BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

In the Matter of the Application of SAN JOSE WATER COMPANY (U 168 W) for an Order authorizing it to increase rates charged for water service by $55,196,000 or 11.11% in 2025, by $22,041,000 or 3.99% in 2026, and by $25,809,000 or 4.49% in 2027	Application No. 24-01-001 Filed January 2, 2024

REBUTTAL OF SAN JOSE WATER COMPANY TO THE PUBLIC ADVOCATES OFFICE REPORT AND RECOMMENDATIONS ON CAPITAL IMPROVEMENTS

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May 31, 2024

REBUTTAL TESTIMONY OF JAKE WALSH REGARDING CAPITAL IMPROVEMENT PROJECTS

Q1 Please state your name and business address.

A1 My name is Jake Walsh. I work at 1265 S. Bascom Avenue, San Jose, CA 95128.

Q2 By whom are you employed and in what capacity?

A2 I am employed by San Jose Water Company (SJWC) as an Assistant Chief Engineer, Planning.

Q3 Have you provided a description of your educational background and work experience?

A3 Yes, this description can be found in Attachment A.

Q4 What is the purpose of your testimony?

A4 The purpose is to respond to the testimony provided by the Public Advocates Office (Cal Advocates) regarding their recommendations in their "Report and Recommendations on Capital Improvement Projects." My testimony is organized to align with the topics presented in the Cal Advocates Report, starting with Chapter 1: Previously Funded Incomplete Projects, and continuing through Chapter 12: Capital Improvements - Non-Specific & Annual.

Additionally, at the end of my rebuttal testimony, I provided a response to Cal Advocates recommendation in Chapter 5 of their *Public Advocates Office Report and Recommendations on Expenses and Special Requests* related to staffing. Specifically, my rebuttal testimony refers to Cal Advocates' recommendation that the Commission deny a proposed Leak Detection Technician as part of their blanket denial of all 30 SJWC requested positions in this General Rate Case (GRC) filing.

Attachments referenced in this testimony include the following:

Attachment 1-1: MDR II.D.5

Attachment 1-2: MDR II.D.6

Attachment 1-3: DR AN9-003

Attachment 8–1: MDR II.E.11

CHAPTER 1: PREVIOUSLY FUNDED INCOMPLETE PROJECTS

Issue:

SJWC's 2024 General Rate Case (GRC) application includes several projects in its capital improvement budget that were previously presented in a prior GRC application.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 1-1 to 1-8)

Cal Advocates recommends the Commission deny any capital improvement projects from being included in SJWC's revenue requirement and customer rates that are from a prior GRC application and will not be completed by the end of 2024.[1] Cal Advocates claims customers have already paid for these projects and therefore "…ratepayers should not pay a second time for shareholder profit on projects that have yet to produce benefit."[2] To this end, Cal Advocates identifies 14 projects from the 2024 GRC filing that are from prior GRC applications and will not be completed by the end of 2024, referred to as "Previously Funded Incomplete Projects".[3] Cal Advocates recommends removing the Previously Funded Incomplete Projects from SJWC's capital improvements budget, amounting to a total capital budget reduction of $76,797,500, and further recommends that these projects be included in future GRC applications when complete rather than as advice letter requests.[4] Cal Advocates then presents additional analysis for denying Previously Funded Incomplete Projects by comparing SJWC's actual versus originally proposed capital budgets from the 2021 GRC application for five project categories. Cal Advocates notes that SJWC actual spend over the 2021 through 2023 period for these five project categories was lower than originally proposed, even lower than the reduced settlement capital budgets as agreed by Cal Advocates and SJWC. Cal Advocates claims that this demonstrates SJWC as being unable to complete projects on time and therefore SJWC's 2024 GRC proposed capital request as unreasonable.[5] Moreover, Cal Advocates states that removing the Previously Funded Incomplete Projects from SJWC's 2024 GRC capital request would result in a capital investment that was "within 15% of actual spending from the 2021 through 2023…" and therefore is a more

[1] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 1-1
[2] *Id.*, pg. 1-8
[3] *Id.*, pg. 1-3, See Table 1-1
[4] *Id.*, pg. 1-5
[5] *Id.*, pg. 1-8

reasonable budget than the $152 million SJWC is currently requesting in the 2024 GRC for those five project categories.

