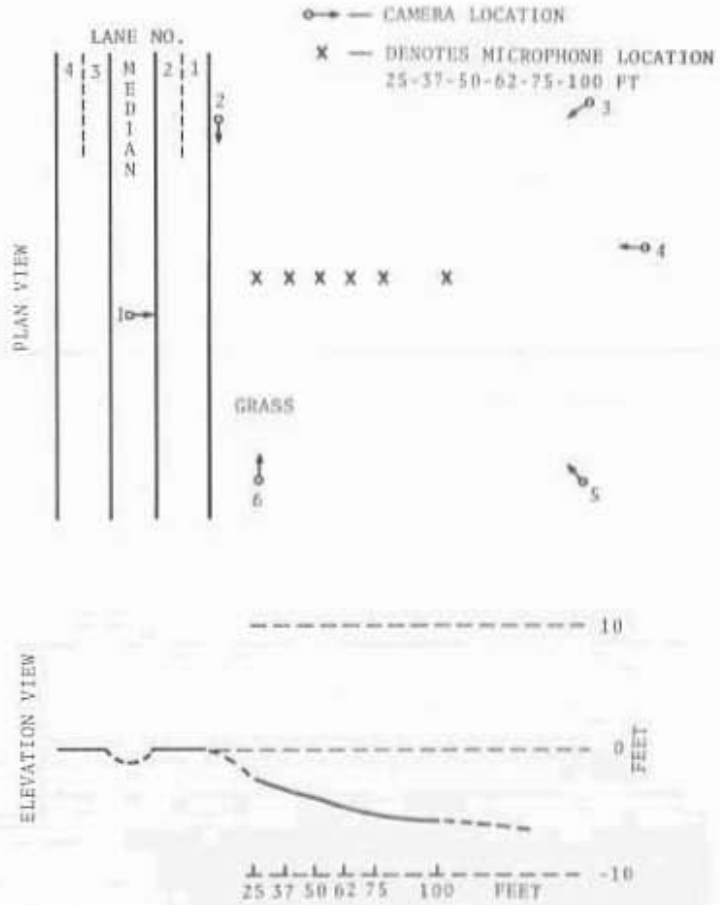
3

6

Figure A-6. Site 5 — Photographs and Schematic Layout, Ft. Wayne IN

2

1

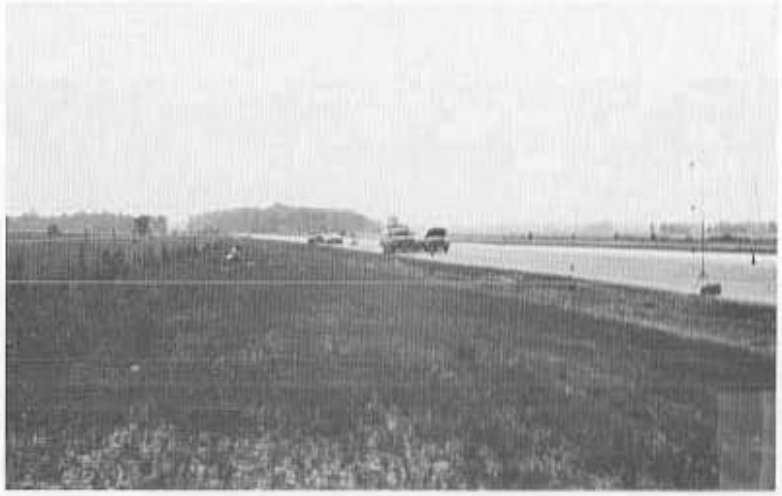


See Fig. A-15 for complete site topography.

Figure A-6. Site 5 — Photographs and Schematic Layout, Ft. Wayne IN (Continued)

4

5



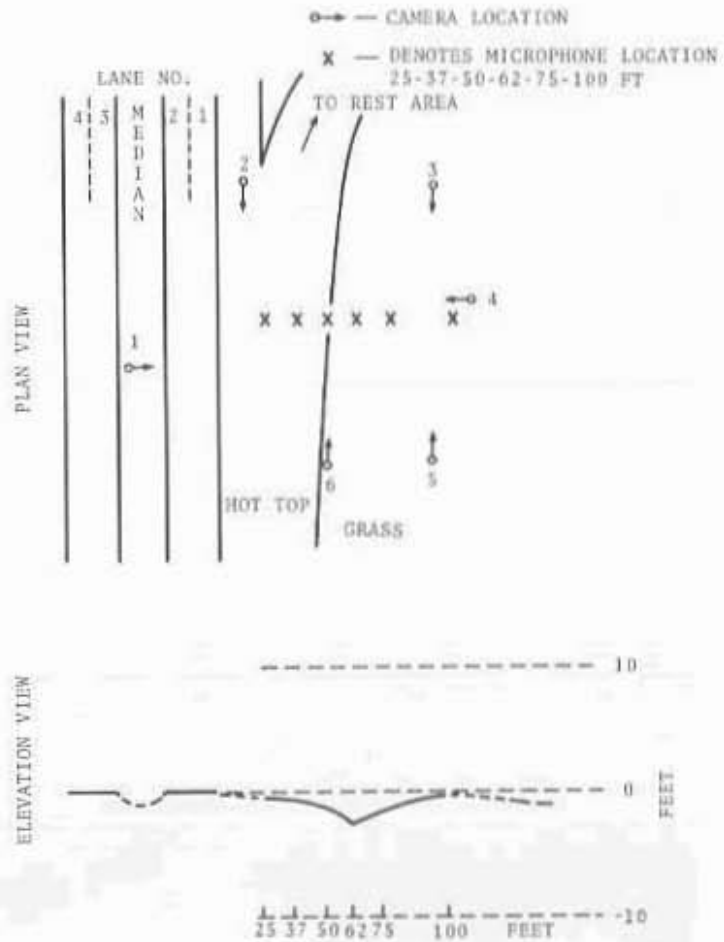
3

6

Figure A-7. Site 6 — Photographs and Schematic Layout, Ft. Wayne IN

2

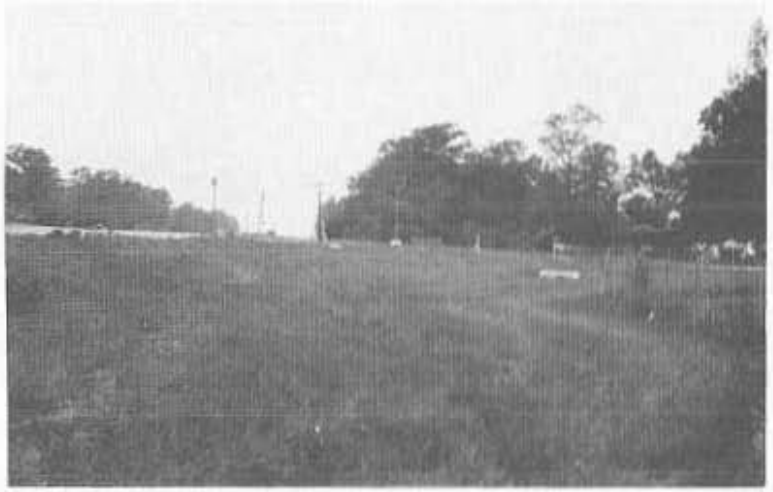
1



See Fig. A-16 for complete site topography.

Figure A-7. Site 6 — Photographs and Schematic Layout, Ft. Wayne IN (Continued)

4



5

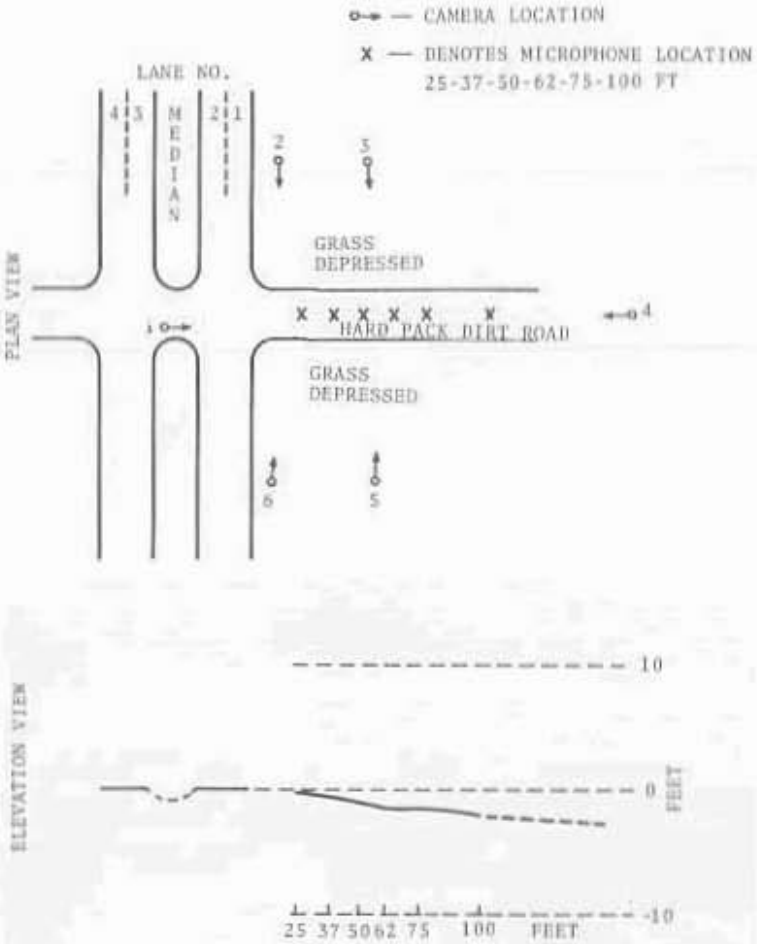
3

6

Figure A-8. Site 7 — Photographs and Schematic Layout, Ft. Wayne IN

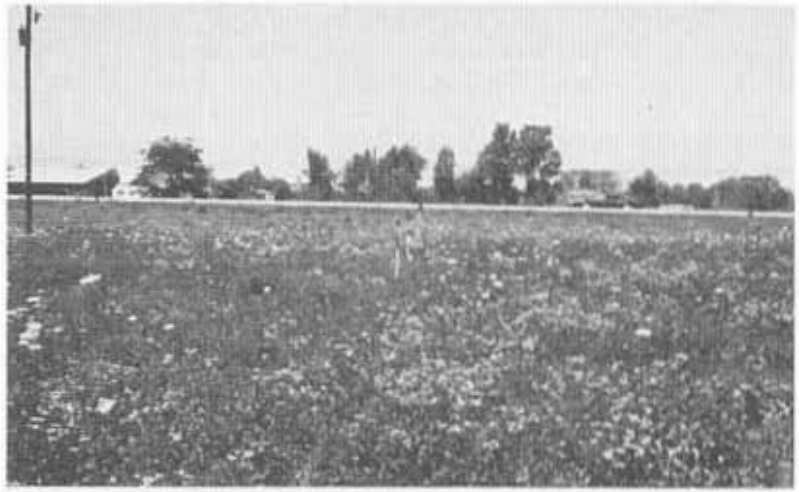
2

1



See Fig. A-17 for complete site topography.

Figure A-8. Site 7 — Photographs and Schematic Layout, Ft. Wayne IN (Continued)



4

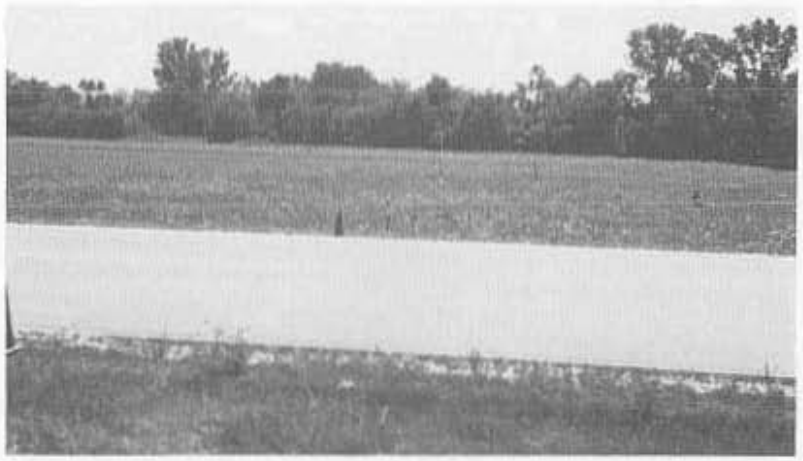
5

3

6

Figure A-9. Site 8 – Photographs and Schematic Layout, Ft. Wayne IN

2



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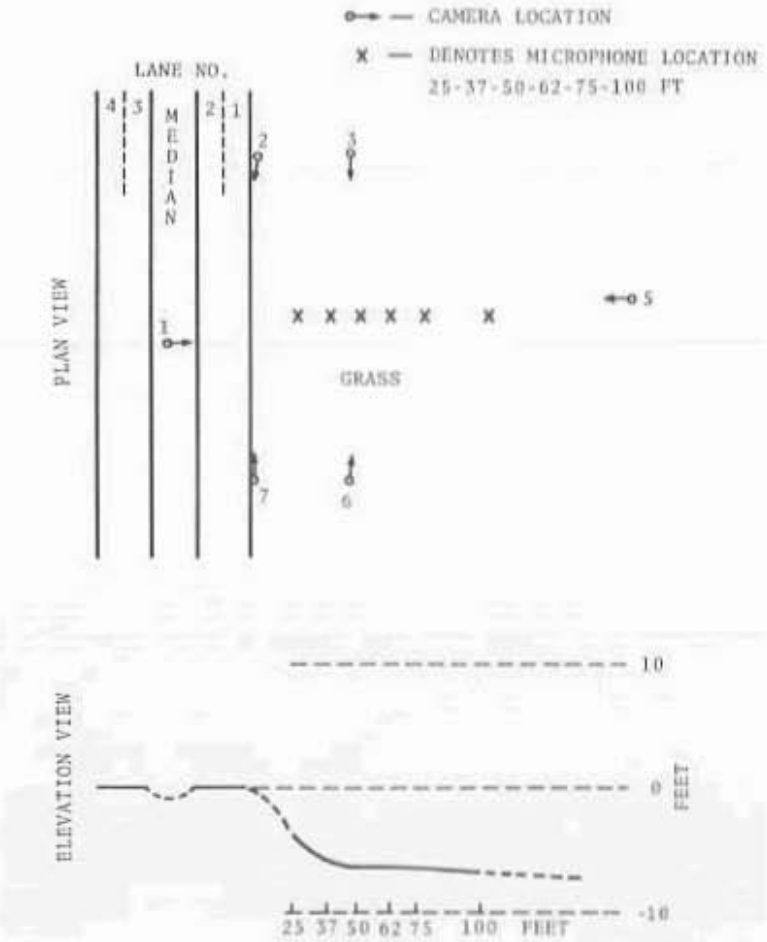


See Fig. A-18 for complete site topography.

Figure A-9. Site 8 — Photographs and Schematic Layout, Ft. Wayne IN (Continued)

4

5

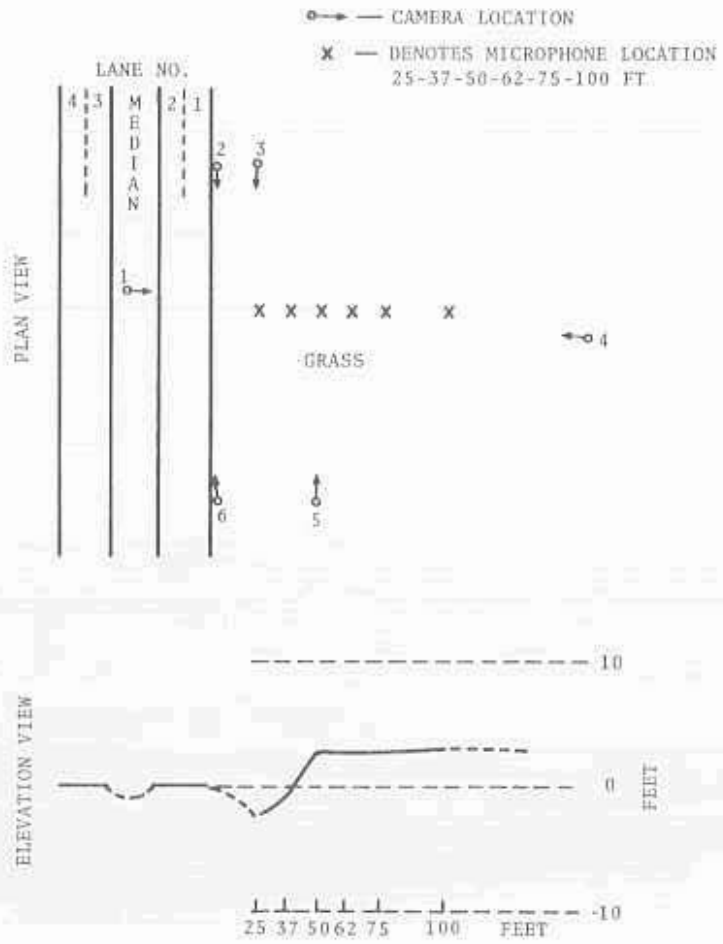
3

6

Figure A-10. Site 9 — Photographs and Schematic Layout, Ft. Wayne IN

2

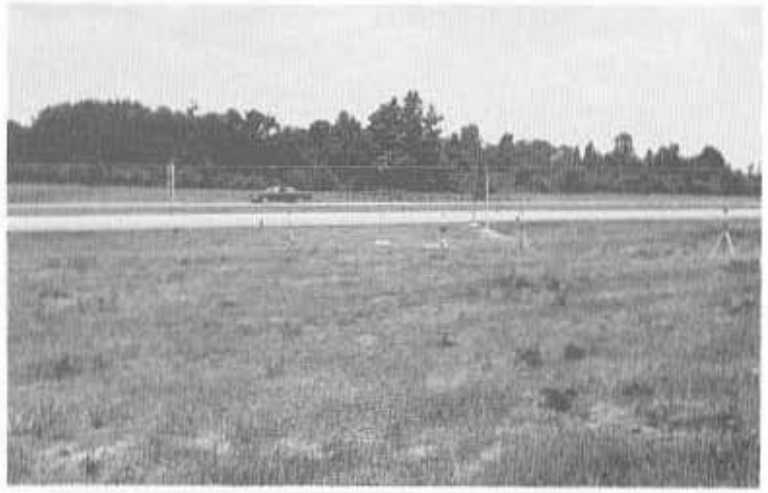
1



See Fig. A-19 for complete site topography.

Figure A-10. Site 9 — Photographs and Schematic Layout, Ft. Wayne IN (Continued)

4



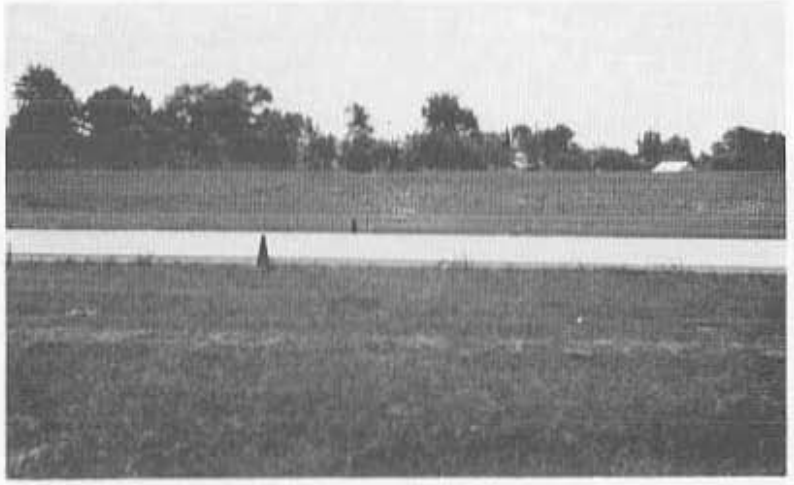
5

3

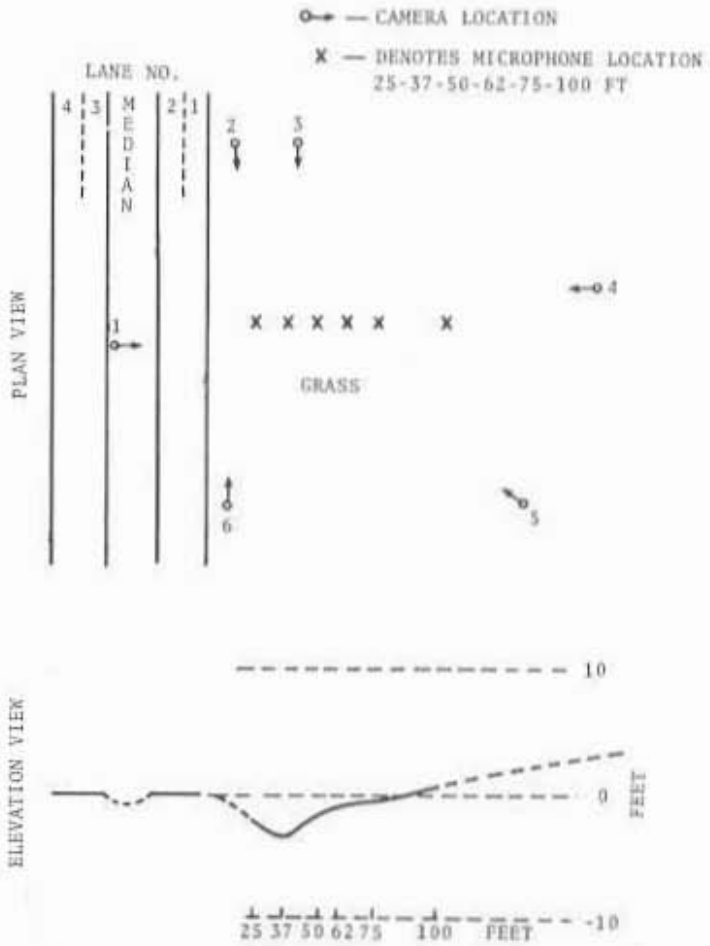
6

Figure A-11. Site 10 — Photographs and Schematic Layout, Ft. Wayne IN

2



1



See Fig. A-20 for complete site topography.

Figure A-11. Site 10 — Photographs and Schematic Layout, Ft. Wayne IN (Continued)

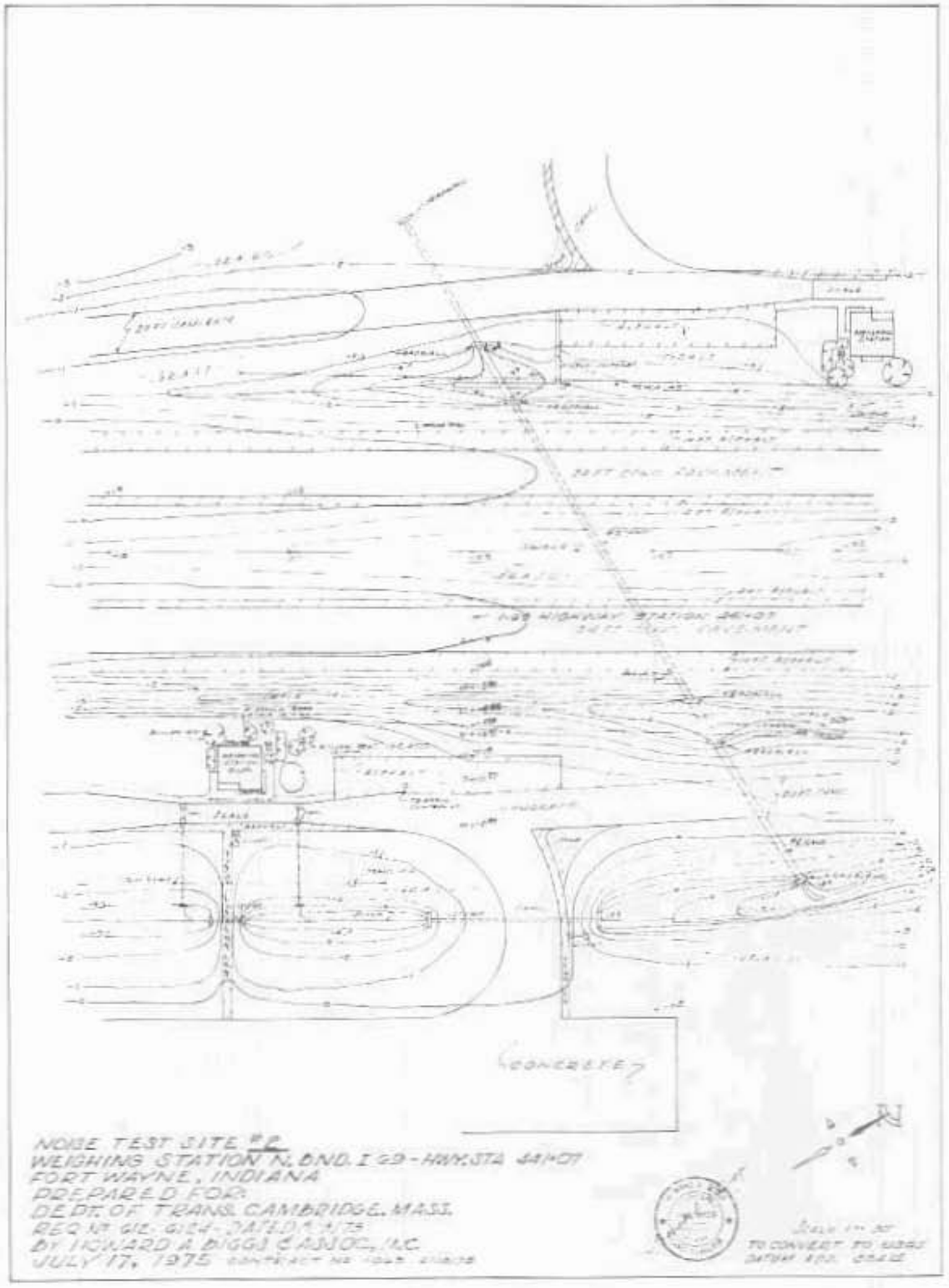


Figure A-12. Site 2 - Topography

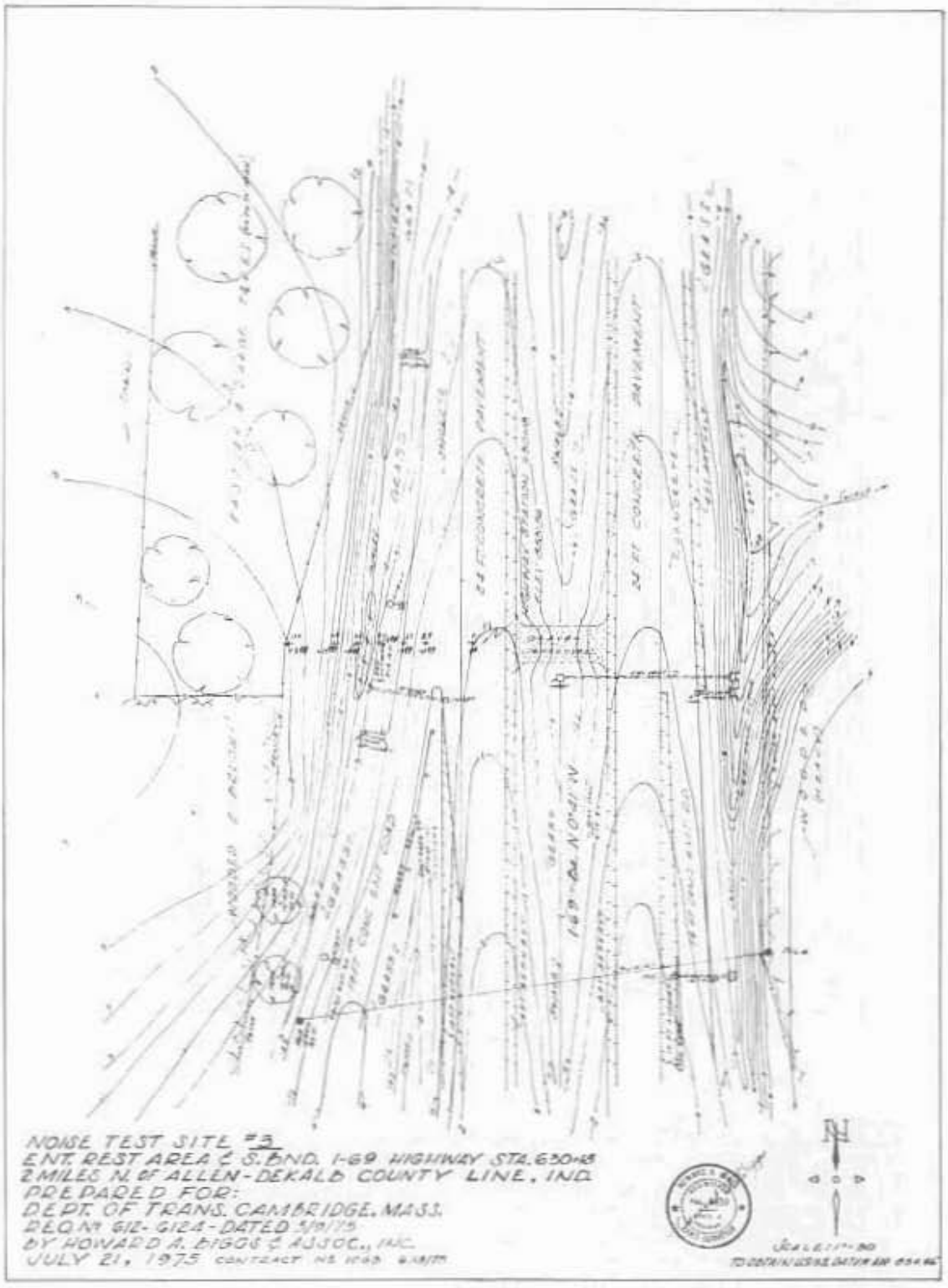


Figure A-13. Site 3 - Topography

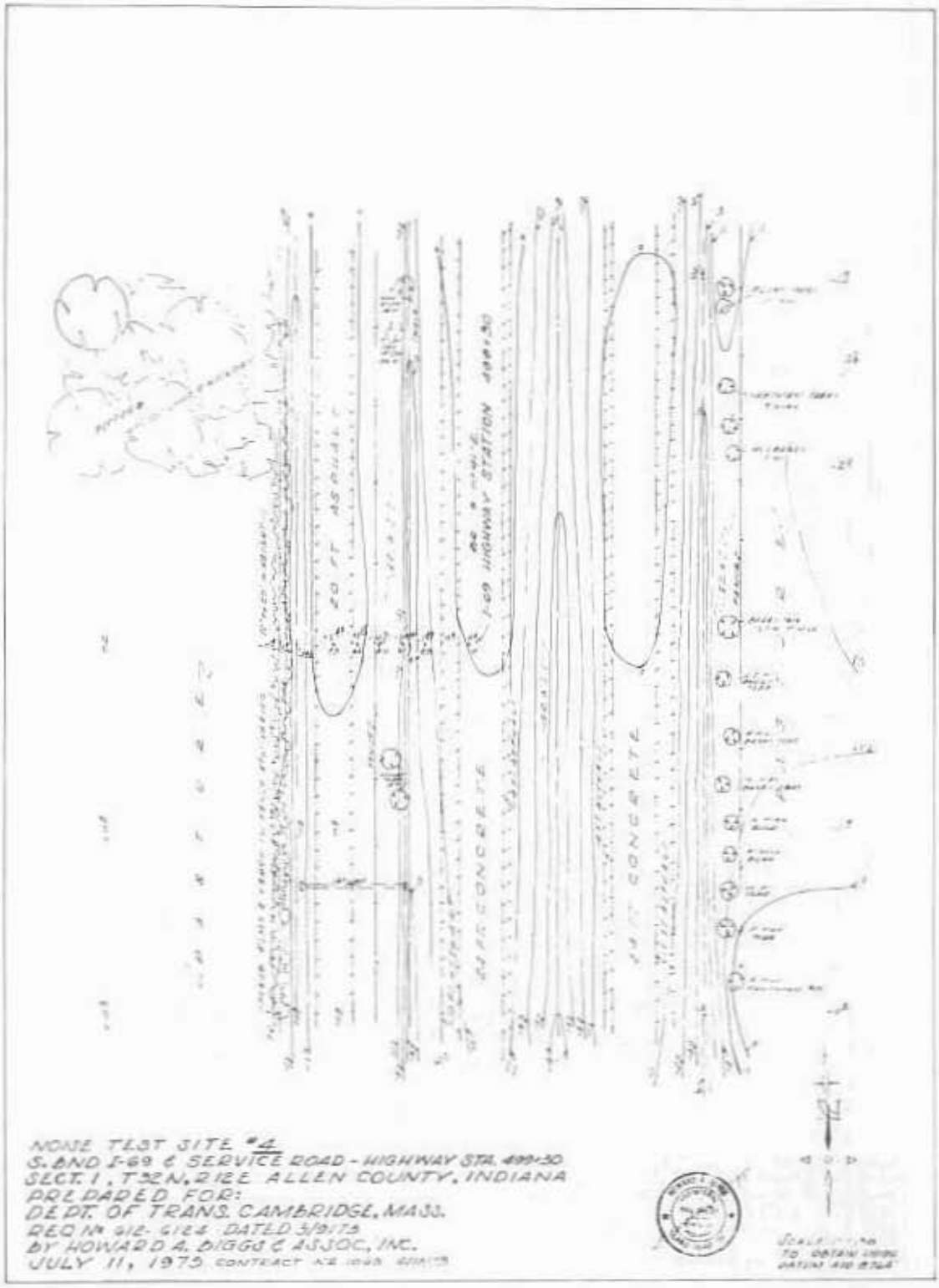


Figure A-14. Site 4 - Topography

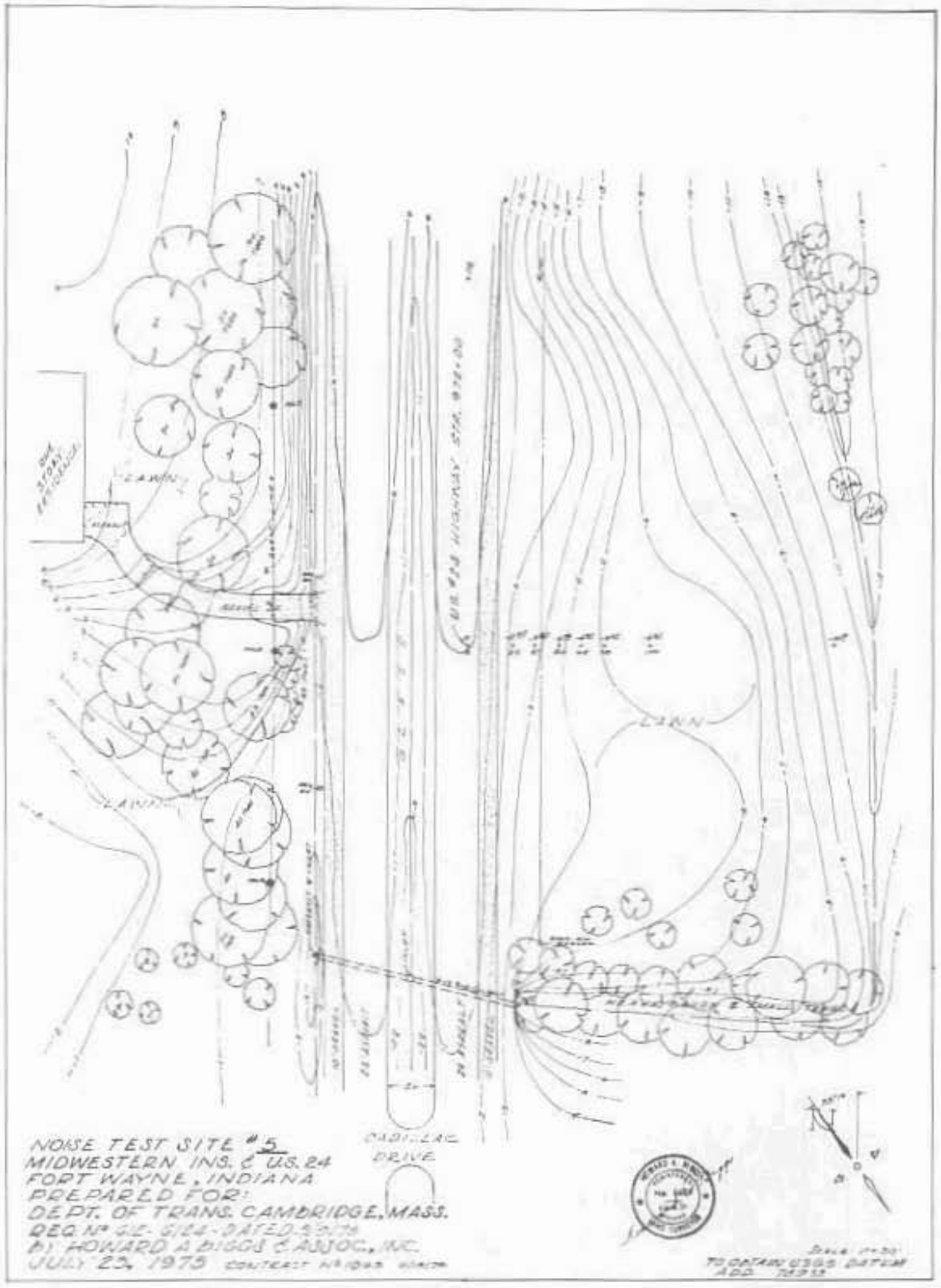


Figure A-15. Site 5 - Topography

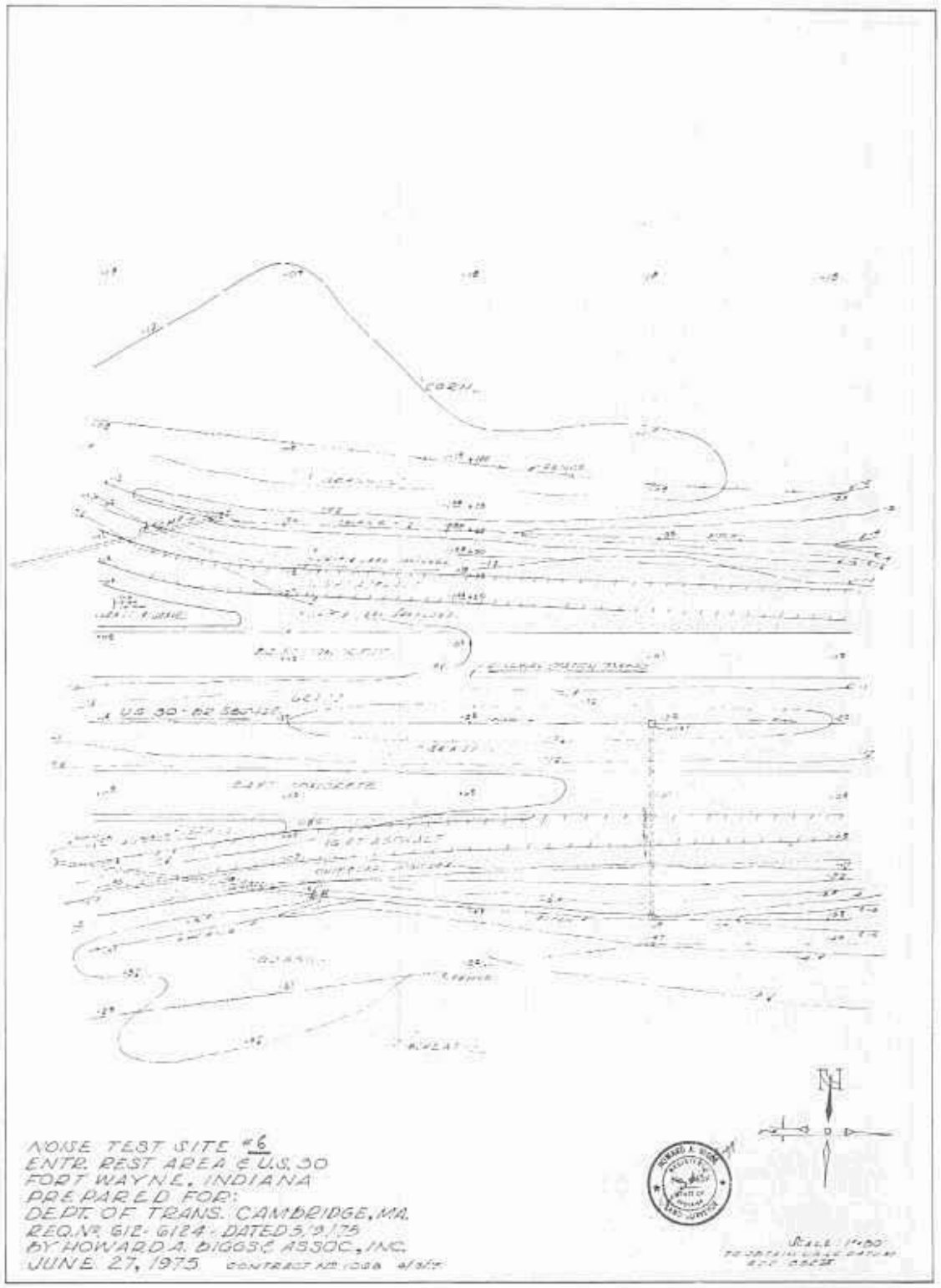


Figure A-16. Site 6 - Topography

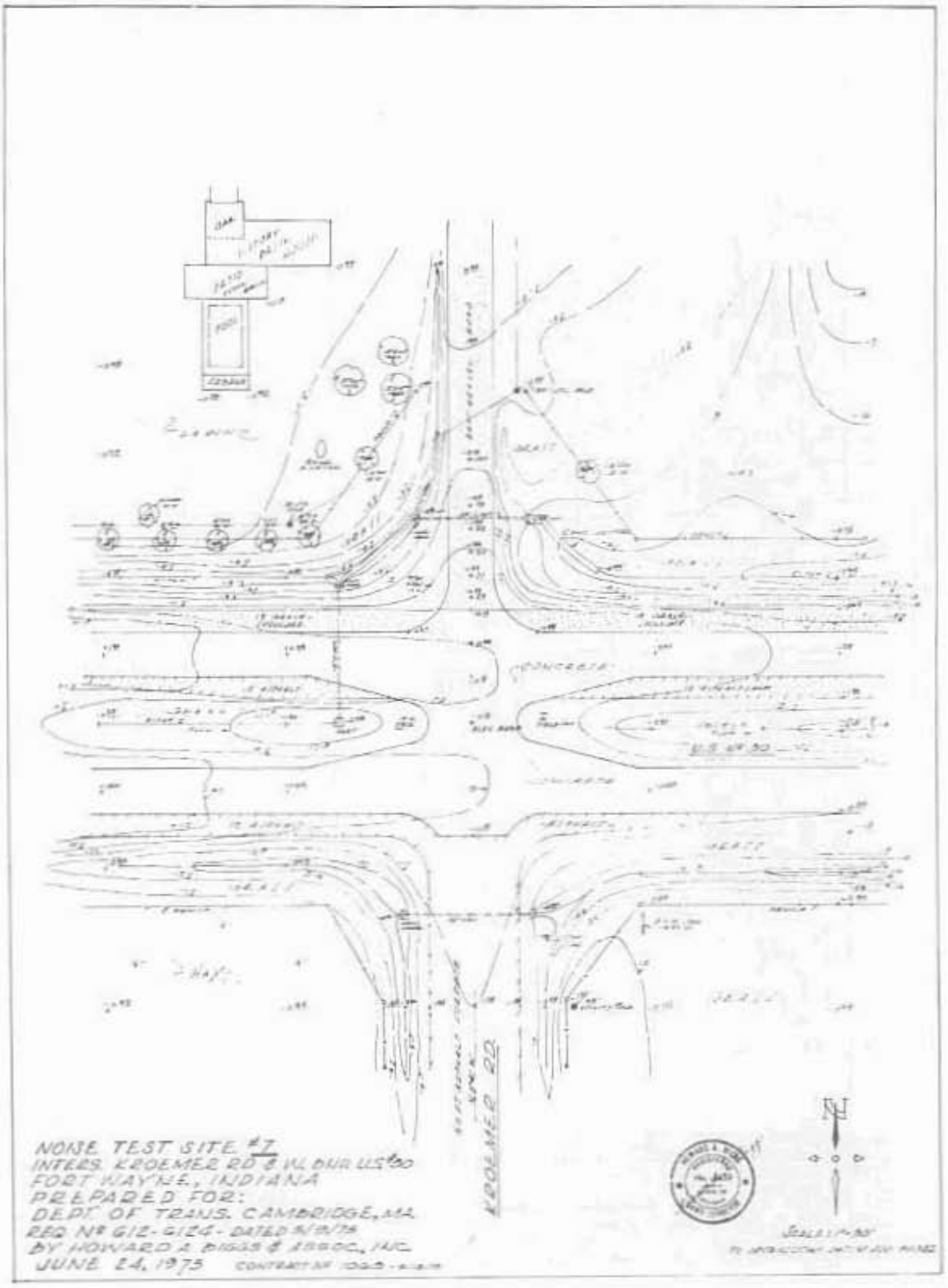


Figure A-17. Site 7 - Topography

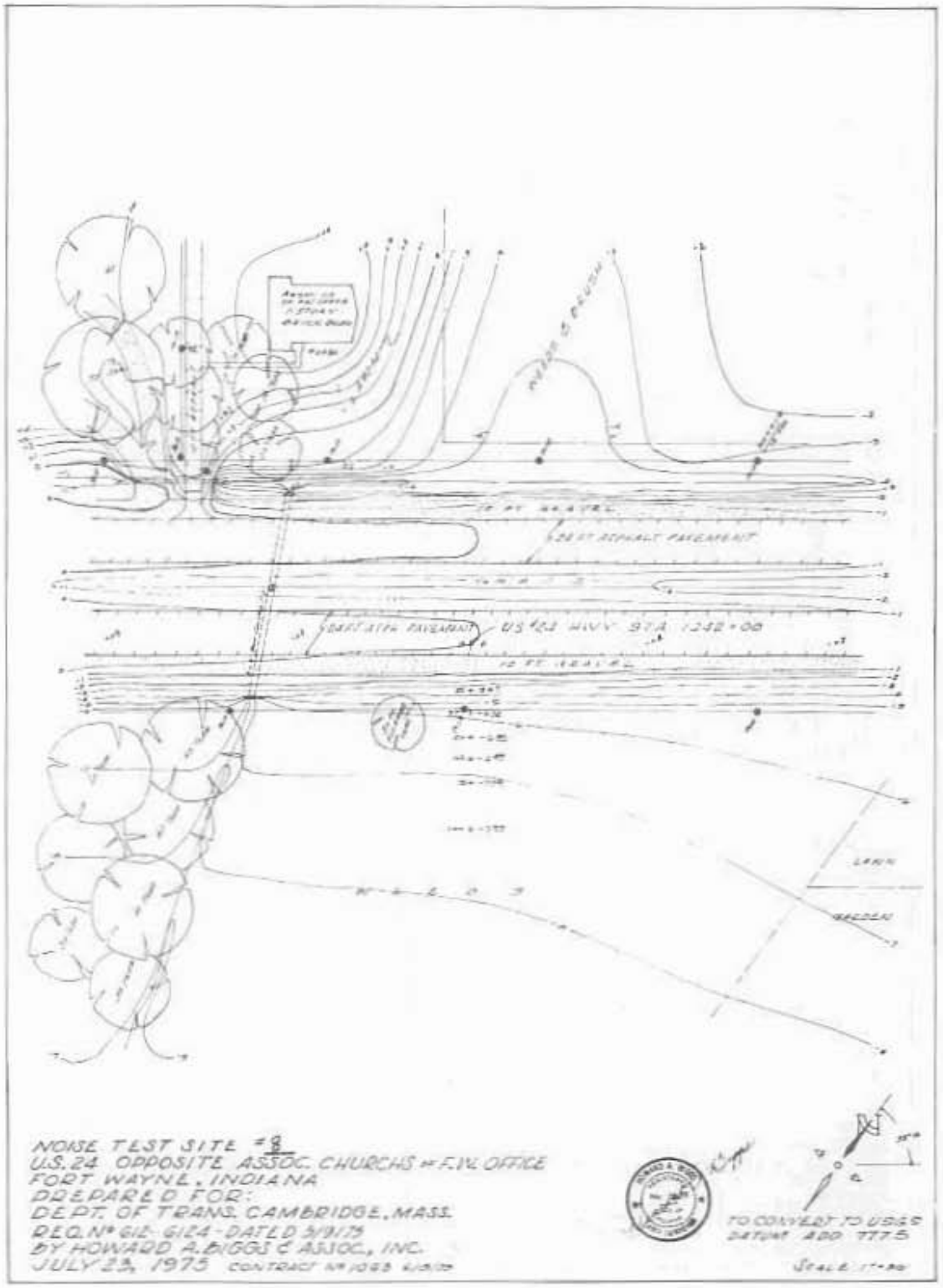


Figure A-18. Site 8 - Topography

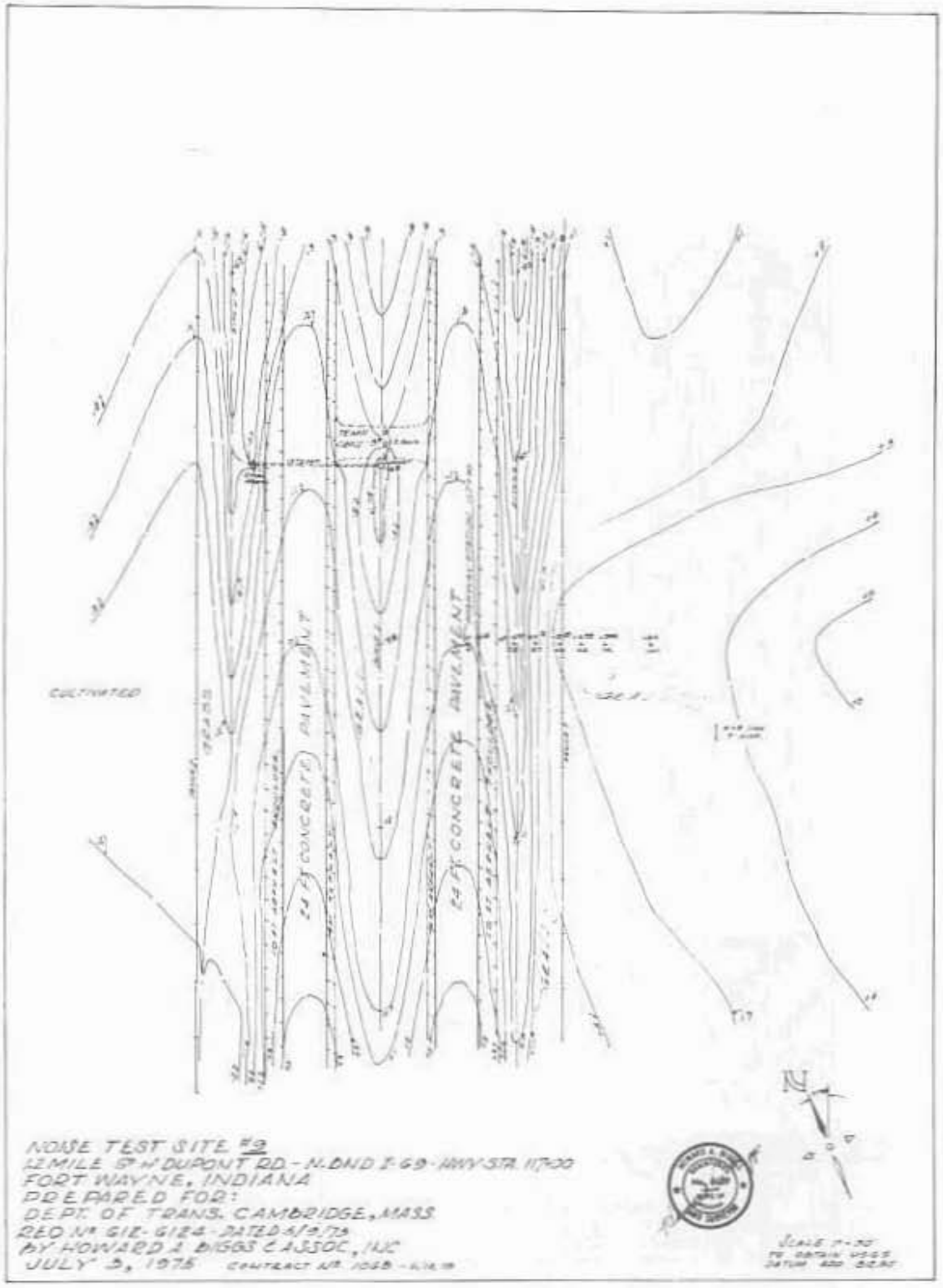


Figure A-19. Site 9 - Topography

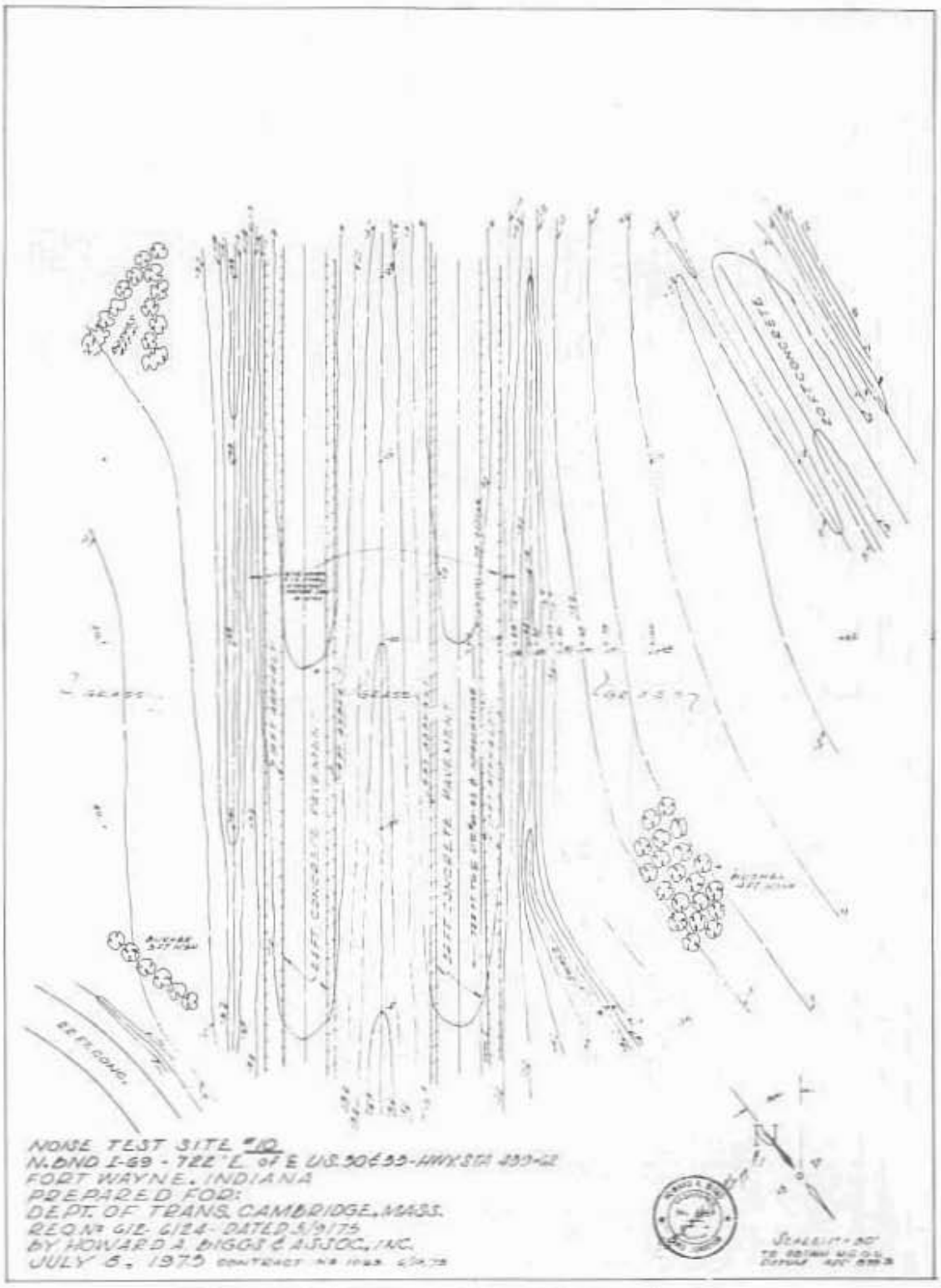


Figure A-20. Site 10 - Topography

APPENDIX B

DEDICATED VEHICLE
DESCRIPTIVE DATA AND PHOTOGRAPHS

Unit No. 843

Serial No. GA29306

INTERNATIONAL TRANSTAR® F-4270-F-4370

Vehicle illustrated may include Optional Equipment and does not necessarily include all standard equipment.

