Exhibit B

April 11, 1987

TO: Members of the Dunes City Planning Commission

FROM: Russ Heggen

SUBJECT: Special-use permit for RV/dune buggy park
(Buckwald/Hague application)

Enclosed is the material presented to Land-Use Hearings Officer Gary Darnielle on April 8, 1987. Should you wish copies of other materials previously submitted, please contact me (telephone 997-7522 or 997-8401).

letters TO THE EDITOR

Continued from page 4-A

Rebuts park promoter

To the Editor:

I was very surprised at the tone of the letter from Larry Hague that appeared in last week's paper. I thought it quite inappropriate for a man in Mr. Hague's position.

His comment that "Mr. (John) Carlson and Mrs. (Marilyn) Miller would be at home in a covered wagon" was totally uncalled for, and in very poor taste. Mr. Hague may be unaware that a number of homes in Dunes City and Westlake probably are covered wagons by his standards.

Janet Crandall and Chick Taylor, his neighbors to the immediate north and south, live in quite modest homes, as do the many who live in the Lakeside Trailer Park and the Woahink Mobile Home Park, located to the east and the south of his property. Does Mr. Hague consider all of these people to be "covered wagoneers?" Those who live on the west side of Lake Woahink, near Mr. Hague's proposed dune buggy park, are not all retired rich loggers. Most are hard-working, or retired, ordinary people, who rather like their "covered wagons."

Mr. Hague made some sarcastic comments about my magazine and ATVs. I have published a number of articles about the Dunes NRA and related activities. I, myself, owned a Corvair-powered rail job until a few years ago. Buggies are great fun—in the right place! My magazine supports all popular sports and activities on the Oregon coast.

In the past five years, I have invested several hundred thousand dollars in Oregon Coast Magazine, building it into the second largest magazine in the state. I have published almost 1 million copies of OCM, which is read in all 50 states and 37 foreign countries. I believe I have done as much as any—and more than most—in this entire state to promote the Oregon Coast.

However, because I promote the coast and the dunes and ATVs in my magazine, does not mean I give up the prerogative to stand up for my personal rights. Hague and Buckwald want to impose their personal desires, for their business venture, on me and my neighbors. And then he objects when we oppose him.

Mr. Hague says, "The property he (Heggen) is screaming about is adjacent to the sand dunes..." If that were the truth, then why does Hague need a Forest Service permit to cut a dunes access road through 1,500 feet of NRA property? In reality, the Hague/Buckwald dune buggy park would bring those buggies about 2,000 feet closer to all of us who live in the area, right to the edge of Highway 101, and directly across the highway from my front driveway. I am convinced that I and my neighbors have a right to object to that.

Mr. Hague, further states, "If Mr. Heggen wanted his own private brush pile, he had ample time to purchase it." I do not believe any homeowner should be forced to "buy up" all the vacant property adjacent to his home, just to ensure its not being used for commercial purposes. That is why we have zoning laws. Sure, developers like Hague and Buckwald can apply for spot zoning or special-use permits, but any such special uses must be compatible with existing uses. That is the law.

At the public hearing last Wednesday evening, one of Mr. Hague's supporters accused me of "selfishness." Have you ever noticed that when someone wants something you have and you won't give it to him, you are the selfish one? Hague and Buckwald want to take low-cost F-2 and RR-5 land, and convert it to a commercial use, and—when residents nearby object—we are being selfish, Strange logic.

Two of the Hague/Buckwald supporters used the analogy of people buying homes next to an airport and then complaining about the noise. In my case, the present "airport" noise is not too objectionable (although it is to many others); it is the future "airport" noise that concerns me, and I want to stop it before the "airport" expands. The "airport" was almost non-existent a few years ago, but it has grown each year. In 1977, when the Dunes NRA Management Plan was completed, dune buggies, three-wheelers, noise pollution, vandalism, and many other items were not problems—but they are now. The ultimate solution is a major revision to the ODNRA Management Plan, but that can take years.

Mr. Hague's final sentence is almost ludicrous. He says that "We won't be intimidated, and we won't quit." Come on now. Who is intimidating who? The area homeowners enjoyed this area long before he and Buckwald decided to try to build a commercial dune buggy park here. We all like it the way it is; he wants to change it. He wants to override the desires of 240 local residents who signed petitions against his project. He is forcing local homeowners to spend thousands of dollars on legal fees, and many hundreds of man-hours of work, to prevent him and Buckwald from destroying the very things that we all love in this area. And he says that we are intimidating him!

Mr. Hague, you will never get your project approved and built. There are too many potential obstacles. But it can drag on for many years and cost everyone lots of time, energy and money. Why don't you and Buckwald just drop the RV park idea, apply for RR-2 re-zoning (we'll even support you), and develop the property into 13 nice two-acre homesites. You can sell them for about $20,000 each, and you and your partners can make a nice profit and help the entire area. Doesn't that make a lot more sense?

Russ Heggen
Florence

SECTION 6 AND 7 - ANALYSIS OF RV PARK STAFF REPORT FOR SPECIAL-USE PERMIT

by Russ Heggen

This report is being submitted as supplemental data to the main report that was submitted to County Staff on March 27 and 30, 1987. It is being submitted to County Staff and to the Applicants on April 8, 1987, in accordance with the guidelines given by the Hearings Officer at the April 1, 1987 Public Hearing in Florence.

This report will combine the missing sections of the main report, Sections 6 and 7, into a single report. It should be inserted into the previously provided binder as the lead portion of Section 6, and Section 7 will remain blank. This report will first review the Staff Report, and, then, if time permits, will go into the Applicant's Special-Use Permit Application and associated exhibits. Certain sections of this report will merely touch on some areas of concern, inasmuch as the applicant is doing a major rework of the application, in response to our earlier submitted data. There is no point in detailed analysis of some of these points, since there will likely be major changes in the applicant's new submission, scheduled for April 22, 1987. Those items not covered in detail in this report will be included in our response to the applicant's new submissions. That response is scheduled to be made available to the applicant and to County Staff on May 13, 1987.

COMMENTS ON LANE COUNTY HEARINGS OFFICIAL STAFF REPORT
SPECIAL-USE PERMIT FOR RECREATIONAL VEHICLE CAMPGROUND
FILE NO. PA 0561-87 - DATED MARCH 20, 1987

Section I. PROPOSAL DESCRIPTION
No comments required

Section II. RECOMMENDATIONS
This section will be discussed after a review of the remainder of the Staff Report.

Section III. SITE AND PLANNING PROFILE

A. LOCATION - No comments required.

B. ZONING - No comments required.

C. SITE CHARACTERISTICS - It should be noted here that no topographic data regarding this site has been submitted by the applicant. This will be discussed in a later section. The entire site is very rough ground, with a major portion of the land steep and sloping, with grades varying from 30% to 70% over much of the area. It is almost entirely forest covered. (See enclosed aerial photograph 3-C-1.)

D. SURROUNDING AREA - It should be noted that the F-2 land to the south is also developed as a residence and is occupied by the owner. Also, the land to the east, within Dunes City, is ALL RR-1 residential, and is occupied, except for ONE commercial parcel, the site of the Lakeshore Trailer Court. This site has been used for commercial purposes since the early 1930s, more than 50 years. There is no other adjoining or facing commercial property.

E. SERVICES - No comments required.

F. REFERRAL COMMENTS RECEIVED:

1. Boundary Commission - It is not known at this time (by this writer) exactly what information is required by the Boundary Commission, and when that commission enters into the review cycle. This will be discussed, if appropriate, in our final report.

2. State Highways - We believe that the State Highway Department has not been given adequate site data to properly evaluate the access needs of the proposed project. We have discussed this matter with Larry Asbury of the Eugene office of the the Highway Department, as well as with Jim Gix, Region Engineer for Region III (the six southwest counties). Additional information on this subject is provided later in this report. We have also hired a traffic engineering consultant to provide additional expertise in this area.

3. Water Quality/Quantity - The quantity requirements for on-site water supply have not been defined by the applicant. We estimate the need to be 20,000 gallons per day, based on the estimated occupancy load, but it could be higher. This is discussed in greater detail later in this report. The value of 20 gallons per minute for 50 minutes is listed in Lane Code as the minimum required for fire suppression, but it is thought that this value should be much higher for a development of this size and with the potential fire hazards that this particular development will generate. This matter is discussed later in this paper and will be further addressed in our final report, based on the applicant's revised plans.

4. Rural Addressing - No comment required.

Photo 6-1 (3-C-1)

This is an aerial view of the property immediately north of the proposed project. The white line at the bottom of the picture is the approximate north property line of the Buckwald property, and the south property line of the Crandall property. To the north is Sand Dunes Frontier. Highway 101 is shown on the right-hand side of the photo. the "racetrack" where Buckwald runs the small rental buggies is shown near the top center of the photo.

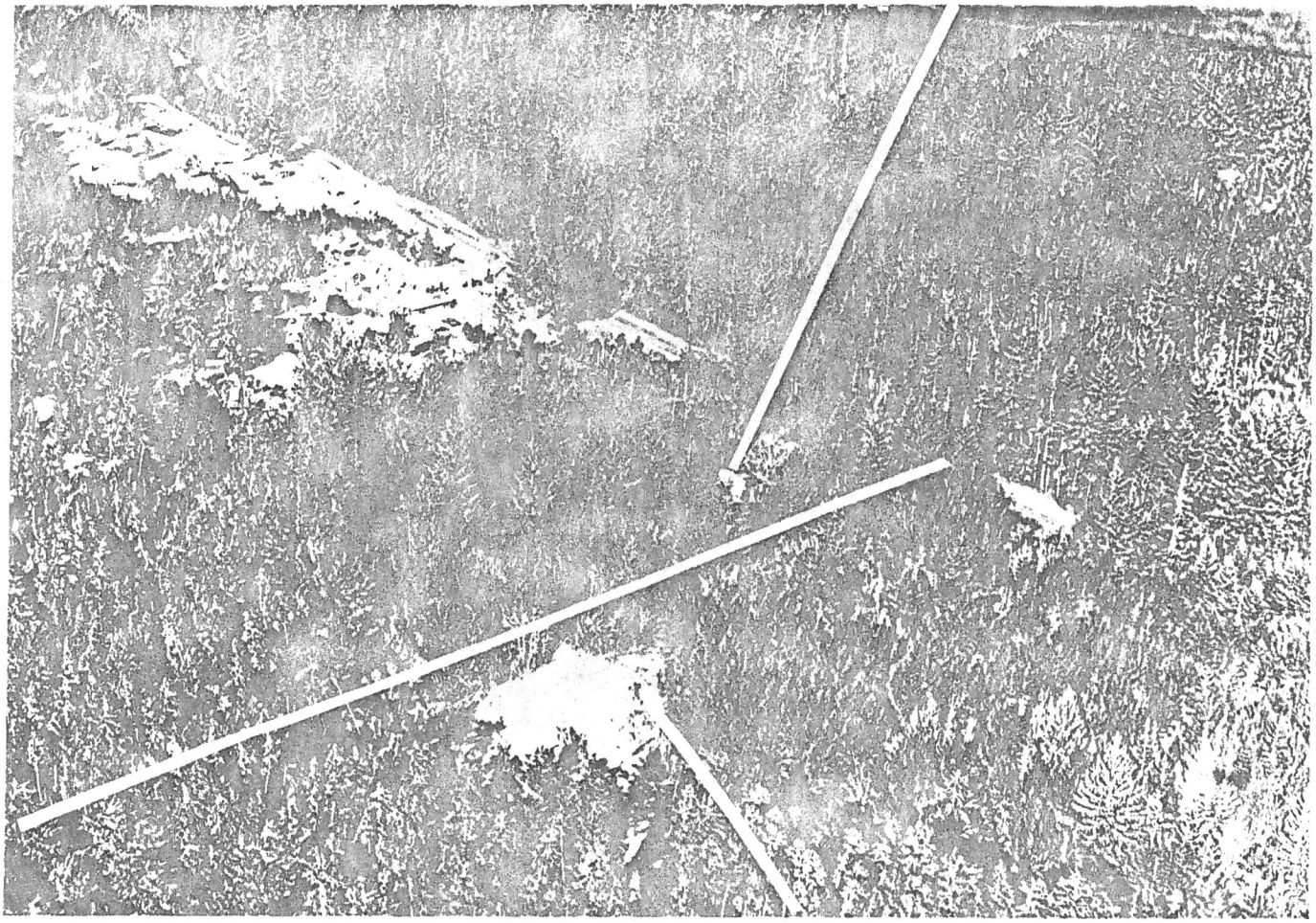


Photo 6-5

This photo shows a major portion of the Buckwald property, and all of the Crandall property. The diagonal line starting at the lower left corner represents the approximate property line between the two properties. Hague's bulldozer is shown by the lower arrow, and the upper arrow shows Mrs. Crandall's home.

5. Building Official - No mention is made of the need for building permits for the Caretaker House, the Clubhouse, or the Restroom Building, the only structures in the plan. It is our understanding that these structures, as well as the rest of the site, will be the responsibility of the STATE building department, NOT Lane County, unless specified otherwise in the special-use permit, if such a permit is ever issued. All permits, approvals and inspections will be done by the State. (Reference discussions with Emile Mortier, Engineering Consultant.)

6. Flood Management - This site is not in a flood hazard area, as is stated, but there are severe potential problems with storm water drainage, and there are no requirements for any type storm drainage plan in the State Code for RV parks. This matter is discussed in greater detail later in this report.

7. Environmental Health - The figure of 8,700 gallons per day of sewage flow is correct, FOR THE 135 RV SITES, but it does not include any capacity for additional persons using the parking lot facilities, the caretaker's house, or the clubhouse. The four-acre parking lot is capable of holding 440 to 500 standard size cars (ref. Mortier report), or the potential for an ADDITIONAL 1,000 people (based on two persons per car). This subject is discussed in greater detail later in this report.

8. Transportation - Staff has noted a number of required corrections to the applicant's interior road plan. We would agree that these are the minimum changes required, based on the data now available. However, a proper analysis of the interior road system, from a fire and emergency vehicle access and safety standpoint, cannot be determined without more adequate preliminary design data. The most important missing element is the lack of any topographic data. Without topo data, it is impossible to know the slopes of the roads, which is vital to any road design analysis. Our consulting traffic engineer will provide more data on this subject in the final report, based on the anticipated revised design.

9. Oregon Dunes NRA - See letter from ODNRA Area Ranger Conny Frisch, enclosed.

10. Siuslaw Rural Fire Protection District - This subject relates directly to Item 8 above. It is impossible to assess the problems that might occur with fire vehicles or other emergency vehicles, without knowing more about the interior road design and the grades of these roads.

United States Department of Agriculture
Forest Service
Siuslaw National Forest
Oregon Dunes National Recreation Area
855 Highway Av, Reedsport OR 97467
503/271-3611

Reply to: 2720

Date: March 23, 1987

MR. RUSS HAGGEN
PO BOX 1719
FLORENCE OR 97439

Dear Mr. Haggen:

This note is in response to your question regarding the draft categorical exclusion on the proposed Woahink dune access road.

Prior to issuing a special use permit, we would review and, if necessary, update our environmental analysis for the proposed access road. The analysis would most likely be documented in an environmental assessment and a decision documented in a Decision Notice, rather than a Categorical Exclusion.

If you have any additional questions, please call. I've enclosed a copy of the capital investments schedule for the next decade, taken from the Proposed Forest Plan.

Sincerely,

Conny J Frisch

CONNY J. FRISCH
Area Ranger

Enclosure

Section IV. APPROVAL CRITERIA AND ANALYSES

A. PLAN CONFORMITY:

This subject is covered in Mr. Spickerman's report in Section 2 of data previously submitted.

B. ZONING CONFORMITY:

1. F-2 Criteria:

Criterion (i) - Although "campgrounds" are listed as permitted uses, with a special-use permit, in F-2, RECREATIONAL VEHICLE PARKS are not. Mr. Spickerman addresses this subject in some detail. This particular F-2 land is NOT "generally unsuitable for forest uses." Note the aerial photographs of the site (enclosed), which were taken April 4, 1987. They clearly show that this land is a producing forest area. This land was logged about 30 years ago, in 1957, and is now in a normal growth pattern for non-reforested land.

Criterion (ii) - Staff states there will be impacts on adjoining properties involving FIRE, TRESPASS, NOISE and LIGHTING, and further states that "Project design and utilities will have to mitigate these potential problems." It is submitted that if mitigation of such important items are to be accomplished, they must be specified in detail prior to any possible approval. (See Mr. Spickerman's report for additional information on this Criterion.)

Criterion (iii), (IV), (V), and (VI) - These are all addressed by Mr. Spickerman in his report.

2. RR-5 Criteria:

Criterion (a) - WILL NOT SIGNIFICANTLY IMPACT EXISTING USES ON ADJACENT AND NEARBY LAND AND OTHER USES PERMITTED IN THE ZONE IN WHICH THE SUBJECT PROPERTY IS LOCATED.

Discussion: Staff states that determining whether or not the impacts on adjacent lands are "significant" is often subjective, which is true. However, it is submitted that 240 of the local residents who live in the immediate area of the proposed project DO think that the impacts would be significant--and have signed petitions objecting to the proposed project. (See sample petition enclosed at the back of this section.)

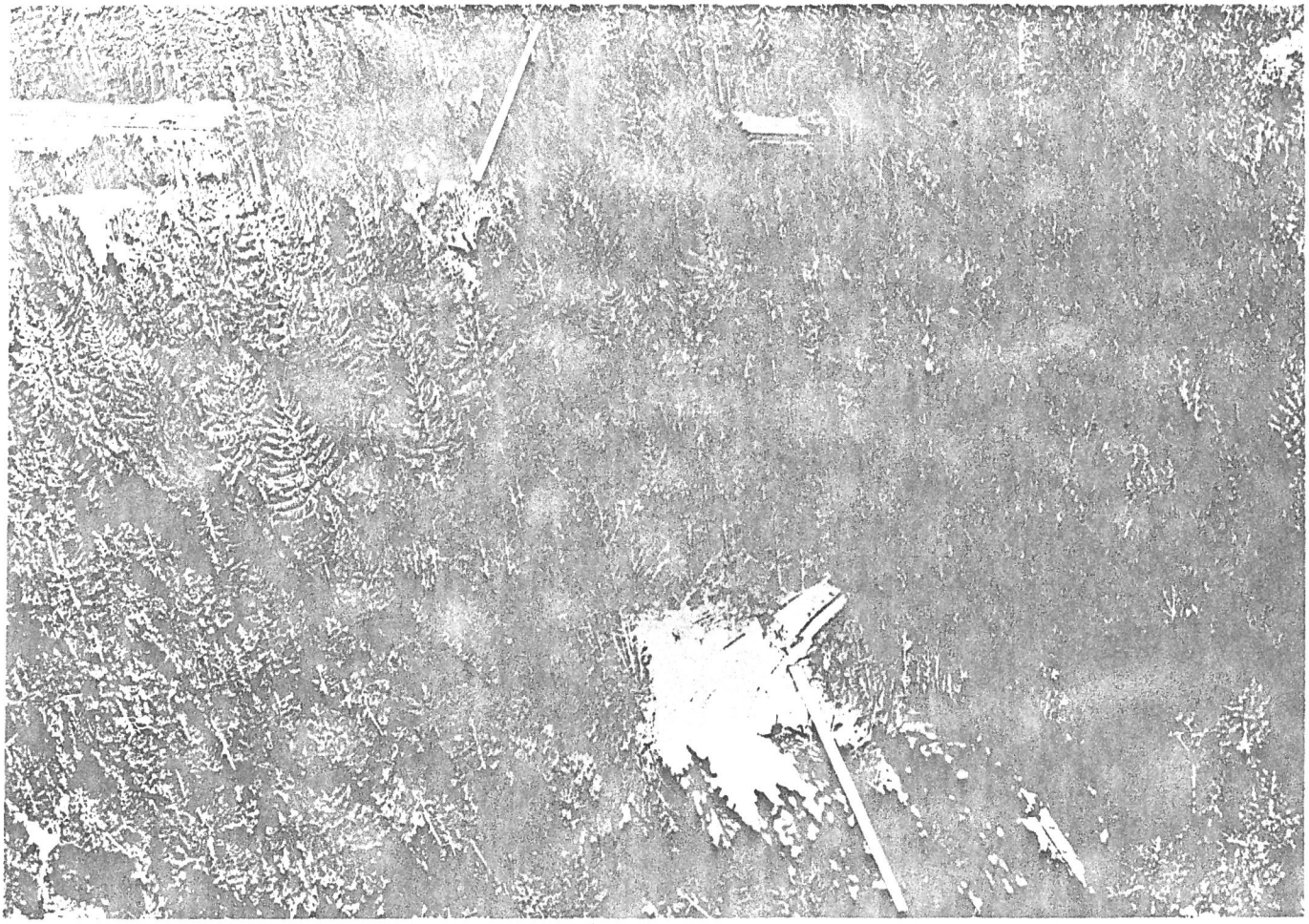


Photo 6-2

This photo shows a general view of the Buckwald property, in the area near the proposed parking lot and clubhouse. The arrow points to Hague's bulldozer, sitting in the approximate spot where the clubhouse is proposed. Note the size of the trees on this property. This IS truely F-2 forest land, and it is productive. The arrow at the top of the photo shows Mrs. Crandall's house, with Highway 101 in the background.

Staff listed six items as chief categories of impacts, as follows: TRAFFIC, NOISE, WATER, FIRE, LIGHTING, and TRESPASS. Each is discussed below.

a. TRAFFIC:

Although Staff states that the State Highway Division indicated no opposition to this development, it is submitted that there is insufficient data in the applicant's current application to allow either Staff or the State Highway Department to properly evaluate this matter. Among the information items that are missing are detailed topo maps of the area, information as to the anticipated use of the four-acre parking lot, maximum anticipated parking lot traffic, and similar items.

The matter of highway access and traffic safety was of great concern to the Lane County Commissioners last summer when they DENIED the applicant's request for re-zoning this same property from RR-5 to Rural Commercial (CR).

Among the reasons for such concern is the fact that the traffic load along this stretch of two-lane highway is more than 10,000 cars per day in the summertime. Although the area is marked as a 45 mile-per-hour zone, in reality, most traffic along this straight stretch of Highway 101 travels at 55 or 60 mph (see enclosed photo.) The Highway 101 entrance design shown on the applicant's site plan sketch indicates a right-angle entrance, directly into a 30- to 40-foot embankment. The road then cuts back about 45 degrees to the right, and proceeds about 400 feet up the hill to the central parking lot area. A typical vehicle using this entrance would be a camper-truck or motorhome, from 20 to 30 feet long, towing a dune-buggy trailer, adding another 20 or so feet, making a 40- to 50 foot-long vehicle. This type vehicle probably could not even make the turn off the highway into the proposed entrance, as it is presently "designed."

