



H. T. HARVEY & ASSOCIATES

Ecological Consultants

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January 26, 2021

Fiona Phung
David J. Powers & Associates
1871 The Alameda, Suite 200
San José, CA 95126

Subject: 2300 Calle de Luna – November 2020 Updated Avian Collision Risk Assessment
(HTH #3953-02)

Dear Ms. Phung:

Per your request, H. T. Harvey & Associates has assessed avian collision risk for the proposed new buildings located at 2300 Calle de Luna in Santa Clara, California. The 5.5-acre project site is bounded by Calle de Luna to the north, Calle del Sol to the east, Tasman Drive and commercial development to the south, and Lafayette Street to the west. It is our understanding that, as part of the Tasman East Specific Plan, the project is subject to the bird-safe design requirements described in Mitigation Measure BIO-3.1 of the Specific Plan's final Environmental Impact Report (EIR). We further understand that David J. Powers & Associates has requested our assistance with an analysis of bird-safe design measures proposed by the project applicant to determine whether the design complies with Mitigation Measure Bio-3.1. This report summarizes our analysis and provides recommendations to comply with bird-safe and lighting design requirements of the EIR.

Methods

This assessment was prepared by Steve Rottenborn and me. Briefly, our qualifications are as follows (résumés attached):

- I am a wildlife ecologist with a B.S. in Ecology from the University of California, San Diego and an M.S. in Fish and Wildlife Management from Montana State University, where my Master's thesis focused on factors affecting the nest survival of yellow warblers (*Setophaga petechia*), dusky flycatchers (*Empidonax oberholseri*), and warbling vireos (*Vireo gilvus*). Trained as an ornithologist, I specialize in the nesting ecology of passerine birds, with a broad range of avian field experience from across the United States. I am an avid birder, and I volunteer as a bird bander for the San Francisco Bay Bird Observatory, where I banded, sexed, and aged resident and migrant passerine species from 2010–2020. I have spent hundreds of hours in the

field conducting nesting bird surveys for H. T. Harvey & Associates projects over the past 13 years, and have found hundreds of passerine nests as well as many nests of raptors.

- Steve Rottenborn has a Ph.D. in biological sciences from Stanford University, where his doctoral dissertation focused on the effects of urbanization on riparian bird communities in the South San Francisco Bay area. He has been an active birder for more than 35 years and has conducted or assisted with research on birds since 1990. He has served for 9 years as an elected member of the California Bird Records Committee (including 3 years as chair) and for 13 years as a Regional Editor for the Northern California region of the journal *North American Birds*. He is a member of the Scientific Advisory Board for the San Francisco Bay Bird Observatory, the Technical Advisory Committee for the South Bay Salt Ponds Restoration Project, and the Board of Directors of the Western Field Ornithologists.

Although the subject of bird-friendly design is relatively new to the West Coast, we have performed avian collision risk assessments and identified measures to reduce collision risk for several projects in the Bay Area, including projects in the cities of San Francisco, Oakland, South San Francisco, Redwood City, Menlo Park, Palo Alto, Mountain View, Santa Clara, Sunnyvale, and San José.

Assessment of Collision Risk

The potential for birds to collide with buildings in the Plan area was previously assessed in the Specific Plan EIR. However, a number of factors contribute to the potential for bird collisions with Plan area buildings, including the design and location of the buildings, and no site plan or specific project design was available when the EIR was prepared. Mitigation Measure 3.1 allows the City to waive or reduce bird-safe design requirements based on an analysis by a qualified biologist indicating that proposed construction will not pose a collision hazard to birds. Per the EIR, such a waiver is generally not appropriate for façades adjacent to well-vegetated areas, but a waiver may be appropriate, for example, for façades that face developed areas lacking vegetation, water features, or other features that would be particularly attractive to birds. Thus, in the context of the EIR, we considered the potential for birds to collide with the proposed buildings at 2300 Calle de Luna based on the project design information provided by David J. Powers & Associates and Steinberg Hart through November 2020 in order to determine if a waiver of any bird-safe design requirements in Mitigation Measure 3.1 is appropriate.

The project design includes the construction of high-density multifamily apartments and townhomes, neighborhood retail spaces, a home for the ambulatory aged, and associated amenity spaces including a 0.5-acre public park. The two project buildings are (1) a home for the ambulatory aged consisting of a 20-story, 219-foot tall tower with 191 dwelling units and parking on Levels 1 and 2; and (2) a market-rate apartment building with 509 residential units, 16,754 square feet of commercial retail space, and parking on Levels 1–7 in six townhomes, a 238-foot-tall 22-story tower over a podium, and a midrise building (Figure 1).

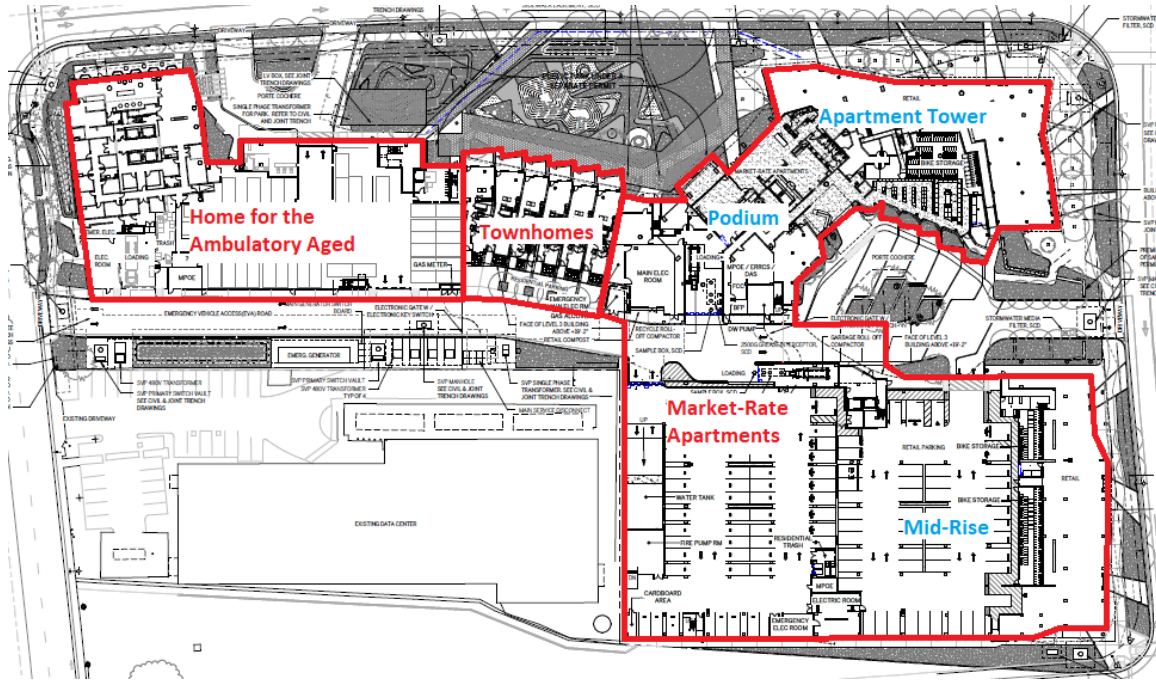


Figure 1. Project site plan outlining the two primary buildings in red and identifying components of the market-rate apartment building in blue.

