#### CALIFORNIA COASTAL COMMISSION SAN DIEGO AREA 7575 METROPOLITAN DRIVE, SUITE 103 SAN DIEGO, CA 92108-4421 (619) 767-2370



# Th20a

## 6-18-0723 (THE LOT DEL MAR LLC)

## JUNE 13, 2019

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Photo 2. Looking east at San Dieguito Lagoon

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California Coastal Commission



Photo 3. Looking south at terminus of San Andres Drive



Photo 4. Looking south at parking lot and wall along southern edge of property

GAVIN NEWSOM, GOVERNOR

#### CALIFORNIA COASTAL COMMISSION

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## MEMORANDUM

- TO: Stephanie Leach, Coastal Program Analyst
- FROM: Laurie Koteen, Ph.D., Ecologist
- RE: The LOT Del Mar LLC
- DATE: May 30, 2019

#### Documents Reviewed:

- California Coastal Commission, CDP 6-04-88 Staff Report for implementation of the San Dieguito Wetland Restoration Plan, Southern California Edison and San Dieguito River Valley Joint Powers Authority: Applicants, October 10, 2005.
- Electrical Efficacy Consulting., Del Mar Photometrics, Fixture Schedule, E1.1, April 25, 2018.
- Electrical Efficacy Consulting., Del Mar Photometrics, Fixture Cut Sheets, E1.2, April 25, 2018.
- Electrical Efficacy Consulting., Del Mar Photometrics, , South & East elevation lighting elevations, E2.1, April 25, 2018.
- Electrical Efficacy Consulting., Del Mar Photometrics, North elevation lighting elevations, E2.2, April 25, 2018.
- Engel, Jonna, Memorandum to Ventura Staff (California Coastal Commission): Update and Further Biological Analysis of the Proposed Artificial Night Lighting at the Component 5 Intramural Field, September 26, 2013.
- Firebaugh A, Haynes KJ. 2019. Light pollution may create demographic traps for nocturnal insects. Basic and Applied Ecology 34:118-125.

EXHIBIT 5	
APPLICATION NO.	
6-18-0723	
Biological Memo by	
Dr. Laurie Koteen California Coastal Commission	

- Gaston KJ, Davies TW, Bennie J, Hopkins J. 2012. REVIEW: Reducing the ecological consequences of night-time light pollution: options and developments. Journal of Applied Ecology 49:1256-1266.
- Glisson WJ, Conway CJ, Nadeau CP, Borgmann KL. 2017. Habitat models to predict wetland bird occupancy influenced by scale, anthropogenic disturbance, and imperfect detection. Ecosphere 8 (art. e01837).
- Helix Environmental Planning, Biological resources letter report for the Lot Del Mar project to Mr. Adolfo Fastlicht, August 2, 2018.
- Helix Environmental Planning, Biological Analysis of the Lot Del Mar project, February 14, 2019.
- Illuminating Engineering Society. 2011. The Lighting Handbook: Reference & Application, Tenth Edition. 1328 pgs.
- International Dark-Sky Association- Illuminating Engineering Society. June 15, 2011. Joint IDA-IES Model Lighting Ordinance (MLO) with User's Guide. 44 pgs.
- Joop, Marquenie, Maurice Donners, Hanneke Poot, Willy Steckel Bas de Wit, Adapting the spectral composition of artificial lighting to safeguard the environment, <u>http://www.opc.ca.gov/webmaster/\_media\_library/2016/01/Marquenie-et-al-2008-</u> <u>Adapting-Spectral-Composition-Artificial-Lighting.pdf</u>, 2008.
- Lighting Analysts, AGi32, Illumination Lighting Software, The Lot, Del Mar, AGi32 Report, January 22, 2019.
- Overton CT, Takekawa JY, Casazza ML, Bui TD, Holyoak M, Strong DR. 2015. Sea-level rise and refuge habitats for tidal marsh species: Can artificial islands save the California Ridgway's rail? Ecological Engineering 74:337-344.
- Stone EL, Harris S, Jones G. 2015. Impacts of artificial lighting on bats: a review of challenges and solutions. Mammalian Biology 80:213-219.
- Zembal, Richard, Susan Hoffman, Charles Gailband and John Konecny, Clapper Rail Recovery Fund, Huntington Beach Wetlands Conservancy, Final Report to State of California Natural Resources Agency, Dept. of Fish and Wildlife, Wildlife Branch, Light-footed Ridgway's (Clapper) Rail Management, Study, and Zoological Breeding in California, 2016 Season, December 2016.