Staff estimates there would be 270 trips per day (based on two trips per site per day), making a total of 540 entries and exits per day, JUST FOR THE RV PARK! If another several hundred (or more) trips per day are added for the parking lot areas, the total number of entry/exits could be 1,000 or more per day. Even half of this traffic flow, considering the type vehicles involved, would make left- and right-turn refuge lanes on Highway 101 for this project absolutely essential. (Also see Mr. Mortier's report.)

An example of a recent similar highway access situation was referenced by Mr. Mortier in his report; it is the Oregon Dunes Overlook, located about seven miles south of this proposed project on Highway 101, in Douglas County. This project shows an

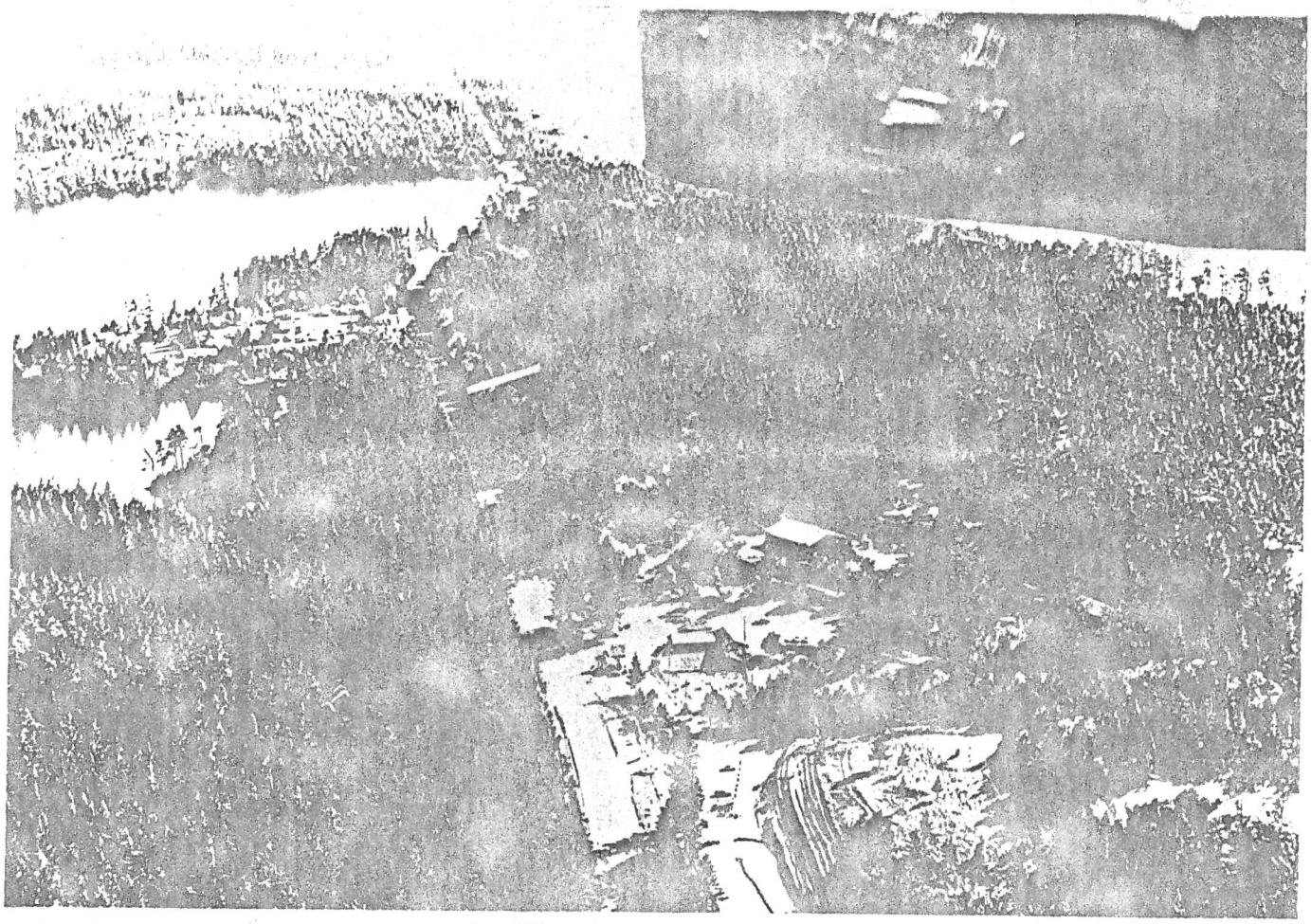


Photo 6-3

This photo shows the major portion of the proposed project property, located to the south of Sand Dunes Frontier. Lake Woahink is shown to the left of the highway. The approximate point where the proposed entrance to the park is shown by the white marker near the center of the photo. Note the long, straight stretch of highway when coming from the north.

excellent highway design, providing good ingress and egress, and good visibility in both directions. (See enclosed photographs.) The parking at the Dunes Overlook consists of 16 standard-sized one-car stalls, and five pull-through stalls for motorhomes or trailers. This parking load is equal to only 5% of the parking load at the proposed project (135 double spaces and 440 to 500 regular spaces). It is acknowledged that the TYPE of traffic is different in the two sites, but a brief examination of TOTAL DAILY traffic load shows that the two sites are very similar. Forest Service traffic records for the Dunes Overlook show the following traffic loads, based on actual one-way count of traffic crossing the electronic counter.

1985	-	95,581 cars
1986	-	99,816 cars
1987	-	16,101 cars (Oct. 1986 to Feb. 1987)

The above figures show an average summer traffic load of about 400 cars per day (entries only counted), or 12,000 per month--which is about the same, or possibly less, than the estimated average summer traffic load for the proposed project. It is submitted that the proposed project will require BOTH right- and left-turn refuge lanes, as well as considerable cut-back of the high banks to provide safe visibility for vehicles entering and leaving the site. This will be an expensive cost factor added to the developer's overall project costs, but it is essential for public safety.

We have retained Jim Hanks, of JRH Transportation Engineering, Eugene, as a consulting traffic engineer. Mr. Hanks has reviewed the above information, and concurs in the preliminary findings. He has stated, however, that without detailed topographic information, no real meaningful analysis of the site can be accomplished. When we receive the April 22nd revision of the design plan, it is anticipated that it will provide this topographic information. At that time, Mr. Hanks will make a full study of the entire highway traffic plan, including appropriate computer modelling. He will also provide an analysis of the interior road design, particularly from the standpoint of access for fire and emergency vehicles.

The applicant has provided several pages of documentation regarding highway safety and accident rates. However, the data has some inconsistencies. The Highway 101 accident rate is listed for a 4.97-mile stretch from Florence to Clear Lake Road, but the highway fatality information specifically lists only the area from mileposts 193.43 to 196.75, a distance of only 3.32 miles. Why the 1.65-mile difference? This may be inconsequential, or it may not be. We are checking with

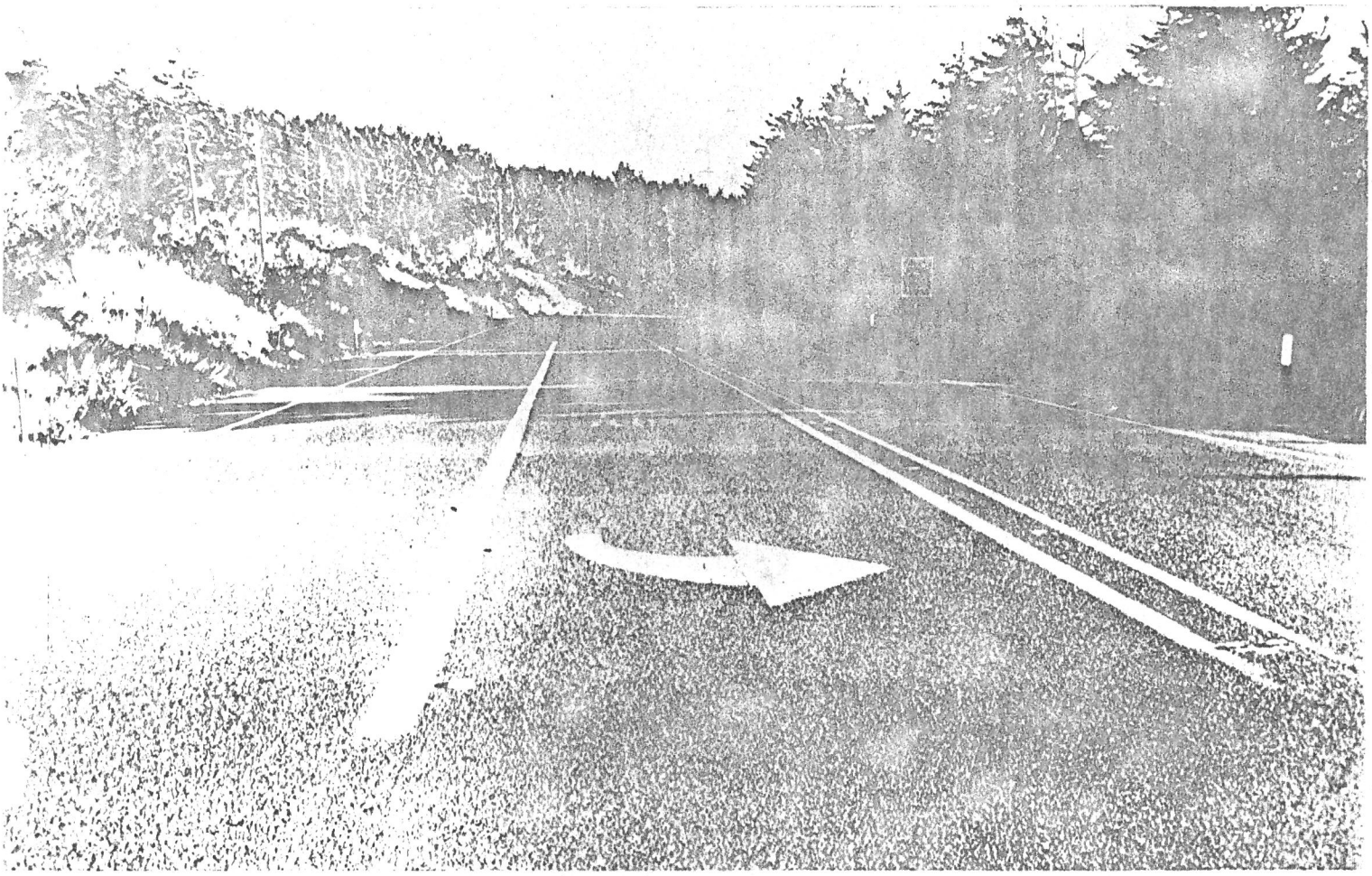


Photo 6-10

This is Highway 101, next to the Oregon Dunes Overlook. The view is looking south, and shows the left turn holding lane.

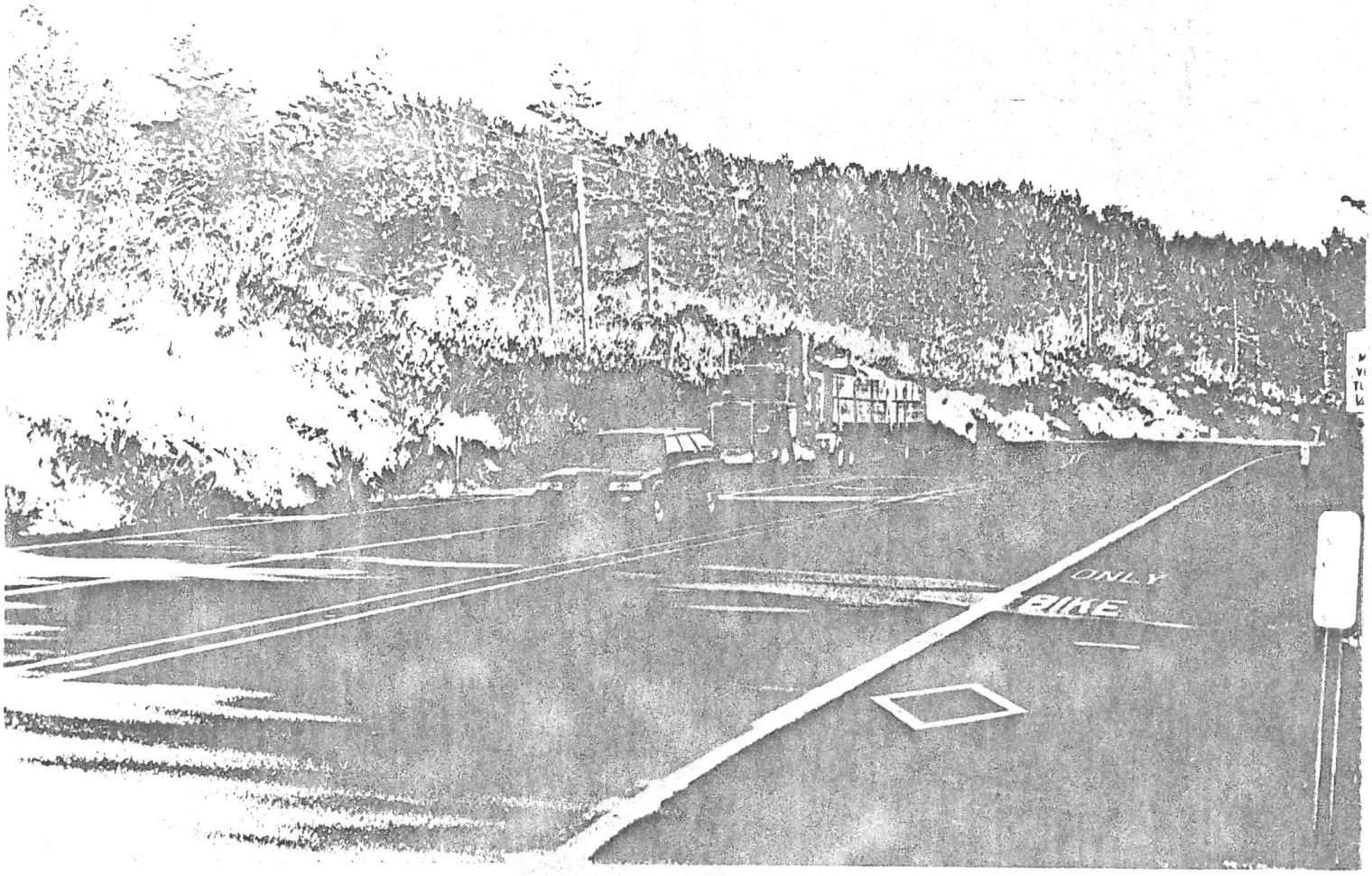


Photo 6-11

Another south-looking view of Highway 101. The left turn lane and the bike lane are shown.

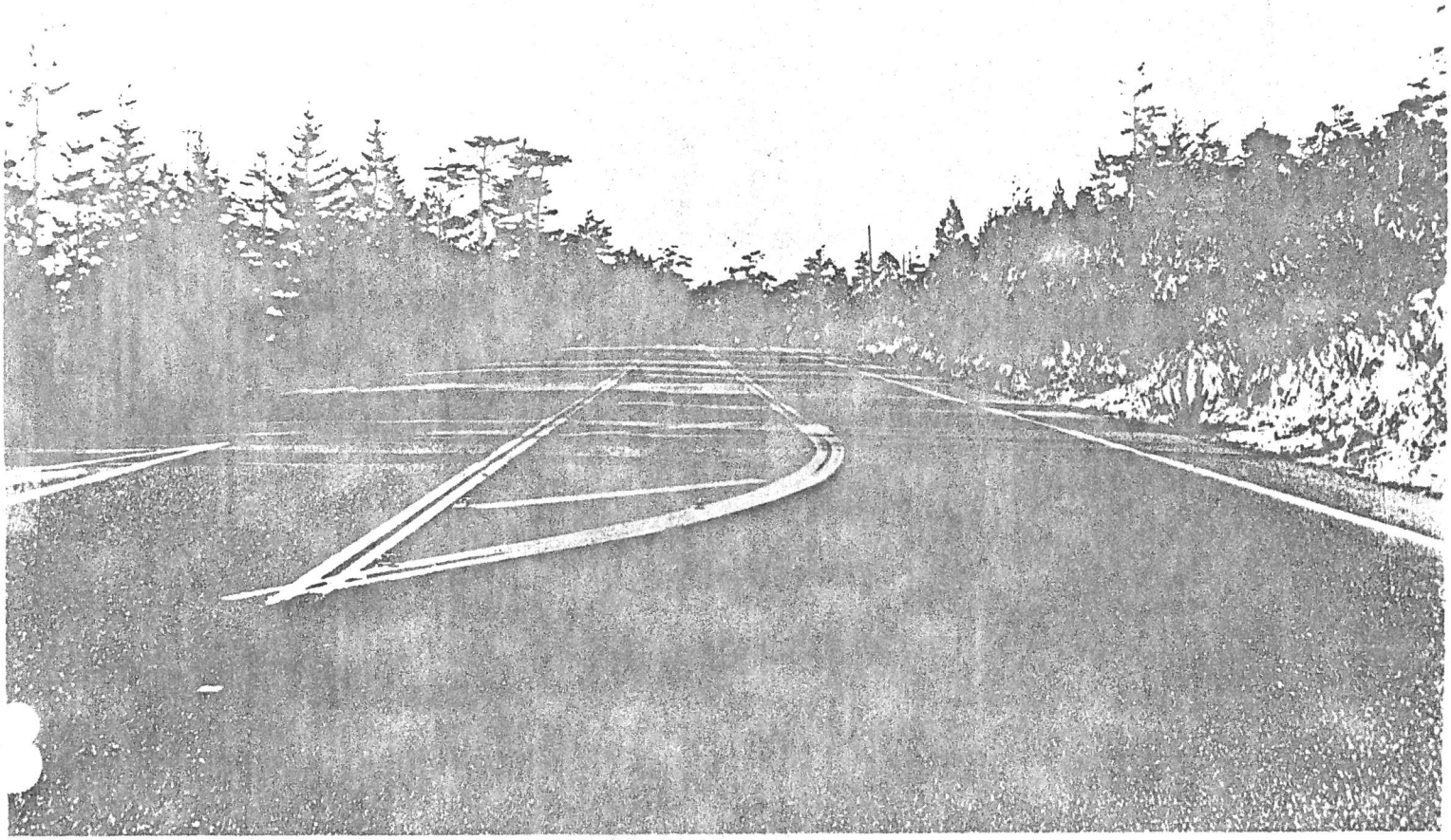


Photo 6-12

This view of the Oregon Dunes Overlook highway area shows the center divider area, and the southbound right-turn holding area. The view is looking north.

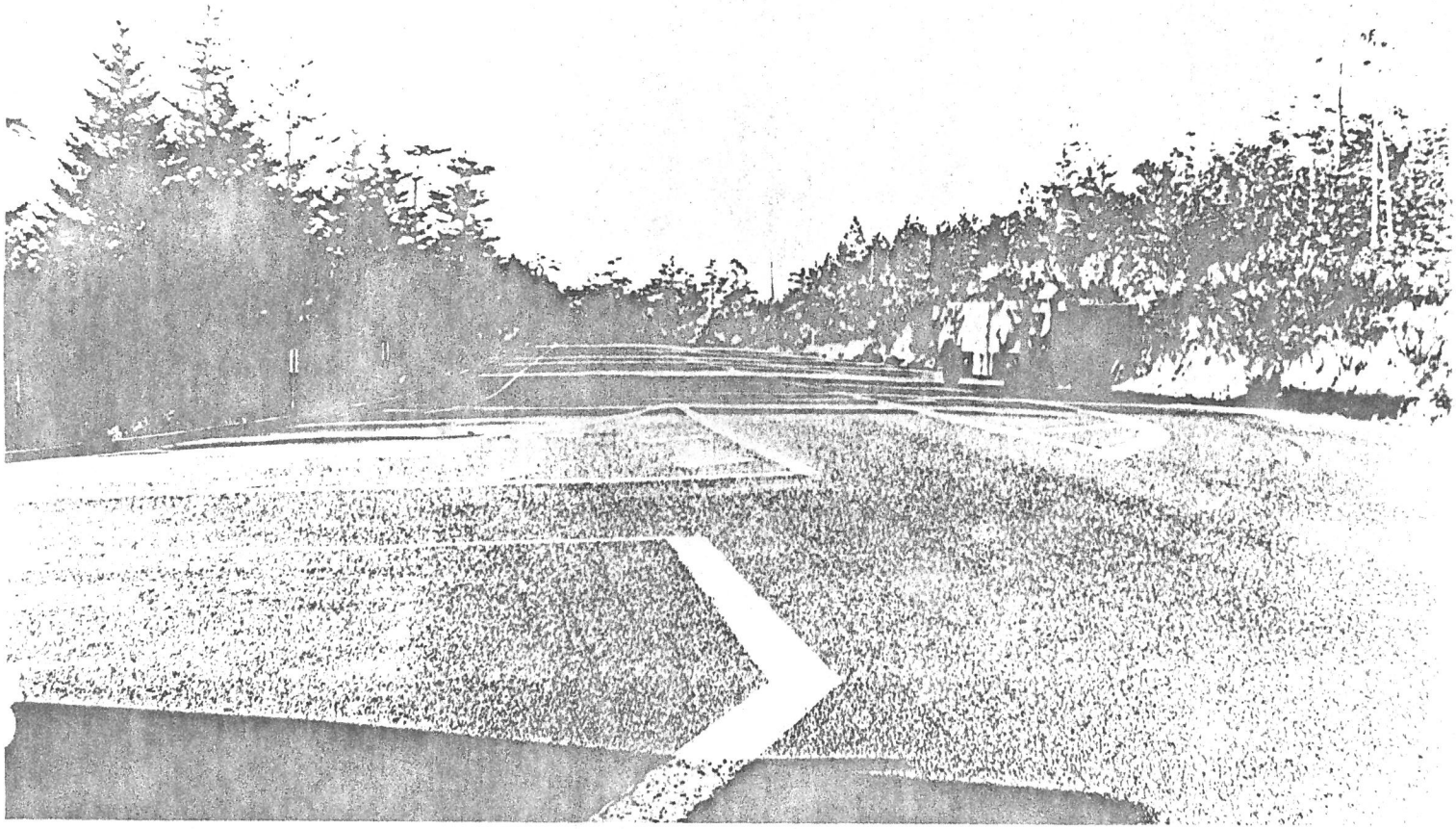


Photo 6-13

This north-looking view shows the southbound right-turn holding lane, and the center divider area.

local residents for information about traffic fatalities and other serious accidents in this general area. We shall provide additional data, if appropriate, in the final report.