SJWC Rebuttal:

Cal Advocates' arguments are false and misleading. They misconstrue the Commission's decisions, are a radical departure from Cal Advocates' past position, are inconsistent with utility ratemaking standard practice, and ultimately present unrealistic expectations of typical construction management. SJWC also rejects Cal Advocates' allegation that SJWC is "…receiving a return on projects it has never completed that are providing no benefits to customers."[6] These issues are discussed in more depth in the following subsections.

A. Commission Approved Capital Budgets not Specific Projects in SJWC's 2021 & 2018 GRC Decisions

Contrary to Cal Advocates arguments, in both SJWC's 2018 and 2021 GRC decisions the Commission approved overall capital budgets, not specific capital projects.[7] Indeed, while SJWC did provide specific capital projects to justify the reasonableness of its initial capital budget request, the Commission acknowledged that "…the utility retains discretion to shift funds budgeted from one capital project to a different project as changing conditions may warrant. The utility has an obligation to exercise its expert judgement and management. The Commission does not micromanage every utility action."[8] Regarding incomplete projects from prior GRCs the Commission further clarified that "SJWC was not obligated to complete all projects merely because they are in a prior GRC. The fact that construction on certain previously proposed projects remains unfinished does not necessarily make the projects unreasonable."[9] This position by the Commission in these decisions is also consistent with past decisions from other utilities. For example, in D.08-06-022 for San Gabriel Valley Water Company, the Commission acknowledged that capital spending may be more or less than forecasted and noted that this was true for all of the utilities activities, reiterating "[t]he Commission has not and does not intend to

[6] *Id.*, pg. 1-4
[7] D.22-10-005, pg. 34
[8] *Ibid*
[9] *Id.*, pg. 35

micromanage water utilities."[10] Again, in a GRC decision for Golden State Water Company, the Commission declined to impose conditions recommended by Cal Advocates (then Office of Ratepayer Advocates) regarding construction of a new well and stated, "We also note that the Commission has a policy of refraining from micro-managing specific activities of utilities and we do so here."[11]

The Commission's policy of refraining from micro-managing utility decisions regarding their capital budgets and programs makes sense. SJWC – not Cal Advocates – has the duty and obligation to provide safe and reliable water service to its customers. SJWC must have the ability to determine which capital projects are necessary for safety, efficiency and reliability and be able to respond to operational developments and challenges that may arise between rate cases. This may mean delaying or prioritizing certain projects, or undertaking projects that were not contemplated at the time the GRC application was filed. For these reasons, Cal Advocates' arguments to exclude specific projects in the 2024 GRC application and penalize SJWC for exercising its discretion to manage its capital improvement program is inconsistent with the Commission's desire to manage capital budgets and not specific projects.

B. Cal Advocates Recommendations are Inconsistent with Past Agreements

Cal Advocates' arguments for the Commission to micromanage SJWC's capital program is also a radical departure from Cal Advocates' past positions. In the 2018 GRC proceeding, the settlement agreement between SJWC and Cal Advocates (then Office of Ratepayer Advocates) recognized SJWC's duty to manage its capital program and to adjust as necessary. It was for this reason that Cal Advocates agreed to overall annual capital budgets that pooled funds together from across all project categories. Indeed, the 2018 settlement agreement specifically stated:

> "Parties agree that actual capital spending for the three years addressed in this proceeding (2019-2021) including the 2018 transition year may vary from any forecast adopted by the Commission and that any variance between adopted amounts and those that actually occur would not demonstrate imprudence or unreasonableness. The parties also agree that it is the utility's

[10] D.08-06-022, pg. 57

[11] D.16-12-067, pg. 86

responsibility to manage the overall capital budget to assure safe and reliable service for customers."[12]

This approach of pooling the capital projects into an annual capital budget was again agreed by Cal Advocates as part of the 2021 GRC settlement in which it states, "[t]he parties agree to a total 3-year budget (2021 to 2023) of $350,000,000 ($115,000,000 in 2021, $115,000,000 in 2022, and $120,000,000 in 2023)."[13]

Both of these settlement agreements are consistent with the Commission's long-standing position of utility responsibility and self-management regarding their capital budget and program. However, the current testimony from Cal Advocates attempts to obfuscate this and now recommends removal of over $75 million from SJWC's proposed 2024 GRC capital program, merely because SJWC abided by prior agreements and decisions. Cal Advocates argues that any deviation from the original proposed capital budget is indicative of failure to deliver capital and those projects which are not completed as of 2024 will result in double charging customers for projects. Yet, as can be seen from the settlement language and Commission decisions, this argument is inconsistent with Cal Advocates' past positions and agreements. The expectation that in hindsight SJWC should have been strictly adhering to its original proposed schedule and list of projects is unreasonable.

