Architectural Review Board
Staff Report

From: Planning and Development Services Director
Lead Department: Planning and Development Services

Meeting Date: April 4, 2024
Report #: 2403-2758

TITLE
2501 Embarcadero Way [22PLN-00367]: Recommendation to Council for Approval of a Site and Design Application and a Design Enhancement Exception to Allow the Construction of a Local Advanced Water Purification System at the Regional Water Quality Control Plant (RWQCP). A Design Enhancement Exception to Allow for a Taller Screening Wall is Also Requested. Environmental Assessment: Council Previously Adopted an Addendum to the 2015 Environmental Impact Report (EIR) for the City of Palo Alto Recycled Water Project Which Evaluated the Environmental Impacts of the Proposed Project. Zone District: PF (D) (Public Facility with Site and Design Combining District). For More Information Contact the Project Planner, Claire Raybould, at Claire.Raybould@Cityofpaloalto.org

RECOMMENDATION
Staff recommends the Architectural Review Board (ARB) take the following action(s):

1. Consider the previously adopted addendum to the City of Palo Alto Recycled Water Project EIR, provided in Attachment E.

2. Recommend that City Council approve the draft Record of Land Use Action (RLUA) approving the request for Site and Design Review as well as the requested Design Enhancement Exception based on findings and subject to conditions of approval.

EXECUTIVE SUMMARY
The application is a request for Site and Design Review for a proposed local advanced water purification system (AWPS). The purpose of the project is to improve recycled water quality by reducing its average concentration of total dissolved solids (TDS) through the blending of reverse osmosis permeate with tertiary-treated recycled water. The project also includes a request for a Design Enhancement Exception to allow for a solid wall to provide screening and to serve as a sound barrier.

The project responds to Council's expressed goal, as set forth in the Recycled Water Salinity Reduction Policy adopted in 2015, to reduce the TDS level of recycled water to 600 parts per million. It also responds to mitigation measure HYD-3d set forth in the corresponding adopted

Environmental Impact Report (EIR), which requires the City to consider treatment options, such as reverse osmosis, to reduce the salinity of its recycled water and thus make its recycled water useable for irrigation of salt-sensitive species. A location map for the proposed AWPS is included in Attachment A. A detailed project description is provided in Attachment G and the project Plans are provided in Attachment H. The subject project was previously reviewed by the ARB. An earlier staff report includes additional background information. This report restates the comments made by the Board in its previous review and details the applicant's response to those comments. The analysis section below builds upon the information contained in the earlier report and is modified to reflect recent project changes.

BACKGROUND

Following adoption of the Recycled Water Salinity EIR, Council directed staff to coordinate with Valley Water and Mountain View to prepare a feasibility study and preliminary design report for a local advanced water purification system (AWPS), which was completed in 2017. The report was used as the basis for preparing preliminary plans for the proposed project. In 2019 the City Council approved an agreement with Valley Water to advance recycle water projects in the region, one of them is the Local AWPS. Staff proceeded with the design of the project. That design is reflected in the project plans.

On November 2, 2023 the ARB reviewed the project. A video recording of the Board's meeting and meeting minutes are available online.[1] The Board's comments and the applicant's response to those comments are summarized in the following table:

ARB Comments/Direction	Applicant Response
Boardmembers requested more information about the noise levels of proposed equipment as well as ambient noise levels	The City hired a third party, Black and Veatch to prepare an assessment of ambient noise levels. The assessment looked at two locations along the plant property line. The lowest repeated sound level during monitoring ranged from 41-44 dBA. The maximum sound level of the equipment is 90 dBA. However, with the incorporation of barriers (e.g. sound wall) and distance from the property line, the noise level would be less than 49 dBA at the nearest property line, meeting the PAMC requirements.
Boardmembers had comments about the proposed lighting, including a request for better information on what the proposed	Sheet E-EC-101 in the project plans includes a photometric plan showing foot candle levels beyond the area of the

[1] A video and minutes of the November 2, 2023 ARB hearing are available online at: https://www.cityofpaloalto.org/Departments/Planning-Development-Services/Architectural-Review-Board-ARB/Previous-ARB-Agendas-Minutes

lighting levels are and how it can be further reduced and/or shielded downward to avoid light spillover beyond the canopy and especially at property lines. They noted that lighting should be mounted as low as possible and that lighting should be shut off when not in use.	canopy, out to the property lines. Attachment E provides a summary of how DarkSky International key principals have been incorporated into the design to minimize light spillover.
Boardmembers requested additional details relating to the design/materials of the perimeter wall	A rendering further detailing the sound wall has been included as the last sheet in the project plans. The applicant was not able to obtain a sample of the sound wall material.
Boardmembers asked for a more complete picture of the RWQCP to provide better context regarding space constraints. Some boardmembers asked for more information to show why the facility can't be moved about 10 feet to the southeast to provide a greater setback from Embarcadero Road.	Attachment D provides an aerial view of the plant and a summary of constraints on the site given existing facilities and future needs of the plant.
Interest in further information about the trees and reducing the number of trees that need to be removed.	This request to reduce the number of trees to be removed ties into whether the AWPS could be moved further south to preserve more trees along the frontage. Due to site constraints shown in Attachment D this is not feasible. However, in previous iterations of the design efforts were made to reduce the number of trees removed based on feedback from the Parks and Recreation Commission. This is discussed further in the analysis below. The tree inventory has also been updated recently to reflect trees that have fallen in the past year in storm events. Since these trees are no longer existing, the total count of trees to be removed has been reduced.
Board members asked PW to reconsider the red color of the roof in accordance with the baylands design Guidelines. Recommended consideration of a blue sky or light-blue gray color.	The color of the roof has been revised to sandy hook grey, consistent with the recommendations of the Baylands Design Guidelines. However, two alternative colors have been provided for the ARB's

	consideration that have blue hues if the board would prefer a different color.
Boardmembers asked for less visually aggressive chain link.	Consistent with ARB and staff comments, the chain link has been revised to be black vinyl coated, consistent with the Baylands Design Guidelines.
Board members want covers around the building or at least on the side that is visible from Embarcadero Road.	The project design has been revised to include additional screening of the equipment on the north side (facing Embarcadero Road). Sheets L-00-003 and L-00-005 detail the proposed perforated aluminum decorative screening proposed. The memorandum in Attachment E provides some additional details.

Planning and Transportation Commission Actions
In accordance with the Site and Design Review process, this project was previously reviewed by the PTC. On February 28, 2024 PTC recommended approval of the proposed project to Council (6-0; Templeton recused), making the following motion:

Recommend approval of the project, including the variance, to City Council based on the findings and subject to conditions and asking staff to:

- Investigate utilizing 2,700 kelvin lighting versus the 4,000 kelvin lighting currently proposed
- Consider 100% native planting

Public Works Water Quality consulted experts to determine whether the design could be revised to reflect these recommendations. The landscaping plan has been refined to reflect all native plantings with the exception of the climbing vines for the wall, for which a native alternative was not available. Ultimately, the recommendations to reduce the temperature of the proposed safety lighting was not incorporated, as detailed further in the analysis.

Following the PTC's recommendation, staff determined that a Design Enhancement Exception would be more appropriate to document the increased height of the proposed wall than a variance since the purpose of the wall is primarily to screen the equipment and to reduce noise levels at the property line. Therefore, the proposal now includes a request for a DEE in-lieu of a variance.

Previous Council Actions
In September 2015 the City of Palo Alto City Council certified an Environmental Impact Report (EIR) for the Palo Alto Recycled Water Project (SCH #2011062037). The EIR included Mitigation Measure HYD-3d, which requires the City to consider treatment options, such as reverse osmosis, to reduce the salinity of its recycled water and thus make its recycled water useable for irrigation of salt-sensitive species. Since that time, staff has presented updates and components of this project to Council as follows:

- April 4, 2016, staff provided Council with an update on the recycled water EIR and collaboration work with Valley Water and Mountain View to expand the program and reduce TDS (CMR #6691).
- November 18, 2019 City Council approved Valley Water Agreement to move forward with the design of the Local AWPS. The EIR Addendum for the proposed AWPS was also adopted at this hearing (CMR #10627).
- March 8, 2021, Council approved design contract for the Local AWPS (CMR #11782)
- September 12, 2022 City Council held a study session to hear an update on, and discuss, the proposed project (CMR # 14650)
- October 16, 2023, Council approved Staff to move forward with loan agreement and directed Staff to secure financing and solicit bids for a construction contract (CMR #2308-1863).

PROJECT DESCRIPTION
A complete project description is included in Attachment G and the project plans are included in Attachment H. In summary, the project consists of several structures and components, including:

- A reverse osmosis permeate storage tank.
- a small prefabricated electric building; and
- a pre-engineered open-air building.

The circular tank would be 50 ft in diameter with a sidewall height of 30 feet and a capacity of 350,000 gallons. It would be erected on a reinforced concrete mat type foundation supported by deep pile foundation. The open-air building covers a membrane filtration system, chemical storage/feed system components, and other ancillary components essential to the purification system. The facility would have a building footprint of approximately 15,544 sf. The open-air building will be constructed over a concrete deck in order to raise the equipment up out of the flood zone per FEMA requirements. The project will also include a blending station located in the basement of the RWQCP administration building and installation of yard piping inside the RWQCP. The project will be located on the northwest side of the RWQCP, abutting Embarcadero Road, partially outside the existing fence line but within the defined boundaries of the plant. The project also includes new landscaping, a new concrete screening wall, and revisions to the chain link fence surrounding the RWQCP to incorporate the area of the new AWPS (which would be inside the screening wall).

Requested Entitlements, Findings and Purview:
The applicant requests the following discretionary application:

- Site and Design Review: The process for evaluating this type of application is set forth in PAMC 18.30(G). Site and Design applications are reviewed by the PTC and ARB, and recommendations are forward to the City Council for final action. Site and Design projects are evaluated against specific findings that include both the ARB findings (ARB purview) and Site and design findings (PTC purview). All findings must be made in the affirmative to approve the project. Failure to make any one of the findings requires project redesign or denial. Draft findings for PTC to approve a site and design application are provided in Attachment B.
- Design Enhance Exception (DEE): The process for evaluating this type of application is set forth in PAMC 18.76.050. DEE applications are reviewed by staff and/or the Architectural Review Board in accordance with 18.77.070 and recommendations are forwarded to the Director of Planning and Development Services for final action. DEE projects are evaluated against specific findings. All findings must be made in the affirmative to approve the project. Failure to make any one of the findings requires project redesign or denial. Draft findings for approval of the proposed variance are provided in Attachment B.

ANALYSIS[2]
Following is a summary of staff's analysis on how the project has been refined in accordance with board member's previous recommendations and the project's consistency with relevant plans and ordinances. Overall, the project is consistent with the Comprehensive Plan, Zoning Ordinance, and other applicable goals and policies of the City and, with modifications to the plans and submittal of other relevant information, the applicant has been responsive to board member's comments.

Response to Previous Board member Comments
As discussed above, several requested modifications were made to provide clarity in the plan set such as providing black vinyl chain link fencing consistent with the baylands design guidelines and adding the requested details regarding the perimeter wall.

Noise
Black & Veatch conducted a sound level assessment to identify the local ambient sound levels and to determine the property boundary sound level for the project based on the maximum noise level of the proposed equipment. Two locations immediately outside the plant boundary were monitored for ambient noise levels; one location at the southwest boundary of the site near the parking lot of 1900 Embarcadero Way and a second location north of the plant near the walking trail along Embarcadero Road. The lowest repeated sound level during the

[2] The information provided in this section is based on analysis prepared by the report author prior to the public hearing. Planning and Transportation Commission in its review of the administrative record and based on public testimony may reach a different conclusion from that presented in this report and may choose to take an alternative action from the recommended action.

monitoring was 41 dBA at location 1 and 44 dBA at location 2. Since PAMC allows commercial and industrial properties to permit a sound level equal to the local ambient plus 8 dBA at the property line, the proposed project was designed to ensure that the sound level at the property line did not exceed 49 dBA. The loudest proposed equipment (the proposed reverse osmosis pumps and the membrane filtration pumps) have a maximum noise level of 90 dBA at three feet. However, with the incorporation of the sound wall and attenuation of the noise level over distance (minimum setback of 106 feet for the reverse osmosis pumps and minimum setback of 45 feet from the membrane filtration pumps and the nearest property lines) the project would have a noise level of 49 dBA or less at the closest property line.