The design of the buildings' façades includes overhangs, opaque wall panels, and mullions that are expected to increase the visibility of the buildings to birds and reduce the potential for birds to collide with the buildings (Figures 2 and 3). Store front areas along Calle del Sol and Calle de Luna will also incorporate an adjacent trellis or an overhead canopy in some areas, which will also increase the visibility of these areas to birds and reduce the potential for bird collisions.

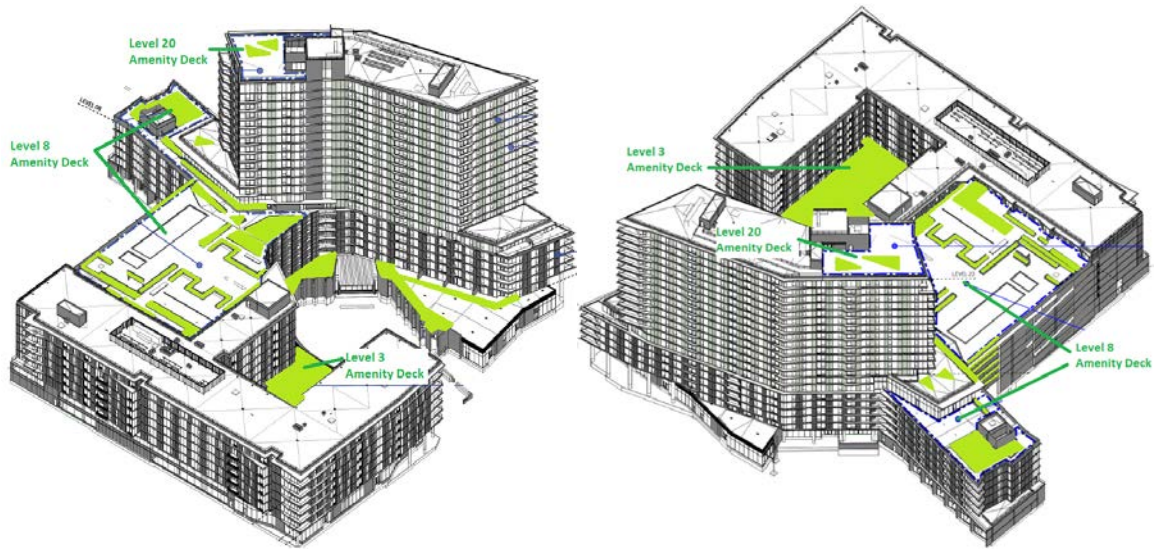


Figure 2. The proposed market-rate apartment building includes extensive glazing, but mullions, opaque wall panels, spandrel, and overhangs increase the visibility of the building to birds. Vegetated areas located on amenity decks above Level 1 are highlighted in green.

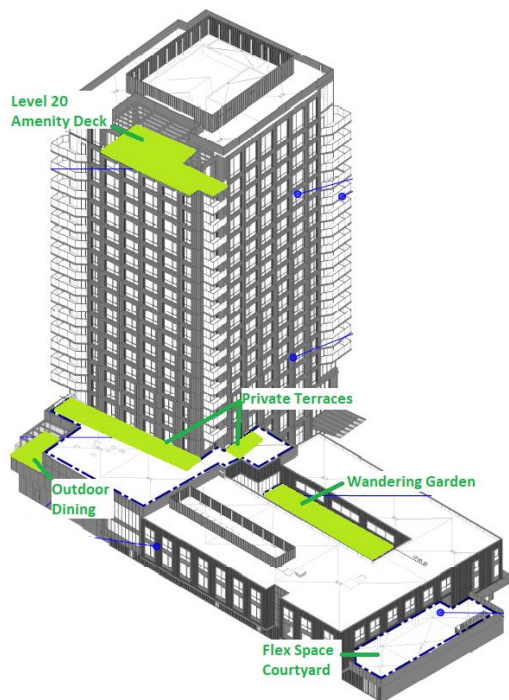


Figure 3. The proposed home for the ambulatory aged includes extensive glazing, but mullions, opaque wall panels, spandrel, and overhangs increase the visibility of the building to birds. Vegetated areas located above Level 1 are highlighted in green.

Nevertheless, the extensive glazing on the façades of the buildings, coupled with the abundance of birds in the Plan area, will result in some bird collisions. Further, there are some features evident in the project's plans where bird collisions are more likely to occur compared to other locations because they may not be as easily perceived by birds as physical obstructions. The risk of bird collisions is expected to be higher where birds can see vegetation on the other side of glass, and where birds see vegetation or blue sky reflected in the glass; in these cases, birds may collide with glass when trying to reach vegetation. For example, transparent glass corners are present on many corners of the buildings (Figure 2 and 3), and free-standing glass railings are present on balconies. In addition, landscape vegetation will be planted near or adjacent to building façades (Figures 4–6), and this vegetation is expected to attract birds towards the buildings where they are more vulnerable to collisions. Vegetation planted within the courtyard located south of the apartment tower off of Calle del Sol and on a number of roof terraces is also expected to attract birds towards glazed facades, thus increasing the potential for bird collisions.



Figure 4. Proposed landscape vegetation on Level 1 of the project site.



Figure 5. Proposed landscape vegetation on Level 3 (left), Level 23 (upper right) and Level 8 (lower right) of the market-rate apartment building.

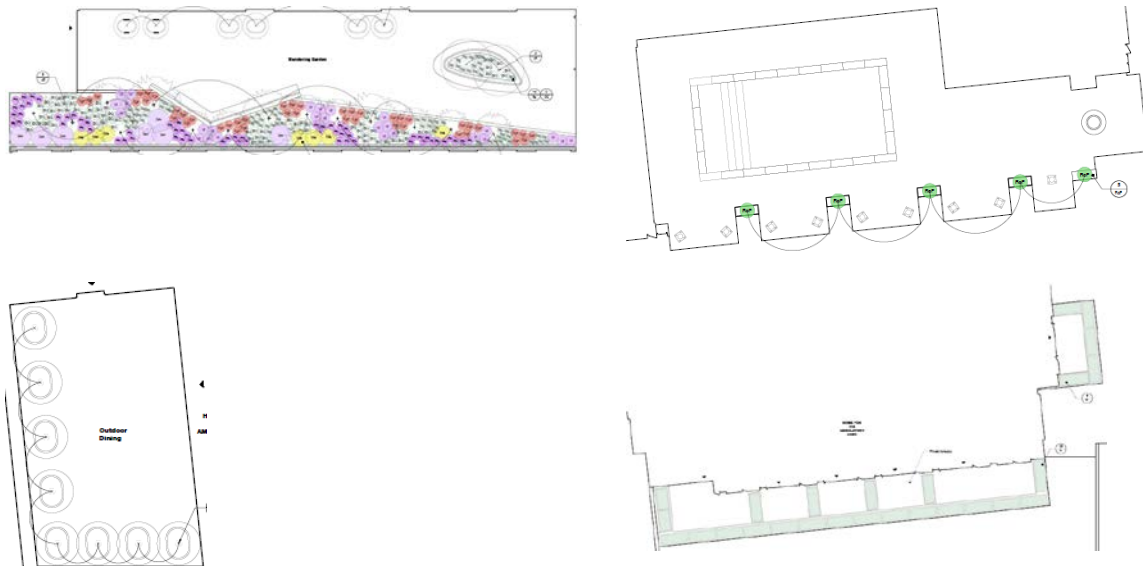


Figure 6. Proposed landscape vegetation at the wandering garden (upper left), Level 20 amenity deck (upper right), outdoor dining terrace (lower left), and private terraces (lower right) of the home for the ambulatory aged.