C. Cal Advocates Claims that Customers are Paying for Incomplete Work is Unfounded

A common claim in Cal Advocates' testimony is that customers are somehow already paying for projects that were deferred from SJWC's 2018 or 2021 GRC. This is incorrect. As previously discussed, the Commission approved a level of capital investment that is used to develop rates and "…the utility retains discretion to shift funds budgeted from one capital project to a different project as changing conditions may warrant." [14] Moreover, the Utility Plant in Service, used to calculate revenue requirement for the 2024 GRC application's 45-day update, is calculated based on the recorded plant in service at the end of calendar year 2023, plus known

[12] D.18-11-025, Attachment A, pg. 20 & 21

[13] D.21-10-005, Appendix 1, pg. 12

[14] D.22-10-005, pg. 54

and projected changes in calendar years 2024 through 2026.[15] To this end, none of the 14 projects listed by Cal Advocates in their testimony have been placed into service as they are all either still in design or construction. It was for this reason that SJWC resubmitted these projects in the 2024 GRC application since they are ineligible to be included with Utility Plant in Service as defined by the Standard Practice U-38-W.[16] Therefore, and to be clear, customers **have not** been paying for these projects to date and **will not** be paying for these projects "twice, or even a third time" as Cal Advocates falsely claims.

In lieu of these 14 projects that SJWC deferred from the 2018 or 2021 GRC, SJWC reallocated the budget to other programs and projects as needed and still succeeded in completing the full authorized capital budget of $350 million from the 2021 GRC. These budgetary changes were presented as part of the minimum data request (MDR) II.D.5 and II.D.6 and Data Request (DR) AN9-003.[17] These documents demonstrated that SJWC completed and put in service $392,054,112[18] of capital investment over the 2021 GRC period, which did not include the 14 projects claimed by Cal Advocates. Therefore, Cal Advocates' claim that customers are being billed multiple times for projects that are incomplete and providing no service to customers is patently false.

D. SJWC's 2021 GRC Capital Budget Variance is not Unreasonable

Cal Advocates testimony argues that variance between the actual and proposed 2021 GRC budgets on some select capital project categories "…demonstrates that SJWC has consistently over-forecast and failed to complete these types of projects on time." [19] This accusation fails to recognize the much larger capital budget portfolio that SJWC manages during that period, consisting over 1,100 individual work orders and overlooks the complexities of budgeting projects three to four years in advance. Moreover, the shifting of capital projects can be the result of a myriad of issues, many of which are out of SJWC's control.

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[15] A.24-01-001, pg. 7

[16] SP U-38-W, *Unform System of Accounts for Class A Water Utilities*, pg. A27

[17] Attachment 1-1: MDR II.D.5; Attachment 1-2: MDR II.D.6; Attachment 1-3: DR AN9-003

[18] 45-Days Update Workpaper WP 11-01, gross additions 2021-2023

[19] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 1-6

Contrary to Cal Advocates' argument, unexpected schedule delays and project challenges are not unique to SJWC, but rather they are ubiquitous through the construction industry and project management in general. A Price Waterhouse Coopers survey conducted of over 10,000 projects from 200 companies across 30 counties and various industries found that only 2.5% of companies successfully completed 100% of their projects on schedule and budget.[20] Similarly, the Harvard Business Review analyzed nearly 1,500 information technology projects and found that the average overrun was 27% and a full one in six projects had a schedule overrun of almost 70%.[21] A similar report focused on construction and infrastructure industries found that projects typically take on average about 20% longer to finish than originally scheduled.[22] While these statistics are not to suggest that schedule delays are good practice, the variance between original proposed capital budgets and actual spend in a water utility, even one as experienced as SJWC, should not come as a surprise.