Trees and Landscaping

Following boardmember comments at the study session and in response to review comments from staff, an updated arborist report was prepared. The updated arborist report revised the total number of existing trees (several trees had fallen in storms over the past couple of years), clarified the species of several trees that were previously unspecified, and reflected an updated proposal for removal to show retention of some trees based on refinements to the design following early feedback from the Parks and Recreation Commission. The proposed project includes the removal of 35 trees, 12 of which are protected due to their size. These trees are varying species of Eucalyptus, Myoporum laetum, and Casuarina glauca trees which are primarily non-native, invasive species. All of these are within the proposed project footprint. At the Parks and Recreation Commission's request, the project was refined in its early design phases to prioritize retention of some of the larger trees along the Embarcadero frontage. The project refinements retained eleven additional trees. However, five of those trees have since died/fallen in storms. Therefore, the project includes retention of six larger trees that were identified for desired preservation by PRC.

The project includes planting 36 trees along the project frontage along with other large and smaller shrubs to provide an attractive landscape buffer between the pedestrian pathway and the RWQCP as well as between the pedestrian path and Embarcadero Road.

Native Vegetation

The plant species in the proposed landscaping plan is primarily native and was designed with a previously approved (and implemented) planting plan for the Regional Water Quality in mind as well as Mountain View's North Bayshore Precise Plan, which the PRC recommended reviewing as an example of a successful landscaping plan with a less formal, more naturalized look to the design. At the PTC's recommendation, the landscaping has been further refined to be all native with the exception of the climbing vines for the wall, for which a native alternative was not possible. it should also be noted that this area is irrigated with recycled water that has a higher salinity content than potable water. Therefore, the plant palette was also selected with this in mind as well.

Canopy Colors, Material, and Design

The proposed canopy color has been revised in response to ARB feedback on the red color and now includes the standard sandy grey color recommended in the Baylands Design Guidelines.

Public Works Water Quality has also presented two alternative colors for the ARB's consideration that provide more of a blue hue based on the feedback that a bluer hue may be preferred. Staff recommends the standard recommendations consistent with the Baylands Design Guidelines. However, if desired, the ARB could recommend a different color.

As discussed above and detailed further in the plans and Attachment F, the project has been refined to include a perforated aluminum metal screening canopy between the top of the engineering building and the canopy cover to further screen the equipment from view. Due to maintenance constraints and to maintain necessary access to the process equipment, this could not be provided around the entire canopy. The project proposes a weathered green powdercoated color for the screening and a leaf design for the perforation which will blend well with the landscaping along the frontage. However, the memorandum also shows some other perforated designs that could be selected if the ARB has a different recommendation.

The applicant could not provide a physical sample of the sound wall material; however, a rendering showing further detail on how the wall would be viewed from the pedestrian perspective has been provided and Public Works Staff will have pictures available in their presentation to show similar applications of this material.

Consistency with the Comprehensive Plan, Area Plans and Guidelines[3]

The Comprehensive Plan includes Goals, Policies, and Programs that guide the physical form of the City. The Comprehensive Plan provides the basis for the City's development regulations and is used by City staff to regulate building and development and make recommendations on projects. Further, ARB Finding #1 requires that the design be consistent and compatible with applicable elements of the Palo Alto Comprehensive Plan. The Comprehensive Plan land use designation for the project site is major Institution/Special Facility which includes governmental and community service uses and lands that are publicly owned such as the subject property. The proposed AWPS within the area of the RWQCP boundaries is consistent with the Comprehensive Plan Land Use. Staff is still completing a thorough analysis of the project's consistency with the Comprehensive Plan. Generally, the project is consistent with several goals of the Comprehensive Plan, including Policy N-4.17 of the Natural Element, which states "Improve source control, treatment, and distribution of recycled water, including reducing the salinity of recycled water, to maximize its use."

Baylands Design Guidelines

The project is located within the Boundaries of the Baylands Nature Preserve. However, because it's within the RWQCP boundaries, it is not located on land that is dedicated as parkland. Nevertheless, the project is subject to the Baylands Design Guidelines. Generally, the project appears consistent with the guidelines to the extent that they are applicable. Based on feedback from the Architectural Review Board at its study session in November 2023, the project has been revised to improve consistency with the guidelines. Specifically, red roofs have been revised to match the standard Sandy Grey color that is recommended in the design guidelines, to comply with the "muted, natural colors" requirement set forth in the guidelines.

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Alternatives options are also provided as options to the ARB. The plans show the general location of interactive signage, but the details of the signage will be reviewed separately from the current application. Any future signage will be required to comply with the Baylands Design Guidelines.

Airport Influence Area
The project is located within the Airport Influence Area. Specifically, the Comprehensive Land Use Plan for the Palo Alto Airport shows that the project area, and all of the RWQCP, is within the Turning Safety Zone. In the Turning Safety Zone, typically lower density uses are encouraged. Hazardous materials uses such as gas stations are discouraged. The project includes some hazardous materials in relatively small quantities for the treatment of water, similar to the existing RWQCP. These materials are not combustible and do not pose a concern within the Turning Safety Zone. The project does not conflict with any height restrictions in the plan. Further, as detailed in the EIR addendum in Attachment H, the RWQCP is considered an existing facility.

Zoning Code Compliance
The project is located within the Public Facilities (PF) Zone District as well as the Site and Design (D) Review combining district. The proposed facilities for the treatment of recycled water is considered a public facility and is an appropriate use within the PF zone district and especially within the boundaries of the existing Regional Water Quality Control Plant.

Because the project includes a new building within the Site and Design Review Combining District, Site and Design review is required. A detailed review of the proposed project's consistency with applicable zoning standards is provided in Attachment C. The project is consistent with the PF Zone District and D Combining District requirements or is otherwise requesting to deviate from the code in a manner that is consistent with the zoning ordinance. More specifically, a Design Enhancement Exception is requested to allow for an approximately 10-foot-tall wall where an 8-foot-tall wall is allowed in accordance with Chapter 16.24 of the code. Draft findings for the approval of a DEE are included in the Draft RLUA in Attachment B.

Title 21 Subdivision Map Compliance
The existing property lines for the site do not follow the existing boundaries of the RWQCP. Therefore, under existing conditions the new facility would be constructed over an existing property line. A certificate of compliance is required to revise the boundary between the two City parcels (APN 008-05-005; and APN 008-06-001). The new proposed boundary is shown in the project plans. Recordation of the certificate of compliance is required as a condition of approval prior to building permit issuance.

FISCAL/RESOURCE IMPACT
Funding for the Local Salt Removal Facility is projected to come from several sources. Prior to allocation of the $56 million total project cost for the Preliminary Finance Plan, external funding sources were subtracted from the total to reduce the overall cost to each agency. External funding sources include the $16 million from the 2019 Agreement with Valley Water and a $12,867,875 US Bureau of Reclamation grant, leaving a remaining funding requirement of

$27,434,792 which will be covered by Mountain View. Palo Alto currently has no plans to expand its existing recycled water system and current customers are mainly municipal users, therefore Palo Alto does not have a customer base requesting this higher quality water. Palo Alto and Mountain View staff agreed that Mountain View would pay the remainder of the capital costs associated with this project. Mountain View staff recommended this project and Mountain View's City Council approved it on June 27, 2023.

On September 19, 2023 the finance committee recommended that Council approve the Financing Plan for the project and authorize staff to amend the Recycled Water Agreement with the City of Mountain View. Council approved the financing plan on October 16, 2023.

STAKEHOLDER ENGAGEMENT

The Palo Alto Municipal Code requires notice of this public hearing be published in a local paper and mailed to owners and occupants of property within 600 feet of the subject property at least ten days in advance. Notice of a public hearing for this project was published in the Daily Post on March 22, 2024, which is 12 days in advance of the meeting. Postcard mailing occurred on March 20, 2024, which is 14 days in advance of the meeting.

City Outreach and Coordination

The City's Public Works, Environmental Services Division has worked diligently on this project since Council's adoption of the EIR for the Recycled Water Program. In addition to the study sessions with Council and the PRC, as noted above, they held the following meetings to obtain stakeholder feedback throughout the process.

- Kickoff meeting for the feasibility study was held June 2016 with Mountain View and Valley Water. The City, in coordination with Valley Water and Mountain View, held workshops at 50% completion (September 2016), 80% completion (December 2016), and 95% completion (January 2017).
- Preliminary Design workshop with Mountain View and Valley Water (October 2017)
- Quarterly Joint Recycled Water Meetings with Palo Alto Council Members, Mountain View Council Members and Valley Water Board Members
- Palo Alto hosted a community meeting on October 23, 2019 to inform the community and answer questions about the components of the funding Agreement between Palo Alto, Valley Water, and Mountain View, including partial funding for the AWPS/Local Plant. Members of the public approached staff during break-out sessions to get direct answers to questions. Most comments were focused on the Agreement terms and were overall supportive of the AWPS facility. With respect to Palo Alto itself, the open meetings on the budget process serve as the main vehicle for engaging the community on both new projects such as this and associated rate impacts. EIR Addendum was covered in this session.
- 30% Design workshop December 2021, 60% Design workshop January 2022 and 90% design workshop November 2022. Valley Water and Mountain View staff attended these workshops

- The Parks and Recreation Commission (PRC) held two study sessions on May 24, 2022 and December 13, 2022 to provide feedback on the project. Their feedback focused on the landscaping component, path alignment and external screening. Commissioners were generally supportive of the proposed design at the study session in December.
- September 19, 2023 – Finance Committee Meeting to discuss Local AWPS project. Committee approved and recommended moving forward. Public Comments As of the writing of this report, no project-related public comments were received.

Public Comments

There were no public comments at the ARB hearing on the proposed project. At the PTC hearing on February 28, 2024, there was a comment from one member of the public who expressed concerns regarding lighting and its impacts on avian species as well as the color of the trees. The commented requested that the color temperature of the lighting be reduced to align more with the recommended color temperature recommended by Dark Sky International.

Additionally, staff met with Midpeninsula Open Space to discuss the project on November 20, 2023. Midpeninsula Open Space provided the following key comments on the project:

- Consider egrets and herons in your planning. These nesting birds tend to return to the same nests year after year so the loss of trees with these nests can be impactful beyond the direct impact during nesting season if their nests are present in the trees planned for removal.
- Consider the trees being selected and whether any trees would serve as perching areas for raptors that may impact adjacent wetland areas.
- Consider additional measures to better protect from spread of invasive species, especially species such as eucalyptus, when removing. Protect from plant pathogens (e.g. those that cause sudden oak tree death).
- Make sure that the plant species being planted in the landscaping are appropriate for the environment in the Baylands

The trees proposed for removal do not have any egret or heron nests that these species may return to. In clarifying the location of the proposed tree plantings, staff and Midpeninsula open space agreed that trees in this location would not pose a concern for raptor predation. Midpen has agreed to send a list of standard best management practices to protect from the spread of invasive species that the city can review and incorporate as applicable. The planting plan was designed to include native, low water use species appropriate for planting in the Baylands. The planting plan is shown on sheet L-00-200 and L-00-201 of the plans.

Staff also reached out to County Airports on January 5, 2024 to confirm whether a hearing before the County Airport Land Use Commission was required for the proposed project. County staff responded on January 8, 2024 confirming that a hearing before the ALUC was not required for the proposed project, stating that only amendments to the General Plan, a Specific Plan or

zoning or building regulations need to be referred to the ALUC, not individual development projects.

ENVIRONMENTAL REVIEW

The subject project has been assessed in accordance with the authority and criteria contained in the California Environmental Quality Act (CEQA), the State CEQA Guidelines, and the environmental regulations of the City. In 2015 Council adopted an EIR for the City of Palo Alto Recycled Water Project. The EIR included mitigation Measure MM HYD-3d, which required the City to consider treatment options, such as reverse osmosis, to reduce the salinity of its recycled water and thus make its recycled water useable for irrigation of salt-sensitive species. On November 18, 2019, in taking discretionary actions to further pursue this project, council adopted an EIR addendum that included more site-specific details associated with the proposed development. The adopted CEQA addendum is included in Attachment E.

