

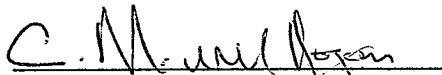
**UPDATED ACOUSTICAL REPORT FOR PROPOSED**

**THE MEADOWS KENNEL  
6445 STATE ROUTE 12  
SONOMA COUNTY, CALIFORNIA**

~~UTE: 11-0020~~

**PLP11-0042**

Prepared by:



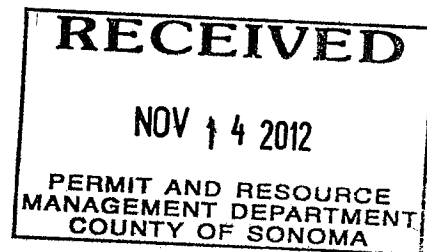
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Updated  
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UPDATED ACOUSTICAL REPORT FOR THE PROPOSED MEADOWS KENNEL, 6445 STATE ROUTE 12,  
SONOMA COUNTY, CALIFORNIA

UPE 11-0020

Prepared for:

Heidi Neiman

Meadows Kennel

Updated

12 November, 2012

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REPORT ABSTRACT

This report addresses updated acoustical findings with regard to the subject expansion of Meadows Kennel, 6445 State Route 12, Sonoma County, California in association with Sonoma County UPE 11-0020. The present report updates and augments data previously supplied in regard to the subject project in the report entitled "Noise Impacts and Mitigation in Connection with the Proposed Meadows Kennel, 6445 State Route 12, Sonoma County, California", dated 24 August, 2011.

Salient findings of this updated report by Lumina Technologies are:

- Noise impacts to neighboring residential properties are projected to be negligible and generally below thresholds of human perception.
- The noise environment of the subject neighborhood is dominated by sound emanating from vehicular traffic on California State Route 12 along with agricultural machinery noise produced by the parcel to the east of the subject Meadows Kennel site; the projected future noise environment when the Meadows Kennel expansion project is implemented will continue to be dominated by that same suite of noise sources. This assertion is valid for residential receptions on both sides of State Route 12 in the subject neighborhood.
- Each day of sound level measurements was conducted with dogs present in the outdoor environment on the Meadows site; however, the amount of energy contributed to ambient sound levels from on site dogs was much less than one percent of the sound energy for any of the hourly intervals, and accordingly contributed no measurable amount to the ambient sound levels.
- Noise impacts of the proposed project will conform to requirements of Sonoma County regulations and guidelines.
- All aspects of best available noise control technology have been incorporated into the proposed Meadows Kennel expansion as represented in the architect Patrick Slayter plans, dated September, 2012 and further augmented by any mitigation measures set forth in the present Lumina Technologies report. (All current architectural oversight and coordination for this project are being conducted under architect Patrick Slayter.)
- Projected sound levels for the completed project operation with mitigation in place have been analyzed and are virtually indistinguishable from the unmitigated project, owing to the fact that the dominant sound energy is contributed by State Route 12 and the agricultural machinery operating on the site to the east of Meadows Kennel. There is less than one half decibel difference in the mitigated and unmitigated project. Nevertheless, the sound mitigation measures are recommended as best management practices.

EXISTING AREA SOUND LEVELS

Lumina Technologies conducted 24 hour measurements of area acoustical conditions on four separate days in 2012. Prominent findings of the measurements are:

1. The Lumina Technologies data are consistent with prior data published in the Sonoma County General Plan Noise Element, even though the locational data of the County is not as close to the study area as the Lumina data.
2. The present sound levels in the project area are dominated primarily by traffic moving on State Route 12, and secondarily by intermittent agricultural machinery operating on the parcel unrelated to and east of the Meadows Kennel site.
3. The Ldn value measured by Lumina Technologies at the southernmost part of the Berndt property line (Location A) is 60 Ldn based upon the four days of Lumina measurements.
4. The Ldn value measured by Lumina Technologies at the Oakmont site (Location B) property line is 68 Ldn based upon the four days of Lumina measurements

## EXISTING AND PROJECTED SOUND LEVELS

Previous sound level measurements reported in that certain report entitled "Noise Impacts and Mitigation in Connection with the Proposed Meadows Kennel, 6445 Highway 12, Sonoma County, California", dated 24 August, 2011, are hereby confirmed using independent calculations of sound propagation which consider topography, microclimate, Meadows Kennel expansion, and the existing and projected dominant noise source of State Route 12.