Construction projects may experience delays based on a number of factors that are outside of SJWC's control, including extensive state and local permitting requirements, procurement of long-lead materials, the need to acquire real property or easements, operational constraints, the limited availability of qualified contractors, and emerging issues that were unexpected at the time of filing (e.g., new water quality regulations such as Per- and Polyfluoroalkyl Substances [PFAS]). It is for this reason that SJWC's design and permitting projects were included as part of the capital program for the 2024 GRC application as an effort to minimize the potential delay and unknowns of proposed future capital projects in subsequent applications (see Chapter 2 of this rebuttal book for further discussion of this topic).

To illustrate the challenges with project management utility projects, consider a typical project like the Idylwild Pump Station Improvements project (Index #5281) first introduced in the 2018 GRC application.[23] While this project will significantly improve customer service

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[20] PriceWaterhouseCoopers, *Boosting Business Performance through Programme and Project Management: A first global survey on the current state of project management maturity in organization across the world*, 8.

[21] Harvard Business Review, *Why Your IT Project May Be Riskier Than You Think*, https://hbr.org/2011/09/why-your-it-project-may-be-riskier-than-you-think (accessed May 19, 2024)

[22] McKinsey & Company, *Imaging Construction's Digital Future,* https://www.mckinsey.com/~/media/mckinsey/business%20functions/operations/our%20insights/imagining%20constructions%20digital%20future/imagining-constructions-digital-future.pdf (accessed May 19, 2024)

[23] A.24-01-001, SJWC *Capital Improvement Project and Program Justification*, pg. 221-248

reliability by relocating an aging, undersized, and vulnerable pump station to a new location, the new site presented unexpected challenges that were not determined until design and permitting were nearly complete. To comply with recent changes in County stormwater permitting requirements, an additional pipeline needed to be incorporated into the design with an outfall into the Los Gatos Creek. This modification required an extensive environmental study and additional agency permits to complete.

Similarly, utilities may face issues that require a deferment of projects that have nothing to do with the actual project itself. No one could have predicted the global COVID-19 pandemic nor its highly disruptive impact on the economy and supply chains. The inflation rate in the last few years has been at historic levels that no one could have predicted in 2020.[24] Such impacts necessitate SJWC to reallocate and reprioritize capital budgets as needed to ensure customers continue to receive reliable water service despite these challenges.

Based on these two examples and the discussion above, it is clear that delays on projects and variances between actual and forecasted budgets are not necessarily indicative of a failure to project manage or the over-forecasting Cal Advocates is claiming. SJWC strives to complete all its proposed projects on time and budget, however, completely unforeseen circumstances do occur that require projects and budgets to change over the course of a GRC cycle.

E. Cal Advocates' "Hypothetical Reduce Budget" is Inconsistent with the 2021 GRC Decision

To support the removal of all Previously Funded Incomplete Projects from the 2024 GRC budget, Cal Advocate attempts to demonstrate that SJWC has a history of over-forecasting its budget and failing to deliver for five specific categories: (1) New Mains, (2) Source of Supply, (3) Water Treatment, (4) Reservoirs and Tanks, and (5) Pump Station and Equipment. To this end, Cal Advocates compares the actual spend from these categories, approximately $88 million, with SJWC's originally proposed budget of $155 million in SJWC's 2021 GRC budget. Cal Advocates then proceeds to estimate a "hypothetical reduced budget" for these categories "assuming a straight 20% reduction across all capital budget categories".[25] According to Cal

[24] *Id*., pg.3

[25] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 1-6

Advocates, this "hypothetical reduced budget" amounts to $124 million post-settlement, which compared to SJWC's actual spend of $88 million for these categories indicates that SJWC only spent 71% of this hypothetical budget. Based on this finding, Cal Advocates then states that the "[h]istorical data demonstrates that the $152 million SJWC requests in the current GRC application is not a reasonable forecast for these five categories."[26] Moreover, Cal Advocates claims that by removing the 14 Previously Funded Incomplete Projects, this would reduce SJWC's capital budget for these five categories by $77 million, which is within 15% of the $88 million actually spent between 2021 through 2023 on these categories and therefore is a more reasonable budget than the $152 million SJWC is now requesting for these five categories for the 2024 GRC.