ALTERNATIVE ACTIONS

In addition to the recommended action, the ARB may:

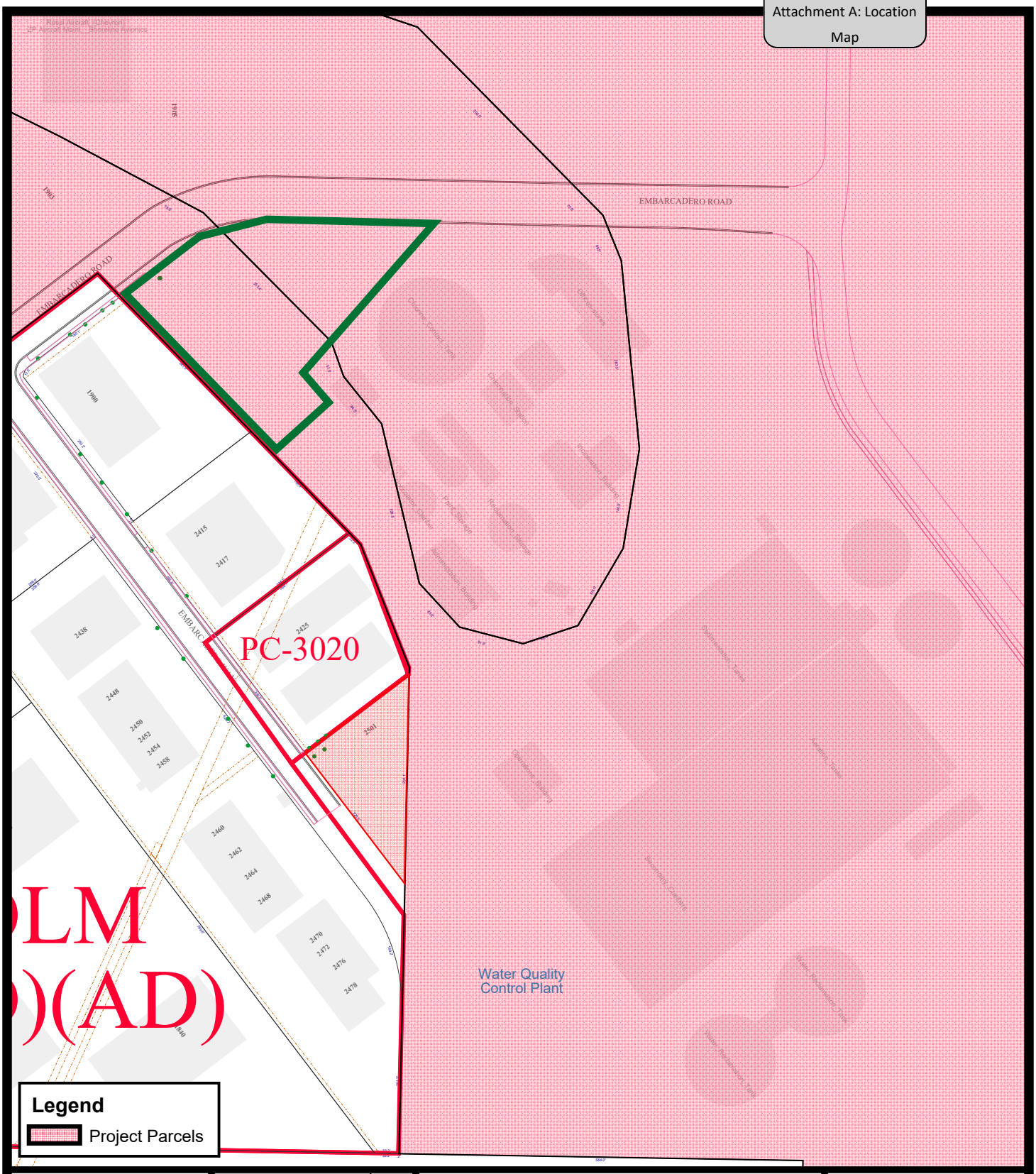
1. Approve the project with modified findings or conditions; or
2. Continue the project to a date (un)certain

ATTACHMENTS

Attachment A: Location Map
Attachment B: Draft Record of Land Use Action
Attachment C: Zoning Consistency Analysis
Attachment D: Aerial View and Summary of RWQCP Constraints
Attachment E: Lighting Memorandum
Attachment F: Canopy Memorandum
Attachment G: Project Description
Attachment H: Project Plans and CEQA Addendum

AUTHOR/TITLE:

Claire Raybould, AICP, Senior Planner



The City of Palo Alto

Attachment A: Location Map 2501 Embarcadero Way

This map is a product of the City of Palo Alto GIS

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ACTION NO. 2024-_____

RECORD OF THE COUNCIL OF THE CITY OF PALO ALTO LAND USE ACTION FOR 2501 EMBARCADERO WAY: SITE AND DESIGN REVIEW AND DESIGN ENHANCEMENT EXCEPTION (22PLN-00367)

On _____2024, the City Council of the City of Palo Alto approved a Site and Design Review and Design Enhancement Exception (DEE) Application to Allow the Construction of a Local Advanced Water Purification System at the Regional Water Quality Control Plant (RWQCP). The Proposed Project Includes the Construction and Operation of a Membrane Filtration Recycled Water Facility and a Permeate Storage Tank at the City's RWQCP to Improve Recycled Water Quality and Increase its Use. The DEE Would Allow for a Taller Wall Within a Required Setback to Provide Screening and Reduce Noise. In approving the application, Council makes the following findings, determinations, and declarations:

SECTION 1. Background. The City Council of the City of Palo Alto ("City Council") finds, determines, and declares as follows:

A. The City of Palo Alto Water Quality Division requests approval of a development project that includes Site and Design Review and a Design Enhancement Exception to allow the Construction of a Local Advanced Water Purification System (AWPS) at the Regional Water Quality Control Plant (RWQCP). ("The Project").

B. The project site area currently includes an approximately 10,000 sf area located across two parcels (APNs 008-05-005 and 008-06-001). The project is located within the boundaries of the Regional Water Quality Control Plant. The site is designated on the Comprehensive Plan land use map as Major Institution Special Facilities and is located within the Public Facility (PF) zone district, and Site and Design (D) Combining District.

C. The Planning and Transportation Commission (Commission) reviewed and recommended approval of the Project on _____, 2024. The Commission's recommendations are contained in Staff Report ID#_____ and the attachments to it.

The Architectural Review Board (ARB) reviewed and recommended approval of the Project on_____, 2024. The ARB's recommendations are contained in Staff Report ID#____ and the attachments to it.

D. On _____, 2024, the City Council held a duly noticed public hearing, at which evidence was presented and all persons were afforded an opportunity to be heard in accordance with the Palo Alto Municipal Code and the Council's Policies and Procedures.

SECTION 2. Environmental Review. The City, as the lead agency for the Project, has determined that the project is subject to environmental review under provisions of the California Environmental Quality Act. Council Previously Adopted an Addendum to the 2015 Environmental Impact Report for the City of Palo Alto Recycled Water Project mental

Impacts of the Proposed Project. It was determined that the current project (22PLN-00367) do present the circumstances pursuant to CEQA Guidelines 15162 to warrant the completion of a subsequent Mitigated Negative Declaration or an Environmental Impact Report, and therefore, an Addendum to the previously adopted EIR suffices. Pursuant to CEQA Guidelines 15164 the addendum need not be circulated. However, the addendum shall be considered with the adopted EIR. The City Council considered the Addendum to the EIR at a public hearing on November 18, 2019. The Mitigation and Monitoring Report is attached as Exhibit 1 into the Record of Land Use.

SECTION 3. Site and Design Review objectives.

The design and architecture of the proposed improvements, as conditioned, comply with the Site and Design Objectives as required in Chapter 18.30.060(G) of the PAMC.

A. Objective (a): To ensure construction and operation of the use in a manner that will be orderly, harmonious, and compatible with existing or potential uses of adjoining or nearby sites.

The proposed project is located within the boundaries of the existing Regional Water Quality Control Plant and includes the necessary equipment and facilities to treat recycled water. The facilities are designed in a manner that is orderly, harmonious and compatible with the existing RWQCP and surrounding uses. The project would not conflict with the City's airport operations across Embarcadero Road and is consistent with the Airport Land Use Plan. The colors and design of the facilities are consistent with the Baylands Design Guidelines, such as using muted colors. The new screening/sound wall protects surrounding uses for visual and noise impacts from the proposed facilities. The proposed vegetation planting will provide additional long-term visual screening. Light is directed downward, primarily below the canopy, and is expected to be no greater than street lighting. Therefore, the project is consistent with this objective.

B. Objective (b): To ensure the desirability of investment, or the conduct of business, research, or educational activities, or other authorized occupations in the same or adjacent areas.

The project is a public facility, consistent with the land use designation and zoning, and provides treatment of recycled water to the city and surrounding communities. The project would not affect existing or potential future uses within the surrounding area including the plant operations, the adjacent airport, nearby office uses, and/or recreational use of the Baylands. The project is within the boundaries of the existing RWQCP. A component of the project includes repaving and re-landscaping the walking path leading out to the Baylands along Embarcadero Road.

C. Objective (c): To ensure that sound principles of environmental design and ecological balance shall be observed.

The project is consistent with the Baylands design guidelines in that it utilizes muted colors and the equipment/facilities are consistent with the height of the existing RWCQP buildings and equipment. Lighting is designed and conditioned to not shine onto the adjacent properties. The project will implement green building measures as required by the Palo Alto Municipal Code and, in itself, allows for the increased reuse of recycled water within the City of Palo Alto and surrounding communities.

D. Objective (d): To ensure that the use will be in accord with the Palo Alto Comprehensive Plan.

The project is consistent with the following Comprehensive Plan land use designation, goals, and

policies:

Land Use Designation: Major Institution/Special Facility	This land use designation includes governmental and community service uses and lands that are publicly owned such as the subject property. The proposed advanced water purification system within the area of the RWQCP boundaries is consistent with the Comprehensive Plan Land Use.
Natural Element	
Policy N-4.17: Improve source control, treatment, and distribution of recycled water, including reducing the salinity of recycled water, to maximize its use.	This project is specifically intended to implement this policy in order to reduce the salinity of recycled water in order to maximize its use.
Policy N-2.2: Use the UFMP, as periodically amended, to guide City decisions related to all elements of Palo Alto's urban forest, from its understory habitat to canopy cover. **Policy N-2.3:** Enhance the ecological resilience of the urban forest by increasing and diversifying native species in the public right-of-way, protecting the health of soils and understory vegetation, encouraging property owners to do the same and discouraging the planting of invasive species. **Program N2.7.3:** Actively pursue funding for tree planting to increase canopy cover significantly across the city, avoid a net loss of canopy at the neighborhood level and attain canopy size targets in parks, open space, parking lots and City rights-of-way.	The project includes removal of 35 trees that are primarily non-native, invasive species, and their replacement with 36 trees that are native as well as the addition of understory vegetation for landscape screening along the public ROW.
Policy N-4.1: Maintain a safe, clean and reliable long-term supply of water for Palo Alto	The project improves the reuse of recycled water, improving the City's long-term supply of water for Palo Alto.
Policy N-4.4: Manage water supply and water quality to reflect not only human use but also the water needed to sustain plant and animal life.	The project improves the ability to use recycled water to sustain plant life by reducing the salinity so that the water is more suitable for commercial and public facility use, consistent with this policy.
Policy N-6.12: Ensure compliance with the airport related land use compatibility standards for community noise environments, shown in Table N-1, by prohibiting incompatible land use development within the 60 dBA CNEL noise contours of the Palo Alto airport.	The project is a compatible land use with the airport.
Policy N-7.5: Encourage energy efficient lighting that protects dark skies and promotes energy	The lighting for this project is shielded and directed downward, providing the minimum

conservation by minimizing light and glare from development while ensuring public health and safety.	required lighting necessary for operation facility. The project does not include windows that would create glare.
Land Use Element	
Policy L-1.2: Limit future urban development to currently developed lands within the urban service area. The boundary of the urban service area is otherwise known as the urban growth boundary. Retain undeveloped land west of Foothill Expressway and Junipero Serra as open space, with allowances made for very low-intensity development consistent with the open space character of the area. Retain undeveloped land northeast of Highway 101 as open space.	The project includes development within the boundaries of the existing RWQCP consistent with this policy.
Policy L-1.3: Infill development in the urban service area should be compatible with its surroundings and the overall scale and character of the city to ensure a compact, efficient development pattern.	The project is compatible with its surroundings in that it's similar in height to other buildings/equipment within the RWQCP and meets the applicable height restrictions within the Airport influence area.
Policy L-1.6: Encourage land uses that address the needs of the community and manage change and development to benefit the community	The need for improved recycled water has been previously identified by Council and in the City's Comprehensive Plan. The project addresses the need to improve recycled water quality to allow for increased reuse, benefiting the community.
Policy L-6.2: Use the Zoning Ordinance, design review process, design guidelines and Coordinated Area Plans to ensure high quality residential and commercial design and architectural compatibility.	The project utilizes the design review process to ensure high quality design and architectural compatibility.
Policy L-10.2: Regulate land uses in the Airport Influence Area to ensure consistency with the Palo Alto Airport Comprehensive Land Use Plan and the Baylands Master Plan.	The project complies with the Airport Comprehensive Land Use Plan and the Baylands design guidelines and Master Plan.