Max GVWR 44,500 lb Limited by Front and Rear Suspension

GROSS VEHICLE WEIGHT RATINGS: (GVWR)

	STANDARD GVWR 44,500		GVWR 49,500		GVWR 52,380		MAXIMUM GVWR W/ADVERTISED OPTIONS 55,560	
FRONT AXLE	FA-139	12,000	FA-139	12,000	FA-139	12,000	FA-136	16,000
Spring	03503	10,500	03503	10,500	03506	12,000	03508	16,000
Tire	10.00 x 20 – 12 PR	10,860	10.00 x 20 – 12 PR	10,860	10.00 x 20 – 12 PR	10,860	11.00 x 22 – 14 PR	11,560
FRT-GAWR		10,500		10,500		10,860		11,560
REAR AXLE	RA-351	34,000	RA-355	38,000	RA-399	44,000	RA-399	44,000
Spring	Standard	34,000	RT-380	38,000	RT-440	44,000	RT-440	44,000
Tire	10.00 x 20 – 12 PR	38,080	10.00 x 20 – 12 PR	38,080	11.00 x 20 – 12 PR	41,520	11.00 x 22 – 14 PR	46,240
RR-GAWR		34,000		38,000		41,520		44,000

MAXIMUM GROSS COMBINATION WEIGHTS:*

Standard (34,000-lb Rear Axles) ..... 80,000 lbs.
With 38,000-lb. Rear Axles ..... 80,000 lbs.
With 44,000-lb. Rear Axles ..... 120,000 lbs.**

*Requires tires of adequate capacity. GVW rating cannot exceed total of front and rear suspensions, or of the front and rear axles, whichever is lower.

**Requires engines larger than 318 HP.

Combinations of optional tires, springs and axles allow a wide range of GVWR selections between the standard and maximum GVWR's shown. See CT-400, Section 30, for library of component ratings and method of calculating specific GVWR's. Where higher GVWR's are required larger components must be specified.

STANDARD EQUIPMENT

AXLE, FRONT
- FA-139 12,000-lb capacity center-tread
- Heat-treated forged steel I-beam
- Right front wheel speedometer drive

AXLE, REAR
- RA-351 34,000-lb capacity tandem drive
- Hypoid gear single-reduction; 16" ring gears
- One-piece forged steel housings
- Full-floating, induction-hardened axle shafts
- Inter-axle differential power-divider with air-operated lock and warning light
- Ratios: 4.10, 4.44, 4.78, 5.37, 6.14, 6.57, 7.17, 8.17
- Magnetic drain plug

BRAKES, PARKING
- Piggy-back mounted on forward-rear axle brake chambers
- Spring-actuated, released by air, with dash control
- Total area: 410.0 sq. inches

BRAKES, SERVICE
- Air with BW 12 cu. ft. water-cooled compressor
- Front: 15 x 3½" wedge type (228.8 lining area)
- Rear: 15 x 7" wedge type (880.0 lining area)
- Total lining area: 1,108.8 inches
- Low pressure warning buzzer; front wheel limiting valve
- Two air reservoirs, total capacity: 3,373 cu. in.
- Flexible hoses with reusable fittings on chassis section; nylon tubing on cab section

CAB
- Steel construction with aluminum doors
  - 107" BBC F-4270
  - 117" BBC F-4370
- 3 point mounting
- Safety glass tinted windows and windshield
- Right door visibility window
- Bostrom "West Coaster" driver's seat w/belts
- Left air intakes; dual padded sun visors; ash tray
- Heavy duty rubber floor mat with insulated backing
- Hard board headliner and back panel, fiberglass insulated
- Air operated windshield wipers with dual motors
- Dual West Coast type aluminum mirrors; coat hook, driver's arm rest
- Left side grab handles, 1-inside, 1-outside
- Voltmeter; fuel, water temperature, air and oil pressure gauges

CAB (Continued)
- Speedometer, odometer and tachometer
- Hood and fenders: one-piece forward-tilting fiberglass 90°
- Fresh air heater and defroster, 2 blowers
- Electric windshield washers
- SAE/RCCC Padded instrument panel w/hinged access

CLUTCH
- 14-inch 2-plate angle spring with clutch brake
- Total lining area: 422.8 sq. inches

COOLING SYSTEM
- 67 quart F-4270, 54 quart F-4370
- Three-piece bolted radiator with de-aeration system; 1,200 sq. in. frontal area
- Air operated mechanical modulated radiator shutters
- 3-inch deep radiator core
- Permanent anti-freeze: —20°F

DRIVE LINE
- 4-inch diameter dynamically-balanced prop shaft
- Series 1700 needle bearing universal joints (1600 on interaxle shafts)

ELECTRICAL SYSTEM
- 12-volt 65-amp alternator, 27 SI type 150 with integral fully transistorized regulator
- Increased capacity batteries
- Dome light; cigar lighter
- Rheostat-controlled instrument panel lights
- High beam and turn signal indicator lights
- Front directional signals: double face, fender mounted with side reflectors and lamps, external, column mounted switch
- Two front clearance and three identification lamps
- Combination dual rear, stop, tail, directional and back-up lamps (Lexan)
- Electric horn and single cab-mounted air horn
- Traffic hazard switch, push-button starter switch
- Automatic reset circuit breakers

ENGINE
- Engine (117" BBC F-4370)
  - Cummins NTC-290 4-cycle in-line-six diesel
  - Gross BHP: 290.0 @ 2100 RPM

Figure B-1. Test Vehicle IH-843 - Descriptive Data

STANDARD EQUIPMENT (continued)

ENGINE (Continued)
Gross torque: 837 lb-ft @ 1500 RPM
855 cu. in. displacement 15.5 to 1 compression
Engine (107" BBC F-4270)
Detroit 8V-71 2-cycle V-8 diesel, N-55 Inj.
Gross BHP: 260 @ 1950 RPM
Gross torque: 760 lb-ft @ 1200 RPM
567.40 cu. in. displacement: 18.75 to 1 compression
Aluminum flywheel housing, SAE # 1
16" dry air cleaner with vacuator and full-flow oil filter (2 qt. 8V-71, 4 qt. NH-230)
Vertical aluminized muffler and tail pipe with guard
4-inch exhaust inlet-outlet, dual fuel filter (4370)
5-inch exhaust inlet-outlet (4270)
Flexible hoses with reusable fittings, throughout
Magnetic drain plug

FINISH
Frame, fuel tank, and wheels: black
Cab and bumper: choice of any standard IH color
Bumper painted darkest cab color when 2-toned

FRAME
Heat-treated chrome manganese steel channel
Bolted construction; drop front-end section, straight to rear
9⅞ x 3⅛ x ¼": 12.9 lbs/ft per rail
Section modulus: 10.66 inches-cubed
Resisting bending moment: 1,172,600 in-lbs

FRAME (Continued)
Formed steel front safety bumper

FUEL TANK (Nominal Capacity)
60-gallon cylindrical, 24" steel, right side mounted

STEERING
S-44 steering gear, 30-26-30 variable ratio
21" beige plastic steering wheel

SUSPENSION
Front: Spring capacities tailored to axle load
4 x 54" semi-elliptic steel leaf springs
Threaded pins and bushings
Hydraulic double-acting shock absorbers
Rear: 34,000-lb capacity steel springs (Hend. RT-340)
50" steel walking beams

TRANSMISSION
T-129 (RT-910) 10-speed twin countershaft Roadranger
Ratios: 8.05, 6.30, 4.99, 3.95, 3.20, 2.51, 1.97, 1.56, 1.24, 1.00
Reverse: Low, 8.73; Hi, 2.73

WHEELS AND TIRES
Single front and dual rear
10.00 x 20, 12-PR tires and tubes
Cast steel spoke wheels with 7.50V rims

OPTIONAL EQUIPMENT

10,500 lb front spring

AXLE, FRONT
FA-112 (FE-970) 12,000-lb capacity, center point
FA-136 (FH-901) 16,000-lb with 15 x 5" wedge brakes with transmission speedometer drive
FA-228 straight beam, 12,000-lb

AXLE, REAR
RA-302 (34DSB) 34,000-lb single reduction tandem
Ratios: 4.33, 4.87, 5.57, 6.14, 6.50, 7.17 to 1
RA-306 (34D3) 34,000-lb three-speed tandem
Ratios: 3.70/4.37/5.05, 4.11/4.86/5.61, 4.33/5.12/5.91, 4.56/5.39/6.21, 4.87/5.77/6.65, 5.57/6.59/7.60, 6.14/7.26/8.38, 6.50/7.68/8.87, 7.17/8.47/9.77 to 1
RA-328 (SLHD) 34,000-lb single-speed tandem
Ratios: 4.11, 4.44, 4.63, 5.29, 5.83, 6.17, 6.83, 7.20, 7.80, 8.60 to 1
RA-333 (SQHD) 38,000-lb single-speed tandem
Ratios: 4.11, 4.44, 4.63, 5.29, 5.83, 6.17, 6.83, 7.20, 7.80, 8.60 to 1
RA-334 (SQHD with Timken wheel ends)
38,000-lb single-speed tandem drive with 38,000-lb suspension
Ratios: 4.11, 4.44, 4.63, 5.29, 5.83
RA-355 38,000-lb single-speed tandem (IH)
Ratios: 4.10, 4.44, 4.77, 5.37, 6.14, 6.57, 7.17 to 1
RA-390 (38DS) 38,000-lb single-speed tandem
Ratios: 3.70, 4.11, 4.33, 4.56, 4.88, 5.29, 5.57, 6.14, 6.50, 7.17 to 1
RA-391 (38DT) 38,000-lb two-speed tandem
Ratios: 3.70/5.05, 4.11/5.61, 4.33/5.91, 4.56/6.21, 4.88/6.65, 5.29/7.21, 5.57/7.60, 6.14/8.38, 6.50/8.87, 7.17/9.77
RA-392 (38DP) 38,000-lb single-speed double-reduction tandem
Ratios: 5.05, 5.61, 5.91, 6.21, 6.65, 7.21, 7.60, 8.38, 8.86, 9.77 to 1
RA-393 38,000 (38D3B) 3 speed tandem
Ratios: 4.11/4.86/5.61 or 5.57/6.59/7.60
RA-399 (SSHD) 44,000-lb single-reduction tandem drive rear axle
Ratios: 4.11, 4.44, 4.63, 5.28, 6.14, 6.83, 7.40
RA-446 (44DS) 44,000-lb single-speed tandem
Ratios: 3.70, 4.11, 4.33, 4.56, 4.88, 5.43, 6.17 to 1
RA-448 (44DT) 44,000-lb two-speed tandem
Ratios: 3.70/5.04, 4.11/5.60, 4.33/5.90, 4.56/6.21, 4.88/6.64, 6.17/8.40, 6.67/9.08
RA-449 (44DP) 44,000-lb double-reduction tandem
Ratios: 5.04, 5.60, 5.90, 6.21, 6.64, 8.40, 9.08 to 1

BRAKES, PARKING
Extra 405 cu. in. air reservoir to release spring-actuated parking brake
Anchorlok 16½ x 7" double diaphragm

BRAKES, SERVICE
BW brake system with 14 cu. ft. air compressor
Wig-wag low air pressure indicator
Four-wheel trailer connections, with breakaway and hand control valves
Semi or 4-wheel trailer connections, with breakaway and hand control valves; trailer hose kit
Air tank sludge remover; alcohol evaporator
4-wheel trailer hose kit
Air application gauge
Chassis and cab section completely hosed with reusable fittings
Hand control valve
Auxiliary glad hand with connection at reservoir

CAB
I.H. blend air heater—air conditioner
107" or 117" BBC aluminum cab
Right side electric window regulator, sliding rear window
Single defroster fan; Salem roof type vent
Rear window protector screen
Combination heater/defroster and air conditioner
Driver's Bostrom "Levelaire" seat
Driver's National "Cush-N-Aire" seat
Passenger seat; H.D. air operated windshield washers
Dual ash trays in doors
Deluxe aluminum 16 x 7" mirrors
Stainless steel Coronado mirrors
Custom Interior Trim Package:
Instrument panel pad in Dark Red
Seat covering—driver and passenger in Burgundy
Left and right rear lower quarter trim panels in Burgundy
Center rear back panel w/pocket in Burgundy
Headliner—padded in Burgundy
Sunvisors—dual padded in Burgundy
Door inner trim panel—lower in Burgundy and carpet
Door upper trim panel in Burgundy vinyl
Visibility window in lower front of right door, 8 x 13"
Right door safety window trim—Red plastic
Rear lower trim panels—Red plastic
Ash trays—door mounted, dual chrome
Two coat hooks
Coat hanger bar
Inside assist handles, left and right
Vinyl/carpet combo floor covering in Dark Red
Dual side dome lights
Entire interior of cab trimmed in Dark Red & Burgundy with chrome trim strips

CLUTCH
Heavy duty 14" 2-plate angle spring with ceramic buttons

DRIVE LINE
Center bearings as required (see minimum wheelbase and center bearing chart)
Glide-Cote inter-axle shaft

Figure B-1. Test Vehicle IH-843 - Descriptive Data (Continued)

ELECTRICAL SYSTEM
12 volt 75, 80 or 145-amp alternator
Six or seven-conductor trailer socket
Six or seven-conductor trailer lighting cable
Separate trailer light switch
Dual long chrome air horns
Parking lights
ICC regulation reflectors on cab
Clear sealed-beam driving lights or fog lights
5 KD Bullett marker lights
Engine high temperature and/or low oil pressure warning lights
Aluminum lightweight battery box
Extra dome light
Trailer hook-up light
Radio AM or AM/FM w/dual speakers and balance control
Centrifugal type speedometer & tachometer
Engine shutdown system
Increased capacity batteries
Trailer hookup light

ENGINE

Make	Model F-4270	Model F-4370	Description	BHP	Notes
Detroit	X		8V-71 (N-60)	290 @ 2100	(3) (5)
Detroit	X		8V-71 (N-65)	318 @ 2100	(3) (5)
Detroit	X		8V-71T (N-75)	350 @ 2100	(3) (5)
Cummins		X	Super 250	250 @ 2100	(4) (7)
Cummins		X	PowerTorque270	270 @ 2100	(2) (5) (8)
Cummins	X		VT-903	320 @ 2600	(3) (5)
Cummins		X	NTC-350	350 @ 2100	(2) (5) (8)
Cummins		X	NTA-370	370 @ 2100	(2) (5) (8)

Notes: (1) Two 6-volt 208-amp batteries standard.
(2) Four 6-volt 150-amp batteries standard.
(3) Four 6-volt 172-amp batteries standard.
(4) Four 6-volt 208-amp batteries standard.
(5) 5" single exhaust standard.
(6) 4" dual exhaust standard.
(7) 4" single exhaust standard.
(8) Fuel Pump Primer and Glow Plug Preheater standard.

Glo-Plug preheater
Ether start with cab control
Ether start w/o cab control
Compression release control—in cab
Luberfiner oil filter; model 750-C, IH Fleetguard LF-750
Corrosion resistor—Standard w/Cummins engine
Hand throttle control—Vernier type
Engine oil temperature gauge
Kysor radiator shutters
Air cleaner restriction gauge—in cab

EXHAUST
Bright finish exhaust stack and muffler
Long life stainless steel muffler
Wrapped muffler
Exhaust pyrometers
Jacobs exhaust brake
Dual exhaust (8V-71 & 12V-71)

FRAME
Aluminum, polished or painted bumper
HD 10 x 3½ x 5/16" heat treated steel, bolted frame
Section modulus: 14.55 inches-cubed
RBM—1,600,000 in-lbs.
Aluminum alloy 10½ x 3¼ x ½" bolted frame w/steel drop section, aluminum bumper and crossmembers
Section modulus: 22.29 inches-cubed
RBM—824,730 in-lbs.

FRAME (Continued)
Outer C channel reinforcement for ⅜" rail
¼ x 10.06 x 3½"
Section modulus: 12.00 inches-cubed
RBM—1,370,000 in-lbs.
Lightweight aluminum crossmembers for steel rails
Heavy duty front end section
5th wheel mounting angle
Tapered rear frame

FUEL TANKS (Nominal Capacity)
60, 80 or 100-gallon steel or aluminum single and dual
Chrome plated fuel tank straps

STEERING
Integral power steering
22" deluxe padded steering wheel

SUSPENSION
IH Air 34,000-lb or 38,000-lb capacity
Hendrickson rubber load cushion (RLC) 34,000 or 38,000-lb cap.
Hendrickson RTE-340, 34,000-lb capacity
Hendrickson RUE-340, 34,000-lb capacity
Hendrickson RT-380, 38,000-lb capacity 50 or 52"
Hendrickson RTE-380, 38,000-lb. capacity 50 or 52"
Hendrickson RS-380, 38,000-lb capacity
Hendrickson RT-440 44,000-lb capacity 52"
Bronze center bushing
Dayton 4-spring, 34,000-lb capacity
Reyco 101, 34,000-lb capacity
50-inch aluminum walking beam

MISCELLANEOUS
Recording tachograph RPM, MPM, RPM/MPH 24 hr.—square or round head
Centrifugal speedometer & tachometer

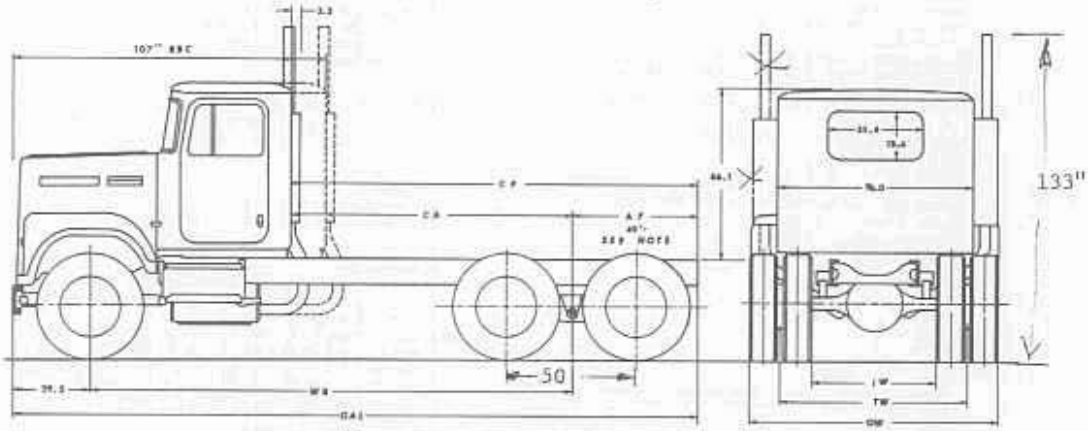
TRANSMISSIONS
4 Speed
T-371 (8542A) Direct, 1.00 4th (with aux. trans. only)
5 Speed
T-347 (T-905A) Direct 1.54 4th
T-375 (8552A) Direct 1.56 4th
T-379 (8553B) Overdrive .68
6 Speed
T-420 (RT-906) Direct, twin countershaft, Roadranger
T-449 (SST-6 model 1062B) Direct
T-463 Direct (4370 only)
T-466 7 speed (4370 only)
9 Speed
T-471 (RTF-9509A) Direct, twin countershaft, Roadranger
13 Speed
T-459 (RTO-9513) Overdrive twin countershaft, Roadranger
T-468 (RTOF-12513) Overdrive (for 12V-71) twin countershaft, Roadranger (4370 only)
15 Speed
T-128 (RT-915) Direct, twin countershaft Roadranger
16 Speed
T-391 (8516-3B) compound, steel
T-392 (8516-5B) compound, aluminum
T-399 (P8516-5B) compound, air shift, aluminum
T-405 (P8516-3B) compound, air shift, steel
Main transmission oil filter
Main transmission oil temperature gauge

AUXILIARY TRANSMISSIONS
AT-546 (8341) 4-speed
AT-551 (8345G) 4-speed
AT-560 (ATO-904C) 4-speed

WHEELS AND TIRES
Optional tire sizes as shown on back page
20" or 22" steel or aluminum disc wheels
20" or 22" high-tensile steel disc wheels
20" aluminum cast rear wheels
22" cast steel spoke wheels
Aluminum front and rear hubs
Oil lubricated wheel bearing seals
Centrifuse brake drums

Figure B-1. Test Vehicle IH-843 - Descriptive Data (Continued)

DIMENSIONS & WEIGHTS



DIMENSIONS COMMON TO ALL WHEELBASES, with 10.00 x 20 TIRES		
Overall Width: 94.0" at front bumper	Ground Clearance: 12" at front axle	Frame Height at Rear Axle: 39.8" empty
Overall Height: 104.6" at top of cab	10" at rear axle	38.4" loaded

CHASSIS WEIGHTS, LBS.*					DIMENSIONS**			TURNING RADIUS	
F-4270 CHASSIS DIMENSIONS AND WEIGHTS									
WB†	BBC	Front	Rear	Total	CA*	CF*	OAL	To Centerline of Tire	With Bumper Clearance
150"	107"	6,780	6,770	13,550	72"	121"	228"	27' 0"	28'8"
162"	107"	6,820	6,810	13,630	84"	133"	240"	28'11"	30'7"
174"	107"	6,840	6,830	13,670	96"	145"	252"	30'11"	
186"	107"	6,860	6,855	13,715	108"	157"	264"	32'10"	34'5"
215"	107"	6,900	6,895	13,795	137"	257"	364"	37' 6"	39'1"
240"	107"	6,920	6,915	13,835	162"	282"	389"	41' 6"	43'2"
F-4370 CHASSIS DIMENSIONS AND WEIGHTS									
160"	117"	6,900	6,800	13,700	72"	121"	238"	28' 8"	30'3"
172"	117"	6,940	6,840	13,780	84"	133"	250"	30' 7"	32'2"
184"	117"	6,960	6,860	13,820	96"	145"	262"	32' 6"	34'2"
196"	117"	6,980	6,885	13,865	108"	157"	274"	34' 5"	36'1"
215"	117"	7,020	6,925	13,945	127"	247"	364"	37' 6"	39'1"
240"	117"	7,040	6,945	13,695	152"	272"	389"	41' 6"	43'2"

†Other wheelbases available to meet special needs; see minimum wheelbase and center bearing requirement data.
**Weight includes standard chassis, tires, oil and water but less fuel.*
***51" AF minimum for Reyco 101.*
53" AF minimum for 44,000 lb. suspensions.

	CAST WHEELS				DISC WHEELS			
Tire Size	10.00x20	11.00x20	10.00x22	11.00x22	10.00x20	11.00x20	10.00x22	11.00x22
Rim Size	7.50V				7.50V			
Outside Width OW	95.8"	96.3"	95.7"	96.1"	95.3"	95.8"	95.2"	95.6"
Tread TW	72.0"	72.0"	72.0"	72.0"	71.4"	71.4"	71.4"	71.4"
Inside Width IW	48.2"	47.7"	48.3"	47.9"	47.5"	47.0"	47.6"	47.2"
Chain Clearance	3.0"	2.8"	3.0"	2.9"	2.7"	2.2"	2.7"	2.5"
Front Tread	79.5"	79.4"	79.4"	79.4"	79.8"	79.8"	79.6"	79.6"

Front Goodyear Super Hi Miler (rib)
Rear Goodyear Hi Miler Cross rib (lub 1/2 worn)

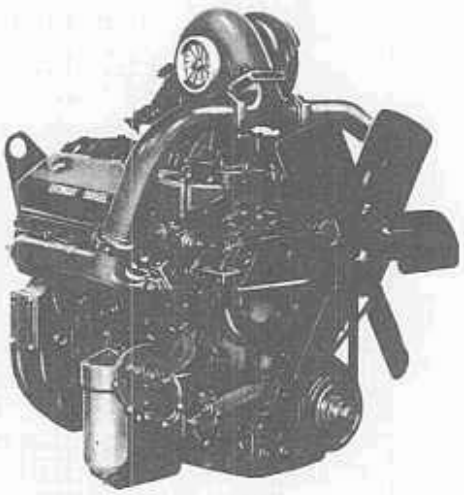
Figure B-1. Test Vehicle IH-843 - Descriptive Data (Continued)

8V-71T N-75 INJECTORS (12457)

TYPE.....8 cyl., Overhead Valve, 2 Cycle
BORE AND STROKE (in.).....4.25 x 5.0
DISPLACEMENT (cu. in.).....568
COMPRESSION RATIO.....18.7:1
GOVERNED SPEED (RPM).....2100
GROSS HP @ RPM.....350 @ 2100
*NET HP @ RPM.....319 @ 2100
TAXABLE H.P.....57.8
GROSS TORQUE Lbs/Ft @ RPM.....965 @ 1600
*NET TORQUE Lbs/Ft @ RPM.....910 @ 1600
AIR FLOW @ RPM (CFM).....1200 @ 2100
WEIGHT (L/starter, alt., compr., fan & clutch-dry)(lbs.)...2265

* Net figures are for engine installed with air cleaner, fan, alternator (under load), exhaust and air compressor (no load).

See chart on page 25-25 for Optional Equipment and accessory H.P. demands.



MODEL APPLICATION

STANDARD EQUIPMENT	CO TRANSTAR	4200 TRANSTAR	5000 PAYSTAR
AIR COMPRESSOR	BW — 12 cu. ft. — Gear Driven		
AIR CLEANER	16" Cyclopac w/Vacuator	16 x 20" Donaclone w/Vacuator and w/Restriction Indicator	15 x 18" Canadian Dry Type w/Pre-cleaner and w/Vacuator
AIR INTAKE	Vertical Stack	Frontal	Lt. Side Hood
ALTERNATOR	12 Volt, 65 Amp, SI Type		
BATTERIES	(4) 6 Volt, 172 Amp Hour		
COLD START	None		
WATER FILTER	None		
POWER STEERING PUMP	Gear Driven		

Figure B-1. Test Vehicle IH-843 - Descriptive Data (Continued)

8V-71T N-75 INJECTORS (12457)

PERFORMANCE CURVES

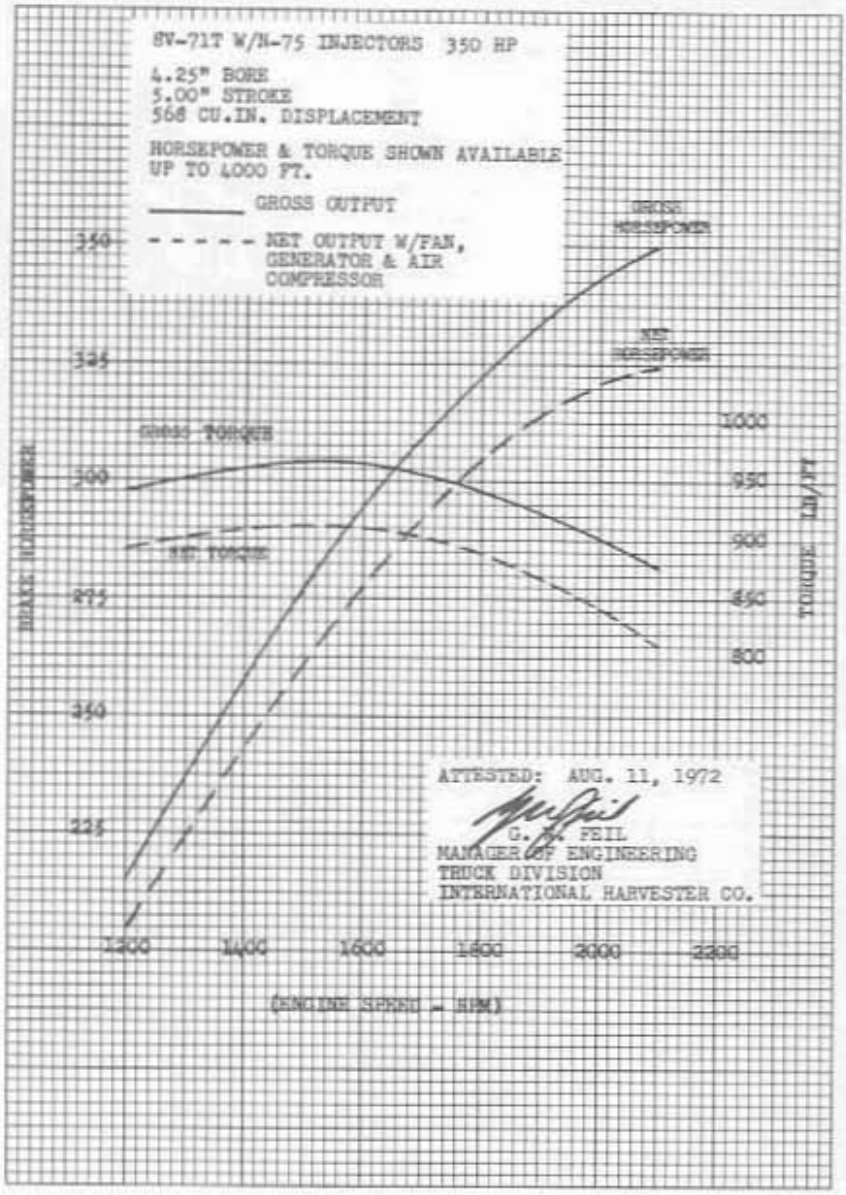
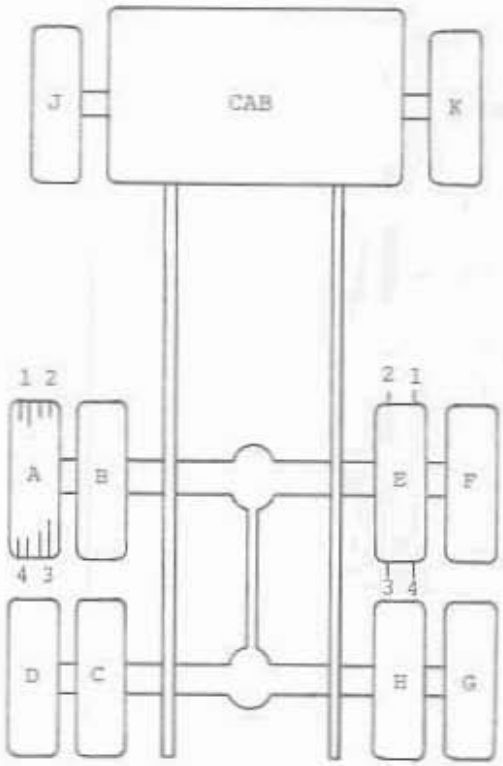


Figure B-1. Test Vehicle IH-843 - Descriptive Data (Concluded)

TRUCK NO. 843 MILEAGE 2,876 DATE 7-22-74

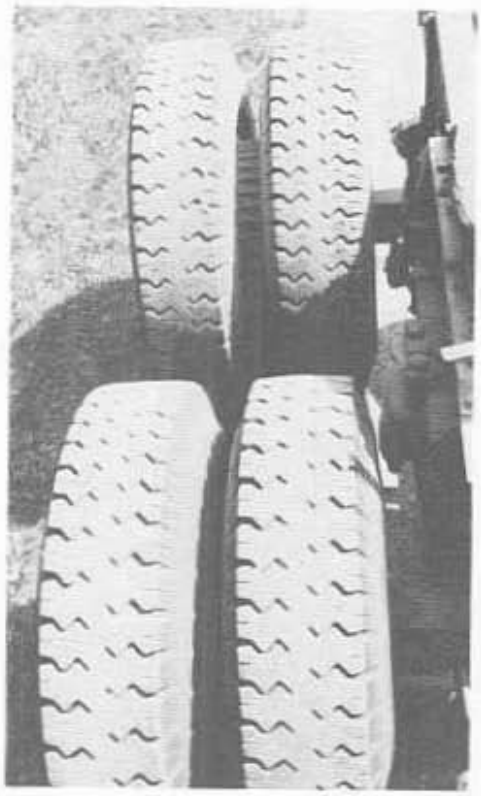
GROOVE AND TIRE LOCATION



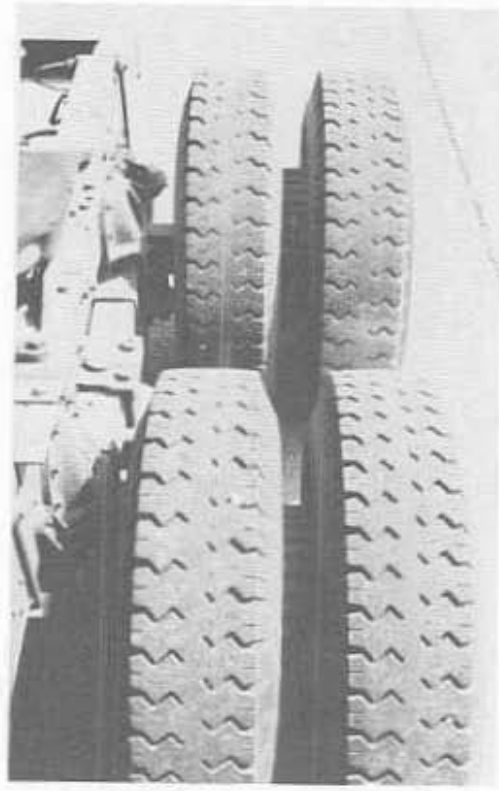
TREAD DEPTH
(IN 1/32 OF AN INCH)

GROOVE LOCATION	TIRE LOCATION									
	A	B	C	E	E	F	G	H	J	K
1	17.5	15	12	14.5	17.5	17	14	16.5	18	16
2	18.5	16	12.5	14	15	16.5	15	14	16.5	16.5
3	18	16.5	12.5	13.5	14	17	14	14.5	16	18
4	16	16	12	13.5	15.5	18.5	12.5	16	18	18

Figure B-2. Test Vehicle IH-843 – Tire Tread Data



Left Rear



Right Rear

Figure B-3. Test Vehicle IH-843 — Photographs

Unit No. 866

Serial No. GB21642

INTERNATIONAL FLEETSTAR F-2070A

Max GVWR 44,560 Limited by Front Tires & Rear Suspension

Vehicle illustrated may include Optional Equipment and does not necessarily include all standard equipment.

GROSS VEHICLE WEIGHT RATINGS: (GVWR)

	STANDARD GVWR 43,000		GVWR 48,860		GVWR 49,560		MAXIMUM GVWR w/ADVERTISED OPTIONS 55,560	
FRONT AXLE	FA-109	9,000	FA-139	12,000	FA-139	12,000	FA-136	16,000
Spring	03500	9,000	03506	12,000	03506	12,000	03508	16,000
Tire	10.00 x 20 - 12 PR	10,860	10.00 x 20 - 12 PR	10,860	10.00 x 22 - 12 PR	11,560	11.00 x 22 - 14 PR	11,560
FRT-GAWR		9,000		10,860		11,560		11,560
REAR AXLE	RA-351	34,000	RA-355	38,000	RA-355	38,000	RA-399	44,000
Spring	Standard	34,000	w/Axle	38,000	w/Axle	38,000	RT-440	44,000
Tire	10.00 x 20 - 12 PR	38,080	10.00 x 20 - 12 PR	38,080	10.00 x 22 - 12 PR	40,560	11.00 x 22 - 14 PR	46,240
RR-GAWR		34,000		38,000		38,000		44,000
MAXIMUM GROSS COMBINATION WEIGHT								79,000 lbs.

Combinations of optional tires, springs and axles allow a wide range of GVWR selections between the standard and maximum GVWR's shown. See CT-400, Section 30, for library of component ratings and method of calculating specific GVWR's. Where higher GVWR's are required larger components must be specified.

STANDARD EQUIPMENT

AXLE, FRONT
FA-109 9,000-lb capacity—wide tread
Heat-treated forged-steel I-beam

AXLE, REAR
RA-351 34,000-lb capacity tandem thru-drive
Hypoid-gear single-reduction
One-piece forged-steel housing
Full floating, induction hardened shafts
Inter-axle power-divider, with air-operated lock
Ratios: 4.10, 4.44, 4.77, 5.37, 6.14, 6.57, 7.17, 8.17

BRAKE, PARKING
Piggy-back parking brake
Total lining area: 411.0 sq. inches

BRAKES, SERVICE
Air operated with 12 cu. ft. BW gear driven compressor
Size: 15 x 3" front, 15 x 6" rear, wedge type
Total lining area: 752 sq. inches
2,484 cu. in. air reservoir

CAB
Fleetstar all-steel cab with forward-tilting one-piece reinforced fiberglass hood and front fenders; 2 step running board right side
Driver's seat: fully adjustable, foam rubber construction; seat belts
Hardboard headliner
Heavy-duty black rubber floor mat with jute backing
Padded sun visor and arm rest, driver's side
Glove box, right side of dash
Fuse panel in glove box
Front wheel driven speedometer
Dispatch tray in dog house
Tachometer, voltmeter, oil, air pressure, fuel and temperature gauges
Hand throttle

CAB (Continued)
Air-operated windshield wipers
Electrical windshield washers
Dual king-size rear view mirrors
Door locks, both doors; Cab grab handles
Fresh air heater and defroster
Coat hook

CLUTCH
14-inch 2-plate, spicer angle spring

COOLING SYSTEM
48-quart capacity
Three piece bolted radiator with deaeration system
Radiator frontal area: 873 sq. inches
Mechanical radiator shutters
Permanent type anti-freeze —20°F
Radiator sight glass

ELECTRICAL SYSTEM
12-volt, 65-amp 27 SI-type alternator
Two 6-volt 99-plate, 208 amp-hr batteries
Front directional signals with side reflectors and lamps
Dome light; cigar lighter
Push button starting switch
Two front clearance and three identification lamps
Combination dual stop, tail lamps, back-up light and directional signals (lexan)
Traffic hazard switch

ENGINE
Detroit 6-71N diesel six cylinder
Gross BHP: 238 @ 2100 RPM
Gross Torque: 653 lb-ft @ 1400 RPM
426 cu. in. displ.; 18.7 to 1 compr. ratio
15" Canadian dry air cleaner; full-flow oil filter
Vertical muffler and stack
Horizontal muffler with vertical stack

FINISH
Frame, bumper, wheels and fuel tank: black

FINISH (Continued)
Cab and fenders: choice of any standard IH color

FRAME
Heat treated steel channel with H.D. steel channel front bumper
142, 148" WB:
9 1/16 x 3 11/16 x 1/8", sect. mod. 11.63
RBM 1,279,300 in. lbs.
160, 166, 184" WB:
9 1/16 x 3 11/16 x 1/8" with 8 1/16 x 3 1/4 x 1/4" full length inverted L-type outer reinf.
Combined sect. mod. 19.41,
RBM 2,135,100 in. lbs.
202, 220" WB:
9 1/16 x 3 11/16 x 1/8" with 9 1/16 x 3 1/4 x 1/4" full length C-channel outer reinf.
Combined sect. mod. 23.00,
RBM 2,515,700 in. lbs.

FUEL TANK (Nominal Capacity)
50-gallon steel center-step safety, left side

STEERING
S-44 steering gear
21-inch steering wheel

SUSPENSION, FRONT
4 x 48" semi-elliptic steel leaf springs
Spring capacities tailored to axle load

SUSPENSION, REAR
34,000-lb capacity walking beam suspension
4 x 38" semi-elliptic steel leaf springs
50" steel walking beams

TRANSMISSION
T-135 (5-H-74T) five-speed, constant-mesh, direct
Ratios: 6.60, 3.61, 1.98, 1.17, 1.00; 6.51 reverse

WHEELS AND TIRES
Single front and dual rear
10.00 x 20, 12-PR tires and tubes
Cast spoke wheels with 7.50V rims

Figure B-4. Test Vehicle IH-866 - Descriptive Data

OPTIONAL EQUIPMENT — F-2070A

AXLE, FRONT
FA-139 12,000-lb wide tread with 15 x 3½" wedge brakes
FA-136 16,000-lb with 15 x 5" wedge brakes

12,000 lb front springs

AXLE, REAR
RA-302 34,000-lb single-speed tandem with 50" beams
Ratios: 4.33, 4.87, 5.57, 6.14, 6.50, 7.17
RA-306 34,000-lb 3-speed tandem, with full airshift, 50" beams
Ratios: 4.33/5.12/5.91, 4.56/5.39/6.21, 4.87/5.77/6.65, 5.29/6.25/7.21, 5.57/6.59/7.60
RA-328 34,000-lb single-speed, tandem 50" beams
Ratios: 4.11, 4.44, 4.62, 5.27, 5.83, 6.16, 6.83
RA-333 38,000-lb single-speed tandem, 50" beams
Ratios: 4.11, 4.44, 4.63, 5.29, 5.83, 6.17, 6.83, 7.20, 7.80
RA-355 38,000-lb single-speed tandem, 50" beams
Ratios: 4.10, 4.44, 4.77, 5.37, 6.14, 6.57, 7.17, 8.17
RA-446 44,000-lb single-speed tandem, 52" beams
Ratios: 4.11, 4.33, 4.56, 4.87, 5.43, 6.17
Automatic power divider lock

BRAKES, PARKING
Extra 462 cu. in. air tank, to release piggy-back parking brake
MGM chambers with 16½ x 6", 16½ x 7", 15 x 6", 15 x 7" brakes
Anchor-Lok chamber with 16½ x 7" brakes

BRAKES, SERVICE
16½ x 6" S-cam for 34,000-lb axles
16½ x 7" S-cam for all axles
15 x 7" wedge for all axles
Front wheel limiting valve
Semi-trailer connections with hand control breakaway valve, 9'2" trailer hose
BW air brakes in lieu of standard IH
2 additional spring brake chambers with 44,000-lb axles
Air supply valve with 25' hose
Hand control for chassis brakes
Auxiliary glad hand on reservoir
Low air pressure, wig-wag
Semi-trailer hose tender
BW DV-2 sludge remover
Alcohol evaporator
12'6" trailer hose in lieu of 9'2"
14' trailer hose in lieu of 9'2"

CAB
National Cush-N-Aire driver's seat
Bostrom Viking T-Bar driver's seat
Passenger seat; tinted glass
Fresh air blower
16 x 7" Aluminum king size mirrors
Extra sun visor; extra arm rest
Sliding rear window
Air conditioner
Solid rear cab mount
Custom Interior Trim Package
Consists of:
Black padded instrument panel
Woodgrain on glove box, instrument cluster insert, headliner and cab back panel
Steel butterfly hood and fenders
Illuminated identification of controls
Two-tone paint schematics

CLUTCH
14-inch 2-plate Lipe-Rollway
14-inch 2-plate HD angle spring with ceramic facing

ELECTRICAL SYSTEM
12-volt 75-amp integral alternator
Four 6-volt 208 amp-hr batteries
Dual electric horns
Single or dual air horn
Combination oil and water warning light
6 or 7 way trailer connector socket
Trailer lighting cable
Circuit breakers in lieu of fuses
Reflector in back of cab
Parking lights
Separate switch for trailer lights
Radio
Kysor automatic engine shut down

ENGINE
6-71N Detroit diesel—218 HP
NH-230 Cummins diesel—230 HP
(4) 6-v, 150 amp-hr batteries standard
SUPER 250 Cummins—250 HP
(4) 6-v, 208 amp-hr batteries standard
SUPER 250/270 Cummins—270 HP
(4) 6-v, 208 amp-hr batteries standard
Power Torque 270 Cummins—270 HP
(4) 6-v, 150 amp-hr batteries standard
NTC-290 Cummins—290 HP
(4) 6-v, 150 amp-hr batteries standard
NTC-335 Cummins—335 HP
(4) 6-v, 150 amp-hr batteries standard
IH Fleetguard oil filter
Luberfiner 750C oil filter
16" Donaldson cyclopac air cleaner
Vernier hand throttle
Air radiator shutters
IH corrosion resistor (std. on Cummins)
Air cleaner restriction indicator on air cleaner
Glow-Plug
Turner quick-start
Cold weather starting aid w/o cab control
Front mounted PTO
Compression release cab control

EXHAUST
Vertical muffler and tail pipe
Horizontal muffler and tail pipe *

FRAME
Inverted-L outer reinforcement
U-channel outer reinforcement
Two front tow hooks
Two rear tow hooks
Rear tow loop
Two front tow loops
Flat face bumper (provides 90" BBC)
Tapered rear frame
5th wheel mounting angles
18" Front frame extension

FUEL TANKS (Nominal Capacity)
50-gallon dual steel, dual aluminum, or left aluminum center-step safety tanks
63-gallon single left or dual steel center-step safety tank
107-gallon left and 63-gallon right steel center-step safety tanks
Luberfiner 4-qt fuel filter

STEERING
Integral power steering
22" padded steering wheel

SUSPENSION
Front shock absorbers
34,000-lb steel extended leaf with 50" steel beams
34,000-lb rubber load cushion with aluminum spring saddles with 50" steel beams
38,000-lb steel spring with steel spring saddles and 50" beams
44,000-lb steel spring with steel spring saddles and 52" beams
Dayton four spring suspension 34,000 lb
IH air bag suspension
Aluminum 50" beams in lieu of 50" steel beams
Bronze center bushing 50" steel beams
Automatic diff. lock for IH axles

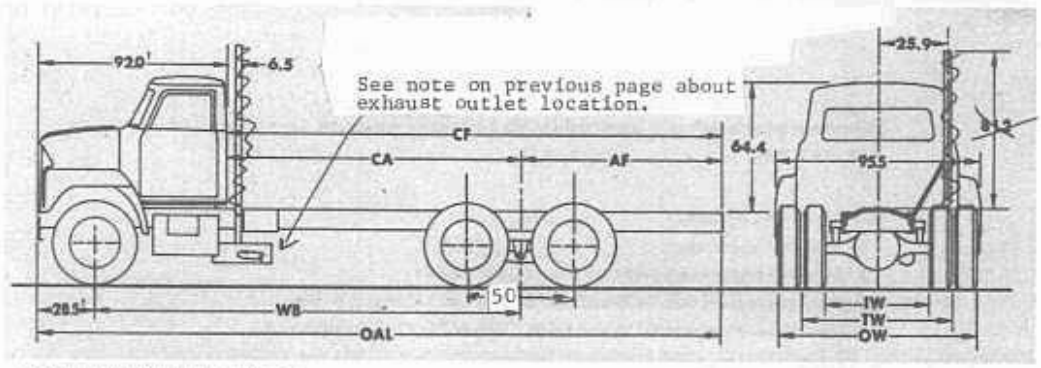
TRANSMISSION
T-129 ten-speed, twin countershaft RT-910 Roadranger, direct
T-320 (6853-C) five-speed, 0.85 overdrive
T-347 (T-905A) five-speed
T-459 (RTOF-9513) 13-speed twin
T-463 (T-955AL) 6-speed
T-466 (T-955ALL) 7-speed
AT-540 three-speed auxiliary
AT-546 four-speed auxiliary

WHEELS AND TIRES
Optional tire sizes as shown below
10-stud disc wheels
Aluminum cast spoke rear wheels
Oil lubricated wheel bearings

*Exhaust outlet in center of truck, 12" behind back of cab, 16" above ground.

Figure B-4. Test Vehicle IH-866 - Descriptive Data (Continued)

DIMENSIONS & WEIGHTS



† Reduced by 2" w/flat face bumper.

DIMENSIONS COMMON TO ALL WHEELBASES, with 10.00 x 20 TIRES		
Overall Width: 95.5" at front fenders	Ground Clearance: 12.5" at front axle	Frame Height at Rear Axle: 39.8" empty
Overall Height: 99.9" at top of cab	Ground Clearance: 9.9" at rear axle	Frame Height at Rear Axle: 39.0" loaded

CHASSIS DIMENSIONS & WEIGHTS

	CHASSIS WEIGHTS, LBS.*			DIMENSIONS			TURNING RADIUS	
WB	Front	Rear	Total	CA	CF	OAL	To Centerline of Tire	With Bumper Clearance
142"	5,579	6,950	12,529	78"	132"	224.0"	23 ft. 6 in.	24 ft. 10 in.
148"	5,678	6,975	12,653	84"	138"	230.0"	24 ft. 3 in.	25 ft. 7 in.
160"	5,738	7,220	12,958	96"	150"	242.0"	26 ft. 1 in.	27 ft. 5 in.
166"	5,753	7,330	13,083	102"	180"	272.0"	26 ft. 11 in.	28 ft. 3 in.
184"	5,795	7,424	13,219	120"	198"	290.0"	29 ft. 6 in.	30 ft. 10 in.
202"	5,990	7,743	13,733	138"	234"	326.0"	32 ft. 1 in.	33 ft. 5 in.
220"	6,048	7,829	13,877	156"	252"	344.0"	34 ft. 9 in.	36 ft. 1 in.

*With cab, standard equipment, fuel, oil and tires.

TIRE DIMENSIONS

	CAST WHEELS						DISC WHEELS					
	Tire and Tube				Tubeless		Tire and Tube				Tubeless	
Tire Size	10.00x 20	10.00x 22	11.00x 20	11.00x 22	15-22.5	18-22.5	10.00x 20	10.00x 22	11.00x 20	11.00x 22	15-22.5	18-22.5
Rim Size	7.50V	7.50V	7.50V	7.50V	12.25	14.00	7.50V	7.50V	7.50V	7.50V	12.25	14.00
Outside Width OW	94.5"	94.5"	94.8"	94.8"	—	89.6"	94.6"	94.7"	94.9"	95.0"	—	89.4"
Tread Width TW	71.0"	71.0"	71.0"	71.0"	—	71.1"	70.8"	70.9"	70.8"	70.9"	—	70.9"
Inside Width IW	47.5"	47.5"	47.2"	47.2"	—	52.6"	47.1"	47.2"	46.7"	46.8"	—	52.4"
Chain Clearance	2.1"	2.1"	2.0"	2.0"	—	4.7"	1.9"	2.0"	1.7"	1.8"	—	4.6"
Front Treads	79.5"	79.4"	79.4"	79.4"	78.7"	—	79.9"	80.0"	79.9"	80.0"	78.8"	—

In order that product improvements may be introduced at any time, specifications are subject to change without notice.

Front Goodrich Extra Miler (rib)

Rear Goodyear Custom Xtra Miler (Lug)

Figure B-4. Test Vehicle IH-866 - Descriptive Data (Continued)

WHEEL BASE RESTRICTIONS

The following combinations of power train components are not available due to unacceptable drive line angles:

142" Wheelbase (F-2070A)

1. Auxiliary transmissions
2. Cummins engines with T-459, 463, or 466 transmission
3. Cummins engines with T-129 and RA-328, 333 and 14518 suspension
4. Cummins engines with T-129 and RA-351, 355 and 14625 suspension

148" Wheelbase (F-2070A)

1. Auxiliary transmissions
2. Cummins engines with T-459, 466 and RA-446
3. Cummins engines with T-459, 466 and RA-328, 333, 351, 355 and 14521 suspension
4. Cummins engines with T-459, 466 with RA-333 and 14548 suspension

166" Wheelbase (F-2070A)

1. Auxiliary transmissions

184" Wheelbase (F-2070A)

1. Auxiliary transmissions with RA-446
2. Auxiliary transmissions with Cummins engines and RA-351, 355 with 14518 or 14633 suspension

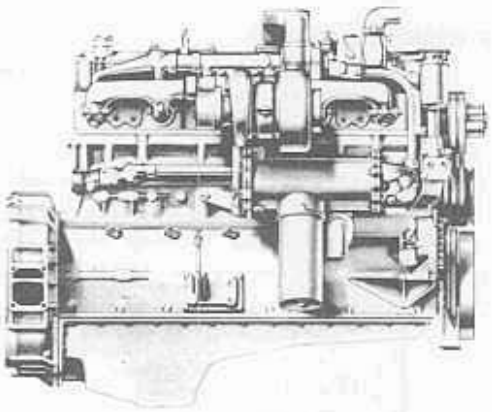
Figure B-4. Test Vehicle IH-866 - Descriptive Data (Continued)

NTC-335 (12254)

TYPE.....6 cyl., Valve-in-Head, 4 Cycle
BORE AND STROKE (in.).....5.5 x 6
DISPLACEMENT (cu. in.).....855
COMPRESSION RATIO.....14.1:1
GOVERNED SPEED (RPM).....2100
GROSS HP @ RPM.....335 @ 2100
*NET HP @ RPM.....310 @ 2100
TAXABLE H.P.....72.6
GROSS TORQUE lbs/ft @ RPM.....930 @ 1500
*NET TORQUE lbs/ft @ RPM.....860 @ 1600
AIR FLOW (CFM).....850
WEIGHT (L/starter, alt., compr., fan & clutch-dry (lbs.)...2620

* Net figures are for engine installed with air cleaner, fan, alternator (under load), exhaust and air compressor (no load).

See chart on page 24-27 for Optional Equipment and accessory H.P. demands.



MODEL APPLICATION

STANDARD EQUIPMENT	2070A FLEETSTAR	CO TRANSTAR	4300 TRANSTAR	5000 PAYSTAR
AIR COMPRESSOR	12 Cu. Ft. — BW — Gear Driven			
AIR CLEANER	15" Canadian Dry Type	16" Cyclopac w/Vacuator	16 x 16" Donaclone w/Vacuator and Air Restriction Indicator	15 x 16" Canadian Dry Type w/Pre Cleaner and w/Vacuator
AIR INTAKE	Lt. Side Hood	Vertical Stack	Frontal	Lt. Side Hood
ALTERNATOR	12 Volt, 65 Amp, SI-Type			
BATTERIES	(4) 6 Volt, 150 Amp-Hour			
COLD START	Glow Plug			
WATER FILTER	IH Spin-On Type			
POWER STEERING PUMP	Gear Driven			

Figure B-4. Test Vehicle IH-866 - Descriptive Data (Continued)

NTC-335 (12254)

PERFORMANCE CURVES

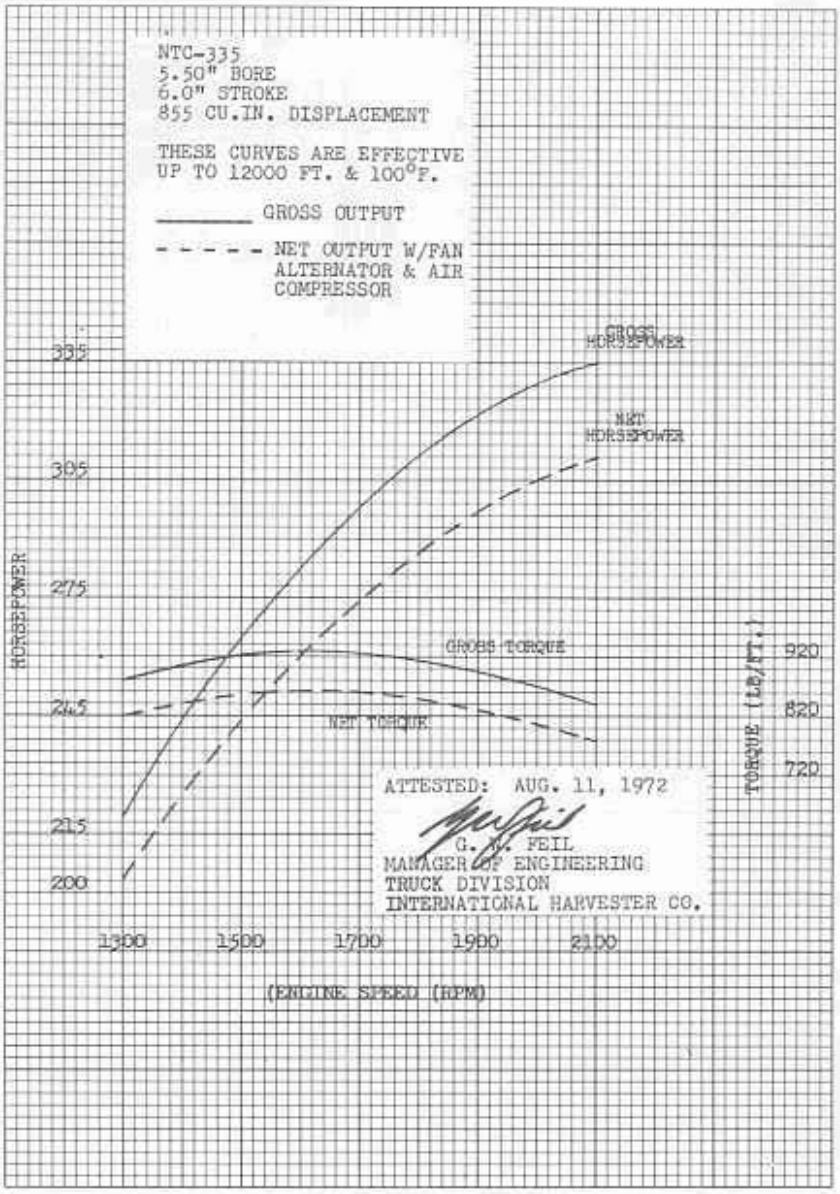


Figure B-4. Test Vehicle IH-866 - Descriptive Data (Concluded)

Unit No. 394

Serial No. G464851

INTERNATIONAL TRANSTAR COF-4070A

Max GVWR 50,660 lb Limited by Front and Rear Tires

Vehicle illustrated may include Optional Equipment and are not necessarily include all standard equipment.