Cal Advocates' argument here is as convoluted as it is bewildering. Despite Cal Advocates agreeing in settlement to a combined annual capital budget for each year of SJWC's 2021 GRC, which was approved by the Commission in D.22-10-005, now Cal Advocates is attempting to propose new retroactive hypothetical reduced budgets for specific project categories that in hindsight SJWC was supposed to have adhered to. To be clear, SJWC has never agreed to, nor has the Commission approved, any hypothetical reduced budgets now being suggested by Cal Advocates. Rather, SJWC has maintained focus on the total 3-year budget of $350 million authorized as required by the 2021 GRC decision, as well as prudent management of all budget categories it manages to provide reliable service to customers.

Although SJWC did have a reduced actual spend for these five categories, across all categories SJWC was able to construct and put into service its full 2021 GRC authorized budget. Therefore, a more comprehensive review would find that SJWC offset deferred work from these five categories to other critical areas needing improvement. SJWC's approach is also consistent with the Commission statement that "…the utility retains discretion to shift funds budgeted from one capital project to a different project as changing conditions may warrant. The utility has an obligation to exercise its expert judgement and management."[27]

Finally, it is difficult to follow how Cal Advocates can make the bold claim that SJWC's $152 million requested budget across these categories is unreasonable when Cal Advocates did

[26] *Ibid.*
[27] D.22-10-005, pg. 34

not consider other factors that may have impacted SJWC's decision to move projects during that same period. During the 2021 GRC period, SJWC was still responding to ongoing issues from the COVID-19 pandemic response, global supply chain issues, emerging regulatory requirements, catastrophic wildfires near SJWC's service area, and a historic inflation spike. Cal Advocates' focus on only a narrow set of budget categories, and their effort to micromanage SJWC's decisions in hindsight runs contrary to the Commission decisions and should be rejected.

Conclusion

The Commission should reject all of Cal Advocates' arguments related to Chapter 1: Previously Funded Incomplete Projects and instead approve the 2024 GRC capital budget as originally proposed by SJWC in the application and presented in Table 1 at the end of this Chapter. Cal Advocates' arguments to summarily dismiss all 14 of these capital projects on the basis that they were filed in a prior GRC and will not be completed by the end of 2024 is based on false assumptions and is inconsistent with past Commission rulings, utility ratemaking, and even Cal Advocates' own previous statements. Cal Advocates' claim that these past GRC projects will result in customers paying again for incomplete projects that have been approved in a prior GRC is erroneous. Past decisions from the Commission make it clear that SJWC can defer, relocate, and adjust projects within the capital budget as needed, and that the Commission approved capital budgets not individual projects. Cal Advocates' position attempts to penalize SJWC for exercising its discretion to determine what projects are necessary to continue providing customers with safe and reliable water. Cal Advocates' final argument questioning SJWC's lower actual spend relative to hypothetical reduced budgets only further demonstrated a lack of understanding regarding project management. SJWC was able to spend the full capital budget from the 2021 GRC decision despite there being variation across the budget categories. Therefore, for the reasons articulated in this rebuttal, the Commission should reject Cal Advocates' recommendations and approve SJWC capital budget as proposed in the filing.

Table 1. Summary of SJWC's Previously Funded Projects

Project Index Number	Description	SJWC Proposal	Cal Advocates Proposal	SJWC Rebuttal
5176	Needles Station Well Blow Off Sump	$4,405,600	$0	$4,405,600
5732	Gish Station Chloramination	$7,819,500	$0	$7,819,500
5728	Seven Mile Station Improvements	$1,838,600	$0	$1,838,600
5312	Belgatos Pump Station	$2,855,800	$0	$2,855,800
5313	Guadalupe Mines Station Improvements	$3,878,500	$0	$3,878,500
5602	Camino Vista Way Main Installation	$2,942,600	$0	$2,942,600
5439	Graystone Heights Main Installation	$5,373,100	$0	$5,373,100
5261	17th Street Station Retaining Wall	$2,751,300	$0	$2,751,300
5209	Miguelito Station Tanks	$22,873,900	$0	$22,873,900
5579	12th Street Station Improvements	$10,221,300	$0	$10,221,300
5281	Idylwild Pump Station Improvements	$9,828,400	$0	$9,828,400
5177	Meridian Station Well Blowoff Sump	$5,304,000	$0	$5,304,000
5309	Lower Northwood Station Improvements	$1,954,900	$0	$1,954,900
5211	Mabury Road Groundwater Station Improvements	$4,000,000	$0	$4,000,000[(a)]

Notes:

(a) Total cost for the project is estimated to be $25,120,300, however the remaining construction is proposed to be presented as a ratebase offset advice letter project (see Chapter 2 of this rebuttal book for further details).