SECTION 4. Architectural Review Findings.

1. The design is consistent with applicable provisions of the Palo Alto Comprehensive Plan, Zoning Code, coordinated area plans (including compatibility requirements), and any relevant design guides.

This finding can be made in the affirmative because the project is consistent with applicable Comprehensive Plan goals and policies as summarized above in Section 3, Site and Design Findings. The requested DEE is allowed in accordance with Chapter 18.76.050 of the municipal code and the relevant findings can be made in the affirmative. The project is consistent with the Baylands Design Guidelines, as applicable to the proposed project, in that the project uses muted colors and the height of the new AWPS facility is consistent with the surrounding buildings at the RWQCP and would not be visible from the Baylands or otherwise create new obstructions to views of the Baylands.

2. The project has a unified and coherent design, that:

a. creates an internal sense of order and desirable environment for occupants, visitors, and the general community,

b. preserves, respects and integrates existing natural features that contribute positively to the site and the historic character including historic resources of the area when relevant,

c. is consistent with the context-based design criteria of the applicable zone district,

d. provides harmonious transitions in scale, mass and character to adjacent land uses and land use designations,

e. enhances living conditions on the site (if it includes residential uses) and in adjacent residential areas.

The project is located within the boundaries of the RWQCP which is not accessible to visitors/the general community, as is appropriate for the proposed type facility. The project is designed in a manner that allows for maximum efficiency and future planned needs of the RWQCP. Although the project includes the removal of a number of trees, including protected trees, these trees are primarily non-native, invasive species. Replacement landscaping perimeter planting is proposed to provide long-term screening of the AWPS and existing RWQCP. The project complies with the contextual design criteria set forth in PAMC 18.24, which applies to most zone districts, including the Public Facility Zone District, as detailed below. The project is consistent with the mass and scale of the RWQCP facilities, which generally has 2 and 3-story equivalent buildings and equipment. There are no residential areas on or near the facility.

The project is consistent with the following context-based design criteria:

1. Public Realm/Sidewalk Character (18.24.020)

To create an attractive and safe public realm and sidewalk space for pedestrians and cyclists through the implementation of design, landscaping, and infrastructure.

The project is a public facility located wholly within the boundaries of the existing RWQCP. Due to the nature of this facility as critical infrastructure, protective fencing is required along the boundaries of the facility. However, the project screening wall, which protects the facility, provides screening from equipment, and serves as a sound wall for the project, is designed to provide an attractive and safe public realm along the adjacent sidewalk, creating a desirable place to walk. Landscaping is also provided along the public ROW to provide screening and shade, enabling comfortable pedestrian passage. Therefore the project is consistent with this design criteria.

2. Site Access (18.24.030)

To provide facilities and accommodations for pedestrians, vehicles, cyclists, and transit users to safely and efficiently access and circulate both within individual sites and in the site's surrounding context.

The project is located within the existing RWQCP in a location that does not affect the current circulation within the plant. The system would be maintained by existing plant personnel; no additional parking is proposed for this self-operating system. The project maintains and improves the existing walking path along Embarcadero Road, and does not include any changes to the existing bicycle path or roadway. Therefore, the project is consistent with this design criteria. The project meets the required setbacks or seeks relief from the setbacks to comply with easement

requirements and to be consistent with the surrounding properties. Relief build-to-line" setback along Embarcadero Road and given the opportunities and e site, adherence to the requirement does not create a better project layout. Additionally, the project includes varied materials such as metal, stucco, glass with contrasting colors providing visual interest. The two-story building is horizontally oriented consistent with the Baylands design guidelines.

3. Building Orientation and Setbacks (18.24.040)

To create a coherent and active interface between private development and the public realm that contributes to the sense of place and structure of the neighborhood and enhances the public's experience. Site design that responds to the orientation of adjacent uses and creates opportunities for landscaping and usable open space.

The project includes setbacks from Embarcadero Road to allow a buffer between the roadway and pedestrian path, landscape screening between the pedestrian path and the screening wall, and further setbacks to the buildings. These setbacks and the provided screening create a separation between the public realm and RWQCP facilities as is appropriate for this type of use and consistent with this requirement.

4. Building Massing (18.24.050)

To create buildings that are compatible with and enhance the surrounding area through the consideration of building scale, massing, and bulk. Massing should create a human-scale environment that is of high aesthetic quality and accommodates a variety of uses and design features.

The project includes equipment for the purification of recycled water and is not intended to have a human-scale to the design that is inviting/interfacing with the public realm. However, the project meets this requirement by providing appropriate setbacks and screening from the public realm and providing high quality materials for the sound wall that will be visible from the pedestrian perspective.

5. Façade Design (18.24.060)

To create cohesive and well-crafted building façades with human-scaled details that incorporate textures, colors, and other details that are compatible with and enhance the surrounding area.

The proposed equipment is set back from the public ROW and is screened from view, as is appropriate for equipment versus a traditional building façade. The proposed colors of the canopy cover on the equipment and the reverse osmosis tank, which would be visible from public ROW, are compatible with the Baylands Design Guidelines and enhance the surrounding area. The screening wall will be the primary feature viewed by the public. The wall has been designed to provide variation through stepbacks as well as through color. Therefore, the project is consistent with this criterion.

6. Residential Entries (18.24.070)

Private entries into ground floor residential units shall be designed to provide (1) human-scaled detailing; (2) enhanced pedestrian experience; (3) transition between public and private space; (4) spaces for residents to gather and spend time outdoors; (5) resident privacy

The project does not include a residential use; therefore this design criteria does not apply.

7. Open Space (18.24.080)

To ensure that residents and visitors have access to usable open space and common facilities that provide recreational opportunities, promote a healthy environment, and enhance the experience of living in Palo Alto.

The project maintains or otherwise improves the public ROW. The project is located within the RWQCP boundaries which is not accessible to the public and does not include open space or common facilities. Therefore, this criteria does not apply to the project.

8. Materials (18.24.090)

To promote the use of high quality, durable, sustainable, and attractive materials that exhibit a sense of permanence and contribute to the aesthetic quality of the development and to the urban design fabric of the community.

The proposed materials for the buildings are pre-fabricated and include primarily non-reflective metal or steel, as is appropriate for a tank and equipment cover. Therefore, the project is consistent with this design criteria.

9. Sustainability and Green Building Design (18.24.100)

To incorporate sustainability, green building, and environmental considerations into the project design and construction. Green building design aims for compatibility with the local environment: to protect, respect and benefit from it. In general, sustainable buildings are energy efficient, water conserving, durable and nontoxic, with high-quality spaces and high recycled content materials.

The project provides increased opportunities for use of recycled water and therefore is inherently a project to increase sustainability initiatives set forth by the City. The project also provides low water use, native plantings for landscape screening areas, replacing primarily non-native, invasive species.

3. The design is of high aesthetic quality, using high quality, integrated materials and appropriate construction techniques, and incorporating textures, colors, and other details that are compatible with and enhance the surrounding area.

The project includes muted colors that complement the surroundings and are appropriate to the proposed equipment/use. The project proposes a high-quality screening/sound wall that provides variation in colors and depth as well as quality, native, landscaping that maintain the high-quality experience along Embarcadero Road for all modes of transportation.

4. The design is functional, allowing for ease and safety of pedestrian and bicycle traffic and providing for elements that support the building's necessary operations (e.g. convenient vehicle access to property and utilities, appropriate arrangement and amount of open space and integrated signage, if applicable, etc.).

The project is designed to maintain the same private access to the plant and maintains the existing pedestrian path connecting embarcadero Road out to the baylands. The AWPS would be operated by existing employees at the plant and no additional parking is proposed.

5. The landscape design complements and enhances the building design and its surroundings, is appropriate to the site's functions, and utilizes to the extent practical, regional indigenous drought resistant plant material capable of providing desirable habitat that can be appropriately maintained.

Landscaping is provided along the perimeter of the site. The landscape palette uses drought tolerant, native species.

6. The project incorporates design principles that achieve sustainability in areas related to energy efficiency, water conservation, building materials, landscaping, and site planning.

The project itself is designed to improve the reuse of recycled water within the City of Palo Alto and neighboring jurisdictions, primarily Mountain View, and creates opportunities for future phase expansion to maximize recycled water use. The project provides lighting only to the degree necessary to provide for safe operation of the facility. Landscaping includes low-water use, native landscaping that is consistent with the Baylands.

SECTION 5. Design Enhancement Exception Findings

1. There are exceptional or extraordinary circumstances or conditions applicable to the property or site improvements involved that do not apply generally to property in the same zone.

The applicant requests a Design Enhancement Exception to allow for a screening wall that varies from 9.5 to 10 feet tall, where an 8-foot fence/wall is allowed in accordance with 16.24.030 (security fences). The RWQCP is a public facility serving the region in a unique environment that provides important habitat and recreational opportunities. In this sense, the RWQCP is a unique land use that is inherently different from its neighbors and is of more critical importance for the services it provides. The proposed sound/screening wall will protect the quality of surrounding uses will allowing for the site to continue to serve the needs of the region.

2. *The granting of the application will enhance the appearance of the site or structure, or improve the neighborhood character of the project and preserve an existing or proposed architectural style, in a manner which would not otherwise be accomplished through strict application of the minimum requirements of this title (Zoning) and the architectural review findings set forth in Section 18.76.020(d); and*

The proposed wall will preserve the appearance of the public area adjacent to the entrance to the Baylands by screening this public infrastructure equipment and ensuring that sound levels remain below the code requirement consistent with the findings set forth in Section 18.76.020(d).

3. *The exception is related to a minor architectural feature or site improvement that will not be detrimental or injurious to property or improvements in the vicinity and will not be detrimental to the public health, safety, general welfare or convenience.*

The granting of the Design Enhancement Exception is a minor increase of a perimeter wall and would not negatively affect public health, safety, general welfare, or convenience or be detrimental to the property or improvements in the vicinity. The proposed DEE would enhance the aesthetics of this entrance to the Baylands by providing screening (in conjunction with landscaping) as well as

preserving the quiet for recreational users and surrounding uses.

SECTION 6. Conditions of approval

PLANNING DIVISION

1. CONFORMANCE WITH PLANS. Construction and development shall conform to the approved plans entitled, "City of Palo Alto Regional Water Quality Control Plant Advanced Water Purification System Architectural Review Submittal" stamped as received by the City on February 6, 2024, on file with the Planning Department, 250 Hamilton Avenue, Palo Alto, California except as modified by these conditions of approval.

2. BUILDING PERMIT. Apply for a building permit and meet any and all conditions of the Planning, Fire, Public Works, and Building Departments.

3. BUILDING PERMIT PLAN SET. All Department conditions of approval for the project shall be printed on the plans submitted for building permit.

4. PROJECT MODIFICATIONS. All modifications to the approved project shall be submitted for review and approval prior to construction. If during the Building Permit review and construction phase, the project is modified by the applicant, it is the responsibility of the applicant to contact the Planning Division/project planner directly to obtain approval of the project modification. It is the applicant's responsibility to highlight any proposed changes to the project and to bring it to the project planner's attention.

5. INDEMNITY. To the extent permitted by law, the Applicant shall indemnify and hold harmless the City, its City Council, its officers, employees and agents (the "indemnified parties") from and against any claim, action, or proceeding brought by a third party against the indemnified parties and the applicant to attack, set aside or void, any permit or approval authorized hereby for the Project, including (without limitation) reimbursing the City for its actual attorneys' fees and costs incurred in defense of the litigation. The City may, in its sole discretion, elect to defend any such action with attorneys of its own choice.

6. LIGHTING. The owner or designee shall ensure that lighting is the minimum necessary and shielded downward to avoid light spillover as shown in the approved plan set.

7. NOISE THRESHOLDS ON COMMERCIAL PROPERTY. In accordance with PAMC Section 9.10.040, No person shall produce, suffer or allow to be produced by any machine or device, or any combination of same, on commercial or industrial property, a noise level more than eight dB above the local ambient at any point outside of the property plane.

8. NOISE REPORT AT BUILDING STAGE. At the time of building permit issuance for new construction or for installation of any such interior or exterior mechanical equipment, the applicant shall submit an acoustical analysis by an acoustical engineer demonstrating projected compliance with the Noise Ordinance. The analysis shall be based on acoustical readings, equipment specifications and any proposed sound reduction measures, such as equipment enclosures or insulation, which demonstrate a sufficient degree of sound attenuation to assure that the prescribed noise levels will not be exceeded.

9. NOISE REPORT PRIOR TO INSPECTION. Where the acoustical analysis proje[illegible]at or within 5 dB less than the Noise Ordinance limits, the applicant shall demo[illegible]ed equipment complies with the anticipated noise levels and the Noise Ordinance prior to final Planning inspection approval.