Additional measurements and calculations were made for that residential property immediately north of the Meadows Kennel at the location of the residential property line closest to the Meadows Kennel, denoted on Figure 1 as microphone location 2. Existing sound levels at the subject northern residential property line have been measured and the results reported in Tables 3 and 4.

It has been found that resulting sound levels from the Meadows Kennel at that northern receptor site will have negligible impact (less than one decibel) for all time periods and acoustical metrics. In fact, State Route 12 is and will continue to be the audible and dominant sound source at this northerly residential receptor site, whether or not the Meadows Kennel expansion is implemented. Furthermore, future sound levels at the northern residential receptor may actually decline by a small amount (up to one decibel), due to the fact that the proposed new kennel building will partially block some fraction of the sound emanating from State Route 12.

Lumina has also conducted additional sound level measurements on the Oakmont (south) side of State Route 12 at a point at the nearest residential property line with respect to the new proposed kennel building, denoted as microphone location 1 on Figure 1. Measurements were made over four 24 hour periods at this location. The results of these new measurements are set forth in Tables 1 and 2. Projected impacts of expanded kennel operations yield identical (within a margin of one decibel) future outcome levels for the Oakmont location. This projection is due to the very high intensity of noise emanating from State Route 12 that would dominate and overshadow any marginal noise contributions from the expanded kennel.

In Tables 1 through 4, the daytime and nighttime selected was based upon the most stringent weekday or weekend time period (i.e. generally the quietest time periods within the 24 hour measurement interval). Days of 24 hour measurements include April 26, April 30, August 29, November 9 and November 11, 2012.

ADJUSTED SOUND LEVEL STANDARDS

Sonoma County explicitly provides for adjustment of its daytime and nighttime sound level standards for several circumstances. The potential adjustments germane to the present application are: (a) due to ambient conditions exceeding the County Standards and (b) due to the potential for barking dogs being present in a future scenario. First the barking dog reduction is applied, and then the adjustment to actual present ambient is to be applied, if such a second adjustment is applicable. Note that the second adjustment of ambient levels was only applicable for Location 2 under the L50 acoustic metric, since for Location 2 only for the L50 metric did the ambient level exceed the barking dog adjusted County Standard.

## RECOMMENDED SOUND MITIGATION MEASURES

The following mitigation measures are set forth to assure the absolute minimum emanation of noise from the Meadows Kennel site. These measures should be considered as incorporated as integral components of the Meadows Kennel project design. Some of these measures have been previously advanced by the project applicant, and all of the measures have been discussed between Lumina Technologies and the project applicant; furthermore, the project applicant has agreed to implement all of the construction and operational measures set forth herein:

- No dogs will be permitted outdoors between 8 pm and 7 am each day of the week
- No more than 20 dogs will be permitted outdoors at any time. This number of 20 outdoor dogs includes any dogs having open access to outdoor runs
- No more than 35 dogs are proposed on site (including interior locations) at a given time
- The new kennel building proposed will not be closer to State Route 12 than the existing kennel building
- All doors and windows of existing and new kennel buildings shall be kept closed at all times except as needed for entrance and egress
- The new kennel building shall have a building shell equal or superior to the existing kennel building shell regarding sound transmission characteristics. In particular, such new shell will include (1) wood siding, (2) roofing material equal or superior in mass density to the existing kennel roof, (3) interior surfaces covered with gypsum board both for walls and ceiling, (4) total window area less than ten percent of total wall area
- Dog doors for new and existing kennel shall have double covers including hard panel sliding members and heavy flat type members. Sliding panels shall have gaskets or seals for best practicable perimeter sealing
- Dog doors for new kennel shall be positioned only such that they face an existing building on site, such that sound emanations off site will be at an absolute minimum. All Dog doors shall have an insulated internal door with a insulated noise barrier flap and an additional external door for nighttime containment. Outside dog doors are located across from a berm, trees and redwood privacy fence.
- Ductwork above ceilings of new kennel shall have exterior wrap insulation
- All windows of new kennel shall be non operable and shall be permanently sealed. Such windows shall be of superior thickness (e.g. double glazed or one quarter inch in total thickness) for sound insulation properties. Windows are Milgard Quietline series, raising each window STC to 47 from 30.
- The existing kennel building shall have upgraded insulation including the following: permanent sealing of the garage door; increasing the insulation of all windows by at least 3 decibels; replacement of exterior doors with solid core assemblies; additional layer of sound reducing drywall: Quiet Rock on all interior walls bringing the overall STC rating of the wall assemblies to 53 from the prior rating of 34 to 39. (These measures have all been carried out.)