CHAPTER 2: PRE-CONSTRUCTION PROJECTS

Issue:

SJWC's 2024 General Rate Case (GRC) application included several projects in its capital improvement budget that are proposed to be split across multiple GRC cycles. Costs associated with pre-construction, such as design and permitting, were presented in the 2024 GRC application with the remaining construction related costs to be presented as separate projects in the 2027 GRC application or 2030 GRC application.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 2-1 to 2-5)

Cal Advocates recommends the Commission deny all capital improvement projects from being included in SJWC's revenue requirement and customer rates that are for pre-construction costs only.[28] Instead, Cal Advocates proposes that SJWC present the total costs for these projects in a future GRC for recovery and inclusion in rate base once the project is complete.[29] To this end, Cal Advocates identifies 10 projects from SJWC's 2024 GRC filing that they identify as being pre-construction only projects, and refer to them as the "Pre-Construction Projects".[30] Total forecasted cost for all Pre-Construction Projects recommended to be removed from SJWC's 2024 GRC capital budget amounts to $14,950,000.[31]

Cal Advocates argues that the Pre-Construction Projects contain significant project scope uncertainty and have a large potential for project cost discrepancy. As an example, Cal Advocates highlights the Williams Station Per- and Polyfluoroalkyl Substances (PFAS) Treatment project as a Pre-Construction Project with an estimated total cost over $80 million dollars and a 2028 completion year. Cal Advocates also references California Water Service's (Cal Water) most recent GRC decision where the Commission rejected all proposed multi-GRC projects as they were not scheduled to be completed in the filed GRC period.[32]

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[28] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 2-1
[29] *Ibid.*
[30] *Id*., pg. 2-2, See Table 2-1
[31] *Ibid.*
[32] D.24-03-042, pg.27

SJWC Rebuttal:

Cal Advocates' rationale for the dismissal of all Pre-Construction Projects is based primarily on the physical construction of the projects not being in the same GRC proceeding. This position is inconsistent with historical Commission decisions. Similarly, Cal Advocates suggests that SJWC complete the Pre-Construction Projects outside of the normal GRC proceedings without Commission approval and then request recovery of these costs in a future GRC once the projects are complete; this suggestion is contrary to California's forward-looking ratemaking. It also places an unreasonable level of uncertainty and risk on SJWC whether it will be able to recover the costs of the projects. Finally, Cal Advocates incorrectly presumes that all Pre-Construction Projects lack certainty in their costs, schedule, and scope based solely on the length of the proposed project schedule in the GRC filing. As discussed further below, SJWC presented significant engineering analysis, planning, and pre-design as part of all its project justifications. Moreover, SJWC completed its justifications to a level of project maturity consistent with industry standards for project evaluation and budget approvals. SJWC agrees with Cal Advocates that completion of the design and permitting on the Pre-Construction Projects would further refine the scope, schedule, and budgets on these projects, and it was for this exact reason that SJWC submitted these projects as part of the 2024 GRC application.

A. Phasing of Large Projects over Multiple GRCs is Common Commission Practice

SJWC's approach to phasing projects across multiple GRCs is consistent with prior Commission decisions. Indeed, the Commission has authorized a phased approach to project costs in the past and without ordering physical construction to occur before any cost recovery could be authorized. In the Commission's decision on SJWC's 2009 GRC application, they found that a pre-design study for the Montevina Water Treatment Plant was "…reasonable and should be approved" and any future construction should not be approved until the pre-design study was completed and a specific project design had been established.[33] The Commission took a similar approach in a GRC decision for Golden State Water Company (Golden State) approving funding for "design and permitting" projects and stating that the Commission "…will