I have been asked to evaluate ecological impacts associated with permitting for a planned movie theater, called the Lot, to be built on the edge of an existing shopping center in the city of Del Mar, San Diego County, *Figure 1*. Although located within an urban area, the planned movie theater will be constructed adjacent to the San Dieguito Lagoon<sup>1</sup>; an environmentally sensitive resource area, or ESHA. San Dieguito Lagoon is in the process of being restored, as mandated under CDP: 6-04-88 to provide compensatory mitigation for marine impacts caused from the operation of the San Onofre Nuclear Generating Station. To date, restoration activities in the 150 acre lagoon are on-going with the goal of creating sub-tidal, mudflat, transitional and mid- and high marsh habitats<sup>2</sup>. Currently, the wetland is occupied by several special status species, including California least tern, *Sterna antillarum browni*, the California gnatcatcher, *Polioptila californica*, Belding's Savannah sparrow, *Passerculus sandwichensis*, and California's light-footed Ridgway's rail, *Rallus obsoletus levipes*<sup>3</sup>. As such, both the wetland and ESHA policies of the Coastal Act are invoked under the current permit, with the Coastal Act serving as the standard of review.

The location where the theater is to be built is occupied by a parking lot and one raised pad colonized entirely by weedy species. Because the development will be confined to the pad and a portion of the parking area, I do not anticipate any direct habitat impacts from the built structure. However, due to the environmental sensitivity and conservation status of the surrounding area, I do have concerns about impacts from lighting and noise. Any impacts from noise to nesting birds in the project vicinity will be avoided by established buffers between nesting birds and noise-generating construction activities during the nesting season, and seasonal restrictions at times when birds are nesting too close to the construction location for avoidance, as conditioned in the staff report<sup>4</sup>. To observe the current lighting on site, and to envision the potential impact of additional noise and lighting on the adjacent wetland habitat upon its completion, I visited the site of the proposed structure on January 22, 2019.

Lighting can profoundly affect the foraging, communication and reproductive behavior of many wildlife species with a crepuscular or nocturnal life style. Impacts can develop when species are either attracted (as with insects) or repelled (as with bats) by night lighting<sup>5</sup>. Lighting can also

<sup>&</sup>lt;sup>1</sup> California Coastal Commission, CDP 6-04-88 Staff Report for implementation of the San Dieguito Wetland Restoration Plan, Southern California Edison and San Dieguito River Valley Joint Powers Authority: Applicants, October 10, 2005.

<sup>&</sup>lt;sup>2</sup> California Coastal Commission, CDP 6-04-88 for implementation of the San Dieguito Wetland Restoration Plan, Southern California Edison and San Dieguito River Valley Joint Powers Authority: Applicants, October 10, 2005.

<sup>&</sup>lt;sup>3</sup> Mark Page, personal communication.

Zembal, Richard, Susan Hoffman, Charles Gailband and John Konecny, Clapper Rail Recovery Fund, Huntington Beach Wetlands Conservancy, *Final Report to State of California Natural Resources Agency, Dept. of Fish and Wildlife, Wildlife Branch, Light-footed Ridgway's (Clapper) Rail Management, Study, and Zoological Breeding in California, 2016 Season,* December 2016.

<sup>&</sup>lt;sup>4</sup> Special Condition 4, pages 7&8 of the Staff Report.

<sup>&</sup>lt;sup>5</sup> Firebaugh A, Haynes KJ. 2019. Light pollution may create demographic traps for nocturnal insects. Basic and Applied Ecology 34:118-125, Gaston KJ, Davies TW, Bennie J, Hopkins J. 2012. REVIEW: Reducing the ecological consequences of night-time light pollution: options and developments. Journal of Applied Ecology 49:1256-1266, Stone EL, Harris S, Jones G. 2015. Impacts of artificial lighting on bats: a review of challenges and solutions. Mammalian Biology 80:213-219.

attract bird species that forage at night by illuminating prey species. At the urban-wildlife interface, particularly in estuarine environments, enhanced light availability can increase the foraging success of some nocturnal wetland birds in these locations, but it can also endanger them by increasing both their proximity and visibility to urban predators<sup>6</sup>. For species that are naturally secretive and deliberate in their avoidance of humans and human development, such as California's light-footed Ridgway's rail, habitat lighting reduces the tidal refugia available for nesting and foraging, especially in light of sea level rise, which will further reduce suitable habitat<sup>7</sup>.

Impacts to ESHA and to coastal wetlands that are also ESHA, such as those that would result from lighting impacts to San Dieguito Lagoon and associated species are not an allowable use under Coastal Act sections 30240. Section 30240 directly addresses the impacts to ESHA and states:

Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

Directly addressing steps to mitigate the impacts of areas adjacent to ESHAs, section 30240 goes on to state:

Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

To mitigate potential impacts to ESHA from development within adjacent properties, I drew from the handbook that has been developed by experts in impacts of nighttime lighting and their guidelines designed to minimize these impacts to ensure compatibility with Coastal Act policies and from the IDA-IES *Model Lighting Ordinance User's Guide<sup>8</sup>*. The 10<sup>th</sup> Ed. of the IES

<sup>&</sup>lt;sup>6</sup> Mougeot F, Bretagnolle V. 2000. Predation risk and moonlight avoidance in nocturnal seabirds. Journal of Avian Biology 31:376-386, Santos CD, Miranda AC, Granadeiro JP, Lourenco PM, Saraiva S, Palmeirim JM. 2010. Effects of artificial illumination on the nocturnal foraging of waders. Acta Oecologica-International Journal of Ecology 36:166-172.