Although not discussed by Staff, this seems to be an appropriate place to discuss the parking lot design on Lot 201. The applicant's site plan shows approximately four acres of land to be used for "accessory parking." However, nowhere is there any definition as to what this accessory parking is to be used for. It "could" be used for commercial day parking, for vehicles wanting access to the dunes--or for overflow overnight camping spaces on the "big three" weekends--or as a delivery point for rental dune buggies that are actually rented off-premises--or as parking area for large race meets or moto-cross events, such as the one that is being held Saturday, April 25, at Sand Dunes Frontier. Any, or all, of these "could" be potential uses of this parking area, and ALL would be unauthorized. It is submitted that the applicant should be required to specifically define the use of these parking areas, and ALL OTHER USES should be expressly forbidden.

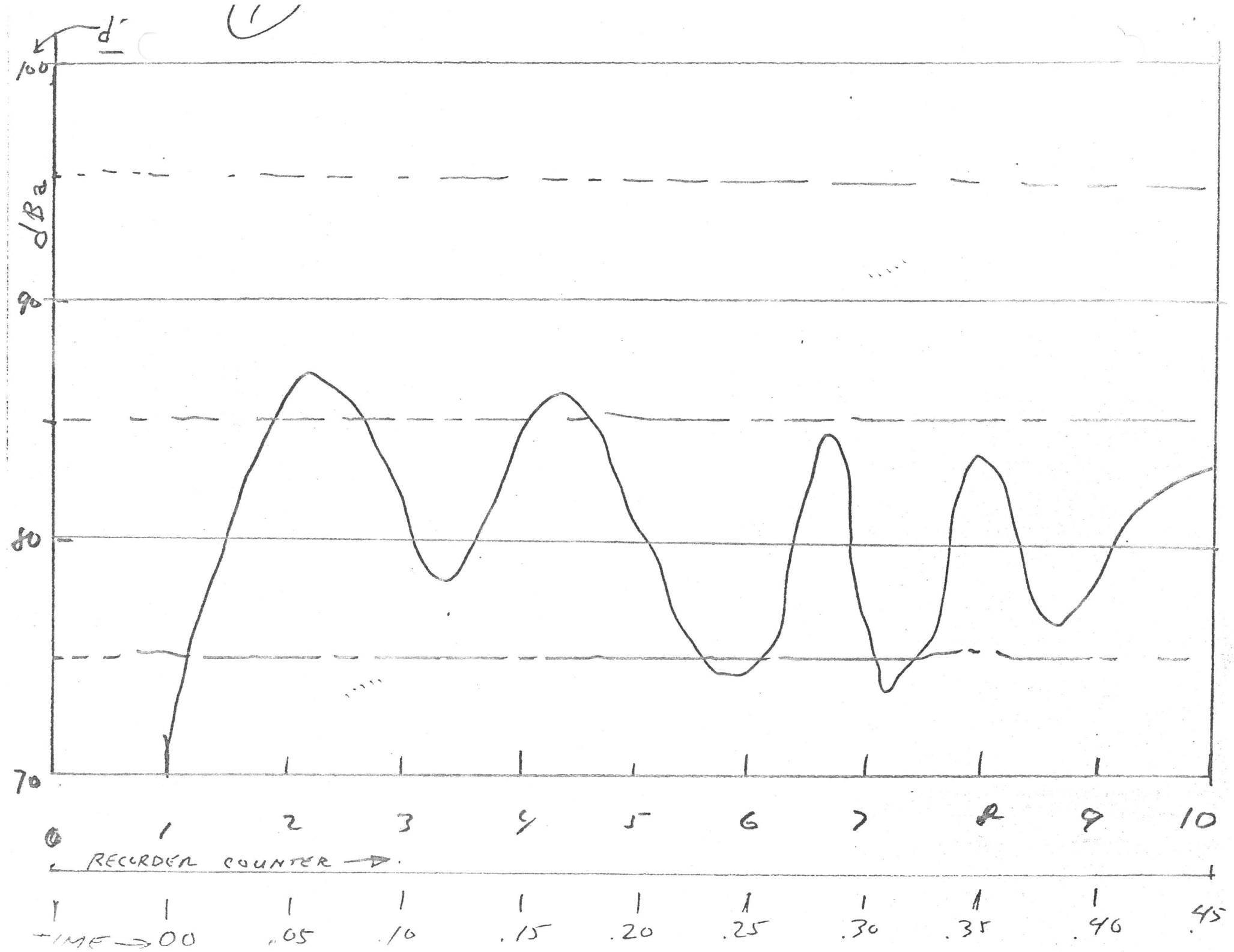
It should be pointed out here that the proposed parking area would be the largest vehicle parking facility in all of Western Lane County. The proposed "accessory" parking area is larger than the parking lots at ANY of the shopping centers in the Florence area; it is larger than the Safeway, Dunes Village, Cornet, or Emporium shopping center parking lots. It will have THREE TIMES the capacity of either the South Jetty Dune Buggy Parking Area, or the Goose Pasture Parking Area. (South Jetty has room for 41 doubles and 16 cars, while Goose Pasture has room for 44 doubles.) If you count BOTH the proposed parking areas AND the RV park section (135 doubles), this proposed project has SIX TIMES the capacity of either of the above listed dune buggy areas.

This maximum potential parking capacity MUST be considered when making any traffic analysis of the highway access problem. Neither South Jetty nor Goose Pasture is directly accessible from Highway 101; both are off a side road.

In addition to the above, the applicant has provided NO data regarding the parking areas design criteria for such items as the following:

- Lighting of parking and roadways
- Surface covering: paving, oil, gravel, or sand
- Storm drainage plans