GROSS VEHICLE WEIGHT RATINGS: (GVWR)

	STANDARD GVWR 43,000		GVWR 44,500		GVWR 48,860		MAXIMUM GVWR W/ADVERTISED OPTIONS 49,560	
FRONT AXLE	FA-139	12,000	FA-139	12,000	FA-139	12,000	FA-139	12,000
Spring	03500	9,000	03503	10,500	03506	12,000	03506	12,000
Tire	10.00 x 20 – 12 PR	10,860	10.00 x 20 – 12 PR	10,860	10.00 x 20 – 12 PR	10,860	10.00 x 22 – 12 PR	11,560
FRT-GAWR		9,000		10,500		10,860		11,560
REAR AXLE	RA-351	34,000	RA-351	34,000	RA-355	38,000	RA-355	38,000
Spring	Standard	34,000	Standard	34,000	w/Axle	38,000	w/Axle	38,000
Tire	10.00 x 20 – 12 PR	38,080	10.00 x 20 – 12 PR	38,080	10.00 x 20 – 12 PR	38,080	10.00 x 22 – 12 PR	40,560
RR-GAWR		34,000		34,000		38,000		38,000

MAXIMUM GROSS COMBINATION WEIGHT.....79,000 lbs.

Combinations of optional tires, springs and axles allow a wide range of GVWR selections between the standard and maximum GVWR's shown. See CT-400, Section 30, for library of component ratings and method of calculating specific GVWR's. Where higher GVWR's are required larger components must be specified.

STANDARD EQUIPMENT

AXLE, FRONT

FA-139 12,000-lb capacity center-tread, with sealed kingpins and front wheel speedometer drive
Heat-treated forged-steel I-beam

AXLE, REAR

RA-351 34,000-lb capacity tandem drive
Hypoid gear single-reduction
One-piece forged steel housings
Full-floating, induction-hardened axle shafts
Inter-axle differential power-divider, with air-operated lock and warning light
Ratios: 4.10, 4.44, 4.77, 5.37, 6.14
Magnetic drain plug

BRAKE, PARKING

Piggy-back, mounted spring-actuated
Total area: 475.0 sq. inches

BRAKES, SERVICE

Air with 12 cu. ft. B-W water-cooled gear driven compressor
Front: 15 x 3½" wedge type
Rear: 16½ x 7" cam type
Total lining area: 1,174.3 sq. inches
Low pressure warning buzzer; front wheel limiting valve
Two air reservoirs, total capacity: 3,265 cu. in.
Flexible hoses with re-usable fittings, throughout

CAB

4-point cab mounting
Aluminum 51" BBC with steel doors; tinted safety glass windows and tinted windshield
45 degree hydraulic tilt cab with safety check valves
Bostrom West-Coaster driver's seat w/belts
Two fresh air intakes; dual sun visors; ash tray
Heavy-duty black rubber floor mat with jute backing
Air-operated windshield wipers; electric windshield washers
Dual West Coast mirrors; dual bright grab-handles
Dual bright grab-handles under windshield
Left back-of-cab bright grab-handle
Reservoir air pressure gauge
Voltmeter, fuel, water temperature and oil pressure gauges
Speedometer, odometer, tachometer
Heater and defroster; passenger interior grab-handles

CLUTCH

14" two-plate angle spring with clutch brake
Total lining area: 422.8 square inches

COOLING SYSTEM

55-quart capacity
Three piece radiator with de-aeration system, 1003 sq. in. frontal area
3 inch deep radiator core
Air operated radiator shutters
Permanent type anti-freeze —20°F

DRIVE LINE

Dynamically balanced propeller shaft
Needle bearing universal joints

ELECTRICAL

12-volt with 65-amp 27 SI belt driven alternator with integral regulator
Four 6-volt, 150 amp-hr, 63-plate batteries
Two dome lights
Rheostat-controlled instrument panel lights
High beam and turn signal indicator lights
Front directional signals, double-face cab mounted with external column mounted hazard switch
Two front clearance and three identification lamps
Combination dual rear stop, tail, directional and back up lamps (Lexan)
Electric horn; cigar lighter
Push button starting switch
Amber side reflectors
Circuit breakers for all circuits except turn signals and electric in-tank fuel pump

ENGINE

Cummins NTC-290 4-cycle In-Line-Six Diesel
Gross BHP: 290 @ 2100 RPM
Gross Torque: 837 lb. ft. @ 1500 RPM
855 cu. in displacement: 14.3 to 1 compression
14 inch dry type air cleaner; full-flow oil filter
Air cleaner restriction gauge
Oil cooler; aluminum flywheel housing
External oil filter, dipstick and radiator filler
5" exhaust inlet-outlet
Vertical muffler and tail pipe
Magnetic drain plug
Flexible hoses with reusable fittings throughout

Figure B-7. Test Vehicle IH-394 - Descriptive Data

Left Rear

Right Rear

Figure B-6. Test Vehicle IH-866 — Photographs

OPTIONAL EQUIPMENT (continued) — COF-4070A

CAB (Continued)

Dual stainless steel Coronado mirrors
Safety strap for sleeping compartment
Bostrom Levelaire-ride driver's seat
Passenger seat for 51", 74" non-sleeper cab
Cush-N-Aire driver's seat
Multiple license plate holder

DRIVE LINE

Prop shaft center bearing
Oversize 1800 Series drivelines
Glide-cote interaxle shaft

ELECTRICAL SYSTEM

75, 80 and 145-amp alternators
Six or seven connector trailer sockets
Six or seven connector trailer lighting cable
Separate switch for trailer marker lights
Single or dual chrome air horns; single painted air horn
ICC reflectors on cab; separate parking lights
Combination water and oil warning light
Rear axle and/or transmission temperature gauge
Radio and antenna, AM or AM/FM
5 Bullet type marker lights
Oil temperature gauge
Kysor engine shutdown with automatic override, warning light and bell

ENGINE

MAKE	Description	BHP	Notes
Detroit	8V-71 (N-60)	290 @ 2100 RPM	(4) (6) (9) (10) (15)
Detroit	8V-71 (N-65)	318 @ 2100 RPM	(4) (6) (9) (10) (15)
Detroit	8V-71T	350 @ 2100 RPM	(4) (6) (12) (13) (15) (16)
Cummins	Super 250	250 @ 2100 RPM	(2) (4) (6) (11) (14) (18)
Cummins	VT-903	320 @ 2600 RPM	(2) (4) (5) (6) (12) (13) (15) (16)
Cummins	NTC-350	350 @ 2100 RPM	(2) (4) (6) (9) (12) (13) (15)
Cummins	NTA-370	370 @ 2100 RPM	(2) (4) (6) (12) (13) (16) (17)

Notes:
(1) Two 6-volt, 204 amp-hr batteries standard
(2) Corrosion resistor standard
(3) Glow-plug preheater standard
(4) Four 6-volt, 172 amp-hr batteries standard
(5) Available only with Cummins 13 cu. ft. air compressor
(6) Gear driven compressor standard
(7) Belt driven compressor standard
(9) 16" dry air cleaner standard
(10) Dual Exhaust Standard 3.5" inlet-outlet
(11) 4" exhaust inlet-outlet
(12) 5" exhaust inlet-outlet
(13) Cab raised 5"
(14) 2" Deep Radiator Core
(15) 3" Deep Radiator Core
(16) 15" EBA Dry air Cleaner standard
(17) 4" Radiator
(18) 14" Dry Air Cleaner w/vacuator

Vernier hand throttle control
Aluminum exhaust mount support I.L.O. steel
Luberfiner oil filter; engine corrosion resistor
Glow-plug preheater; ether cold starting system
Fuel filter
Exhaust pyrometer
Bright finish exhaust stack and muffler
Bright finish air cleaner stack and cap
Jacobs Exhaust Brake
Long life stainless steel muffler
Wrapped muffler

FRAME

Heat-treated chrome molybdenum steel channel
Thru 184" WB: 9⅞ x 3⅝ x ¼"; 14.25 lbs/ft per rail
Section modulus: 11.54 inches-cubed
Resisting bending moment: 1,269,400 inch-lbs.
Thru 240" WB: 10 x 3⅛ x ⅜"; 17.4 lbs/ft per rail
Section modulus: 13.73 inches-cubed
Resisting bending moment: 1,510,300 inch-lbs.
Thru 240" WB: Aluminum alloy main rails with aluminum crossmembers and bumper
10½ x 3¼"; ½" web, 15/16" flange
Weight: 11.6 lbs/ft per rail
Section modulus: 29.20 inches-cubed
Resisting bending moment: 1,010,000 inch-lbs.
Center mounted maneuvering pin
Two front towing eyes
Chrome or aluminum front bumper
Tapered rear end of frame
Aluminum Crossmembers

FUEL TANKS (Nominal Capacity)

Side-mounted left or dual; steel or aluminum
Chrome fuel tank straps
4 quart fuel filter

Capacity, Each	Minimum WB	Tank Diameter
60 gallons	119"	28"
80 gallons	126"	28"
115 gallons	141"	28"

STEERING

Integral power
22" padded steering wheel

SUSPENSION

Tapered Front Springs
IH Air Suspension
34,000-lb capacity Dayton 4-spring
34,000-lb capacity rubber-load cushion rear suspension
38,000-lb capacity rubber-load cushion or steel spring rear suspension
50" aluminum walking beams for rear suspension
44,000 lb capy Hendrickson

TRANSMISSION

RT 440 (special equip.)

T-128 (RT-915) 15-speed, twin-countershaft Roadranger
T-345 (RTO-910) 10-speed, 0.81 overdrive, twin-countershaft Roadranger
T-347 (T-905A) 5-speed, direct; 1.54 4th gear
T-405 (p.8516-3B) 16-speed duplex transmission
T-449 (1062B) 6-speed SST-6
T-459 (RTOF-9513) 13-speed, 0.87 overdrive, twin-countershaft Roadranger
T-468 (RTO-12513) 13-speed twin countershaft Roadranger
T-471 (RTF-9509A) 9-speed twin countershaft Roadranger
Transmission oil filter; oil temperature gauge

WHEELS AND TIRES

Optional tire sizes as shown on back page
20" or 22" high-tensile steel disc wheels
20" or 22" aluminum cast or disc rear wheels
20" or 22" aluminum disc front wheels
Aluminum front or rear hubs
Oil lubricated wheel bearings
Polished aluminum front and rear wheels

Figure B-7. Test Vehicle IH-394 - Descriptive Data (Continued)

STANDARD EQUIPMENT (continued) — COF-4070A

FINISH

Frame, wheels and fuel tank: black
Cab and bumper: choice of any standard IH color

FRAME

Heat-treated chrome molybdenum steel channel with heavy-duty bolted front drop section; bolted construction straight to rear
Through 152" WB: 9⅞ x 3⅛ x ¼"; 12.9 lbs/ft per rail
Section modulus: 10.66 inches-cubed
Resisting bending moment: 1,172,600 inch-lbs
Over 152" WB: 9⅞ x 3⅛ x ¼"; 14.25 lbs/ft per rail
Section modulus: 11.54 inches-cubed
Resisting bending moment: 1,269,400 inch-lbs
Heavy-duty formed steel channel front bumper

FUEL TANK (Nominal Capacity)

60-gallon steel, 28" diameter, left side mounted with fuel shut-off valve

STEERING

S-44 steering gear with double joints
21" diameter beige steering wheel

SUSPENSION

Front: Spring capacities tailored to axle load
4" x 54" semi-elliptic steel leaf springs
Threaded pins and bushings
Hydraulic double-acting shock absorbers
Rear: 34,000 lb steel spring
50" steel walking beams

TRANSMISSION

T-129 (RT-910) 10-speed Twin Countershaft Roadranger
Ratios: 8.05, 6.30, 4.99, 3.95, 3.20, 2.51, 1.97, 1.56, 1.24, 1.00; Rev. 8.73 and 2.73

WHEELS AND TIRES

Single front and dual rear
10.00 x 20, 12-PR tires and tubes
Cast steel spoke wheels with 7.50V rims

OPTIONAL EQUIPMENT

AXLE, FRONT

FA-112 12,000-lb, FE-970, Center point
FA-136 16,000-lb, FH-901 with 15 x 5" wedge and transmission speedometer drive
FA-228 12,000-lb wide tread with front wheel speedometer drive

16,000 lb front spring

AXLE, REAR

RA-302 (340SB) 34,000-lb single-speed tandem drive
Ratios: 4.33, 4.55, 4.87, 5.57, 6.14, 6.50, 7.17
RA-306 (340D) 34,000-lb 3-speed tandem drive with full air shift
(Use with T-136, T-347, T-356 or T-375)
Ratios: 4.11/4.86/5.61, 4.33/5.12/5.91, 4.56/5.39/6.21, 4.87/5.77/6.65, 5.29/6.25/7.21, 5.57/6.59/7.60, 6.14/7.26/8.38, 6.50/7.68/8.87
RA-328 (SLHD with IH wheel ends) 34,000-lb single-speed tandem drive
Ratios: 4.11, 4.44, 4.63, 5.29, 5.83
RA-333 (SQHD with IH wheel ends) 38,000-lb single-speed tandem drive with 38,000-lb suspension
Ratios: 4.11, 4.44, 4.63, 5.29, 5.83
RA-334 (SQHD with Timken wheel ends) 38,000-lb single-speed tandem drive with 38,000-lb suspension
Ratios: 4.11, 4.44, 4.63, 5.29
(San Leandro Works only)
RA-355 38,000-lb single-speed tandem (IH)
Ratios: 4.10, 4.44, 4.77, 5.37, 6.14, 6.57, 7.17 to 1
RA-390 (38DSB) 38,000-lb single-speed tandem drive, 38,000-lb suspension
Ratios: 4.33, 4.55, 4.87, 5.57
RA-393 (38D3) 38,000-lb 3-speed tandem drive with 38,000-lb suspension and full air shift
(Use with T-136, T-347, T-356 or T-375)
Ratios: 4.11/4.86/5.61, 4.33/5.12/5.91, 4.56/5.39/6.21, 4.87/5.77/6.65, 5.29/6.25/7.21, 5.57/6.59/7.60
RA-399 44,000-lb single-reduction tandem drive rear axle
Ratios: 4.11, 4.44, 4.63, 5.28, 6.14, 6.83, 7.40
RA-446 (44DS) 44,000-lb single-speed tandem
Ratios: 3.70, 4.11, 4.33, 4.56, 4.88, 5.43, 6.17 to 1
Rear axle temperature gauge

BRAKES, PARKING

Auxiliary 462 cu. in. air tank, to release spring-actuated brake

BRAKES, PARKING (Continued)

Anchor-Lok 16½ x 7" double diaphragm
Two additional spring brake chambers for 44,000-lb axle

BRAKES, SERVICE

BW brake system
BW 14½ cu. ft. gear driven compressor
Wig-wag low air pressure indicator
Semi or 4-wheel trailer connections with tractor protection and hand control valves
Flexible hose w/reusable fittings (cab area)
Semi-trailer hose kit (9-ft hose standard; 12'6", 14' optional)
4-wheel trailer hose kit (9-ft hose standard)
Alcohol moisture evaporator; Sludge ejector
Omit front brakes
15 x 3½" wedge type brakes for FA-112, 139, 228
15 x 7" wedge type rear brakes
16½ x 3½" cam-type brakes for FA-228
15 x 5" wedge type brakes for FA-136
Air Application gauge; glad hand on air tank
BW DV-2 Drain Valve

CAB

Custom Interior Trim Package (Burgundy) (For 74" and 84" Sleeper Cabs)
Includes:
Seat Covering—driver and passenger in burgundy
Headliner—padded in burgundy
Sunvisors—dual padded in burgundy
Sleeper Curtain in burgundy
Sleeper Bunk Tail Pad in burgundy
Inner Door Trim Pad with Storage Pockets in burgundy
Console Rear Pad with Ash Tray in burgundy
Engine Tunnel Cover—Vinyl carpet combo in dark red
Floor Mats in dark red
Sleeper Compartment Carpeting in dark red
Air Conditioner Housing and Ducts in dark red
Radio/Stereo Housing Assembly in dark red
(Does not include radio)
Dual Radio Speaker Covers in dark red
Interior Body Color—Sierra Gold
90° hydraulic tilt cab with double acting cylinders
74" BBC aluminum non-sleeper
74" BBC aluminum sleeper with curtains and passenger seat
84" BBC aluminum sleeper with curtains and passenger seat
Sleeper cab mattress
Dual air wiper motors; single defroster fan
Left side arm rest; electric right side window regulator
IH Blend-Air heater/air conditioner
Recording tachographs: RPM, MPH, 24-hour or multiday
Auxiliary blower for bunk area

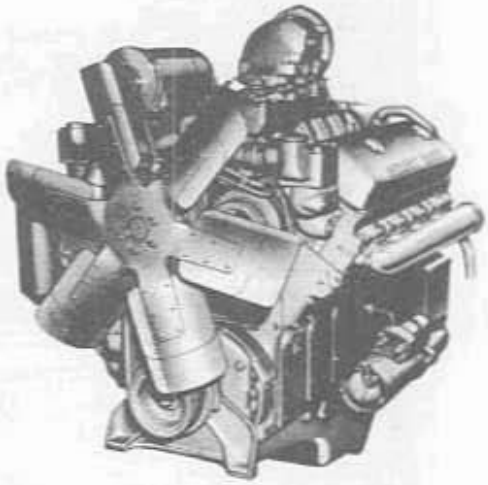
Figure B-7. Test Vehicle IH-394 - Descriptive Data (Continued)

8V-71 N-65 INJECTORS (12294)

TYPE	8 cyl., Overhead Valve, 2 Cycle
BORE AND STROKE (in.)	4.25 x 5.0
DISPLACEMENT (cu. in.)	568
COMPRESSION RATIO	18.7:1
GOVERNED SPEED (RPM)	2100
GROSS HP @ RPM	318 @ 2100
*NET HP @ RPM	297 @ 2100
TAXABLE H.P.	57.8
GROSS TORQUE Lbs/Ft @ RPM	846 @ 1600
*NET TORQUE Lbs/Ft @ RPM	810 @ 1600
AIR FLOW @ RPM (CFM)	874 @ 2100
WEIGHT (L/starter, alt., compr., fan & clutch-dry)(lbs.)	2215

* Net figures are for engine installed with air cleaner, fan, alternator (under load), exhaust and air compressor (no load).

See chart on page 25-26 for Optional Equipment and accessory H.P. demands.

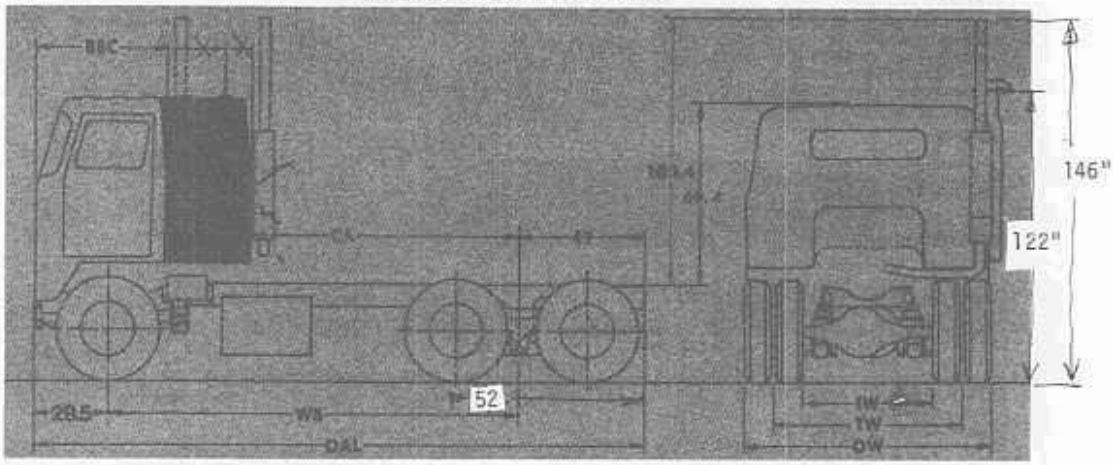


MODEL APPLICATION

STANDARD EQUIPMENT	CO TRANSTAR	4200 TRANSTAR	5000 PAYSTAR
AIR COMPRESSOR	BW — 12 cu. ft. — Gear Driven		
AIR CLEANER	16" Cyclopac w/Vacuator	16 x 16" Donaldson w/Vacuator and w/Restriction Indicator	15 x 16" Canadian Dry Type w/Pre-cleaner and w/Vacuator
AIR INTAKE	Vertical Stack	Frontal	Lt. Side Hood
ALTERNATOR	12 Volt, 65 Amp, SI Type		
BATTERIES	(4) 6 Volt, 172 Amp-Hour		
COLD START	None		
WATER FILTER	None		
POWER STEERING PUMP	Gear Driven		

Figure B-7. Test Vehicle IH-394 - Descriptive Data (Continued)

DIMENSIONS & WEIGHTS



Cab raised 5" for VT-903, NTC-350, NTA-370 and 8V-71T Engines.

DIMENSIONS COMMON TO ALL WHEELBASES, with 10.00 x 20 TIRES		
Overall Width: 95" at front bumper	Ground Clearance: 11.8" at front axle	Frame Height at Rear Axle: 39.2" empty
Overall Height: 108.5" at top of cab*	10" at rear axle	38.3" loaded

CHASSIS DIMENSIONS & WEIGHTS

134" WB†	CHASSIS WEIGHTS, LBS.*			DIMENSIONS				TURNING RADIUS	
					CA		OAL		
	Front	Rear	Total	**51" cab	**74" cab	**84" cab		To Centerline of Tire	With Bumper Clearance
142"	6,820	6,920	13,740	120"	97"	87"	220"	23 ft. 5 in.	25 ft. 3 in.
152"	6,870	6,930	13,800	130"	107"	97"	230"	24 ft. 10 in.	26 ft. 8 in.
160"	6,920	6,940	13,860	138"	115"	105"	238"	26 ft. 0 in.	27 ft. 10 in.
184"	7,020	6,950	13,970	162"	139"	129"	262"	29 ft. 6 in.	31 ft. 4 in.

†Other wheelbases available to meet special needs; see page 10-10 of CT-400 Data Book for minimum wheelbase and center bearing requirement data.
*With 51" cab, standard equipment, oil and water, less fuel.
**For trailer swing clearance with square nose trailer use the following:

51" CAB		74" CAB		84" CAB	
Engine	Reduce CA By:	Engine	Reduce CA By:	Engine	Reduce CA By:
NTC-350	16.4	ALL	6.2	ALL	5.7
NH & NT	15.0				
8V-71, 8V-71T	15.4				
NTA-370	NA				
VT-903	11.6				
6-71	17.3				

"CA" & "CAL" can be scaled from other WB

TIRE DIMENSIONS

Rear Front

	CAST WHEELS				DISC WHEELS			
Tire Size	10.00x20	11.00x20	10.00x22	11.00x22	10.00x20	11.00x20	10.00x22	11.00x22
Rim Size	7.50V				7.50V			
Outside Width OW	95.5"	96"	95.5"	96"	95.9"	95.6"	94.9"	95.6"
Tread TW	72"	72"	72"	72"	71.4"	71.4"	71.2"	71.2"
Inside Width IW	48.5"	47.8"	48.5"	47.9"	47.9"	47.2"	48"	47.4"
Chain Clearance	2.8"	2.3"	2.3"	1.9"	2.5"	2.1"	1.9"	1.6"
Front Tread	79.5"	79.4"	79.4"	79.4"	79.9"	80"	79.9"	80"

In order that product improvements may be introduced at any time, specifications are subject to change without notice.

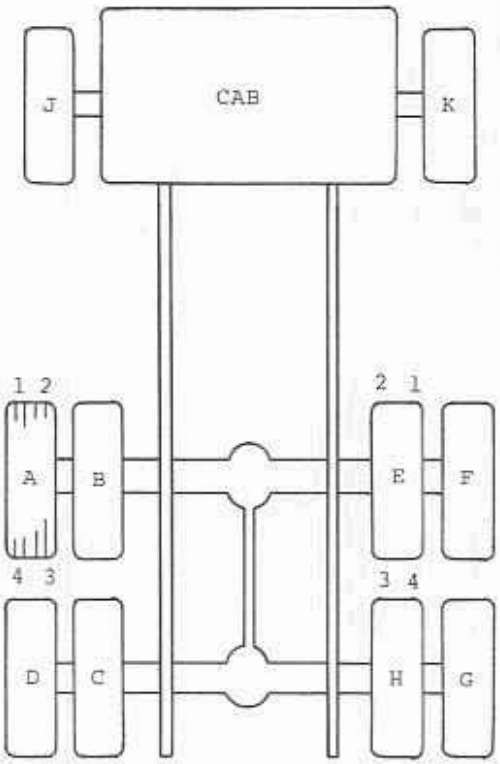
Front Goodyear Super Hi Miler (rib)

Rear General Power Jet (rib)

Figure B-7. Test Vehicle IH-394 - Descriptive Data (Continued)

TRUCK NO. 394 MILEAGE 24,650 DATE 7-22-74

GROOVE AND TIRE LOCATION



TREAD DEPTH
(IN 1/32 OF AN INCH)

GROOVE LOCATION	TIRE LOCATION									
	A	B	C	D	E	F	G	H	J	K
1	17	17	17	15.5	17.5	17	15.5	15.5	15	12.5
2	17	17	17	17	17	17	16	15.5	15.5	13
3	17	17	17	17	17	17	16	15.5	16	13.5
4	17	17	17	15.5	17	15.5	15.5	15.5	15.5	13

Figure B-8. Test Vehicle IH-394 — Tire Tread Data

8V-71 N-65 INJECTORS (12294)

PERFORMANCE CURVES

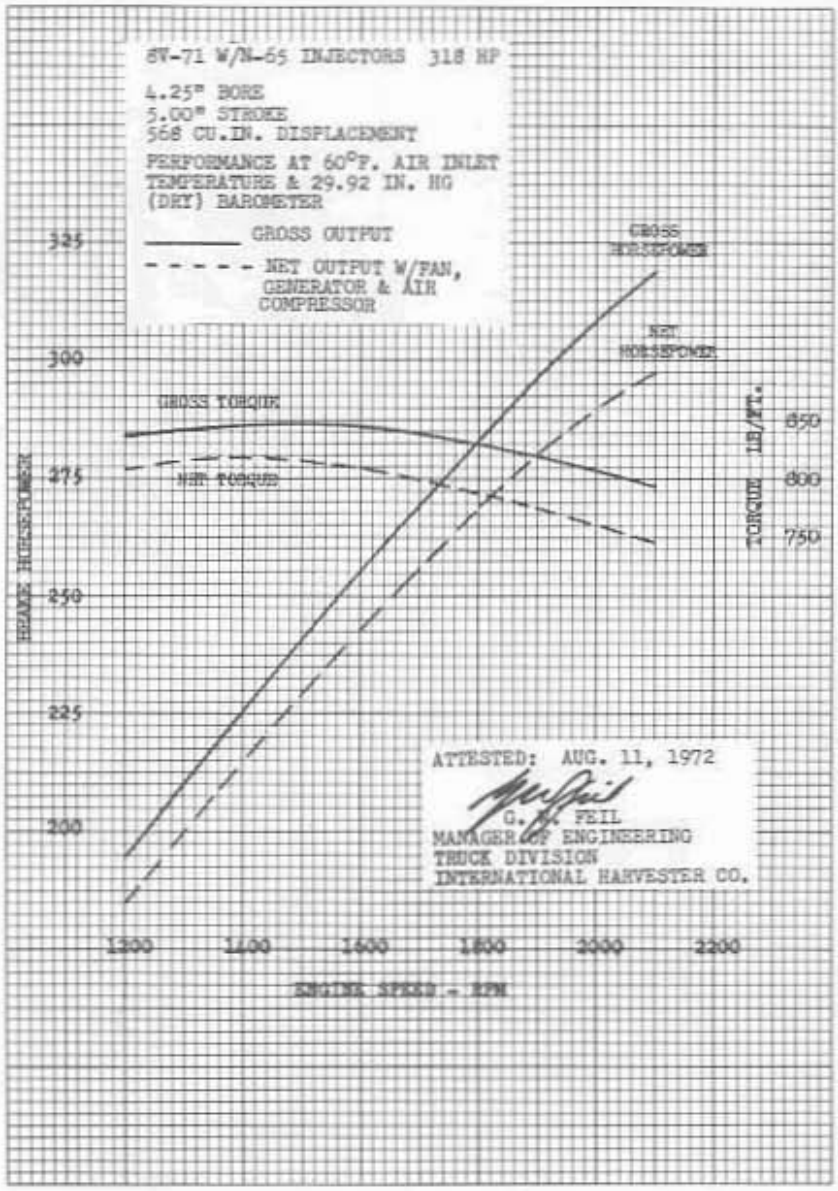


Figure B-7. Test Vehicle IH-394 - Descriptive Data (Concluded)

EST. WEIGHT SUMMARY

TANK	7,300
LOAD 5,652 @ 8.3	47,085
CHASSIS	4,895
TRACTOR	14,000
TOTAL	73,280

NO RESPONSIBILITY WILL BE ASSUMED BY THE FRUEHAUF CORPORATION FOR OVERLOADS IF TRACTOR OR COMMODITY WTS. SHOWN ARE EXCEEDED

CHASSIS SPECS.

MODEL	TEG-F2-E
WHEELS	FRUE. 5 SPACE STEEL
TIRES	10.00 x 20 CUSTOMER FURN.
BRAKES	16-1/2 x 7 M.A.B.
* AXLES	FRUE. 11.0 TUBULAR
SUPPORTS	2 SPEED VERTICAL
TIRE CARRIER	NONE
UPPER CPLR	ADJUSTABLE 12 FRT & REAR
PAINT	FRUE. ALUM.
SPRING	FRUE. HVY. DUTY

* W/DUST SHIELDS & OIL SEALS ON UNG 243101 ONLY

TANK SPECS.

CAPACITY	8000 GAL + 3%
MANHOLES	16" DIA. W/10 FILL & 12" G.M. W/O D.
HOSE TUBES	NONE
LIGHTS	I.C.C. 12 VOLT #3 WIRING W/6 WAY BASE
PIPING	3-1/2" O.D. LINES FROM REAR OF EACH COMPT. TO C.S. CENTER. 3" HOSE GATE
CABINETS	NONE VALVE @ END OF EACH LINE
LADDER	REAR AS COMB. DRAINS
STATIC BALL	NONE
ICC SPECS	NONE: 12/10/12 H.T.S. MATERIAL
SKIRTING	NONE: FENDERS @ REAR W/FLAP
PAINT	FRUE. ALUM.
PATTERN	FRT. #2060.F, 92 x 60; RR-2060, 92 x 66
COMPARTMENT SIZE	3250, 1500, 3250 FRT TO REAR

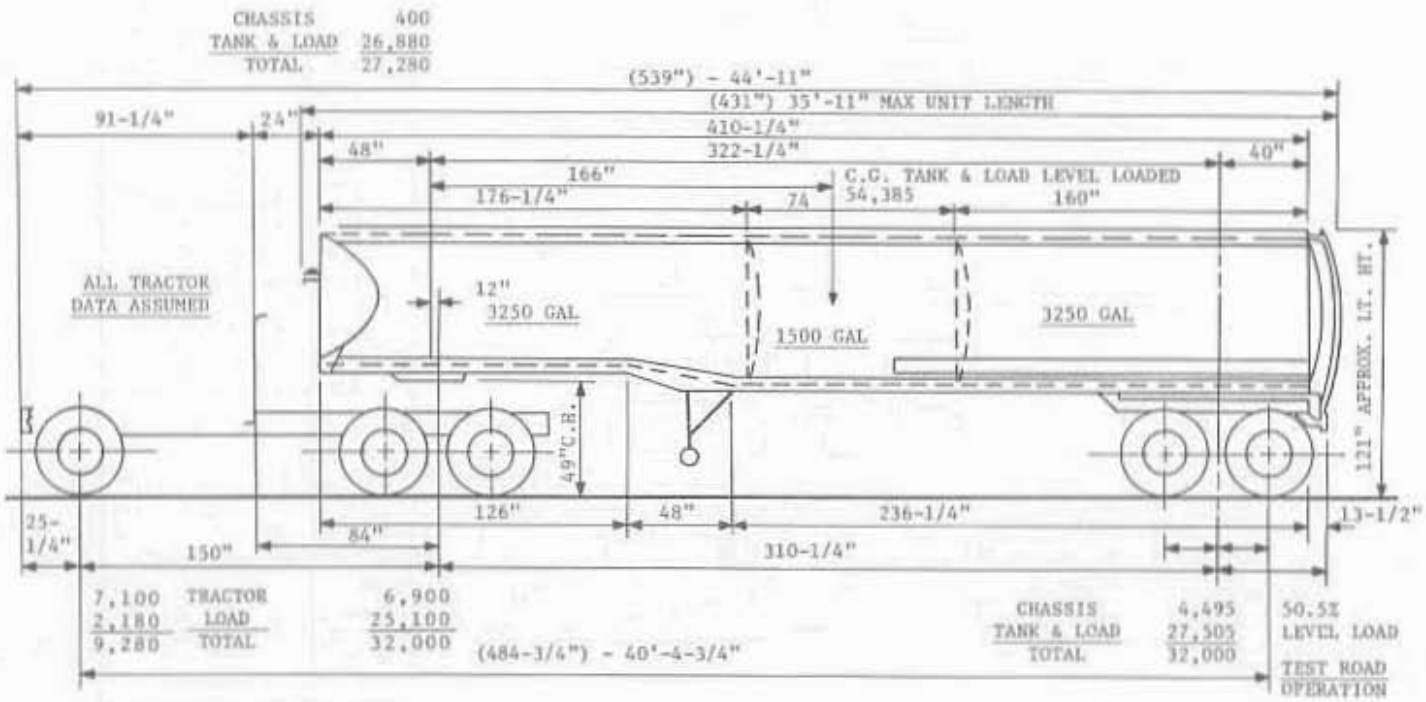
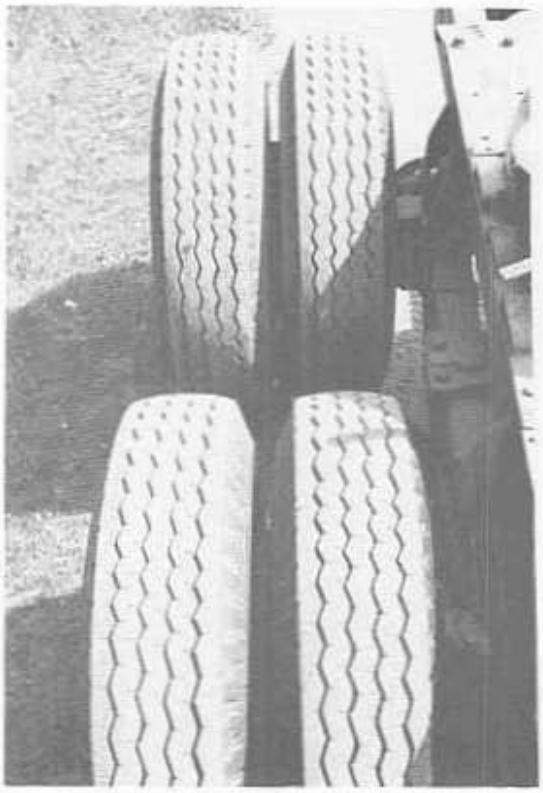


Figure B-10. Tankers No. 4 and 14 — Tanker Trailer Physical Specifications



Left Rear

Right Rear

Figure B-9. Test Vehicle IH-394 — Photographs

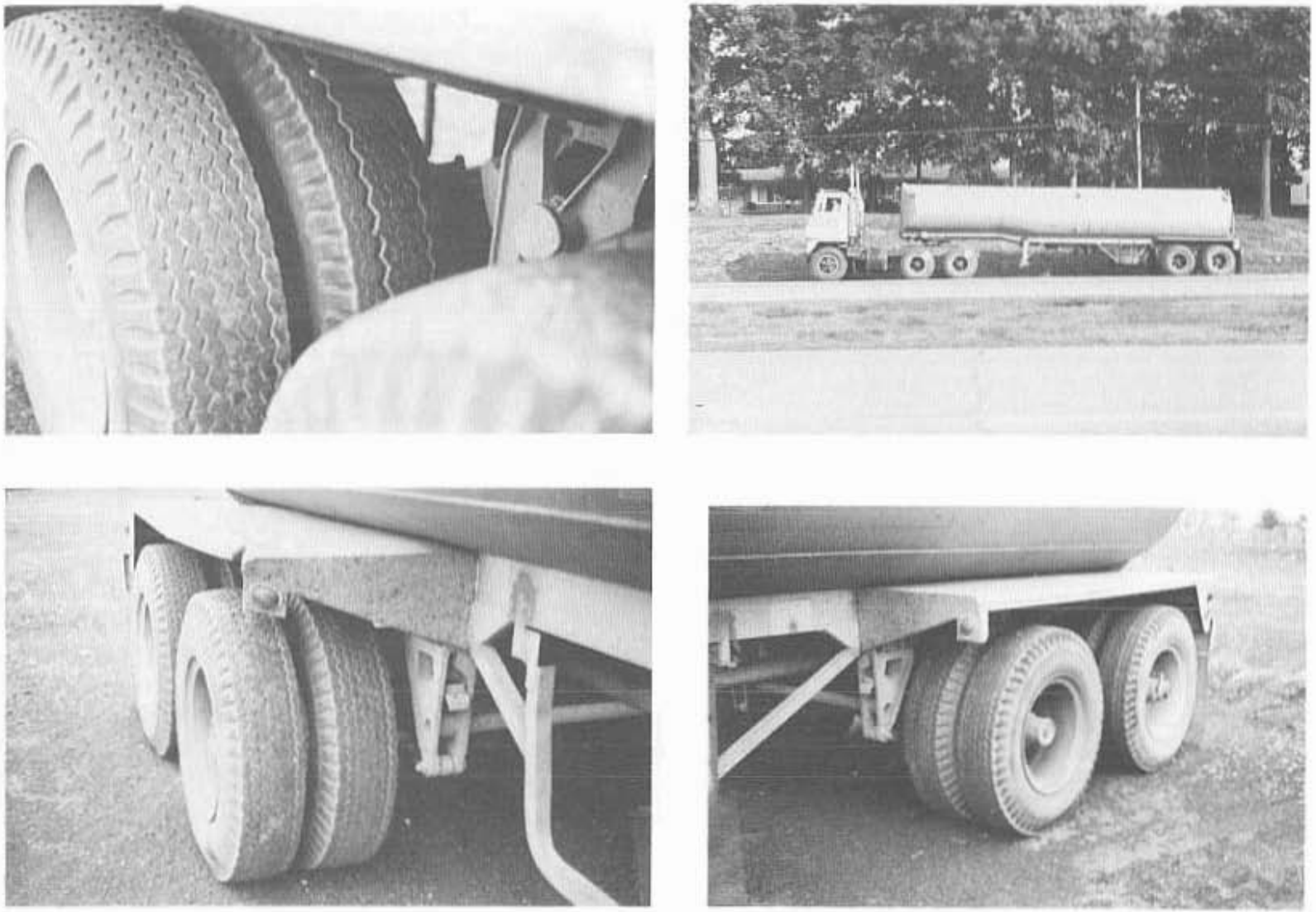
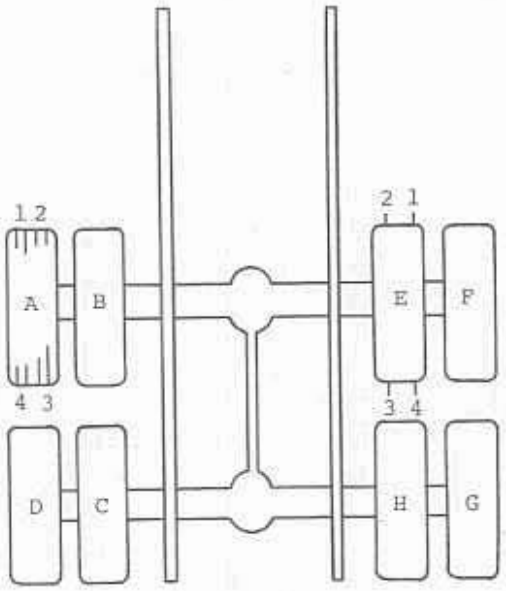


Figure B-12. Tanker Trailer No. 4 — Photographs

TRAILER NO. 4 MILEAGE 106,994 DATE 7-22-74

GROOVE AND TIRE LOCATION



TIRES ARE
GOODYEAR SUPER
HI MILER(RIB TYPE)

TREAD DEPTH
(IN 1/32 OF AN INCH)

GROOVE LOCATION	TIRE LOCATION							
	A	B	C	D	E	F	G	H
1	14.5	14.5	14	8	10	10.5	7.5	15.5
2	14.5	15	13.5	9	11	11.5	10.5	15.5
3	14	15.5	13.5	8.5	12.5	10.5	10.5	14
4	14.5	15	15	8.5	11.5	12	1.5	16

Figure B-11. Tanker Trailer No. 4 — Tire Tread Data

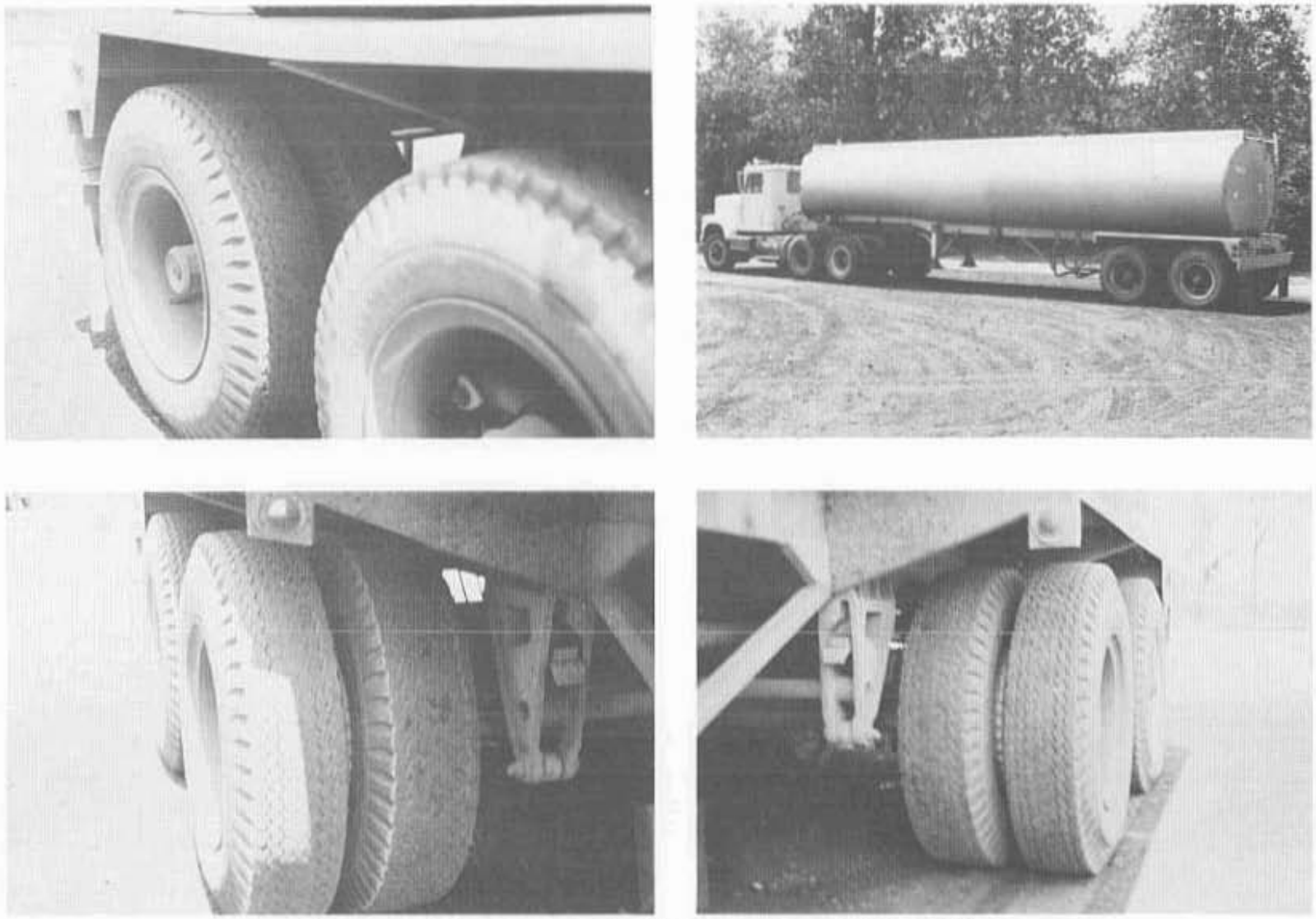
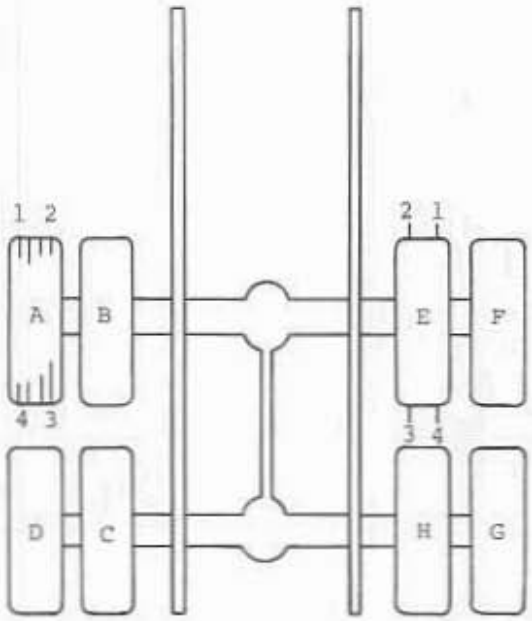


Figure B-14. Tanker Trailer No. 14 — Photographs

TRAILER NO. 14 MILEAGE 11,361 DATE 7-22-74

GROOVE AND TIRE LOCATION



TIRES ARE GOODYEAR SUPER HI MILER (RIB)

TREAD DEPTH
(IN 1/32 OF AN INCH)

GROOVE LOCATION	TIRE LOCATION							
	A	B	C	D	E	F	G	H
1	10.5	2.5	9.5	4.5	9.5	8	6	15
2	14	0	5.5	3.5	9.5	9.5	8	15
3	10.5	6.5	4	4.5	11.5	10.5	5	13
4	11	5	8.5	3.5	9	9.5	6.5	15.5

Figure B-13. Tanker Trailer No. 14 — Tire Tread Data

TABLE C-1. SITE 1 – SAE-J366B TEST – STANDARD MEASURING SITE – FT. WAYNE IN, JULY 10, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	VEHICLE SIDE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Test Vehicle – IH-843																
1	SVV	– 4x6 Bobtail	L	20	24	28	90.2	89.7	85.7	83.8	81.2	77.4		85.1	84.8		
6			R	19	24	29	91.2	90.1	86.7	83.8	81.2	76.3		84.2	84.7		
7			L	19	24	28	91.3	90.7	86.8	83.2	82.4	77.6		85.4	84.9		
8			R	19	24	27	90.7	89.4	85.7	82.9	80.9	76.7		85.0	84.8		
9			L	19	24	27	91.4	90.5	86.4	84.5	82.2	77.5		85.7	84.8		
10			R	20	24	28	90.7	89.7	86.2	83.4	81.1	76.6		85.7	85.2		
	Test Vehicle – IH-806																
11	SHH	– 4x6 Bobtail	L	18	24	28	88.4	88.8	85.5	82.0	78.4	74.5		84.2	84.2		
12			R	19	25	27	90.6	88.4	84.6	81.9	80.2	76.3		83.5	83.7		
13			L	19	23	28	90.2	88.5	84.6	81.6	79.1	74.1		83.7	83.7		
14			R	18	23	27	90.7	88.3	84.6	81.8	79.7	-		-	-		
15			L	18	23	28	90.6	88.5	85.0	81.9	79.0	-		-	-		
16			R	19	24	28	88.5	88.8	84.8	82.5	79.8	-		-	-		
	Test Vehicle – IH-394																
19	DVV	– 4x6 Bobtail	L	19	24	27	93.6	94.1	89.6	87.2	86.2	-		-	-		
20			R	18	25	27	92.7	92.2	87.7	85.8	83.8	-		-	-		
21			L	18	24	27	93.0	93.8	89.7	87.6	86.7	-		-	-		
22			R	18	23	27	92.6	92.0	87.7	85.9	84.3	-		-	-		
25			L	18	24	28	93.1	94.2	89.9	87.6	86.2	81.6		87.8	89.0		
26			R	18	24	27	92.6	92.4	88.2	85.9	84.1	79.6		86.8	87.4		

TABLE C-2. SITE 2 — SAE-J366B TEST - SOFT SITE (WEIGHT STATION) - FT. WAYNE IN, JULY 11, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Test Vehicle – IH-843																
25	SVV	– 4x6 Bobtail	1	-	-	-	88.4	85.4	84.2	82.5	80.1	78.5		84.7	85.0		
26			1	-	-	29	88.8	85.5	83.7	81.9	79.1	78.4		84.6	85.0		
27			1	19	23	27	90.0	85.1	83.8	81.8	79.3	78.9		84.6	84.0		
				-	-	29											
	Test Vehicle – IH-806																
37	SHH	– 4x6 Bobtail	1	19	22	28	89.9	83.5	81.0	80.5	79.3	76.7		83.2	84.1		
38			1	20	24	28	89.1	83.6	82.4	80.8	79.1	76.7		83.2	83.5		
40			1	20	23	28	89.3	84.0	82.5	81.2	79.4	76.7		83.0	84.2		
	Test Vehicle – IH-394																
45	DVV	– 4x6 Bobtail	1	19	24	27	91.0	90.0	86.9	85.5	83.2	81.0		87.0	88.0		
46			1	18	22	27	91.9	88.8	86.8	86.0	83.6	80.5		87.0	87.8		
47			1	20	25	27	92.1	89.3	87.0	85.5	83.5	80.9		87.4	88.0		

SVV - Single vertical muffler with vertical tailpipe
SHH - Single horizontal muffler with horizontal tailpipe
DVV - Dual vertical mufflers with vertical tailpipes

NOTE: See Text, Section 2.3.1, for speed measurement points.