Assessment of Project Design Compliance with Bird-Safe Design Requirements of the EIR

We have reviewed the design of the proposed buildings with respect to Mitigation Measure BIO-3.1 of the project's EIR. The following section provides our assessment of the compliance of the project design with these requirements.

1. Reduce the extent of glass on the façades of new buildings to the extent feasible.

Façades on the parking garage component of the market-rate apartment building will be composed of a perforated aluminum screen without glazing, and this design effectively reduces glazing on this building. The other portions of the buildings, with the exception of ground-floor retail, incorporate opaque wall panels that also somewhat reduce the extent of glazing on the buildings. However, the project's plans and architectural drawings indicate that the façades of the market-rate apartment building and home for the ambulatory aged incorporate extensive glazing.

Whether it is "feasible" to reduce glazing further is a matter that should be resolved between the applicant and the City. Thus, if the City agrees that glazing on these facades is minimized to the extent feasible (and consistent with requirements of the Tasman East Specific Plan), then the project is in compliance with this measure.

2. Prohibit the visibility of interior landscaped areas behind glass.

It is our understanding that no interior landscape areas are proposed behind glass as part of the project. Based on this information, it is our opinion that the project design is in compliance with this requirement.

3. No more than 10% of the surface area of a building's total exterior façade shall have untreated glazing between the ground and 60 feet above ground. Bird-safe glazing treatments may include fritting, netting, permanent stencils, frosted glass, exterior screens, physical grids placed on the exterior of glazing or ultraviolet patterns visible to birds. Vertical elements of the window patterns should be at least 0.25 inches wide at a maximum spacing of four inches or have horizontal elements at least 0.125 inches wide at a maximum spacing of 2 inches. Any remaining untreated glazed areas will be broken up into sections no greater than 24 square feet in size by mullions or bird-safe glazing treatments.

It is our understanding that certain areas of the buildings are proposed to have untreated glazing. However, we have not been provided with the exact areas of the building façades that will incorporate glazing with a bird-safe treatment. We further understand that the bird-safe frit patterns to be used on this glazing have yet to be determined.

Mitigation Measure 3.1 allows the City to waive or reduce bird-safe design requirements based on an analysis by a qualified biologist indicating that proposed construction will not pose a collision hazard to birds. Because (1) it is known that portions of the current project design (e.g., the proposed extent of bird-safe glazing below

60 feet) do not comply with the EIR requirements for bird-safe glazing, (2) sufficient plan details were not available to allow us to assess project compliance with these requirements, and (3) the applicant has requested recommendations for potential exceptions, this section provides our recommendations for compliance with bird-safe glazing requirements based on the plan details available rather than an assessment of project design compliance. As biologists qualified to provide a professional opinion regarding the issue of bird-safe design, we offer the conclusions and recommendations below to indicate where exceptions may apply to the proposed buildings related to the extent of treated glazing.

It is our professional opinion that the frequency of collisions between native birds and buildings on the project site will be lower compared to sites within the Plan area that are located closer to Ulistac Natural Area approximately 875 feet east of the site and to the Guadalupe River approximately 1,124 feet to the east. The extent of the vegetation to be planted on the site will be limited, and the majority of this vegetation will be located on the opposite side of the site from Ulistac and surrounded by development, and thus will provide relatively limited resources for native birds. Therefore, in our opinion, substantial impacts on birds from collisions with the majority of the building façades are not expected to occur simply because bird abundance in the immediate vicinity of these facades will be relatively low, and the proposed buildings may qualify for an exception to the EIR requirements for bird-safe glazing. Nevertheless, as discussed in the EIR, due to the proximity of the Guadalupe River and Ulistac Natural Area to the Specific Plan area, relatively large numbers of birds compared to other areas of Santa Clara and most of the remainder of the urban Santa Clara Valley floor are expected to at least fly past the site over the long term. Thus, in our opinion, bird-safe treatments are appropriate in areas where the architectural features of the buildings pose high collision risk to whatever birds are present in surrounding areas. We identified areas of high collision risk to include (1) feature-related hazards within 60 feet of proposed exterior vegetation, and (2) the extensive storefront glazing adjacent to landscape vegetation on the lower floors of the buildings. A *feature-related hazard* is a potential bird collision hazard that should be treated (i.e., ameliorated) regardless of whether a building is located near a high-quality bird habitat area. Based on our understanding of the proposed project, feature-related hazards would include free-standing glass railings and transparent glass corners.

It is our understanding that the project will use bird-safe frit pattern on certain glazing. Vertical elements of the frit patterns should be at least 1/4-inch wide at a minimum spacing of 4 inches, and horizontal elements should be at least 1/8-inch wide at a minimum spacing of 2 inches. A trellis may be used in lieu of a bird-safe glazing treatment, but an overhang (e.g., as shown in Figures 2 and 3) may not. While overhangs improve the overall visibility of a building to birds, they do not reduce bird collisions with glazing, especially when glazing is located adjacent to planted vegetation. Spandrel glazing is not required to be treated at any location.

The project plans show landscape vegetation in a number of locations. Based on these plans, we recommend that bird-safe measures be implemented as follows to comply with EIR requirement #3 related to bird-safe glazing:

Home for the Ambulatory Aged:

- All feature-related hazards within 60 feet of vegetated areas (i.e., on Levels 1–5) should be treated with a bird-safe glazing treatment¹. A review of the project plans indicates that feature-related hazards in these areas include transparent glass corners and free-standing glass railings (indicated in blue on Figures 7 and 8). All transparent glass railings on these levels should be 100% treated with a bird-safe glazing treatment. It is our understanding that building features such as concrete columns may limit visibility through certain transparent glass corners; accounting for these features, transparent glass corners only need to be treated where it is possible to see through from one side of the corner to the other (as determined by the design team).
- Due to the extent of the vegetation present in the wandering garden on Level 3, birds may be drawn into this courtyard where they would be surrounded by glazing and experience a higher probability of collisions. Due to this hazard, we recommend that no more than 10% of the facades surrounding the courtyard (combined) consist of untreated glazing, and all untreated glazed areas (i.e., the 10% untreated areas) are broken up into sections no greater than 24 square feet in size by mullions or bird-safe glazing treatments.
- Due to a high potential for bird collisions with glazing on the lower levels of the north, east, and west facades of the building², which will be located adjacent to landscape vegetation (Figure 4), areas of extensive glazing (indicated in red on Figures 7 and 8) should be treated with a bird-safe glazing treatment such that no more than 10% of the surface area of these façades (combined) have untreated glazing, and all untreated glazed areas (i.e., the 10% untreated areas) are broken up into sections no greater than 24 square feet in size by mullions or bird-safe glazing treatments. Because no vegetation is proposed adjacent to facades on the south side of the building, this measure is not required for that façade. Note that any feature-related hazards (transparent glass corners and free-standing glass railings) should be 100% treated and therefore should not be included in the 10% of the surface area that is untreated.
- Due to the limited extent of vegetation proposed on Level 20 of the building, it is our opinion that no bird-safe treatment is needed to reduce the potential for collisions due to the presence of this vegetation.