(It should be noted here that the State Highway road access permit for the proposed project expires in June 1987. Road access permits are not renewable. Copies of this report, and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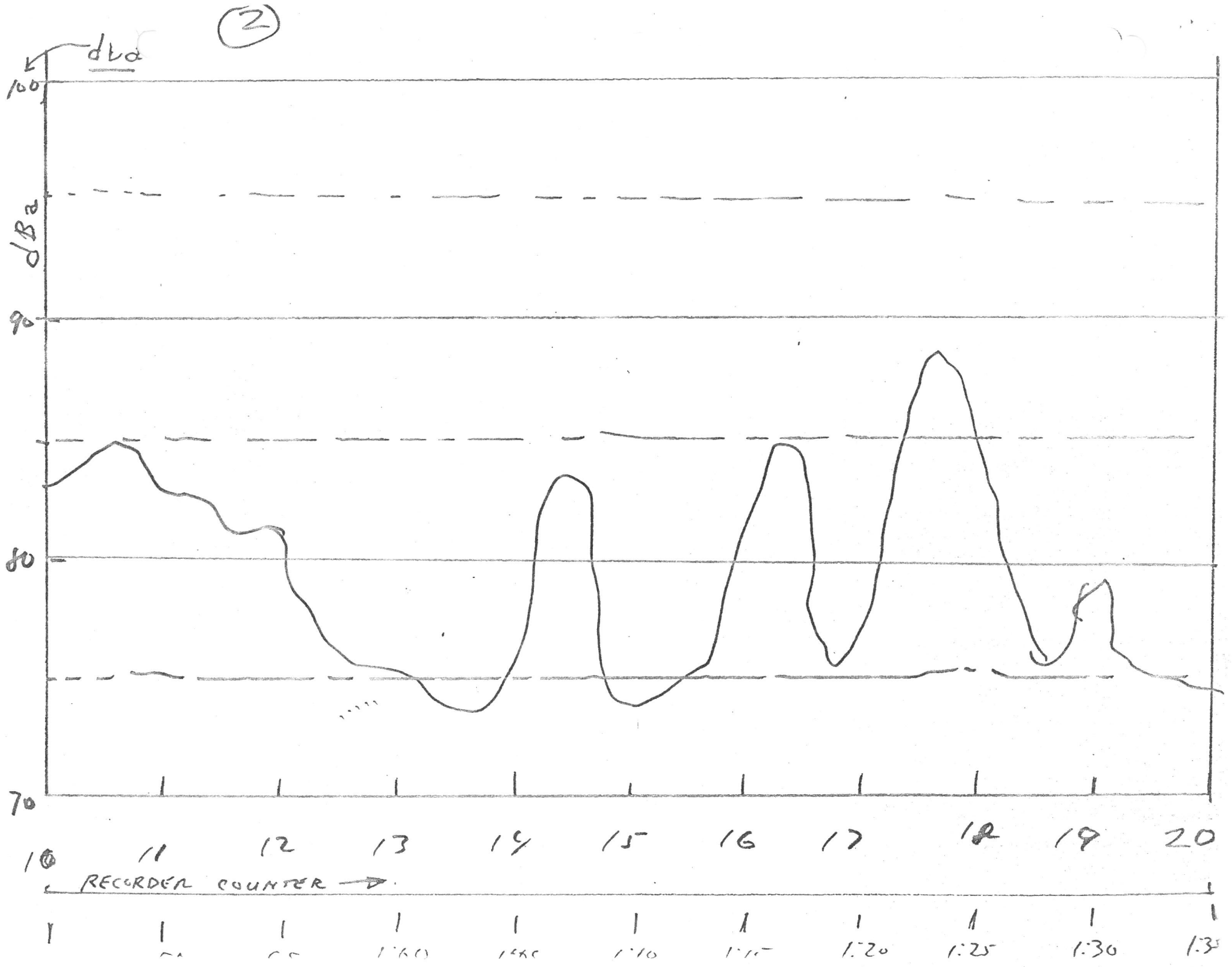
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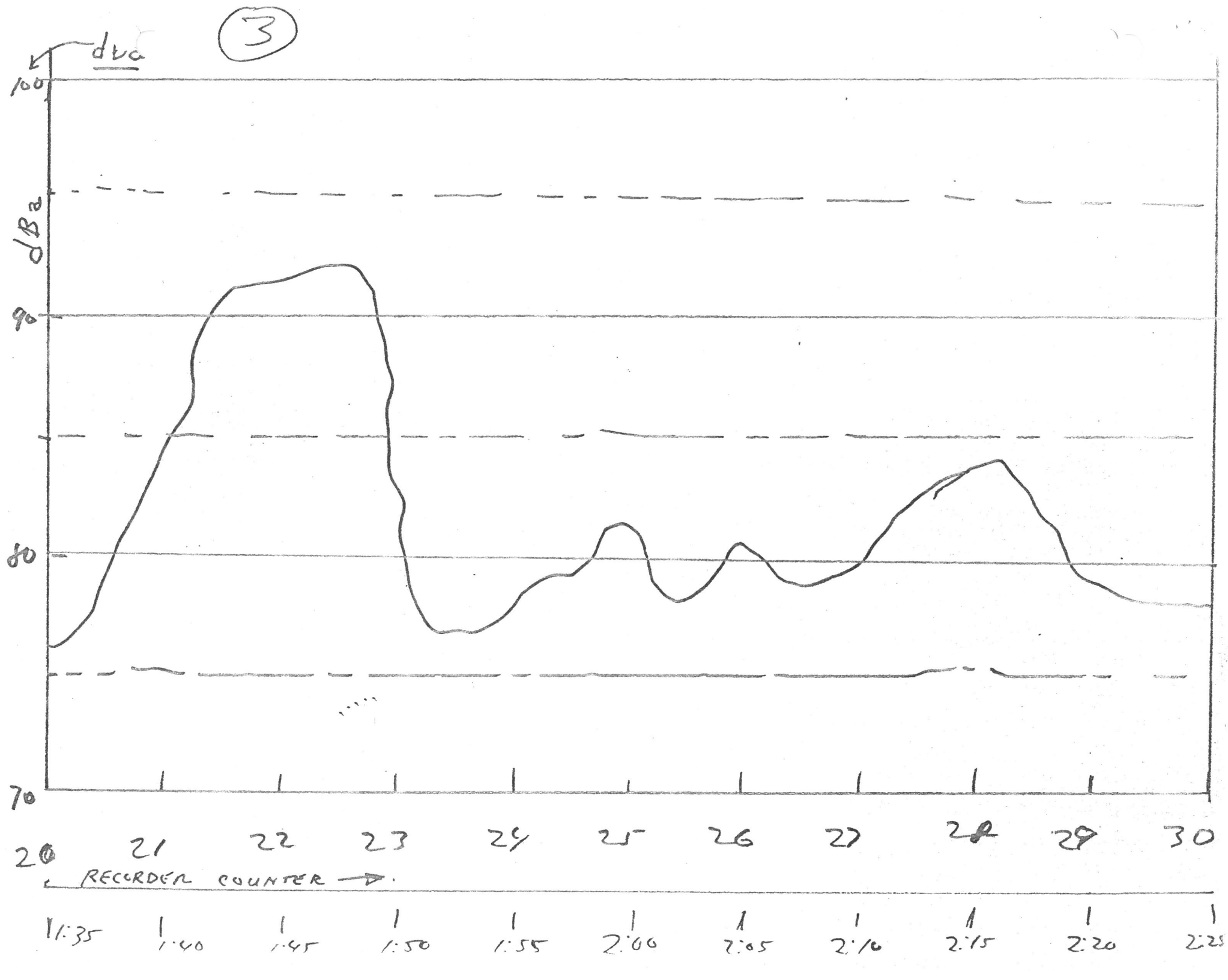
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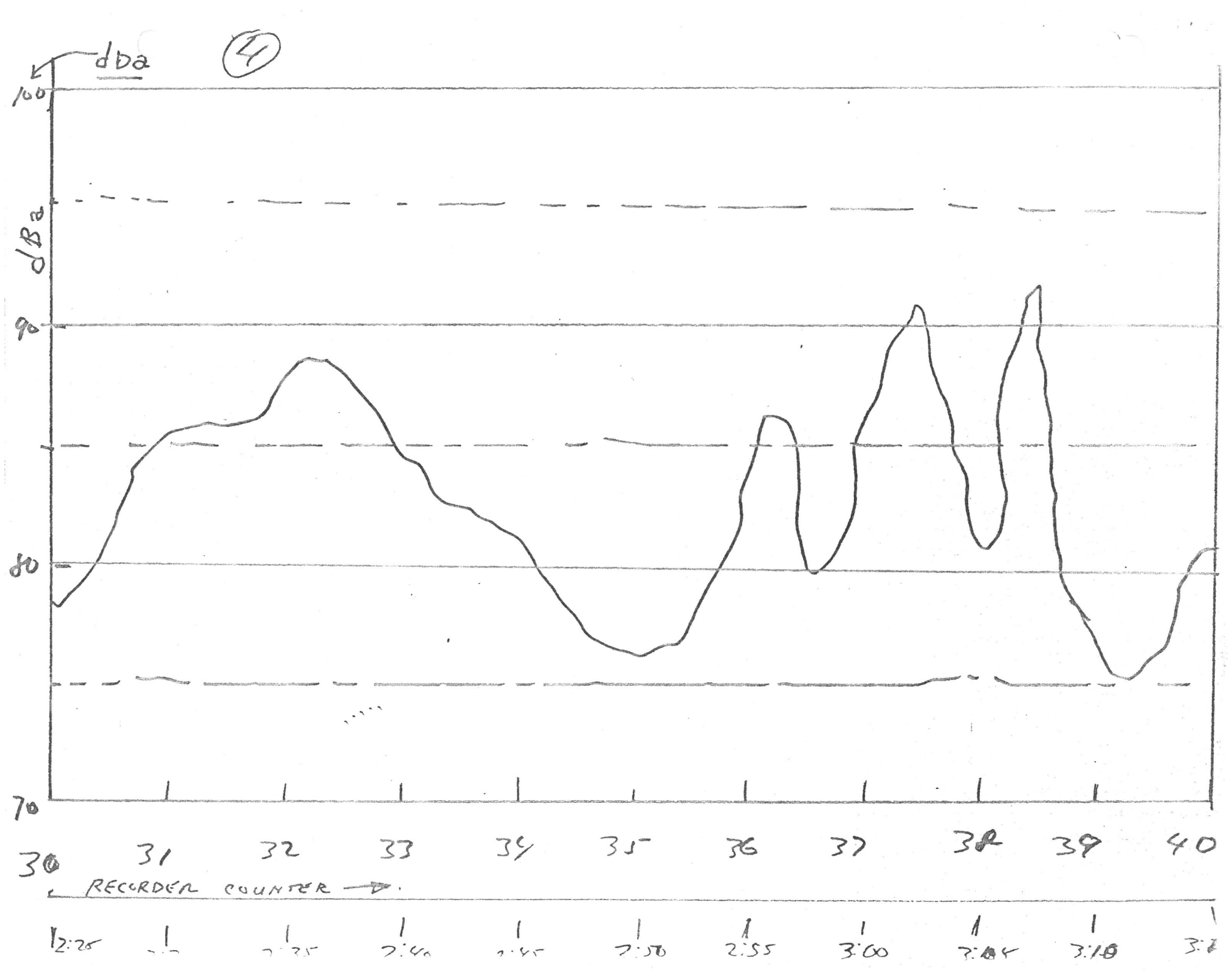
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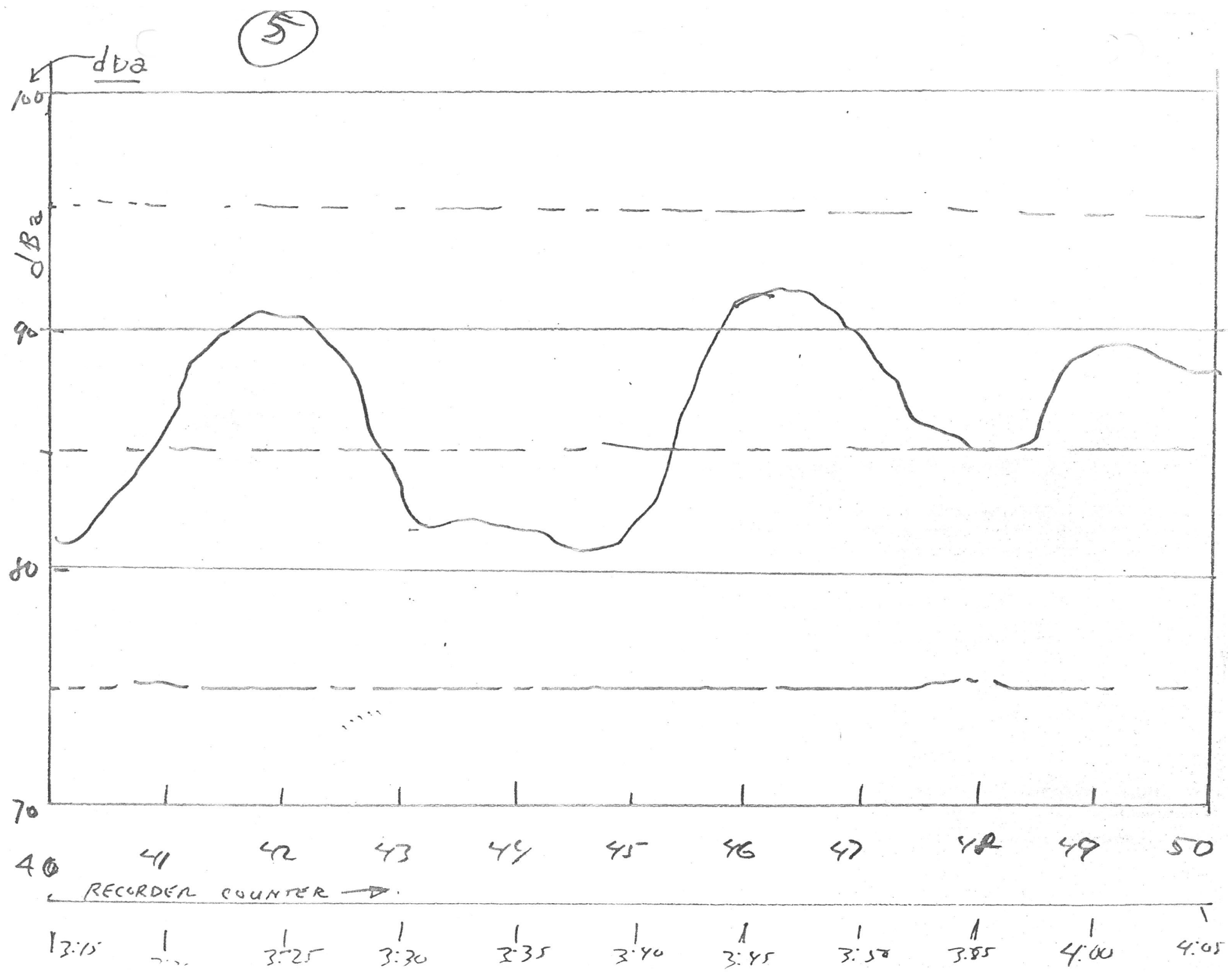
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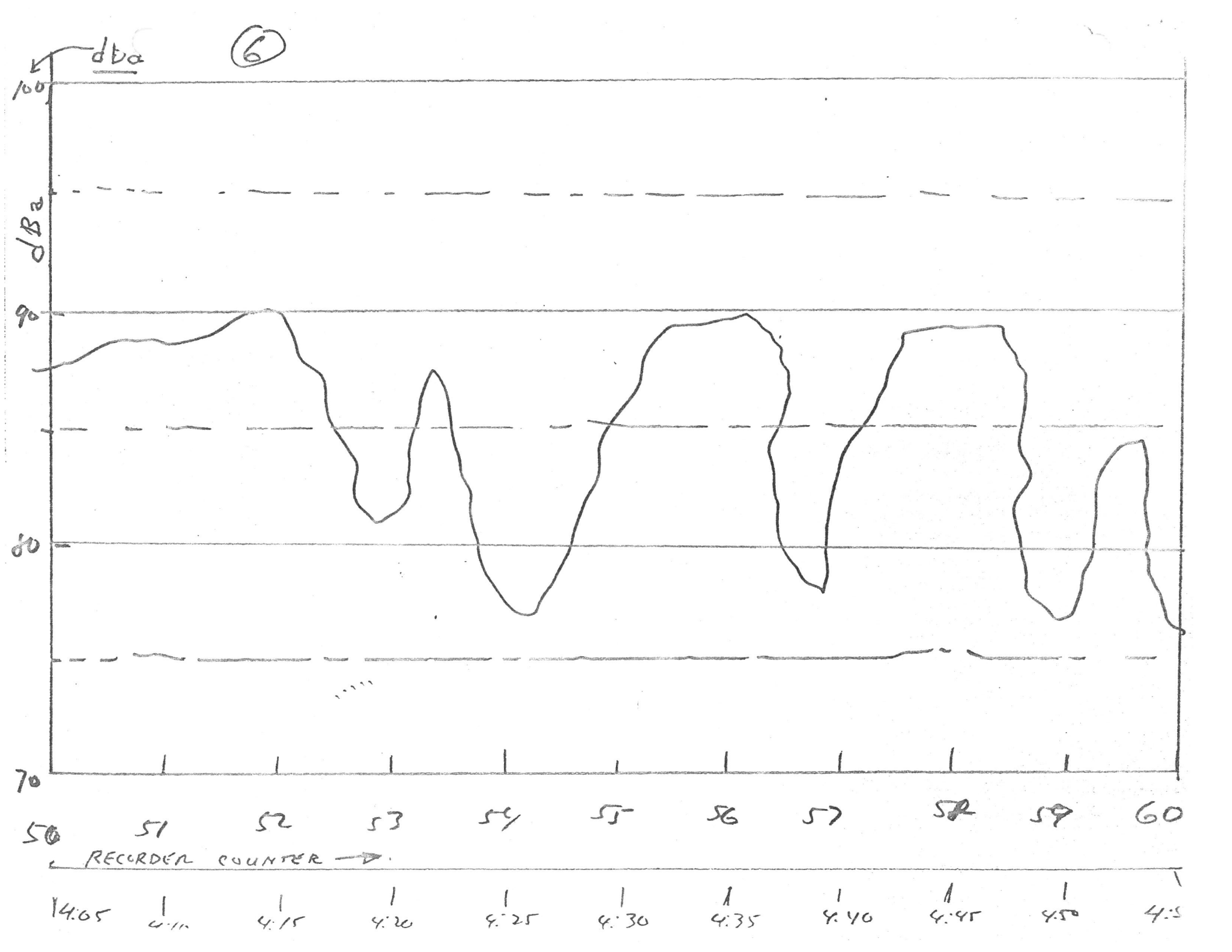
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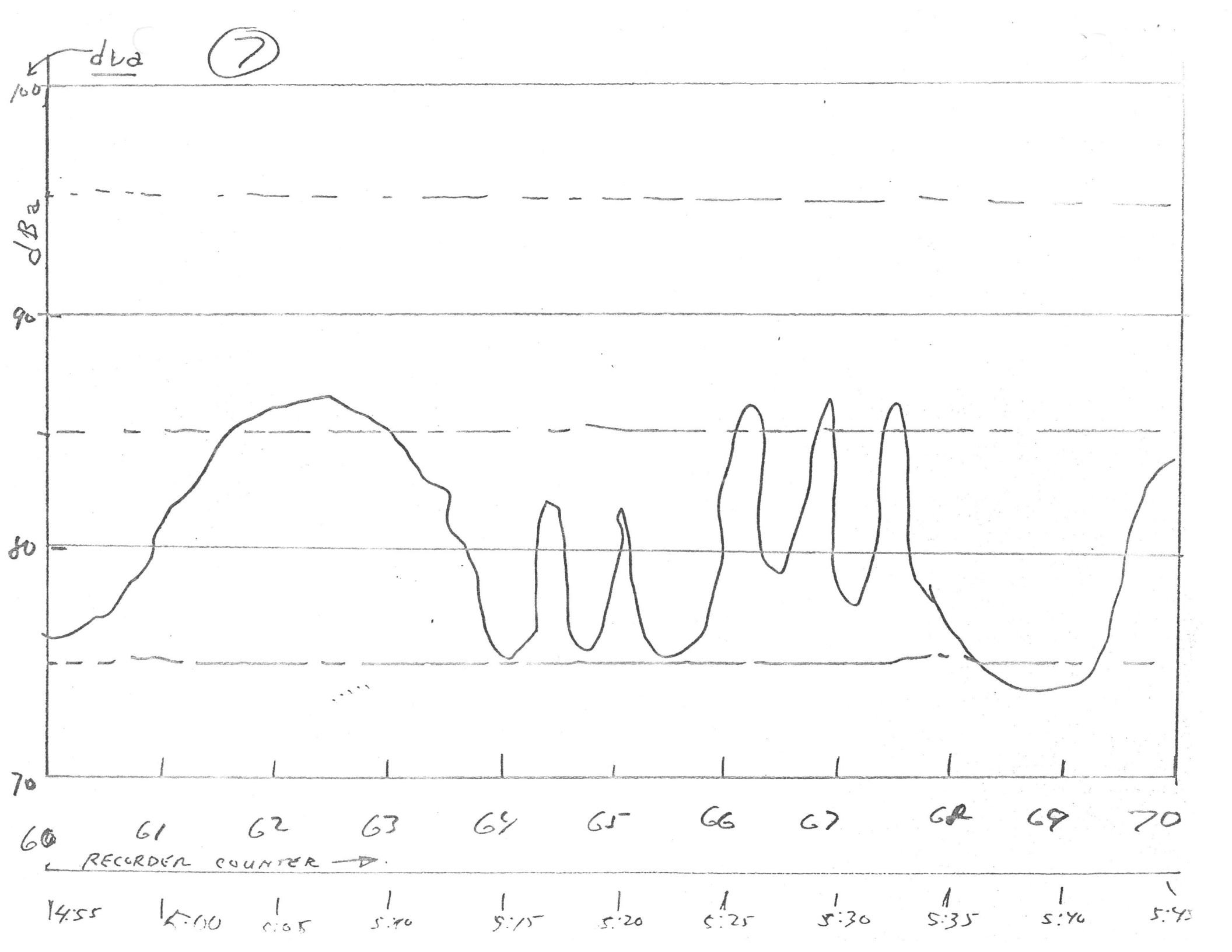
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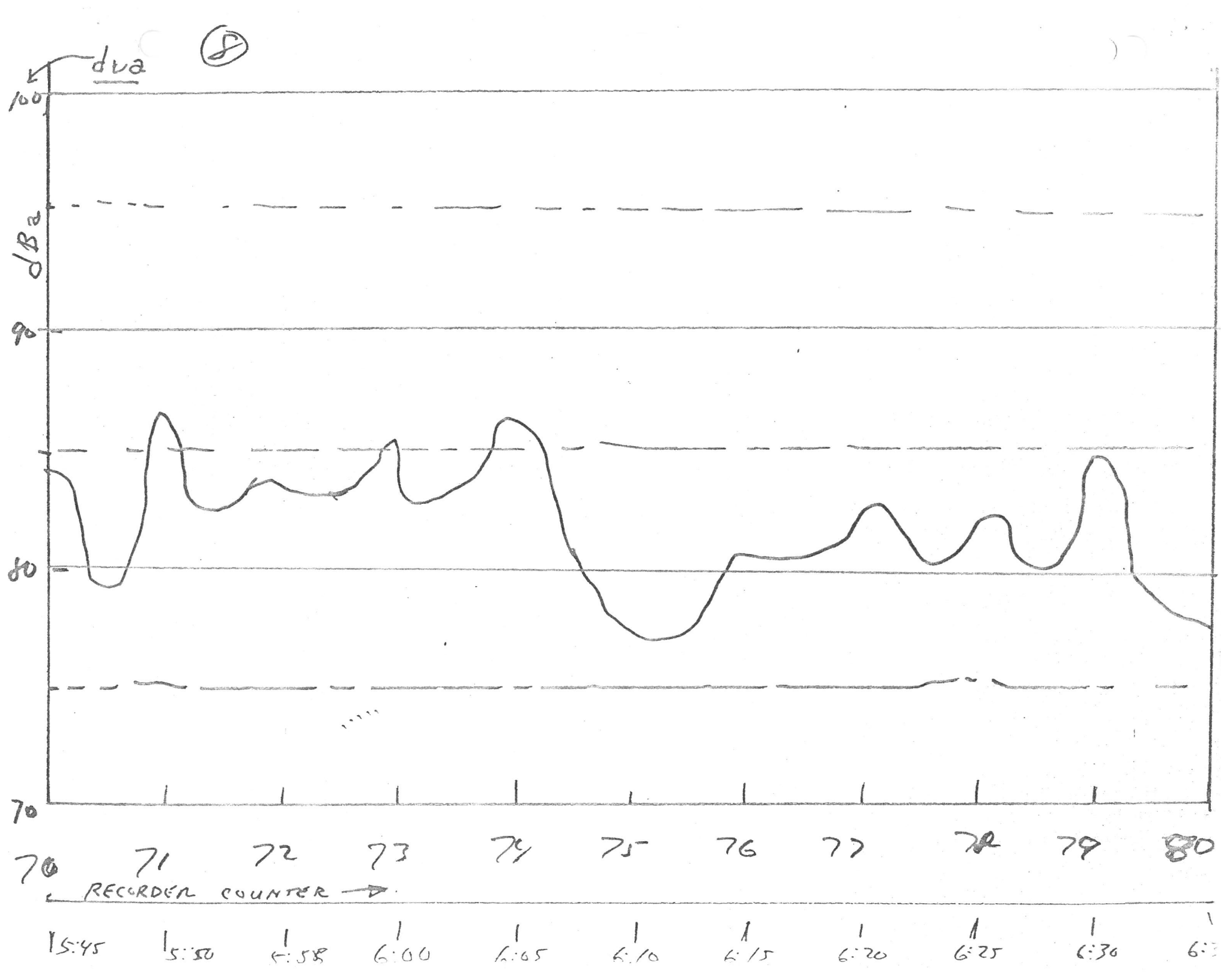
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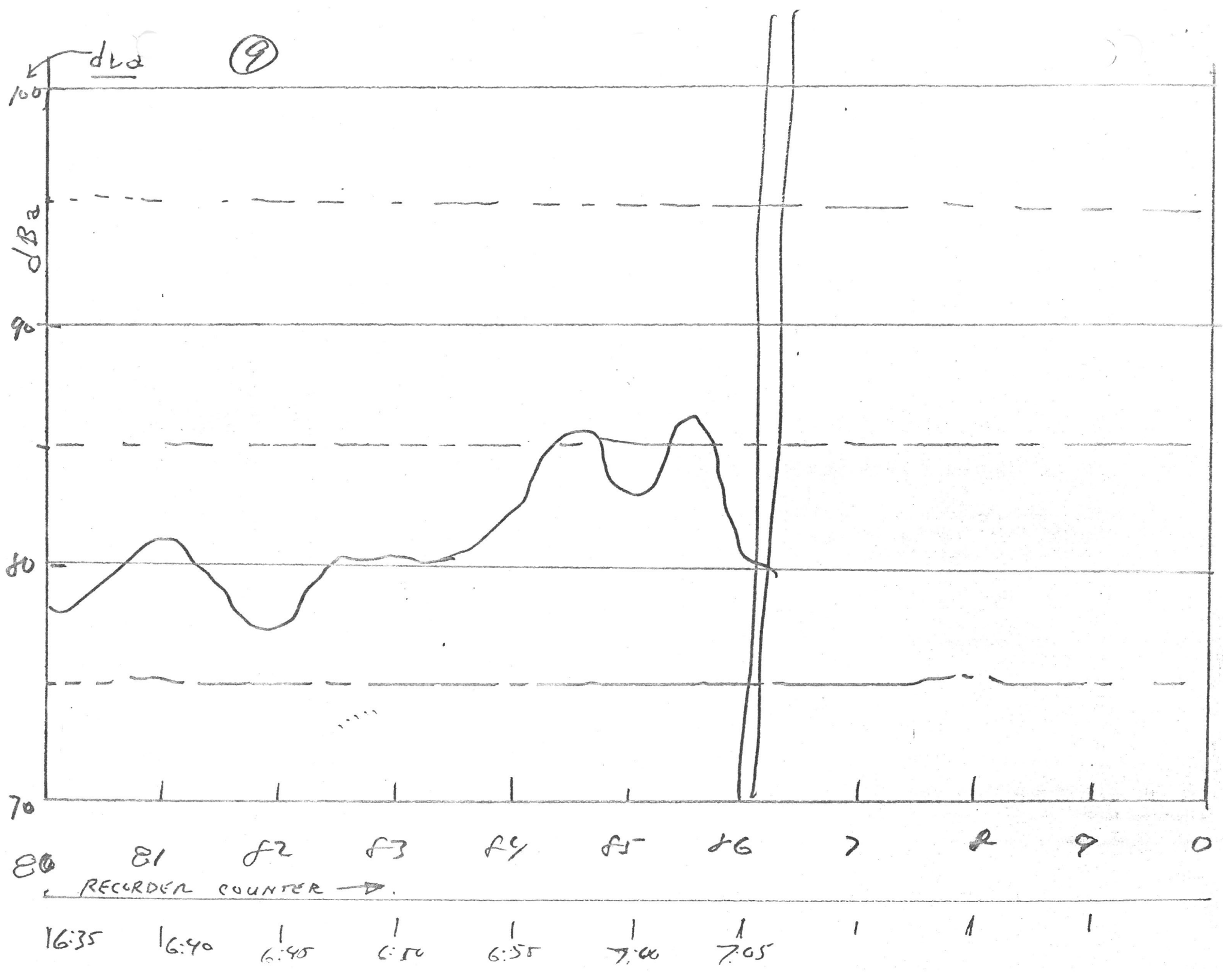
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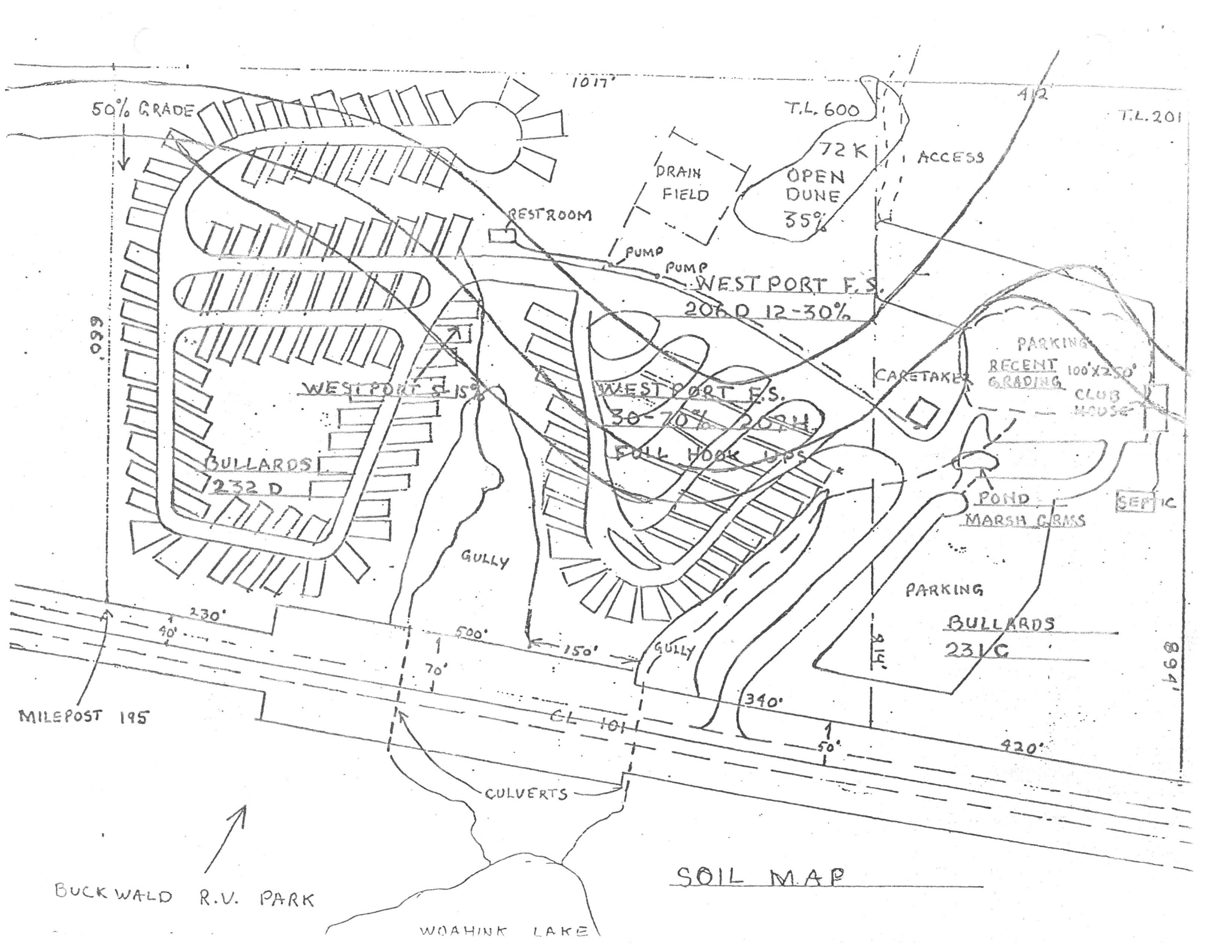
point on the north property line, in a direct line-of-sight path toward Janet Crandall's house.

Staff recommends that "This measurement is to be taken from the nearest 'noise sensitive property'--defined as 'real property used for sleeping.'" Thus, we can translate this data from South Jetty Hill to the proposed site and have some meaningful data. The same results as heard on this tape recording could be duplicated almost exactly, by standing at Mrs. Crandall's south property line, and recording several three-wheelers and dune buggies climbing the proposed access road, if it were possible to do so.

It should be noted, however, that the ACTUAL, MEASURED sound level is not the 55 or 60 dBa specified by Staff, and required by DEQ regulations, but is 20 to 30 dBa HIGHER! Mrs. Crandall would be hearing dune buggy noises at levels of 85 to 90 dBa during runs up that access hill, the same as are heard on the tape recording.

For a frame of reference, a sound that is three dBa higher than another sound is a barely discernable change, but it represents a doubling of the sound energy. A change of ten dBa is equal to ten times the previous sound, and since dBa are measured on a logarithmic scale, a change of 20 dBa is 100 times the original sound, while a 30-dBa change equals 1,000 times the original. This means that the 90-dBa sounds on this recording, which are the same as would be heard by Mrs. Crandall, are ONE THOUSAND times higher in intensity than the 60-dBa sound level specified by Staff (and DEQ) to be the maximum allowable at neighboring property lines. It is submitted that this is a TOTALLY unacceptable condition, but one that exists in the real world, and one that cannot be changed by the applicants. It only reinforces the point of how totally unsuited this site is for the purposes proposed.

Although Mrs. Crandall's property was used as a reference point in the above example, similar situations will exist for Mrs. Taylor on the south of the property, and for this writer and others to the east of the proposed project. Although Mrs. Taylor would not have the access road hill to contend with, the proposed site map shows 96 RV sites located within 400 feet of Mrs. Taylor's north property line. The average RV site has approximately three ATVs per site, based on observations at Driftwood II and Goose Pasture. This means there could be as many as 300 three-wheelers, motorcycles, and dune buggies operating with 400 feet of her property line. As can be clearly heard on the recording, the sounds of three-wheelers and buggies, merely idling and running about, with periodic engine revving, produce sound levels consistently above 80 dBa, often as high as 85 dBa.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OPEN DUNE 35%
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20% D 12-30%
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WESTPORT S 15%
WESTPORT F.S.
30-70% 20'H
FULL HOOK UPS
BULLARDS
232 D
GULLY
CARETAKER
PARKING
RECENT GRADING 100'X250'
CLUB HOUSE
POND
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PARKING
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GULLY
70'
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CL 101
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420'
MILEPOST 195
CULVERTS
BUCKWALD R.V. PARK
WOAHINK LAKE
SOIL MAP

And--this recording was made when there were only six three-wheelers and two dune buggies in the area. What level would the noise reach with 300 vehicles in that area? Again, this is a TOTALLY unacceptable condition, but one which the applicant can do nothing about, as long as he wants to operate a dune buggy campground in this area.

The applicants may attempt to discredit this data, by claiming the measurements should be made at the actual residences of the adjoining property owners, rather than at the lot lines, thereby deriving benefit from the greater distance from the sound, as well as vegetation shielding. It is submitted that this would be depriving the owners of the full use of their property. It matters not where the houses are presently located. The important point is that their owners should have full use of their ENTIRE property. Therefore, the lot line measurements are a valid criteria for determining the actual noise levels that affect the property.

Similar conditions exist for those residing in homes to the east of the property, across Highway 101. Dune buggy campsites are shown on the site plan as being located within 150 feet or less of these properties' western lot lines. Although it is granted that there is a certain degree of noise from traffic on Highway 101 at these locations, that does not change the fact that this proposed project will produce a large amount of ADDITIVE noise to that which already exists. In addition, the noise is an entirely different type, and that type is of a most irritating nature. The highway noise comes and goes, and is of a much lower frequency range than that produced by the typical bike or buggy engine. The high-pitched whine and scream of the the three-wheelers and buggies is clearly identifiable on the tape recording. This sound cuts through all other ambient sounds. The wail of the dune buggies is of a continuous nature, especially around the campsite areas, where there is a heavy traffic load, and much revving of engines and "playing around" near the home base. This is also reflected in the tape recordings. It is submitted that those who live in homes to the east of the highway will find sound levels nearly as obtrusive as do those in homes to the north and south of the proposed development. It is anticipated that sound levels exceeding 80 dBa will be common. Again, this is TOTALLY unacceptable.

Exhibit C, page 5 of Mr. Bowser's report shows that ambient highway noise reaches 77 dBa only 1% of the time (L-1), that it reaches 71 dBa only 10% of the time (L-10), and is at 53 dBa or less for 50% of the time (L-50). It is obvious from these figures that the 70- to 80-dBa nearly-constant noise from the dune buggies in the campsite areas will far exceed the ambient highway noise. If the residents hear highway noise of 77 dBa only 1% of

the time, they will be able to "listen" to the 70- to 80-dBa noise of dune buggies 99% of the time. Again, a TOTALLY unacceptable condition, and one that cannot possibly meet the DEQ standards, or the standards recommended by County Staff for sound control.

If there is any question in the Hearings Officer's mind as to the amount of noise generated by three-wheelers and dune buggies in the campsite area, it is suggested that he visit either Driftwood II or Goose Pasture (or both) and personally observe the activities of the vehicles on a busy weekend. This noise is what neighbors to the proposed development will hear all summer long--from early morning to long after dark.