<sup>&</sup>lt;sup>7</sup> Glisson WJ, Conway CJ, Nadeau CP, Borgmann KL. 2017. Habitat models to predict wetland bird occupancy influenced by scale, anthropogenic disturbance, and imperfect detection. Ecosphere 8 (art. e01837).

Overton CT, Takekawa JY, Casazza ML, Bui TD, Holyoak M, Strong DR. 2015. Sea-level rise and refuge habitats for tidal marsh species: Can artificial islands save the California Ridgway's rail? Ecological Engineering 74:337-344.

<sup>&</sup>lt;sup>8</sup> International Dark-Sky Association- Illuminating Engineering Society. June 15, 2011. Joint IDA-IES Model Lighting Ordinance (MLO) with User's Guide. 44 pgs.

Lighting Handbook<sup>9</sup>, documents a 5-Zone Lighting System that applies different lighting standards to locations of different environmental sensitivity. The most environmentally sensitive zone, is Zone zero, or LZ-0. The definition of LZ-0 is:

Areas where the natural environment will be seriously and adversely affected by lighting. Impacts include disturbing the biological cycles of flora and fauna and/or detracting from human enjoyment and appreciation of the natural environment. Human activity is subordinate in importance to nature. The vision of human residents and users is adapted to the darkness, and they expect to see little or no lighting. When not needed, lighting should be extinguished<sup>10</sup>.

The IDA-IES Model Lighting Ordinance User's Guide gives recommendations for which lighting zone should apply to which areas. This guide recommends that areas with a designation of LZ-0 have the following characteristics:

Lighting Zone 0 should be applied to areas in which permanent lighting is not expected and when used, is limited in the amount of lighting and the period of operation. LZ-0 typically includes undeveloped areas of open space, wilderness parks and preserves, areas near astronomical observatories, or any other area where the protection of a dark environment is critical. Special review should be required for any permanent lighting in this zone. Some rural communities may choose to adopt LZ-0 for residential areas.

This guide further states that LZ-O is the:

Recommended default zone for wilderness areas, parks and preserves, and undeveloped rural areas. Includes protected wildlife areas and corridors.

<sup>&</sup>lt;sup>9</sup> Illuminating Engineering Society. 2011. The Lighting Handbook: Reference & Application, Tenth Edition. 1328 pgs. <sup>10</sup> Illuminating Engineering Society. 2011.

This designation seems entirely applicable to the proposed location of the theater, which is directly adjacent to the San Dieguito Wetland restoration project, *Figures 1&2*, which is a state marine conservation area, as designated by the California Dept. of Fish and Wildlife<sup>11</sup>.

The standards in the above referenced documents prescribe thresholds for lighting concepts such as light trespass, defined as "the light that falls beyond the property it is intended to illuminate", and sky glow. Sky glow is defined as "the brightening of the nighttime sky that results from scattering and reflection of artificial light by moisture and dust particles in the atmosphere". Sky glow results from illumination that is directed or reflected upward, and which obscures the ability to view the night sky<sup>12</sup>. The lighting limitation for LZ-0 is "no ambient lighting" and the pre-curfew threshold is 0.01 fc<sup>13</sup>, which is equivalent to the natural lighting on a moonlit night<sup>14</sup>.

To conform with the designated lighting thresholds, all lights that will occupy the exterior of the structure will be of low wattage, of a color temperature below 3000K, and be shielded so that no light is directed upwards and that illumination is directed primarily within the parking area. Color temperature is important because light in the red portion of the light spectrum disorients many species of migrating birds<sup>15</sup>. The lighting model, AGi32 was used to assess the combined lighting impact of multiple light fixtures at the property edge, which amounts to a combined illuminance of 0.01 fc. Because reflected light is also a concern for sky glow, the material of the patio that will be located outside the movie theater has been conditioned to be of dark, non-reflective material. Although some light pollution is already present at the site due to the tall floodlights on site to illuminate the parking area, and ambient light from numerous sources, including I-5, which is just west of the project location, this project, as conditioned will not add to the ambient light pollution in the area.

In all, Coastal Commission staff is satisfied with the efforts that have been made on the part of the project applicants to reduce impacts from light pollution in the adjacent estuarine region.

<sup>&</sup>lt;sup>11</sup> <u>https://www.wildlife.ca.gov/Conservation/Marine/MPAs</u>

<sup>&</sup>lt;sup>12</sup> Illuminating Engineering Society. 2011.

<sup>&</sup>lt;sup>13</sup>One FC, or footcandle: One footcandle is the illuminance produced by a candle on a surface one foot square from a distance of one foot.

<sup>&</sup>lt;sup>14</sup> IES, 2011.

<sup>&</sup>lt;sup>15</sup> Jonna Engel, personal communication, and

Joop, Marquenie, Maurice Donners, Hanneke Poot, Willy Steckel Bas de Wit, Adapting the spectral composition of artificial lighting to safeguard the environment, 2008.



Figure 1: Site of the proposed theater. San Dieguito Lagoon is to the south and east of the Lot Complex.



b)

Figure 2a and b: The view directly facing southeast from the Lot Complex, near ground (above) and far ground (below).