¹ As discussed above, the area of a building that poses the greatest risk of avian collisions, or “primary bird collision zone”, is located in the lower portion of the building, and this area is defined as a height of 0–60 feet. The EIR requires no more than 10% of the surface area of a building’s total exterior façade to have untreated glazing between the ground and 60 feet above ground. However, due to the expected lower frequency of collisions between native birds and buildings on the project site compared to sites within the Plan area that are located in closer proximity to Ulistac Natural Area and the Guadalupe River, it is our opinion that treatment of (1) feature-related hazards within 60 feet of the planted vegetation, including vegetation on the ground and large roofs; and (2) the extensive storefront glazing on Level 1 will be sufficient to minimize bird collisions with buildings on the project site, as these are the locations with the greatest potential for bird collisions.



Figure 7. Extensive areas of glazing on the lower levels of the north façade (left) and east façade (right) of the building are indicated in red, and feature-related hazards (transparent glass railings and building corners) are indicated in blue. These areas should be treated with a bird-safe glazing treatment.

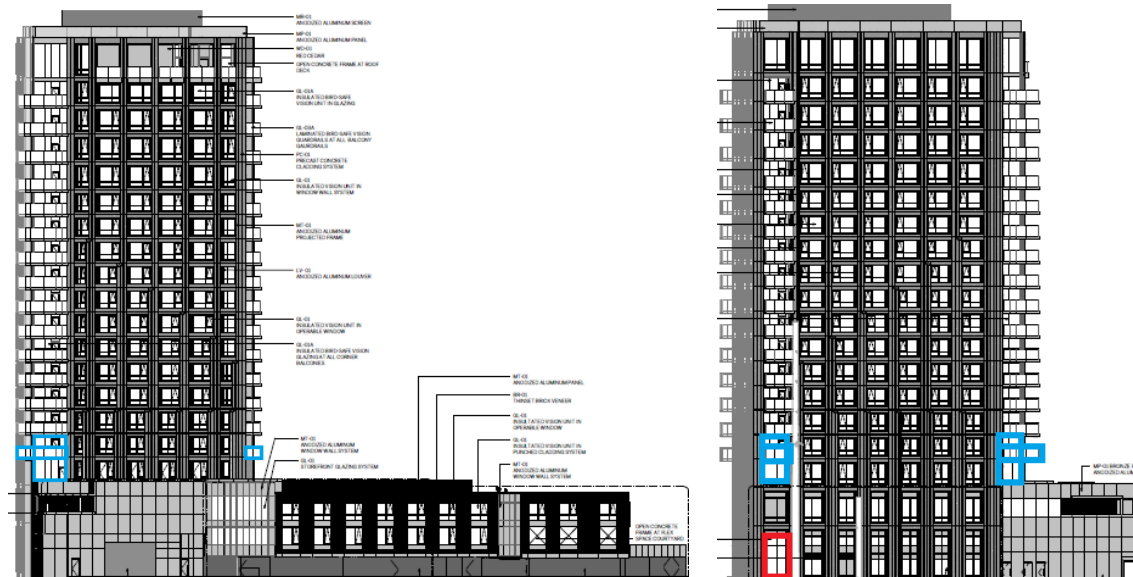


Figure 8. Extensive areas of glazing on the lower levels of the south façade (left) and west façade (right) of the building are indicated in red, and feature-related hazards (transparent glass railings and building corners) are indicated in blue. These areas should be treated with a bird-safe glazing treatment.

Market-Rate Apartments (Including Townhomes):

- Due to the limited extent of vegetation proposed on Level 23 of the apartment tower (Figure 5), it is our opinion that no bird-safe treatment is needed to reduce the potential for collisions due to the presence of this vegetation.
- All feature-related hazards on balconies/patios within 60 feet of the ground (i.e., on Levels 1–5) above landscape vegetation and within 60 feet above large vegetated areas on rooftops (i.e., above the Level 3 amenity terrace) (indicated in blue on Figures 9–14) should be treated with a bird-safe glazing treatment. In our opinion, portions of glazing on feature-related hazards that are located immediately behind a trellis (e.g., along the ground-level retail area) do not need to be treated.
- All extensive glazing on Levels 1–2 above vegetated areas on Level 3 of the mid-rise building (indicated in red on Figures 9–14) should be treated with a bird-safe glazing treatment such that no more than 10% of the surface area of these façades have untreated glazing, and all remaining untreated glazed areas should be broken up into sections no greater than 24 square feet in size by mullions or bird-safe glazing treatments. Feature-related hazards (transparent glass corners and free-standing glass railings) should be 100% treated and therefore should not be included in the 10% of the surface area that is untreated.

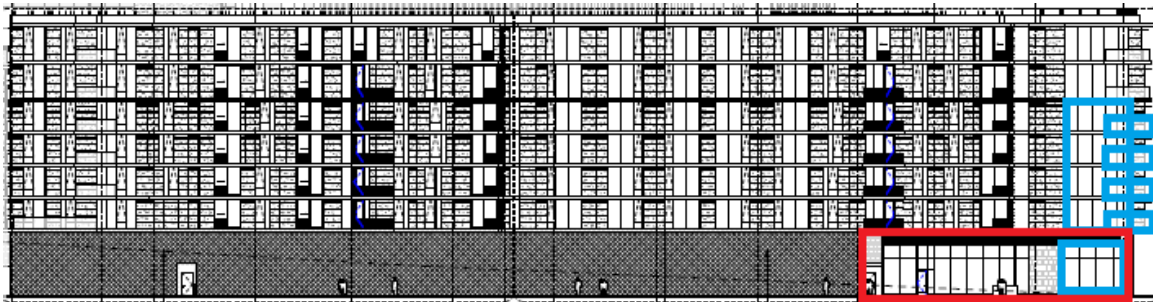


Figure 9. Extensive areas of glazing on Levels 1–2 of the south façade of the mid-rise building are indicated in red, and feature-related hazards (transparent glass railings and building corners) are indicated in blue. These areas should be treated with a bird-safe glazing treatment.