Neither of these areas has hillclimbs nearby, but both are typical representations of the type of noise activity that can be expected around a dune buggy base camp. It should be remembered also that each of these sites is ONLY ONE-THIRD the size of the proposed project. An ideal time to observe these areas would be during the long, upcoming Memorial Day weekend, May 23, 24, and 25, just two days before the scheduled public hearing on May 27. Although this is one of the three "big" weekends of the year for campgrounds in this area, and could not be considered typical, it will give the Hearings Officer a good chance to see the sites under full-occupancy load.

One final comment on Mr. Bowser's report concerns two items of technical information that were omitted. He mentions the wind velocity, in several places, as averaging eight to ten knots, but he does not cite the DIRECTION of the wind. As anyone who lives in this area is well aware, the direction of the wind has a VERY large impact on how sounds carry. When the wind is from the west, as it usually is, the sounds of the dune buggies carry easily across Lake Woahink to the homes on the east side. When the winds are from the north or south, the noise levels are much less, and when the wind is from the east, the ATVs and buggies usually cannot be heard, or at least only occasionally.

Mr. Bowser states, in Item 1 of the results (page 2): "Only for brief periods, WHEN THE WIND DIED DOWN considerably, were we able to hear the ATV's at all." (Emphasis added.) This would IMPLY that the winds were from the EAST, which is when the sounds carry the least. If this is so, it makes the data even more questionable. (It is surprising that a technical paper such as this does not provide such fundamental data.)

The other missing item is a definition of the type vehicle used in Mr. Bowser's sound test. He only notes that it has a two-cycle engine. No information relative to size, type vehicle, manufacturer, or baseline idling noise level is included. (A rather incomplete technical report!)

The sound report by the Oregon DEQ, enclosed as part of the staff report, provides some statistical data, pertaining to a single site, but it nearly raises more questions than it answers. The test was run at Martha Jakob's property, located approximately a half-mile south of the proposed project. Two test periods were involved, the first in early June 1986 and the second in late August 1986. Each test lasted four days, and involved 78 hours of noise-level recording. The sound levels recorded at the Jakob site do not correlate with the data provided by Mr. Bowser, especially in regard to background highway noise. He reported truck noise, 15 feet from the edge of the highway, as high as 90 dBa, yet the DEQ study shows no sound levels above 62 dBa, and the Jakob site is not that far from the highway. The DEQ study shows a moderate amount of sound activity above the specified 60 dBa daytime standard, and even more above the nighttime standard of 55 dBa. These measurements were all based on L-1 (1%) noise levels.

The DEQ report also provided a table showing the noise pollution above a 65 dBa threshold for each of the test periods. This table showed a total of LESS than one second per hour of noise from trucks exceeding the 65 dBa level. This is a ratio of 3600:1. (Three years of living quite near that highway make these values appear to this writer to be incorrect, but perhaps there is something that is not explained in the test process.) Anyone living here knows there is significant truck traffic noise more than one second out of every hour. This makes the data on ATV noise open to question. We shall attempt to clarify this matter before the next report.

We concur with the findings of the DEQ, and in their recommendation to the Dunes NRA, that there should be a complete curfew of all ORV activity in the entire ODNRA during the hours from 10 p.m. to 7 a.m.

In the final paragraph in this section of the Staff Report regarding noise (page 16), it is stated: "If the application is approved, establishment of noise control should be made a Condition of Approval, and the Applicant made responsible for ensuring that noise maximums are not exceeded by park/campground visitors."

Based on the data submitted above, it should be apparent that there is NO POSSIBLE way that the noise conditions specified by Staff, and the DEQ, can be met at this site. A correctly operated noise monitoring system at the proposed site would show that the site could never be opened for business, because it could not meet the specified noise control requirements. Any such noise control monitoring system SHOULD NOT

be the responsibility of the applicant, however, but should be done on a contract basis by a disinterested third party, with the professional expertise required to accomplish the task. The cost of installing and monitoring such a system should be a proper business expense of the proposed project, however, and should be borne by the applicant.

c. WATER

This section covers fresh water supply, waste disposal, and storm water drainage. Each will be discussed separately below.

We realize that Staff had to depend solely on the applicant's soil studies prepared by Mr. Wert to make its analysis, and it is submitted that there are a number of inconsistencies and/or errors in that report. Mr. Carlson lists a number of points concerning soil types, characteristics, and grades in his report (Section 4 of this total report), and that data will not be repeated here, but it should be completely addressed by the applicant.

Mr. Wert lists the daily sewage flow as 7,000 gallons per day. Staff has corrected this figure to 8,700 gallons per day. Staff's values are obviously obtained from DEQ regulations calling for 50 gallons per day for each "dry" campsite, and 100 gallons per day for each "full hookup" site. (96 x 50 = 4,800; 39 x 100 = 3,900; 4,800 + 3,900 = 8,700). Mr. Wert's report is obviously based on some old design data, since he lists a total capacity of 128 sites, with 100 dry sites and 28 full hookup sites. (The correct value for that size project would be 7,800 gallons, not 7,000.) Mr. Wert's report mentioned a caretaker house, but nothing about the clubhouse, and no sewage allowance for either was made.

The present project site plans show both a caretaker house (size unknown) and a clubhouse (size unknown), as well as a four-acre parking lot, with the capacity for an additional 440 to 500 parked vehicles. This could mean up to 1,000 additional people could be on the site, and thus necessitate additional sewage disposal facilities. No allowances for these factors have been made in the sewage disposal plan. These factors must be clarified by the applicant.

Although the site plan does indicate a single restroom building, no information is provided as to the facilities to be included, such as numbers of toilets, urinals, lavatories and showers. Similar information is also required for the clubhouse building. The clubhouse building is shown as having its own septic tank, but no drainfield is shown. Will it utilize a pump-up system to feed the primary drainfield, or will it have a

separate drainfield? If it is to use its own drainfield, it will also require a backup drainfield area.

In addition, the applicant's site plans does show a drainfield location, in the center of the property, near the top of the ridge, but there is no information provided as to the size of the drainfield. Also, there is no alternate location for the required backup drainfield shown; the subject is not even mentioned. The proposed system is shown as a pump-up system, but no information is provided as to septic tank size, number of tanks, pump size, or similar technical details. It is recognized that this is only a preliminary plan, but such basic design information should be a part of any such plan.

Not only is such information required by the County to evaluate the overall project plan, but it is essential to the developer to determine project costs and to determine the overall financial feasibility of the entire project. It is submitted that the applicant MUST have this data available, if he is serious about building this project to meet specified codes and requirements.

There is no mention in any of the applicant's documentation of a "grey water" disposal system. There are requirements in the State code for such a system in every RV park, but the applicant has not addressed this problem.

Page 7 of Mr. Wert's report shows a drawing of a cross-section of the land in the area of the proposed drainfield. Mr. Wert states that the drainfield will be located at an elevation of 200 feet, and that the highway roadbed is at 88 feet, and the surface of Lake Woahink is at 38 feet. He earlier stated that he had no base map to work from (page 1), and he does not specify how he determined the 200-foot elevation of the proposed drainfield area. The only topographic data submitted by the applicant is the small, preliminary site plan prepared several years ago by Land Planning Consultants (of Springfield) when John Williams was considering the purchase and development of this same property. (He wisely dropped the project when he foresaw the problems of building such a development in this area.) The Williams site plan has limited topographic data, but is all that is available, and is referred to by Staff several times in the Staff Report. However, if one counts the five-foot contour lines on the left side of the site plan, there are only eight lines between the highway and the top of the ridge, indicating a maximum rise of only 40 feet above the Highway 101 elevation of 88 feet. Mr. Wert is saying the land is 112 feet above the highway, and the "map" shows only 40 feet. What happened to the other 72 feet? Which value is correct? Both have been submitted by the applicant as part of his data package.

This, too, points to the need for accurate topographic data, as has been mentioned several times by Staff. Without such essential data, no meaningful analysis of the site plans can be made by Staff, or anyone else.

In regard to storm water drainage, Staff reports that "The study concludes that runoff from developed portions of the site will be 'little or nothing.'" Mr. Mortier has several comments in his report regarding the storm water drainage "design" proposed by Mr. Wert, and summarizes it by stating, "I do not believe any Professional Engineer would assume the responsibility for such a design."

More than 80% of the subject property drains directly toward Lake Woahink, and there are two major draws from the property emptying into the lake. The northern draw empties directly into this writer's (Heggen's) property and the southern draw empties unto "Whitey" Furby's property (Lakeshore Trailer Park). Any excess storm water drainage, caused by on-site development, will drain directly and entirely on these two properties. Water from both draws enters culverts (size unknown, at this time) that go under Highway 101. The maximum water-handling capacity of these culverts is not known at this time. Both culverts are partially obstructed on the uphill side (Hague's property) at the present time. It is not known who is responsible for the maintenance and cleaning of these culverts, as they have not been a problem up to this time.

A preliminary estimate has been made, with the assistance of Mr. Mortier, as to the possible storm water runoff problem at this site, should the site be developed as proposed. The following estimates are made from a limited personal knowledge of the property, from aerial photographs, and from the applicant's site plan.

ESTIMATE OF DEVELOPED PORTIONS -- WITH LOW ABSORPTION

Parking lots	--	16% of land area	
Roadways	--	20% of land area	
RV-Sites	--	15% of land area	TOTAL: 51%

ESTIMATED NATURAL LOW ABSORPTION AREAS

Steep hillsides	(over 25%)	--	12%	
Steep gullies	(over 25%)	--	10%	TOTAL: 22%

If the above figures are close to being accurate, and it is thought that they are, this leaves only 27% of the total

land area available for on-site absorption of storm waters. This will probably be adequate 90% of the time, but it is the once-in-ten-years storm that must be designed for to avoid major damages to adjoining properties, including Highway 101.

A ten-year storm, in the Florence area, would be rated at a rainfall of two inches per hour. A reasonable absorption factor of 30% in the developed and steep areas would leave 70% runoff. The 26-acre site contains 1,120,000 square feet: this value, multiplied by the 73% of low absorption land, means that 816,000 square feet are subject to excessive runoff. This amount multiplied by the 70% runoff factor gives a value of 571,300 square feet, subject to the equivalent of 100% runoff. This value multiplied by .16 cubic feet (equal to 2 inches rainfall) gives a final value of 91;407 cubic feet of water per hour off-site drainage, under the conditions specified. This reduces to 1,525 CFM. (1,525 CFM can also be converted (7.48 gallons per cubic foot) to 11,407 gallons of water per minute!) It should be noted that 91,407 cubic feet of hourly runoff water equal slightly more than two acre-feet. It is estimated that this site would require a retention basin capable of storing that amount of water (two acre-feet) to safely handle a ten-year storm.

The storm water drainage system would also require provisions for a water/oil separation basin, to avoid pollution of Lake Woahink. An estimated 600,000 square feet of land area would be paved, oiled, or covered with compacted gravel, under the proposed plan. These surfaces will "wash" significant amounts of oil (and its by-products) into the storm drainage system, which empties directly into Lake Woahink. This potential pollution of our drinking water must be stopped, before it can enter the lake. This will require one or more water/oil separation basins to prevent lake water contamination. The applicant ignores this entire problem.

It is submitted that there has been NO storm drainage design plan designed for this site, and that a detailed preliminary plan for such is required before any permits can be granted. It should be noted that the State has NO requirements for storm drainage in their design requirements for RV parks, and the only protection that the County can give its landowners is to properly specify the requirements in the special conditions requirements section of the requested permit, if such permit is ever to be granted. Once the permit is issued, the entire project goes into the hands of the State Building Department, EXCEPT for those items specifically identified in the County land-use permit. This item is too important to be left to chance, and to HOPE that the State will "do something" about it in the future.

The freshwater supply system requirements have not been

specified by the applicant or by Staff. It would be nearly impossible for Staff to provide such information, based on the incomplete data provided by the applicant. One of the missing key bits of data is, once again, the projected use of the parking lot areas, and the maximum possible additional population that these uses may generate.

After considering the proposed RV park population (675 people), and the clubhouse and caretaker house, it is estimated that the system would probably require at least 20,000 gallons of water per day, and this figure may be quite low. Nowhere in the applicant's site plans or technical studies is the matter of water distribution covered. Is each of the non-full-hookup sites provided with separate a water outlet, or are community outlets to be provided for each five sites, or ??

Staff refers to Lane Code requirements that specify proving a well capacity of 20 gallons per minute for 50 minutes, but this requirement is for fire suppression only. In addition, that is a minimum requirement, and is not believed to be adequate or appropriate for a project of this size. For example, the referenced Section 16.211(5)(i)(iii) states the requirement for "... sufficient water outlets and serviceable hose not less than three-quarter inch inside diameter and a nozzle to reach nearby improvements;...." A strict interpretation of this section could mean that the applicant would only have to provide fire protection to the caretaker house, the clubhouse, and the restrooms. And that with only a three-quarter inch hose! Surely a high fire-danger installation such as the proposed project, located in forest lands, should require more than that.

d. FIRE/SAFETY

Because of the nature of the proposed project, with the very large number of vehicles involved, and because of the high population density, fire and safety considerations are of even greater importance that normal.

In addition to the projected 135 primary vehicles involved (trucks, campers, motorhomes, etc.), there will be another 300 to 400 additional ATVs within the project. This will be the largest vehicle storage/parking facility in all of Western Lane County. Many, if not all, primary vehicles will also be carrying closed containers of gasoline, to provide fuel for the ATVs. This gasoline is typically carried in five-gallon "jerry" cans, usually external to the primary vehicle. A nominal load of two five-gallon cans per RV site would mean 270 cans of gasoline in the site, for a possible total of 1,350 gallons. (This estimate is likely to be low.) There obviously is a far-greater-than-normal danger of fire in such a situation, and the potentials for damage

once a fire started are equally severe.

If you total the potential quantity of gasoline on the site, it comes to more than 6,000 gallons. Start with 135 primary vehicles, carrying an average of 30 gallons each--likely a lower-than-average quantity for these large vehicles. That totals 4,050 gallons. To that figure, add 300 ATVs, each with three gallons on board, for another 900 gallons. Then include the jerry-can load of 1,350 gallons, for a grand total of 6,300 gallons of highly flammable fuel. That's a lot of gasoline in such a congested area, especially one in which many small children are involved. It is suggested that these figures, or equivalent ones provided by the applicant, should be given to the Siuslaw Rural Fire Department, for them to reconsider any special problems with the proposed project, from a fire protection standpoint.

A possible scenario regarding the potential fire danger at the proposed site might go like this:

A camper is filling his ATV from a five-gallon jerry can. He spills some gasoline on the hot engine, it ignites, and causes him to drop the five-gallon can. The gasoline from the can splashes on the vehicle, and the surrounding ground, and is also ignited. The vehicle fuel tank explodes, setting nearby vehicles on fire, and a major fire is underway. People and vehicles try to leave the area, and block the one access road leaving the site area. With up to 300 or more ATVs and 600 people all trying to escape the fire at the same time, on a single exit road, the emergency fire vehicles are blocked from access to the property, and the potential for a major catastrophe is rapidly developing.

It is submitted that the above scenario is NOT unrealistic, but is a condition that could easily become reality, and one that should be seriously considered in the design of a project of this size.

Although neither the applicant nor Staff mentioned the following safety concern, conditions should be imposed prohibiting ANY on-site storage of gasoline, oil, or other similar flammables, either above-ground or below ground. It follows that the same restrictions should apply to the sale of these items on the premises.

On page 17, paragraph 2, Staff lists a number of items that are needed to provide adequate fire safety. The items mentioned are all valid, but these items should be a part of the applicant's preliminary design plan, and should not be left open for future resolution. Once a Special-Use Permit is issued, the County has little leverage to require specific actions by the developer, if such actions are not clearly identified in the land-

use permit. Once the County issues a permit for an RV park, the State assumes responsibility in the matter. (Reference Mr. Mortier's comments regarding a recent similar situation in Cottage Grove.)

It is submitted that an area of major import, such as this one, should not be left to later Staff work, or be delegated to another department. The number, size, and location of water storage tanks; the location, number, and size of fire hydrants; the size of supply lines; and similar fire/safety items should be part of the preliminary design submitted as a part of the application.

e. LIGHTING

Staff covers the requirments for lighting on page 17 of the staff report. It is suggested that a rephrasing of the last sentence might be "There shall be no direct view of any light source from the perimeter property lines on the north, south and east sides." It is possible that the ODNRA may want a similar clause to cover the west lot lines, facing the ODNRA.

f. TRESPASS

We concur with the Staff Report regarding the need for protecting neighboring landowners from trespass. The proposed use of full-perimeter fencing is a minimun requirement, not only for the possible trespass of humans, but also for that of domestic animals. A visit to South Jetty, Goose Pasture, or Driftwood II will readily show the need for animal control. It is estimated that 50% or more of the typical camping groups have one or more pets with them. Although pets are supposed to be kept on leashes, in the real world, this rule is difficult to enforce. The neighbors should not have to contend with trespass of 50 or 60 dogs on their property, if this project is ever permitted.

Although staff has recommended full perimeter fencing, the type of fencing was not specified. It is suggested that six-foot commercial chain link fence, with solid top rails, with posts at no less than ten-foot intervals, and with all posts set in concrete, be specified as the minimum. The solid top rail is essential to avoid injury to the deer in the area. The fencing should encompass the entire perimeter of the property, at the boundary of the cleared areas. It is also suggested that the fencing system include a time-lock secured drive-gate across the access road leading to the open dunes area of the NRA. This time-lock secured gate would provide a means of enforcing the evening curfew on the operation of ATVs after a specified time. It is submitted that this evening curfew should be sundown, not 10 p.m. as proposed by Staff.

g. Other related impacts

Regarding the Crandall property to the north of the project, Staff states, "Impacts on this property will be similar to impacts now generated from Sand Dunes Frontier to the north..." It is submitted that the proposed project will have FAR GREATER impact on the Crandall property, and other properties in the area, than that generated by Sand Dunes Frontier.

Sand Dunes Frontier runs large tourist-type dune buggies, which do not cause excessive noise, from the southern part of their property, and they rent small relatively quiet Odyssey-type individual dune buggies on the north part of the property. They do not cater to outside campers, they do not have privately-owned ATVs operating from their property, and they do not have 135 RV camping spaces for rent. It is submitted that the proposed project will have at least TEN TIMES the impact on surrounding properties than that currently produced by Sand Dunes Frontier.

Criterion (b) - WHERE NECESSARY, MEASURES ARE TAKEN TO MINIMIZE POTENTIAL NEGATIVE IMPACTS ON ADJACENT AND NEARBY LANDS. (This section starts on the bottom of page 18 of the Staff Report, to provide a fresh point of reference.)

Discussion: Staff discusses the large number of impact areas previously identified, and indicates that the suggestions made to mitigate these impacts (or alternatives) must be made conditons of any approval. It is submitted that the impacts are so great, and that the means of mitigation, if available, would so drastically change the proposed plan that it would no longer resemble the plan submitted by the applicant. It would, in effect, require the Approval Authority to totally re-design the plan. At this time, the only possible method of making this proposed RV park comply with the required regulations and standards would be to greatly reduce its size, eliminate the access road to the Dunes NRA, and prohibit the operation and use of any ATVs in the proposed campsite area. This, of course, eliminates the basic purpose for which the applicants are requesting the permit.

Staff goes on to recommend that the park owners be responsible for ensuring that the requirements of trespass and noise control are enforced. Staff suggests a "period review of operation" or the possibility of "revocation of the permit" if an unreasonable number of violations occur. It is submitted that neither of these alternatives is practical in this situation. It is not realistic to expect a developer to invest a million or more

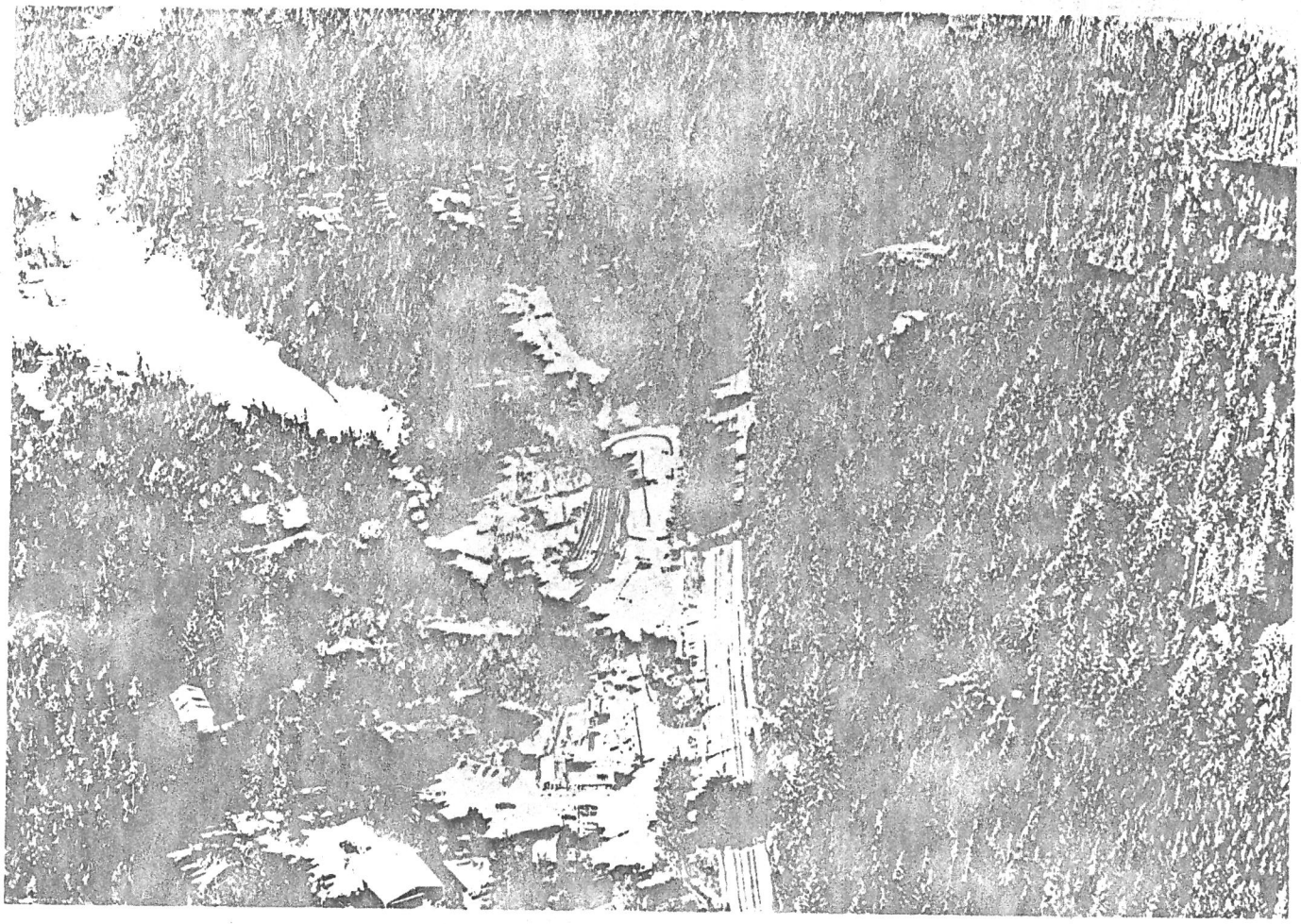


Photo 6-4

This photo shows Sand Dunes Frontier, with the "racetrack" near the center of the picture. The southern part of Honeyman State Park is shown near the top of the photo.

dollars in a project, just to have the Approval Authority "review" the operation, and see if it is feasible. Neither is it practical to consider revocation of the permit if excessive violations occur. No government agency is likely to terminate an operating business, with a million-dollar investment, because of land-use permit violations.