TABLE C-5. SITE 5 — SAE-J366B TEST — SOFT SITE WITH GENTLE DOWNSLOPE FROM ROADWAY — FT. WAYNE IN, JULY 20, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED 1	SPEED 2	SPEED 3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Test Vehicle - IH-843																
64	SVV	4x6 Bobtail	1	19	25	28	88.7	84.4	82.5	80.7	77.5	75.9		82.5	84.0		
67			1	18	25	28	89.0	84.6	81.7	79.4	77.0	75.5		82.7	83.6		
69			1	18	23	28	89.2	85.4	83.2	81.3	78.0	76.4		82.2	83.3		
70			2	18	22	28		86.8	83.7	81.6	79.8	77.1	74.7			82.6	82.6
71			2	19	25	28		86.2	82.0	80.6	78.7	76.8	75.6			81.9	82.4
	Test Vehicle - IH-806																
85	SHH	4x6 Bobtail	1	19	22	26	88.9	84.9	82.2	80.3	78.4	76.5		81.7	82.0		
86			1	19	23	27	88.2	85.3	82.7	81.2	78.0	77.5		81.9	81.8		
87			1	20	23	28	88.0	85.3	82.4	80.4	77.0	76.6		81.5	82.2		
88			2	19	21	26		86.6	82.8	80.1	78.7	76.1	75.4			80.8	81.6
89			2	19	22	27		85.8	82.9	80.6	79.4	76.7	77.6			80.9	80.8
	Test Vehicle - IH-384																
62	DVV	4x6 Bobtail	1	20	25	27	91.3	89.4	85.6	83.8	82.5	81.3		85.6	86.8		
63			1	19	24	27	91.5	90.5	87.0	85.6	84.0	84.0		87.4	88.0		
65			1	18	22	27	91.0	89.6	86.2	85.2	83.8	82.5		87.5	89.0		
66			2	18	23	27		88.8	87.3	85.2	84.6	83.6	82.6			85.8	85.8
68			2	18	24	27		89.6	87.6	85.6	84.5	83.0	81.6			84.8	85.8

TABLE C-6. SITE 6 — SAE-J366B TEST — HARD SITE — FT. WAYNE IN, JULY 17, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED 1	SPEED 2	SPEED 3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Test Vehicle - IH-843																
99	SVV	4x6 Bobtail	1	19	23	28	90.9	88.4	86.1	83.4	81.4	79.3		85.9	86.5		
100			1	18	22	27	89.8	88.0	86.1	83.5	81.5	78.6		84.7	85.2		
101			1	18	23	28	90.3	88.4	86.2	83.8	81.6	79.7		85.2	85.6		
102			2	18	26	28		86.8	86.2	84.5	82.4	80.2	79.8			83.4	83.5
103			2	20	23	28		86.7	85.3	84.7	82.3	80.4	77.7			84.3	82.5
	Test Vehicle - IH-806																
81	SHH	4x6 Bobtail	1	20	22	27	89.8	87.1	84.8	82.5	80.7	79.1		84.2	84.9		
82			1	20	24	28	89.8	87.0	84.7	82.5	80.2	78.2		84.1	83.8		
83			1	19	22	27	89.6	86.9	84.7	82.7	80.3	79.0		84.5	84.4		
85			2	20	24	28		86.2	84.6	83.3	81.8	79.8	78.6			82.7	81.9
86			2	19	23	28		86.9	84.8	83.4	81.5	79.1	77.7			82.4	82.1

Test Vehicle - IH-384 - No Data

TABLE C-3. SITE 3 — SAE-J366B TEST - HARD SITE - FT. WAYNE IN, JULY 12, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Test Vehicle	IH-843															
20	SVV	4x6 Bobtail	1	18	22	26	91.7	88.9	86.5	85.0	82.8	78.7		85.4	85.7		
21			1	19	24	28	91.6	88.7	86.3	82.3	82.9	80.6		85.8	86.2		
22			1	19	24	28	91.8	88.6	86.3	82.4	82.8	79.5		85.9	85.7		
	Test Vehicle	IH-866															
38	SHH	4x6 Bobtail	1	18	23	27	89.7	88.2	84.7	81.1	80.6	77.3		85.2	85.0		
39			1	19	25	27	89.7	87.8	85.1	81.8	82.1	79.5		85.7	85.8		
42			1	20	22	27	90.2	87.3	84.8	81.4	81.4	77.5		82.8	85.5		
	Test Vehicle	IH-594															
43	DVV	4x6 Bobtail	1	18	22	26	93.2	92.2	86.8	84.0	84.6	81.5		87.1	89.8		
44			1	19	21	26	93.5	93.5	87.8	85.5	86.2	82.9		88.1	88.8		
45			1	18	22	26	93.6	93.8	88.0	86.0	86.2	83.0		88.6	88.5		

TABLE C-4. SITE 4 — SAE-J366B TEST — SOFT SITE - FT. WAYNE IN , JULY 13, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Test Vehicle	IH-843															
48	SVV	4x6 Bobtail	1	20	25	28	90.6	87.2	84.1	81.8	79.7	75.3		84.9	85.0		
51			1	19	24	28	90.7	86.8	84.0	81.5	79.4	76.6		84.2	85.0		
52			1	19	22	28	90.5	87.0	83.9	81.7	79.2	75.8		84.5	85.1		
	Test Vehicle	IH-866															
69	SHH	4x6 Bobtail	1	19	24	27	89.1	85.5	82.9	80.9	79.2	-		83.2	83.3		
70			1	20	23	27	88.9	85.9	82.5	80.7	79.1	-		82.9	83.3		
71			1	20	25	27	90.8	84.9	83.1	80.8	79.2	-		82.9	83.0		
	Test Vehicle	IH-594															
65	DVV	4x6 Bobtail	1	-	-	-	91.1	89.5	86.9	84.5	83.1	-		86.9	87.0		
66			1	-	-	-	91.8	91.2	86.6	85.1	83.3	-		87.9	87.5		
67			1	19	23	27	91.9	90.8	86.3	85.1	83.4	-		88.2	89.0		

TABLE C-9. SITE 9 — SAE-J366B TEST — SOFT ELEVATED SITE (DEPRESSED ROADWAY), FT. WAYNE IN, JULY 15, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED 1	SPEED 2	SPEED 3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Test Vehicle	IH-843															
16	SVV	4x6 Bobtail	1	19	22	27	88.3	88.3	85.2	80.9	77.5	73.5		85.6	86.1		
17			1	19	24	28	88.3	87.7	84.8	80.2	77.0	72.4		84.9	85.7		
18			1	19	23	27	91.0	87.7	85.0	80.9	-	-		85.5	85.5		
	Test Vehicle	IH-866															
86	SBH	4x6 Bobtail	1	20	22	26	89.8	86.5	83.5	80.9	76.2	78.8		84.2	85.2		
87			1	20	25	28	89.5	86.2	83.5	79.9	76.5	70.4		84.3	84.9		
88			1	20	24	28	88.0	86.8	83.6	79.8	75.5	71.2		83.9	84.7		
	Test Vehicle	IH-394															
97	DVV	4x6 Bobtail	1	20	25	27	91.7	91.9	88.1	85.2	82.7	80.4		89.4	88.9		
99			1	19	25	27	91.7	91.0	87.8	84.8	82.5	78.7		90.1	88.6		
100			1	19	25	27	91.5	90.9	87.4	83.9	81.6	77.8		88.0	88.6		

TABLE C-10. SITE 10 — SAE-J366B TEST — SOFT SITE WITH GENTLE UPSLOPE, FT. WAYNE IN, JULY 16, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED 1	SPEED 2	SPEED 3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Test Vehicle	IH-843															
6	SVV	4x6 Bobtail	1	20	23	28	89.8	85.9	82.7	81.0	79.5	76.9		83.1	83.9		
15			1	20	22	27	89.2	85.6	83.0	81.0	78.9	76.1		83.3	83.9		
58			1	19	23	27	89.9	85.6	82.9	81.2	79.3	77.8		83.4	84.5		
	Test Vehicle	IH-866															
78	SBH	4x6 Bobtail	1	18	20	27	90.0	85.8	83.6	81.9	80.3	78.8		84.4	85.6		
83			1	19	22	26	89.8	85.6	83.0	81.5	79.0	76.6		83.6	84.0		
84			1	18	23	27	90.1	85.5	83.0	81.3	78.9	76.7		83.3	84.1		
	Test Vehicle	IH-394															
90	DVV	4x6 Bobtail	1	19	24	27	91.3	90.9	86.2	84.5	82.8	79.9		86.8	87.2		
91			1	20	25	27	92.6	90.6	86.5	83.7	82.1	80.5		87.7	87.5		
92			1	19	23	27	91.0	89.9	86.2	83.6	82.1	81.0		87.3	88.8		
93	Possible		1	19	25	27	93.1	90.6	86.4	84.5	83.1	81.9		88.3	88.8		
94	Exhaust		1	19	24	26	92.9	91.5	86.4	84.7	83.2	81.5		87.3	87.9		
95	Leak		1	19	23	26	92.8	91.8	86.7	84.8	83.5	82.0		88.2	88.2		

TABLE C-7. SITE 7 — SAE-J366B TEST — HARD SITE (CROSSROAD) — FT. WAYNE IN, JULY 18, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED 1	SPEED 2	SPEED 3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Test Vehicle	IH-843															
20	SVV	4x6 Bobtail	1	19	22	28	88.0	87.6	86.0	82.9	80.7	74.5		84.7	84.8		
28			1	19	23	26	90.4	87.7	85.8	83.0	80.5	78.2		85.9	84.4		
42			1	19	22	25	90.5	87.7	85.4	83.0	80.7	78.4		84.5	85.0		
	Test Vehicle	IH-866															
82	SHH	4x6 Bobtail	1	19	23	28	90.0	86.5	84.8	82.4	80.7	80.2		84.4	84.8		
84			1	20	25	27	85.9	86.5	84.5	82.2	80.0	79.2		85.5	-		
87			1	20	22	27	89.5	86.8	84.3	82.1	80.7	79.2		84.2	83.5		
90			2	20	23	26		86.6	84.7	83.3	80.9	80.2	78.1			-	-
92			2	21	23	28		86.4	84.5	83.1	80.6	79.5	77.0			-	-
	Test Vehicle	IH-394															
89	BVV	4x6 Bobtail	1	20	24	-	93.0	91.7	89.3	86.3	84.6	81.6		-	88.5		
96			1	19	23	27	93.1	91.9	89.3	86.2	84.7	-		-	88.4		
91			2	19	25	28		91.8	88.9	86.7	84.0	82.4	80.3			-	-
93			2	20	24	27		91.8	88.4	87.0	84.3	82.7	-			-	-

TABLE C-8. SITE 8 — SAE-J366B TEST — SOFT DEPRESSED SITE (ELEVATED ROADWAY), FT. WAYNE IN, JULY 19, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED 1	SPEED 2	SPEED 3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Test Vehicle	IH-843															
32	SVV	4x6 Bobtail	1	-	-	27	87.8	84.1	81.6	79.4	77.2	75.5		81.2	82.5		
35			1	19	24	28	88.6	84.9	82.1	80.2	77.5	75.5		81.7	83.5		
37			1	18	24	20	88.7	84.1	81.6	80.5	78.7	77.0		81.5	82.7		
	Test Vehicle	IH-866															
64	SHH	4x6 Bobtail	1	20	25	28	87.0	83.5	80.6	79.1	77.5	75.0		81.1	82.5		
66			1	20	23	28	87.8	83.2	80.8	79.5	77.5	75.5		82.1	82.8		
68			1	20	23	28	87.6	83.2	81.1	79.3	77.5	76.1		82.8	82.7		
	Test Vehicle	IH-394															
65	BVV	4x6 Bobtail	1	19	23	27	90.9	87.7	87.8	84.9	83.3	81.2		86.3	86.7		
67			1	19	22	27	91.1	89.6	88.1	85.0	83.9	81.3		86.3	86.9		
69			1	20	25	27	90.5	89.8	88.1	85.6	84.1	81.5		86.7	87.6		

TABLE C-12. TEST VEHICLE IH-866 – AVERAGE PASSBY READINGS – SAE-J366B ACCELERATION TEST, FT. WAYNE IN, JULY 10-20, 1974

SITE NO.	TABLE NO.	LANE NO.	AVE. READING/STD. DEV. - dBA RE 20 uPa MEASURED AT										
			25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
1	C-1	LEFT SIDE	90.4 0.2	88.5 0.3	85.0 0.4	81.8 0.3	79.2 0.2	74.3 0.3		84.0 0.4	84.0 0.4		
1	C-1	RIGHT SIDE	90.6 0.1	88.5 0.3	84.7 0.1	82.1 0.4	79.9 0.3	76.3 -		83.5 -	83.7 -		
2	C-2	1	89.4 0.4	83.6 0.4	82.3 0.3	80.8 0.4	79.3 0.2	76.7 0.0		83.1 0.1	83.9 0.3		
3	C-3	1	89.9 0.3	87.8 0.5	84.9 0.2	81.4 0.4	81.4 0.8	78.1 1.2		83.2 0.5	83.4 0.4		
4	C-4	1	89.3 0.6	85.4 0.5	82.8 0.3	80.8 0.1	79.2 0.1			83.0 0.2	83.2 0.2		
5	C-5	1	88.7 0.4	85.2 0.2	82.4 0.3	80.6 0.5	77.8 0.7	76.9 0.6		81.7 0.2	82.0 0.2		
5	C-5	2		86.1 0.7	82.9 0.1	80.4 0.4	79.1 0.5	76.4 0.4				80.0 0.0	81.2 0.6
6	C-6	1	89.7 0.1	87.0 0.1	84.7 0.1	82.6 0.1	80.4 0.3	78.8 0.5		84.3 0.2	84.4 0.6		
6	C-6	2		86.6 0.5	84.7 0.1	83.4 0.1	81.7 0.2	79.5 0.5	78.2 0.6			82.6 0.2	82.0 0.1
7	C-7	1	89.2 1.0	86.3 0.3	84.5 0.3	82.2 0.2	80.8 0.1	79.5 0.6		84.0 0.5	84.2 0.9		
7	C-7	2		86.5 0.1	84.6 0.1	83.2 0.1	80.8 0.2	79.9 0.5	77.6 0.8				
8	C-8	1	87.5 0.4	83.3 0.2	80.8 0.3	79.2 0.1	77.5 0.0	75.5 0.6		81.7 0.6	82.6 0.3		
9	C-9	1	89.4 0.4	86.5 0.3	83.5 0.2	80.2 0.6	76.1 0.5	70.5 0.6		84.1 0.2	84.9 0.3		
10	C-10	1	90.0 0.2	85.6 0.2	83.3 0.4	81.6 0.3	79.4 0.8	77.4 1.2		83.8 0.5	84.6 0.9		

TABLE C-11. TEST VEHICLE IH-843 – AVERAGE PASSBY READINGS – SAE-J366B ACCELERATION TEST, FT. WAYNE IN, JULY 10-20, 1974

SITE NO.	TABLE NO.	LANE NO.	AVE. READING/STD. DEV. - dBA RE 20 uPa MEASURED AT										
			25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
1	C-1	LEFT SIDE	91.0 0.7	90.3 0.5	86.3 0.6	84.5 0.7	81.9 0.6	77.5 0.1		85.4 0.3	84.8 0.1		
1	C-1	RIGHT SIDE	90.9 0.3	89.7 0.4	86.2 0.5	83.4 0.5	81.1 0.2	76.5 0.2		85.0 0.7	84.9 0.3		
2	C-2	1	90.4 0.5	85.3 0.2	83.9 0.3	82.1 0.4	79.1 0.3	78.6 0.3		84.6 0.1	84.7 0.3		
3	C-3	1	91.7 0.1	88.7 0.1	86.3 0.0	82.6 0.4	82.8 0.1	79.6 1.0		85.7 0.3	85.9 0.3		
4	C-4	1	90.6 0.1	87.0 0.2	84.0 0.1	81.7 0.2	79.4 0.3	75.8 0.8		84.5 0.4	85.0 0.1		
5	C-5	1	89.0 0.3	84.8 0.5	82.5 0.8	80.5 1.0	77.5 0.5	75.9 0.5		82.6 0.1	83.6 0.4		
5	C-5	2		86.5 0.4	83.3 0.6	81.1 0.7	79.3 0.8	76.6 0.8	74.2 0.8			82.3 0.5	82.5 0.1
6	C-6	1	90.3 0.6	88.3 0.2	86.1 0.1	83.6 0.2	81.5 0.1	79.2 0.6		85.3 0.6	85.8 0.7		
6	C-6	2		86.8 0.1	86.3 0.1	84.6 0.1	82.4 0.1	80.3 0.1	78.8 1.6			83.9 0.6	83.2 0.9
7	C-7	1	90.2 0.3	87.7 0.1	85.7 0.3	83.0 0.1	80.6 0.1	77.0 2.2		84.4 0.4	84.7 0.3		
8	C-8	1	88.4 0.5	84.8 0.5	81.8 0.3	80.0 0.6	77.8 0.8	76.0 0.9		81.5 0.3	82.9 0.5		
9	C-9	1	90.6 0.4	87.9 0.3	85.0 0.2	80.7 0.4	77.3 0.4	73.0 0.8		85.3 0.4	85.8 0.3		
10	C-10	1	89.6 0.4	85.7 0.2	82.9 0.2	81.1 0.1	79.2 0.3	76.7 0.5		83.3 0.2	84.1 0.3		

APPENDIX D

NOISE LEVEL TIME HISTORIES - 1/3 OCTAVE FREQUENCY SPECTRA — SELECTED EVENTS

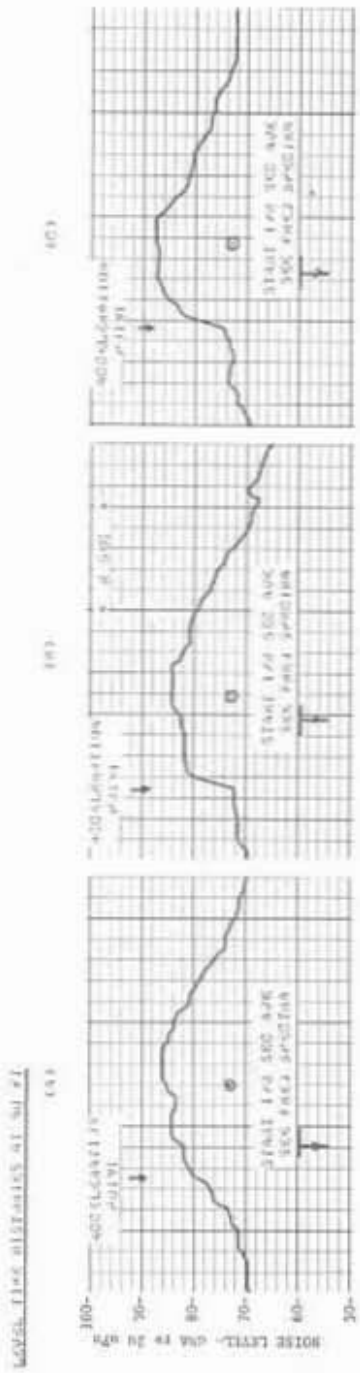
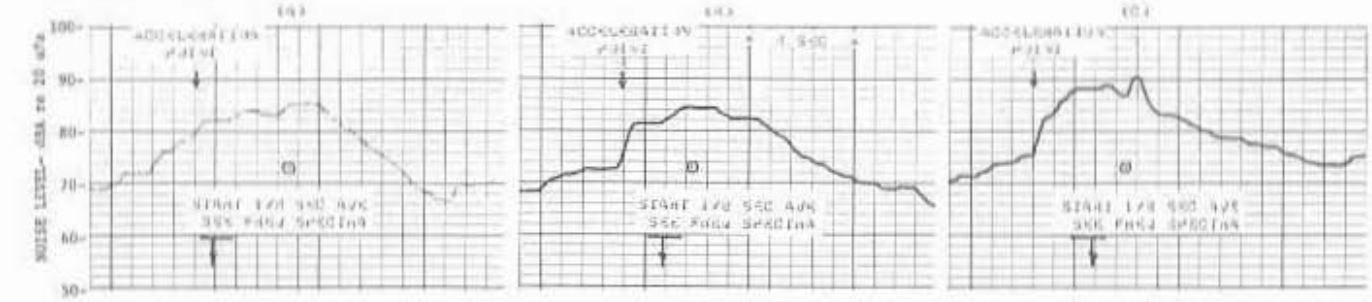


Figure D-1. Site 1 — Noise Level Time Histories — 1/3 Octave Frequency Spectra — SAE-J366b Acceleration Test — (A) IH-843, Event 10 (B) IH-866, Event 12 (C) IH-394, Event 22 — Ft. Wayne IN, July 10, 1974

TABLE C-13. SITE 13 TEST VEHICLE IH-394 – AVERAGE PASSBY READINGS – SAE-J366B ACCELERATION TEST, FT. WAYNE IN, JULY 10-20, 1974

SITE NO.	TABLE NO.	LANE NO.	AVE. READING/STD. DEV. - dBA RE 20 uPa MEASURED AT										
			25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
1	C-1	LEFT SIDE	93.2 0.3	94.1 0.2	89.7 0.2	87.5 0.2	86.4 0.3	81.6 -		87.8 -	89.9 -		
1	C-1	RIGHT SIDE	92.6 0.1	92.2 0.2	87.9 0.3	85.9 0.1	84.1 0.4	79.6 -		86.8 -	87.4 -		
2	C-2	1	92.0 0.1	89.4 0.6	86.9 0.1	85.7 0.3	83.4 0.2	80.8 0.3		87.1 0.2	87.7 0.6		
3	C-3	1	93.4 0.2	93.2 0.9	87.5 0.6	85.2 1.0	85.7 0.9	82.5 0.8		87.9 0.8	89.1 0.4		
4	C-4	1	91.6 0.4	90.2 1.0	86.3 0.3	84.9 0.3	83.3 0.2			87.7 0.7	87.8 1.0		
5	C-5	1	91.5 0.4	89.8 0.5	86.1 0.7	84.7 0.9	83.0 1.2	81.8 2.0		86.5 1.1	89.5 1.3		
5	C-5	2		89.8 0.2	87.5 0.2	85.4 0.3	84.6 0.1	83.3 0.4	82.1 0.7			85.3 0.7	85.8 0.0
6	C-6	NO DATA	–										
7	C-7	1	93.1 0.1	91.8 0.1	89.3 0.0	86.3 0.1	84.6 0.1	81.6 -			88.5 0.1		
7	C-7	2		91.8 0.0	88.7 0.4	86.9 0.2	84.2 0.2	82.6 0.1	80.3 -				
8	C-8	1	90.9 0.2	89.0 1.2	88.0 0.2	85.2 0.4	83.8 0.4	81.3 0.2		86.4 0.2	87.1 0.5		
9	C-9	1	91.6 0.2	91.3 0.6	87.8 0.4	84.6 0.7	82.3 0.6	79.0 1.3		88.8 0.7	88.7 0.2		
10	C-10	1	91.6 0.9	90.5 0.5	86.2 0.1	84.2 0.3	82.1 0.1	80.5 0.6		87.3 0.5	87.9 1.0		
10(1)	C-10	1	92.9 0.2	91.9 0.6	86.5 0.2	84.7 0.2	83.3 0.2	81.8 0.3		87.9 0.5	88.3 0.5		

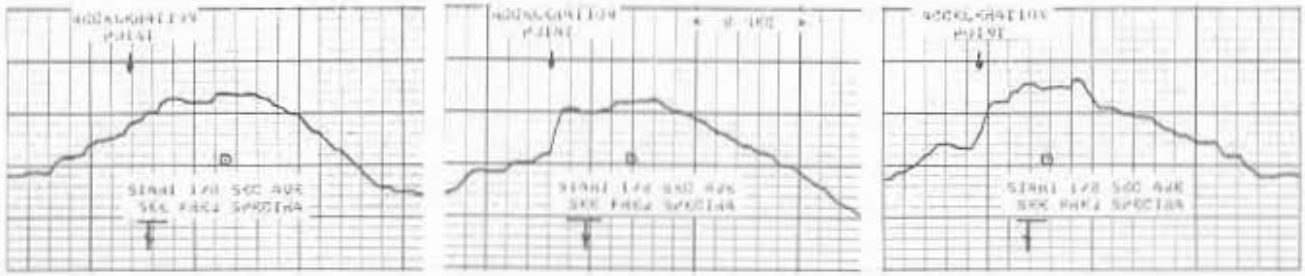
(1) Possible Exhaust Leak



1/3 OCTAVE PARAMETRIC SPECTRA-ATTENUATION VS DISTANCE 50 FT REFERENCE

CENTER FREQ	RELATIVE LEVELS-DB re 20 uPa				RELATIVE LEVELS-DB re 20 uPa				RELATIVE LEVELS-DB re 20 uPa			
	37 FT	50 FT	60 FT	100 FT	37 FT	50 FT	60 FT	100 FT	37 FT	50 FT	60 FT	100 FT
31.5 =	9.0	57.0	1.7	0.7	6.7	62.2	-1.7	-3.7	6.2	56.0	1.2	1.0
40 =	7.2	67.0	-.3	-1.7	5.5	71.3	-2.5	-5.7	5.0	60.8	.5	-2.7
50 =	5.0	65.8	-1.2	-5.5	2.7	72.3	-1.7	-7.7	.7	56.8	-2.2	-6.0
63 =	3.2	70.5	-1.7	-8.7	2.5	74.8	-2.0	-8.7	2.0	65.3	-1.0	-6.0
80 =	3.0	74.8	-1.2	-8.5	2.2	83.3	-2.2	-8.0	3.7	69.3	-2.2	-8.2
100 =	2.7	73.3	-.7	-5.0	2.7	82.3	-1.2	-8.7	1.7	70.5	-2.7	-3.7
125 =	4.2	75.5	1.2	-3.2	2.7	80.5	-2.2	-6.0	2.2	76.5	-2.0	-4.5
160 =	1.0	80.5	-1.7	-5.0	2.5	78.0	-3.2	-7.5	1.7	80.0	-2.5	-6.7
200 =	2.2	79.3	-2.7	-7.7	.7	83.8	-1.7	-5.5	-4.0	78.0	.0	-2.0
250 =	2.7	85.8	-4.0	-9.7	.5	81.2	-1.7	-6.0	.2	76.8	-.5	-2.2
315 =	2.7	81.8	-2.5	-9.5	1.2	75.0	-1.7	-5.2	3.5	74.8	-1.2	.2
400 =	4.5	80.3	-2.0	-7.0	1.5	77.5	-1.7	-3.7	2.5	79.5	-5.0	-13.0
500 =	2.5	80.5	-2.5	-6.2	.5	76.0	-1.2	-5.0	2.2	77.5	-5.0	-11.0
630 =	1.7	77.5	-3.0	-8.0	.0	75.3	-2.0	-4.5	-.2	77.0	-2.0	-8.7
800 =	.5	74.8	-2.2	-7.5	1.0	73.3	-1.5	-3.2	2.5	87.0	-4.2	-9.5
1.0 K =	3.0	78.3	-1.7	-4.7	.7	72.5	-1.5	-4.7	4.5	76.0	.7	-2.0
1.25K =	3.7	72.3	-3.0	-7.2	3.7	72.3	-1.2	-5.5	3.0	74.3	-4.2	-5.0
1.6 K =	2.5	71.3	-3.0	-9.5	3.0	73.0	-2.7	-3.2	2.0	74.0	-2.7	-9.0
2.0 K =	1.5	70.0	-2.7	-10.0	2.7	69.8	-3.5	-9.2	-.2	73.5	-2.7	-9.7
2.5 K =	1.2	69.8	-1.0	-8.0	.7	69.3	-2.2	-10.0	1.0	70.8	-2.0	-8.2
3.15K =	4.5	67.0	.2	-5.0	3.2	68.5	-1.0	-6.7	1.0	71.5	-3.0	-6.7
4.0 K =	3.5	66.0	-2.0	-7.0	3.0	67.3	-2.0	-7.2	1.5	70.0	-2.5	-8.0
5.0 K =	1.7	67.5	-2.0	-4.5	3.2	64.3	-2.5	-8.7	1.5	68.5	-2.5	-9.7
6.3 K =	4.7	59.3	-.5	-7.2	3.0	62.0	-3.0	-10.0	1.5	63.8	-3.5	-11.5
8.0 K =	2.2	63.0	-2.2	-8.0	2.2	65.3	-3.5	-9.5	1.5	65.3	-3.7	-10.2
10.0K =	4.2	58.3	-2.2	-7.5	4.7	57.8	-2.5	-9.2	4.5	60.3	-2.7	-9.7
12.5K =	4.5	54.0	-2.0	-5.7	5.0	56.0	-3.2	-9.0	3.7	55.5	-3.0	-8.0
FLAT =	2.7	90.8	-2.7	-7.7	1.5	91.0	-2.0	-6.0	1.5	91.3	-3.0	-7.0
A-WT. =	2.5	85.5	-3.0	-7.5	1.7	84.0	-2.0	-5.5	1.7	89.3	-3.5	-8.2

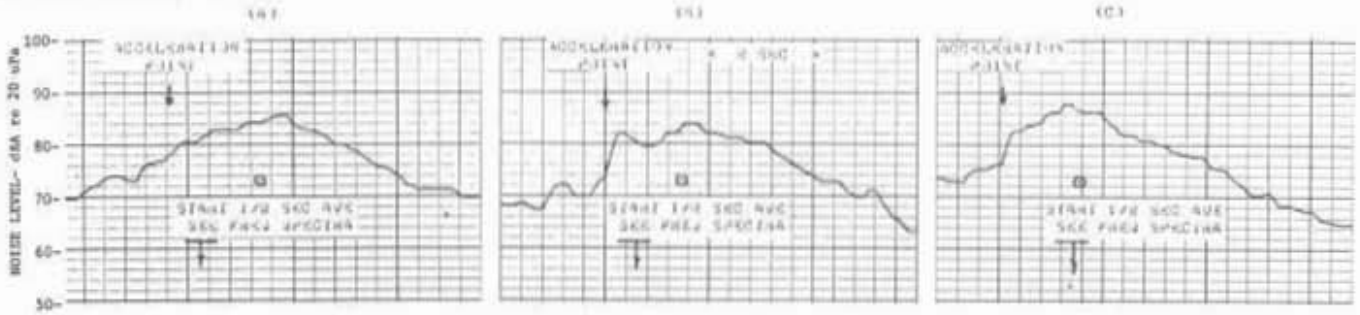
Figure D-3. Site 7 — Noise Level Time Histories — 1/3 Octave Frequency Spectra — SAE-J366b Acceleration Test — (A) IH-843, Event 28 (B) IH-866, Event 87 (C) IH-394, Event 89 — Ft. Wayne IN, July 18, 1974



CENTER FREQ	RELATIVE LEVEL-DB RE 20μPA 37 FT	50 FT	62 FT	100 FT	RELATIVE LEVEL-DB RE 20μPA 37 FT	50 FT	62 FT	100 FT	RELATIVE LEVEL-DB RE 20μPA 37 FT	50 FT	62 FT	100 FT
31.5 -	1.7	65.5	-2.2	-7.0	1.2	66.0	-1.5		-8.2	63.8	-11.7	
40 -	1.7	72.8	-2.2	-7.5	3.2	70.0	-1.7		-9.7	68.0	-14.0	
50 -	3.2	68.5	.2	-8.7	2.2	71.8	-1.2		-14.7	79.3	-19.5	
63 -	3.5	73.5	-1.5	-12.7	2.2	74.8	-2.0		1.0	72.0	-5.7	
80 -	3.2	76.5	-3.5	-10.5	2.7	79.5	-2.2		4.5	67.8	-1.5	
100 -	2.5	77.3	-2.5	-7.7	2.5	84.0	-2.5		3.5	74.0	-1.2	
125 -	1.7	79.0	-3.0	-9.0	3.5	80.0	-2.5		2.2	81.3	-3.5	
160 -	3.5	74.8	-.2	-4.5	1.0	77.0	-1.7		2.7	76.3	-2.2	
200 -	3.5	76.8	-2.7	-8.0	-1.2	80.3	-2.2		9.7	74.0	-.2	
250 -	.5	79.0	-3.7	-8.0	-1.5	75.5	-2.5		4.7	74.0	-1.0	
315 -	5.5	75.5	-5.0	-7.7	3.5	70.5	-3.5		7.5	70.8	-1.0	
400 -	4.5	77.0	-2.5	-6.2	2.0	72.3	-3.0		.5	78.5	.5	
500 -	6.5	74.5	-1.7	-8.7	7.5	70.5	-1.5		3.7	73.3	.0	
630 -	4.2	73.3	-2.0	-8.5	2.0	72.8	-1.2		3.7	74.5	-.7	
800 -	2.5	73.8	-1.2	-9.0	3.2	71.5	-.5		3.2	81.3	-3.2	
1.0 K -	2.5	73.5	-2.2	-10.5	1.2	74.3	-2.7		3.0	77.0	-.5	
1.25K -	2.7	73.5	[illegible]	-9.5	1.7	74.3	-2.7		3.0	74.5	-1.7	
1.6 K -	2.0	71.5	-1.2	-8.0	2.0	73.5	-2.2		4.0	71.5	.2	
2.0 K -	2.2	69.0	-2.2	-7.5	2.5	68.8	-2.5		2.5	71.3	-2.7	
2.5 K -	3.2	68.5	-1.5	-6.5	2.5	68.0	-1.2		3.2	69.8	-1.0	
3.15K -	2.7	68.5	-1.5	-6.2	1.7	69.0	-1.2		2.5	71.8	-1.7	
4.0 K -	4.2	66.8	-1.5	-6.2	2.2	68.5	-2.5		2.7	69.3	-1.7	
5.0 K -	2.7	67.8	-2.0	-5.7	3.2	65.0	-2.2		4.0	67.0	-.7	
6.3 K -	4.0	61.8	-2.0	-6.2	3.5	68.3	-2.5		3.2	63.3	-1.7	
8.0 K -	4.0	63.0	-1.5	-6.5	3.2	65.0	-2.7		4.0	64.8	-1.5	
10.0K -	4.2	60.3	-2.2	-7.7	4.7	59.8	-3.5		5.0	61.5	-2.0	
12.5K -	5.5	55.8	-2.0	-5.7	5.0	59.3	-4.5		5.7	57.3	-3.0	
FLAT -	3.2	87.5	-2.5	-8.2	2.5	89.3	-2.2		3.2	88.8	-2.5	
A-WT. -	3.2	82.5	-2.2	-5.0	3.2	82.5	-2.0		3.2	85.3	-1.5	

Figure D-2. Site 4 — Noise Level Time Histories — 1/3 Octave Frequency Spectra — SAE-J366b Acceleration Test — (A) IH-843, Event 51 (B) IH-866, Event 69 (C) IH-394, Event 64 — Ft. Wayne IN, July 13, 1974

LEVEL TIME HISTORIES AT 50 FT

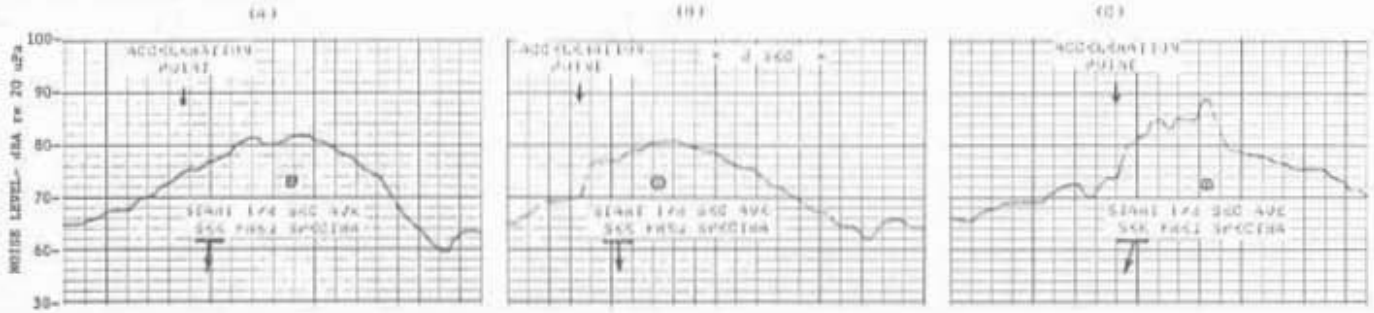


1/3 OCTAVE FREQUENCY SPECTRA-ACCELERATION WITH DISTANCE 50 FT REFERENCE

CENTER FREQ	RELATIVE LEVEL-DB RE 20uPA 37 FT	50 FT	62 FT	100 FT	RELATIVE LEVEL-DB RE 20uPA 37 FT	50 FT	62 FT	100 FT	RELATIVE LEVEL-DB RE 20uPA 37 FT	50 FT	62 FT	100 FT
31.5 -	2.7	60.3	-1.5	-8.2	2.7	67.3	-1.5	-3.2	-.7	58.8	-4.5	-4.0
40 -	3.0	69.0	-1.5	-7.5	3.2	69.5	-1.7	-7.0	1.5	61.0	-2.0	-5.0
50 -	2.2	68.5	-2.0	-8.5	1.0	75.3	-2.2	-9.0	.7	61.5	-5.5	-11.2
63 -	.2	72.8	-4.0	-12.7	1.5	77.3	-2.5	-9.7	2.0	64.8	-3.5	-8.7
80 -	2.0	75.3	-2.7	-11.7	2.5	78.8	-2.5	-11.2	1.0	69.0	-3.5	-9.0
100 -	.7	75.3	-3.0	-8.7	.7	85.0	-3.7	-6.7	.7	73.8	-4.2	-7.5
125 -	.7	76.5	-3.5	-7.5	1.5	78.5	-4.0	-8.5	2.2	75.8	-6.2	-9.0
160 -	.7	78.3	-1.7	-5.2	1.7	77.8	-3.7	-10.0	3.2	79.3	-7.5	-14.2
200 -	.2	78.0	-3.0	-10.5	-3.7	81.5	-4.7	-12.5	5.7	81.0	-3.7	-8.5
250 -	3.2	79.3	-5.2	-13.0	-.5	73.0	-4.2	-12.2	5.5	77.0	-4.2	-8.7
315 -	8.5	75.3	-3.7	-15.0	6.5	68.8	-1.7	-9.0	4.5	74.3	-2.0	-6.7
400 -	4.5	81.0	-6.2	-15.2	8.5	72.8	-4.5	-13.2	1.7	80.3	-4.7	-12.0
500 -	2.2	79.0	-6.5	-16.2	4.5	73.5	-6.2	-15.7	2.7	77.5	-5.7	-13.0
630 -	-.7	78.8	-7.0	-17.0	.0	74.8	-6.5	-16.5	4.7	75.3	-3.2	-9.7
800 -	.0	78.5	-6.2	-14.7	1.2	73.8	-6.0	-17.5	4.5	83.3	-2.7	-9.0
1.0 K -	3.7	73.8	-2.7	-9.7	1.7	74.5	-4.5	-16.5	1.7	77.3	-3.2	-7.7
1.25K -	3.2	72.8	-1.2	-10.7	4.2	74.0	-2.7	-16.7	4.0	72.3	-2.5	-8.7
1.6 K -	1.7	72.5	-3.5	-11.5	2.5	73.5	-3.5	-16.7	1.7	75.0	-5.7	-11.5
2.0 K -	3.2	70.5	-2.2	-10.2	2.0	69.8	-3.7	-14.7	.5	71.0	-3.0	-12.7
2.5 K -	2.0	71.5	-4.8	-11.5	1.5	70.8	-2.7	-17.0	2.7	70.5	-3.2	-13.0
3.15K -	2.2	71.3	-4.2	-12.0	2.7	70.5	-4.2	-15.7	1.7	70.8	-2.7	-9.5
4.0 K -	2.5	68.3	-4.2	-10.7	2.5	70.3	-4.5	-14.7	3.0	69.0	-3.7	-9.7
5.0 K -	2.0	70.8	-3.0	-9.0	2.5	65.8	-4.0	-16.5	1.0	68.3	-3.0	-13.2
6.3 K -	3.0	62.0	-5.0	-13.2	4.0	61.5	-4.5	-15.5	4.7	61.5	-3.0	-12.5
8.0 K -	3.5	64.5	-3.7	-11.5	3.2	65.8	-5.0	-15.7	4.0	64.8	-2.0	-12.8
10.0K -	3.5	61.3	-5.5	-14.2	3.5	59.8	-6.5	-14.5	6.0	59.0	-2.7	-11.8
12.5K -	3.2	55.8	-6.2	-10.7	5.0	57.3	-6.2	-10.7	6.2	54.0	-3.5	-7.5
FLAT -	2.2	89.5	-4.5	-11.2	1.7	89.8	-4.0	-9.2	4.2	89.5	-4.0	-9.2
A-WT. -	2.5	85.3	-4.5	-12.0	2.7	83.5	-4.2	-14.5	3.2	86.5	-3.2	-9.5

Figure D-5. Site 9 — Noise Level Time Histories — 1/3 Octave Frequency Spectra — SAE-J366b Acceleration Test — (A) IH-843, Event 16 (B) IH-866, Event 87 (C) IH-394, Event 109 — Ft. Wayne IN, July 18, 1974

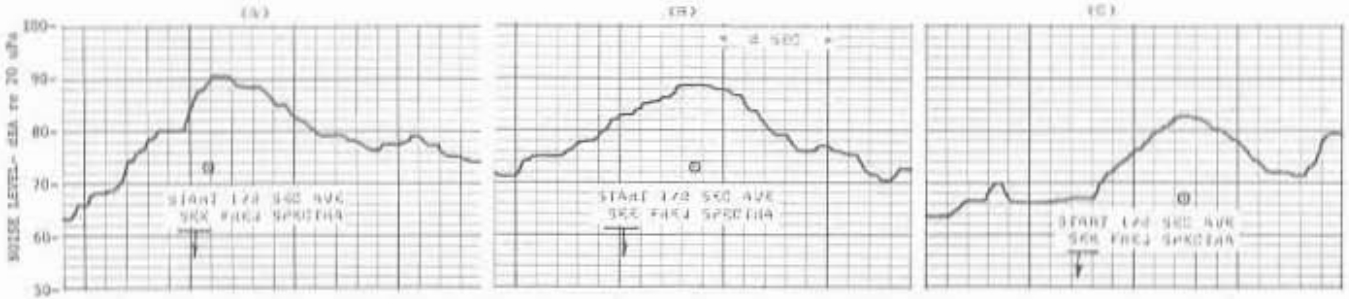
LEVEL TIME HISTORIES AT 50 FT



1/3 OCTAVE FREQUENCY SPECTRA-RELATIVE LEVEL AT DISTANCE 50 FT MEASUREMENTS

CENTER FREQ	RELATIVE LEVEL-DB RE 20uPA 37 FT	50 FT	66 FT	100 FT	RELATIVE LEVEL-DB RE 20uPA 37 FT	50 FT	66 FT	100 FT	RELATIVE LEVEL-DB RE 20uPA 37 FT	50 FT	66 FT	100 FT
31.5 -	7.0	57.3	.5	-8.5	6.5	65.0	-1.7	-8.5	8.0	51.0	-.7	-8.5
40 -	5.8	68.5	-8.0	-5.5	6.7	68.0	-3.5	-6.8	5.5	59.5	-.5	-1.0
50 -	5.5	64.5	-3.7	-3.7	3.5	73.3	-1.0	-7.0	2.0	62.0	-8.5	.0
63 -	8.7	71.0	-8.8	-9.8	3.5	75.3	-1.0	-8.7	2.8	64.3	-.8	-6.0
80 -	4.0	72.0	-8.8	-8.7	2.7	77.8	-1.5	-9.5	2.7	67.5	-8.0	-7.8
100 -	8.5	73.8	-1.0	-4.5	8.7	88.0	-1.7	-5.8	2.7	69.8	-1.8	-3.0
125 -	8.8	75.3	-1.5	-8.5	3.5	77.8	-8.0	-5.*	1.0	79.5	-8.7	-6.7
160 -	1.8	75.5	-8.0	-6.7	1.5	76.8	-8.8	-6.0	8.5	80.8	-8.5	-7.7
200 -	2.8	77.8	-8.8	-9.8	8.0	79.0	-8.0	-8.5	3.5	70.0	-.7	-.8
250 -	3.0	79.8	-3.5	-10.8	3.7	78.3	-8.7	-9.0	5.7	69.*	-1.7	-1.0
315 -	4.8	76.0	-8.7	-10.5	4.0	69.5	-4.0	-8.0	1.0	71.0	-.8	-1.7
400 -	3.0	78.5	-8.5	-10.5	3.5	73.5	-8.0	-9.8	8.0	79.0	-1.0	-9.5
500 -	1.8	77.5	-1.5	-8.8	3.5	71.3	-1.0	-8.7	8.8	75.5	-1.8	-8.0
630 -	2.5	78.0	.7	-4.5	.0	72.0	-8.5	-7.0	1.0	73.5	-8.5	-3.7
800 -	-.8	71.3	-.7	-4.5	.8	71.5	-1.7	-5.5	1.7	86.0	-3.8	-5.0
1.0 K -	.5	69.5	-.5	-1.5	8.0	70.5	-1.0	-8.5	1.8	77.8	-1.7	-7.0
1.25K -	.7	70.3	-.7	-1.7	8.5	70.5	-1.7	-8.5	1.7	71.8	-8.5	-4.*
1.6 K -	1.0	68.8	-1.7	-8.5	4.8	69.3	-1.8	-3.8	3.0	70.0	-1.8	-5.5
2.0 K -	.0	66.8	-.7	-3.0	8.5	67.0	-8.8	-7.7	1.8	69.5	-8.0	-5.5
2.5 K -	1.0	66.8	-1.*	-4.0	8.5	66.8	-8.8	-6.8	1.7	68.8	-3.0	-5.8
3.15K -	1.0	66.0	.8	-8.0	8.5	67.3	-1.8	-5.5	1.7	70.3	-8.5	-5.8
4.0 K -	.5	64.5	-1.0	3.8	3.7	66.3	-1.7	-6.5	8.7	68.3	-1.7	-5.5
5.0 K -	-.8	65.0	-1.5	-5.7	8.7	64.0	-8.8	-7.5	8.8	67.3	-8.8	-6.0
6.3 K -	1.5	60.3	-8.5	-4.5	3.5	61.8	-3.0	-8.5	3.8	62.8	-8.0	-6.7
8.0 K -	.0	68.0	-1.8	-4.5	3.0	64.3	-8.0	-7.7	3.8	65.0	-1.5	-6.8
10.0K -	8.7	58.3	-1.7	-3.8	5.8	59.3	-8.8	-7.8	5.0	60.3	-1.5	-6.5
12.5K -	8.5	54.8	-3.0	-3.5	4.7	59.0	-3.5	-7.8	4.7	56.8	-3.5	-5.7
FLAT -	8.8	87.0	-8.5	-6.5	3.0	88.3	-1.5	-5.7	8.8	89.5	-8.7	-5.5
A-WT. -	1.8	88.0	-1.5	-9.7	3.0	80.5	-1.5	-4.7	8.0	87.8	-8.5	-5.7

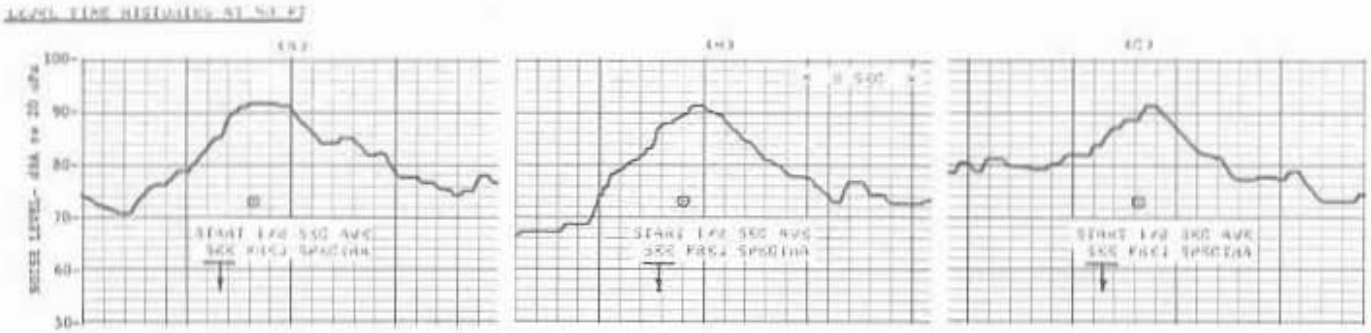
Figure D-4. Site 8 — Noise Level Time Histories — 1/3 Octave Frequency Spectra — SAE-J366b Acceleration Test — (A) IH-843, Event 37 (B) IH-866, Event 66 (C) IH-394, Event 69 — Ft. Wayne IN, July 19, 1974



1/3 OCTAVE FREQUENCY SPECTRA-ATTENUATION WITH DISTANCE 50 FT REFERENCE

CENTER FREQ	RELATIVE LEVEL-DB RE 20μPa 37 FT	50 FT	66 FT	100 FT	RELATIVE LEVEL-DB RE 20μPa 37 FT	50 FT	66 FT	100 FT	RELATIVE LEVEL-DB RE 20μPa 37 FT	50 FT	66 FT	100 FT
31.5 -	7.5	63.8	-1.8	-5.7	7.7	66.3	-2.2	-6.5	7.0	68.5	-2.0	-6.5
40 -	5.5	70.5	-.7	-5.7	6.5	70.0	.0	-4.0	7.7	67.8	-1.0	-6.2
50 -	3.7	70.8	-.7	-8.5	3.2	78.5	.2	-3.2	2.5	71.0	-4.0	-10.2
63 -	4.8	69.3	-.5	-6.7	3.7	74.8	-2.0	-10.7	3.5	73.8	-1.7	-9.0
80 -	4.5	16.0	-1.8	-5.8	1.7	74.5	-2.5	-11.7	6.5	66.0	.7	-6.0
100 -	8.5	70.5	-1.5	-7.7	4.0	66.5	-3.2	-3.7	1.7	67.3	-2.2	-5.0
125 -	-1.0	78.8	-.7	-5.7	3.5	68.3	-3.7	-3.7	3.2	66.5	-.5	-.7
160 -	.8	72.5	-.5	-6.8	.7	71.8	-3.2	-6.5	2.5	68.8	-.5	-5.7
200 -	1.5	71.5	-1.8	-7.5	2.8	79.0	-1.5	-7.0	2.8	68.8	-1.5	-5.0
250 -	1.5	75.0	-2.8	-7.8	2.8	73.8	-1.7	-7.2	2.0	78.0	-2.0	-5.7
315 -	.5	81.8	-.8	-5.7	2.7	75.8	-1.5	-6.7	2.8	77.8	-1.7	-5.8
400 -	.5	87.5	-2.7	-9.8	3.2	86.8	-1.5	-7.2	4.8	77.0	-1.5	-6.8
500 -	2.0	78.5	-2.5	-10.0	2.8	78.8	-1.7	-7.0	2.2	77.3	-2.0	-6.7
630 -	.5	81.0	-2.5	-9.8	2.5	79.0	-2.5	-6.5	2.5	74.0	-1.7	-5.8
800 -	1.0	80.8	-3.0	-11.2	2.7	78.0	-2.7	-7.7	3.7	70.0	-1.7	-5.7
1.0 K -	2.8	85.0	-1.7	-10.8	2.7	82.0	-3.5	-7.7	3.2	72.8	-1.7	-7.0
1.25K -	2.8	79.8	-3.0	-11.0	3.0	76.3	-3.0	-8.5	2.2	72.3	-3.2	-9.7
1.6 K -	3.2	75.5	-2.2	-8.5	2.7	74.0	-1.7	-9.0	2.5	71.0	-2.5	-8.2
2.0 K -	1.0	76.3	-2.7	-7.7	3.7	72.2	-2.5	-9.2	3.2	68.8	-3.2	-8.0
2.5 K -	1.5	73.8	-3.2	-8.5	1.5	73.5	-3.0	-8.5	2.2	67.3	-4.0	-9.7
3.15K -	2.7	70.3	-2.5	-8.7	2.5	72.8	-2.5	-9.5	2.5	64.8	-3.2	-9.7
4.0 K -	2.8	69.5	-3.0	-10.0	2.7	70.8	-2.7	-9.7	2.5	62.3	-3.5	-10.5
5.0 K -	2.5	67.5	-3.0	-10.8	3.0	69.5	-2.5	-11.0	3.5	59.5	-1.5	-8.7
6.3 K -	1.5	64.0	-4.5	-12.5	2.2	60.0	-4.2	-11.5	3.2	56.0	-1.7	-8.7
8.0 K -	2.8	66.0	-3.2	-12.0	2.5	65.0	-3.2	-11.7	3.5	59.0	-2.2	-8.7
10.0K -	1.5	61.8	-4.0	-12.0	3.7	57.3	-3.5	-9.2	3.5	54.5	-2.2	-7.7
12.5K -	2.8	57.0	-3.7	-9.5	3.5	53.3	-3.2	-6.2	3.7	49.8	-2.0	-3.0
FLAT -	1.0	92.0	-2.5	-9.2	3.0	91.0	-2.2	-7.5	3.7	85.0	-1.7	-6.0
A-WT. -	1.7	90.0	-2.2	-9.5	2.0	86.5	-2.5	-7.7	3.0	81.8	-2.0	-7.0

Figure D-7. Site 7 — Noise Level Time Histories — 1/3 Octave Frequency Spectra — Coast-By Test — (A) IH-843, Event 86 (B) IH-866, Event 67 (C) IH-394, Event 66 — Ft. Wayne IN, July 18, 1974



1/3 OCTAVE FREQUENCY SPECTRA-ATTENUATION WITH DISTANCE 50 FT REFERENCE

CENTER FREQ	RELATIVE LEVEL-DB RE 20μPa				RELATIVE LEVEL-DB RE 20μPa				RELATIVE LEVEL-DB RE 20μPa			
	25 FT	50 FT	62 FT	100 FT	25 FT	50 FT	62 FT	100 FT	25 FT	50 FT	62 FT	100 FT
31.5 -	8.8	67.5	-2.0	-2.5	7.2	64.3	-.5	-4.0	6.7	60.3	.7	.5
40 -	6.2	70.5	-2.5	-7.2	5.7	72.3	-1.2	-5.2	3.2	71.8	-2.2	-6.5
50 -	4.7	69.3	.5	-3.7	4.5	72.0	-1.5	-4.7	3.7	72.3	-2.5	-6.7
63 -	3.2	76.3	-2.0	-12.7	3.5	74.5	-1.0	-6.7	5.5	72.0	-.5	-7.2
80 -	2.7	77.8	-3.0	-9.7	3.5	79.5	-2.0	-8.2	5.7	66.0	-.7	-5.7
100 -	4.8	75.8	-1.0	-5.0	3.2	79.3	-1.7	-4.0	3.5	78.5	-2.5	-8.0
125 -	2.5	79.3	-1.7	-5.5	4.5	79.8	-2.2	-5.5	2.2	83.5	-1.7	-4.5
160 -	.0	84.0	-.2	-3.2	1.7	81.5	-1.5	-6.0	2.2	79.0	-1.2	-4.2
200 -	.0	84.0	-1.0	-4.5	2.0	85.5	-1.7	-7.0	-3.0	79.0	-.7	-4.0
250 -	2.2	85.0	-2.0	-5.2	1.7	82.5	-2.2	-7.5	2.2	84.0	-1.2	-3.2
315 -	.7	84.8	-2.7	-6.5	1.7	79.0	-1.0	-4.7	2.2	80.0	-1.0	-3.5
400 -	2.2	87.0	-2.2	-6.2	1.7	85.5	-2.0	-6.5	3.5	83.0	-4.2	-8.0
500 -	2.7	83.3	-2.0	-7.2	2.2	83.3	-3.7	-8.0	2.7	81.3	-4.0	-7.7
630 -	2.5	80.3	-1.0	-6.5	2.2	80.8	-3.0	-7.0	1.2	78.0	-3.5	-8.5
800 -	3.0	81.0	-1.7	-6.2	3.0	78.0	-1.7	-5.5	1.0	89.0	-3.7	12.7
1.0 K -	2.8	85.3	-3.2	-6.5	3.0	82.3	-2.7	-7.5	4.0	79.0	.5	-4.7
1.25K -	2.7	80.0	-3.0	-6.0	2.5	80.0	-2.7	-7.7	2.2	76.3	-3.5	-7.
1.6 K -	1.5	79.0	-2.2	-8.7	3.0	77.3	-3.5	-8.2	2.7	74.[illegible]	-2.2	[illegible]
2.0 K -	3.0	77.3	-1.5	-7.5	2.2	75.8	-2.2	-8.2	2.2	73.5	-3.8	-8.5
2.5 K -	1.7	75.8	-2.5	-7.7	2.7	74.8	-2.0	-7.5	1.7	72.3	-2.0	-7.0
3.15K -	3.0	74.3	-2.2	-8.0	3.5	73.5	-1.7	-7.0	1.5	71.0	-2.5	-8.2
4.0 K -	1.0	73.3	-3.2	-9.7	2.5	72.8	-2.7	-8.7	2.2	68.5	-2.2	[illegible]
5.0 K -	2.7	70.0	-1.7	-9.2	2.5	71.0	-2.0	-9.5	2.0	67.3	-2.7	-9.7
6.3 K -	2.5	65.5	-3.2	-9.5	2.7	64.5	-2.5	-9.5	2.7	61.5	-3.2	-11.0
8.0 K -	1.7	60.0	-3.7	-9.7	1.5	69.3	-3.2	-10.5	2.2	64.5	-3.2	-9.5
10.0K -	3.7	63.8	-3.0	-9.2	4.2	62.8	-2.7	-9.2	4.2	58.8	-3.0	-9.5
12.5K -	3.7	59.0	-3.5	-8.7	4.0	56.8	-3.0	-7.8	4.2	53.8	-2.7	-7.0
FLAT -	2.0	94.8	-2.2	-6.2	2.2	94.3	-2.2	-7.0	2.0	93.5	-2.2	-6.5
A-wt. -	2.7	90.8	-1.7	-6.7	2.5	90.3	-2.5	-7.5	1.5	90.5	-3.0	-8.5

Figure D-6. Site 7 — Noise Level Time Histories — 1/3 Octave Frequency Spectra — Power-By Test — (A) IH-843, Event 83 (B) IH-866, Event 62 (C) IH-394, Event 41 — Ft. Wayne IN, July 18, 1974

TABLE E-1. SITE 2 — POWER-BY/COAST-BY TESTS — SOFT SITE (WEIGHT STATION), FT. WAYNE IN, JULY 11, 1974

EVENT NO.	VEHICLE TYPE	LANE	SPEED			PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT										
			1	2	3	25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Power-By Test															
35	IH-843 w/Tanker	1		58		96.7	-	-	-	85.4	83.7		91.5	92.0		
42		1		53		97.4	90.8	89.9	88.4	86.3	84.4		91.6	91.8		
43		1		57		97.2	90.0	89.8	88.0	86.2	84.4		91.3	92.4		
2	IH-866 w/Tanker	1		56		96.1	-	-	-	83.9	-		-	-		
5		1		56		96.1	-	-	-	84.0	-		-	-		
14		1		56		95.9	88.1	88.0	85.7	84.6	82.4		89.6	89.4		
1	IH-394 w/Tanker	1		53		92.5				82.2	79.2					
4		1		55		92.8	-	-	-	82.0	-		-	-		
13		1		56		91.9	86.0	84.6	82.7	81.3	78.8		85.7	86.2		
	Coast-By Test															
54	IH-843 w/Tanker	1		56		95.6	87.7	87.7	85.7	83.1	81.1		89.2	90.3		
55		1		56		95.7	87.5	87.4	85.7	83.6	81.4		89.7	90.4		
24	IH-866 w/Tanker	1		55		93.8	85.8	86.8	84.5	82.2	80.4		87.8	88.8		
33		1		55		93.8	86.0	86.4	84.6	83.2	80.2		87.0	88.4		
23	IH-394 w/Tanker	1		56		87.2	81.5	80.1	78.6	76.2	74.4		81.1	82.2		
41		1		56		87.8	80.8	80.2	78.3	76.2	74.1		81.4	82.6		

TABLE E-3. SITE 4 – POWER-BY/COAST-BY TESTS – SOFT SITE, FT. WAYNE IN, JULY 13, 1974

EVENT NO.	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Power-By Test															
63	IH-843 w/Tanker	1		-		97.2	93.4	90.2	-	85.8	-		90.9	91.2		
72		1		58		97.5	93.4	90.2	88.3	86.2	-		91.3	91.4		
73		1		58		97.6	94.1	91.0	88.3	86.2	-		92.3	93.0		
2	IH-866 w/Tanker	1		56		95.7	92.1	88.6	86.5	83.9	79.8		90.0	89.6		
26		1		56		95.9	92.8	88.8	87.0	84.1	80.1		90.0	90.0		
30		1		56		96.1	92.7	88.7	86.7	84.1	80.1		89.9	90.6		
1	IH-394 w/Tanker	1		54		91.9	88.2	85.0	82.8	81.1	78.2		85.9	87.0		
25		1		55		93.3	89.7	86.2	84.2	82.9	80.5		87.9	88.8		
29		1		55		92.1	89.0	85.8	83.7	81.1	78.0		86.8	87.0		
	Coast-By Test															
74	IH-843 w/Tanker	1		54		94.3	92.0	88.9	86.6	83.5	-		89.9	90.0		
75		1		55		95.4	92.2	88.8	85.7	83.0	-		89.6	90.0		
39	IH-866 w/Tanker	1		56		94.1	90.8	86.9	84.9	82.9	78.6		88.0	88.7		
50		1		55		93.8	90.0	86.2	84.0	82.2	78.2		87.8	88.5		
58		1		58		93.7	90.7	87.1	85.8	82.2	77.5		87.6	88.8		
38	IH-394 w/Tanker	1		55		88.1	84.7	80.9	78.6	75.3	72.4		83.0	83.1		
49		1		54		87.5	84.6	80.9	78.8	76.1	72.0		82.3	82.9		
56		1		55		88.7	85.2	80.7	78.0	75.8	70.2		83.1	83.1		