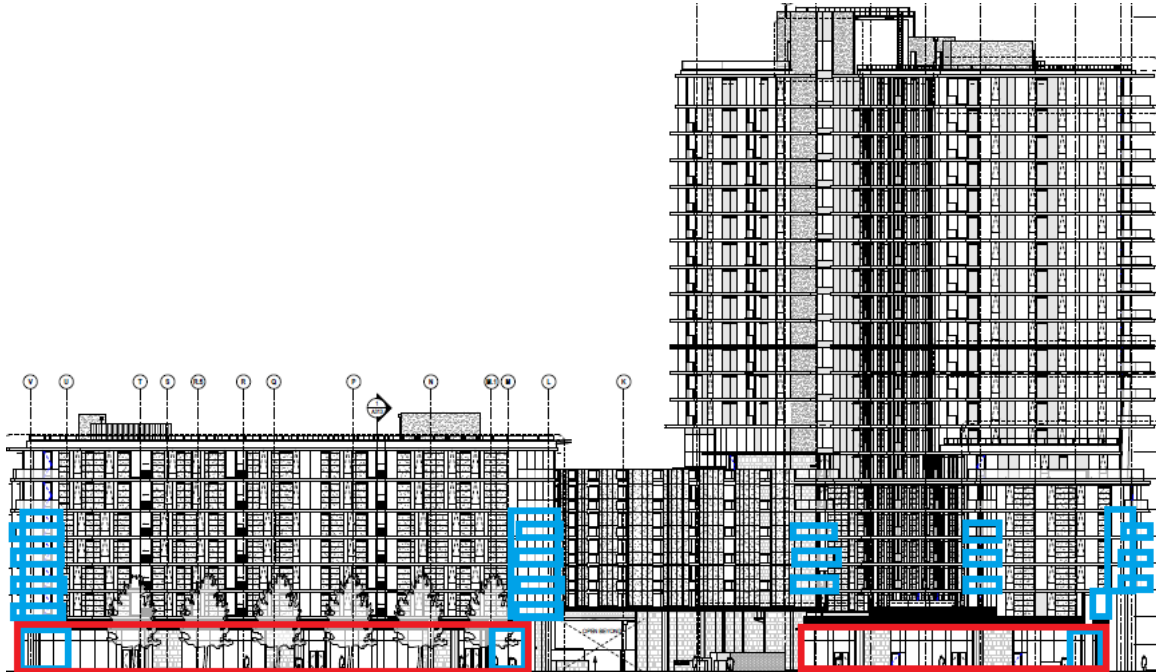


Figure 10. Extensive areas of glazing on Levels 1-2 of the east façade of the mid-rise building (left) and apartment tower (right) are indicated in red, and feature-related hazards (transparent glass railings and building corners) are indicated in blue. These areas should be treated with a bird-safe glazing treatment.



Figure 11. Extensive areas of glazing on Levels 1-2 of the north façade of the apartment tower and podium are indicated in red, and feature-related hazards (transparent glass railings and building corners) are indicated in blue. These areas should be treated with a bird-safe glazing treatment.

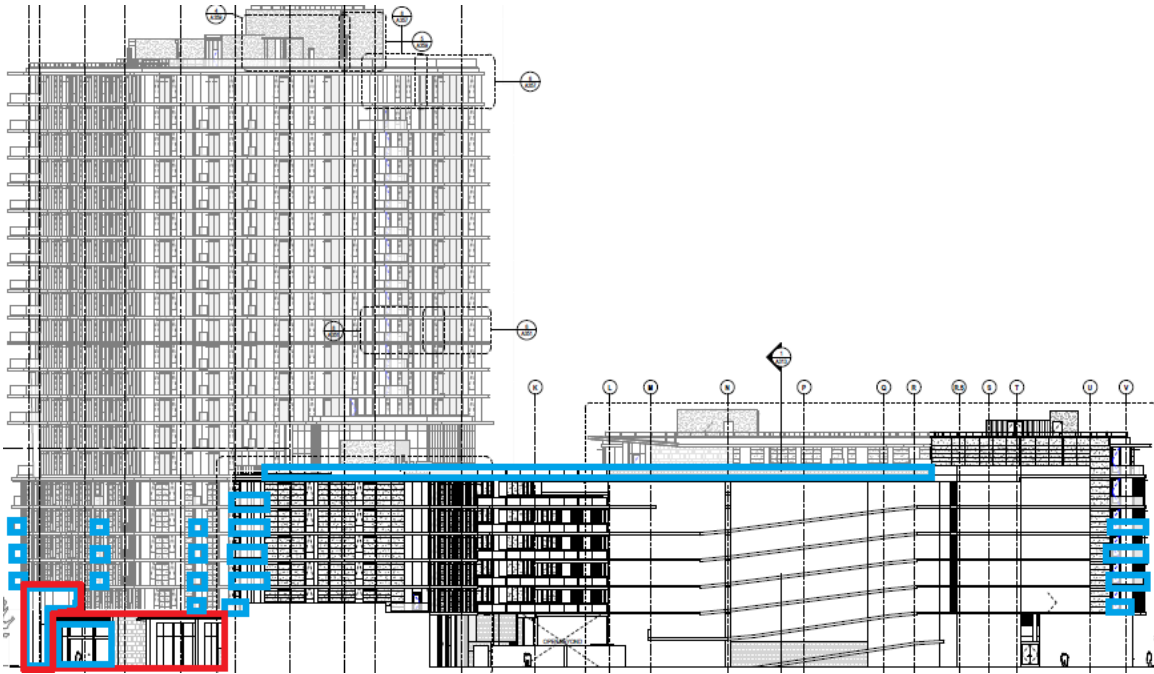


Figure 12. Extensive areas of glazing on Levels 1-2 of the west façade of the apartment tower (left) are indicated in red, and feature-related hazards (transparent glass railings and building corners) on the west façade of the apartment tower and mid-rise building (right) are indicated in blue.

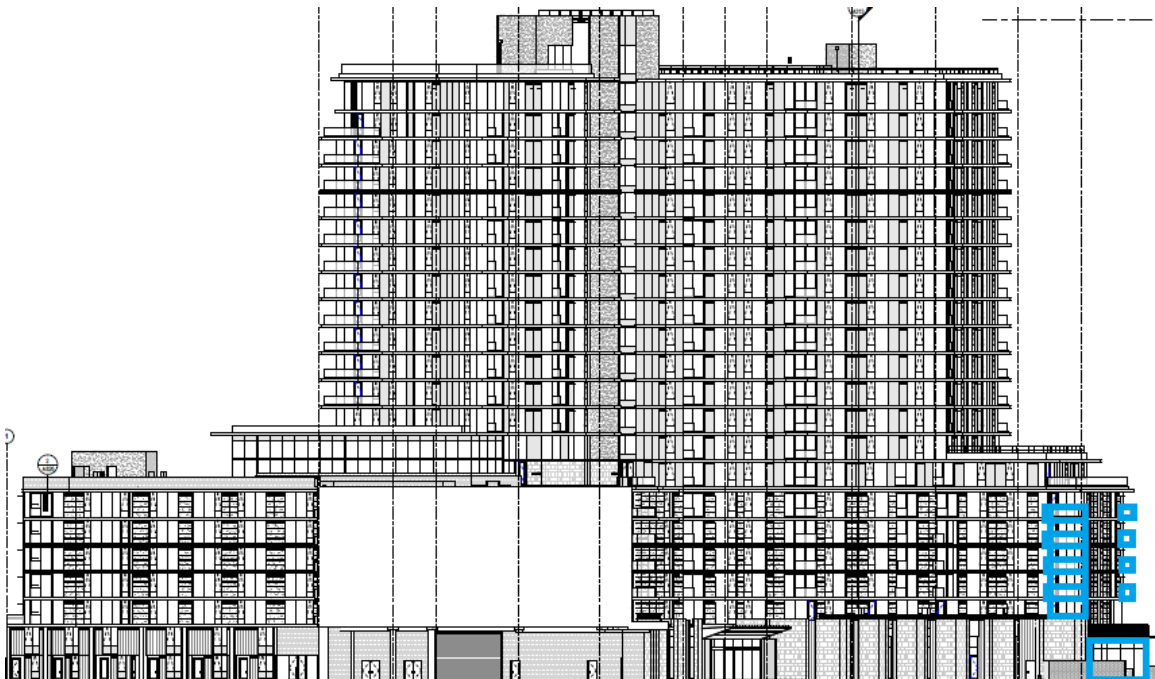


Figure 13. Feature-related hazards (transparent glass railings and building corners) on the south façade of the apartment tower and podium are indicated in blue. These areas should be treated with a bird-safe glazing treatment.