However, in the event a permit for this, or any similar project, is ever granted, there is a practical and realistic control method of ensuring compliance with the conditions of the special-use permit. That is by the use of the previously suggested time-lock gate on the dunes access road. If each of the involved permit conditions are clearly specified, and a disinterested third party is responsible for the monitoring and control of the specified conditions (such as noise, curfew, and trespass), then a workable compliance system, with workable penalties, could be constructed. The primary penalty would be the closure of the dunes time-clock access gate, for a specified time period, based on the nature of the violations. Thus, the first noise violation might bring a penalty of access gate closure for ten days. A second violation within a given time would assess a 30-day closure, and a third violation, say within the same year, would result in a six-month closure of dunes access. This would be similar to penalties that the State Alcohol Board imposes on liquor licensees, when they violate liquor license permit regulations.

The above idea is presented only as a possible solution to the specific points of "review" and "permit revocation" as discussed by Staff. It is still maintained that there is NO POSSIBLE WAY the noise requirement standards can be met, and all that a noise-monitoring system would do is to ensure that the project never became operational.

Criterion (c) - THE PROPOSED USE IS CONSISTENT WITH THE POLICIES CONTAINED IN THE RURAL COMPRHENSIVE PLAN. (Page 19)

These matters are discussed by Mr. Spickerman in his report, and will not be repeated here. However, if the revised plan to be submitted by the applicants produces any changes that reflect on any of the applicable policies, those points will be addressed in our final report.

3. BEACHES AND DUNES COMBINING ZONE CRITERIA:

Staff notes that this entire property is subject to the Beaches and Dunes zone, which requires a Preliminary Investigation (Hazards Report). Staff further reports that a site investigation was carried out in 1985 (PA 1351-85) on this same property, and states that the other developer's report meets the requirement of

this application. The total "report" is a single sheet of paper, undated, signed by Ralph Christenson (signature not clear), no title provided, on Lane County Planning Division stationary. The paper states, "The decision was based on the findings of this office (copy enclosed) in accordance with...." Staff informed us that "findings" were the ones shown on this single sheet of paper, and that the phrase "(copy enclosed)" referred to the same sheet of paper on which that was written.

It is submitted that this single sheet of paper does NOT meet the requirements of LC 16.243 (10) for this application. The cited code section, and the following two sections, state:

(10) PRELIMINARY INVESTIGATION REQUIRED: Any proposal for development, with the exception of minimal development or timber harvesting zone is combined, shall require a Preliminary Investigation (Development Hazards Checklist) by the Planning Director to determine:

(a) The dune landform(s) present on the site.
(b) Hazards associated with the site.
(c) Hazards presented by adjacent sites.
(d) Existence of historical or archeological sites.
(e) Existence of critical fish or wildlife habitat as identified in the Lane County Coastal Inventory or sites identified by Nature Conservancy.
(f) Potential development impacts, including cumulative impacts.
(g) If a full or partial Site Investigation Report shall be required, the form of the Development Hazards Checklist is as specified by the Lane Manual.

(11) FEE FOR PRELIMINARY INVESTIGATION. To partially defray the expense in performing the Preliminary Investigation, a fee to be based on the scale of the development proposal shall be charged the applicant. Such fees shall be as established by order of the Board of County Commissioners.

(12) SITE INVESTIGATION REPORTS (SIR). The Preliminary Staff Investigation (Developments Hazards Checklist) shall determine if a Site Investigation Report is required, and if so, what components of the SIR must be completed.

It is submitted that the brief report signed by Ralph Christenson in 1985 does not contain sufficient data to act as a Preliminary Investigation for this project. The statement that "Most of the area east of the steep slope on the western margin of the property is not sand dune material." is questioned. (See Mr.

Application No. PA 1351-85

(Applicant) Land Planning Consultants

(Address) 209 "O" Street, Springfield, OR 97477

(Map & Tax Lot) 19-12-22-1, tax lot 600

The above referenced application to build R.V. park and access road out to Dunes area in /BD overlay zone.

has been:

X Approved with the stipulations and conditions stated below.

_____ Denied.

The decision was based on the findings of this office (copy enclosed) in accordance with the provisions of Lane Code 10.056-10.065.

Ralph Christenson

CONDITIONS OF APPROVAL

NOTE: Most of the area east of the steep slope on the western margin of the property is not dune sand material. This eastern area is underlain by Fournoy sandstones and is not subject to /BD requirements. For those R.V. spaces proposed that are on the western margin of the development and proposed roads to the open dunes, the following conditions must be addressed.

1. A plan must be developed that addresses stabilization of R.V. spaces that open loose sand to wind or water, i.e., expose loose sand.

2. A plan must be developed which will address how the sand roads are to be constructed, what erosion protection will be required, and how the required protection will be implemented. Water, wind and mechanical erosion must be addressed.

Carlson's report, page 1.) None of the other items listed as required for a Preliminary Investigation is addressed. Item (f) requires information on "Potential development impacts...." There is no possible way that a report done two years ago, for a different project, can be directly applied to the potential development impacts of this project, and be said to meet the requirements of the code.

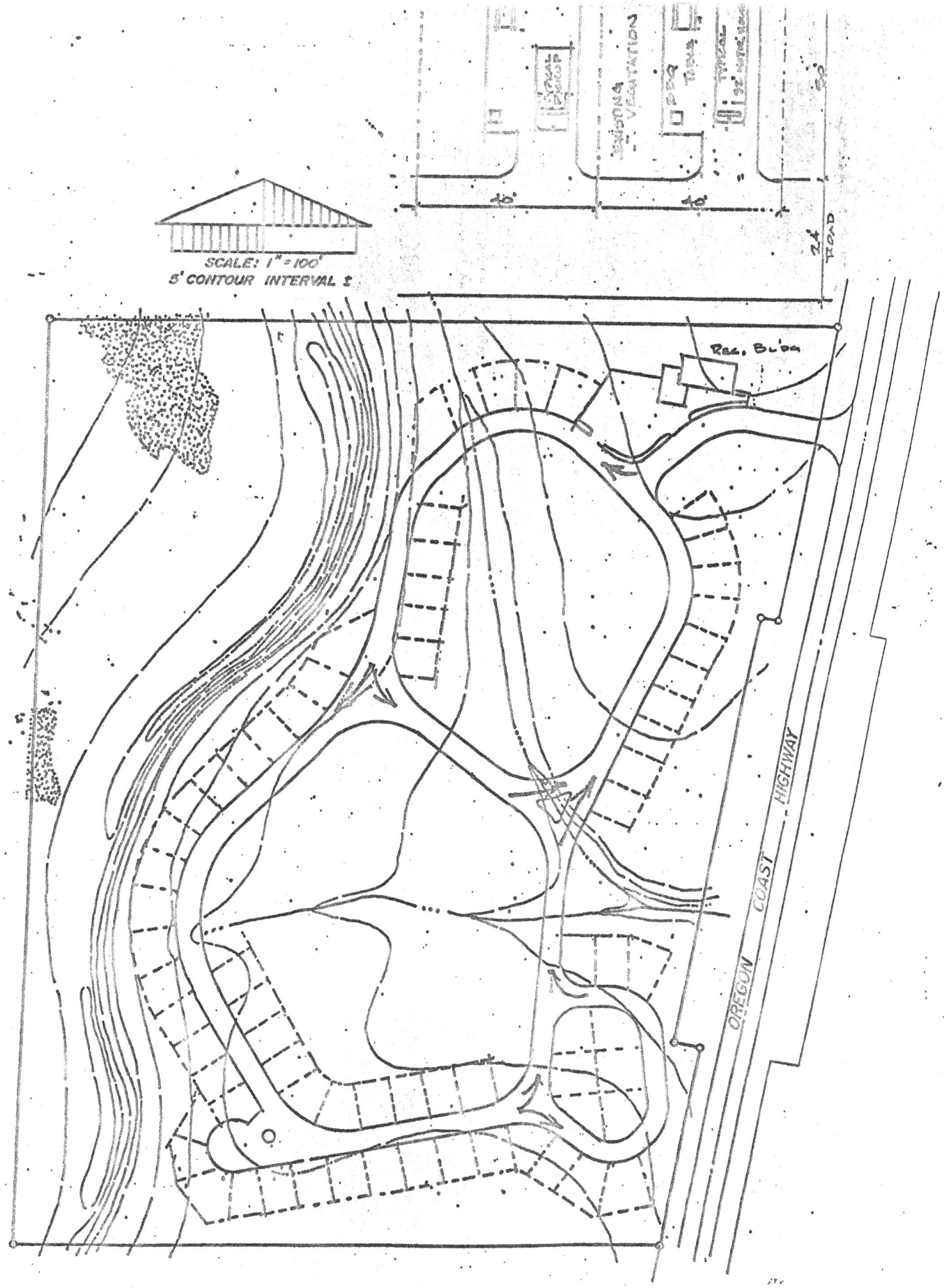
In addition to the above facts, it should be noted that that brief report done in 1985 was only for Lot 600; it did not include any information on Lot 201, which is also a part of this proposed development in a /BD zone.

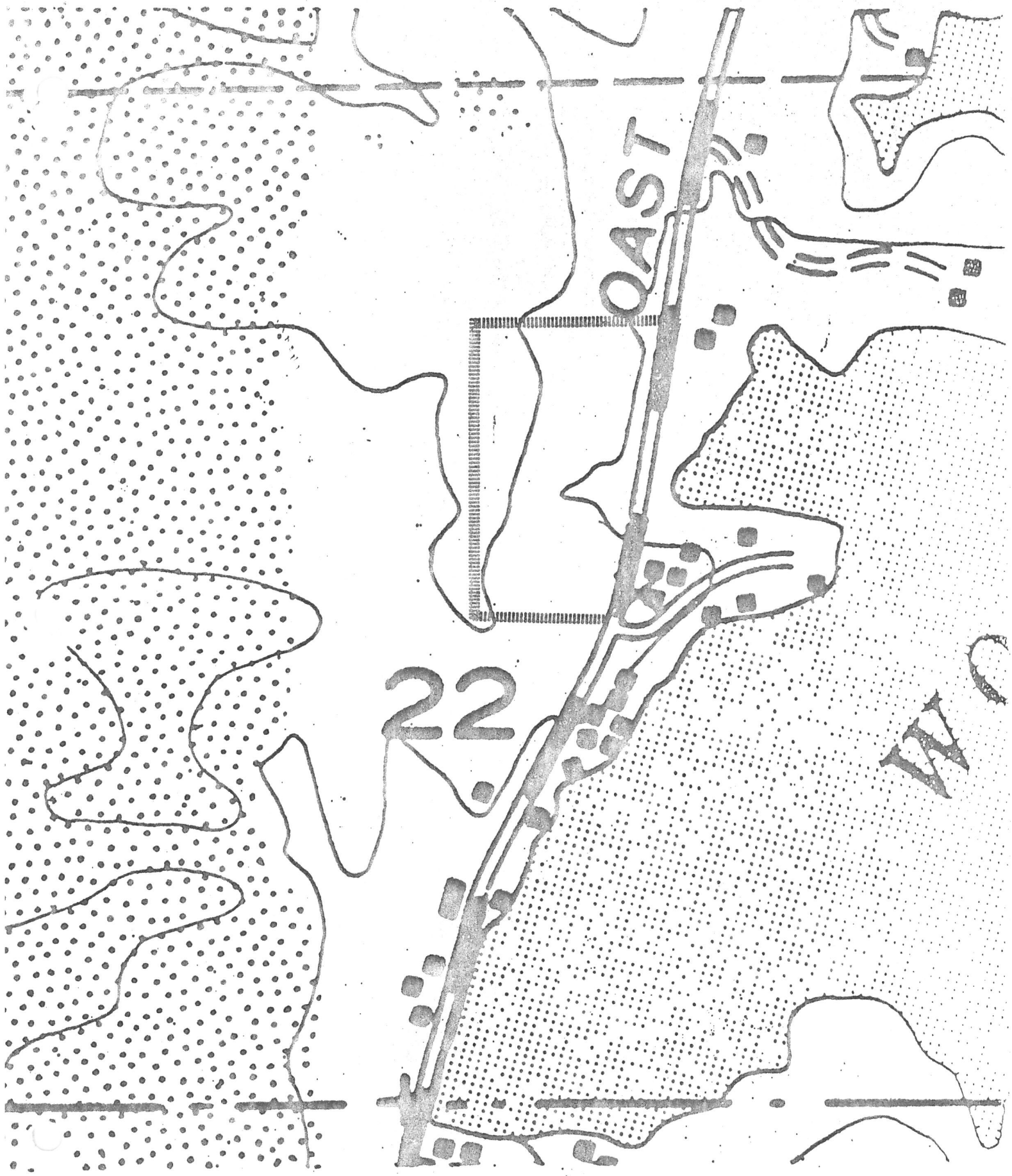
It is further submitted that this proposed project, the largest of its type ever proposed for a development in a /BD zone in Western Lane County, should have a full and comprehensive Preliminary Investigation, and that it is almost a foregone conclusion that it will require a full Site Investigation Report. If a project such as this, with the potential for major impact on 26 acres of land in a /BD zone, does NOT qualify for a full SIR, it is hard to think of one that would qualify.

Staff states an agreement with the "earlier appraisal of the site," and refers to a contour map found with the 1985 application of PA 1351-85, as well as to a "less detailed contour map provided by the applicant. (See enclosed maps). The more detailed of the two maps, the one prepared by Land Planning Consultants, does not agree with the applicant's own data submitted by his soils expert. No data source is provided for the contour information on the "map," nor are any elevations marked.

To call the map presented by the applicant (after two years' work on this project) a topographic map, in any sort of engineering sense, is almost laughable (if the subject were not so serious). It is a photo enlargement of a standard USGS Quadrangle map, and its poor detail renders it virtually useless. An original full-color version of this quadrangle is provided in the Hearings Officer's copy of this report, to provide reference data for the overall area within several miles on both sides of the proposed project. (The referenced full-color map costs $1.50 at local bookstores.)

It has been pointed out several times in the Staff Report that the lack of adequate topographic data has made proper analysis of the data very difficult. We have repeated the same theme a number of times in this report. It is submitted that there is no possible way that Staff could properly evaluate the correctness of the data submitted, or the suitability of the proposed plan, without this topographic data.


SCALE: 1" = 100'
5' CONTOUR INTERVAL
40'
40'
24' ROAD
Res. Bldg.
OREGON COAST HIGHWAY



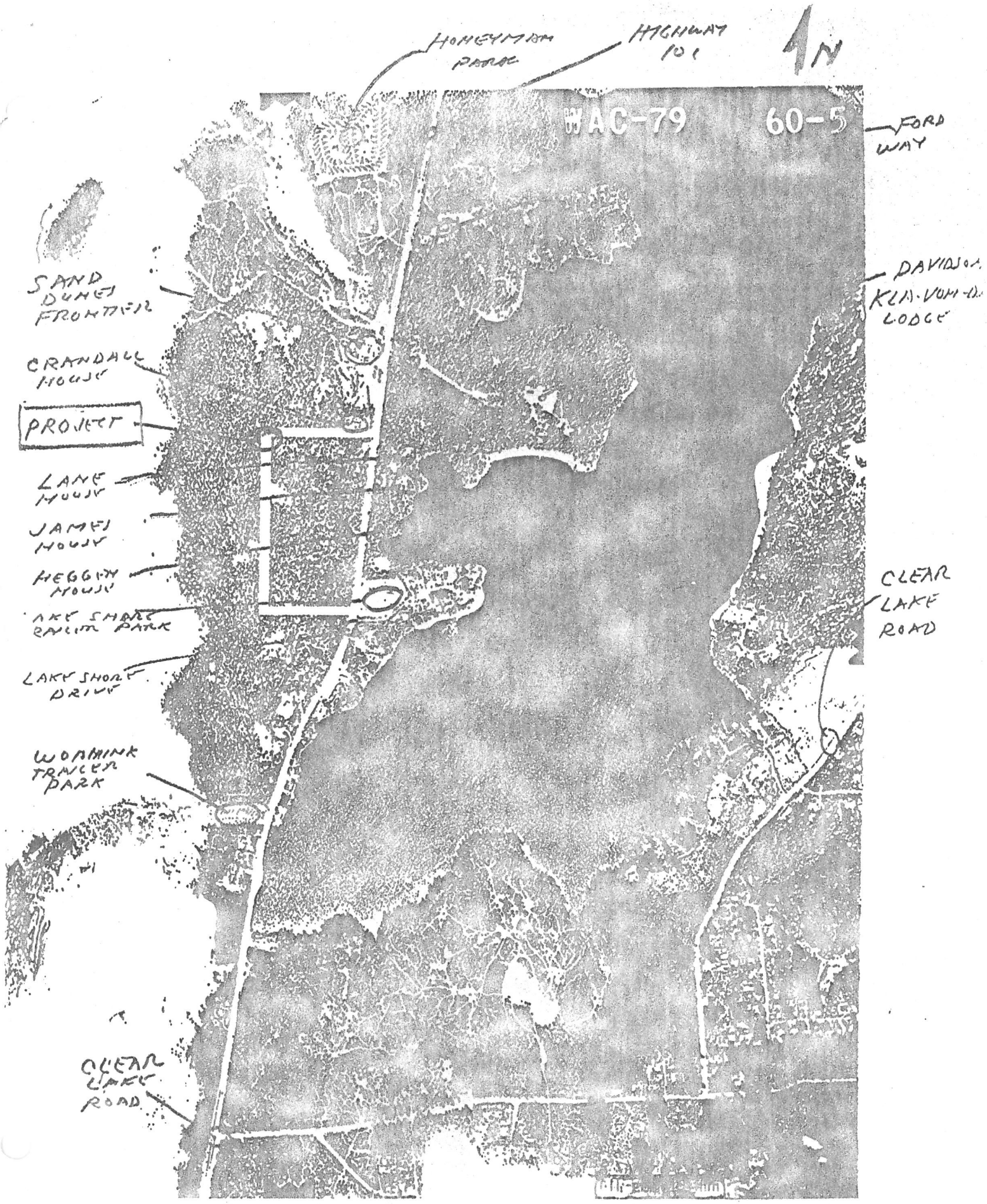
Approximate Scale - 1":650'

It is almost beyond comprehension that any developer would undertake a project of this magnitude without proper topographic data, especially in terrain as rough as that proposed for this use. Even if the County did not require this type information for a proper analysis of the proposed project, it is absolutely necessary for even the most rudimentary preliminary engineering design. This assumes, of course, that SOMEONE is doing some ENGINEERING, and that SOMEONE is doing some DESIGN. There has been little evidence of either in the submissions of the applicants to date.

The type of topographic data needed, as a minimun, is neither difficult to obtain, nor very costly. For preliminary design purposes, aerial mapping techniques can provide sufficiently accurate topographic data, even though on-site ground mapping would probably be required for final engineering work. This area was photo-mapped in 1979, and stereographic photogrammetric maps of the site for the proposed project are available. A photocopy of such an aerial map is enclosed. This is a direct contact print of a 9x9-inch original negative, one of a set that can provide full photogrammetric data. We have outlined the location of the proposed project on the map, and have marked locations of a number of other points, particularly the residences that will be most affected by the proposed project.

As stated, this map is about eight years old and should be updated if it is to be used for even preliminary design purposes. The land where the proposed project is sited has been recently partially cleared, and a number of the old logging roads have been opened up, and possibly some new ones cut in. These cleared areas will give the cartographers better benchmarks to work from in developing the topographic data. Relatively accurate two-foot contour lines can be produced from a map such as this, especially in the areas where there is some clearing of the ground cover.

The company that specializes in aerial photography of this type is Chickering Green Empire, Inc., 1370 South Bertelson Road, Eugene, telephone 343-8877. They own the master negatives from which this print was made, and can do the required cartographic work. The required aerial photography, ground surveying, and cartographic work could be done in a week or so, if the weather co-operates for good flying. This would produce a moderately high resolution map covering the area for the proposed project. This map would probably show 50 feet to the inch and would measure approximately three feet square, with all major ground points identified and topographic contours shown at two-foot intervals. This would provide Staff with the basic data needed to evaluate this proposal. (It would also provide the

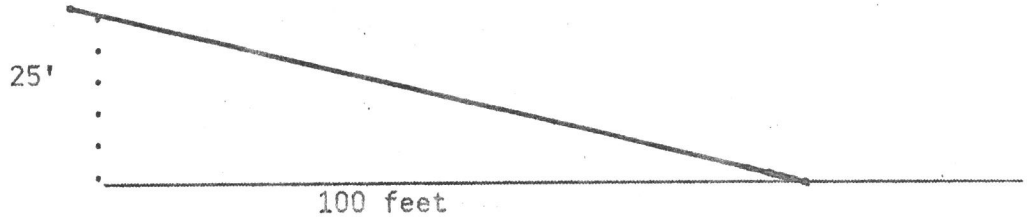

HONEYMAN PARK
HIGHWAY 101
WAC-79
60-5
FORD WAY
SAND DUNES FRONTIER
DAVIDSON KLA-VOM-O LODGE
CRANDALL HOUSE
PROJECT
LANE HOUSE
JAMES HOUSE
HEGGIN HOUSE
LAKE SHORE PARK
CLEAR LAKE ROAD
LAKE SHORE DRIVE
WOAHINK TRAILER PARK
CLEAR LAKE ROAD

developers information showing how impractical their proposed development really is, if it is to comply with Code requirements.)