TABLE E-2. SITE 3 — POWER-BY/COAST-BY TESTS — HARD SITE, FT. WAYNE IN, JULY 12, 1974

EVENT NO.	VEHICLE TYPE	LANE	SPEED 1	SPEED 2	SPEED 3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Power-By Test															
35	IH-843 w/Tanker	1		57		97.7	95.3	92.1	87.8	87.0	85.9		90.2	90.4		
41		1		57		98.5	96.1	92.8	88.8	89.7	85.5		91.6	91.5		
46		1		56		97.7	96.0	92.3	87.8	89.1	85.5		91.0	90.8		
2	IH-866 w/Tanker	1		56		96.2	93.3	89.8	86.6	86.4	84.7		90.8	90.7		
5		1		56		96.3	93.6	90.8	86.9	87.2	84.6		90.6	90.5		
13		1		54		96.7	-	-	-	87.2	84.7		90.0	90.1		
1	IH-394 w/Tanker	1		54		95.0	92.1	89.4	85.9	85.3	82.9		89.0	89.8		
4		1		54		94.5	93.0	89.1	86.1	86.9	84.9		88.6	90.7		
12		1		54		95.1	-	-	-	85.6	82.8		88.1	90.0		
	Coast-By Test															
54	IH-843 w/Tanker	1		52		95.0	93.0	88.8	83.6	85.3	-		-	-		
55		1		53		94.2	-	87.8	83.7	84.9	82.3		88.8	89.0		
69		1		52		94.4	-	88.3	84.3	86.4	-		-	-		
19	IH-866 w/Tanker	1		55		92.0	90.2	86.9	83.5	83.2	78.7		86.5	86.5		
24		1		55		94.3	92.0	87.8	83.7	85.0	81.5		87.7	88.3		
33		1		56		94.0	92.0	88.1	84.2	85.9	82.0		88.5	87.7		
32	IH-394 w/Tanker	1		54		88.4	86.9	82.9	78.3	80.1	77.4		82.6	82.5		
34		1		55		88.4	86.1	81.8	77.9	78.6	75.8		81.6	82.0		
40		1		55		88.5	86.8	82.9	78.5	79.5	76.0		82.2	82.5		

TABLE E-5. SITE 6 – POWER-BY/COAST-BY TESTS – HARD SITE, FT. WAYNE IN, JULY 17, 1974

EVENT NO.	VEHICLE TYPE	LANE	SPEED 1	SPEED 2	SPEED 3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Power-By Test															
8	IH-843 w/Tanker	1		55		96.0	92.8	91.1	89.5	86.9	85.8		90.1	91.1		
26	No. 4	1		56		97.1	94.7	92.7	90.8	88.1	86.7		91.1	91.8		
47		1		55		96.6	94.6	91.8	89.9	86.4	85.1		90.8	91.0		
9	IH-866 w/Tanker	1		54		96.1	93.3	91.3	88.4	86.8	84.8		90.3	90.8		
28	No. 14	1		56		96.3	93.3	90.7	88.8	85.9	83.9		90.1	91.4		
48		1		56		96.1	93.5	91.2	88.5	86.0	84.8		89.9	90.1		
	IH-394 w/Tanker	– No Data														
	Coast-By Test															
53	IH-843 w/Tanker	1		53		93.1	90.2	89.8	87.2	83.9	81.9		87.7	87.9		
66	No. 4	1		52		93.5	90.9	89.9	86.9	84.6	83.8		88.8	88.8		
68		1		54		94.8	92.1	90.2	87.9	84.0	84.8		88.5	88.9		
80	IH-843 w/Tanker	1		52		92.9	91.1	89.1	87.0	84.4	82.7		88.3	88.9		
84	No.14	1		54		92.9	91.8	89.8	88.1	85.7	84.8		84.1	88.7		
89		1		54		95.0	92.3	89.4	86.4	84.6	82.9		85.2	89.1		
67	IH-843 w/Tanker	1		56		94.7	91.2	89.8	86.7	83.9	82.9		89.4	89.5		
69	No. 14	1		43		93.1	89.2	87.7	85.4	83.0	80.8		87.3	87.8		
73		1		56		95.1	92.1	89.8	87.5	84.7	83.2		89.2	89.4		
79		1		54		94.1	92.1	89.9	97.0	84.3	82.8		88.3	88.7		

IH-394 – No Data

TABLE E-4. SITE 5 – POWER-BY/COAST-BY TESTS – SOFT SITE WITH GENTLE DOWNSLOPE, FT. WAYNE IN, JULY 20, 1974

EVENT NO.	VEHICLE TYPE	LANE	SPEED 1	SPEED 2	SPEED 3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Power-By Test															
2	IH-843 w/Tanker	1		55		94.2	89.9	87.0	84.5	82.2	79.7		88.5	88.0		
10		1		56		94.1	89.7	86.9	84.7	82.9	79.2		88.0	88.2		
17		1		56		94.8	91.3	87.9	85.1	83.0	80.5		88.8	88.4		
73	IH-866 w/Tanker	1		55		94.7	91.6	87.5	84.5	81.9	79.2		87.7	88.4		
74		1		55		95.1	91.5	87.6	85.3	82.0	79.5		87.7	88.2		
75		1		55		94.5	91.6	87.6	84.9	82.8	79.5		87.8	88.2		
5	IH-394 w/Tanker	1		53		93.9	90.6	88.6	85.9	84.2	83.5		89.1	88.8		
11		1		54		92.4	89.8	86.5	84.4	82.6	80.6		87.6	87.9		
21		1		54		93.2	89.9	82.1	84.8	83.4	81.6		88.1	87.7		
	Coast-By Test															
26	IH-843 w/Tanker	1		56		93.4	89.4	85.8	83.2	81.1	77.5		88.0	87.2		
30		1		56		93.8	89.8	86.6	83.9	80.9	76.9		88.4	88.0		
52		1		65		93.0	89.4	85.5	83.4	80.0	77.7		87.1	86.8		
76	IH-866 w/Tanker	1		55		91.8	87.7	84.6	81.5	78.4	76.5		85.7	86.9		
77		1		56		92.0	87.9	84.7	82.1	78.5	76.5		85.7	82.5		
83		1		56		93.2	87.8	84.3	82.4	80.2	77.8		85.8	86.1		
29	IH-394 w/Tanker	1		54		88.0	84.5	80.4	77.7	75.0	72.9		82.2	82.7		
39		1		51		86.8	83.1	79.1	76.5	74.6	71.4		81.8	82.0		
51		1		54		87.8	83.9	79.7	77.1	74.4	72.6		82.0	82.1		

TABLE E-7. SITE 8 – POWER-BY/COAST-BY TESTS – SOFT DEPRESSED SITE (ELEVATED ROADWAY), FT. WAYNE IN, JULY 19, 1974

EVENT NO.	VEHICLE TYPE	LANE	SPEED			PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT										
			1	2	3	25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Power-By Test															
70	IH-843 w/Tanker	1		57		95.3	90.5	87.4	85.5	83.9	82.3		89.2	89.9		
71		1		58		94.9	90.4	87.5	85.7	83.9	81.4		88.7	89.8		
12	JH-866 w/Tanker	1		56		93.6	88.8	85.6	84.0	82.6	80.6		86.5	87.7		
23		1		57		93.8	88.7	85.6	84.0	82.7	81.4		86.8	87.7		
29		1		57		93.2	88.7	85.6	84.1	82.8	81.2		87.4	88.6		
13	IH-394 w/Tanker	1		55		90.1	83.3	83.7	81.9	80.1	78.5		84.8	85.8		
24		1		54		90.3	86.3	83.9	82.2	80.8	78.5		84.6	85.6		
31		1		55		90.0	85.9	83.4	82.1	80.3	79.5		84.8	86.1		
	Coast-By Test															
60	IH-843 w/Tanker	1		55		92.1	87.5	84.5	82.9	81.9	79.3		86.4	88.0		
63		1		55		91.6	86.8	84.4	83.0	-	81.5		86.3	87.0		
42	IH-866 w/Tanker	1		52		91.1	86.9	83.8	82.4	80.6	78.7		85.8	87.1		
49		1		55		91.4	86.9	93.9	82.0	80.9	79.4		85.3	86.8		
56		1		56		91.8	87.1	84.5	82.4	80.6	79.5		86.0	86.9		
50	IH-394 w/Tanker	1		56		87.2	82.4	80.0	77.5	76.6	75.2		81.3	82.3		
58		1		57		87.0	83.5	80.0	78.3	76.7	74.3		81.2	82.7		
59		1		57		87.8	82.8	79.9	77.5	76.7	74.7		82.2	83.1		

TABLE E-6. SITE 7 – POWER-BY/COAST-BY TESTS – HARD SITE (CROSSROAD), FT. WAYNE IN, JULY 18, 1974

EVENT NO.	VEHICLE TYPE	LANE	SPEED			PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT										
			1	2	3	25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Power-By Test															
79	IH-843 w/Tanker	1		57		95.6	93.4	91.6	89.2	87.0	84.8		90.5	90.5		
83		1		56		97.2	93.8	91.4	89.4	87.0	84.9		89.9	90.5		
85		1		56		97.8	94.3	91.8	89.3	86.9	82.7		90.4	90.0		
39	IH-866 w/Tanker	1		55		96.2	92.7	90.0	89.2	87.0	84.2		89.8	89.9		
45		1		55		96.0	93.7	91.2	89.0	86.2	83.9		89.4	89.7		
52		1		55		96.3	92.4	91.0	88.4	86.1	82.9		89.2	89.7		
59		1		55		96.6	92.5	91.2	88.6	86.8	83.6		89.8	90.5		
41	IH-394 w/Tanker	1		49		99.2	92.7	91.0	87.5	84.9	79.9		88.4	90.7		
48		1		46		93.7	91.6	90.8	96.7	83.9	83.3		87.7	88.7		
60		1		52		94.9	93.7	89.2	87.4	84.8	82.1		88.5	89.7		
	Coast-By Test															
86	IH-843 w/Tanker	1		55		94.9	92.4	90.1	87.7	84.4	81.4		-	88.4		
94		1		55		95.2	92.3	90.8	87.7	85.1	-		-	87.6		
95		1		55		94.1	91.8	89.9	87.3	85.2	-		-	88.6		
65	IH-866 w/Tanker	1		54		94.7	91.7	89.3	86.7	83.0	81.0		87.6	87.5		
67		1		54		94.5	91.4	89.0	86.0	83.2	81.7		87.5	87.5		
63	IH-394 w/Tanker	1		57		87.2	85.2	82.9	80.2	77.4	75.0		81.4	81.7		
66		1		52		88.2	84.8	82.5	79.6	77.1	74.9		81.0	81.5		
81		1		51		87.2	85.7	82.6	79.9	77.8	76.8		81.4	81.7		

TABLE E-9. SITE 10 – POWER-BY/COAST-BY TESTS – SOFT SITE WITH GENTLE UPSLOPE, FT. WAYNE IN, JULY 16, 1974

EVENT NO.	VEHICLE TYPE	LANE	SPEED 1	SPEED 2	SPEED 3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Power-By Test															
86	IH-843 w/Trailer	1		55		96.9	93.6	89.2	87.5	85.1	83.3		91.8	91.3		
88		1		56		97.1	92.2	88.6	87.5	85.7	82.9		91.0	91.2		
89		1		55		97.0	92.0	89.4	87.6	85.9	82.7		90.9	90.7		
97		1		56		96.9	92.2	89.5	87.6	85.1	83.6		91.2	90.7		
17	IH-866 w/Trailer	1		56		96.0	90.5	88.4	86.5	84.8	82.3		89.7	90.5		
37		1		56		96.0	-	88.3	86.7	84.3	82.1		88.9	90.1		
44		1		56		95.9	90.5	88.0	86.5	84.2	82.6		89.7	90.2		
16	IH-394 w/Trailer	1		54		94.2	91.5	86.5	85.7	84.1	82.6		87.2	88.2		
36		1		54		94.0	92.0	86.9	86.0	84.4	82.4		88.3	89.1		
43		1		54		95.0	92.8	86.9	86.1	84.3	82.8		87.8	88.9		
	Coast-By Test															
98	IH-843 w/Trailer	1		54		93.6	89.5	87.3	84.7	82.5	80.0		89.1	88.6		
99		1		54		93.6	89.0	89.0	84.6	82.7	79.6		88.6	88.2		
100		1		54		94.0	89.5	87.8	86.0	83.1	80.1		89.8	89.2		
52	IH-866 w/Trailer	1		56		94.3	88.4	87.0	85.4	83.0	80.6		88.5	89.0		
55		1		54		93.8	87.9	86.1	84.6	82.5	79.7		87.5	88.1		
57		1		54		93.9	88.5	86.3	84.0	82.5	80.6		87.8	88.4		
56	IH-394 w/Trailer	1		52		87.2	81.9	80.0	78.6	76.5	73.1		81.7	81.9		
65		1		53		87.9	81.9	80.7	78.1	76.5	73.6		82.0	82.4		
85		1		56		88.1	82.7	80.3	78.1	76.8	73.5		82.1	82.8		

TABLE E-8. SITE 9 – POWER-BY/COAST-BY TESTS – SOFT ELEVATED SITE (DEPRESSED ROADWAY), FT. WAYNE IN, JULY 15, 1974

EVENT NO.	VEHICLE TYPE	LANE	SPEED			PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT										
			1	2	3	25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
	Power-By Test															
89	IH-843 w/Tanker	1		58		97.8	95.1	92.8	87.4	84.4	79.8		93.4	91.9		
90		1		53		97.9	95.1	93.1	87.5	83.8	78.3		93.1	92.1		
91		1		54		96.8	94.9	91.9	87.7	84.5	79.5		92.2	91.6		
9	IH-866 w/Tanker	1		56		96.6	92.5	90.2	86.4	82.8	76.0		90.7	90.9		
15		1		57		96.3	93.5	90.1	86.4	82.6	76.9		90.5	90.9		
27		1		53		96.2	93.4	90.1	85.7	81.8	75.8		90.9	91.5		
43		1		54		95.8	92.9	90.0	86.1	82.8	76.9		90.1	90.8		
6	IH-394 w/Tanker	1		54		91.8	89.4	87.1	82.8	79.9	74.5		87.1	87.1		
26				54		92.6	90.0	87.2	84.0	81.5	75.2		88.7	88.7		
52				55		92.3	89.9	87.1	82.8	79.3	74.7		87.0	87.1		
	Coast-By Test															
92	IH-843 w/Tanker	1		54		94.6	93.1	92.1	84.7	81.5	76.9		91.8	90.0		
93		1		55		94.9	93.5	90.3	86.0	83.7	79.6		90.7	90.0		
95		1		56		96.6	94.9	92.1	86.2	81.9	75.7		92.5	91.9		
53	IH-866 w/Tanker	1		56		93.6	92.0	89.0	83.6	79.1	74.7		89.6	88.7		
79		1		55		94.6	92.2	89.8	84.6	80.0	75.0		89.1	89.0		
81		1		55		94.4	92.0	89.5	84.9	81.5	75.9		89.6	88.4		
78	IH-394 w/Tanker	1		56		87.5	86.3	83.0	78.7	75.2	71.9		83.5	82.9		
83		1		54		87.8	86.9	84.1	79.6	75.7	70.7		83.1	84.0		
85		1		55		87.9	86.0	83.3	78.8	75.5	71.8		83.9	82.9		

TABLE E-11. TEST VEHICLE IH-866 – AVERAGE PASSBY READINGS – POWER-BY TESTS, FT. WAYNE IN, JULY 10-20, 1974

SITE NO.	TABLE NO.	LANE NO.	AVE. READINGS/STD. DEV. - dBA RE 20 uPa MEASURED AT										
			25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
2	E-1	1	96.0 0.1	88.1 -	88.0 -	85.7 -	84.2 0.4	82.4 -		89.6 -	89.4 -		
3	E-2	1	96.4 0.3	93.5 0.2	90.3 0.7	86.8 0.2	86.9 0.5	84.7 0.1		90.5 0.4	90.4 0.3		
4	E-3	1	95.9 0.2	92.5 0.4	88.7 0.1	86.7 0.3	84.0 0.1	80.0 0.2		90.0 0.1	90.1 0.5		
5	E-4	1	94.8 0.3	91.6 0.1	87.6 0.1	84.9 0.4	82.2 0.5	79.4 0.2		87.7 0.1	88.3 0.1		
6	E-5	1	96.2 0.1	93.4 0.1	91.1 0.3	88.6 0.2	86.2 0.5	84.5 0.5		90.1 0.2	90.8 0.7		
7	E-6	1	96.3 0.3	92.8 0.6	90.9 0.6	88.8 0.4	86.5 0.4	83.7 0.6		89.6 0.3	90.0 0.4		
8	E-7	1	93.5 0.3	88.7 0.1	85.6 0.0	84.0 0.1	82.7 0.1	81.1 0.4		86.9 0.5	88.0 0.5		
9	E-8	1	96.2 0.3	93.1 0.5	90.1 0.1	86.2 0.3	82.5 0.5	76.4 0.6		90.6 0.3	91.0 0.3		
10	E-9	1	96.0 0.1	90.5 0.0	88.2 0.2	86.6 0.1	84.4 0.3	82.3 0.3		89.4 0.5	90.3 0.2		

TABLE E-10. TEST VEHICLE IH-843 – AVERAGE PASSBY READINGS – POWER-BY TESTS, FT. WAYNE IN, JULY 10-20, 1974

SITE NO.	TABLE NO.	LANE NO.	AVE. READING/STD. DEV. - dBA RE 20 uPa MEASURED AT										
			25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
2	E-1	1	97.1 0.4	90.4 0.6	89.9 0.1	88.2 0.3	86.0 0.5	84.2 0.4		91.5 0.2	92.0 0.2		
3	E-2	1	98.0 0.5	95.8 0.4	92.4 0.4	88.1 0.6	88.6 1.4	85.6 0.2		90.9 0.7	90.9 0.6		
4	E-3	1	97.4 0.2	93.6 0.4	90.5 0.4	88.3 0.0	86.1 0.2	- -		91.5 0.7	91.9 0.9		
5	E-4	1	94.4 0.4	90.3 0.9	87.3 0.6	84.8 0.3	82.7 0.4	79.8 0.7		88.4 1.0	88.5 0.3		
6	E-5	1	96.6 0.6	94.0 1.1	91.9 0.8	90.1 0.7	87.1 0.9	85.9 0.8		90.7 0.5	91.3 0.4		
7	E-6	1	96.9 1.1	93.8 0.5	91.6 0.2	89.3 0.1	87.0 0.1	84.1 1.2		90.3 0.3	90.3 0.3		
8	E-7	1	95.1 0.3	90.4 0.1	87.5 0.1	85.6 0.1	83.9 0.0	81.9 0.6		89.0 0.4	89.9 0.1		
9	E-8	1	97.5 0.6	95.0 0.1	92.6 0.6	87.5 0.2	84.2 0.4	79.2 0.8		92.9 0.6	91.9 0.3		
10	E-9	1	97.0 0.1	92.5 0.7	89.2 0.4	87.6 0.1	85.5 0.4	83.1 0.4		91.2 0.4	91.0 0.3		

TABLE E-13. TEST VEHICLE IH-843 — AVERAGE PASSBY READINGS — COAST-BY TESTS, FT. WAYNE IN, JULY 10-20, 1974

SITE NO.	TABLE NO.	LANE NO.	AVE. READINGS/STD. DEV. - dBA RE 20 uPa MEASURED AT										
			25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	60/12 FT
2	E-1	1	95.7 0.1	87.6 0.1	87.6 0.2	85.7 0.0	83.4 0.4	81.3 0.2		89.5 0.4	90.3 0.1		
3	E-2	1	94.5 0.4	93.0 -	88.3 0.5	83.9 0.4	85.5 0.8	83.3 -		88.8 -	89.0 -		
4	E-3	1	94.9 0.8	92.1 0.1	88.9 0.1	86.2 0.6	83.3 0.4	- -		89.8 0.2	90.0 0.0		
5	E-4	1	93.4 0.4	89.5 0.2	86.0 0.6	83.5 0.4	80.7 0.6	77.4 0.4		87.8 0.7	87.3 0.6		
(1) 6	E-5	1	93.8 0.9	91.1 1.0	90.0 0.2	87.3 0.5	84.2 0.4	83.5 1.5		88.3 0.6	88.5 0.6		
6	E-5	1	93.6 1.2	91.7 0.6	89.4 0.4	87.2 0.9	84.9 0.7	83.5 1.2		85.9 2.2	88.9 0.2		
7	E-6	1	94.7 0.6	92.2 0.3	90.2 0.5	87.6 0.2	84.9 0.4	81.4 -			88.2 0.5		
8	E-7	1	91.9 0.4	87.2 0.5	84.5 0.1	83.0 0.1	81.9 -	80.3 1.4		86.4 0.1	87.5 0.7		
9	E-8	1	95.4 1.1	93.8 0.9	91.5 1.0	85.6 0.8	82.4 1.2	77.4 2.0		81.7 0.9	90.6 1.1		
10	F	1	93.7 0.2	89.3 0.3	87.4 0.2	85.1 0.8	82.8 0.3	79.9 0.3		89.2 0.6	88.7 0.5		

(1) With Tanker No. 4, All Others With Tanker No. 14

TABLE E-12. TEST VEHICLE IH-394 – AVERAGE PASSBY READINGS – POWER-BY TESTS, FT. WAYNE IN, JULY 10-20, 1974

SITE NO.	TABLE NO.	LANE NO.	AVE. READINGS/STD. DEV - dBA RE 20 uPa MEASURED AT										
			25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
2	E-1	1	92.4 0.5	86.0 -	84.6 -	82.7 -	81.8 0.5	79.0 -0.3		85.7 -	86.2 -		
3	E-2	1	94.9 0.3	92.6 0.6	89.3 0.2	86.0 0.1	85.9 0.9	83.5 1.2		88.6 0.5	80.2 0.5		
4	E-3	1	92.4 0.8	89.0 0.8	85.7 0.6	83.6 0.7	81.7 1.0	78.9 1.4		86.9 1.0	87.6 1.0		
5	E-4	1	93.2 0.8	90.1 0.4	87.4 1.1	85.0 0.8	83.4 0.8	81.9 1.5		88.3 0.8	88.1 0.6		
6	NO DATA												
7	E-6	1	94.3 0.6	92.7 1.1	90.3 1.0	87.2 0.4	84.5 0.6	81.8 1.7		88.2 0.4	89.7 1.0		
8	E-7	1	90.1 0.2	86.2 0.2	83.7 0.3	82.1 0.2	80.4 0.4	78.8 0.6		84.7 0.1	85.8 0.3		
9	E-8	1	92.2 0.4	89.8 0.3	87.1 0.1	83.2 0.7	80.2 1.1	74.8 0.4		87.6 1.0	87.6 0.9		
10	E-9	1	94.4 0.5	92.1 0.7	86.8 0.2	85.9 0.2	84.3 0.2	82.6 0.2		87.8 0.6	88.7 0.5		

TABLE E-15. TEST VEHICLE IH-394 – AVERAGE PASSBY READINGS – COAST-BY TESTS, FT. WAYNE IN, JULY 10-20, 1974

SITE NO.	TABLE NO.	LANE NO.	AVE. READINGS/STD. DEV. - dBA RE 20 uPa MEASURED AT										
			25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
2	E-1	1	87.5 0.4	81.5 -	80.1 -	78.6 -	76.2 0.0	74.3 0.2		81.3 0.2	82.4 0.1		
3	E-2	1	88.4 0.1	86.6 0.4	82.5 0.6	78.2 0.3	79.4 0.8	76.4 0.9		82.1 0.5	82.3 0.3		
4	E-3	1	88.1 0.6	84.8 0.3	80.8 0.1	78.5 0.4	75.7 0.5	73.6 2.4		82.8 0.4	83.0 0.1		
5	E-4	1	87.5 0.6	83.8 0.7	79.7 0.7	77.1 0.6	74.7 0.3	72.3 0.8		82.0 0.2	82.3 0.4		
6	NO DATA												
7	E-6	1	87.5 0.6	85.2 0.5	82.7 0.2	79.9 0.3	77.3 0.4	75.6 1.1		81.3 0.2	81.6 0.1		
8	E-7	1	87.3 0.4	82.9 0.6	80.0 0.1	77.8 0.5	76.7 0.1	74.7 0.5		81.6 0.6	82.7 0.4		
9	E-8	1	87.7 0.2	86.4 0.5	83.5 0.6	79.0 0.5	75.5 0.3	71.5 0.7		83.5 0.4	83.3 0.6		
10	E-9	1	87.7 0.5	82.2 0.5	80.3 0.4	78.3 0.3	76.5 0.0	73.4 0.3		81.9 0.2	82.4 0.5		

TABLE E-14. TEST VEHICLE IH-866 – AVERAGE PASSBY READINGS – COAST-BY TESTS, FT. WAYNE IN, JULY 10-20, 1974

SITE NO.	TABLE NO.	LANE NO.	AVE. READINGS/STD. DEV. - dBA RE 20 uPa MEASURED AT										
			25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
2	E-1	1	93.8 0.0	85.9 0.1	86.6 0.3	84.6 0.1	82.7 0.7	80.3 0.1		87.4 0.6	88.6 0.4		
3	E-2	1	93.4 1.3	91.2 1.4	87.6 0.6	83.8 0.4	84.7 1.4	80.7 1.8		87.6 1.0	87.5 0.9		
4	E-3	1	93.9 0.2	90.5 0.4	86.7 0.5	84.9 0.9	82.4 0.4	78.1 0.6		87.8 0.2	88.7 0.2		
5	E-4	1	92.3 0.8	87.8 0.1	84.5 0.2	82.0 0.5	79.0 1.0	76.9 0.8		85.8 0.1	86.8 2.3		
6	E-5	1	94.3 0.9	91.2 1.4	89.3 1.1	86.7 0.9	84.0 0.7	82.4 1.1		88.6 1.0	88.9 0.8		
7	E-6	1	94.7 0.2	91.7 0.3	89.3 0.4	86.7 0.7	83.1 0.1	81.2 0.4		88.1 1.0	87.7 0.4		
8	E-7	1	91.4 0.4	87.0 0.1	84.1 0.4	82.3 0.2	80.7 0.2	79.2 0.4		85.7 0.4	86.9 0.2		
9	E-8	1	94.2 0.5	92.1 0.1	89.4 0.4	84.4 0.7	80.2 1.2	75.2 0.6		89.4 0.3	88.7 0.3		
10	E-9	1	94.0 0.3	88.3 0.3	86.5 0.5	84.7 0.7	82.7 0.3	80.3 0.5		87.9 0.5	88.5 0.5		

TABLE F-1. SITE 2 – OPPORTUNITY DATA, FT. WAYNE IN, JULY 11, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
7	H	4x6 w/Box	1		55		92.2	-	-	-	81.3	-		-	-		
8	H	2x4 w/Box	1		52		88.5	-	-	-	78.2	-		-	-		
9	SVV	4x6 w/Box	1		50		90.2	-	-	-	86.4	-		-	-		
10	DVV	4x6 w/Box	1		52		92.9	-	-	-	81.2	-		-	-		
11	DVV	4x6 w/Box	1		50		-	-	-	-	-	-		-	-		
12	SVV	4x6 w/Box	1		52		-	-	-	-	-	-		-	-		
16	SVV	4x6 w/Box	1		54		84.5	-	-	-	84.5	83.1		88.5	89.0		
17	SVV	4x6 w/Flatbed	1		53		92.1	-	-	-	88.5	80.5		86.2	87.8		
18	SVV	4x6 w/Box	1		53		85.9	-	-	-	84.1	84.8		89.0	89.2		
19	SVV	4x6 w/Box	1		50		89.4	-	-	-	78.4	77.1		84.5	84.7		
20			1		-		85.4	-	-	-	74.5	73.9		79.0	78.5		
21	SVV	4x6 w/Box	1		48		93.2	88.5	87.1	83.4	81.3	80.3		86.4	88.3		
22	SVV	4x6 w/Box	1		-		90.8	84.9	84.8	83.4	78.6	78.4		84.9	85.8		
29	DVV	4x6 w/Flatbed	1		55		94.8	88.7	81.5	86.5	83.2	82.0		88.5	89.8		
30	DVV	4x6 w/Box	1		53		90.9	86.8	85.4	83.5	81.0	80.0		85.3	85.6		
31	SVV	4x6 w/Box	1		57		83.5	87.1	86.8	84.5	82.1	81.8		87.7	89.7		
36	DVV	4x6 w/Box	1		51		98.3	-	-	-	-	95.1		92.7	93.1		
47	SVV	4x6 w/Box	1		51		86.5	80.0	90.8	78.8	77.6	78.8		83.5	83.5		
49	DVV	4x6 w/Box	1		50		98.7	89.6	90.2	88.3	86.1	84.5		91.5	92.8		
50	DVV	4x6 w/Box	1		59		94.9	87.3	86.9	86.8	83.0	82.0		88.0	89.7		
51		4x6 w/Box	1		55		95.1	90.8	89.2	87.5	85.0	83.9		89.7	90.3		
52	SVV	2x4 w/Box	1		58		90.1	83.7	83.9	81.4	79.0	78.0		84.5	84.9		
53	SVV	2x4 w/Box	1		56		95.9	88.1	88.5	86.4	83.0	83.3		89.3	89.0		

TABLE F-3. SITE 4 – OPPORTUNITY DATA, FT. WAYNE IN, JULY 13, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
3	DVV	4x6 w/Box	1		-		93.0	89.3	86.2	(87.2)	(83.6)	(92.0)		87.6	(92.0)		
4	DVV	4x6 w/Box	1		-		86.0	94.1	89.2					90.6			
5	DVV	4x6 w/Box	1		-		87.9	94.5	89.7	87.2	84.8			92.0	93.3		
7	DVV	4x6 w/Box	1		46		93.2	90.9	87.3	84.9	83.0	82.4		88.6	88.8		
8	H	4x6 w/Box	1		52		81.0	90.0	88.2	86.8	85.1	81.8		88.8	88.1		
14	DVV	4x6 w/Tanker	1		61		81.7	88.7	86.0	84.3	81.9	78.8		87.5	87.4		
15	DVV	4x6 w/Box	1		51		(95.1)	(93.4)	(89.9)	(87.0)	(85.5)	(81.3)		(91.8)	(92.1)		
16	DVV	4x6 w/Box	1		51												
17	DVV	4x6 w/Box	1		53		82.4	90.7	87.4	85.8	82.1	79.6		88.8	88.7		
18	DVV	2x4 w/Box	1		67		84.1	90.9	87.0	85.6	82.1	79.0		88.8	88.0		
19	SVV	2x4 w/Box	1		51		83.0	88.7	85.8	83.3	81.6	78.8		87.2	88.4		
20	SVV	4x6 w/Tanker	1		47		80.0	88.2	83.8	81.8	79.3	75.8		85.8	86.7		
22	SVV	2x4 w/Car Carrier	1		55		84.0	91.8	86.9	85.2	81.5	79.1		89.7	90.5		
23		4x6 w/Box	1		58		85.2	92.9	89.8	88.6	86.6	86.8		90.8	91.0		
24	SVV	4x6 w/Flatbed	1		48		88.8	92.9	89.0	86.9	84.0	79.7		90.0	91.4		
27	SVV	4x6 w/Tanker	1		53		83.2	86.9	83.4	81.8	79.2	75.7		84.8	85.6		
28	SVV	4x6 w/Tanker	1		49		85.9	85.8	82.0	80.0	78.0	74.8		83.0	84.4		
32	DVV	4x5 w/Box	1		54		82.1	90.5	86.2	84.2	80.0	78.9		86.1	87.1		
33	DVV	4x6 w/Box	1		52		86.1	93.0	88.9	86.8	83.5	81.4		90.7	91.2		
35		2x4 w/Double Box	1		57		83.9	86.7	86.9	81.9	80.0	77.5		88.1	88.9		
36	SVV	4x6 w/Tanker	1		57		89.9	86.8	83.8	83.7	-	78.6		84.1	85.0		
37	SVV	2x4 w/Box	1		58		92.9	88.8	86.0	83.8	81.2	79.1		88.9	88.0		
40	SVV	4x6 w/Car Carrier	1		53		(81.4	87.6	95.0	93.7	90.9	88.9		95.8	96.6		
41	SVV	4x6 w/Box	1		46		91.1	87.3	83.9	81.5	78.6	73.9		85.8	86.2		
42	DVV	4x6 w/Box	1		50		93.7	90.3	87.4	84.7	81.9	79.1		87.9	89.0		
43	DVV	4x6 w/Box	1		52		94.2	90.8	86.8	84.5	82.5	78.4		87.6	88.9		
44	SVV	2x4 w/Truck Carrier	1		55		89.8	87.8	83.6	81.0	79.2	76.5		84.9	85.1		
45	SVV	4x6 w/Box	1		60		95.9	91.9	88.0	86.1	83.3	79.9		85.3	90.1		
46	H	Bus	1		-		87.8	84.2	80.0	78.1	75.7	70.7		81.6	82.2		
47	SVV	4x6 w/Box	1		57		93.7	91.2	87.0	83.0	82.6	79.2		88.1	88.0		
53	SVV	4x6 w/Box	1		33		93.0	91.1	87.8	84.9	82.0	78.5		88.1	89.8		
54	H	2x4 w/Box	1		60		93.3	91.6	87.1	84.8	81.6	78.6		89.1	90.8		
55	SVV	4x6 w/Box	1		56		97.7	94.2	90.8	87.3	85.1	80.6		91.0	92.9		
59	SVV	4x6 w/Box	1		58		87.0	86.1	81.9	79.7	77.6	74.1		83.0	83.6		
60	SVV	4x6 w/Box	1		62		97.7	95.2	90.8	87.4	84.4	81.6		92.6	93.8		
61	-	-	1		-		97.1	93.4	90.2	-	85.8	-		91.8	91.2		
62	-	-	1		-		88.7	85.4	82.6	-	77.4	-		83.5	84.1		
64	SVV	4x6 w/Box	1		-		93.8	90.2	85.8	-	82.1	-		82.9	87.9		
9	DVV	4x6 w/Box	2		62			94.7	92.5	88.8	86.6	83.9	80.1			90.4	90.8
10	DVV	4x6 w/Box	2		60			(83.8)	(91.4)	(88.1)	(88.8)	(86.5)	(83.9)			(93.6)	(94.1)
11	DVV	4x6 w/Box	2		60												
12	SVV	4x6 w/Box	2		60			(86.8)	(90.8)	(91.0)							
13	DVV	4x6 w/Tanker	2		60												

TABLE F-2. SITE 3 – OPPORTUNITY DATA, FT. WAYNE IN, JULY 12, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
7	SVV	2x4 w/Box	1		54		91.0	88.5	85.8	82.3	81.7	79.4		85.7	85.8		
8	SVV	4x6 w/Tanker	1		54		88.6	90.1	87.1	82.9	83.3	80.3		87.4	88.2		
9	DVV	4x6 w/Box	1		42		86.1	88.3	80.8	77.4	76.4	75.5		80.0	80.6		
10			1		-		88.5	91.2	84.5	79.7	77.2	73.7		85.1	84.8		
11	DVV	4x6 w/Box	1		51		91.7	88.8	86.8	83.4	82.2	79.7		84.9	85.7		
26	SVV	4x6 w/Box			51		91.2	87.5	85.7	79.5	82.1	78.8		88.6	85.7		
27					-		90.5	88.7	87.0	83.1	85.6	82.5		88.4	88.5		
28	H	4x6 w/Box	1		55		93.5	90.8	87.3	84.4	85.5	81.5		87.5	87.4		
29	SVV	4x6 w/Box	1		50		93.2	90.7	89.0	84.0	84.1	81.1		87.5	88.4		
30	SVV	4x6 w/Box	1		51		90.5	88.7	84.7	81.3	82.9	79.2		85.1	85.3		
31	SVV	4x6 w/Box	1		48		90.2	87.0	83.9	80.1	80.6	78.3		83.3	83.5		
47	SVV	4x6 w/Box	1		57		93.9	94.2	90.6	97.8	88.8	-		-	-		
48	SVV	4x6 w/Box	1		56		94.1	91.6	88.8	84.8	86.5	-		-	-		
49	H	4x6 w/Box	1		52		90.4	88.8	84.8	80.8	81.5	-		-	-		
50	SVV	4x6 w/Box	1		52		91.4	88.3	85.9	81.5	82.6	-		-	-		
51	H	4x6 w/Auto Carrier	1		54		91.8	89.1	86.1	82.5	82.8	-		-	-		
52	SVV	2x4 w/Box	1		-		85.1	92.6	88.6	83.7	84.4	-		-	-		
53	SVV	4x6 w/Box	1		56		91.4	89.2	86.7	82.7	83.8	-		-	-		
56	SVV	4x6 w/Box	1		53		92.1	-	86.0	82.7	82.9	79.2		-	-		
57	SVV	4x6 w/Box	1		53		92.3	-	86.7	83.6	83.6	80.1		-	-		
58	SVV	2x4 w/Box	1		51		92.5	-	86.5	82.8	83.5	79.5		-	-		
59	SVV	2x4 w/Box	1				92.3	-	87.2	83.6	84.9	82.3		-	-		
60	SVV	4x6 w/Tanker	1		56		95.1	-	88.9	85.2	85.4	81.6		88.0	88.1		
61	SVV	2x4 w/Box	1		48		83.9	-	84.5	80.0		-		-	-		
62	SVV	4x6 w/Box	1		48		(91.6)	-	(85.8)	(82.2)	(82.8)	-		-	-		
63	SVV	4x6 w/Box	1		48			-				-		-	-		
64	SVV	4x6 w/Box	1		63		97.5	-	91.6	88.5	90.1	-		-	-		
65	SVV	4x6 w/Box	1		57		96.0	-	90.0	86.4	88.4	-		-	-		
66	SVV	4x6 w/Box	1		53		96.2	-	88.0	85.7	87.2	-		-	-		
67	SVV	4x6 w/Double Box	1		59		(94.3)	-	(93.4)	(90.4)	(91.7)	-		-	-		
68	SVV	4x6 w/Double Box	1		60			-									

Note: ( ) around level indicates peak level tabulated resulted from more than one truck in lane 1 passing through the measurement area in close proximity to one another; see events 62 and 63

TABLE F-5. SITE 6 – OPPORTUNITY DATA, FT. WAYNE IN, JULY 17, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL-dBA RE 20 μPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
1	SVV	4x6 w/Box	1		-		96.2	92.6	90.9	88.9	86.9	85.8		88.7	91.1		
2	DVV	4x6 w/Flatbed	1		53		95.3	92.2	90.1	87.7	85.9	83.7		89.9	89.8		
3	H	2x4 w/Box	1		41		91.0	84.0	81.9	79.9	77.3	76.1		81.1	83.8		
5	DVV	4x6 w/Box	1		55		95.0	92.7	90.4	87.9	85.0	83.0		89.6	89.7		
6	DVV	4x6 w/Flatbed	1		59		98.6	94.5	92.8	90.7	88.8	82.6		92.7	93.2		
7	SVV	4x6 w/Tanker	1		44		91.7	88.3	-	-	-	-		-	-		
10	SVV	4x6 w/Box	1		63		85.4	90.8	88.9	87.1	84.9	83.4		88.9	89.4		
11	H	2x4 w/Flatbed	1		38		87.8	84.3	82.2	80.2	78.9	77.9		81.9	82.7		
12	H	2x4 w/Box	1		55		86.9	83.9	82.8	80.8	78.9	77.1		81.8	82.1		
13	SVV	4x6 w/Box	1		55		94.8	91.0	89.4	87.1	83.8	82.7		88.2	88.8		
14	DVV	4x6 w/Box	1		57		97.9	93.8	91.8	90.4	87.1	85.0		91.8	92.9		
15	SVV	4x6 w/Box	1		55		96.6	93.6	91.8	89.9	87.2	85.1		90.8	91.1		
16	DVV	4x6 w/Box	1		48		91.9	88.2	86.8	84.6	(88.2)	(87.9)		85.9	86.4		
17	SVV	4x6 w/Box	1		56		99.1	95.2	93.8	90.3				93.9	94.1		
18	SVV	4x6 w/Box	1		59		96.9	93.8	92.6	89.8	81.5	83.8		91.1	90.8		
19	SVV	2x4 w/Box	1		-		89.1	86.2	84.7	83.7	79.9	78.1		83.7	84.8		
20	SVV	4x6 w/Box	1		61		93.9	90.8	89.0	86.7	84.8	82.4		89.2	88.9		
21	H	2x4 w/Box	1		49		87.1	84.8	83.0	80.9	78.9	77.2		81.9	83.6		
22	SVV	4x6 w/Tanker	1		50		92.9	89.6	87.1	84.8	82.1	80.8		85.9	81.9		
23	SVV	4x6 w/Flatbed	1		59		92.8	89.1	87.2	85.1	82.9	81.9		86.8	83.7		
24	DVV	4x6 w/Box	1		-		93.8	91.8	89.1	86.2	84.0	82.9		88.6	83.6		
25	SVV	2x4 w/Box	1		-		92.9	91.8	88.7	85.8	82.8	81.8		88.1	88.0		
29	SVV	2x4 w/Box	1		55		(94.6)	(91.8)	(89.8)	(86.6)	(85.0)	(84.8)		(89.1)	(89.7)		
30	H	2x4 w/Flatbed	1		51												
31	SVV	2x4 w/Box	1		60		98.6	87.6	84.8	82.6	79.8	77.2		84.9	85.9		
32	H	2x4 w/Box	1		55		91.0	87.8	85.1	83.9	81.8	79.9		84.9	86.4		
33	SVV	4x6 w/Box	1		-		92.9	89.6	86.8	84.6	81.4	80.8		87.7	87.6		
34	DVV	4x6 w/Box	1		50		92.8	88.6	87.8	85.7	82.7	81.6		85.5	88.0		
36	SVV	4x6 w/Box	1		-		94.7	91.1	88.9	86.5	83.1	83.0		88.2	88.9		
39	H	4x6 w/Box	1		54		93.7	90.8	88.2	85.7	(82.6)	(81.0)		87.8	82.9		
40	DVV	4x6 w/Box	1		52		89.2	87.8	85.8	83.0				84.7	85.5		
44	DVV	4x6 w/Box	1		56		92.8	89.9	87.9	85.1	82.9	81.9		87.1	87.7		
46	SVV	4x6 w/Flatbed	1		50		94.0	90.8	88.7	86.4	-	-		87.4	88.1		
55	SVV	4x6 w/Flatbed	1		53		99.2	94.6	92.1	87.5	85.1	85.8		92.5	93.7		
57	SVV	4x6 w/Box	1		57		96.9	93.8	91.9	89.9	(88.8)	(87.6)		90.9	92.7		
58	SVV	4x6 w/Box	1		63		96.6	94.8	91.6	89.5				90.9	91.2		
62	SVV	4x6 w/Box	1		54		92.9	90.0	87.8	85.8	82.3	80.6		87.1	88.0		
64	SVV	4x6 w/Box	1		54		92.5	89.2	87.0	85.0	82.6	81.1		86.9	87.7		
4	SVV	4x6 Dubtail	2		53			87.1	84.0	83.6	81.4	79.4	77.8			92.9	83.9
35	SVV	4x6 w/Box	2		66			93.7	90.2	88.5	86.6	83.6	82.8			87.9	88.1
37	DVV	4x6 w/Box	2		62			96.0	93.0	92.6	89.9	88.6	85.4			91.0	91.9
38	H	2x4 w/Box	2		43			90.0	87.9	85.8	83.5	81.7	81.1			85.1	85.0
42	SVV	4x6 w/Box	2		-			97.3	93.9	91.9	88.8	85.4	83.8			91.0	90.9
45	SVV	4x6 w/Flatbed	2		56			91.1	88.7	86.9	84.4	-	-			86.1	87.3
41	DVV	4x6 w/Box	4		54					89.4	86.9	85.1	83.6	81.9	78.9	85.0	86.9
43	H	2x4 w/Box	4		-					74.9	73.9	73.0	72.5	70.0	78.8	73.1	75.5
49	DVV	4x6 w/Box	4		57					88.6	86.8	84.9	83.0	81.4	80.8	84.8	84.8
50	SVV	4x6 w/Flatbed	4		53					78.5	82.5	76.9	75.3	74.1	74.0	76.5	77.8
51	SVV	4x6 w/Box	4		55					79.9	80.0	79.3	78.8	76.7	81.6	78.9	79.8
63	SVV	4x6 w/Box	4		55					81.1	80.9	80.0	79.1	77.1	82.8	79.3	80.6
65	DVV	4x6 w/Box	4		45					81.1	80.8	80.8	78.9	78.2	82.7	79.9	80.8

TABLE F-4. SITE 5 - OPPORTUNITY DATA, FT, WAYNE IN, JULY 20, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/6 FT	50/12 FT	62/6 FT	62/12 FT
1	H	4x6 w/Box	1		53		91.9	88.4	85.0	82.8	81.1	78.8		86.0	86.7		
3	H	Bus	1		55		85.8	82.7	78.9	76.1	73.2	(78.7)		78.4	81.5		
4	H	Bus	1		55		83.0	80.8	77.8	74.8	73.0			80.0	81.0		
6	SVV	4x6 w/Box	1		55		92.3	87.2	85.6	82.8	80.5	78.4		86.8	87.0		
7	SVV	4x6 w/Tanker	1		61		94.0	90.5	87.1	84.6	82.8	80.5		88.8	88.9		
8	SVV	4x6 w/Box	1		54		93.2	89.6	87.1	84.6	81.5	79.2		87.9	88.1		
9	SVV	4x6 w/Box	1		54		92.8	88.1	85.0	82.3	79.6	76.8		86.7	86.8		
12	SVV	4x6 w/Box	1		50		93.1	88.2	85.6	82.8	81.0	77.8		87.3	87.7		
13	SVV	4x6 w/Box	1		57		93.2	88.6	85.9	83.1	81.1	(78.9)		86.3	87.0		
14	SVV	4x6 w/Box	1		56		91.0	87.6	83.9	81.8	80.0			85.6	85.9		
15	SVV	4x6 w/Box	1		55		94.7	91.5	88.6	85.7	86.4	83.6		89.3	89.3		
16	DVV	4x6 w/Box	1		45		89.8	85.9	82.9	80.4	78.1	75.6		84.9	83.8		
18	SVV	2x4 w/Box	1		53		87.9	84.6	81.0	77.8	76.0	74.5		82.8	82.4		
19	SVV	4x6 w/Box	1		53		91.2	87.2	84.5	81.8	80.0	77.5		85.6	85.9		
20	SVV	4x6 w/Box	1		58		89.8	86.3	83.0	80.9	78.2	75.2		84.1	84.8		
22	SVV	4x6 w/Box	1		60		96.1	91.6	88.1	85.7	83.6	80.8		89.0	89.7		
23	SVV	4x6 w/Tanker	1		49		92.3	86.4	84.6	82.6	80.0	77.5		86.6	87.9		
24	DVV	4x6 w/Box	1		50		92.8	87.7	85.8	82.8	80.2	78.5		87.7	88.7		
25	SVV	4x6 w/Box	1		51		93.0	89.1	85.6	83.4	81.1	78.8		86.9	86.7		
27	DVV	4x6 w/Tanker	1		51		91.4	87.5	84.0	82.8	80.5	77.5		86.0	86.0		
28	SVV	4x6 w/Tanker	1		53		90.1	87.0	83.5	80.9	79.1	77.5		83.2	85.8		
31	SVV	2x4 w/Box	1		43		90.8	87.4	84.6	82.6	81.1	78.7		85.4	85.5		
33	DVV	4x6 w/Open Box	1		53		90.2	86.5	83.8	81.6	79.8	77.1		84.2	84.6		
34	DVV	4x6 w/Box	1		46		89.8	86.2	82.6	80.0	78.1	75.5		84.2	84.6		
35	H	2x4 w/Box	1		40		84.0	81.4	77.5	75.1	72.9	70.1		79.8	78.5		
36	DVV	4x6 w/Box	1		40		91.6	87.9	84.6	82.5	80.5	77.5		85.7	86.6		
37	DVV	4x6 w/Box	1		42		93.8	89.6	87.2	84.6	82.7	80.2		87.2	88.1		
38	H	2x4 w/Box	1		48		89.9	85.4	82.0	79.7	77.8	75.2		84.6	84.5		
40	SVV	2x4 w/Double Box	1		48		88.9	85.0	81.7	79.1	77.0	74.5		83.5	83.8		
41	SVV	4x6 w/Tanker	1		55		92.9	88.1	85.0	83.1	80.9	78.4		86.6	86.9		
42	H	4x6 w/Box	1		51		90.6	86.2	82.2	80.0	77.8	74.8		85.0	84.7		
43	SVV	2x4 w/Box	1		42		89.1	85.5	81.8	79.8	77.9	75.3		82.2	82.0		
44	H	Bus	1		65		88.0	85.4	81.8	79.0	75.0	72.5		83.3	83.8		
45	SVV	2x4 w/Box	1		45		88.0	86.0	82.6	80.0	77.9	-		84.1	83.7		
46	SVV	4x6 w/Box	1		54		96.0	93.3	91.6	88.7	87.7	85.4		92.4	92.1		
49	SVV	4x6 w/Car Carrier	1		-		91.0	85.7	85.2	82.5	80.2	77.3		85.6	84.8		
50	SVV	4x6 w/Box	1		-		91.3	88.0	84.8	82.5	80.6	77.7		86.2	86.7		
53	H	2x4 w/Box	1		57		87.4	85.4	81.4	78.6	76.9	75.6		82.4	82.7		
54	SVV	4x6 w/Grain Hopper	1		49		90.5	85.8	83.2	80.4	78.6	75.3		84.5	84.6		
55	DVV	4x6 w/Box	1		61		95.2	91.0	87.7	85.5	83.7	81.5		89.1	89.8		
56	SVV	4x6 w/Flatbed	1		65		92.8	90.0	85.6	82.9	80.2	76.6		87.1	87.9		
59	DVV	4x6 w/Box	1		55		89.4	87.0	82.4	79.9	77.2	75.5		84.7	84.8		
60	SVV	2x4 w/Double Box	1		54		93.4	91.8	87.6	85.7	83.2	80.3		88.2	88.7		
61	SVV	4x6 w/Box	1		59		91.0	89.7	85.7	83.9	81.5	79.1		86.2	86.8		
57	SVV	4x6 w/Flatbed	2		58		86.1	84.0	79.6	77.4	75.2	72.6		82.1	82.7		
58	H	Bus	2		63		88.1	86.3	81.6	78.6	76.0	72.9		83.0	84.0		

TABLE F-7. SITE 8 – OPPORTUNITY DATA, FT. WAYNE IN, JULY 19, 1974

EVENT	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH)			PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT										
				1	2	3	25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
1	BVV	4x6 w/Box	1		52		90.3	86.9	84.5	83.1	80.9	79.5		85.0	85.9		
2	SVV	4x6 w/Box	1		47		*87.7	83.6	80.6	79.2	77.6	76.0		81.8	83.0		
3	H	4x6 w/Flatbed	1		49		88.1	83.4	80.5	78.8	76.9	74.7		81.2	82.8		
4	SVV	4x6 w/Box	1		55		89.1	84.9	82.4	80.9	78.6	76.2		83.8	83.5		
7	SVV	4x6 w/Flatbed	1		46		90.6	86.0	83.7	82.0	80.3	78.6		84.7	85.7		
8	SVV	2x4 w/Box	1		53		87.7	84.6	80.7	79.9	78.6	76.8		83.0	84.4		
9	SVV	4x6 w/Box	1		58		94.3	89.0	86.6	85.7	83.8	82.8		88.8	89.4		
10	SVV	2x4 Bobtail	1		47		80.3	73.9	71.6	70.6	68.8	67.5		74.1	75.5		
11	SVV	4x6 w/Box	1		51		89.1	84.0	80.8	79.9	78.7	77.6		82.9	84.0		
15	SVV	4x6 w/Flatbed	1		40		85.0	80.0	78.0	76.8	74.8	73.7		78.9	80.7		
16	SVV	4x6 w/Box	1		35		89.5	84.9	82.5	80.8	78.8	-		82.8	83.7		
18	SVV	2x4 w/Box	1		48		85.6	81.3	79.1	77.7	76.9	75.9		79.9	81.1		
20	SVV	4x6 w/Box	1		51		88.1	83.3	80.4	78.9	77.7	75.5		81.2	82.6		
22	SVV	4x6 w/Tanker	1		-		90.0	86.2	83.9	83.3	82.7	82.0		85.9	86.7		
25	SVV	4x6 w/Flatbed	1		44		85.2	81.6	79.4	78.8	76.8	76.6		80.7	82.0		
28	SVV	2x4 w/Box	1		51		88.0	83.7	81.1	79.0	77.5	76.4		82.7	83.7		
30	BVV	4x6 w/Flatbed	1		50		87.8	82.6	79.8	78.2	76.5	76.3		82.0	83.6		
33	SVV	4x6 w/Flatbed	1		-		89.4	83.8	81.5	80.1	78.9	77.5		83.4	85.0		
36	H	2x4 w/Box	1		-		83.8	79.6	76.5	75.2	-	-		77.9	79.2		
38	SVV	4x6 w/Box	1		46		85.6	81.0	78.5	76.7	74.9	73.6		79.7	80.9		
39	BVV	4x6 w/Box	1		60		94.7	89.0	86.2	84.6	82.3	81.3		87.4	88.8		
40	SVV	2x4 w/Box	1		48		89.2	84.9	82.9	80.6	77.8	76.5		83.6	84.1		
41	SVV	4x6 w/Box	1		55		90.9	86.8	83.4	81.2	79.3	78.3		84.2	85.8		
43	SVV	2x4 w/Box	1		51		81.5	76.8	74.0	-	-	-		-	-		
45	SVV	4x6 Grain Hopper	1		-		88.9	85.6	83.2	82.0	80.5	78.9		84.1	85.0		
46	BVV	4x6 w/Box	1		50		88.8	83.8	81.5	79.7	78.6	76.6		82.9	84.4		
47	SVV	2x4 w/Box	1		41		81.6	77.0	74.0	73.1	71.8	69.5		76.5	78.0		
48	SVV	2x4 w/Box	1		44		79.5	73.8	71.0	70.3	68.5	-		74.1	75.8		
51	H	4x6 Cement Mixer	1		50		95.2	91.8	89.5	87.5	85.5	83.5		89.9	88.5		
53	SVV	2x4 w/Box	1		51		90.0	85.1	83.0	81.6	80.6	79.0		85.3	87.3		
54	SVV	4x6 w/Box	1		51		88.7	84.2									
55	SVV	4x6 Cement Mixer	1		55		94.0	88.7	86.5	85.1	84.0	82.6		87.2	88.6		
57	SVV	2x4 Car Carrier	1		52		89.3	84.3	81.6	79.8	78.7	76.9		83.3	84.9		
62	SVV	4x6 w/Flatbed	1				86.2	82.0	79.5	78.4	76.4	74.3		80.9	82.2		
72	SVV		1				89.1	85.8	82.1	80.4	78.4	76.5		83.1	84.8		
5	H	2x4 Cement Mixer	2		-			91.1	87.9	86.0	84.7	83.6	82.0			87.3	87.5
6	SVV	4x6 w/Tanker	7		54			84.5	80.8	78.6	77.5	75.7	73.6			79.8	81.1
52	SVV	4x6 w/Box	2		55			89.7	84.5	82.5	81.9	79.5	78.0			84.7	86.0