Figure 14. Extensive areas of glazing on Levels 1–2 of the north façade of the mid-rise building are indicated in red, and feature-related hazards (transparent glass railings and building corners) are indicated in blue. These areas should be treated with a bird-safe glazing treatment.

4. Avoid free-standing clear glass walls, skywalks, transparent building corners, glass enclosures (e.g., greenhouses) on rooftops, and balconies with unbroken glazed segments 24 square feet and larger where feasible. If any such structures are included in building designs, all glazing used in any such features will be 100% treated.

Glass railings and transparent glass corners are included in the project design on all buildings; however, the exact features that will incorporate a bird-safe treatment are unknown. It is our understanding that no greenhouses or other glass enclosures are proposed.

Mitigation Measure 3.1 allows the City to waive or reduce bird-safe design requirements based on an analysis by a qualified biologist indicating that proposed construction will not pose a collision hazard to birds. Because (1) it is known that portions of the current project design will incorporate features (e.g., free-standing glass railings and transparent building corners) that do not comply with the EIR requirements, (2) sufficient plan details were not available to allow us to assess project compliance with these requirements, and (3) the applicant has requested recommendations for potential exceptions, this section provides our recommendations for compliance with EIR requirements based on the plan details available rather than an assessment of project design compliance. As biologists qualified to provide a professional opinion regarding the issue of bird-safe design, we offer conclusions and recommendations to indicate where exceptions may apply to the proposed buildings related to the presence of feature-related hazards such as glass railings and transparent glass corners.

We have incorporated all recommendations related to the treatment of glass railings and transparent glass corners under requirement #3 above. A summary of these recommendations is as follows:

- All glass railings and transparent glass corners should be 100% treated adjacent to open space areas where landscape vegetation is proposed.
- Where large areas of landscape vegetation are present (i.e., on Level 1, at the Level 3 amenity terrace on the mid-rise building, and at a portion of the Level 8 amenity terrace on the podium), glass railings and

transparent glass corners should be treated on adjacent façades as well as on facades within 60 feet above and below these areas.

- Where no vegetation is proposed and glass railings or transparent glass corners are present more than 60 feet above or below large areas of landscape vegetation, few (if any) birds are anticipated to be present and it is our opinion that treatment of these features is not needed to minimize bird collisions with the buildings.

We recommend reducing the extent of these features to be more consistent with the EIR's mitigation measure. Nevertheless, with the implementation of our recommendations, it is our opinion that the project adequately reduces the potential for bird collisions due to feature-related hazards such as free-standing glass walls and transparent glass corners.

5. Reduce glass at tops of buildings, especially when incorporating a green roof into the building design.

Façades on the parking garage areas of the mid-rise apartment building will be composed of a perforated aluminum screen without glazing, and this design effectively reduces glazing at the tops of the buildings where landscape vegetation is present on rooftops. The podium and mid-rise components of the apartment building also incorporate opaque wall panels that reduce the extent of glazing, including adjacent to proposed open space areas with landscaping on rooftops. The project's plans and architectural drawings indicate that the building façades are broken up by opaque wall panels and spandrel glazing in most locations, including in areas adjacent to proposed rooftop open space that may include landscape vegetation (i.e., green roofs). Where glazing is more extensive adjacent to vegetated rooftops, those areas should be treated with a bird-safe glazing treatment, as indicated on Figures 7–14 above. With the implementation of these recommendations, it is our opinion that the project effectively reduces glass at the tops of buildings adjacent to landscape vegetation on roofs and is in compliance with this requirement.

6. If a green roof or green wall is incorporated into the building design, no more than 10% of the surface area of the building's combined façades within 12 vertical feet above and/or below the green roof or green wall shall have untreated glazing. Any remaining untreated glazed areas will be broken up into sections no greater than 24 square feet in size by mullions or bird-safe glazing treatments.

Roofs with landscape vegetation are proposed on Levels 3, 8, and 23 of the market-rate apartments (Figure 2) and Levels 2, 3, and 20 of the home for the ambulatory aged (Figure 3). In addition, a green wall is proposed on the lower levels of the southern façade of the midrise (Figure 9). As discussed under requirement #5 above, glazing on the building is broken up by opaque wall panels and spandrel glazing in areas adjacent to proposed landscape vegetation on rooftops. The glazing on the southern façade of the midrise is similarly broken up by opaque wall panels and spandrel glazing adjacent to the green wall (Figure 9). Where glazing is more extensive adjacent to vegetated rooftops and green walls, those areas should be treated with a bird-safe glazing treatment, as indicated on Figures 7–14 above. With the implementation of these recommendations, it is our opinion that the project is in compliance with this requirement.

7. Avoid the funneling of flight paths between buildings or trees towards a glazed building façade.

The project design includes a vegetated area located adjacent to the market-rate apartment building south of the apartment tower and north of the mid-rise (Figure 4), which is immediately adjacent to a vegetated amenity terrace on Level 3 of the mid-rise (Figure 5). These areas are surrounded by building façades, and with the exception of the adjacent parking garage to the west, these façades incorporate extensive glazing. This design is expected to attract birds to areas where they will experience a higher probability of collisions due to the funneling of flight paths between buildings with glazed façades.

As discussed above, bird-safe measures are recommended on façades surrounding the courtyard of the market-rate apartment building as follows:

- All feature-related hazards adjacent to the Level 3 amenity terrace should be treated with a bird-safe glazing treatment (Figure 14).
- All extensive glazing on Levels 1–2 of facades surrounding the courtyard should be treated with a bird-safe glazing treatment such that no more than 10% of the surface area of these façades has untreated glazing, and all remaining untreated glazed areas on adjacent facades should be broken up into sections no greater than 24 square feet in size by mullions or bird-safe glazing treatments. In addition, because the combined extent of vegetated areas in the Level 1 courtyard and on the Level 3 amenity terrace are relatively large (Figures 4 and 5), we recommend treatment of all feature-related hazards within 60 feet above the courtyard area (Figure 14).
- All feature-related hazards adjacent to open space areas on Level 8 should be treated with a bird-safe glazing treatment (Figures 11 and 12).

With the implementation of these measures, it is our opinion that the potential for high numbers of bird collisions due to the funneling of flight paths towards glazed façades is appropriately reduced, and the project would be in compliance with this requirement.

8. Landscaping, including planted vegetation and water features, shall be designed to minimize the potential for collisions. For example, vegetation providing particularly valuable resources to birds (such as fruits) will be planted away from buildings with extensive glazing, and vegetation in general will be planted in such a way that it is not clearly reflected in windows. Water features would be located away from building exteriors to reduce the attraction of birds toward glazed façades.

It is our understanding that no water features are proposed as part of the project. The landscape plans show several nonnative strawberry (*Arbutus unedo*), crepe myrtle (*Lagerstroemia* sp.), Chinese flame (*Koelreuteria bipinnata*), bigleaf maple (*Acer macrophyllum*), and Oregon ash (*Fraxinus latifolia*) trees located adjacent to the buildings. However, none of these trees are expected to provide particularly valuable resources to birds.