LINE ITEM RESPONSES TO BERND LETTER OF APRIL 19, 2012

The following responses are made to those certain comments contained in that letter authored by the Berndts of April 19, 2012. Please note that Lumina Technologies has no relation to the prior acoustical consultant, upon whose work the letter is generated.

1. Request to perform analysis on the Bernd property. Lumina Technologies came to the same conclusion as the Berndts, two days before the Bernd letter was issued. The Bernd property should be analyzed, and in fact Lumina has carried out both field measurements and calculations on the Bernd property using the property line standard. Lumina wishes to point out that the property line standard offers the Bernd property the most stringent analysis of acoustical impacts. The April 19<sup>th</sup> letter is misleading as it suggests an activity area standard is desirable. In fact, analysis at any point other than the Bernd southern property line (that line common to Meadows Kennel) would give a less stringent analysis of acoustical impacts. The full analysis of the Bernd property line impacts are presented in the foregoing body of this report. In further response to commentary of the April 19<sup>th</sup> letter, one should note that the buildings located on the Meadows Kennel site do provide highly effective noise mitigation for such dogs as may be in the dog runs attached to either kennel building.
2. Dog management assumptions. The Meadows Kennel does not plan on the use of any barking control collars. The Meadows Kennel requires registration of owner contact details as well as backup contact details. Any dog who engages in systematic barking will be immediately required to be taken off the premises by the owner or secondary contact. No more than 20 dogs will be allowed out of doors at any time. Dogs in dog runs are also counted as outdoor dogs. Thus no more than 20 dogs will be outside at any time, including dogs in dog runs. All other dogs will be fully enclosed within kennel buildings.
3. Counting of outdoor dogs. As stated above, any dog who has access to an outdoor dog run is considered an outdoor dog. The maximum number of outdoor dogs will be 20. This maximum includes all dogs that are in play areas plus any dogs that have access to outdoor runs. In no case will more than 20 dogs be outside at any given time, including any dogs that have access to dog runs.
4. Applicable standards. Due to the high intensity of traffic noise from State Route 12 throughout the study area, the dominant noise source (with or without dog contributions) is State Route 12. Furthermore, the use of a standard is totally dictated by the preponderance of State Route 12 as the basis of ambient sound levels. Thus the chief question to be answered is whether kennel operations alter the ambient level by an amount inconsistent with county standards. This approach is utilized in the analysis herein and heretofore in this report.
5. Noise sensitive receptors. As indicated above Lumina Technologies agrees with the Bernd letter that Oakmont is not the site of the most proximate receptor, and accordingly the Bernd property has been analyzed by Lumina for noise impacts and reported herein.



6. Time of noise measurements. In response to the April 19<sup>th</sup> letter, additional measurements were made by Lumina over 24 hour intervals to include weekend mid-mornings and on weekday afternoons. In response to the query regarding best methodology of microphone placement, Lumina utilizes microphone placement at five feet above ground, simulating most likely location of the human ear.
7. Indoor versus outdoor dogs. As stated earlier, no more than 20 dogs will be allowed outside at any given time. A dog with access to an outdoor run is counted as an outdoor dog.
8. Basis for dog barking levels. The database used by Lumina was chosen from some of the highest intensity barking dogs known such as Australian shepherds, German shepherds and Border collies. Only medium and large dogs were used in the database. (As far as the prior study, Lumina understands that the dogs used were medium sized breeds such as Border collies. A worst case of twenty outdoor barking dogs was assumed in locations allowed for such outdoor dogs. Note that a realistic worst case is based on intermittence of barking observed at the Meadows and other kenneling sites. Note also that the expected outcome of dog barking is expected to be much less than the worst case calculations used in Tables 1 through 4, since the Meadows Kennel staff employs intensive screening of dogs accepted and intensive management oversight. This outcome of lack of collective barking has been observed and validated in the measurement data of this report.