TABLE F-6. SITE 7 — OPPORTUNITY DATA, FT. WAYNE IN, JULY 18, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL-dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
1	SVV	2x4 w/Flatbed	1		50		103.4	99.7	97.5	96.6	94.9	91.3		97.7	97.1		
2	SVV	4x6 w/Tanker	1		45		94.3	91.1	89.3	87.1	85.8			88.1	87.9		
3	SVV	4x6 w/Box	1		45		87.0	84.6	82.3	79.6		79.1]					
11	SVV	4x6 w/Open Box	1		48		88.7	85.4	83.8	80.6	78.1	75.8		82.2	82.7		
12	SVV	4x6 w/Box	1		-		96.3	92.5	90.3	88.4	87.8	85.2		89.9	90.1		
15	DVV	4x6 w/Box	1		55		95.7	92.2	89.8	88.0	86.1	83.7		89.1	89.7		
16	DVV	4x6 w/Box	1		61		95.9	92.2	89.9	87.7	85.0	81.5		89.4	89.7		
17	DVV	4x6 w/Box	1		58		93.9	90.3	88.1	85.9	83.9	80.9		87.6	87.3		
18	H	2x4 w/Box	1		48		92.8	88.9	86.8	85.0	82.8	80.1		86.5	86.7		
19	DVV	4x6 w/Box	1		47		96.3	95.6	92.1	89.8	87.9	84.8		91.7	90.9		
22	SVV	4x6 w/Tanker	1		59		91.0	87.2	85.8	83.6	81.6	77.8		85.1	85.8		
24	SVV	4x6 w/Tanker	1		48												
25	DVV	4x6 w/Box	1		55		92.6	89.7	88.1	86.3	83.5	81.8		87.4	87.0		
30	SVV	4x6 w/Box	1		-		94.9	92.0	89.7	87.5	85.2	82.8		88.6	88.7		
31	DVV	4x6 w/Flatbed	1		45		91.3	88.6	86.9	84.6	83.3	80.0		85.5	86.5		
32	SVV	4x6 w/Box	1		-		89.9	87.9	86.1	84.0	81.3	79.5		84.4	85.5		
33	SVV	4x6 w/Box	1		-		95.9	92.6	90.0	89.7	85.1	82.2		89.2	89.1		
34	DVV	4x6 w/Flatbed	1		47		97.8	93.2	91.6	89.8	88.5	86.7		91.5	91.2		
35	SVV	4x6 w/Box	1		48		94.0	90.7	87.9	85.0	82.8	79.8		87.6	87.3		
36	H	4x6 w/Box	1		-		93.2	90.8	88.1	86.2	83.6	80.8		86.5	86.6		
37	SVV	4x6 w/Flatbed	1		50		93.3	91.1	88.8	86.7	84.1	80.9		87.5	87.1		
38	H	4x6 w/Box	1		52		95.5	93.0	91.1	89.1	87.2	85.9		90.0	90.5		
40	DVV	4x6 w/Box	1		-		94.3	90.9	88.7	86.5	84.2	79.7		87.6	87.6		
46	H	4x6 w/Box	1		45		94.0	90.8	88.4	86.2	84.2	81.7		87.6	87.5		
49	SVV	2x4 w/Box	1		44		94.8	91.5	89.1	87.0	85.0	82.8		88.0	88.7		
50	SVV	2x4 w/Box	1		46		97.0	93.6	91.4	89.3	87.3	85.4		90.6	90.2		
51	DVV	4x6 w/Box	1		48		97.9	93.6	92.9	90.2	88.2	85.8		91.5	92.9		
53	SVV	4x6 w/Box	1		-		99.8	95.9	94.1	91.6	89.8	85.9		92.8	93.7		
54	SVV	2x4 w/Box	1		45		90.1	87.6	85.1	83.0	80.5	78.8		84.4	85.6		
55	SVV	4x6 w/Flatbed	1		49		95.2	91.6	89.4	87.3	85.1	82.7		88.9	89.5		
56	SVV	4x6 w/Flatbed	1		-		95.1	92.7	90.9	88.5	86.6	83.9		88.9	89.5		
57	DVV	4x6 w/Box	1		-		91.0	86.8	85.1	82.5	80.9	78.9		84.9	85.6		
62	H	4x6 w/Flatbed	1		-		96.6	92.8	90.5	88.0	86.2	83.1		89.4	89.8		
64	SVV	4x6 w/Box	1		57		91.8	89.0	87.1	85.3	82.4	79.8		86.1	85.9		
68	SVV	4x6 w/Tanker	1		56		90.2	86.4	85.0	83.1	80.6	78.3		83.8	84.4		
69	SVV	4x6 w/Box	1		57		94.6	89.1	88.5	86.5	84.2	82.2		88.2	88.7		
70	SVV	4x6 w/Box	1		60		93.7	89.7	88.9	86.4	83.6	81.0		87.4	87.1		
71	DVV	4x6 w/Box	1		60		96.6	92.8	91.9	89.2	87.2	84.9		90.4	90.8		
72	DVV	4x6 w/Tanker	1		51		91.2	87.9	86.5	84.3	81.7	79.5		85.4	85.0		
73	SVV	4x6 w/Flatbed	1		49		90.1	86.0	84.1	82.1	79.3	77.7		82.8	83.6		
76	SVV	4x6 w/Box	1		50		92.9	90.8	89.0	86.2	83.5	81.0		86.0	86.1		
77	SVV	4x6 w/Box	1		52		91.1	88.8	87.8	85.3							
78	SVV	4x6 w/Box	1		51		93.6	91.1	89.8	86.9	85.1	81.9		88.3	88.6		
4	SVV	4x6 w/Box	4		-					83.8	83.3	83.0	82.0	85.7	79.3	81.7	82.2
5	H	2x4 w/Box	4		62					80.4	77.0	76.3	74.5			75.9	75.9
6	SVV	2x4 w/Box	4		61					81.9	81.8	80.9	79.7	77.9	75.9	80.5	79.5
7	SVV	4x6 w/Box	4		61					83.0	83.0	82.0	80.8	79.1	76.9	80.7	80.0
8	SVV	4x6 w/Box	4		58					84.5	83.6	82.0	79.6	77.1	76.1	80.7	81.3
9	SVV	4x6 w/Box	4		58					84.3	83.0	81.9	80.2	78.0	75.5	82.1	81.9
13	SVV	4x6 w/Flatbed	4		50					82.5	81.7	80.8	79.5	77.9	77.5	81.0	81.7
14	SVV	2x4 Gravel Truck	4		-					80.1	79.8	78.5	77.4	76.1	74.8	77.6	77.5
21	DVV	4x6 w/Box	1-1/2		-		91.2	89.6	88.5	85.9	83.1	76.0			87.2	86.9	
23	DVV	4x6 w/Tanker	2		48		92.2	90.5	89.1	86.6	83.9	81.0			88.6	88.8	
10	H	2x4 w/Flatbed	2		59		87.9	85.7	84.1	82.6	80.8	77.8			82.9	83.1	
29	DVV	4x6 w/Box	2		52		91.1	89.6	87.6	86.0	83.1	80.7			86.1	86.1	
47	SVV	2x4 w/Box	2		-		93.8	91.1	89.2	87.5	83.9	81.0			88.2	87.6	

TABLE F-9. SITE 10 — OPPORTUNITY DATA, FT. WAYNE IN, JULY 16, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL — dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
1	DVV	4x6 w/Box	1		45		89.6	85.7	83.0	81.0	78.6	76.9		83.1	83.9		
2	DVV	4x6 w/Box	1		-		95.7	91.9	89.1	87.1	85.9	82.7		92.3	91.7		
3	H	4x6 w/Flatbed	1		44		91.8	86.9	85.4	83.3	80.8	78.1		85.5	86.1		
4	DVV	4x6 w/Box	1		41		89.9	86.3	83.9	82.2	79.6	76.9		84.6	85.8		
5	SVV	4x6 w/Tanker	1		39		94.9	90.0	87.9	85.8	84.4	81.9		88.9	89.3		
7	H	4x6 w/Box	1		34		90.1	86.9	84.0	81.9	80.0	78.7		84.7	85.1		
8	SVV	4x6 w/Tanker	1		56		93.7	89.7	87.9	85.8	83.5	81.1		88.8	89.0		
9	DVV	2x4 w/Double Box	1		39		92.4	87.7	85.6	83.6	81.8	78.9		86.3	86.8		
10	DVV	4x6 w/Box	1		54		-										
13	DVV	4x6 w/Box	1		43		-										
14	DVV	4x6 w/Box	1		35		89.5	85.1	83.0	80.9	79.1	76.9		83.1	84.5		
18	DVV	4x6 w/Car Carrier	1		59		96.9	91.1	89.8	87.6	86.0	82.8		90.3	90.8		
19	SVV	4x6 w/Box	1		62		85.5	89.9	88.4	87.0	85.1	82.5		89.6	89.9		
20	SVV	4x6 w/Box	1		-		92.0	87.7	85.8	85.0	82.1			87.5	88.0		
21	SVV	2x4 w/Flatbed	1		67		96.4	92.4	90.6	88.5	86.2	85.8		91.6	92.1		
22	DVV	4x6 w/Box	1		62		92.5	87.8	85.9	83.5	81.9	79.8		87.1	87.4		
23	DVV	4x6 w/Tanker	1		64		91.6	87.3	85.6	83.6	80.6	78.8		86.7	87.3		
25	H	4x6 w/Box	1		38		92.3	87.9	85.4	82.7	81.0	78.6		86.6	86.8		
26	H	2x4 w/Box	1		59		95.8	90.6	88.9	86.8	85.0	82.8		89.6	89.8		
27	SVV	4x6 w/Box	1		48		95.0	90.3	88.7	86.8	84.9	82.8		89.7	90.5		
28	SVV	4x6 w/Box	1		37		93.4	89.0	86.8	84.8	82.9	80.6		88.1	88.2		
29	H	2x4 w/Box	1		53		91.9	88.0	84.8	82.6	80.3	78.5		87.8	86.9		
30	DVV	4x6 w/Box	1		51		90.3	85.4	83.9	81.9	79.7	77.0		85.6	85.8		
31	SVV	4x6 w/Car Carrier	1		36		88.6	86.9	82.7	81.3	79.9	77.4		84.6	84.0		
32	DVV	4x6 w/Tanker	1		38		91.3	86.2	83.7	81.8	80.1	77.6		84.6	85.5		
33	SVV	2x4 w/Box	1		51		95.7	91.6	89.2	87.3	86.0	83.7		90.4	90.0		
34	SVV	2x4 w/Car Carrier	1		-		87.8	84.7	82.8	81.8	79.0	76.7		84.1	84.5		
35	DVV	4x6 w/Tanker	1		34		93.9	89.6	89.4	86.0	83.6	82.0		88.8	88.9		
39	SVV	4x6 w/Tanker	1		-		95.0	89.8	88.9	86.7	84.5	81.7		89.8	90.0		
40	DVV	4x6 w/Tanker	1		-		95.4	90.8	90.1	87.9	86.6	84.6		91.8	92.0		
41	DVV	4x6 w/Box	1		59		91.3										
42	DVV	4x6 w/Box	1		34		90.8	86.5	83.4	82.0	80.0	78.0		85.8	86.7		
45	DVV	4x6 w/Box	1		64		95.0	88.9	87.6	85.5	84.0	81.8		89.2	89.5		
46	SVV	2x4 w/Box	1		64		92.9	88.6	86.7	84.0	82.2	79.7		87.6	87.5		
47	DVV	4x6 w/Box	1		58		96.1	90.5	88.7	86.5	83.9	81.6		90.0	90.9		
48	SVV	4x6 w/Box	1		55		89.8	85.4	83.7	81.8	80.0	77.9		84.8	85.0		
49	DVV	4x6 w/Box	1		40		94.5	89.8	87.1	85.6	83.1	80.5		88.2	88.4		
50	SVV	4x6 w/Box	1		43		90.7	87.0	83.7	81.4	79.0	77.0		86.2	85.7		
58	SVV	4x6 w/Box	1		56		94.7	89.1	87.0	84.5	83.0	80.7		88.8	88.7		
59	H	4x6 Gravel Truck	1		-		90.9	86.4	84.6	82.5	81.0	79.1		86.4	86.3		
60	SVV	4x6 w/Box	1		39		89.2	84.9	84.3	82.4	80.9	78.7		86.0	87.8		
61	DVV	4x6 w/Car Carrier	1		55		92.0	90.0	87.7	85.6	84.1	82.7		90.1	89.0		
64	H	2x4 w/Box	1		59		93.8	89.0	87.0	84.5	81.9	79.9		87.3	87.7		
67	SVV	4x6 w/Box	1		45		92.0	87.9	86.1	83.6	82.0	79.7		86.1	86.7		
68	DVV	4x6 w/Box	1		43		92.6	87.8	85.5	83.8	81.2	79.0		87.2	87.1		
69	SVV	4x6 w/Dual Tanker	1		46		93.4	88.5	86.7	83.9	82.0	79.7		88.2	88.1		
70	H	2x4 w/Box	1		52		90.1	86.0	84.0	82.0	80.1	76.7		84.7	85.1		
72	SVV	2x4 w/Double Box	1		45		92.8	93.7	91.5	88.5	87.1	84.6		92.0	92.9		
73	SVV	2x4 w/Box	1		55		87.7	83.7	81.5	79.5	77.1	75.6		84.1	83.8		
74	SVV	4x6 w/Box	1		63		97.9	92.5	90.6	88.5	86.0	84.3		92.0	92.2		
75	DVV	4x6 w/Box	1		36		94.8	91.5	89.4		85.8	83.6		90.9	90.7		
77	SVV	4x6 Dump Truck	1		54		93.5	88.9	86.8	84.1	82.8	79.7		88.1	88.9		
78	DVV	4x6 w/Flatbed	1		53		89.8	85.9									
80	SVV	4x6 w/Flatbed	1		51		90.0	85.5	83.1	81.3	80.0	77.3		85.0	85.0		
81	SVV	4x6 w/Box	1		54		95.1	90.3	87.9	86.4	84.8	81.9		90.0	89.9		
82	H	2x4 w/Box	1		52		85.2	80.5	78.3	76.8	74.7	71.9		80.0	80.8		
24	DVV	4x6 w/Box	2		54			86.9	92.9	81.9	79.6	77.5	74.8			82.8	84.4
66	SVV	4x6 w/Box	2		55			93.4	88.8	88.2	85.7	83.0	81.6			89.0	91.1

TABLE F-8. SITE 9 – OPPORTUNITY DATA, FT. WAYNE IN, JULY 15, 1974

EVENT NO.	EXHAUST TYPE	VEHICLE TYPE	LANE	SPEED (MPH) 1	2	3	PEAK RMS NOISE LEVEL/dBA RE 20 uPa MEASURED AT 25 FT	37 FT	50 FT	62 FT	75 FT	100 FT	112 FT	50/8 FT	50/12 FT	62/8 FT	62/12 FT
1	H	4x6 Bobtail	1		53		88.4	85.6	83.0	79.2	76.6	69.9		82.9	82.8		
3	DVV	4x6 w/Box	1		51		90.4	87.7	85.6	81.3	77.5	71.0		85.9	85.8		
4	DVV	4x6 w/Box	1		57		91.6	89.5	86.0	82.1							
5	DVV	4x6 w/Box	1		-		96.0	92.5	90.1	85.1	81.3	75.8		89.9	88.9		
7	DVV	4x6 w/Car Carrier	1		-		90.1	87.7	86.6	82.5	80.0	76.0		86.8	86.8		
8	SVV	2x4 w/Box	1		-		91.3	88.6									
10	SVV	4x6 w/Box	1		56		93.4	90.6	88.6	84.2	80.6	77.1		88.2	87.6		
11	SVV	4x6 w/Box	1		53		99.5	96.2	94.0	91.3	88.4	84.3		93.9	94.7		
12	SVV	4x6 w/Box	1		52		91.3	89.3	87.3	82.9	78.9	72.9		88.8	86.9		
14	DVV	4x6 w/Box	1		53		92.6	88.9	86.9	82.8	79.8	-		86.3	86.6		
19	SVV	4x6 w/Tanker	1		47		89.3	87.7	84.1	79.8	76.8	72.6		85.5	84.8		
20	SVV	4x6 w/Tanker	1		50		88.6	86.3	84.1	79.7	76.4	71.6		83.7	84.2		
21	SVV	4x6 w/Box	1		48		87.0	84.6	81.3	77.5	75.0	71.0		81.8	82.4		
22	SVV	2x4 w/Flatbed	1		54		89.1	86.5	82.9	77.2	73.4	67.5		83.5	83.2		
23	H	2x4 w/Box	1		48		88.7	86.1	84.3	80.0	77.0	72.0		83.8	83.7		
24	SVV	4x6 w/Box	1		51		90.7	88.1	85.5	80.8	76.4	-		86.0	85.6		
25	H	4x6 w/Flatbed	1		41		87.5	84.9	82.5	78.1	74.9	68.6		82.3	82.7		
28	SVV	4x6 w/Box	1		51		92.0	89.9	87.0	82.8	79.9	73.9		88.2	87.9		
29	SVV	4x6 Dump Truck	1		46		95.1	91.9	88.6	85.1	82.3	77.9		89.5	89.8		
30	SVV	4x6 w/Flatbed	1		53		88.5	87.0	84.1	79.4	76.2	71.2		83.9	83.8		
31	DVV	4x6 w/Flatbed	1		47		91.5	89.9	86.7	82.9	78.4	73.0		86.9	86.6		
33	DVV	4x6 w/Flatbed	1		42		92.7	89.6	86.9	83.5	79.1	74.7		86.9	86.8		
38	DVV	4x6 w/Tanker	1		56		95.8	93.9	88.4	84.6	81.0			91.8	90.9		
39	DVV	4x6 w/Tanker	1		54		97.0	93.8	91.2	86.9	83.8	78.4		92.0	91.8		
40	DVV	2x4 w/Box	1		53		91.3	88.3	85.2	81.7	77.2	71.9		86.0	85.7		
41	SVV	4x6 w/Box	1		47		86.7	84.1	81.6	78.1	-	-		81.9	81.8		
44	DVV	4x6 w/Box	1		59		98.7	96.9	93.9	90.7	89.7	87.8		95.0	94.6		
45	SVV	4x6 w/Box	1		52		88.0	85.9	83.1	78.9	75.1	70.8		83.4	82.9		
46	SVV	2x4 w/Box	1		48		91.8	89.4	86.3	82.1	78.3	72.9		87.1	86.9		
47	H	2x4 w/Box	1		48		88.9	86.8	83.5	78.8	74.2	68.3		84.7	83.9		
48	-	4x6 Dump Truck	1		51		94.7	93.0	89.8	85.1	80.9	74.0		90.3	89.6		
50	SVV	4x6 w/Box	1		47		87.9	86.9	83.6	80.8	79.5	-		84.6	84.8		
54	DVV	4x6 w/Box	1		47		90.3	87.7	84.0	80.9	76.9	72.4		83.9	84.3		
55	DVV	4x6 w/Box	1		51		93.5	91.6	86.2	82.3	77.9	72.3		88.7	86.9		
56	DVV	4x6 w/Box	1		53		93.0	91.2	89.7	84.0	79.9	74.0		89.1	88.9		
57	SVV	4x6 w/Flatbed	1		53		95.0	93.9	89.8	86.2	83.1	80.4		91.6	90.8		
59	SVV	4x6 w/Box	1		46		87.1	85.7	83.9								
60	SVV	4x6 w/Box	1		52		90.5	88.5									
61	SVV	4x6 w/Box	1		46		91.5	89.9	87.4	83.8	80.4	74.9		88.0	87.4		
62	H	2x4 w/Box	1		55		87.5	86.2	84.3	80.6	-	-		84.5	84.7		
65	DVV	4x6 w/Flatbed	1		50		90.6	88.0	85.0	80.9	76.8	70.6		85.2	85.4		
66	H	2x4 w/Box	1		48		88.7	85.1	82.3	-	-	-		83.0	83.2		
67	DVV	4x6 w/Box	1		52		91.8	88.9	86.0	81.0	78.0	72.5		87.2	87.7		
68	H	4x6 w/Car Carrier	1		52		92.6	88.0	86.7	83.0	80.1	76.0		87.1	86.9		
70	SVV	4x6 w/Tanker	1		50		95.5	93.1	88.5	85.7	82.5	78.1		90.8	89.9		
71	SVV	2x4 w/Box	1		48		87.3	85.2	81.8	76.9	73.6	69.7		82.9	82.3		
72	DVV	4x6 w/Box	1		49		94.1	93.9	89.2	85.6	82.0	79.4		91.1	90.5		
73	H	4x6 w/Box	1		48		88.7	86.0	82.7	78.4	74.9	-		84.1	83.8		
74	SVV	4x6 w/Box	1		51		90.3	88.4	85.3	81.0	77.0	72.7		85.1	84.9		
82	SVV	4x6 w/Tanker	1		-		95.9	94.2	90.1	86.6	83.9	78.9		91.9	91.4		
84	SVV	2x4 w/Box	1		-		91.1	88.3	86.4	81.0	77.7	73.1		87.8	87.1		
2	SVV	4x6 w/Flatbed	2		-			95.5	93.6	90.0	86.8	83.9	79.4			91.8	90.9
32	SVV	4x6 Dump Truck	2		48			85.9	84.1	82.6	78.8	76.6	72.5			82.8	82.6
37	SVV	4x6 w/Flatbed	2		46			91.4	88.7	85.3	82.2	78.7	73.6			86.9	86.3
49	SVV	4x6 w/Box	2		55			91.4	90.3	86.9	83.8	80.1	-			87.1	87.0
51	SVV	2x4 w/Box	2		51			89.6	87.8	85.0	82.3	79.7	76.7			86.9	86.9
63	SVV	2x4 w/Box	2		55			88.5	87.1	85.0	80.8	78.7	72.7			85.5	84.6
64	H	2x4 w/Box	2		47			88.6	87.1	84.8	79.7	74.9	-			87.1	86.0
75	DVV	4x6 w/Box	2		46			84.7	83.9	81.8	78.6	75.9	-			81.1	81.0
76	SVV	4x6 w/Flatbed	2		52			88.7	86.0	86.0	82.5	78.9	-			86.1	85.7