Shrubs and ground cover proposed to be planted on the site include coffeeberry (*Rhamnus californica*) and lemonade berry (*Rhus integrifolia*), and these plants will produce berries that are attractive to birds. A number of flowering species will also produce flowers that are attractive to Anna's hummingbirds (*Calypte anna*). Planted areas with berries and flowers will be located immediately adjacent to the buildings, and may attract birds to these areas and increase the potential for bird collisions with glazed facades.

As discussed under requirement #3 above, all extensive glazing on facades adjacent to landscape vegetation on Level 1 and on large landscaped rooftops should be treated with a bird-safe glazing treatment such that no more than 10% of the surface area of these façades have untreated glazing, and all remaining untreated glazed areas should be broken up into sections no greater than 24 square feet in size by mullions or bird-safe glazing treatments. This bird-safe treatment is expected to reduce the potential for birds to collide with building facades. In addition, it is recommended that landscape vegetation with flowers, fruits, and berries be removed from any planted areas located adjacent to untreated glazed areas (i.e., the 10% areas with untreated glazing). With the implementation of these recommendations, it is our opinion that the project is compliance with this requirement.

9. Minimize exterior lighting to the extent feasible, except as needed for safety. All exterior lights shall be directed toward facilities in the Plan Area (e.g., rather than directed upward or outward) and shielded to ensure that light is not directed outward toward the Guadalupe River or Ulistac Natural Area.

It is our understanding that the project's lighting plan is currently unavailable. To ensure that the project effectively minimizes exterior lighting to reduce bird collisions, we recommend that the project comply with the exterior lighting requirements of LEED Pilot Credit 55 for bird-safe buildings. These requirements are as follows:

- Exterior building fixtures that are not necessary for safety, building entrances, and circulation shall be automatically shut off from midnight until 6:00 a.m. Manual override capability may be provided for occasional after-hours use.
- Avoid exterior uplighting in the project design.

The following exterior lighting is exempt from these requirements, provided it is controlled separately from the nonexempt lighting:

- Specialized signal, directional, and marker lighting for transportation
- Government-mandated roadway lighting
- Hospital emergency departments, including associated helipads
- Lighting for the national flag

Because the project site is located 875 feet west of Ulistac Natural Area and 1,124 feet west of the Guadalupe River, we do not anticipate that unshielded exterior lighting in public areas will spill outwards into these natural areas. As a result, shielding and directing lighting on the site is not needed to comply with this requirement.

10. Occupancy sensors or other switch control devices shall be installed on interior lights, with the exception of emergency lights or lights needed for safety purposes. Exterior shades shall also be considered to reduce light pollution. On commercial buildings, these lights shall be programmed to shut off during non-work hours and between 10:00 p.m. and sunrise.

Based on information provided to us, we understand that the project will comply with this measure as follows:

- All residential amenity spaces will have permanent light fixtures connected to occupancy sensors.
- On Level 1 of the project buildings (i.e., within commercial spaces), tenants will be required to program lights to shut off during non-work hours between 10:00 p.m. and sunrise. Lights will remain on only if a business is open or staff are working between 10:00 p.m. and sunrise.

No exterior shades are proposed to reduce light pollution. We further understand that, within residential spaces, permanent light fixtures will not be installed in rooms adjacent to windows. Instead, residents will furnish and install their own lighting, which will be control by manually operated switches. As a result, no occupancy sensors will be installed on the majority of the rooms adjacent to windows within the buildings.

Because (1) the proposed buildings will be located at least 875 feet from Ulistac Natural Area and 1,124 feet from the Guadalupe River; (2) we do not expect residents to use extensive night lighting, we do not anticipate that the lack of occupancy sensors within residential spaces will result in substantial impacts on birds. Thus, in our opinion, the proposed use of occupancy sensors in public and commercial spaces will be adequate to minimize bird collisions with the buildings.

Summary

Because birds are present in the vicinity of the proposed buildings, and the glassy façades of the buildings may not always be perceived by birds as physical impediments to flight, we expect some avian collisions with the proposed buildings to occur. Among the project components, we expect collision risk to be highest where it is possible to see through the buildings (e.g., at transparent glass corners), adjacent to the buildings' landscaped roofs, and at free-standing glass railings.

Plan details were not available to indicate whether the project will comply with all requirements of Mitigation Measure BIO-3.1 of the EIR. Thus, we were unable to determine if the exterior lighting plan is in compliance with requirements of Mitigation Measure BIO-3.1 of the EIR, or if the lighting design may be eligible for exceptions. For the remaining project components, we provide an assessment of project design compliance with the EIR where feasible, and otherwise provide our recommendations for measures that can be

implemented to comply with bird-safe requirements based on the plan details available. Based on our assessment, we recommend that the project implement the following measures to comply with the EIR:

- All glass railings and transparent glass corners should be 100% treated adjacent to open space areas where landscape vegetation is proposed.
- Due to a high potential for bird collisions with the large areas of storefront glazing on Levels 1–2 of the buildings, areas of extensive glazing on Levels 1–2 that are located adjacent to landscape vegetation should be treated with a bird-safe glazing treatment such that no more than 10% of the surface area of those façades have untreated glazing and all untreated glazed areas (i.e., the 10% untreated areas) are broken up into sections no greater than 24 square feet in size by mullions or bird-safe glazing treatments.
- Where large areas of landscape vegetation are present (i.e., on Level 1 of both buildings and on the Level 3 amenity terrace on the market-rate apartment building), glass railings and transparent glass corners should be treated on adjacent façades as well as on facades within 60 feet above and below these areas.
- Vertical elements of window patterns should be at least 1/4-inch wide at a minimum spacing of 4 inches, and horizontal elements should be at least 1/8-inch wide at a minimum spacing of 2 inches. A trellis may be used in lieu of a bird-safe glazing treatment, but an overhang may not. While overhangs improve the overall visibility of a building to birds, they do not reduce bird collisions with glazing, especially when glazing is located adjacent to planted vegetation. Spandrel glazing is not required to be treated at any location.
- It is recommended that landscape vegetation with flowers, fruits, and berries be removed from any planted areas located adjacent to untreated glazed areas (i.e., the 10% areas with untreated glazing).
- Exterior building fixtures that are not necessary for safety, building entrances, and circulation should be automatically shut off from midnight until 6:00 a.m. Manual override capability may be provided for occasional after-hours use.
- Exterior uplighting should be avoided in the project design.

In our professional opinion, with the implementation of these measures, substantial impacts on birds from collisions with the façades of the proposed buildings are not expected to occur, and the proposed buildings may qualify for exceptions to the EIR's requirements as indicated herein.

Please feel free to contact me at (408) 458-3246 or rcarle@aharveyecology.com or Steve Rottenborn at (408) 722-0931 or srottenborn@harveyecology.com, if you have any questions regarding this assessment. Thank you very much for contacting H. T. Harvey & Associates about this project.

Sincerely,



Robin Carle, M.S.