10. MITIGATION MONITORING AND REPORTING PROGRAM. To the extent applicable, the project shall comply with mitigation measures set forth in the 2015 EIR for the City of Palo Alto Recycled Water Project.

11. FINAL INSPECTION. A Planning Division Final inspection will be required to determine substantial compliance with the approved plans prior to the scheduling of a Building Division final. Any revisions during the building process must be approved by Planning, including but not limited to; materials, landscaping and hard surface locations. Contact your Project Planner, Claire Raybould Claire.Raybould@cityofpaloalto.org to schedule this inspection.

BUILDING DEPARTMENT

12. A building permit is required for this project. Submit all plans listed on sheet G-00-002. Include a soil report and supporting structural calculations for the new building and non-building elements (i.e., tank, pipes and their supports, equipment, etc.). Include all MEPs plans, grading and drainage, and complete construction documentation.

PUBLIC WORKS ENGINEERING DEPARTMENT

13. PUBLIC WORKS APPLICATIONS, FORMS, AND DOCUMENTS. Applicant shall be advised that most forms, applications, and informational documents related to Public Works Engineering conditions can be found at the following link: https://www.cityofpaloalto.org/Departments/Public-Works/Engineering-Services/Forms-and-Permits

14. STREETWORK PERMIT. The applicant shall obtain a Streetwork Permit from the Department of Public Works for all public improvements.

15. FLOOD ZONE. This project is in a FEMA Special Flood Hazard Area and shall comply with the requirements in Palo Alto Municipal Code Chapter 16.52

16. ENCROACHMENT PERMIT: Prior to any work in the public right-of-way, the applicant shall obtain an encroachment permit from the Public Works Department for any work that encroaches onto the City right-of-way.

17. GRADING PERMIT. A Grading Permit may be required per PAMC Chapter 16.28. The permit application and all applicable documents (see Section H of application) shall be submitted to Public Works Engineering if required.

WATER QUALITY

18. Include the Storm Water Pollution Prevention plan sheet (Public Works)
    - http://bit.ly/PAStormWaterPollution

19. All Bay Area Municipal Regional Stormwater Permit requirements shall be followed. Refer to the Santa Clara Valley Urban Runoff Pollution Prevention Program C.3 Handbook (download here: http://scvurppp-w2k.com/c3_handbook.shtml) for details.

20. Stormwater quality protection:
    - o Temporary and permanent waste, compost and recycling containers sha rohibit fly-away trash and having rainwater enter the containers.
    - o Drain downspouts to landscaping (outward from building as needed).
    - o Offsite downgrade storm drain inlets shall also be identified on this plan set and protected. If City staff removes protection from an inlet in the ROW during a rain event, the contractor shall replace the inlet protection by the end of the following business day.

ZERO WASTE

21. SALVAGE SURVEY. A Salvage Survey for reuse is not required. However, the highest source separation of any materials removed is still required.

PUBLIC WORKS URBAN FORESTRY

The following conditions and/or standard Municipal Code requirements are provided for supplemental guidance, recommendation and/or best practices. Any applicable items shall be addressed in any permit application such as a Building Permit, Excavation and Grading Permit, Certificate of Compliance, Street Work Permit, Encroachment Permit, etc.

22. TREE PROTECTION COMPLIANCE. The owner and contractor shall implement all protection and inspection schedule measures, design recommendations and construction scheduling as stated in the Sheet T-1 and is subject to code compliance action pursuant to PAMC 8.10.080. The required protective fencing shall remain in place until final landscaping and inspection of the project.

23. PLAN CHANGES. Revisions and/or changes to plans before or during construction shall be reviewed and responded to by the (a) project site arborist, or (b) landscape architect with written letter of acceptance before submitting the revision to the Development Services Department for review by Planning, PW or Urban Forestry.

24. TREE DAMAGE. Tree Damage, Injury Mitigation and Inspections apply to the Contractor. Reporting, injury mitigation measures and tree protection inspection schedule apply. Contractor shall be responsible for the repair or replacement of any publicly owned or protected trees that are damaged during the course of construction, pursuant to Title 8 of the Palo Alto Municipal Code.

25. URBAN FORESTRY GENERAL. The following general tree preservation measures apply to all trees to be retained: No storage of material, topsoil, vehicles or equipment shall be permitted within the tree enclosure area. The ground under and around the tree canopy area shall not be altered. Trees to be retained shall be irrigated, aerated and maintained as necessary to ensure survival.

26. EXCAVATION RESTRICTIONS APPLY. Any approved grading, digging or trenching beneath a tree canopy shall be performed using 'air-spade' method as a preference, with manual hand shovel as a backup. For utility trenching, including sewer line, roots exposed with diameter of 1.5 inches and greater shall remain intact and not be damaged. If directional boring method is used to tunnel beneath roots, then CPA Standard Detail #504 shall be printed on the final plans to be implemented by Contractor.

27. PLAN SET REQUIREMENTS. The final Plans submitted for a building permit shall include the following information and notes on relevant plan sheets:

a. SHEET T-1, The building permit plan set will include the City's full-sized, [illegible] Protection-it's Part of the Plan!), available on the Development Center we[illegible]rborist shall complete and sign the Tree Disclosure Statement.
b. TREE PROTECTION FENCING, The Plan Set (esp. site, demolition, grading & drainage, foundation, irrigation, tree disposition, utility sheets, etc.) must delineate/show the correct configuration of Type I, Type II or Type III fencing around each Protected Tree, using a bold dashed line enclosing the Tree Protection Zone (CPA Standard Detail #605).

SECTION 7. Term of Approval.

1. Site and Design Approval. In the event actual construction of the project is not commenced within two years of the date of council approval, the approval shall expire and be of no further force or effect, pursuant to Palo Alto Municipal Code Section 18.82.080.

2. Design Enhancement Exception. The time limits for any DEE shall be the same as the time limits for the accompanying design review approval.

PASSED:
AYES:
NOES:
ABSENT:
ABSTENTIONS:

ATTEST:

_____
City Clerk

APPROVED:

_____
Mayor

APPROVED AS TO FORM:

_____
Assistant City Attorney

_____
City Manager

_____
Director of Planning and Development Services

ATTACHMENT C
ZONING COMPARISON TABLE
2501 Embarcadero Way, 22PLN-00367

Table 1: COMPARISON WITH CHAPTER 18.28 (PF DISTRICT)

Regulation	Required	Existing	Proposed
Minimum Site Area, width and depth	None	44,566,185 (1023 ac)	44,802,715 (~1023 ac)[1]
Minimum Front Yard (Embarcadero Road)	20 feet	More than 50 feet	24 feet
Rear Yard	10 feet	More than 115 feet	Unclear (more than 100 ft)
Interior Side Yard	10 feet	More than 80 feet	Varies; 96 to 118 ft
Special Setback	24 feet – see Chapter 20.08 & zoning maps	Not applicable	Not applicable
Max. Site Coverage	30% (24,691 sf)	0.87%	0.89%
Max. Total Floor Area Ratio	1:1 (44,566.185 sf)	.0082: 1.0 (366,108 sf)	.0091: 1.0 (406,378 sf)
Max. Building Height	50 ft or 35 ft when located within 150 ft of residentially zoned property	Unknown	38 feet (permeate tank) 32.5 feet (canopy) 15 feet (electrical building)
Daylight Plane	None	Not Applicable	Not Applicable
Employee Showers	0 required for new square footage greater than 9,999 sf	Unclear	0 (facilities will be unmanned and maintained by existing RWQCP staff)

1. The project plans do not reflect a proposal to change the parcels; however, in staff's review it appears that a lot line adjustment may be necessary which ultimately would increase the square footage of the parcel on which the project is located.

Table 2: CONFORMANCE WITH CHAPTER 18.52 (Off-Street Parking and Loading) for Public Facilities*

Type	Required	Existing	Proposed
Vehicle Parking	To be determined by Director	Unclear	0 (facilities will be unmanned and maintained by existing RWQCP staff)
Bicycle Parking	To be determined by Director	Unclear	0
Loading Space	To be determined by Director	0	0

CITY OF PALO ALTO

REGIONAL WATER QUALITY CONTROL PLANT

Local Advanced Water Purification System

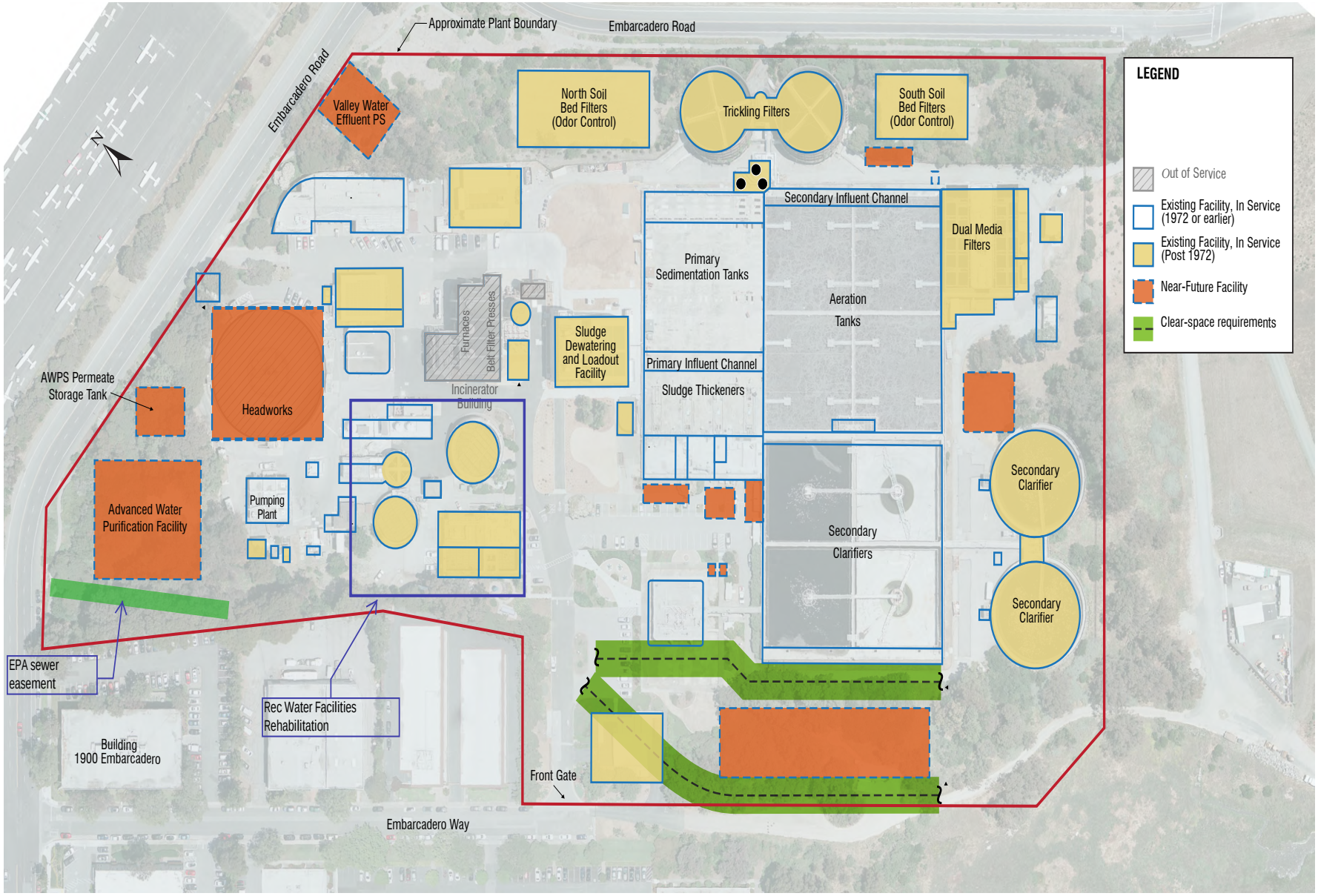
Revised Planning Entitlement Plans Resubmittal

Item 4 – Palo Alto Regional Water Quality Control Plant Current & Future Facilities

Prepared by
City of Palo Alto

December 2023
Revised March 2024

FIGURE 1. AERIAL VIEW SHOWING EXISTING & NEAR-FUTURE FACILI
AWPS LOCATED ON THE LOWER LEFT CORNER (NORTHWEST)



rev 3/11/2024

- Area to the southwest of the AWPS can't be utilized due to a sanitary sewer easement (main line from East Palo Alto)
- Area to the southeast of the AWPS is occupied by the Influent Pumping Plant and Junction Box (where all sewer lines discharge)
- Old Chlorine Contact Tank area is reserved for future Headworks Facility needed to replace aging facilities from 1972

FIGURE 2. PROPOSED FOOTPRINT OF NEW HEADWORKS FACILITY (ORANGE)

- City's most essential facility for reliably receiving raw wastewater into the Plant without sewage backups in the collection system, spills, or unintended discharge of untreated sewage.
- Critical for protection of the Plant's downstream equipment and processes
- Headworks facility includes bar screens, grit removal and pumping station
- Project is needed to replace aging infrastructure from 1972.
- Existing influent pipes run through the site and space is needed for excavation of new pipes while maintaining existing ones in operation.
- Project is in contracting phase for design

CITY OF PALO ALTO

MEMORANDUM

FROM: James Allen; Public Works Department, Plant Manager
Tom Kapushinski; Public Works Department, Senior Engineer
Diego Martinez Garcia; Public Works Department, Engineer

TO: Claire Raybould, Planning Department

PROJECT: Local Advanced Water Purification System

DATE: March 21, 2024

SUBJECT: Investigation of correlated color temperature (CCT) reduction at the Local Advanced Water Purification System located inside the Regional Water Quality Control Plant (RWQCP).