The cost for this type work is not expensive, considering the scope of the proposed project. CGE, Inc. estimated that flying time to take the required new photographs would cost about $400. The surveyer's ground work, to establish benchmarks for accurate distance and elevation measurements, would cost between $200 and $300, and the cartographic services, approximately another $400.

Unless the applicant provides this type topographic data, the entire analysis becomes a big guessing game. Staff is forced to accept old data, of questionable accuracy, from unknown sources. Staff questions the applicant's statements about "no slopes exceeding 25%," and that all of the to-be-developed areas are "relatively level." However, Staff only questions these points for the areas in the southwest portion of the proposed RV park, since that area is shown on the Land Planning Consultants map as being steeply contoured. However, it is submitted that almost all the proposed development is sited on steeply contoured land, much of it on land with slopes well in excess of the maximun 25% allowed.

For reference puposes, a 25% slope is shown in the sketch below. There can be NO development in a Beaches and Dunes zone on any land that exceeds this slope.



It is submitted that virtually all of the data submitted in the applicant's section on the Beaches and Dunes Combining Zone is based on inadequate and incorrect data, and that therefore Staff's acceptance of that data is not valid. This can only be clarified by the submission of accurate, high-resolution topographic data. If the applicant DOES NOT submit such data in his revised report. WE WILL DO SO IN OUR FINAL REPORT. It should, however, be the task of the applicant to supply such essential engineering data, as a normal part of the preliminary plan-approval cycle. The burden of proof should be on the applicant.

Perhaps the reason the applicants have not submitted even the absolute minimum engineering data for this project is that they basically do not believe in the need for such data, and that they plan to build this entire project by "seat of the pants"

engineering--designing as they go along. Plans, permits, drawings, engineering, approvals, inspections, etc. are really all very time consuming, expensive, and annoying. It's easier to just go ahead and BUILD SOMETHING!! And that's exactly what the applicants are doing--RIGHT NOW!! They have already started construction of the parking lot area, near the proposed clubhouse, on Tax Lot 201, co-owned by Mike Buckwald. The enclosed photographs and site map show some of this construction work. They are ALREADY cutting into banks, on /BD zone land, with slopes exceeding 25%, in direct violation of the code. This is in direct opposition to statements in the application, in which they "promise" to meet all code requirements.

It would be hard for the applicants to claim lack of knowledge of the requirements, since Mr. Buckwald, one of the applicants and co-owner of the land, is a West Lane County Planning Commissioner!

We had originally planned to review all of the Staff Report, including Section V. CONCLUDING COMMENTS AND FINDINGS and Section II. RECOMMENDATIONS. However, the vast amount of data that we have already discussed, and the total inadequacy of the applicant's submissions, make such a review almost redundant. It is thought that almost all of the points mentioned in those two sections have already been reviewed in this paper, and that further discussion is not required to prove our points.

A listing of the missing and/or grossly inadequate items from the applicant's permit application include, but are not limited to, the following:

* NO detailed design plan
* NO preliminary engineering data
* NO storm drainage plan
* NO interior road system plan
* NO parking lot plan
* NO caretaker house plans
* NO clubhouse plans
* NO soil stabilization plan
* NO sewage system plan
* NO grey water disposal plan
* NO freshwater system plan
* NO exterior lighting plan
* NO noise control plan

IN SUMMARY, TOTALLY INADEQUATE PRELIMINARY DESIGN AND ENGINEERING DATA!!

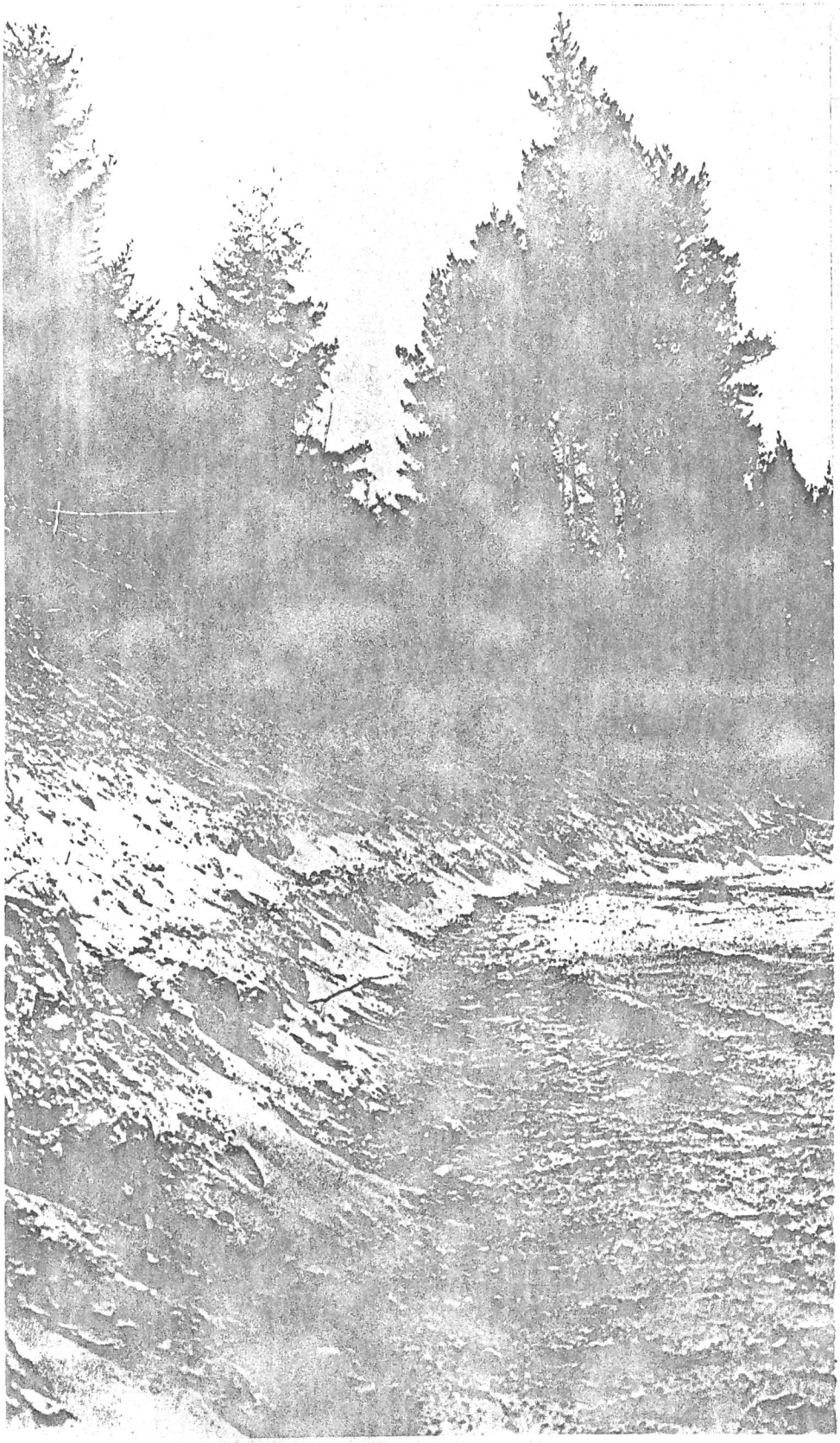
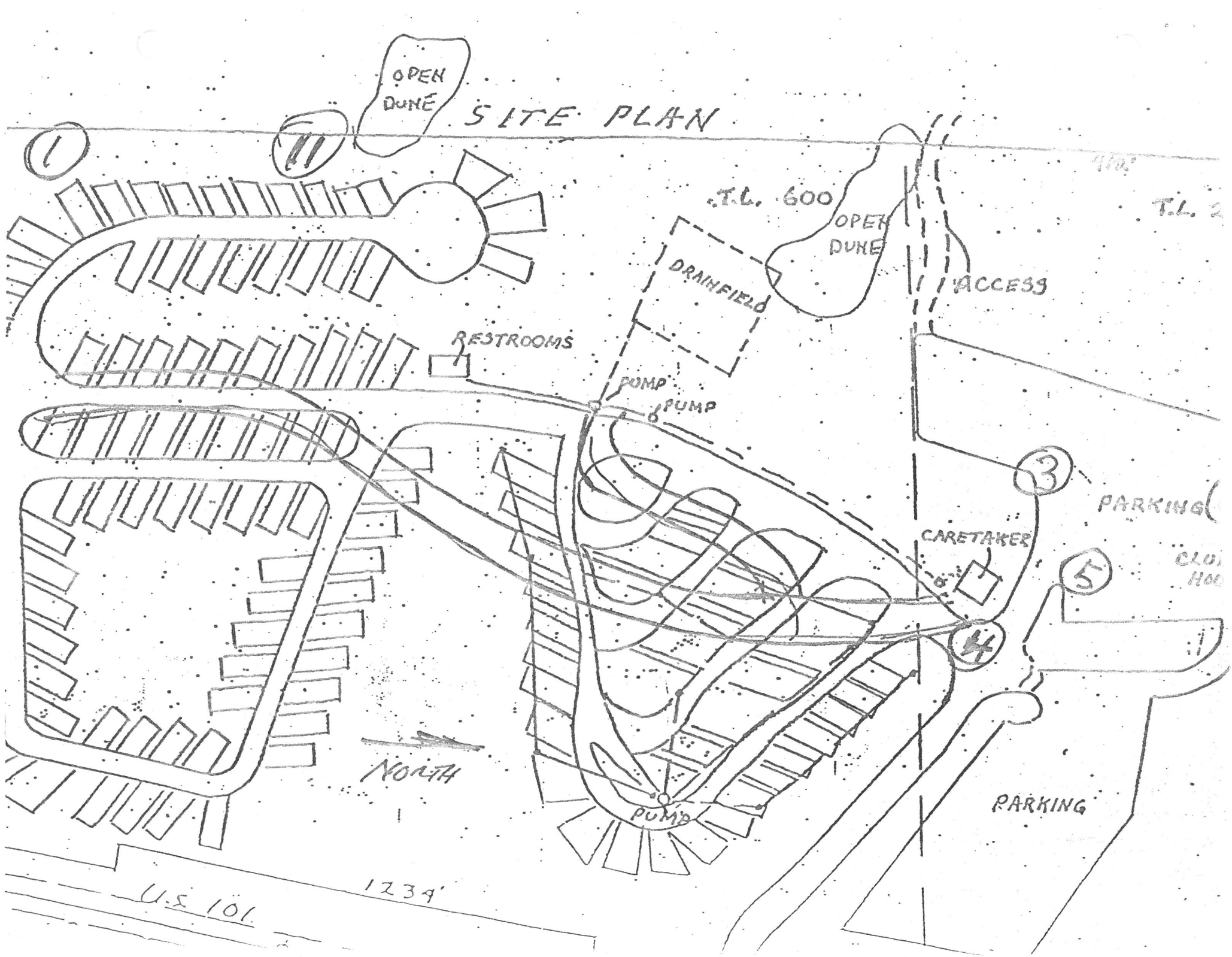


Photo 201-6D

Looking northeast from site six (see map), near the northern edge of the cleared area. The bank shown is about a 20-foot cut into a stabilized dune. Note that it is already starting to slough.


SITE PLAN
OPEN DUNE
T.L. 600
OPEN DUNE
DRAINFIELD
ACCESS
RESTROOMS
PUMP
PUMP
PUMP
CARETAKER
PARKING
PARKING
NORTH
U.S. 101
1234'
1
2
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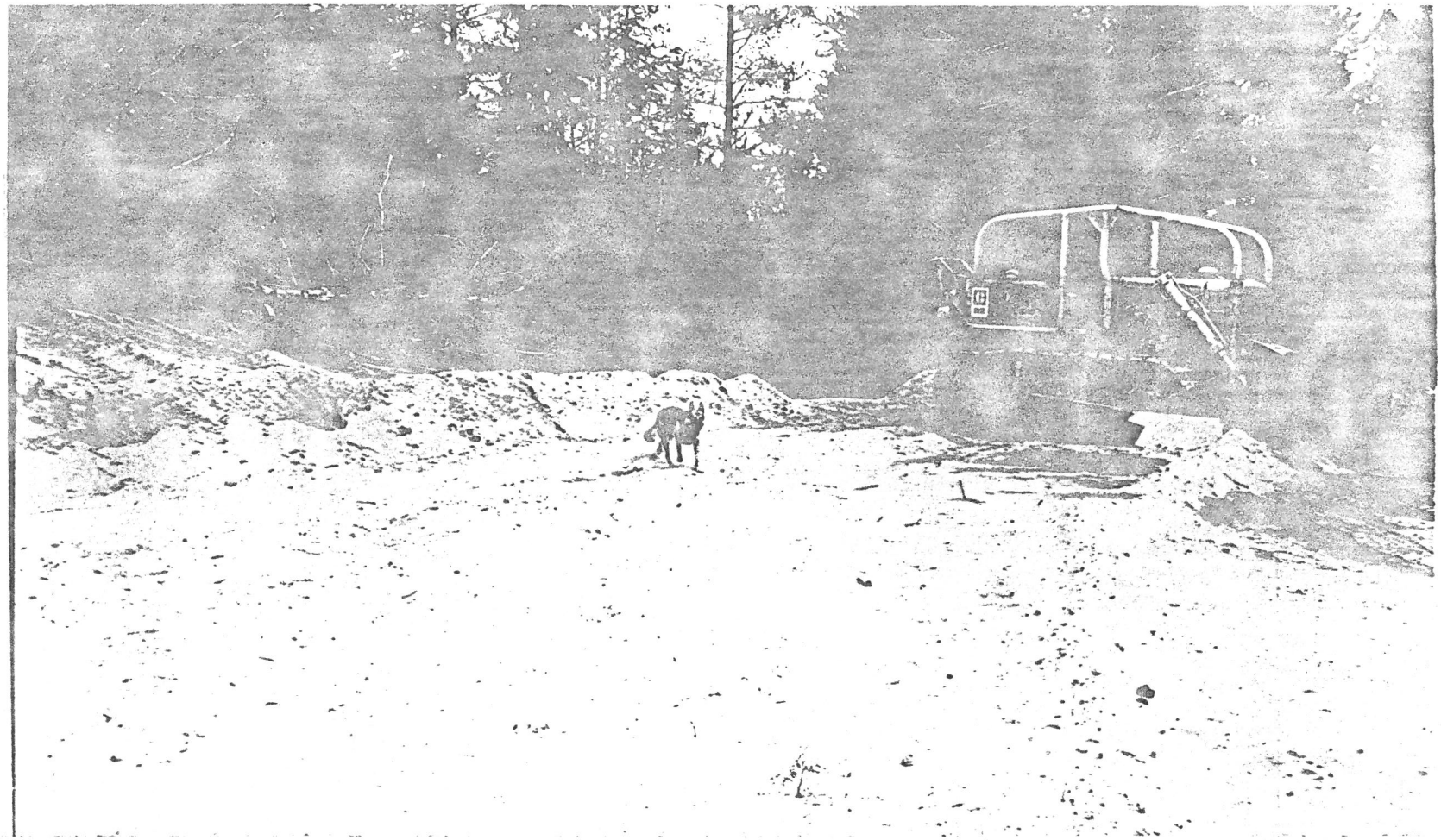

Photo 201-68

Looking northward from position six (on map), at the north edge of the parking lot/log landing. Note that the soil is mostly loose sand, as is typical of most of the area. The bulldozer in the background is Larry Hague's equipment, used to do this clearing.

Photo 201-3E

This is the parking lot/log landing area. Almost an acre has been cleared. Hague's bulldozer is located at about the position of the proposed clubhouse, as shown on the map. The tall trees behind the cat are on Mrs. Crandall's property, located immediately north of this clearing.

Photo 201-5A

Looking northwest from position five, toward the old logging road shown on the map. Notice the jumble of dead vegetation on the right-hand side of the picture. It was either dumped there, on top of marshland, or pushed there during the clearing of the landing.

Photo 201-4

This was shot from position 4, looking east. The pond in the background has been partially filled-in by the widening of the road.

ECONOMIC FACTORS REGARDING THE PROPOSED PROJECT

Although the following information is not directly related to the Staff Report, and may not be the kind of data that the Approval Authority can directly utilize in making a decision, it is thought important enough to at least present for Staff consideration.

This project has grown, since it started more that two years ago, into a very LARGE, and very EXPENSIVE program. Mr. Hague's first application to ODNRA for an access-road permit, in early 1985, listed the project as being confined to Tax Lot 201 (eight acres), and said the entire project would cost only $50,000.

Last year, in various discussions before civic groups, the Forest Service, and others, Mr. Buckwald presented an expanded program involving 26 acres, and the project cost was now estimated at about $150,000. (This figure is noted in the ODNRA Environmental Analysis report.) Recent (late March 1987) newspaper interviews with Mr. Buckwald quoted him, referring to the project's cost as "hundreds of thousands of dollars."

Based on the design and engineering data the applicants have submitted, it is quite likely that the applicants really DON'T KNOW what this project will really cost--IF it is executed PROPERLY, AND IN ACCORDANCE WITH THE APPLICABLE CODES. We maintain that this project is at least a ONE MILLION-DOLLAR program, and that the entire project is economically unsound--as it is presently proposed.

We realize that it is not the job of the county, or any public official, to question the economic factors involved in a purely private free-enterprise project. (It's every businessman's prerogative to lose money--if he really wants to do so!) However, it is submitted that it is NOT beyond those officials' responsibilities to consider certain economic factors, when it becomes obvious that those factors may significantly affect the public welfare. We believe that to be the case in this instance.

We have made a budgetary estimate of this entire program, as it has been defined by the applicant, and as we understand the requirements needed to be to meet specific building and safety codes. As in any budgetary listing, there is room for error, and for disagreement, but it is thought that, overall, these figures are

realistic. If the applicant does not believe they are realistic, let him provide alternative figures, and some justification for them. (In reality, these figures are low in comparison to industry standards.)

BUDGETARY COST ESTIMATES FOR HAGUE/BUCKWALD RV-PARK PROJECT

---

*	Land (Hague, $45 k / Buckwald, $35 k / legal, $20 k)	$ 100 K
*	Sewage disposal system (12-14,000 gal/day)	50 k
*	Freshwater system (20,000 gal/day)	50 k
*	Electrical power distribution system (800 kw)	100 k
*	Interior roads (60,000 sq. ft.)	120 k
*	Parking lots (150,000 sq. ft.)	100 k
*	RV sites - 135 (135,000 sq. ft.)	130 k
*	Clubhouse and caretaker house (50 k each)	100 k
*	Storm drainage system	100 k
*	Basic site development (landscaping/soil stab.)	100 k
*	Engineering plans (preliminary and final)	100 k
*	Highway 101 access and turn lanes (both directions)	200 k
	TOTAL:	$1,250,000

CAN THIS PROJECT SUCCEED, OR IS IT JUST A "LEAD-IN" FOR ???

This is a very expensive site for the development of an RV Park, not for the land costs, but because of the difficult terrain, and the closeness of residential areas. The cost per campsite for this location is much higher than it would be for a typical flat and level wooded area.

Forest Service Campgrounds in this area, that will be competing for customers with this project, operate at a 50% loss each year. That is, the fees charged for the use of the campgrounds cover only 50% of the actual operating costs of those campgrounds. And--that does not take into account any return on capital investment--or any profit.

As shown in the budgetary estimates above, this is at least a million-dollar program, if it is done right. There is no way that this million-dollar investment can be made profitable, SOLELY from the rental of overnight camping space.

Only last summer, when the applicant applied for a zone change on this same basic project, he stated, on page 7 of the

"Statement of the Applicant" that:

"When evaluating this request for plan amendment and rezoning, it is important to recognise the integral relationship between the commercial activities proposed (ORV rental concession and other recreational facilities) which require amendment and rezoning and the ability to develop a private campground. THE ABILITY TO PROCEED WITH THE COMMERCIAL DEVELOPMENT IS ESSENTIAL TO THE ENTIRE PROJECT." (emphasis added)

This request for a Special-Use Permit is just the first step in the conversion of this property into a fully commercial 26-acre development. The applicant has stated as much in his own words, less than a year ago.

THIS REQUEST SHOULD BE DENIED IN ITS ENTIRETY--AND IN SUCH A POSITIVE MANNER THAT NO SIMILAR ATTEMPTS SHALL BE MADE IN THE FUTURE. WE SHOULD NOT HAVE TO FIGHT THIS BATTLE EVERY YEAR !

Exhibit B

April 28, 1987

Dunes City Council
P.O. Box 97
Westlake, Oregon 97493

RE: Buckwald Proposed RV Park

The proponent states that findings of fact concerning noise, slope and water flow should be based on testimony of licensed engineers rather than that of laymen and amateurs.

Mr. "Amateur" Heggen made sound measurements which were also ridiculed by the applicant. The applicants "engineer" is now recommending the building of 400' of 8' high block wall sound barriers. It seems the "amateur" was more accurate than the engineer.

Mr. "Amateur Highway Engineer" Heggen also suggested that a traffic turn-out would be necessary. Again he was ridiculed about the need as well as his statements on traffic flow in and out. Now Buckwalds new "Engineer" say peak times will bring a flow of 200 cars an hour. That is pretty close to Mr. Heggen's estimates. The new engineer say when more than 15% of this flow comes from the south a left-hand turn will be needed. Unless this camp is to become a private playground for the buggy camps from Portland and Eugene the inflow from the south will exceed 15%. This project is supposed to attract tourists from California and all of Oregon. The boats that are supposed to make the big parking lot necessary will be hauled to the Westlake boat landing and come back from the south. The nearest drinking establishment is at Darlings and will necessitate a return from the south. In the simplest of all cases 87 units and visitor parking will create considerably more traffic congestion than the 8 to 12 residential units that would be possible on this tract.

Using the applicants own maps prepared by his soil scientist and other "experts" I indicated to the County in my own amateur way many areas where his campground was on too steep slopes. Applicant has now cut the project from 135 units to 87 and cancelled the illegal construction on steep slopes. He brags up his new topographic map and remarked about someone tresspassing and making half hearted grade shots. You must wonder why the applicant is so fearful of allowing the public to look at this land. This application is to a public agency to change public laws for the applicants benefit. He even managed to wriggle out of a site review on land that is obviously very steep and has many unusual characteristics of soil, water flow and etc.