APPENDIX G

DATA CURVES

NOISE LEVEL VERSUS OFFSET DISTANCE

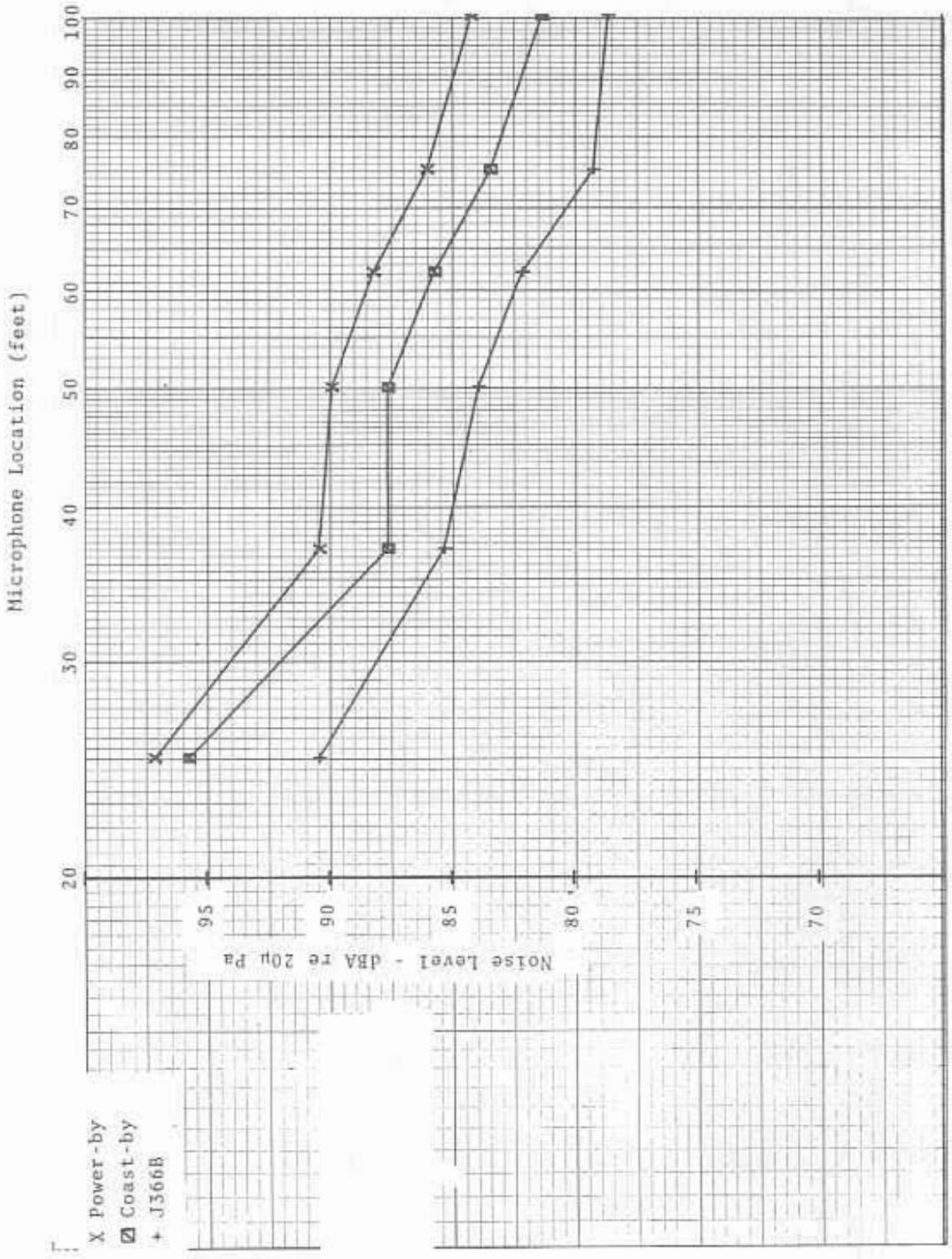


Figure G-1. Site 2 — IH-843 Test Vehicle — Data Comparison

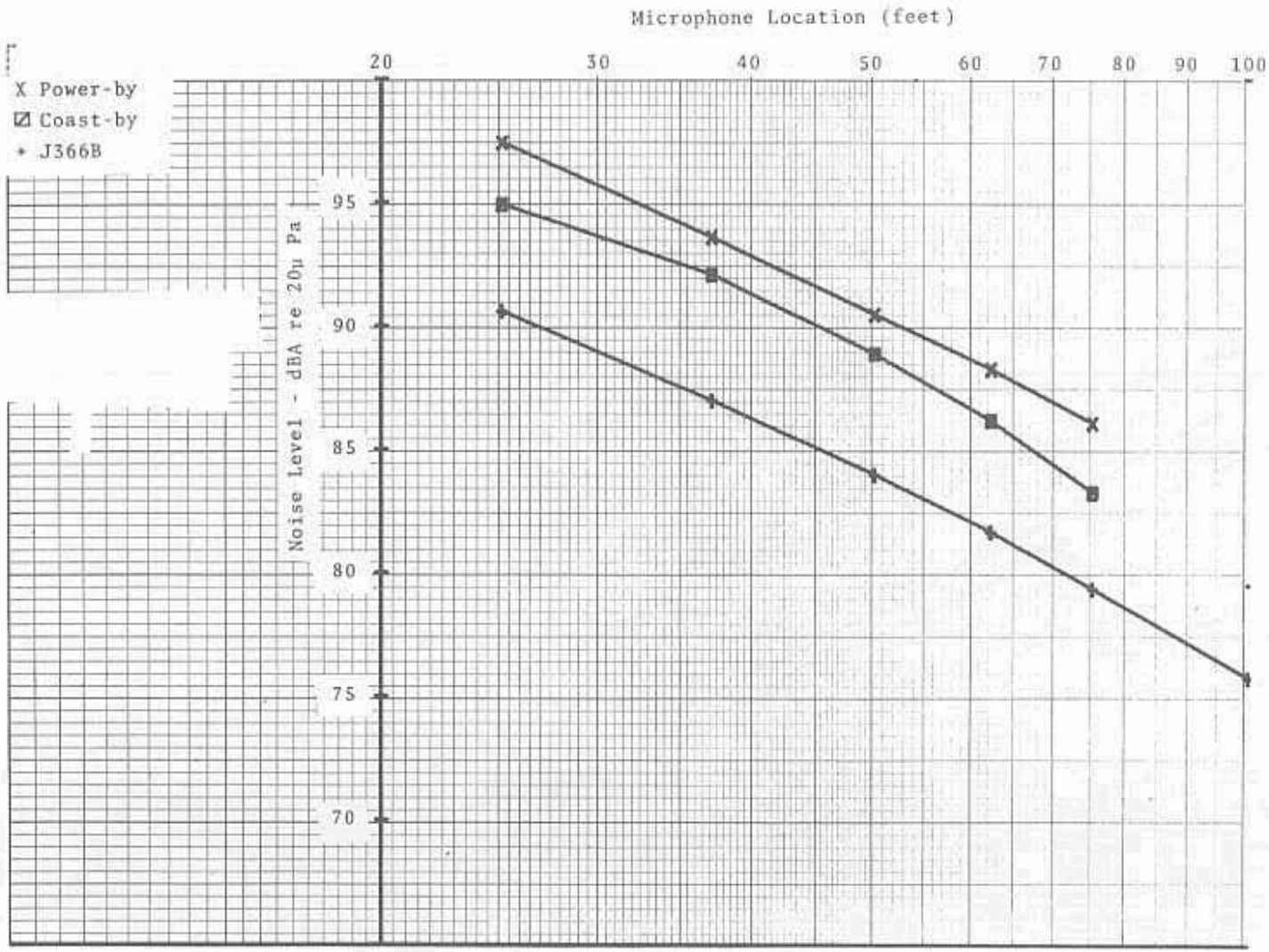


Figure G-3. Site 4 — IH-843 Test Vehicle — Data Comparison

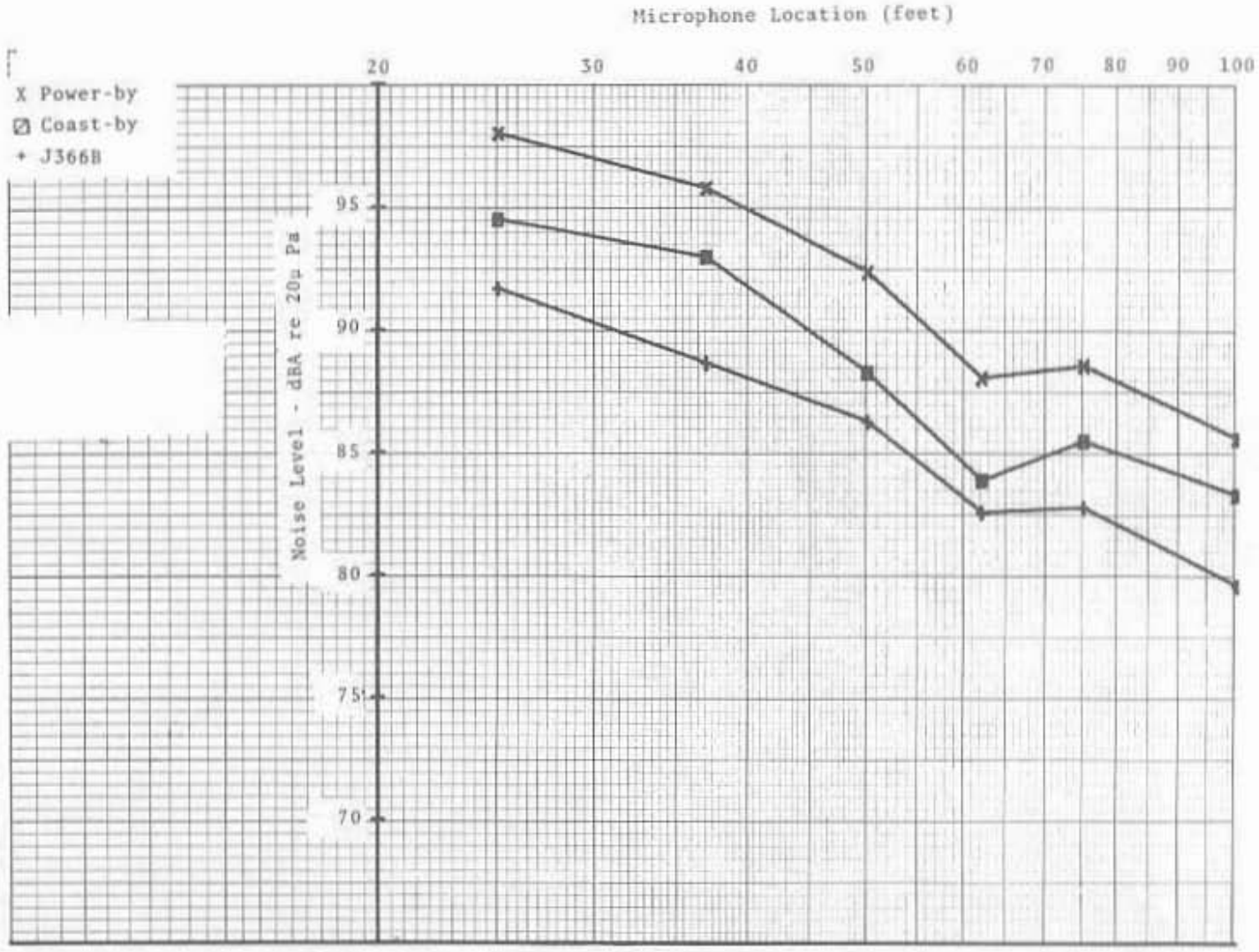


Figure G-2. Site 3 – IH-843 Test Vehicle – Data Comparison

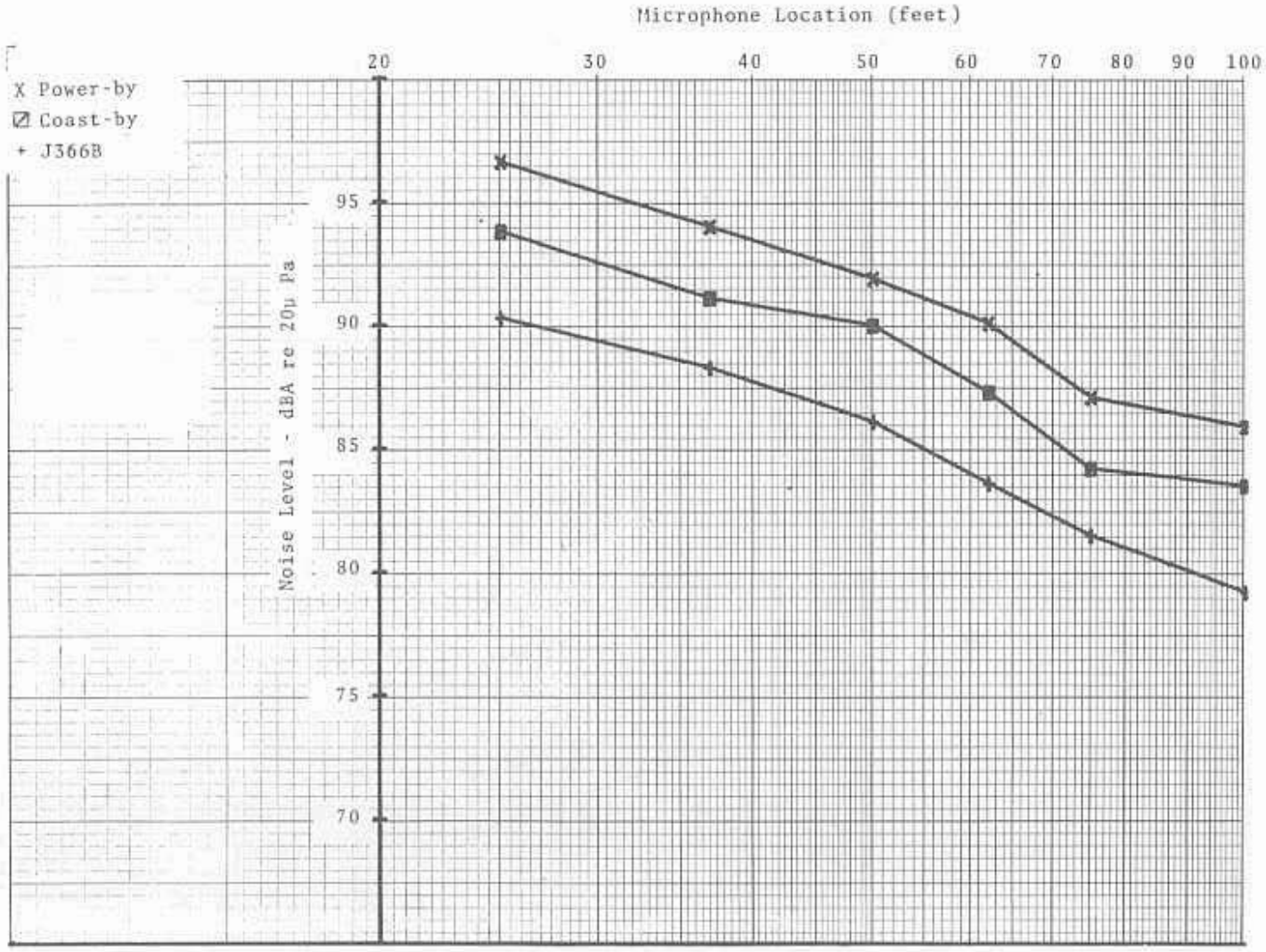


Figure G-5. Site 6 — IH-843 Test Vehicle — Data Comparison

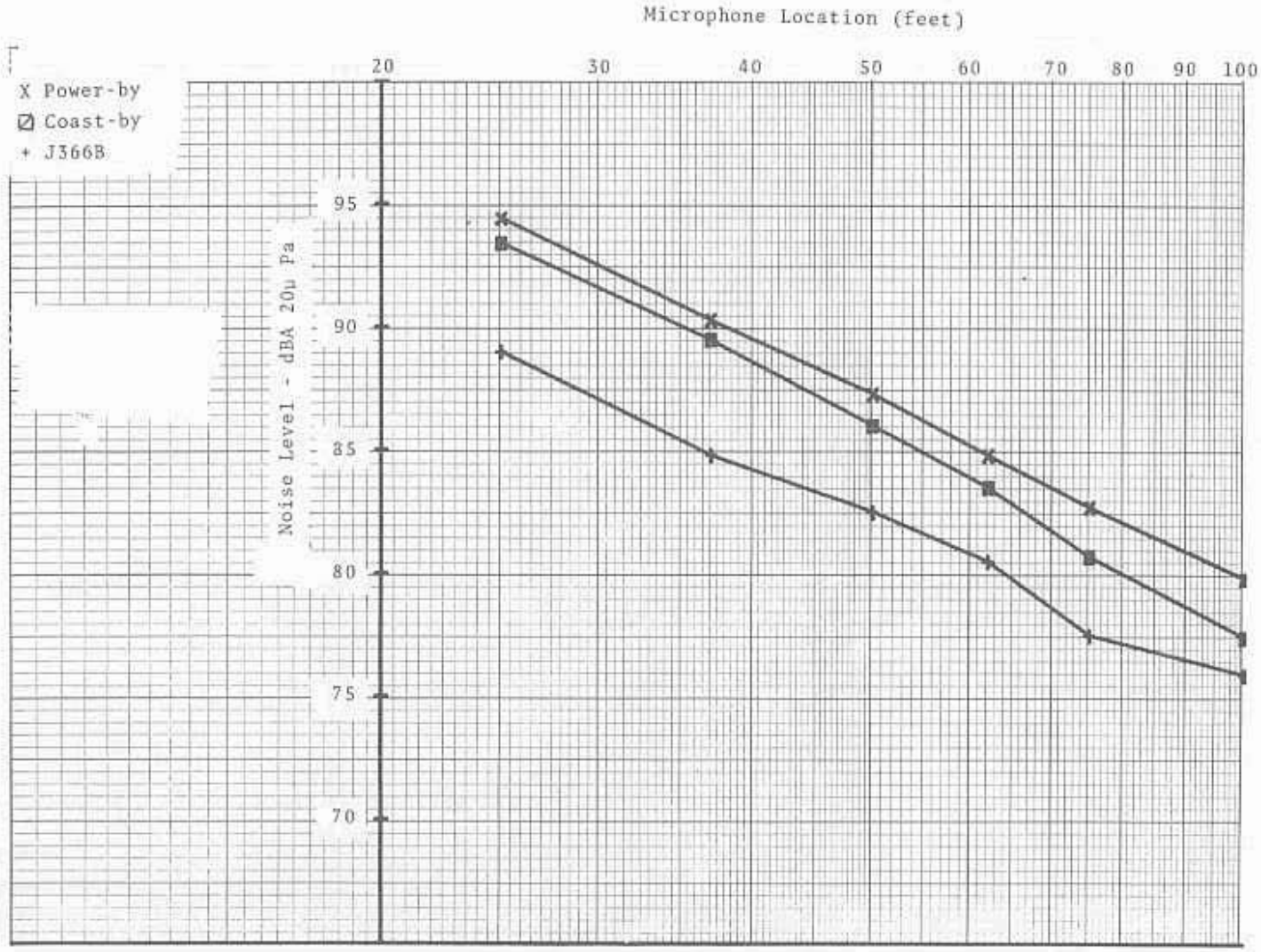


Figure G-4. Site 5 — IH-843 Test Vehicle — Data Comparison

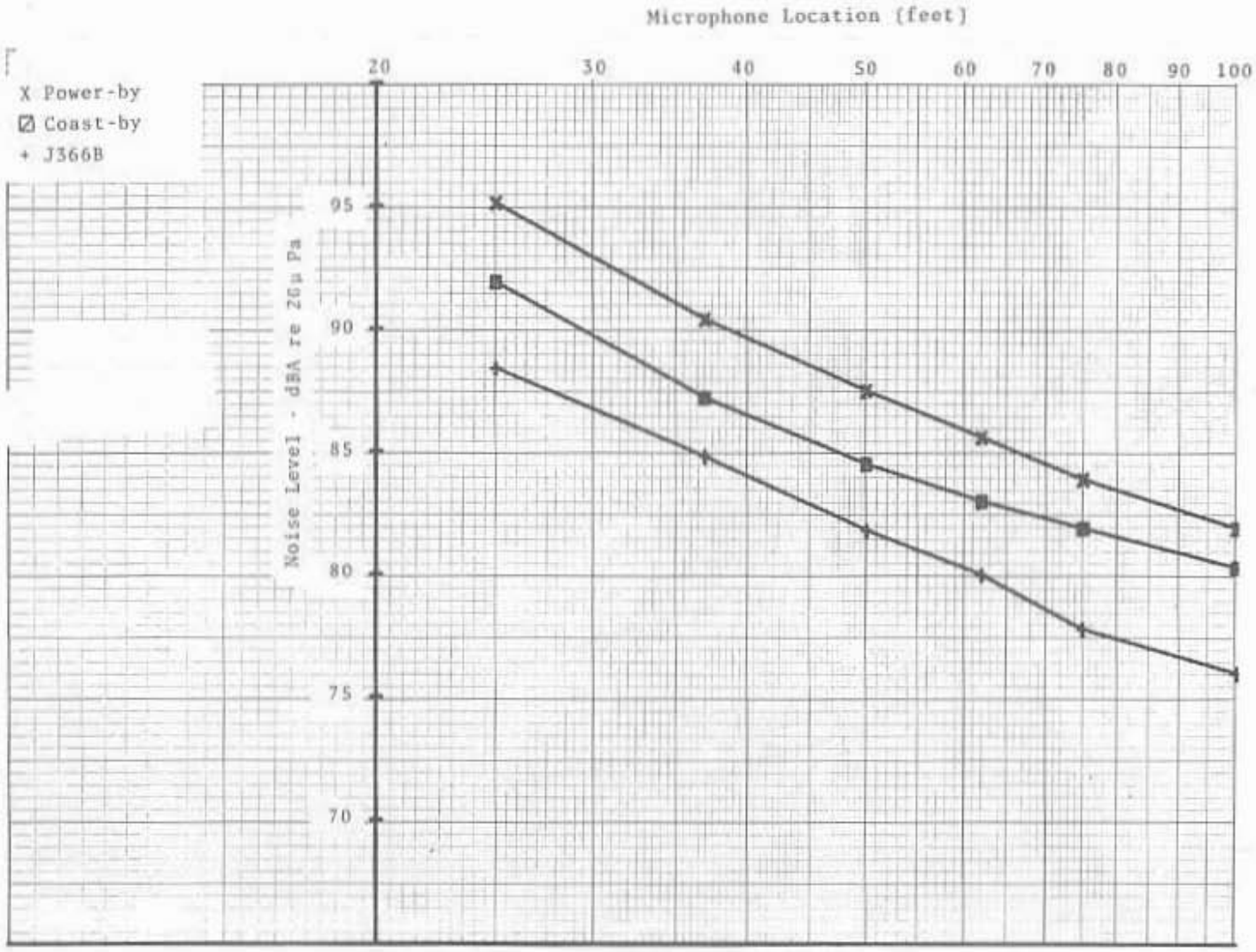


Figure G-7. Site 8 — IH-843 Test Vehicle — Data Comparison

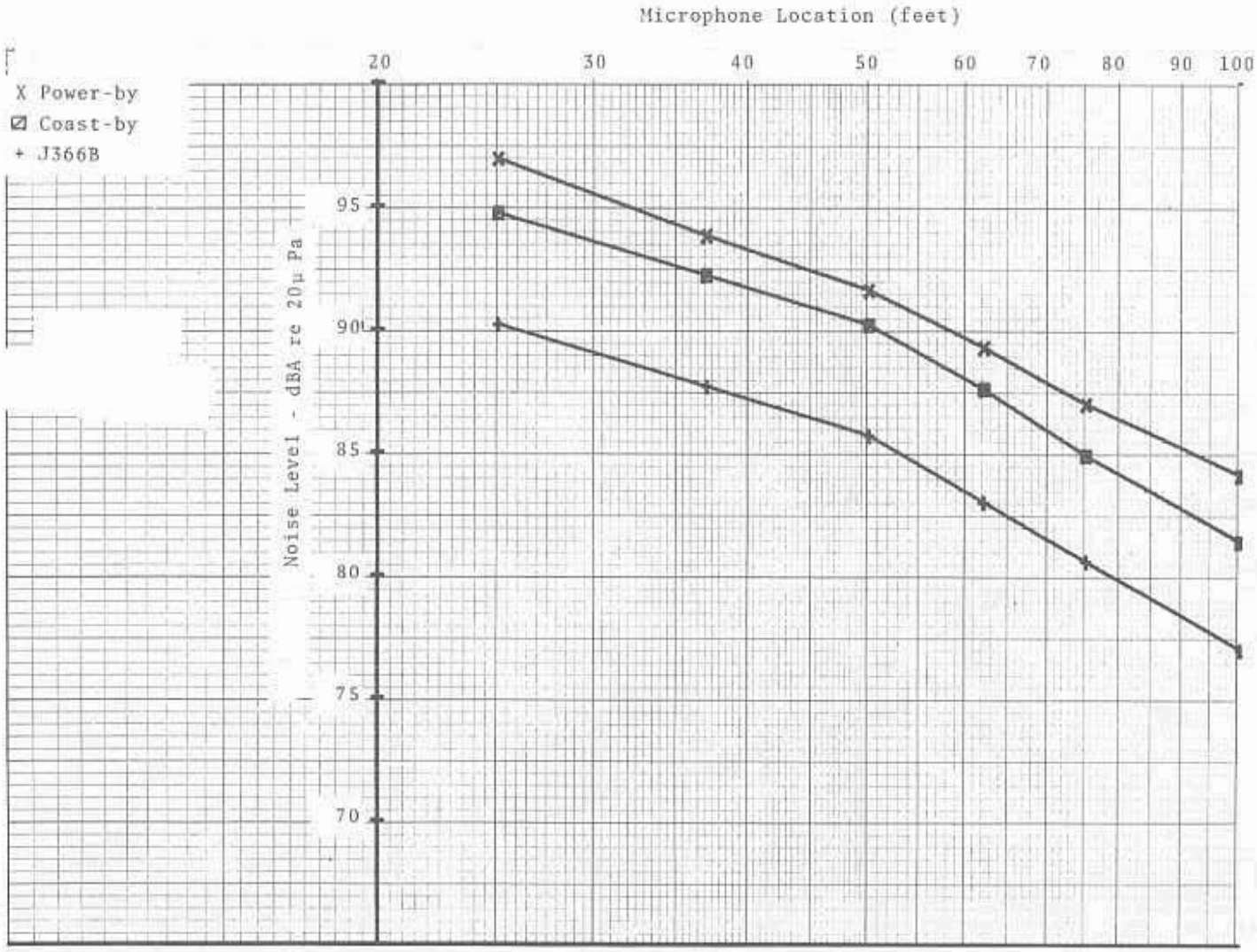


Figure G-6. Site 7 — IH-843 Test Vehicle — Data Comparison

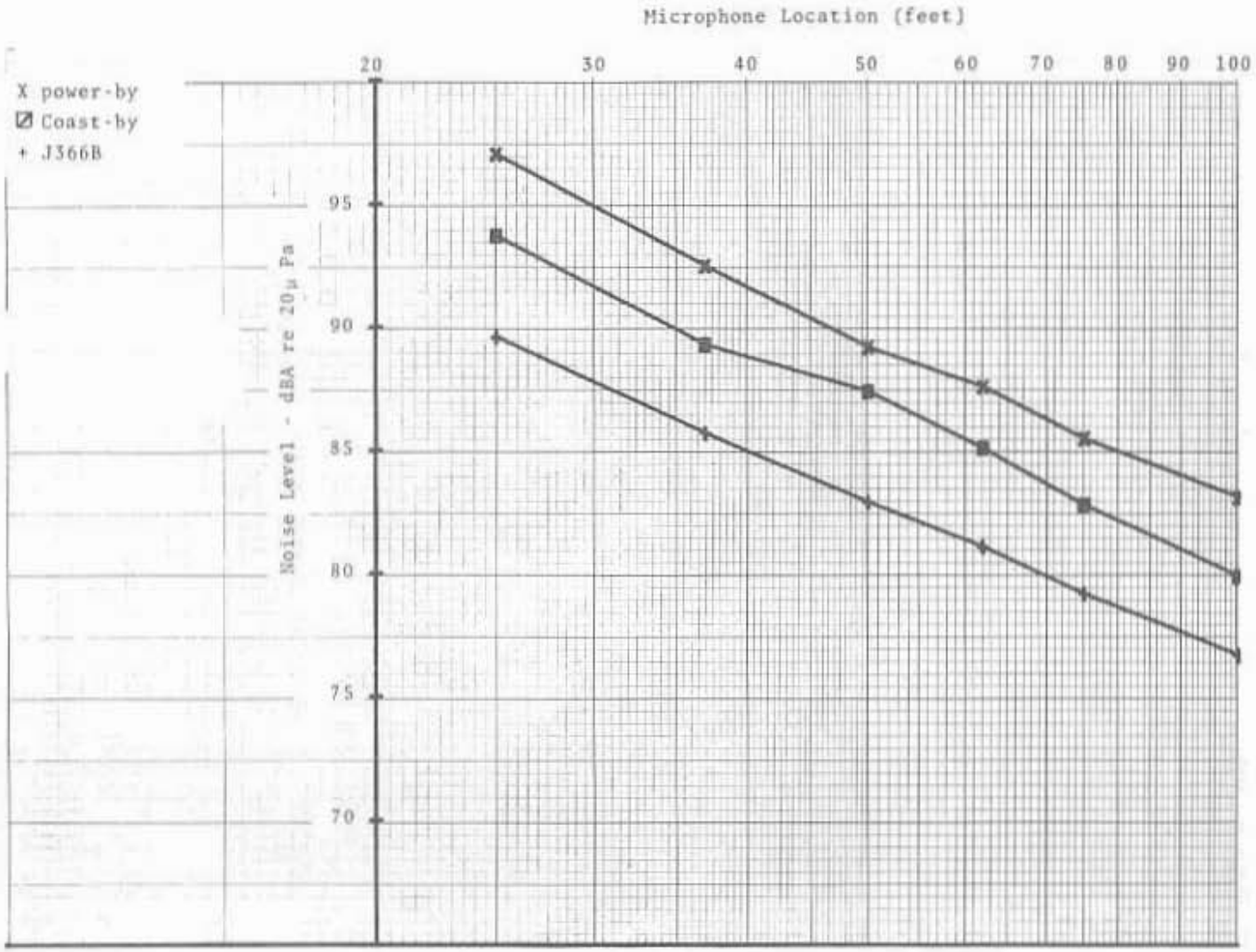


Figure G-9. Site 10 — IH-843 Test Vehicle — Data Comparison

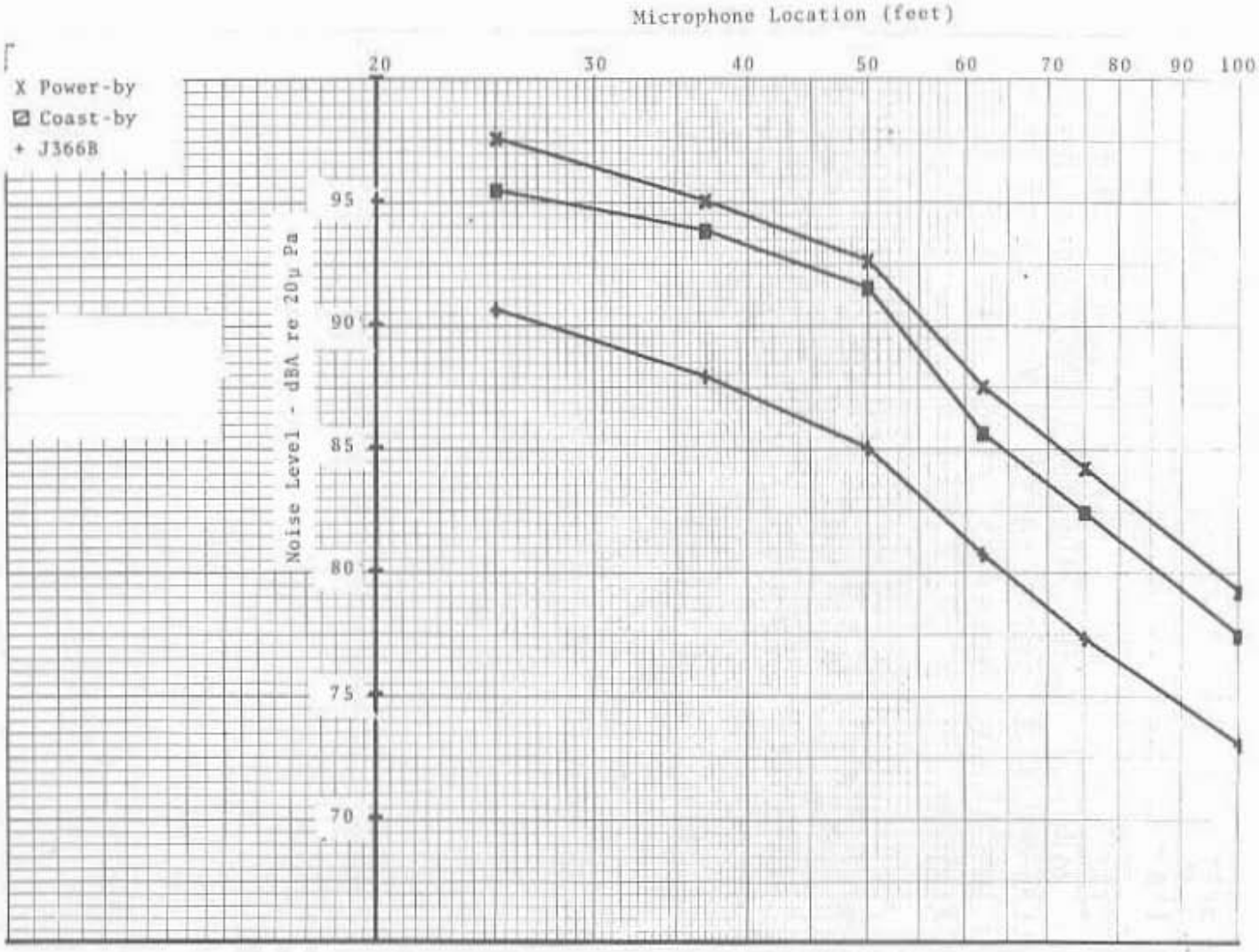


Figure G-8. Site 9 – IH-843 Test Vehicle – Data Comparison

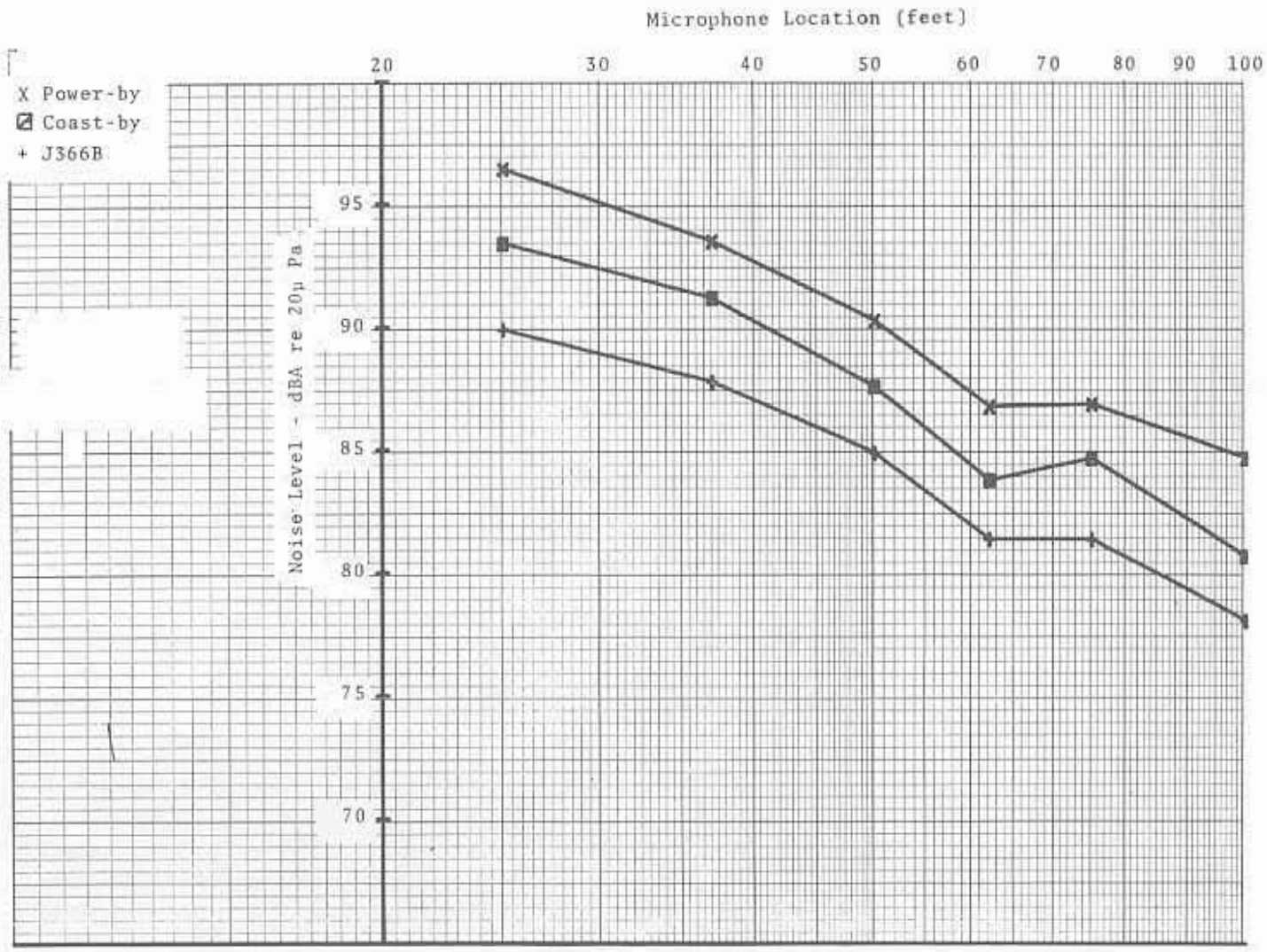


Figure G-11. Site 3 — IH-866 Test Vehicle — Data Comparison

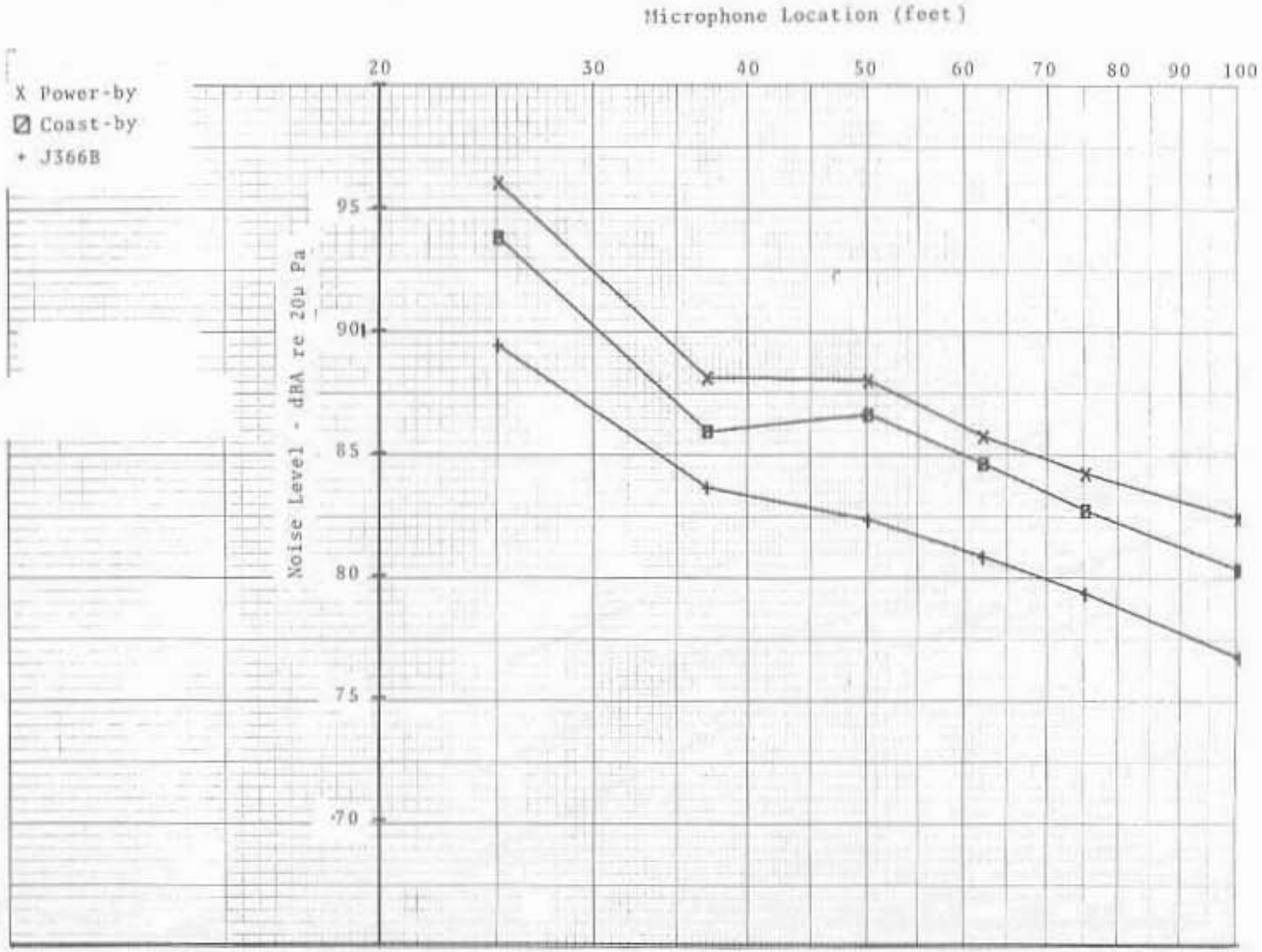


Figure G-10. Site 2 — IH-866 Test Vehicle — Data Comparison

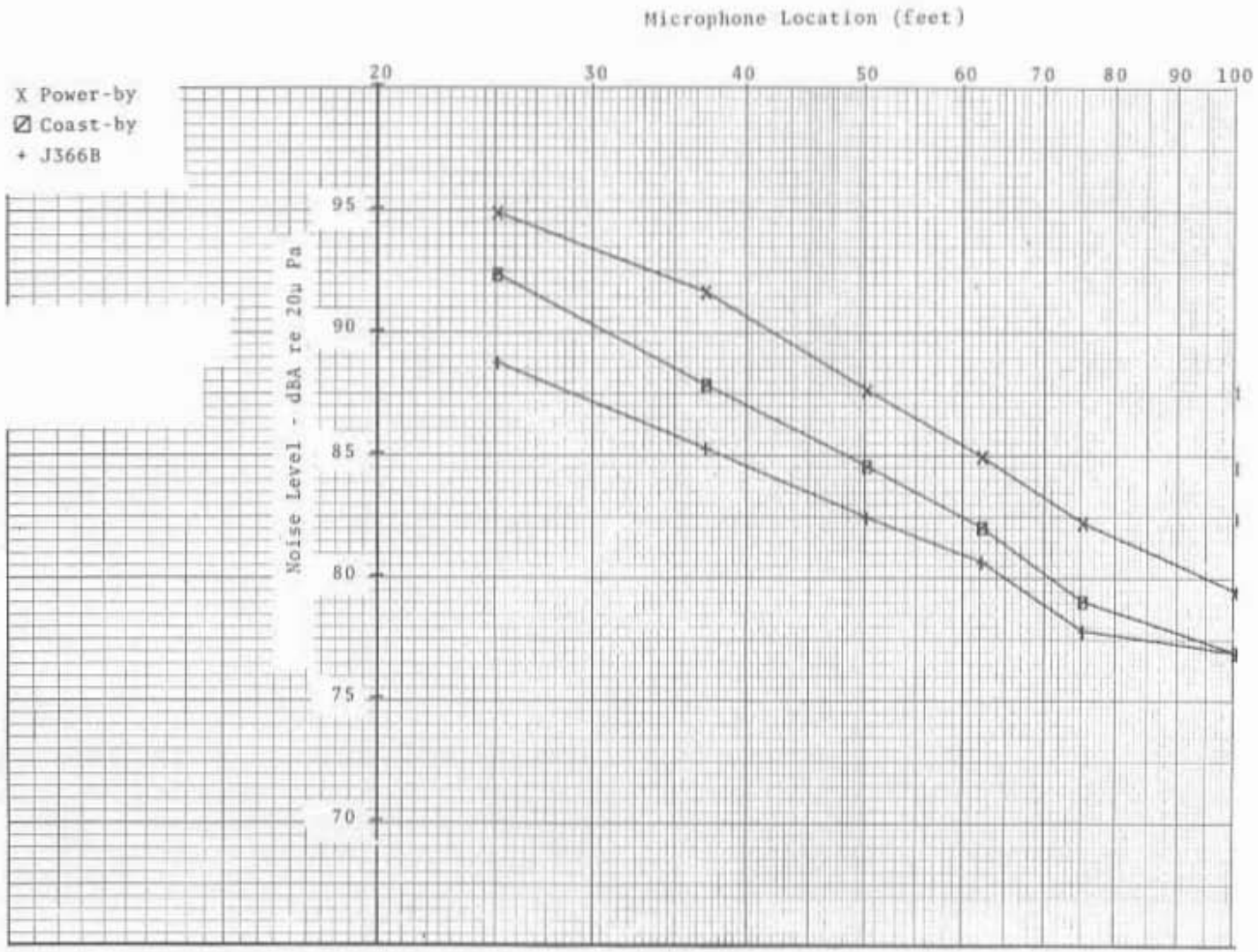


Figure G-13. Site 5 — IH-866 Test Vehicle — Data Comparison

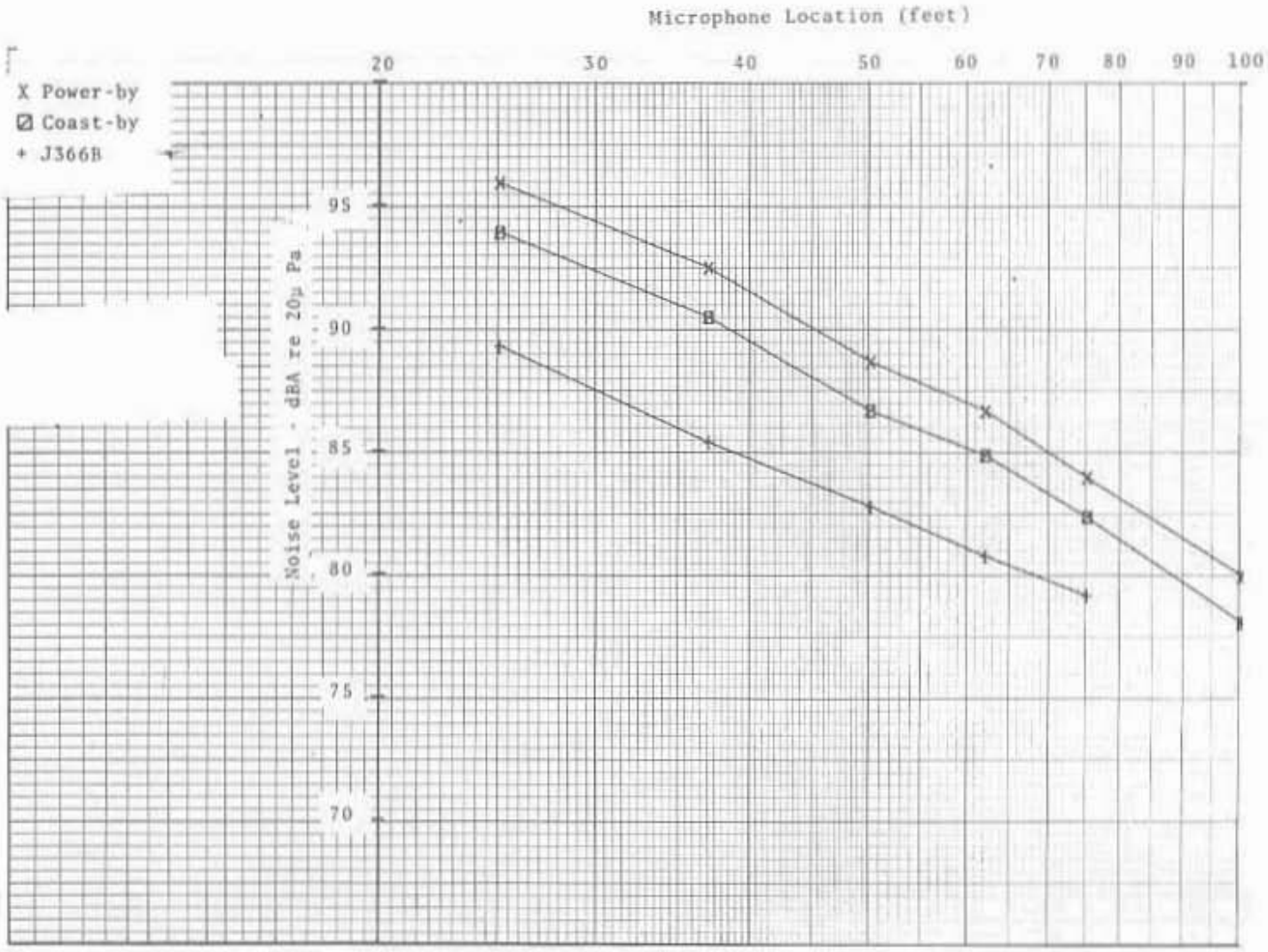


Figure G-12. Site 4 — IH-866 Test Vehicle — Data Comparison

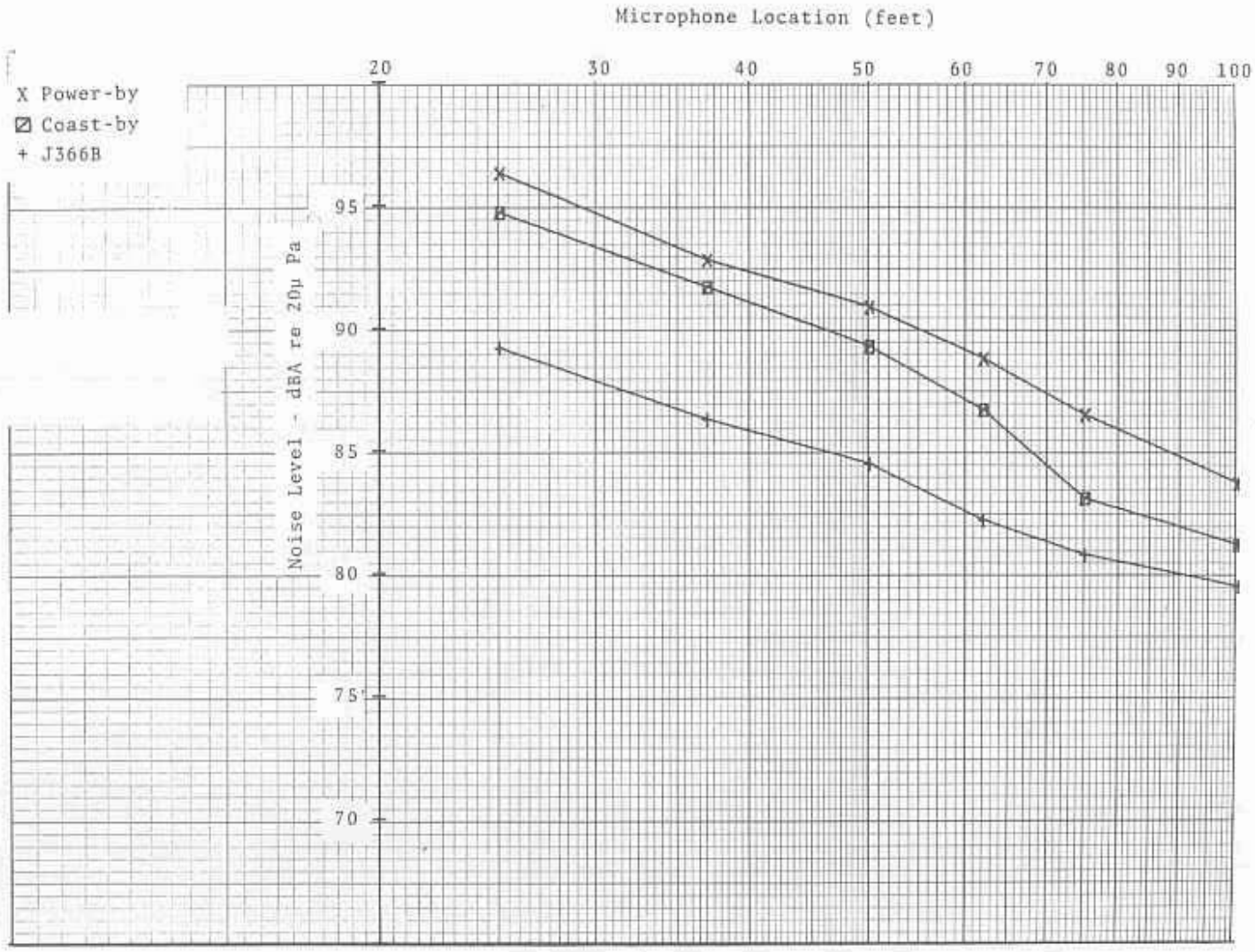


Figure G-15. Site 7 – IH-866 Test Vehicle – Data Comparison

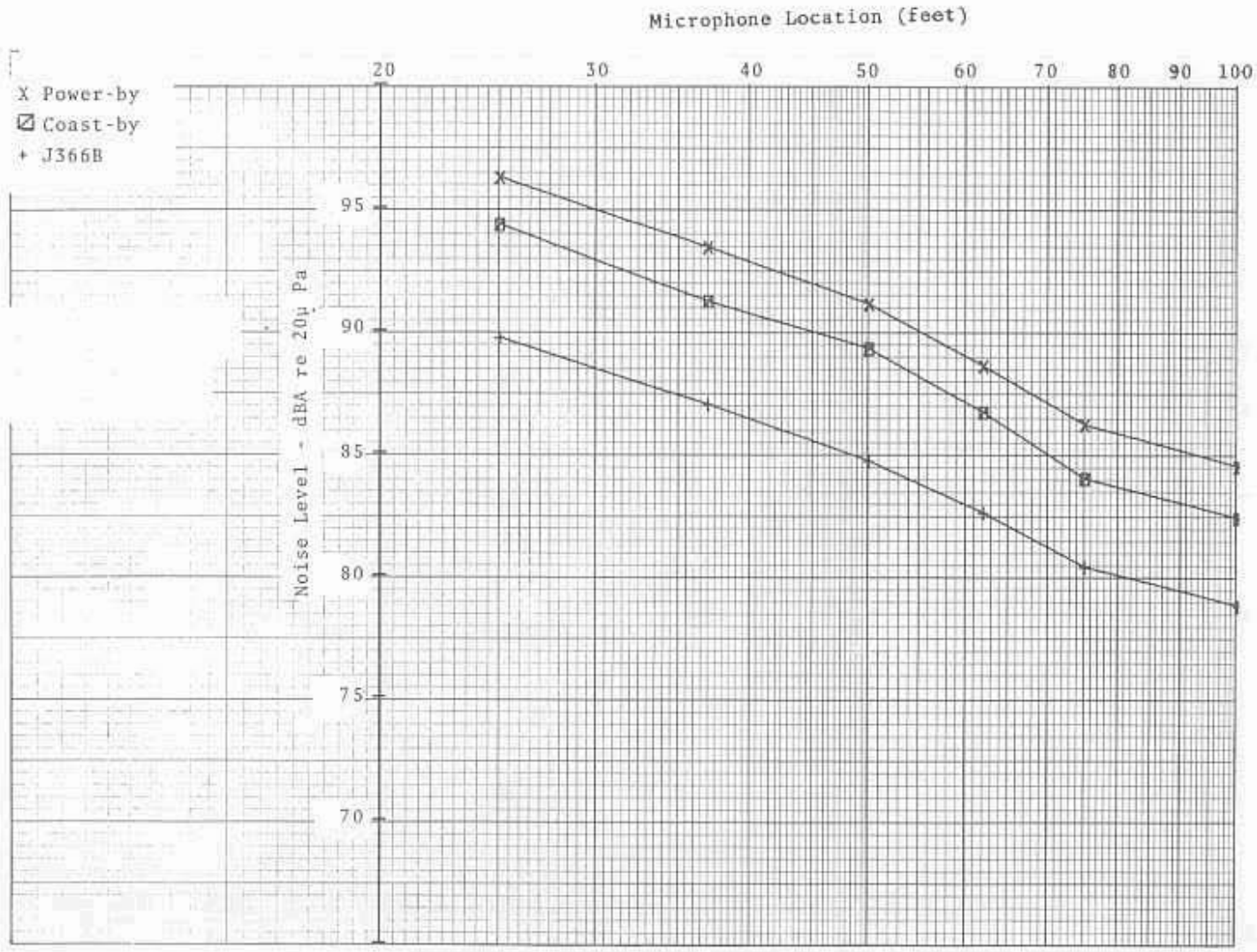


Figure G-14. Site 6 — IH-866 Test Vehicle — Data Comparison

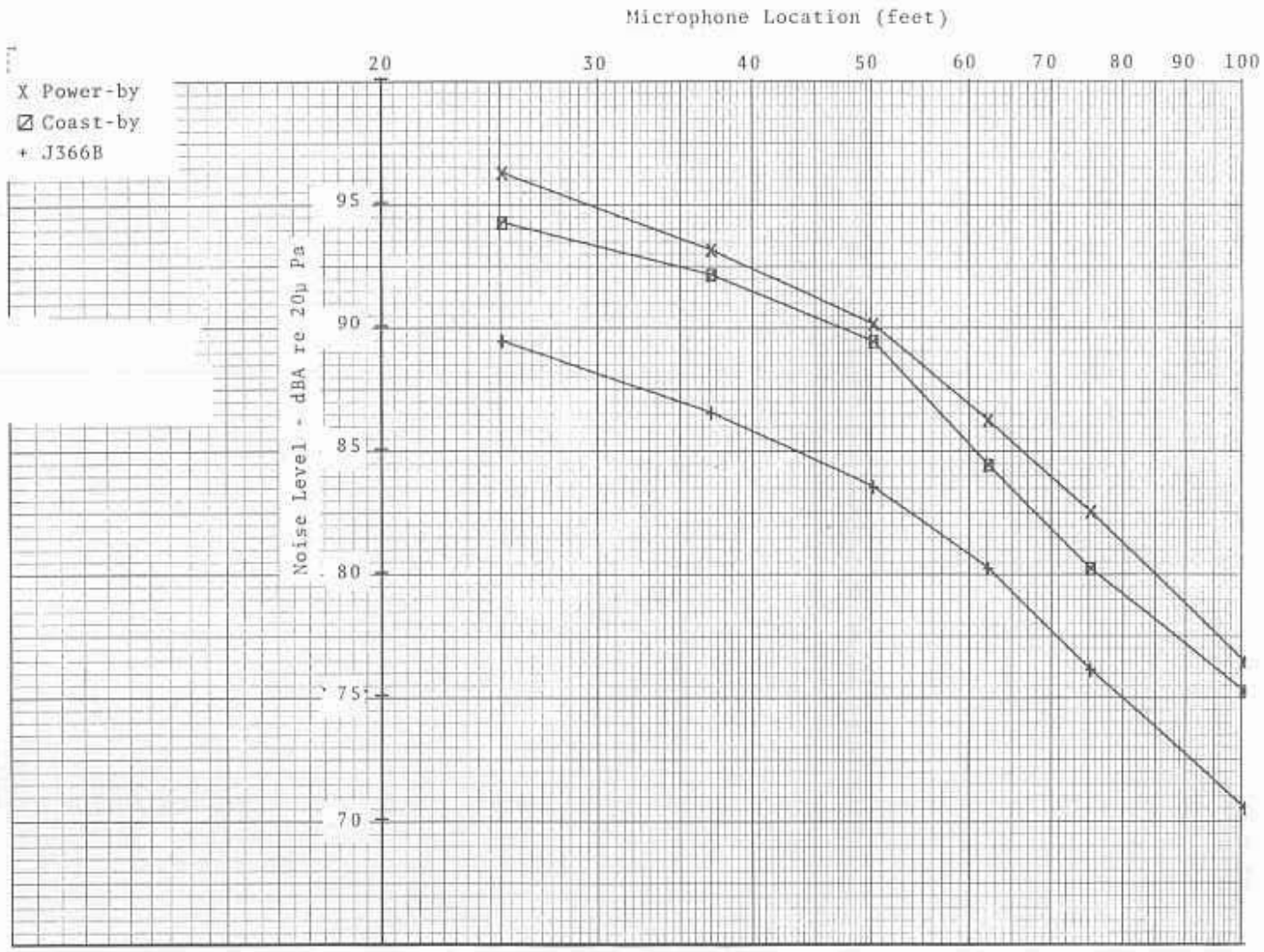


Figure G-17. Site 9 — IH-866 Test Vehicle — Data Comparison

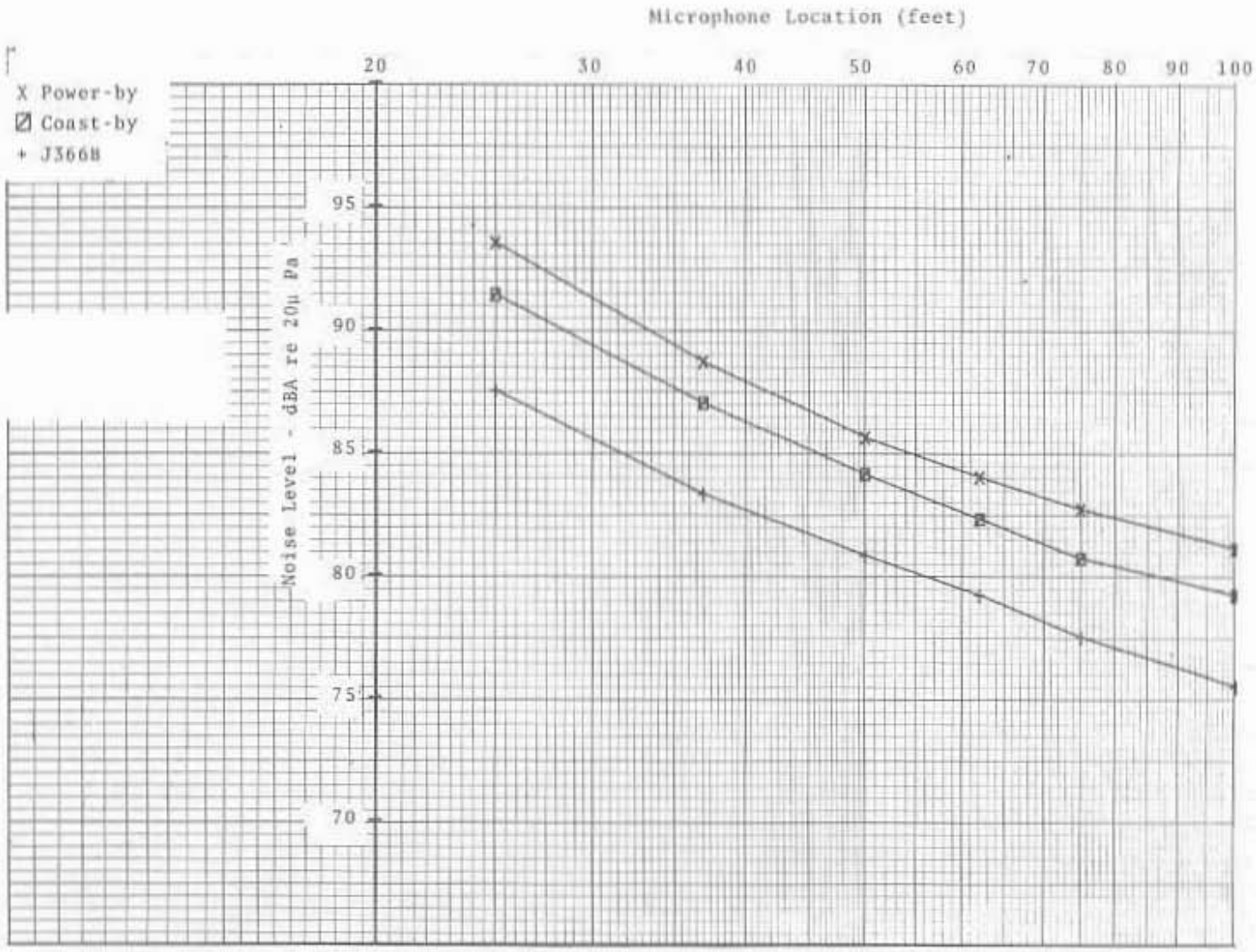


Figure G-16. Site 8 – IH-866 Test Vehicle – Data Comparison

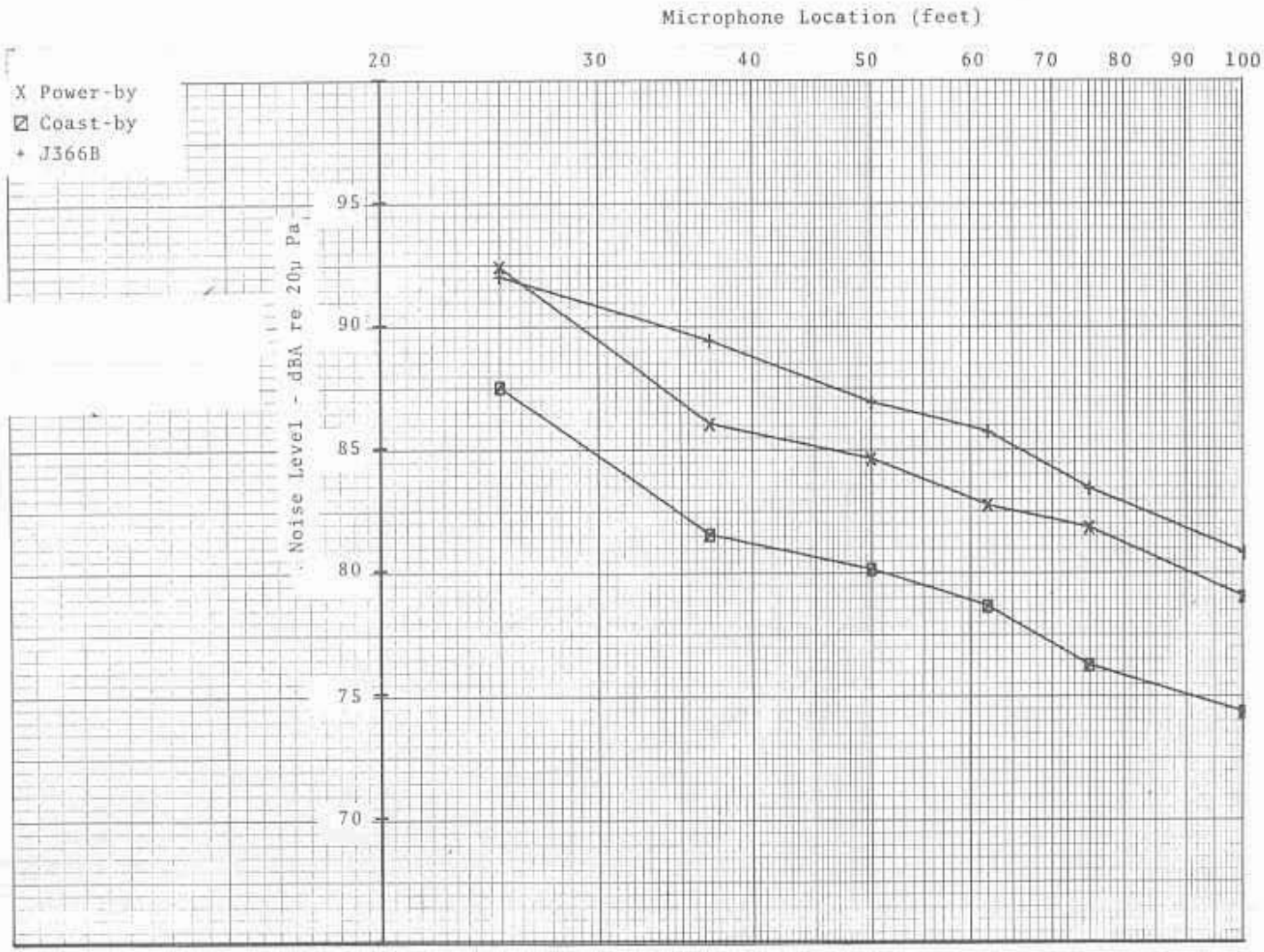


Figure G-19. Site 2 — IH-394 Test Vehicle — Data Comparison

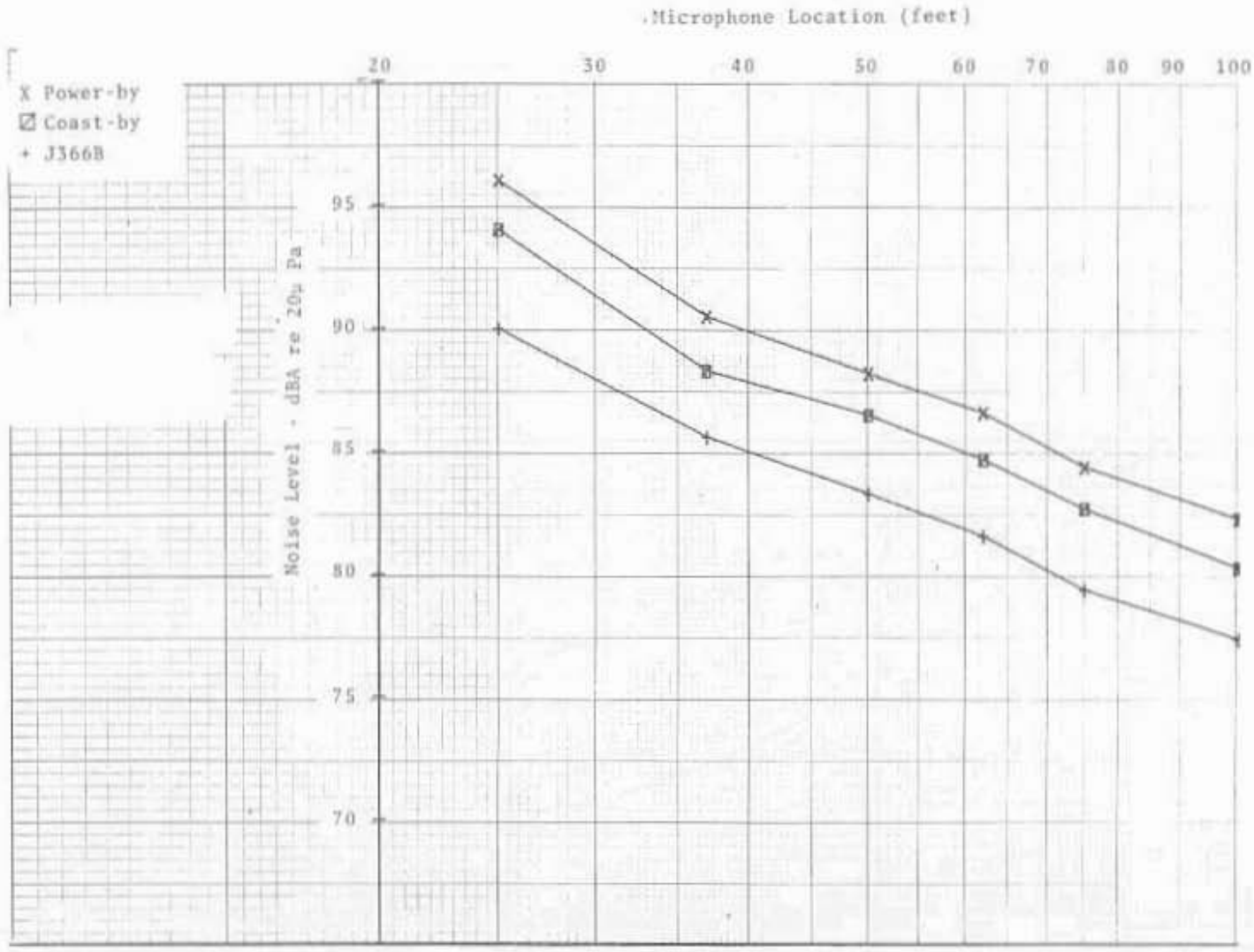


Figure G-18. Site 10 — IH-866 Test Vehicle — Data Comparison

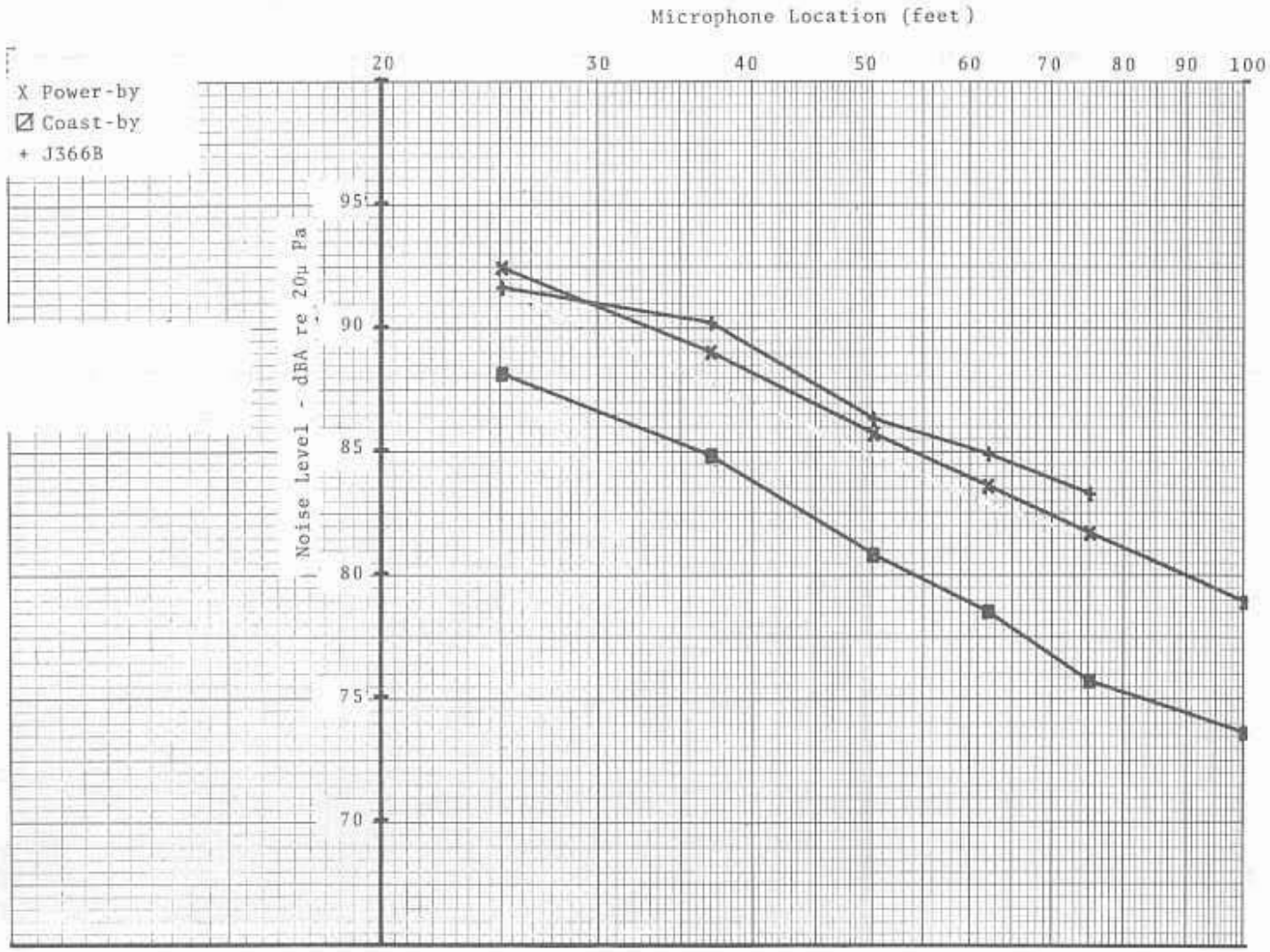


Figure G-21. Site 4 — IH-394 Test Vehicle — Data Comparison

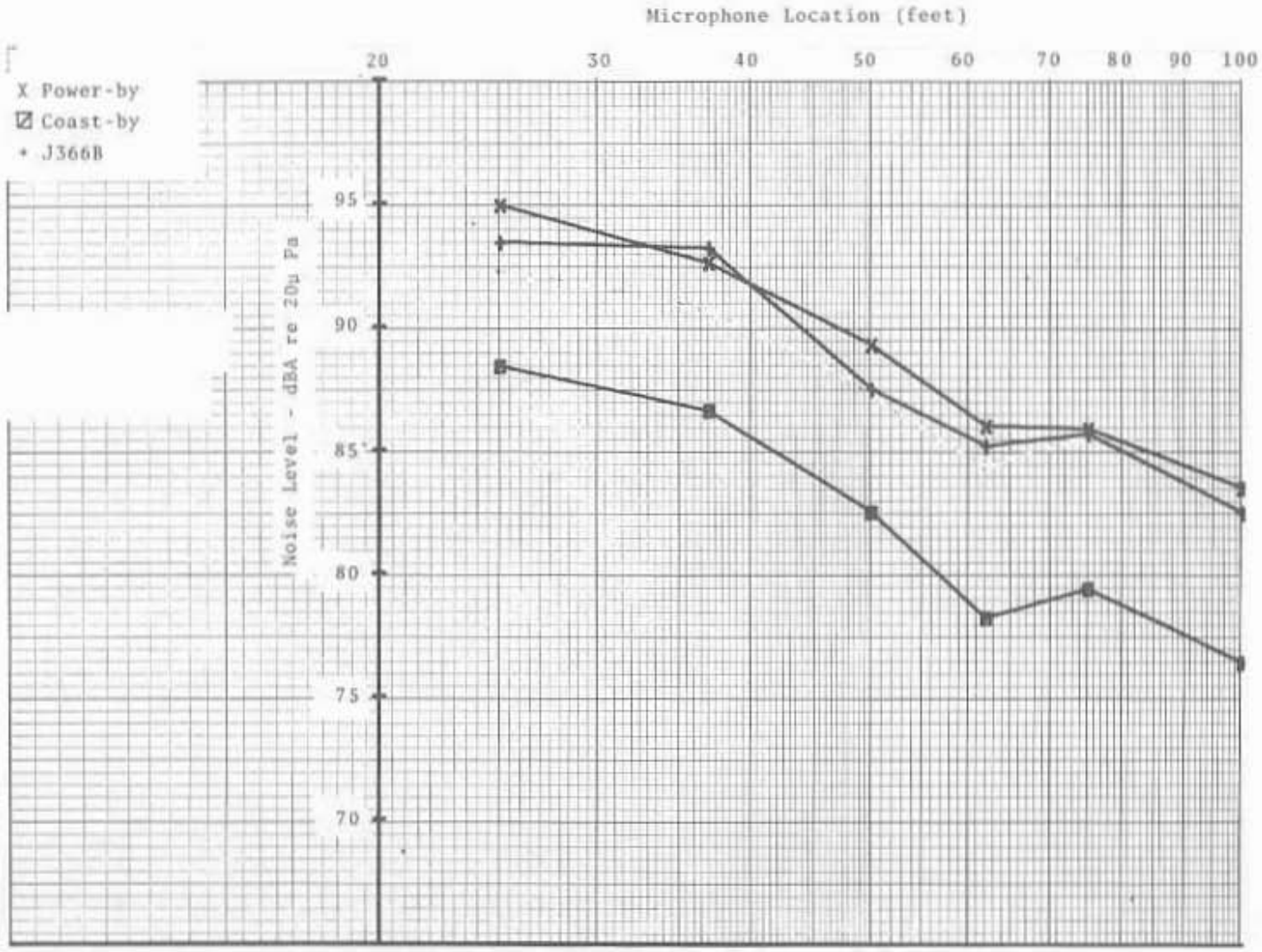


Figure G-20. Site 3 – IH-394 Test Vehicle – Data Comparison

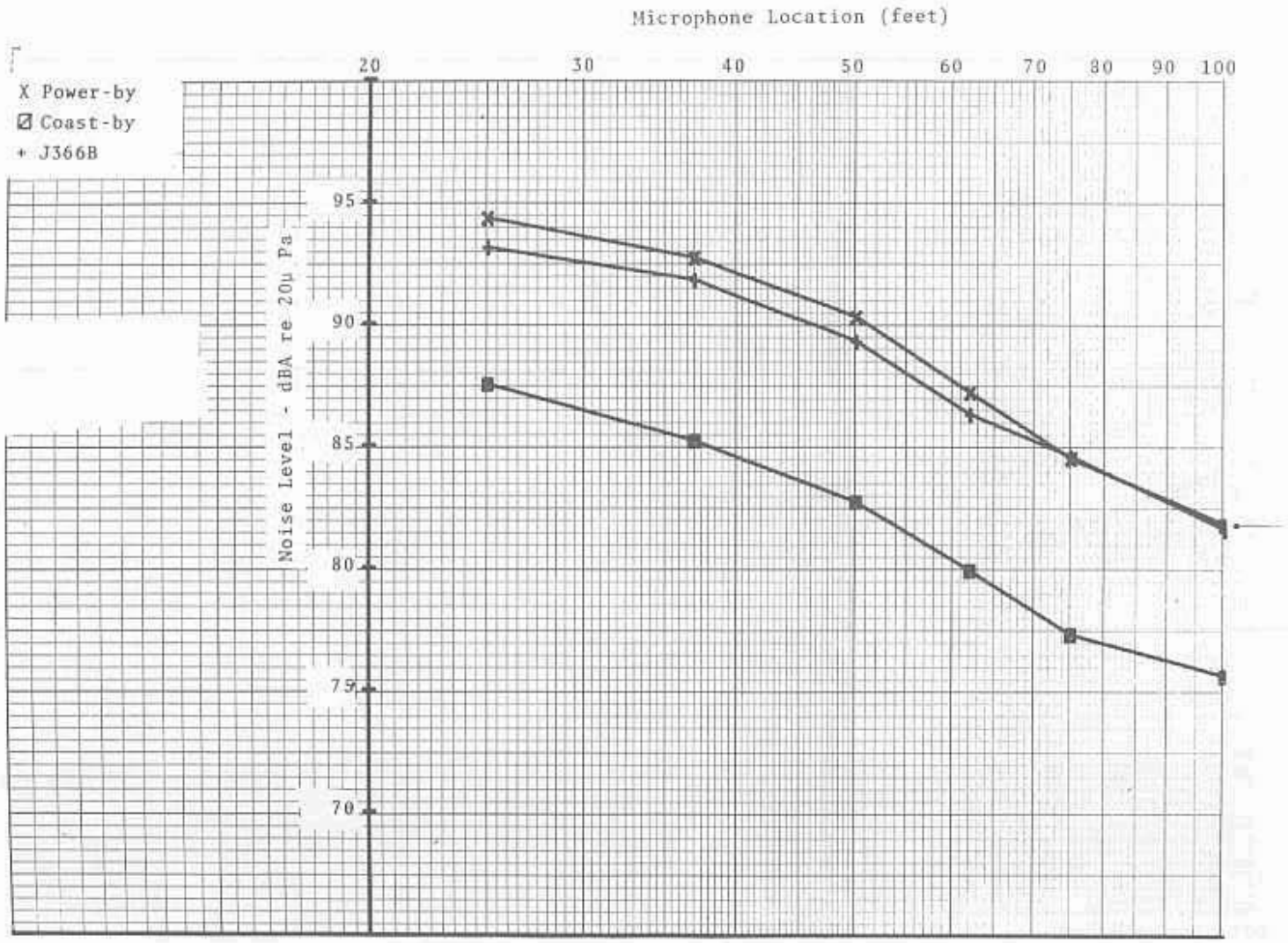


Figure G-23. Site 7 — IH-394 Test Vehicle — Data Comparison

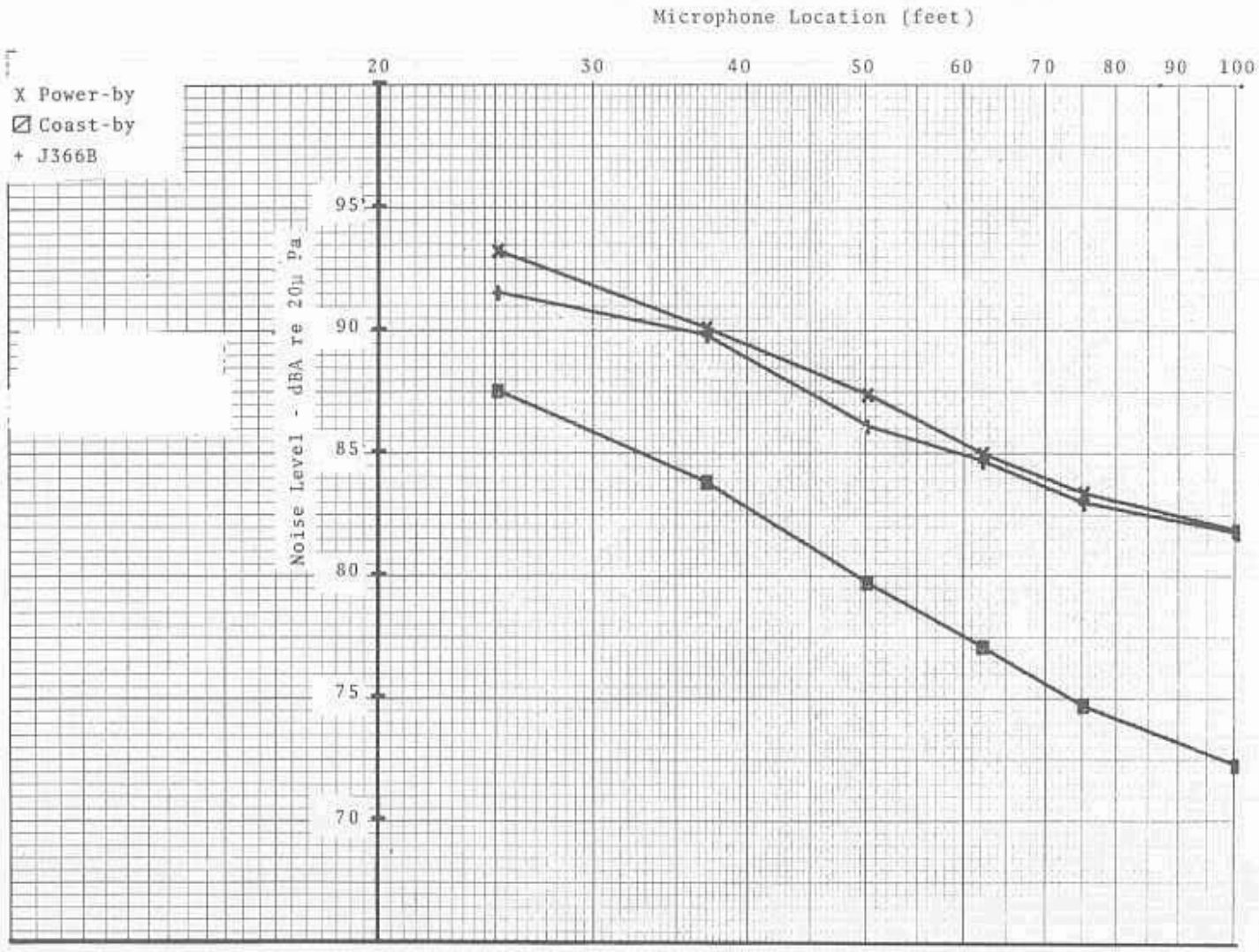


Figure G-22. Site 5 — IH-394 Test Vehicle — Data Comparison

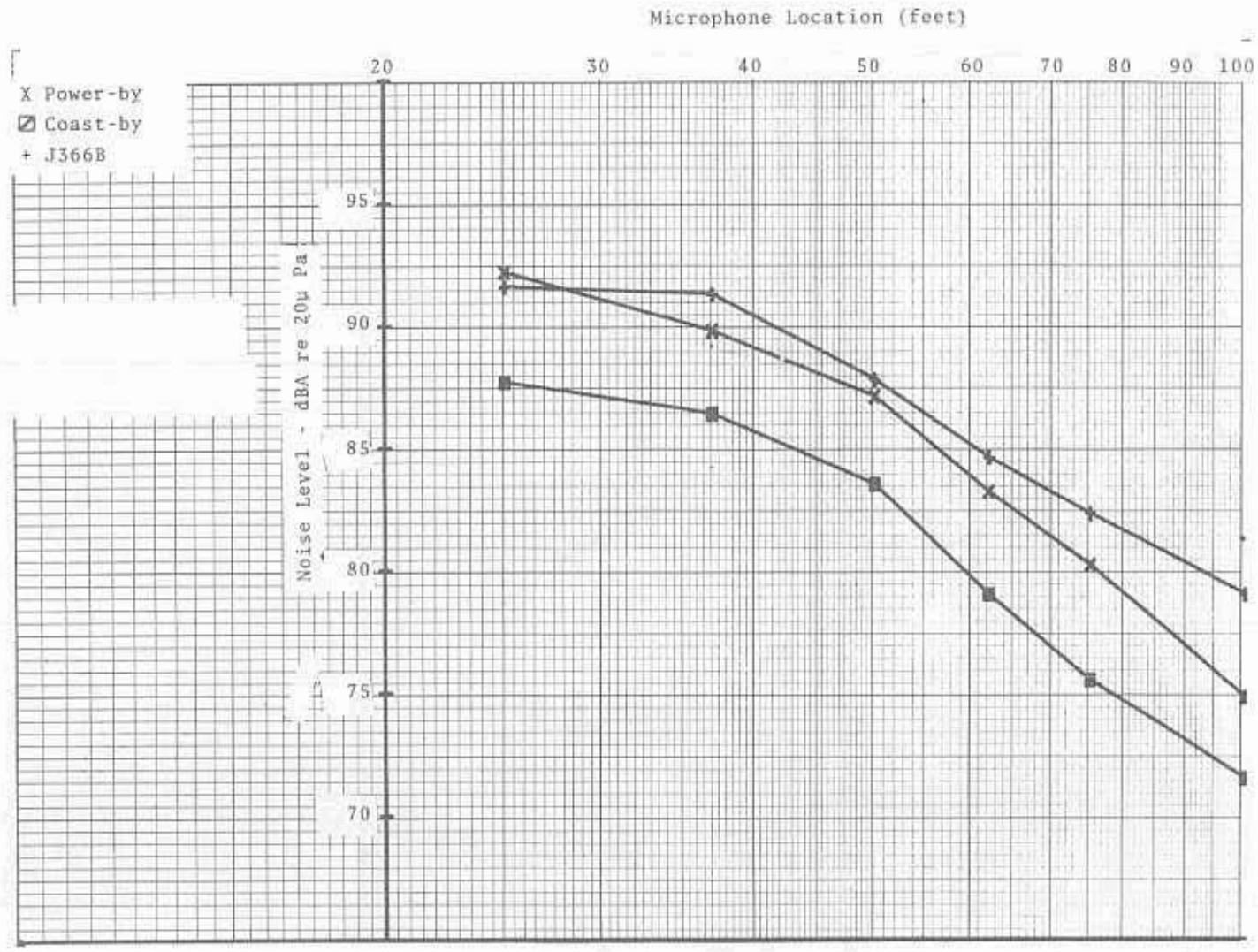


Figure G-25. Site 9 — IH-394 Test Vehicle — Data Comparison

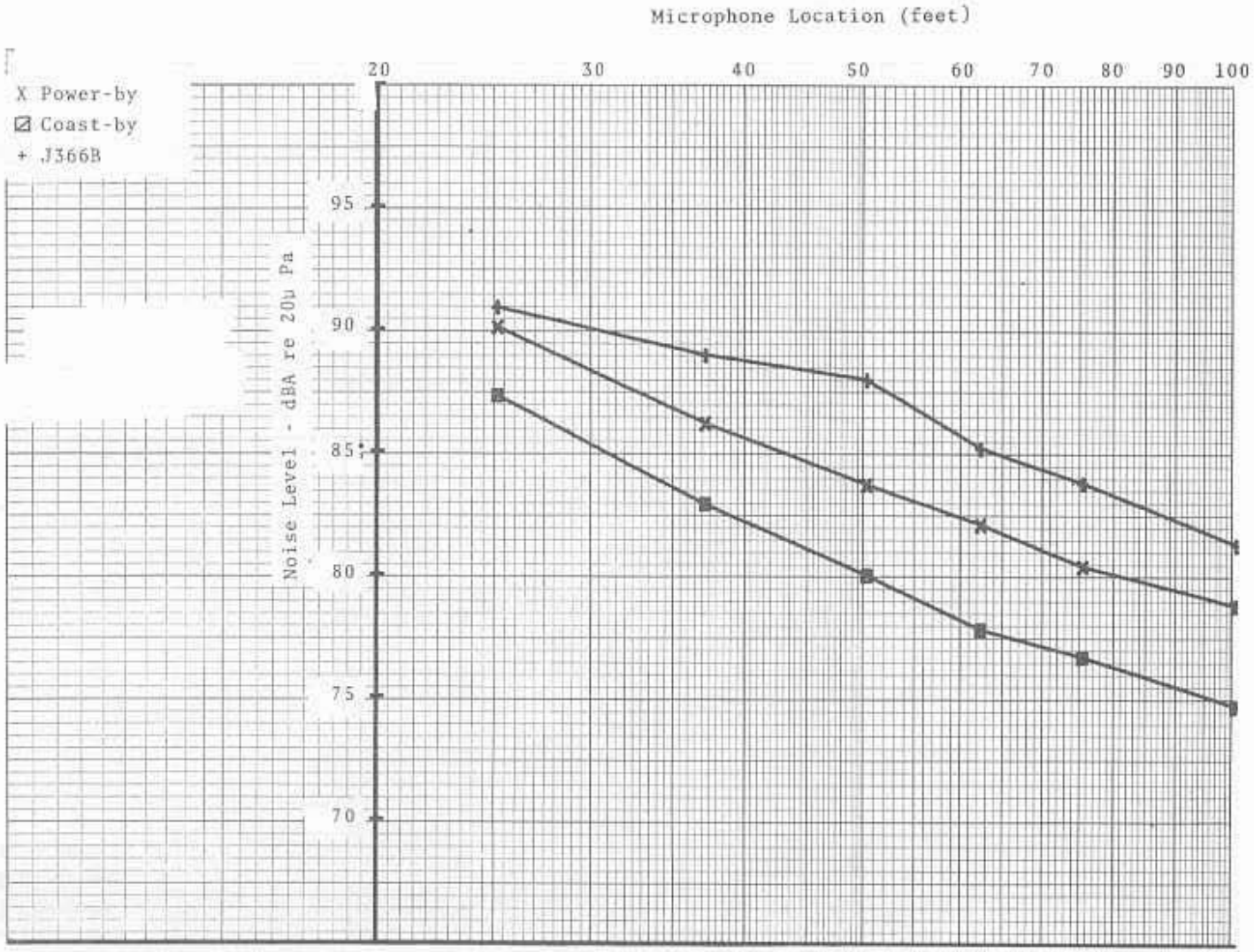


Figure G-24. Site 8 — IH-394 Test Vehicle — Data Comparison

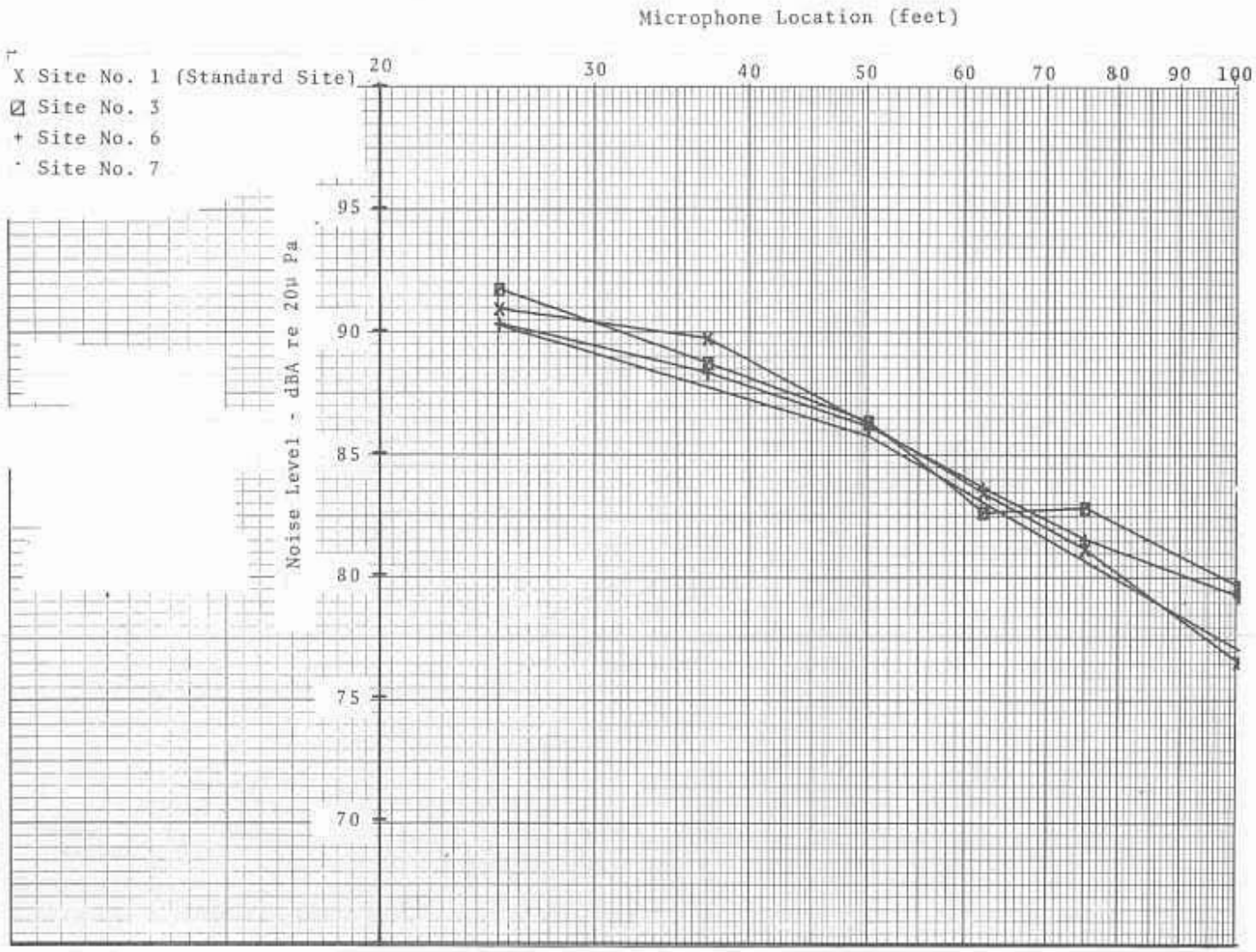


Figure G-27. IH-843 Test Vehicle — SAE-J366b Test — Hard Site Vs. Standard Site

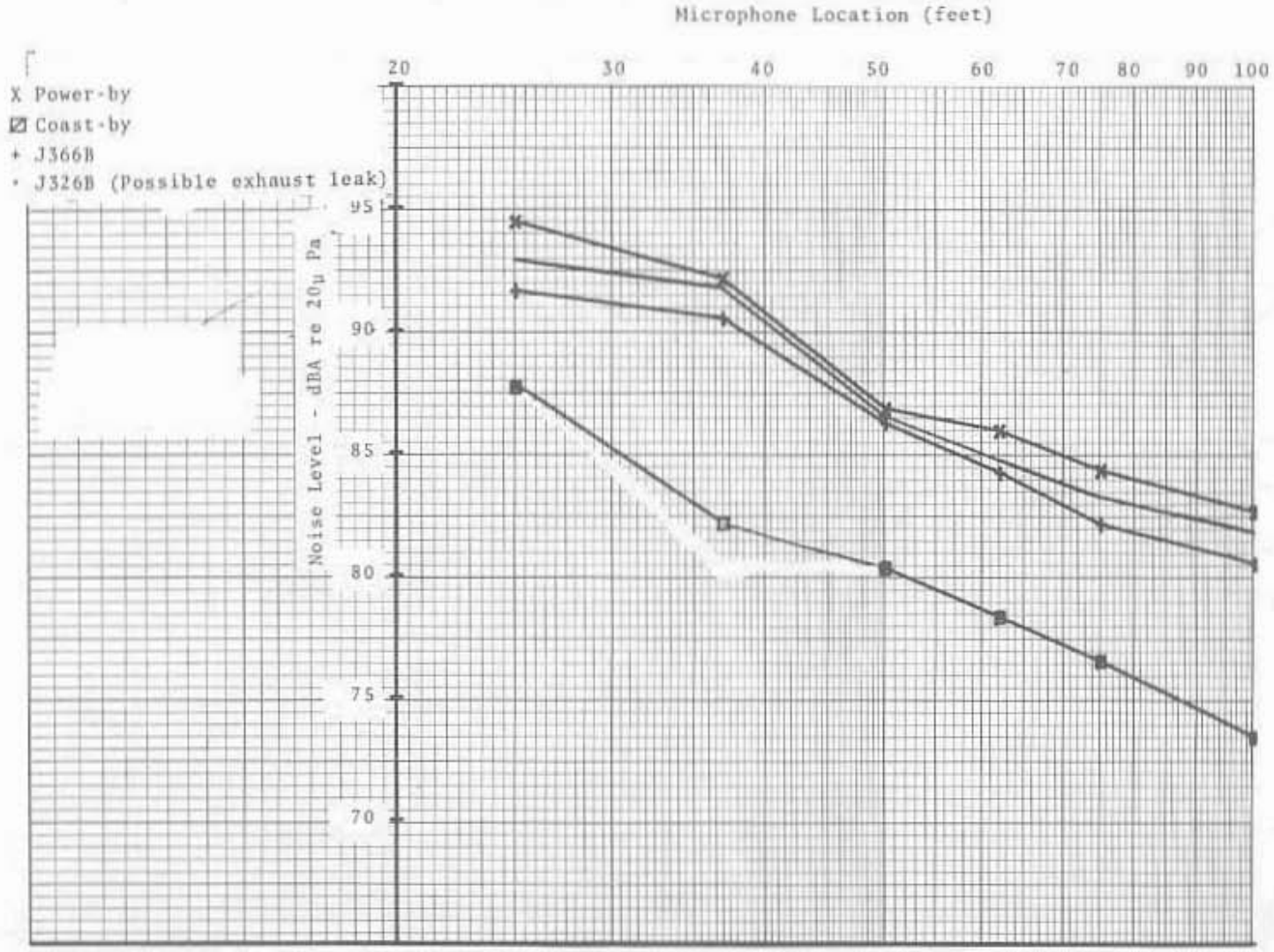


Figure G-26. Site 10 — IH-394 Test Vehicle — Data Comparison

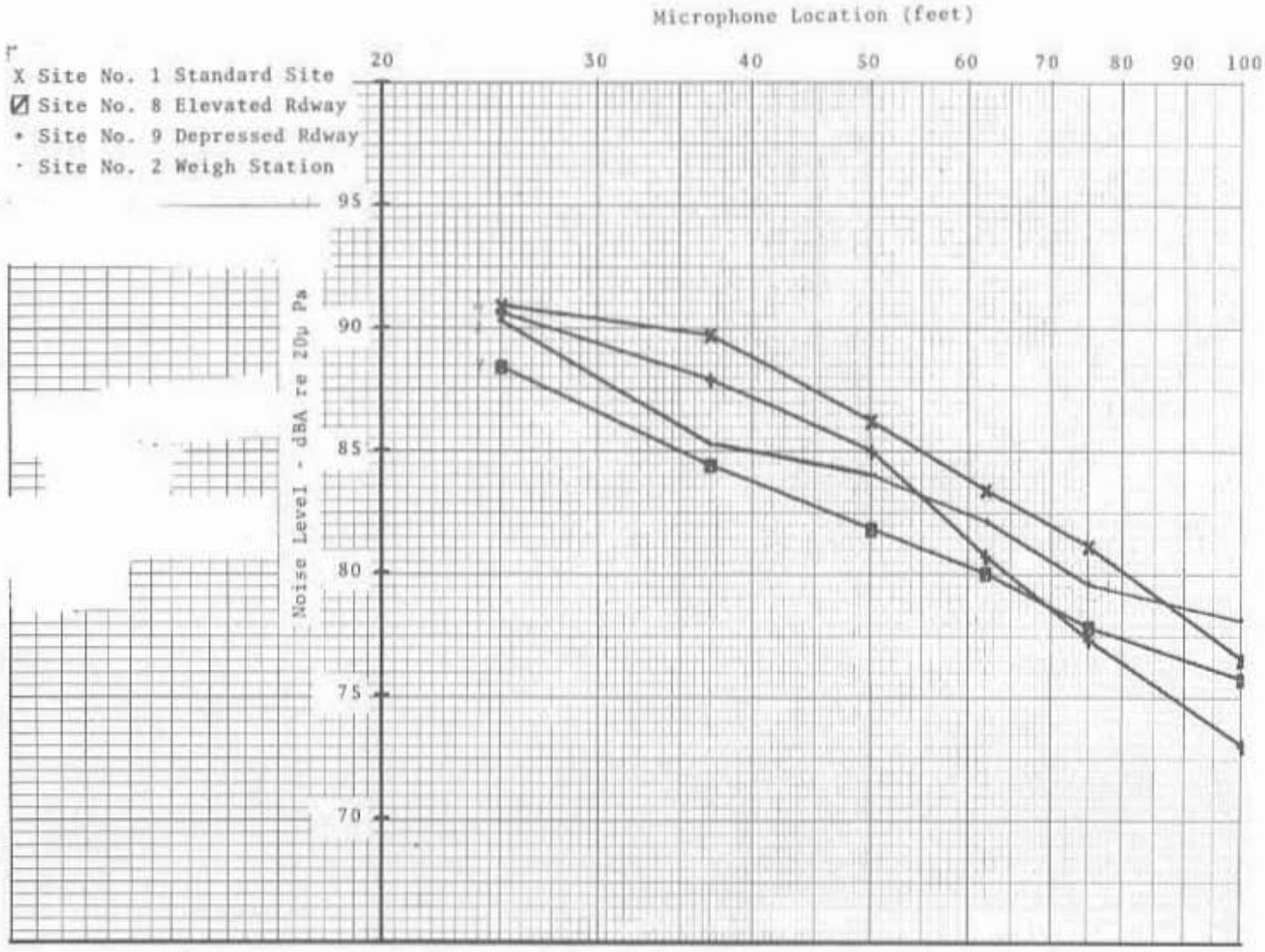


Figure G-29. IH-843 Test Vehicle – SAE-J366b Test

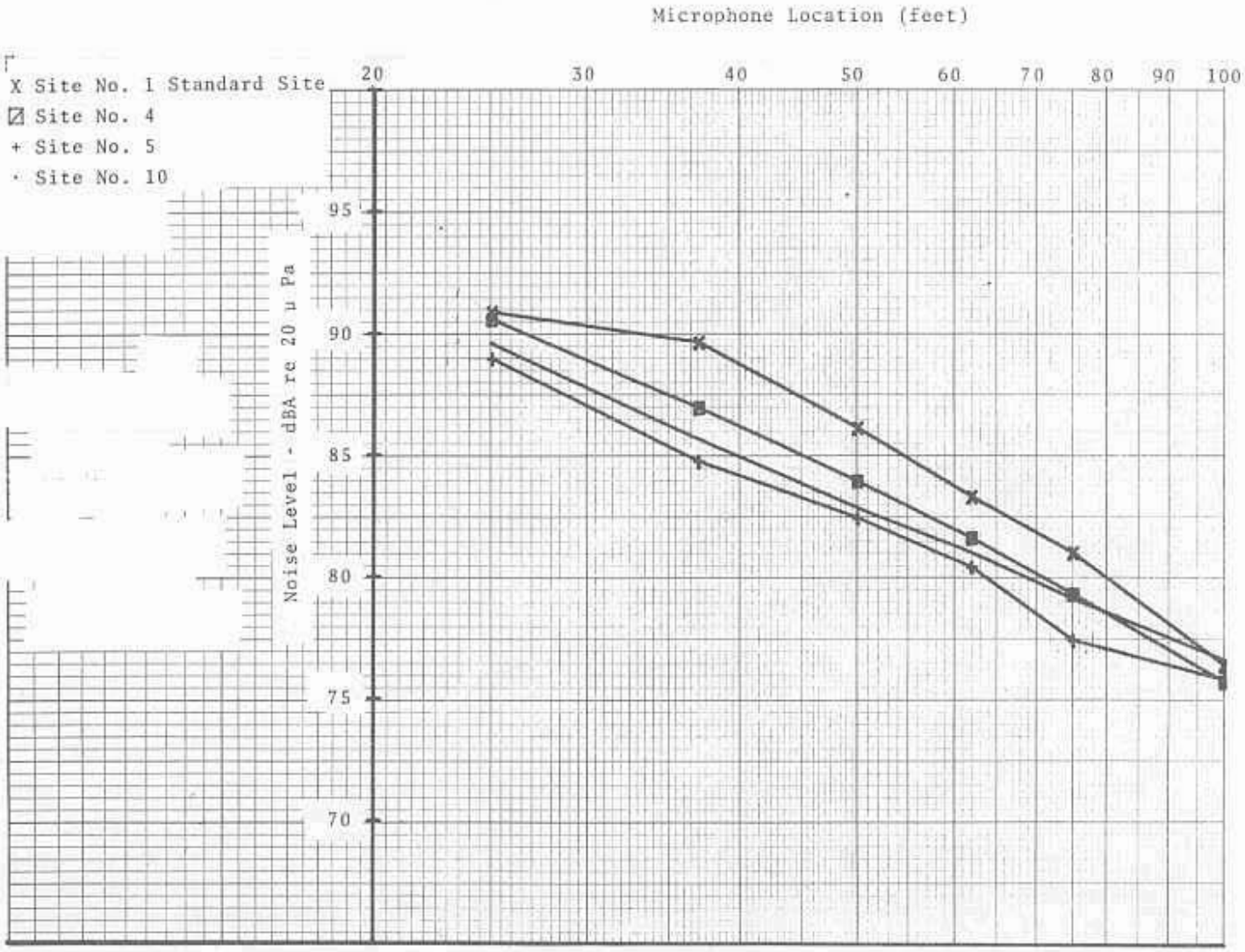


Figure G-28. IH-843 Test Vehicle – SAE-J366b Test – Soft Site Vs. Standard Site

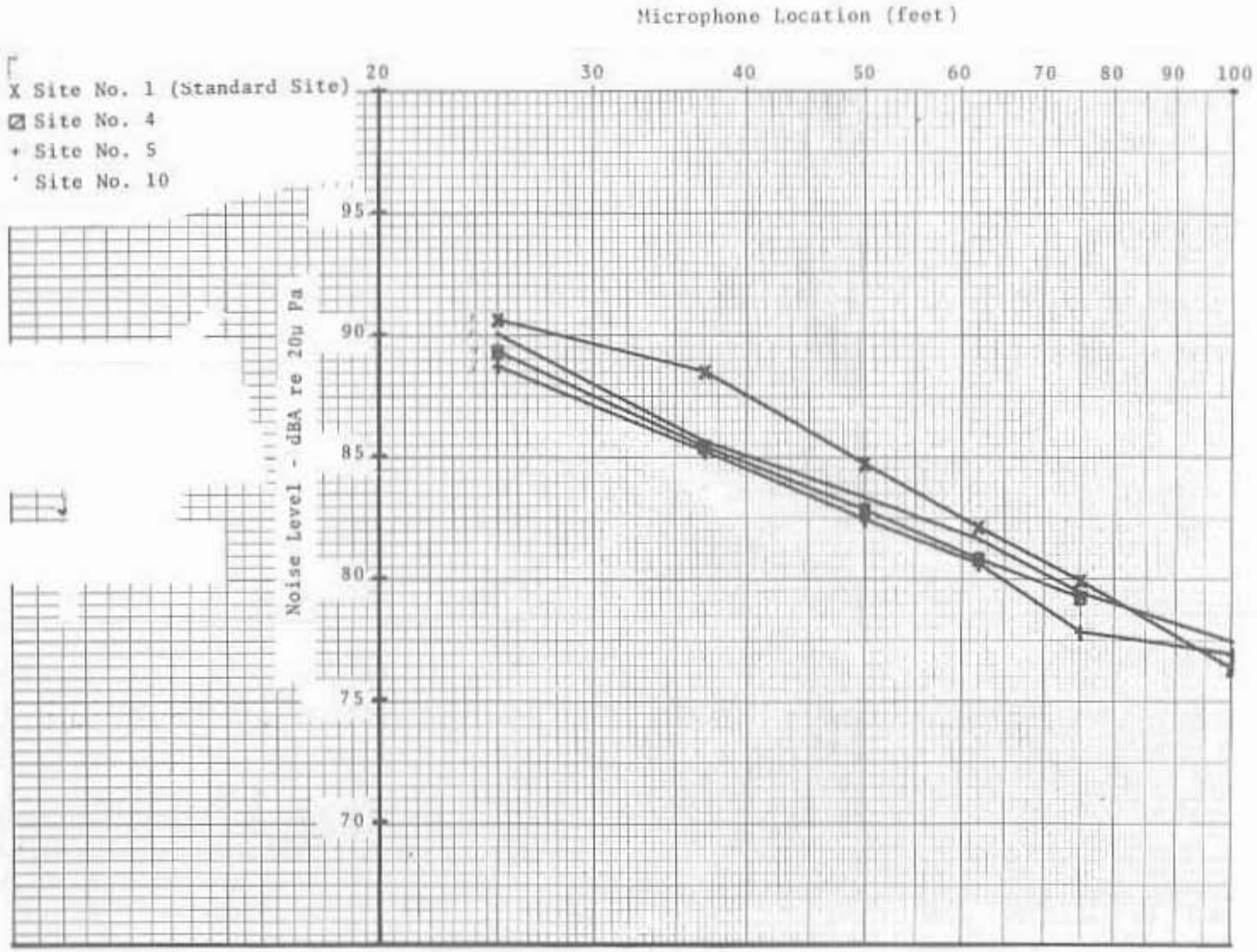


Figure G-31. IH-866 Test Vehicle — SAE-J366b Test — Soft Site Vs. Standard Site

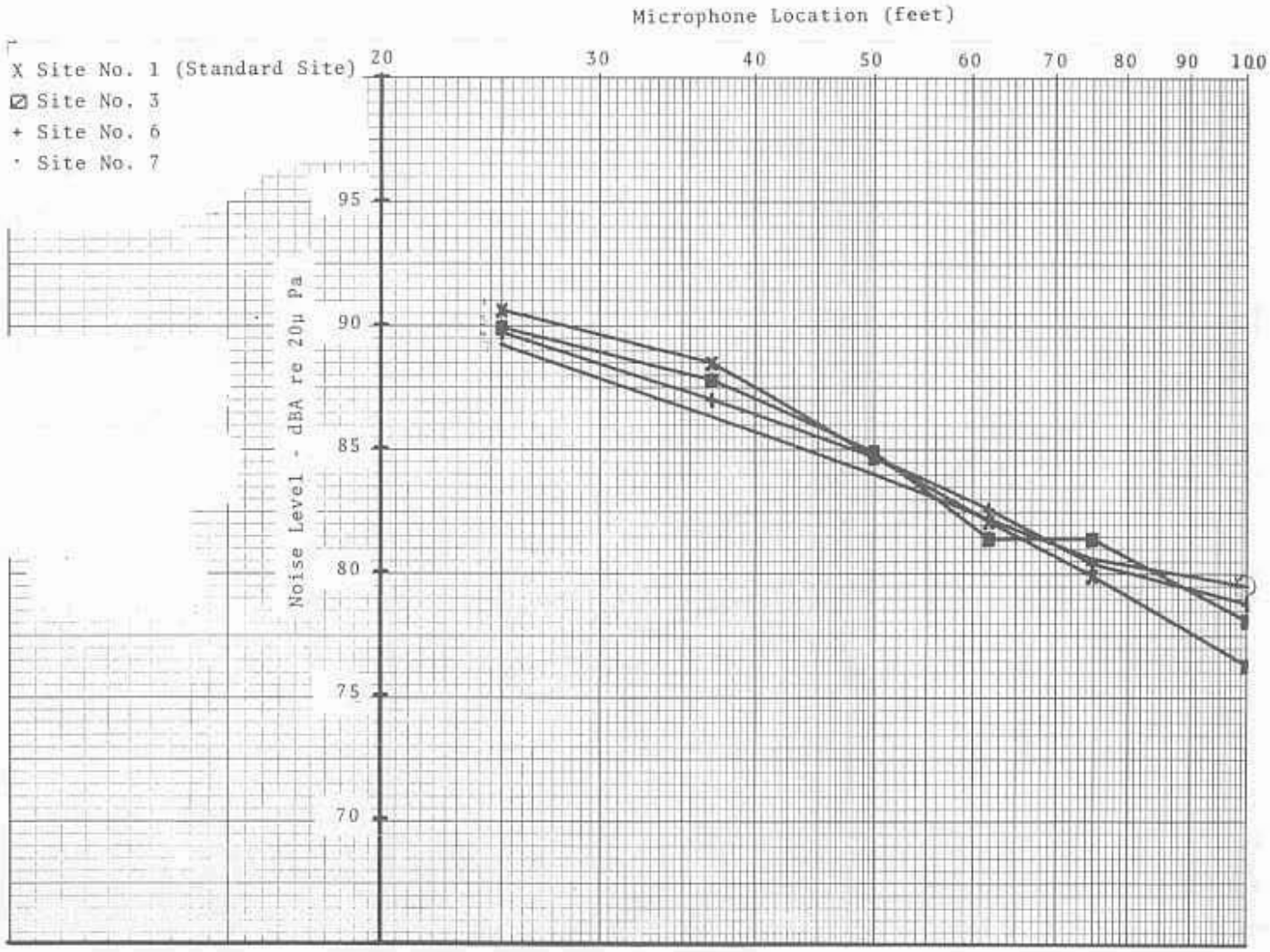


Figure G-30. IH-866 Test Vehicle — SAE-J366b Test — Hard Site Vs. Standard Site

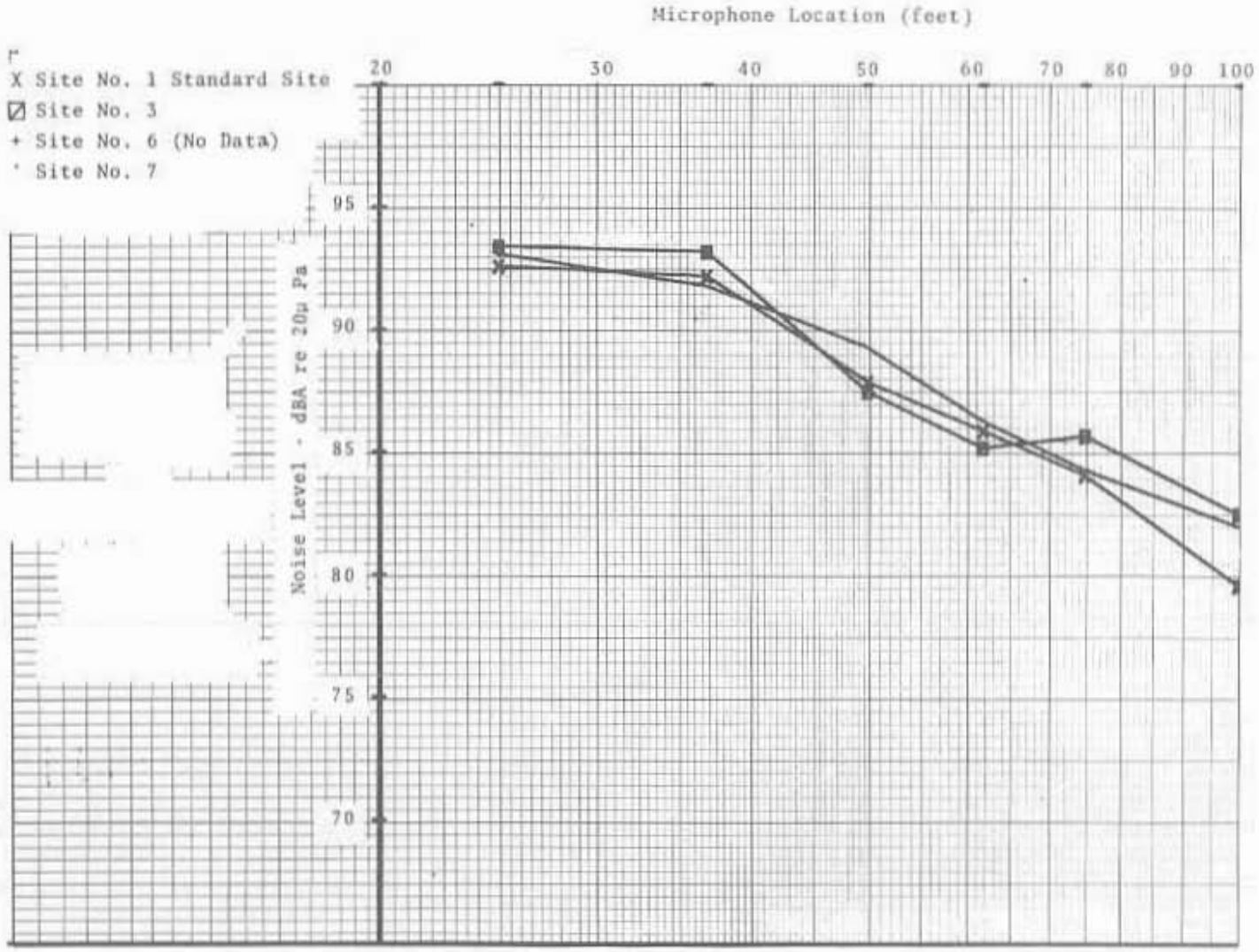


Figure G-33. IH-394 Test Vehicle – SAE-J366b Test – Hard Site Vs. Standard Site

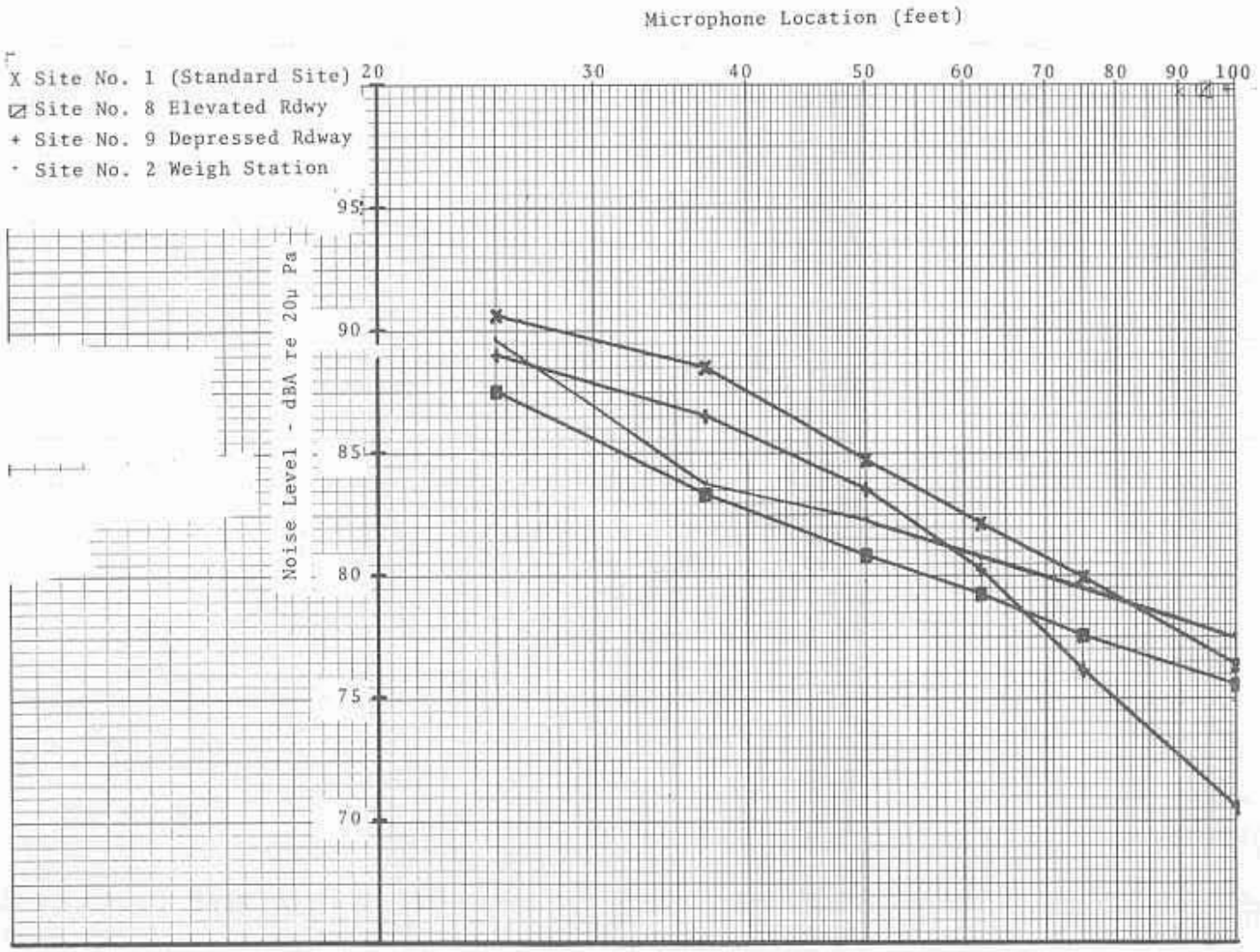


Figure G-32. IH-866 Test Vehicle — SAE-J366b Test

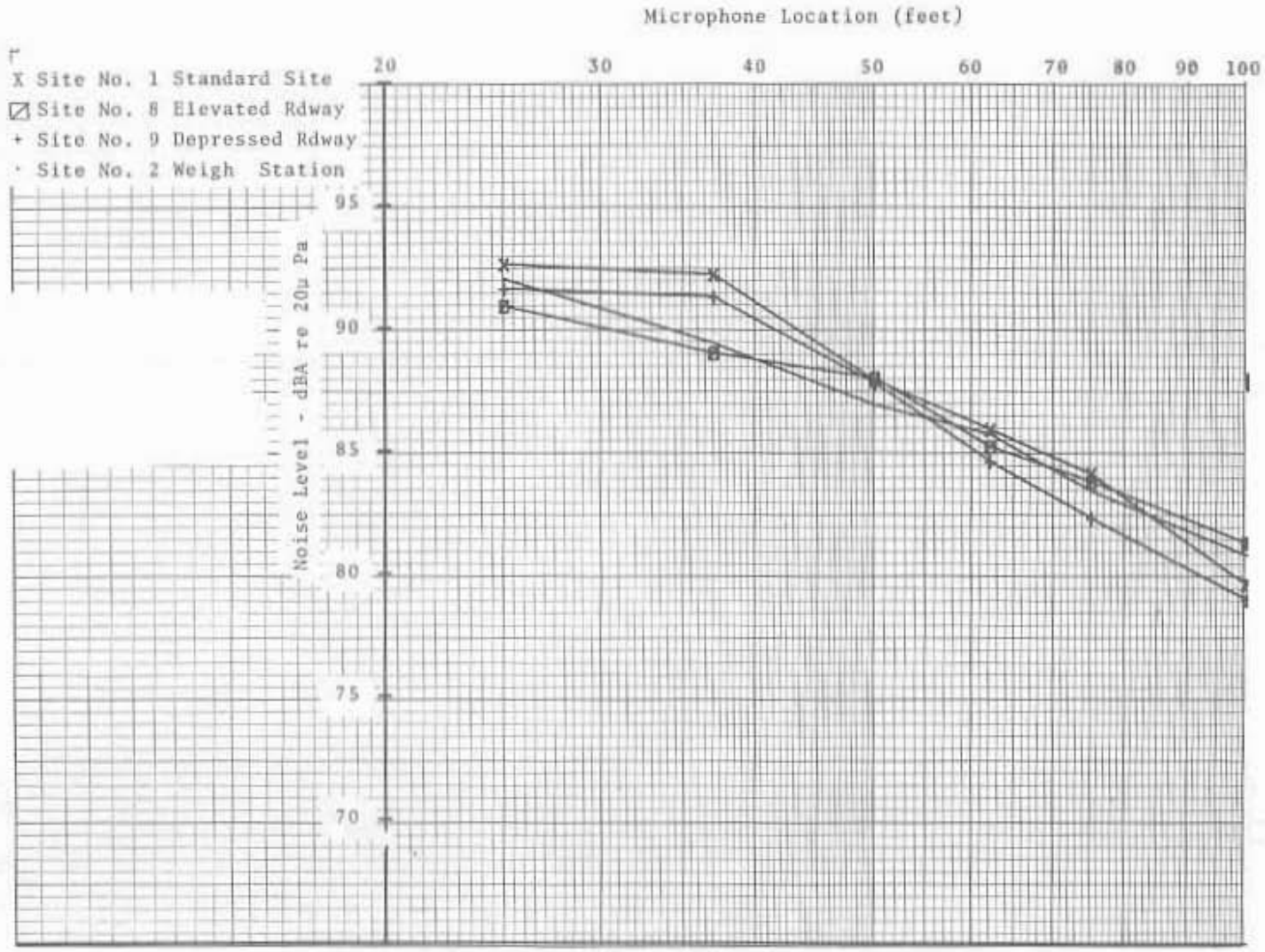


Figure G-35. IH-394 Test Vehicle — SAE-J366b Test

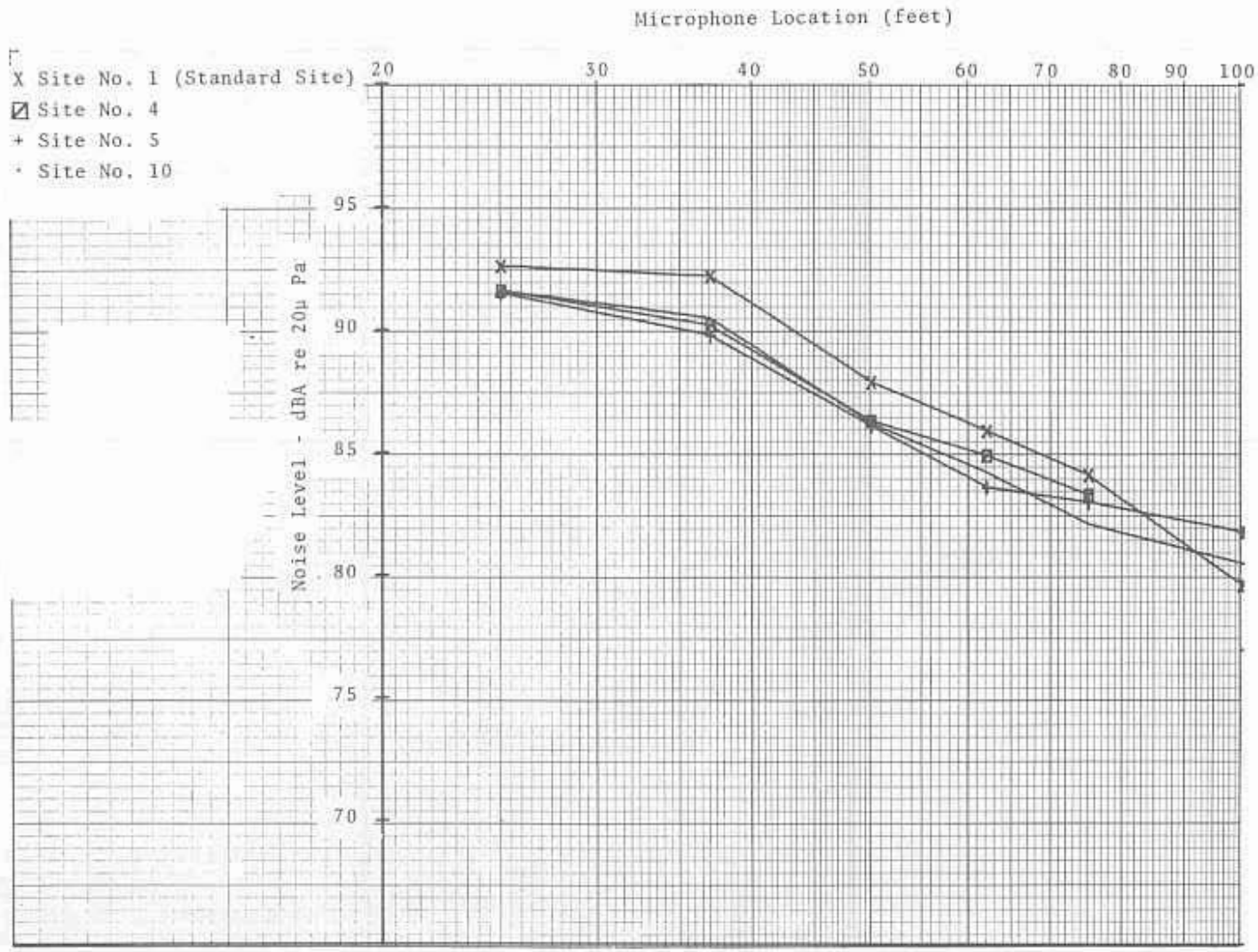


Figure G-34. IH-394 Test Vehicle — SAE-J366b Test — Soft Site Vs. Standard Site

APPENDIX H - DATA ACQUISITION AND REDUCTION SYSTEMS

H.1 DATA ACQUISITION

Figure H-1 depicts the noise data gathering system used at all 10 test sites in Fort Wayne, Indiana.

Analog data were recorded on three multichannel instrumentation tape recorders. The measurement and recording systems were essentially flat from 30 Hz to 16 KHz with a dynamic range of 55 dB. The tape recorders were synchronized to one another through a time code signal recorded on one channel of each recorder.

At the beginning of each recording a short verbal annotation was recorded on each recorder giving date, location, tape number, tape recorder channels used, position of microphones, and gain setting for each channel.

Calibration signals of 1000 Hz at a level of 114 dB re 20 micro-Pascal were recorded on tape at hourly intervals to provide a reference level for the data reduction instrumentation and to detect any system instability. The calibrator was placed on the microphone and the resultant signal at the specified sound pressure level was fed through the system and recorded on tape. In addition, at the beginning and end of the measurement day, a passive microphone simulator was substituted for the microphone to determine the minimum discernable sound pressure level (noise floor) for each system. These signals were also preserved on tape.

The measuring and analysis systems conform to the recommendations made in the International Electrotechnical Commission (IEC) Publication No. 179, "Precision Sound Level Meters" and IEC No. 225, "Octave, Half-Octave and Third Octave Band Filters for Analysis of Sounds and Vibrations."