Associate Wildlife Ecologist/Project Manager



Stephen C. Rottenborn, PhD Principal, Wildlife Ecology

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408.458.3205



H. T. HARVEY & ASSOCIATES

Ecological Consultants

HIGHLIGHTS

- Avian ecology
- Wetlands and riparian systems ecology
- Endangered Species Act consultations and compliance
- Environmental impact assessment
- Management of complex projects

EDUCATION

PhD, Biological Sciences, Stanford University

BS, Biology, College of William and Mary

PERMITS AND LICENSES

- USFWS 10(a)(1)(A) recovery permit, authorized to conduct surveys for snowy plover, California Ridgway's rail
- CDFW MOU to conduct broadcast surveys for California Ridgway's and black rail
- CDFW scientific collecting permit

PROFESSIONAL EXPERIENCE

Principal, H. T. Harvey & Associates, 1997–2000,
2004–present

Ecology Section Chief/Environmental Scientist,
Wetland Studies and Solutions, Inc., 2000–04

Independent Consultant, 1989–97

MEMBERSHIPS AND AFFILIATIONS

Chair, California Bird Records Committee,
2016–present

Member, Board of Directors, Western Field
Ornithologists, 2014–present

Scientific Associate/Scientific Advisory Board, San
Francisco Bay Bird Observatory, 1999–2004,
2009–present

PUBLICATIONS

Rottenborn, S. C. 2000. Nest-site selection and reproductive success of red-shouldered hawks in central California. *Journal of Raptor Research* 34:18-25.

Rottenborn, S. C. 1999. Predicting the impacts of urbanization on riparian bird communities. *Biological Conservation* 88:289-299.

Complete list of publications available upon request.

PROFESSIONAL PROFILE

Dr. Steve Rottenborn is a principal in the Wildlife Ecology group at H. T. Harvey & Associates. He specializes in resolving issues related to special-status wildlife species and in meeting the wildlife-related requirements of federal and state environmental laws and regulations. Combining his research and training as a wildlife biologist and avian ecologist, Steve has built an impressive professional career that is highlighted by a particular interest in wetland and riparian communities, as well as the effects of human activities on bird populations and communities. Steve's experience extends to numerous additional special-status animal species. The breadth of his ecological training and project experience enables him to expertly manage multidisciplinary projects involving a broad array of biological issues.

He has contributed to more than 600 projects involving wildlife impact assessment, NEPA/CEQA documentation, biological constraints analysis, endangered species issues (including California and Federal Endangered Species Act consultations), permitting, and restoration. Steve has conducted surveys for a variety of wildlife taxa, including a number of threatened and endangered species, and contributes to the design of habitat restoration and monitoring plans. In his role as project manager and principal-in-charge for numerous projects, he has supervised data collection and analysis, report preparation, and agency and client coordination.

PROJECT EXAMPLES

Served as principal-in-charge of H. T. Harvey's work on all biological resources tasks for the **Envision San José 2040 General Plan Update** and its EIR.

Served as senior wildlife ecologist for the **Coyote Creek Trail Master Plan for the City of San José**.

Spearheaded **biological planning, permitting, and Federal Endangered Species Act consultation** for several large redevelopment projects involving both development and habitat restoration, including the Candlestick Point – Hunters Point Shipyard project, Alameda Point project, and Concord Reuse project.

Served as project manager or principal-in-charge for **more than 65 task orders for Santa Clara Valley Water District on-call projects**.

Served as **senior wildlife ecology expert on the South Bay Salt Pond restoration project** — the largest (~15,000-acre) restoration project of its kind in the western United States.

Serves as principal-in-charge for H. T. Harvey's work performing biological resources-related planning for the Santa Clara Valley Water District's seismic retrofit projects involving **Anderson, Calero, Guadalupe, and Almaden dams**.



Robin J. Carle, MS

Senior Wildlife Ecologist

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H. T. HARVEY & ASSOCIATES

Ecological Consultants

HIGHLIGHTS

- Avian ecology
- Environmental impact assessments (NEPA/CEQA)
- Nesting bird surveys, monitoring, and deterrence
- Protocol-level surveys for burrowing owls and California Ridgeway's rails
- California red-legged frog and California tiger salamander surveys
- San Joaquin kit fox surveys
- San Francisco dusky-footed woodrat surveys and relocations

EDUCATION

MS, Fish and Wildlife Management, Montana State University

BS, Ecology, Behavior, and Evolution, University of California, San Diego

PERMITS AND LICENSES

USFWS 10(a)(1)(A) for the California tiger salamander

CDFW Scientific Collecting Permit for mammals, amphibians, reptiles, and vernal pool/terrestrial invertebrates

Listed under CDFW letter permits to assist with research on bats, California tiger salamanders, California Ridgeway's rails, and California black rails

PROFESSIONAL EXPERIENCE

Senior wildlife ecologist, H. T. Harvey & Associates, 2015–present

Wildlife ecologist, H. T. Harvey & Associates, 2007–2014

Volunteer bird bander, San Francisco Bay Bird Observatory, 2010–present

Avian field technician, West Virginia University, 2006

Graduate teaching assistant, Montana State University, 2003–2006

Avian field technician, Point Blue Conservation Science (formerly PRBO Conservation Science), 2004

PROFESSIONAL PROFILE

Robin Carle is a wildlife ecologist and ornithologist at H. T. Harvey & Associates, with more than a decade of experience working in the greater San Francisco Bay Area. Her expertise is in the nesting ecology of passerine birds, and her graduate research focused on how local habitat features and larger landscape-level human effects combine to influence the nesting productivity of passerine birds in the Greater Yellowstone region.

With an in-depth knowledge of regulatory requirements for special-status species, Robin has contributed to all aspects of client projects, including NEPA/CEQA documentation, environmental impact assessments, habitat conservation plans, biological constraints analyses, special-status species surveys and documentation, and construction monitoring. Her strong understanding of CEQA and of the state and federal Endangered Species Acts allows her to prepare environmental documents that fully satisfy the regulatory requirements of the agencies that issue discretionary permits. In addition, Robin has spent hundreds of hours conducting surveys for nesting birds and burrowing owls for H. T. Harvey & Associates projects and has worked extensively with amphibians and mammals. Robin has conducted diurnal, nocturnal, and larval surveys for California tiger salamanders and California red-legged frogs; acoustic and visual surveys for roosting bats; surveys and nest resource relocations for San Francisco dusky-footed woodrats; den surveys for San Joaquin kit foxes and American badgers; trail camera surveys to document wildlife movement; and burrow-scoping surveys using fiber-optic orthoscopic cameras. She has been approved as a qualified biologist on numerous project-specific USFWS and CDFW permits to conduct biological monitoring and site surveys for state and federally protected wildlife species.

PROJECT EXAMPLES

Served as project manager for issues related to nesting birds for various **Stanford University** and **Stanford University Medical Center** construction projects from 2016–2017.

Served as project manager for the preparation of a NES and BA to facilitate FESA and CESA consultation for the **Highway 101 Pedestrian/Bicycle Overcrossing** project in Palo Alto, California from 2015–2017.

Prepared bird-safe design recommendations, compliance documentation, and/or bird-strike monitoring plans for the **Charleston East, Microsoft Silicon Valley Campus, 1625 Plymouth**, and **Shashi Hotel** projects in Mountain View, California in 2016 and 2017.

Assisted with the preparation of a NES and BA to facilitate FESA and CESA consultation for the **Stevens Canyon Road Bridges** project, and served as project manager for all preconstruction surveys and construction monitoring work from 2015–2017.