It seems to be necessary to list credentials to be believed. I majored in Chemistry and Physics for two years at Polytechnic Institute of Brooklyn, N.Y. This was interrupted to spend three years of World War II with the Marines in the Pacific. Became a licensed building contractor in 1950 and served in that capacity till 1985. I have shot grades on hundreds of houses and parcels of land. Served for 2 1/2 yrs. on the

County Planning Advisory Committee and 3 1/2 years on the Lane County Boundary Commission and have been adjuncts to involvement with the Dunes City Comprehensive Plan since its start in 1974. My interest in land use planning was for the benefit of those that live here not the exploiters who periodically move in on us. That principle has at time obliged me to refuse jobs I judged to be incompatible with good land use practise.

The applicant says he has moved the campgrounds back off the steep slopes and now has front setbacks of 175' and 125'. If you scale his engineered topo development map you find the 175' set back is 160' and the 125' setback is actually 75'. This map means no more than the many others the applicant has presented. His public statements about ignoring county rules on slope development or taking care of unnecessary restrictions later indicate that this plan will change greatly once approval is granted.

The effect of getting conceptual approval would be to break the Dunes City rule against new commercial uses on Hwy 101 and establish a county precedent to allow RV Parks on F-2 Land. Once these two principles are established in Lane County all of the strip along Hwy 101 opposite Dunes City will become either Dune Buggy Camps with direct access or support facilities for them. Such precedent setting would surely lead to Conditional uses or rezoning on the 45 acre F-2 parcel north of the Sand Dunes Frontier, part of which is already used by the applicant.

This leads to the subject of need. To put it simply the residents of Dunes City do not need this dune buggy camp in the middle of a residential neighborhood on Highway 101. This may sound simplistic but is exactly what the Dunes City Comprehensive Plan say. The Natural Resource Goals and Policies; Air, Water and Land Quality Goals and Policies; Economy Goals and Policies; Land Use and Urbanization Goals and Policies; Residential Land Use Goals and Policies all show a desire to preserve the low density residential atmosphere of the City. Introducing a high intensity commercial use into the middle of a residential area would go against both the letter and spirit of all these Goals and Policies. Incidentally the Planning Commission Findings of Fact number 18 lists some commercial uses in the area but does not note that the Lakeshore Trailer Court is actually a residential use and in the same area there are 60 homes with a value of Six million dollars.

Commercial Policy B-1 states "Allow new commercial zones only when need can be established through public hearings as part of the zone change process." This is not a zone change application or process and if it were no evidence has been produced to show that Dunes City needs a new commercial zone. Commercial Goal A-1 demands that commercial development not detract from the City. This development because of noise, congestion and degradation of scenic value would detract from the City.

Economic Policy B-4 states that "Land will be provided for commercial uses as the need is demonstrated." This project is not for a neighborhood commercial business to service residential need. This Dune Buggy RV Park would come under section D. "Tourist Commercial" of Proposed Land Use. The criteria for such use are listed on Page 88 of the Comp Plan. Criteria #3 states quite simply "Avoid strip commercial situation on Hwy 101." This application does not meet this standard.

There are already 7 tourist commercial resorts in Dunes City. Since 1963 none of them have expanded or as far as I know has any of them applied for expansion. Dunes City also has 15 unit Tyee Campground which is full only on the big holidays when every place in the State of Oregon is full. The new Goal 3 talks of expanding Tourist Commercial uses where appropriate. Dunes City encompasses this idea in that the old Woahink Trailer Court has now become the Woahink Lake Resort RV Park. And is in a grandfathered CR zone. You all know about the money and work the Robertsons have put into this brand new Dune Buggy RV Park. It now has a direct access road into the open sand of the NRA. It has 40 spaces and room for expansion. They are still looking for their first dune buggy customer this year.

This question of ever supplying anymore commercial land on Hwy 101 must be balanced against supplying the needs of the citizens of Dunes City whom you represent. Their needs and desires are reiterated again and again in the Plan.

Buckwalds soil scientist has written comments about not understanding what my reference to a dump is although the new topo map has much clearer printing to show the "dump" station moved east about 140' off the steep slopes. Buckwald and his so called soil scientist both keep saying that the effluent in their drainfield will only flow toward the ocean. Most physicists and chemists would love to witness this amazing phenomenon of trained effluent molecules fighting their way westward against many laws of physics. As a mind experiment imagine taking a kids pail of sand and dumping it upside down on a table tilted slightly toward the west. An inch up from the bottom place a small piece of kleenex on the east side of the pile. Fill the pail with water and pour it onto the top of the cone. Will only the west side of the pile get wet or will the water disperse uniformly through the pile and touch the kleenex which represents Woahink Lake. Of course when the water reaches the table which represents the Tyee formation it will all flow west.

If Buckwald and his scientist will get someone to read their topo map to them they will see their drainfield is on top of a ridge that slopes both east and west. The immediate top area is sloped south but would be flattened in the construction process.

At a point on the Crandall property about 350 feet west of Hwy 101, about 100 feet east of Buckwalds parking lot at an elevation of about 130' are two all year springs that supply domestic drinking water and then flow on the surface down a gulley all the way to Hwy 101. These must be some rebel water molecules that escaped Wert's Law and came to the east. About 400 feet south-west of this spring on Buckwalds lot and about the same elevation there is a pond with marsh grass and skunk cabbage indicating a high water table laying on some type of banding. This pond is 250' away from the drainfield and the out-flow from it went into a gulley to a culvert and across Hwy 101. The outflow was cut by catwork on the roads.

Steve Wert is Buckwalds soil scientist. He makes many references to quotes of Herbert Schliker and he lists Bulletin 85 in his original reference material. Attached are various pages from this Bulletin 85 with excerpts underlined to show that although the major ground water flow is toward the ocean the high ground bordering the lakes would naturally produce a flow toward the lakes in keeping with the law of physics. Also attached is a picture of the pond.

Mr. Wert's error occurs in his reference to page 79 and Schlikers statement that "the water table slopes upward from the stream levels in the valleys and curves up to its highest level beneath the higher part of the dune lands." A cross section or picture of the water table would curve upward from the stream or in this case Woahink Lake level. However the water itself will flow down this slope as it has been known to do since time began. There is no way water can flow upward from Woahink Lake to the height of the water table under the highest dune.

Applicant has produced no concrete data to show this project will not affect the waters of Woahink Lake. You already have sufficient information in many other areas to reject this project in its entirety.

John S. Carlson

John S. Carlson

P.O. Box 126
Westlake, Oregon 97493

Phone: 997-3102

STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
1069 State Office Building, Portland, Oregon 97201

BULLETIN 85

ENVIRONMENTAL GEOLOGY OF COASTAL LANE COUNTY OREGON

Herbert G. Schlicker, Oregon Department of Geology and Mineral Industries,
Robert J. Deacon, Shannon & Wilson, Engineers, Inc.,

with a section on ground water by
R. C. Newcomb and R. L. Jackson, Shannon & Wilson, Engineers, Inc.

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OREGON DISTRICT COUNCIL OF GOVERNMENTS

The edges of a stabilized sand area can be eroded by undercutting along streams or by gullying on steep slopes.

The areas underlain by stable sand are being subjected to development pressure for both permanent and recreational housing. The main areas being developed are those bordering the lakes, the land adjacent to the coast highway, and a significant area between Heceta Beach and Florence.

Stabilized sand areas can be damaged easily by improper land use; therefore, the capabilities and limitations of each site should be fully understood and developed accordingly. Because loose sand will be exposed to the wind where the soil cover and vegetation is removed, such areas may need to be temporarily stabilized during extended construction periods. All cut slopes and graded areas that are to remain uncovered by construction should be permanently stabilized by replacing soil and planting vegetation.

Septic tank drainfields do not operate properly in many situations. Open sands allow the effluent to reach the water table and contaminate the ground water. Sand, although highly permeable, has inadequate pore space for storage of effluent; therefore, drain fields must be unusually large. In a short time the pore spaces and passages for effluent plug up, the drain field becomes inoperative, and effluent is forced to the surface. It may also come to the surface along moderate to steep slopes and enter drainage channels, especially where iron-cemented layers or other impermeable zones are present.

As the density of housing increases, more and more effluent will enter and contaminate the coastal lakes -- if such has not happened already. To prevent contamination of the lakes, public sewerage systems should be installed or land development restricted.

Alluvium (Qal)

Geology

The Siuslaw and smaller streams in coastal Lane County are situated in narrow canyons and most of the low terraces are subject to flooding (see Hazards Map). The valley bottom is half a mile wide maximum in the lower reaches of the Siuslaw River and the North Fork of the Siuslaw River and tapers to less than one-tenth of a mile wide in the eastern part of the map area.

Natural and man-made levees are present in the flood plain west of Mapleton and in the North Fork of the Siuslaw River. The flood-plain deposits range in composition from silty clay to sandy silt. Adjacent to the mouths of some tributary streams, small deltas of sand or sandy gravel have been deposited. Smaller streams located in volcanic terrain, such as Tenmile and Big Creeks, have narrow flood-plain deposits composed predominantly of small- to medium-size gravel that is generally less than 10 feet thick. In the wider parts of the flood plain, the coarse materials are generally mantled with several feet of sand or sandy silt.

The low terraces and flood plains of the Siuslaw River and North Fork of the Siuslaw River are used extensively for agriculture. In addition, lumber and plywood mills and marine installations associated with shipping and fishing are located on the river and adjacent flood plain as far east as Mapleton. The mill sites have been diked to protect them from all but the highest floods.

Engineering characteristics

Developments in the flood plain should be limited to those which can withstand floods or can be adequately protected from flood damage. Diking to control flood waters and improperly located land fills can produce adverse effects by retarding the escape of flood water from upstream areas. This can not only cause extended periods of flooding but can produce higher than normal flood-water elevations. A combination of heavy runoff and very high tides makes floodgates temporarily ineffective. Stream banks are frequently subject to excessive erosion. Stream-bank erosion is most likely to occur along a meandering stream such as the North Fork of the Siuslaw River. Flood-plain deposits are also being eroded along the Siuslaw River, Tenmile Creek, and Big Creek.

The use of car bodies, riprap, and piling will temporarily retard erosion, but in some cases the erosion will be directed elsewhere along the channel and continual maintenance of riprap will be necessary.

Hydrologic characteristics: The sand is typical of such dune lands along the Oregon Coast; the grain-size curve for this sand deposit (Figure 11) is practically a duplicate of that plotted for samples of the Coos Bay dune lands (Brown and Newcomb, 1963) and the Clatsop dune lands (Frank, 1970). The grain-size curves indicate these coastal sands are all of similar grain size; 80 percent of each sample consists of grains at, or very near, the screen size of 60 mesh to the inch, or 0.25 millimeters diameter.

In laboratory tests, the porosity of 4 samples from the sand deposit of the Coos Bay dune lands ranged from 35.8 to 38.5 percent (Brown and Newcomb, 1963), and 4 samples from the Florence sand deposits ranged from 36.5 to 39.2 (Hampton, 1963); the specific yield (1) of the respective samples ranged from 34.5 to 37.0 and 32.3 to 35.0 percent. The laboratory permeability (2) derived for the eight samples ranged from 270 to 630 gpd/ft^2 (gallons per day per square foot) and averaged 535. This general range of permeability has been substantiated by pumping tests on partial penetrating wells wherein transmissivity(3) of the sand formation has been derived as ranging from 27,000 to 60,000 for the Coos Bay sand deposit (Brown and Newcomb, 1963), as 50,000 for the sand in well 18/12W-14P4 at Florence * (Hampton, 1963) and as 27,000 in a well in the Clatsop sand deposit (Frank, 1970). When the average laboratory permeability (535 gpd/ft^2) is multiplied by the saturated thickness of 100 feet (a common thickness for the Florence sand deposit), the resultant transmissivity of 53,500 would be in general agreement with the average transmissivity derived by test pump methods mentioned above.

The water table

Below the surface level of the streams and lakes, and below the depth of a few feet to a few tens of feet over much of the dune lands, the void spaces in the earth are filled with ground water. The top of the saturated zone is the water table. The depth to the water table has not been observed in many uninhabited parts of the Florence dune lands, but its general shape is sufficiently well known from existing wells, springs, and surface water that its general position can be inferred. The general shape is a subdued replica of the surface. The water table slopes upward from the stream levels in the valleys and curves up to its highest levels beneath the higher parts of the dune lands. Its shape is indicated in cross sections, Figure 10. As is evident in the sections, the water table lies close to, or above, the surface over large areas of the sand plain north of Florence. In places, this shallow water table has detrimental effects on the drainage and usability of parts of the area.

Recharge of the ground water

The storage of water in the sand aquifer increases in the winter months and decreases during the summer. The high point in ground storage is reached in February or March and the low point in September or October of most years.

An example of the rate at which water from precipitation (directly on the dune lands) reaches the water table is shown by Figure 12 (taken from Hampton, 1963). This graph shows that during the period July 1 to October 1, 1959 (a period of 6.6 inches of rainfall [Reedsport]), the water table at well 18/12W-23D1, a mile north of Florence, dropped 2½ feet, but from October 1 to March 1, 1960 (a period of 63.6 inches [Reedsport]), the water level rose 5.15 feet.

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(1) As used in most field studies of ground water and as defined by O. E. Meinzer (Wenzel, 1942), the specific yield is the volumetric percentage of the water that drains compared to the volume of the sand from which it drains under the force of gravity.

(2) Likewise, the permeability is the rate of flow of water, in gallons per day, through a cross sectional area of 1 square foot under a hydraulic gradient of 100 percent at the prevailing water temperature.

(3) Transmissivity (formerly called coefficient of transmissibility) is equal to the permeability multiplied by the thickness of the aquifer. It was defined by Theis (1935) as the number of gallons of water per day, at the prevailing temperature, that will pass through a section of the aquifer 1 foot wide extending the full saturated thickness of the aquifer under a hydraulic head of unit.

* Computed from the specific capacity method of Theis (1954).

The response of the water table to additions, or lack, of water from precipitation is complex in detail, but in both the Coos Bay (Brown and Newcomb, 1963) and the Florence (Hampton, 1963) dune lands, the estimates of the portion of the average annual precipitation that reaches ground water exceeds 75 percent. A ground-water addition of 75 percent of 65 inches precipitation over the 30 square miles of the Florence dune lands would amount to 77,000 acre feet of recharge per year.

The larger lake systems (Siltcoos-Woahink, Munsel-Collard, Mercer, and Sutton) have surface water inlet and outlet streams. The lakes and their outlet streams are in general balance with the water table nearby, and the levels of the lakes are higher than the ground water only during lowest levels of the water table in late summer. If the slightly higher lake level shown for Munsel Lake on Hampton's (1963) Figure 10 is taken as typical for the $4\frac{1}{2}$ miles of lake-water table contact in the sand aquifer, an estimate of only 33 acre feet per mile is indicated as ground-water recharge from the lake during the whole 5 months of low water table each year. This shows that the recharge from the lake is insignificant.

Discharge of ground water

Because unconfined ground water moves in the general direction of the slope of the water table, the greatest water movement in the sand aquifer is westward to the ocean, and a minor amount moves east to the lake systems. Because about nine-tenths of the sand aquifer lies west of the north-south ground-water divide, the western part (56,500 acre feet) of the ground water discharge must move to the ocean or to the lowest part of the Siuslaw River. This oceanward percolation of ground water moves under an average water-table gradient of 50 feet per mile through a section 15 miles long and 125 feet thick.

According to D'Arcy's law and with the above determined permeability of 535 gpd/ft^2, the annual discharge oceanward through the sand aquifer should equal 50.3 million gallons per day or 56,400 acre feet per year. The total annual estimate of the discharge to surface water, both west and east, would be 62,750 acre feet per year. Apparently, most of this ground water discharges inconspicuously below the level of the surface water, because the small springs that can be observed would account for only a few thousand acre feet of water per year.

The discharge of ground water by transpiration from the vegetation (Lodgepole pine and rhododendron), which covers about half of the Florence dune lands, may be approximated by use of Hampton's (1963) measurements. His Figure 3 shows that transpiration of vegetation lowered the water table .02 foot during 10 daylight hours in August at a location where the water table was 4 to 5 feet below the surface. An estimate of the total is possible if the following assumptions are allowed: (1) this drawdown (0.02 ft) represents one-half the water depth actually removed by the vegetation, (2) the sand has a specific yield of 34 percent, and (3) this rate of withdrawal by vegetation is twice the average of the total (wooded and bare) area for 10 hours each day in 5 months of each year. This computation would indicate 7,830 acre feet of ground water is discharged per year by the transpiration of vegetation within 12 square miles having a relatively shallow water table.

Only about 250 acre feet of ground water is withdrawn per year for consumptive use,* as described below.

Thus, these empirical estimates placed in an annual budget for the ground water of the Florence dune lands would indicate:

Agency	Recharge (acre feet)	Discharge (acre feet)
Infiltration from precipitation	77,000	
Infiltration from lake systems	250	
To surface waters		62,750
Transpiration		7,830
Pumping withdrawals		250
	77,250	70,830

* Consumptive use - that water lost to the ground water system by evaporation, transpiration, or discharge directly to the ocean after use.

SUMMARY AND RECOMMENDATIONS

Almost every area has geologic and environmental conditions that jeopardize normal use of the land; Lane County is no exception. With information on the geologic problems that might reasonably be expected, better use can be made of the land and geological hazards can either be circumvented or minimized.

Although this report is of a general nature, it will serve as a guide to County planners, officials, and the general public who are involved in planning and land use. It can be used to determine when the services of specialists should be employed to the benefit of both the County and the developer.

The following discussion reviews the major geologic problems which need to be considered in land development with emphasis on the areas having the greatest development pressures.

Sand Areas

Sand areas include both the active dunes and the old stabilized dunes extending several miles inland to the margins of the many lakes in the area.

Although the areas of actively moving sand dunes are not generally developable, they will in places be used for roads, parking, and recreational sites. Problems here include drifting sand, high water table, winter flooding, and foundation problems in low strength, unconsolidated sand or peat. Drifting sand can be partially controlled by sand fences and plantings to protect roadways and parking areas. Restroom facilities will need to be located in areas sufficiently higher than the summer water table. Winter use when the water table is high could be negligible. Flooding in winter can temporarily halt traffic with little consequences. Only light foundation loads should be necessary for this type of recreational development.

Development pressures for new commercial residential and recreational land is mainly centered in areas underlain by sand. These are located adjacent to lakes along the U. S. Highway 101 and from Heceta Beach to Florence. Much of the sand is tree and brush covered and has moderate to thin soil development overlying unconsolidated sand.

Low-lying areas are subject to a near-surface water table much of the year, and septic tanks will not be operable. These areas should not be developed until the land is filled above the water table and sewerage systems have been installed.

Areas of thin sand or soils overlying Tyee bedrock adjacent to the lakes do not generally have a water-table buildup because the water drains freely to the lake. This indicates that, in most cases, septic tanks also drain directly into the lake. Since several of the local water-supply systems draw from the lakes, a health problem already exists or will in the future. A public sewer system should be installed before the density of homes increases and the lake pollution becomes critical.

In constructing roads and leveling ground for buildings in old dune areas, the removal of ground cover and soil will expose loose sand to wind erosion and transport, causing buildup of sand dunes on driveways, streets, and around buildings. All loose sand exposed in development should be quickly stabilized by appropriate methods.

Foredunes have been used for building sites in a few areas but generally with undesirable results. Wave undercutting and wind erosion of the foundations is a constant threat. Heavy use of the foredune causes its destruction by killing the grass cover, allowing the wind to blow the sand inland. Protection of a structure located on a foredune by riprap is costly, unattractive, and a never-ending task to maintain.

Construction Aggregate

Rock is used in western Lane County for construction and maintenance of forest roads, highways, County roads, and local building and development. Much of the rock used by the Siuslaw National Forest is produced from Federally owned quarries; almost all of that used by the Federal Highway Administration and the Oregon Highway Division has been imported from outside the study area. These two agencies use about 90,000 tons total annually, and this amount is not expected to change much in the future since it is not related to local population increase.

The local use of aggregate for housing, industrial developments, commercial buildings, public buildings, and County roads is directly related to population. Rock for these purposes is consumed at a rate of about 10 tons per person annually, for a total of 70,000 tons. By 1985, western Lane County, with a predicted population of 9,500, would require at least 95,000 tons of aggregate annually at the present rate of consumption.

Only one major commercial aggregate source is presently operating in western Lane County. Others could possibly be developed; however, it may be necessary to import rock from Reedsport or Eugene to meet the needs.

Oil and Gas

Prospects for commercial deposits of oil and gas are good offshore from Lane County. Several oil companies still hope to come back to this area in the future to do more drilling. Although information has not been released, reportedly nearly all the drillings off the Oregon Coast obtained shows of hydrocarbons.

Onshore prospects in Lane County are less encouraging, but some areas may still hold promise. Along the Coast, hydrocarbon deposits may exist in middle and lower Eocene marine sediments.

Ground Water

Large quantities of ground water are stored in the dune sands that occupy the coastal plain of western Lane County. The dune deposits are as much as 150 feet thick and are composed of fine-grained, wind-blown sand and minor amounts of silt, clay, and organic material. Significant but lesser amounts of ground water are stored in the flood-plain deposits. Bedrock units underlying the remaining region have low permeability and consequently meager ground water.

Water recharge in the dunes is responsive to the period of high (65-inch) rainfall between October 1 and March 1. About 75 percent of the precipitation which falls on the area, or about 77,000 acre feet, enters the aquifer. Only 250 acre feet of ground water is withdrawn, with the remainder discharged to surface waters or lost by transpiration. Approximately 50,000 acre feet (45 million gpd) of ground water could be withdrawn without danger of sea water intrusion. Except for a low pH (acid condition) and a slight excess of dissolved iron, the water is chemically good. The removal of the acidity and the iron is a simple process.

The water temperature is 53° or 54° F and most of the water is odorless and has satisfactory taste. Locally the water is a brownish color from organic material in the sand, but usually water from wells several hundred feet deep will be clear.

Contamination of the ground water will be an ever-increasing problem unless precautions are taken to control the use of septic tanks and to eliminate sewage disposal in sand areas. Studies should be made to determine the feasibility of utilizing the ground water in the future, and areas should be set aside where the ground water can be protected from surface activities which could cause contamination.

Photo 201-4

This was shot from position 4, looking east. The pond in the background has been partially filled-in by the widening of the road.