On February 28, 2024, the Planning and Transportation Commission held a regular meeting where the Local Advanced Water Purification System (Project) was discussed. The Commission recommended approval of a Site and Design Application to construct the Project at the Regional Water Quality Control Plant (RWQCP or Plant). A commission member requested an investigation to use 2700K correlated color temperature (CCT) lighting instead of the designed 4000K CCT lighting.

Background
Staff evaluated color temperature with the designer (Black & Veatch), a third-party specialty consultant (TJC and Associates), and independently at the staff level. The consultant's technical memorandum advising on color temperature for this facility is attached (Appendix A). The RWQCP is an essential industrial facility providing wastewater treatment services. Onsite workers perform duties day and night. Numerous workers provide services during night hours including operators, mechanics, electricians, laboratory staff, technologists, engineers, contractors, chemical delivery drivers, and so forth. All workers need to perform work safely during the night hours. The new facility under consideration has areas that need proper lighting due to continuous operation and maintenance needs (e.g., around highly hazardous chemicals, rotating machinery, and power distribution equipment).

Correlated Color Temperature (CCT)
Compared to warm colors, higher color temperature lighting details natural color and work environments more accurately. The proposed lighting gives Plant staff a more realistic view during night hours. High color temperature will provide better visibility and ultimately create a safer working environment by reducing the risk of accidents and injury. The higher color temperature lighting supports employee safety, consistent with the City's Injury and Illness Prevention Plan and industry standards.

A third-party electrical engineering firm and the designer recommended using a minimum CCT of 4000K following manufacturer Illuminating Engineering Society (IES) guidelines. Color temperatures between 4000K to 5000K benefit industrial facilities. This range provides brighter, natural-looking light, improves

visibility, enables worker awareness, promotes alertness, enhances focus, and increases productivity. Studies[1,2] show that white light stimulates wakefulness and heightened cognitive function by suppressing melatonin levels, keeping workers awake and alert. Conversely, warm lighting induces fatigue resulting in reduced efficiency and performance[1, 2] making them undesirable for industrial facilities. Warm light emits a less bright, yellow-orange light that can hinder worksite visibility.

Local AWPS Lighting Design

The AWPS provides illumination that is safe and functional for onsite staff as well as being designed to reduce illumination impacts on nearby areas. The design promotes alertness, high productivity, and visual discernment of details. The Project is equipped with onsite control panels, pumps, valves, and electrical gear that need continual attention. Additionally, multiple hazardous chemicals are required to keep filtration and reverse osmosis membranes running under optimal conditions.

Addressing light pollution is a growing issue. The RWQCP is sensitive to its proximity to the natural resources of the Baylands. The AWPS design keeps lighting focused within the project area and out of the Baylands. Using the DarkSky Association and the Illuminating Engineering Society guidelines, the AWPS lighting design incorporates five lighting principles for responsible outdoor lighting, including:

1) Useful – All light should have a clear purpose.

   The lighting design only includes external fixtures under the canopy and equipment area where workers need access to perform routine operations and maintenance duties 24/7.

2) Targeted – Direct light so it falls only where needed.

   The canopy ceiling lighting fixtures provide illumination targeted to the equipment area. The selected lighting fixtures provide a higher delivered footcandles in the work area, thereby avoiding light dispersion. On the north corner of the Project, there are pendant type lights installed in the roof structure with minor spill out towards the Project boundary. To further minimize light dispersion from the canopy, the Project includes an architectural aluminum panel to be installed in the upper canopy (Figure 1).

3) Low Level – Illumination design is code-based for an industrial facility like the RWQCP.

4) Controlled – Use light only when it is needed.

   The design incorporates provisions for timers, motion sensors, and photocells.

5) Warm-colored – Industry standard recommendation is around 5000K to promote safety and alertness.

[1] Ju, J., Chen, D. and Lin, Y. (2012). *Effects of correlated color temperature on spatial brightness perception.* Color Res. Appl., 37: 450-454. https://doi.org/10.1002/col.20711

[2] Huang, R.-H., Lee, L., Chiu, Y.-A. and Sun, Y. (2015). *Effects of correlated color temperature on focused and sustained attention under white LED desk lighting*. Color Res. Appl., 40: 281-286. https://doi.org/10.1002/col.21885

Figure 1. Architectural aluminum panel for increased screening and to prevent light dispersion

Local AWPS Lighting Study

During the AWPS design, the designer conducted lighting calculations[3] to determine point-by-point illuminance on any workplace or surface utilizing lighting fixture families and surface geometry present on the model. After receiving Architectural Review Board feedback, the design team updated the model to include a larger area outside the main canopy area. The results (see Appendix B) indicate a maximum illuminance of 21.7 foot-candles outside the canopy area with an average of 1.3 foot-candles. Areas near the boundary wall and the boundary with Embarcadero Road and contiguous properties show illuminances near zero foot-candles. The model also simulated illuminance as a function of height. The results indicate that there will be low illuminance in the north wall near the corner of the canopy at between 1.0 and 2.0 foot-candles with a maximum of 2.7 foot-candles. For instance, the average illuminance inside the canopy would be 157 foot-candles.

Conclusion

The RWQCP promotes a safe, well-lit work environment; lighting is selected and used to enhance concentration, productivity, and alertness. An independent electrical engineering firm and the design engineer were consulted, and their recommendation is to use a minimum CCT of 4000K following manufacturer Illuminating Engineering Society (IES) guidelines. Color temperatures ranging from 4000K to 5000K offer numerous safety benefits in industrial facilities, including brightness, natural-looking light, improved visibility in low-light settings, and better worker awareness The AWPS design provides lighting that is safe and minimizes offsite impacts. The AWPS lighting design incorporates the five DarkSky Association lighting principles for responsible outdoor use, which includes using the minimum light needed to safely perform tasks and avoiding light dispersion. Lighting software was used to confirm proper lighting onsite and offsite. Areas near the boundary wall and the boundary with Embarcadero Road and contiguous properties show illuminance levels near zero foot-candles.

[3] Black & Veatch uses ElumTools software

Appendix A - Professional Opinion Memorandum Concerning Correlated Color Temperature Reduction in Water and Wastewater Treatment Plants

TJC and ASSOCIATES, INC.

Structural Engineering

SCADA

Electrical Engineering

Instrumentation

Controls

Control Systems Programming

Technical Memorandum

To:	*Diego Martinez Garcia, City of Palo Alto*
From:	*Andrew Calma and Eileen Nakamura, P.E., TJC and Associates* *Rick Chan, P.E., Carollo Engineers, Inc.*
Project Name:	*City of Palo Alto On-Call Engineering Services Task Order No. 6* *Investigation of Correlated Color Temperature Reduction*
Project Number:	*124016*
Subject:	*Professional Opinion Concerning Correlated Color Temperature Reduction in Water and Wastewater Treatment Plants*
File to:	*124016 - 6.02*
Date:	*March 21, 2024*

This memo provides our professional opinion regarding how essential facilities such as treatment plants can address correlated color temperature reduction and minimize light pollution.

1. Correlated Color Temperature

Correlated Color Temperature (CCT) is a measure of the color appearance of a light source and is measured in degrees Kelvin. It is a gauge of how yellow or blue the color of the light emitted from a lighting fixture appears. Selection of lighting fixture CCT depends on the environment or application. A lower (warm) CCT includes hues of yellow or amber light colors, while a higher CCT appears as hues more associated with daylight or bright white light colors.

The Illuminating Engineering Society (IES) recommendations for industrial facilities lighting can be found in ANSI/IES RP-7-21. In Chapter 3, the IES recommends using LED light sources having a higher CCT, with typical values ranging from 4000K to 5000K. Lighting manufacturers also recommend using LEDs with daylight light color temperatures ranging from 4000K to 5000K. Sometimes, a CCT higher than 5000K is used for task lighting and distribution centers to help increase productivity and energize individuals.

Lastly, according to studies from the National Library of Medicine, warm color temperatures may help increase melatonin production and lights with high color temperatures help suppress melatonin production, promotes focus, and maintain alertness.

In contrast, for restaurants, hotels, and other hospitality-type establishments, the IES and lighting manufacturers recommend using LEDs with warm color temperatures ranging from 2200K-3500K, to create a friendly and relaxed ambiance. Warm color temperatures at 3000K and below (with hues of orange, amber, and yellow) are commonly used in hotel rooms.

Sacramento Office:
P.O. Box 2059
Folsom, CA 95763
p 916.853.9658

Oakland Office:
1111 Broadway
Suite 300
Oakland, CA 94607
p 510.251.8980

Concord Office:
2300 Clayton Road
Suite 1450
Condord, CA 94520
p 925.357.2676

f 800.948.5604

www.tjcaa.com

2. Light at Night

Light at Night is a collaboration between DarkSky International (formerly known as International Dark-Sky Association) and the IES to address the issue of light pollution or light spills that negatively affect the environment and human condition. The requirements for light pollution reduction for industrial facilities can be found in the California Green Building Standards Code (CALGreen), Section 5.106.8. This Section documents the allowable backlight, uplight, and glare ratings as determined by the State of California.

To comply with the light pollution reduction requirements of CALGreen, the measures that are applied to outdoor lighting include:

- Selecting a wedge-shaped lighting fixture having reduced uplight.
- Choosing a fixture with "sharp-cutoff" photometrics for a more downward light aim and associated glare reduction.
- Installing accessories such as "light shields" to reduce light spills, glare, and backlight.

3. Professional Opinion on CCT Selection

Our experience at industrial establishments, including water and wastewater facilities, commonly use a CCT of 4000K minimum following manufacturer and IES recommendations. Lighting design criteria for industrial lighting generally emphasize safety and visibility. The measure used to ensure a safe working environment is to select lighting fixtures with high CCT's to enhance visibility of potential hazards and provide clear egress and exit paths to minimize accidents and injuries. Similarly, a brighter appearing space is generally more pleasant to perform tasks that require focused visual effort, thereby enhancing productivity. Reducing lighting fixture CCT to values lower than 4000K in industrial facilities would increase the risk of accidents and injuries and would not be compliant with IES recommendations.

4. Professional Opinion for Light Pollution Reduction

To comply with light pollution reduction requirements, industry standard practices rely on a number of design schemes. House shields are typically installed in outdoor lighting fixtures to reduce light spills and are commonly used on pole-mounted fixtures. For lighting fixtures mounted on exterior walls, a wedge-shaped lighting fixture is commonly installed to focus light downward and not outward. Lastly, fixture photometrics that complement the physical placement of the fixtures (e.g., sharp cutoff characteristics) can maximize the lighting at the intended area while limiting light spills outside that area.