Hourly Metric	Daytime Standard	Adjusted Daytime Standard	Existing Daytime Level (Location 1)	Projected Daytime Level (Location 1)
L50	50	59	59	59
L25	55	61	61	61
L08	60	62	62	62
L02	65	63	63	63

Table 1. County Standards, existing and projected daytime sound levels for Location 1, Oakmont

Notes:

1. L50 is the level exceeded for 30 minutes in a given hour
2. L25 is the level exceeded for 15 minutes in a given hour
3. L08 is the level exceeded for eight percent of a given hour
4. L02 is the level exceeded for two percent of a given hour
5. All sound levels are given as decibels on the A measurement scale
6. Existing levels are representative of 2012 conditions
7. Projected levels are those expected to arise with approval of the kennel expansion project
8. Projected levels are the same as reported to the integer precision level for unmitigated and mitigated project, since the overarching sources of noise are State Route 12 and machinery operations on the vineyard parcel to the east of Meadows Kennel.

Hourly Metric	Nighttime Standard	Adjusted Nighttime Standard	Existing Nighttime Level (Location 1)	Projected Nighttime Level (Location 1)
L50	45	50	50	50
L25	50	52	52	52
L08	55	53	53	53
L02	60	54	54	54

Table 2. County Standards, existing and projected nighttime sound levels for Location 1, Oakmont

Notes:

1. L50 is the level exceeded for 30 minutes in a given hour
2. L25 is the level exceeded for 15 minutes in a given hour
3. L08 is the level exceeded for eight percent of a given hour
4. L02 is the level exceeded for two percent of a given hour
5. All sound levels are given as decibels on the A measurement scale
6. Existing levels are representative of 2012 conditions
7. Projected levels are those expected to arise with approval of the kennel expansion project
8. Projected levels are the same as reported to the integer precision level for unmitigated and mitigated project, since the overarching sources of noise are State Route 12 and machinery operations on the vineyard parcel to the east of Meadows Kennel.

Hourly Metric	Daytime Standard	Adjusted Daytime Standard	Existing Daytime Level (Location 2)	Projected Daytime Level (Location 2)
L50	50	54	54	54
L25	55	55	55	55
L08	60	60	57	57
L02	65	65	59	59

Table 3. County Standards, existing and projected daytime sound levels for Location 2, northern property line of Meadows site

Notes:

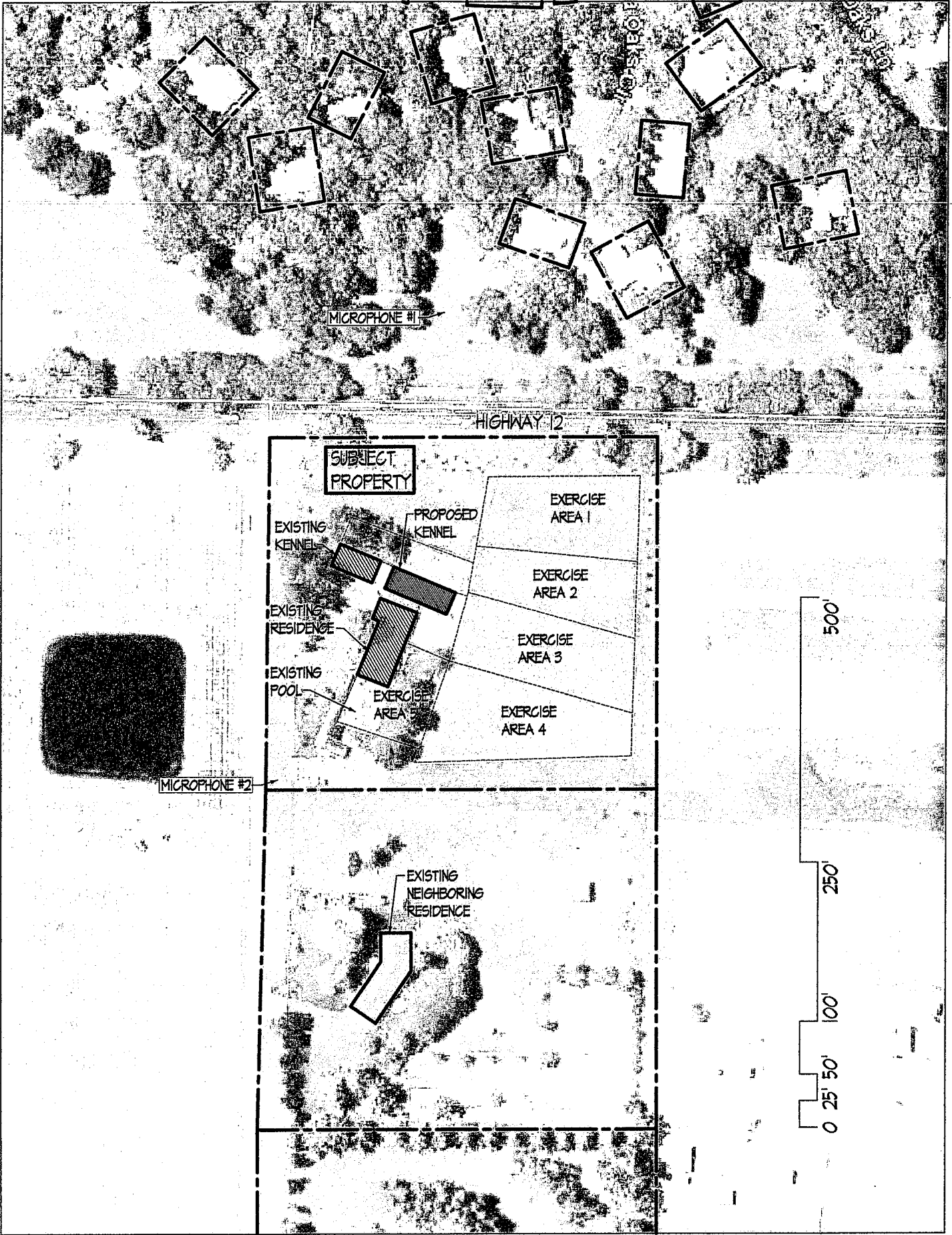
1. L50 is the level exceeded for 30 minutes in a given hour
2. L25 is the level exceeded for 15 minutes in a given hour
3. L08 is the level exceeded for eight percent of a given hour
4. L02 is the level exceeded for two percent of a given hour
5. All sound levels are given as decibels on the A measurement scale
6. Existing levels are representative of 2012 conditions
7. Projected levels are those expected to arise with approval of the kennel expansion project
8. Projected levels are the same as reported to the integer precision level for unmitigated and mitigated project, since the overarching sources of noise are State Route 12 and machinery operations on the vineyard parcel to the east of Meadows Kennel.

Hourly Metric	Nighttime Standard	Adjusted Nighttime Standard	Existing Nighttime Level (Location 2)	Projected Nighttime Level (Location 2)
L50	45	42	42	42
L25	50	45	45	45
L08	55	50	49	49
L02	60	55	54	54

Table 4. County Standards, existing and projected nighttime sound levels for Location 2, northern property line of Meadows site

Notes:

1. L50 is the level exceeded for 30 minutes in a given hour
2. L25 is the level exceeded for 15 minutes in a given hour
3. L08 is the level exceeded for eight percent of a given hour
4. L02 is the level exceeded for two percent of a given hour
5. All sound levels are given as decibels on the A measurement scale
6. Existing levels are representative of 2012 conditions
7. Projected levels are those expected to arise with approval of the kennel expansion project
8. Projected levels are the same as reported to the integer precision level for unmitigated and mitigated project, since the overarching sources of noise are State Route 12 and machinery operations on the vineyard parcel to the east of Meadows Kennel.



MICROPHONE #1

HIGHWAY 12

SUBJECT PROPERTY

EXISTING KENNEL

PROPOSED KENNEL

EXERCISE AREA 1

EXISTING RESIDENCE

EXERCISE AREA 2

EXISTING POOL

EXERCISE AREA 3

EXERCISE AREA 4

EXERCISE AREA 4

MICROPHONE #2

EXISTING NEIGHBORING RESIDENCE