Real time grapic level histories were produced from the data measured at 25, 50, and 75 feet. Using these graphic histories, a determination was made by on-site inspection of whether the events were truly free of extraneous sound sources.

The graphic level recorders and the tape recorders were all tied to the same remote start/stop switch; thus the on line history charts could be used to locate and identify the recorded events.

A portable Doppler radar system was used to measure vehicle speed through the measurement area.

To supplement the manual recording of vehicle configurations and speed information, an automatic camera system was deployed. The camera, once triggered, was set to take eight consecutive photographs (one every one-half second) of the measuring site. The camera was triggered manually when the front bumper of the the vehicle to be measured was lined up with predetermined "acceleration point" of the measuring site. The trigger signal was preserved on tape by interrupting the recorded time code signal for a period of 1 second. (See sequential photographs, Figure H-2, of test vehicle IH-394 during a power-by test at site 3.) Note that position, speed, vehicle configuration, and position of extraneous noise sources could be extracted from the series. The clock insert was also synchronized to the recorded time code signal.

H.2 DATA REDUCTION

The configuration of the noise data reduction system is shown in Figure H-3. The noise data plus the calibration signal, recorded on magnetic tape at the measuring sites, were reproduced and fed to a General Radio (GR) 1921 Real Time Analysis System made up of a GR 1925 Multifilter and a GR 1926 Multichannel RMS Detector. The necessary gain adjustments were made in the multifilter and graphic level recorder with the calibration signals.

The GR 1925 multifilter contains a set of 30 parallel 1/3 octave filter channels ranging from 25 Hz to 20 KHz, plus additional channels with a standard "A," weighting network, and an unfiltered channel with a flat frequency response "F." The output of the "A" weighted channel was selected and fed to the GR 1523 graphic level recorder to produce a chart of noise level versus time (time history) of all the recorded data. The peak RMS levels tabulated were obtained from these charts.

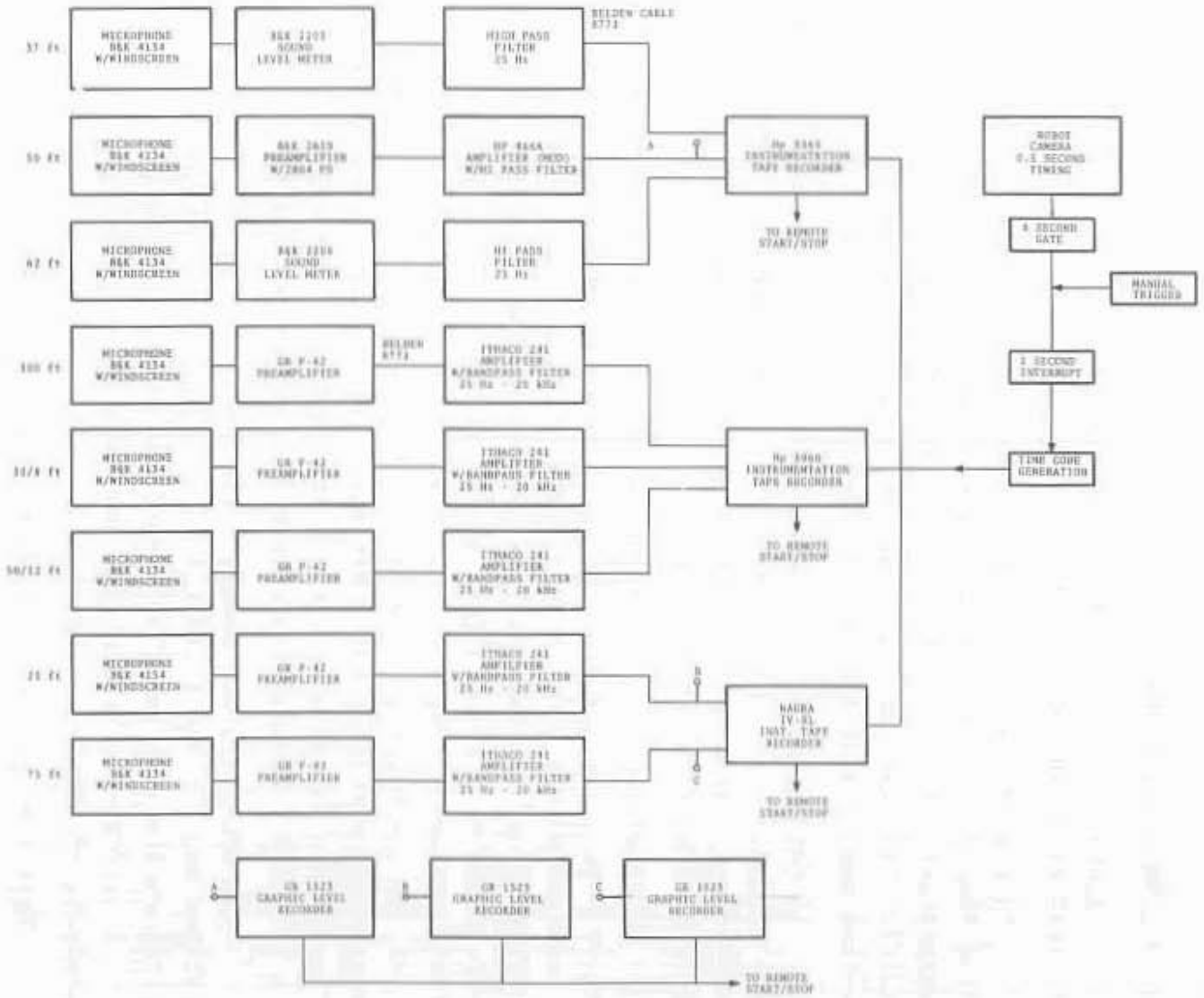


Figure H-1. Noise Data Measuring System

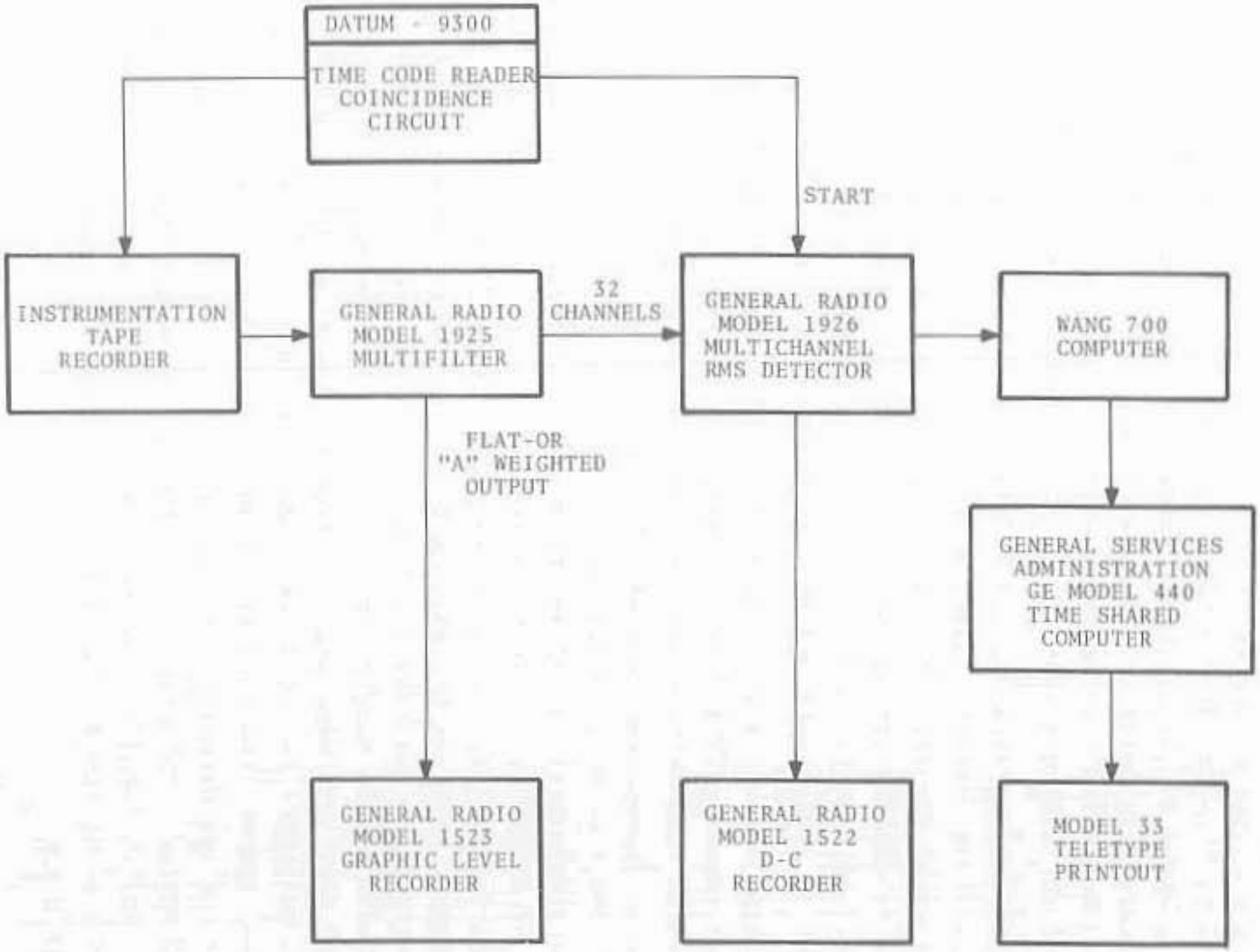


Figure H-3. Noise Data Reduction System

The graphic level recorder writing speed was adjusted using a precision sound level meter as a standard. The type 1 sound level meter chosen had an overshoot of 0.5 dB on the "fast" meter response. Using data recorded during the acceleration tests at 50 feet, the writing speed of the graphic recorder was adjusted to produce statisitically equivalent readings as obtained directly from the sound level meter. The writing speed selected was 25 dB per second or a 0.2 seconds time constant on the 1523 graphic level recorder.

All outputs from the multifilter are fed into the multichannel detector. The detector samples and computes the RMS level in dB for each channel for the selected measurement period and converts these levels to digital outputs which are fed to the Wang 700 computer for storage, processing, and printout on the teletypewriter. Single integration or measurement periods are adjustable form 1/8 to 32 seconds.

Selected events were analyzed for their 1/3 octave frequency spectra versus offset distance using data measured at 50 feet as a reference. The multichannel detector was set to integrate for a 1/2-second measurement period. The coincidence circuit of the Datum 9300 Time Code Reader, using the recorded time code signal, was set to initiate a 1/2-second measurement period around the peak level of the noise envelope measured at 50 feet. The start of the time period has been noted on the graphic time history for the 50-foot data (Figures D-1 through D-7). The digitized output of 29 channels of the detector (31.5 Hz to 12.5 kHz plus Flat and "A") was stored in the Wang Computer. Noise data measured at 37, 62, and 100 feet were also analyzed over the identical 1/2-second period using the recorded time code signal and the same coincident time as used for the analysis of the 50 foot data. The digital outputs of the detector for each of these were also stored in the Wang Computer. The computer was then programmed to calculate and print out, in tabular form, the change in spectrum versus offset distance using the 50 foot data as a reference. (See Figures D-1 through D-7.)

APPENDIX I – METEOROLOGICAL DATA

SITE NO.	DATE	TEMP. °F	RELATIVE HUMIDITY %	BAROMETRIC PRESSURE mm Hg	WIND VELOCITY & DIRECTION	SKY
1	7-10-74	71-76	66-72	729	3-8 NW	Sunny Scattered Clouds
2	7-11-74	75-80	38-59	732	5-12 SE	Sunny Scattered Clouds
3	7-12-74	69-86	22-58	741	0-2 SW	Sunny Clear
4	7-13-74	77-84	43-50	739	0-2 S	Sunny
5	7-20-74	63-79	63-79	745	0-2 N	Sunny
6	7-17-74	65-80	38-61	745.5	0-2 SW	Sunny
7	7-18-74	76-84	47-50	735	0-5 SW	Hazy
8	7-19-74	76-82	42-72	742	0	Sunny
9	7-15-74	75-80	32-48	738	0-2 N	Sunny
10	7-16-74	70-78	42-66	742	0	Sunny Scattered Clouds

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