5. References and Resources

5.1 References

2022 California Green Building Standards Code, Title 24, Part 11 – Chapter 5, Section 5.106.8 Light Pollution Reduction. Accessed March 18, 2024. Accessed at https://www.dgs.ca.gov/BSC/CALGreen

Correlated color temperature and light intensity: Complementary features in non-visual light field. Accessed March 18, 2024. Accessed at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8274909/

Red light and the sleep quality and endurance performance of Chinese female basketball players. Accessed March 18, 2024. Accessed at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3499892/

Effect of exposure duration and light spectra on nighttime melatonin suppression in adolescents and adults. Accessed March 18, 2024. Accessed March 18, 2024. Accessed at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6561500/

The inner clock-Blue light sets the human rhythm. Accessed March 18, 2024. Accessed at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7065627/

5.2 Resources

2022 California Green Building Standards Code, Title 24, Part 11 (CALGreen)

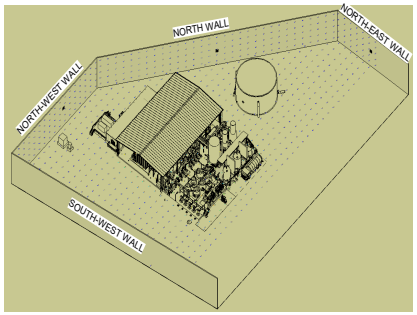
ANSI/IES RP-7-21 Recommended Practice: Lighting Industrial Facilities

https://www.ncbi.nlm.nih.gov/

Appendix B - AWPS ELUM General Lighting Calculation for Outside Area

Item 2

Attachment E: Lighting Memorandum



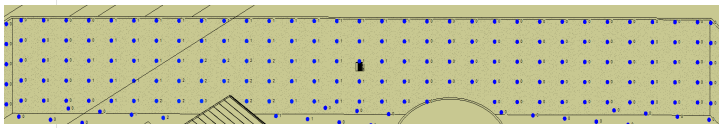
3D VIEW

ASSUMPTION:

WALL HEIGHT - 50'-0" ABOVE FGL
CEILING HEIGHT - 50'-0" ABOVE FGL

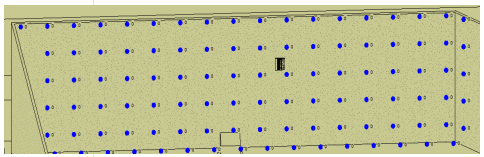
PALO AWPS OUTSIDE AREA LIGHTING CALCULATION

1" = 20'-0"



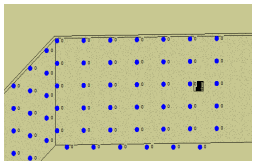
NORTH WALL

NO SCALE



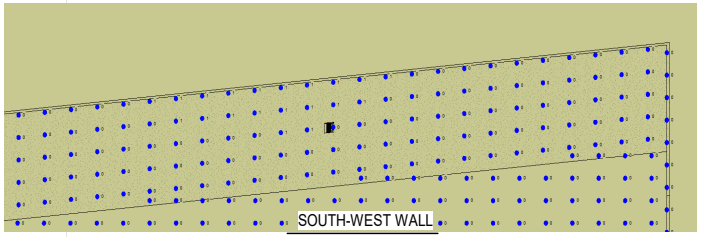
NORTH-WEST WALL

NO SCALE



NORTH-EAST WALL

NO SCALE



SOUTH-WEST WALL

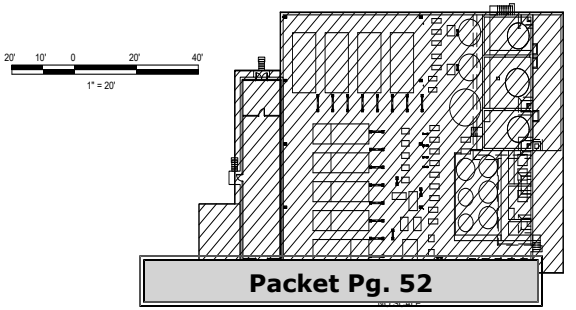
NO SCALE

ElumTools General Use Illuminance Results

Calculation Points Name	Average	Maximum	Minimum	Space: Specified Lighting Load/Area
OUTSIDE AREA	1.3 fc	21.7 fc	0.0 fc	
INSIDE AREA	15.7 fc	38.4 fc	0.0 fc	
SOUTH-WEST WALL	0.4 fc	0.6 fc	0.1 fc	
NORTH-WEST WALL	0.2 fc	0.5 fc	0.0 fc	
NORTH WALL	0.6 fc	2.7 fc	0.0 fc	
NORTH-EAST WALL	0.0 fc	0.0 fc	0.0 fc	

Lighting Fixture Schedule

Family	Fixture Type	Photometric File Name	Lamp Count	Luminaire Input Watts	Luminaire Lumens	Total Light Loss Factor	Mounting Height
PVML (Pendant / Ceiling Mount)	1	PVML-11-UNV1-S891.ies	24	91 W	10676 lm	0.85	SEE PLAN
PVML (Pendant Mount Emergency)	1E	PVML-11-UNV1-S891.ies	26	91 W	10676 lm	0.85	SEE PLAN
PVML (Pendant / Ceiling Mount)	2	PVML-3-UNV1-S891.ies	4	27 W	2756 lm	0.85	7'-10"
PVML (Stantion Mount)	3	PVML-3-R3-UNV1.ies	12	26 W	2726 lm	0.85	7'-6"
PVML (Stantion Mount)	4	PVML-7-R3-UNV1.ies	3	59 W	6285 lm	0.85	7'-6"
Street_Light-LED-Lithonia-DSX1-MA	5	DSX1_LED_30C_700_40K_T3M_MVOLT_MA.ies	26	68 W	7345 lm	0.85	10'-0"
PVML (Wall Mount)	6	PVML-3-R3-UNV1.ies	4	26 W	2726 lm	0.85	7'-6"
WSQ-LED	7	WSQ LED P1 SR3 40K MVOLT.ies	5	20 W	2244 lm	0.85	8"
Grand total: 104			104				



(SCALE BAR IS 4" AT FULL SCALE) 0 1/2 1 2 3 4

BLACK & VEATCH

Black & Veatch Corporation
Walnut Creek, California

CITY OF PALO ALTO

CITY OF PALO ALTO
RWQCP ADVANCED WATER PURIFICATION SYSTEM

ARCHITECTURAL REVIEW BOARD SUBMITTAL
NOT FOR CONSTRUCTION

2	09/22	90% DESIGN SUBMITTAL
1	04/22	60% DESIGN SUBMITTAL

REVISIONS AND RECORD OF ISSUE

DESIGNED:	HK
DETAILED:	CP
CHECKED:	CRM
APPROVED:	PV
DATE:	05/2023
PROJECT NO.:	408520

AWPS

ELECTRICAL

AWPS
ELUM GENERAL
LIGHTING CALCULATION
OUTSIDE AREA

E-EC-101

OF 215

PLOTTED: 11/28/2023 4:28:50 PM
FILE: C:\Users\pal79142\OneDrive - Black & Veatch\Desktop\Charan Patil (Dont Delete)\Office Work\1) Working Projects\Palo Alto Projects\Palo Alto Outside Area Elum Calculation\Palo Alto detached_Model (Floor & Wall Calculation).rvt
D11000

CITY OF PALO ALTO

MEMORANDUM

FROM: Diego Martinez Garcia, Engineer

TO: City of Palo Alto Planning Department
Architectural Review Board Members
Cc – Tom Kapushinski, Senior Engineer

PROJECT: Local Advanced Water Purification System

DATE: February 5, 2024

SUBJECT: AWPS Canopy Cover

A study session with the City's Architectural Review Board (ARB) was scheduled for November 2, 2023 for Action on 2501 Embarcadero Way (22PLN-00367) for Consideration of a Site and Design Application to Allow Construction of a Local Advanced Water Purification System at the RWQCP as Agenda Item #2. After a brief introduction by Planning Staff, WQCP Engineering Staff presented a few slides that covered the project background, costs, location, and architectural items. Board members asked a few clarifying questions and proceeded to provide their feedback.

One item for discussion was the possibility of adding screening to the open canopy around the entire building or at least on the side that faces Embarcadero Road (northwest). The City and design team evaluated the feasibility of installing screening on each side of the canopy. For the northeast and southwest faces of the canopy (Figure 1), access is needed to maintain, repair and replace reverse osmosis (RO) and microfiltration (MF) skids. Figure 2 shows sections of the RO skids (green) and MF skids (orange). Full height access will be required during operations; therefore, it is not possible to add screening in these faces. The southeast face of the canopy, shown in green (Figure 1), is located towards the interior of the Regional Water Quality Control Plant (RWQCP), therefore no screening will be provided. Additionally, open access is needed to allow crews remove and replace equipment.

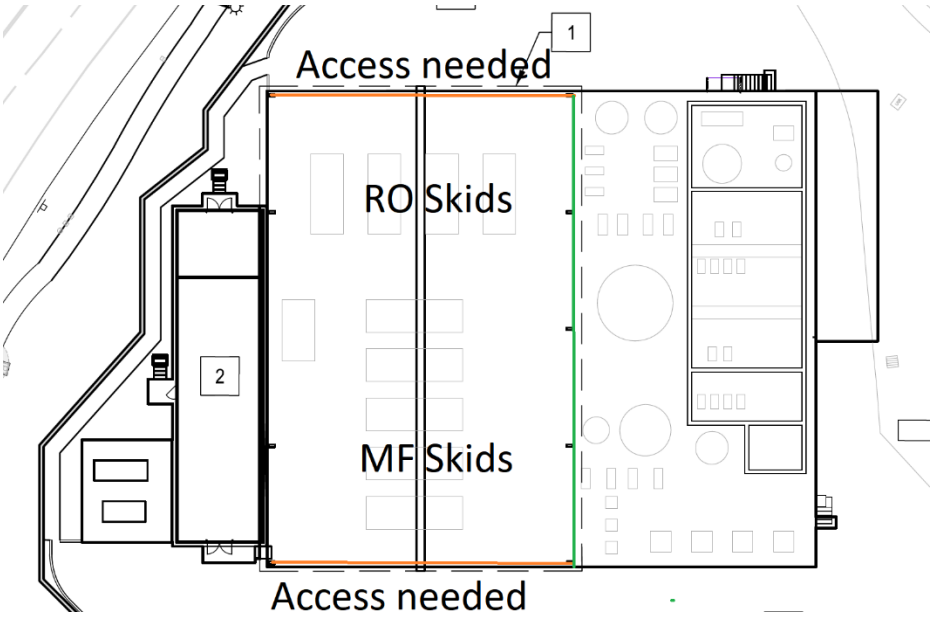


Figure 1. Plan view of AWPS canopy.

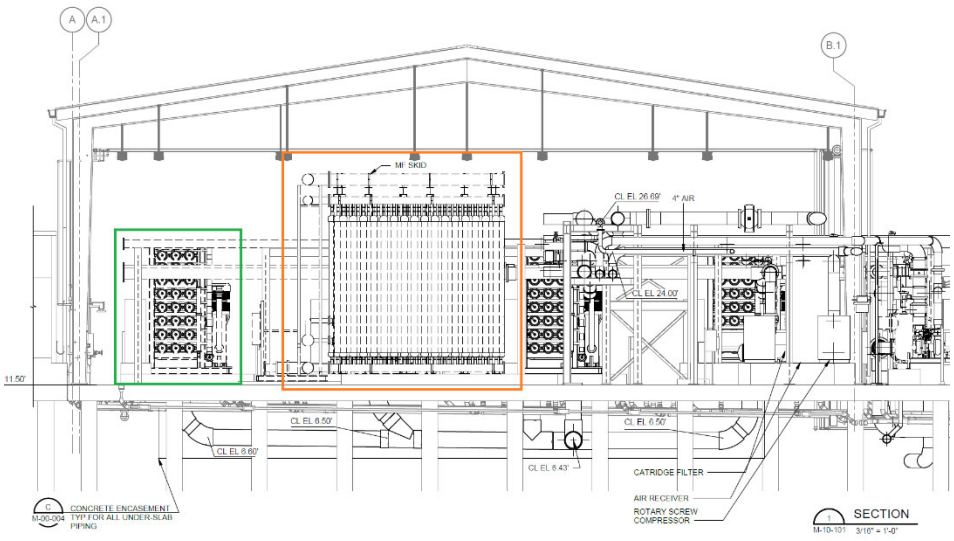


Figure 2. Section view of canopy. MF and RO skids are shown.

The northwest face of the canopy is partially covered by the Electrical building and a noise wall. Landscaping was designed to include higher species of trees to provide further screening (Figure 3).

Figure 3. Views from Embarcadero Road. Partial covering is provided by noise wall, electrical building and landscaping.

The City and design team evaluated a few options to provide screening to the northwest face of the AWPS canopy. Canopy coverings cannot be installed from the floor to the bottom because access is needed. Canopy screening could be installed from the canopy line down to the top of the electrical building. One proposal is to use functional metal art screen panels. These panels are perforated screen metal sheets and can be used to secure or obscure mechanical or electrical equipment. These panels come in various sizes and are made of steel, cor-ten steel or aluminum. Colors available are white, black, bronze, dark blue, beige, green, orange, red and silver. From the available patterns, the proposed ones are shown below (Figure 4). A few examples are provided below (Figure 5, 6 and 7).

Figure 4. Proposed patterns for AWPS Project

Figure 5

Figure 6

Figure 7

Figure 8

Local Advanced Water Purification System

ARB Major Submittal

Prepared by
City of Palo Alto

September 2022

MEMORANDUM

FROM: **Diego Martinez Garcia, Associate Engineer, City of Palo Alto**
Tom Kapushinski, Senior Engineer, City of Palo Alto

TO: **Architectural Review Board/ City of Palo Alto**

PROJECT: **Local Advanced Water Purification System (AWPS)**

DATE: **September 2022**

SUBJECT: **Project Written Description**

This project description summary is prepared for the City of Palo Alto (City) Architectural Review Board (ARB) site and design review of the Local Advanced Water Purification System (AWPS, proposed project) at the Regional Water Quality Control Plant (RWQCP), Palo Alto, California. The proposed project will include the construction and operation of a membrane filtration recycled water facility and a permeate storage tank at the City's RWQCP.

Introduction and Background of the Project

The City of Palo Alto owns and operates the RWQCP, which is an advanced treatment facility that provides wastewater treatment for the cities of Palo Alto, Mountain View, Los Altos, Los Altos Hills, Stanford and East Palo Alto Sanitary District. Currently, the RWQCP treats an average of 17 million gallons per day (MGD), much of the treated effluent is discharged into the Lower South Bay. The RWQCP produces and distributes approximately 230 million gallons per year of tertiary-treated recycled water to the City of Mountain View, several City-owned facilities and a commercial truck fill standpipe at the RWQCP.

Following public concerns regarding the irrigation of redwood trees and other salt-sensitive species with recycled water, the City prepared an Environmental Impact Report (EIR) focused on water quality issues and salinity impacts. On January 25, 2010, Council approved the Recycled Water Salinity Reduction Policy including a goal of reducing the recycled water total dissolved solids level to 600 parts per million. In 2017, Valley Water, Palo Alto, and Mountain View finalized a feasibility study and the preliminary design report for a local Advanced Water Purification System (Project). Currently, the Project is in design and construction is expected to begin in 2023.

The Project will improve the recycled water quality by reducing its average concentration of total dissolved solids (TDS) from 800 milligrams per liter (mg/L) to 450 +- 50 mg/L through the blending of reverse osmosis permeate with tertiary-treated recycled water. Highly treated water produced by the Project would benefit landscapes currently irrigated with recycled water in Palo Alto, enable Palo Alto to expand its non-potable distribution system, and provide a first step toward small-scale potable water production for direct or indirect potable reuse in Palo Alto.

Scope of Work

The Project will consist of the following elements: membrane filtration (microfiltration or ultrafiltration), reverse osmosis, chemical storage/feed systems, a permeate storage tank and ancillary components. The Project will be located outside the current fence on the northwest side of the RWQCP.

The new facility will be a one-story concrete deck approximately 116 ft by 134 ft in area and will house membrane filtration, the reverse osmosis system, a majority of the chemical feed system, and other ancillary components. The facility would have a building footprint of approximately 15,544 square feet. The concrete deck foundation will consist of 258 piles for the main deck with a pile tip elevation of -30 ft. The Project includes an electrical building located on the western side of the main structure. For this building, an additional concrete deck 80 ft by 20 ft will be installed. The foundation of this smaller deck will consist of 48 piles with a pile tip elevation of -30 ft. The main structure will be partially covered by a roof. The roof dimensions are 112 ft by 66 ft with a height of 32 ft.

The Project also includes a reverse osmosis permeate tank that will be located northeast of the main structure and west of the former chlorine contact tank. The storage tank will be a 50 ft diameter circular tank with a nominal sidewall height of 30 ft. The storage tank capacity will be 350,000 gals. The tank will be erected on a reinforced concrete mat type foundation supported by deep pile foundation as designed by the tank supplier and installed by the Contractor

The Project will also include a blending station located in the basement of the RWQCP Administration Building and installation of yard piping inside the RWQCP.

Existing and Proposed Uses

The local AWPS will be located on currently undeveloped land in the western portion of the RWQCP area. The site includes a soil bed filter that removes odors from the Influent Pumping Station. The soil bed filter will be removed, and an odor control system will be installed next to the Influent Pumping Station. Several water and wastewater mains are in the site. The main structure was designed to consider an East Palo Alto Sanitary District easement. The Project includes the relocation of one 8-inch sewer line located onsite.

The proposed local AWPS will be part of the RWQCP Recycled Water production system. Tertiary-treated recycled water will be conveyed from the current Chlorine Contact Tank into the membrane filtration. Reverse osmosis permeate will be pumped to a permeate storage tank. Permeate will be mixed with tertiary-treated recycled water and then sent to the recycled water system.

The facility will not be permanently occupied and will have space for one operator to access as needed for routine operations and maintenance.

Purpose of the Proposed Changes

The purpose of the changes to the site is to construct an AWPS to improve the recycled water quality by reducing its average concentration of total dissolved solids (TDS) from 800 milligrams per liter (mg/L) to 450 +- 50 mg/L through the blending of reverse osmosis permeate with tertiary-treated recycled water.

Design Intent

The basis of design for the Project is to meet a maximum, instantaneous permeate production capacity of 1.125 MGD during the current first phase, expandable to 2.25 MGD in a future second phase. The Project is being designed to accommodate the future expansion with minimal civil/mechanical/electrical work by adding equipment to housekeeping pads.

To account for future sea level rise in accordiance with the City of Palo Alto Sea Level Rise Policy, the finished grade elveation will be raised at the location of the Project. The top of concrete of the main Project structure will be set at 11.5 ft. To make up for the remainder of the required elevevation to keep rotating mechanical, electrical and instrumentation out of the flood plain and future sea level elevation, equipment will be placed on equipment pads as required to an elevation of 13.5 ft. The top of the new chemical containment wall will be at 13.5 ft.

The main structure will sit approximately 3 to 4 feet higher than the surrounding terrain. The on-site grading is being designed to maintain a 2% or less slope in building access areas and 4% or less slope in operational maneuvering areas.

Electrical, potable water and fire services supply will be independent from the existing RWQCP services and new connections will be needed from City of Palo Alto Utilities.

The proposed architectural design addresses the City's desire for a facility that blends into the surrounding environment but at the same time provides treatment for recycled water in an efficient way. The Project emphasizes functional and operation requirements needed for a facility such as the RWQCP, but also takes into consideration the existing pedestrian walkway and landscaping outside the RWQCP. The Project is being designed to address public views from outside the RWQCP perimeter by maintaining screening as much as possible given the severe space limitations on-site. Buildings, screen fencing/walls and canopies at the Project site will use materials, colors and design standards consistent with existing facilities.

The following strategies have been implemented to define the inward facing and outward facing architectural solutions:

a) Optimize the comfort and safety of the working environment beyond the minimum space requirements to achieve practical and functional solutions

b) Use practical architectural forms, features, materials, finishes and colors to blend into the environment and be consistent with the existing RWQCP structures and in scale with surrounding area

c) Utilize building materials that promote durability, longevity and ease of maintenance

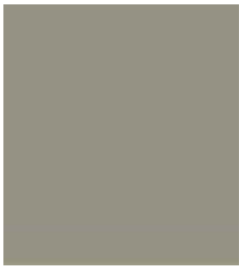
d) Consider material availability and sourcing to keep project costs and schedules in check

Materials, Colors and Construction Methods

The Project building, canopy, fencing/walls and materials are selected to meet the RWQCP operational and safety requirements outlined in the project, governing CEQA documents, design criteria, and compliance with building codes and standards. Building forms, materials and colors are selected to meet Palo Alto Baylands Master Plan and the RWQCP CEQA document requirements for screening in Embarcadero Road, the adjacent business park and the pedestrian path.

Canopy – The canopy will be over the microfiltration and reverse osmosis equipment, compressors, cartridge filters and blowers. The canopy will be approximately 66 ft wide, 116 ft long with a clearance of 25 ft and a maximum height of 32 ft. The canopy will be a pre-engineered metal building with purlin supports and a standing seam roof. The roof color will be colonial red, and the purlins will be painted cool zinc gray.

BUILDING ROOF COLOR
COOL COLONIAL RED



PURLIN COLOR
COOL ZINC GRAY

Electrical building – The electrical building will be a pre-fabricated building that houses motor control centers (MCCs) and variable frequency drives (VFDs) as well as a small control room for SCADA equipment. The building is located west of the main structure and is 80 ft long by 20 ft wide with a height of 12.5 ft. The building is a prefabricated unit painted ANSI 70 Gray #5049.

ELECTRICAL BUILDING COLOR
ANSI 70 GRAY #5049

RO Permeate Tank – A 50 ft diameter tank, 30 ft tall tank made of glass-lined bolted steel painted forest green. The color was selected based on the manufacturer's catalogue and provides continuity with the existing and new tree canopy around the RWQCP

RO PERMEATE TANK COLOR
FOREST GREEN

Chainlink security fence – An 8 feet high galvanized steel chain-link to meet RWQCP security specifications. Additionally, perimeter fencing solutions are developed to meet the project criteria of aesthetically screening the local AWPS from exterior public view.

Concrete soundwall – To reduce sound coming from the pumping equipment inside the facility, a 10 feet high, precast concrete wall with precast concrete pilasters will be installed in certain sections of the perimeter. The wall's exterior surface will have a wood plank texture with a horizontal board staggered pattern. The wall will be stained and will be coated with an anti-graffiti sealer. Colors and materials were selected to blend into the adjacent landscape plant screening material.

CONCRETE FORMLINER

CONCRETE STAIN

Asphalt pedestrian path – A 5 feet wide asphalt pedestrian path with wood headerboard

Construction Methods

The Project will be constructed over a period of 18 months beginning in 2023 and continuing through 2024. Project construction will consist of soil bed filter removal, tree removal, sewer line relocation, excavation, pile installation, building construction, equipment installation, startup and testing. In parallel, pile excavation and site preparation for the permeate storage tank will take place. On the exterior, the perimeter wall foundation will be excavated and constructed. The Project will include new landscaping and tree replacement onsite. Inside the RWQCP, yard piping excavation, installation and fill will occur as well as work in the chemical storage tanks and basement of the Administration Building. Construction access will be from Embarcadero Way. The Project will be designed to be constructed without interruption to the current treatment operations, except during special circumstances such as piping and utility tie-ins.

Landscaping Plan

The landscape design follows the requirements of the Palo Alto Baylands Master Plan and the requirements for the RWQCP to install and maintain landscaping around the facility to provide visual screening for visitors to the surrounding Baylands. The landscape solution is designed to:

- Blend into the existing site and the existing Baylands planting layout and palette,

creating an aesthetically pleasing facility.

- Take advantage of existing healthy mature screening, transition to denser shrubs along the fenceline and move to smaller shrubs and native grasses towards the road.
- Combine perimeter fencing solutions and layered plant materials to screen the Project and ancillary structures
- Maintain safety and site security. The planting design considers the right balance of plant material and path alignment to provide vehicles, cyclists and pedestrian traffic adequate visibility to each other and safe sight distance.
- Provide a plant palette that will be low-maintenance, low water use, visually interesting in foliage color, texture and blooms, and locally adapted to the climate.

Lighting Design Criteria

Lightning levels will be provided following the recommended levels suggested by the Illumination Engineering Society (IES) handbook. Lighting fixtures types are to be suitable for the environments where installed and will be installed in a serviceable and accessible location for routine maintenance. Light sources for the entire project will be LED.

Indoor location will be provided with lighting fixtures than ensure all passages and exits remain illuminated in the event of power failure. Under the canopy ceiling mounted and pendant mounted fixtures will be installed. For outdoor locations but inside the RWQCP, pole mounted fixtures will be installed with heights as required to maintain lightning illumination levels in the area similar to other structures at the RWQCP. Pole heights and locations are considered to address maintenance issues for the City to replace or repair fixtures. The project does not include any modification to the lightning located outside the perimeter wall along Embarcadero Road.

Egress and emergency lighting systems are provided in conformance with NFPA 101 (Life Safety Code). LED type exit signs will be placed inside the facilities as well.

Attachment H

Project Plans

Project plans are available to the public online. Hardcopies of the plans have been provided to Boardmembers.

Environmental Review

Council previously adopted an Addendum to the 2015 Environmental Impact Report which evaluated the specific details of the proposed AWPS project. The Addendum is available on the project webpage.

Directions to review Project plans online:

1. Go to: bit.ly/PApendingprojects
2. Scroll down to find "2501 Embarcadero Way" and click the address link
3. On this project specific webpage you will find a link to the project plans and other important information

Direct Link to Project Webpage:

https://www.cityofpaloalto.org/Departments/Planning-Development-Services/Current-Planning/Projects/2501-Embarcadero-Way