[33] D.09-11-032, pg. 22-25.

not micromanage Golden State's construction and completion of these two projects."[34] The decision also authorized Golden State to perform only design work for the Tanglewood Reservoir and boosters as part of that same GRC filing.[35] Similarly, in a GRC decision for California American Water Company (Cal-Am), the Commission found it was reasonable to approve Cal-Am's request for design dollars in order to "…enable Cal-Am to develop the full scope and cost estimate for the entire project."[36] The Commission also approved Cal-Am to seek Commission approval for the construction costs of that same project in a subsequent GRC provided Cal-Am was able to justify the reasonableness of the costs. Of note is that it was Cal Advocates (then Office of Ratepayer Advocates) that argued for the Commission to authorize the design-only project and not the estimated cost of the entire project.[37] Specifically, it was Cal Advocates' position that allowing design-only dollars in that GRC decision would "…minimize the uncertainties related to the design and permitting phase of the project."[38] Therefore, it can be seen that Cal Advocates' current position in SJWC's 2024 GRC is a radical departure from their prior positions on design-only projects in past GRC filings. This inconsistency in Cal Advocates' position can also be seen in the most recent GRC decision for Cal Water D.24-03-042, the very decision they are now citing to support their position against SJWC's Pre-Construction Projects. In D.24-03-042 Cal Advocates recommended the Commission authorize a design- and permitting-only project for a 4,800 feet transmission pipeline replacement in the Los Angeles Region.[39]

B. Cal Advocates Recommendation is Inconsistent with Forward-Looking Ratemaking

Cal Advocates proposes that in lieu of the Pre-Construction Projects being included in the 2024 GRC, SJWC can pursue the design and permitting phase of the Pre-Construction Project outside of the GRC and then submit for recovery in a subsequent GRC when the project design is fully complete. Cal Advocates claims that this approach provides "…more clarity on the total project scope, cost, and schedule, and an expectation that the project will become used and useful

[34] D.16-12-067, pg. 59-60
[35] *Id.*, pg.74
[36] D.18-12-021, pg. 190
[37] *Id.*, pg. 189
[38] *Ibid*.
[39] D.24-03-042, pg. 27 see footnote number 25

during the timeframe contemplated for that future GRC."[40] This recommendation suggests that SJWC should proceed with the design and permitting of the Pre-Construction Projects **prior to** Commission review or approval, and then seek recovery as part of a future GRC. This is essentially arguing for historical ratemaking. Not only is Cal Advocates' proposal inconsistent with the Commission's forward-looking ratemaking, but this would also require SJWC to carry the cost of $14,950,000 through to the next GRC application without any review or approval from the Commission. This represents a level of risk and uncertainty that would be unreasonable for any utility. Therefore, SJWC rejects Cal Advocates' suggestion and maintains that projects spanning more than one rate case be separated between design-only in the first GRC and construction in subsequent GRCs. This approach is in keeping with forward-looking ratemaking and provides the most transparency to the Commission and our ratepayers.

C. Cal Advocates did not challenge the merits of any Pre-Construction Projects

Cal Advocates did not challenge the merits of any justifications presented as part of the Pre-Construction Projects. SJWC provided in-depth engineering analysis and justifications for all 10 projects consistent with a level of project maturity that meets industry standards for project evaluation and budget approvals. The justifications were all developed and estimated to at least an industry standard Class 4 estimate as defined by the American Association of Cost Engineers (AACE) and presented on the following page in Table 1.[41] These project justifications also included detailed background of the project's criticality, impacts to customers, current asset rankings, regulatory project drivers, discussion on how the project ensures reliable service to its customers, Environmental and Social Justice (ESJ) impact, and more. SJWC rejects Cal Advocates' claims that there is high uncertainty in the project's scopes given the level of engineering, design, hydraulic modeling, and detail presented in these justifications. Again, Cal Advocates did not question the validity or need for any of these projects. Indeed, Cal Advocates recommended SJWC resubmit these projects in a future GRC for cost recovery once the projects were complete.

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[40] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 2-4

[41] AACE, 56R-08 *Cost Estimate Classification System – As Applied in Engineer, Procurement, and Construction for Building and General Construction* (2020), pg. 3 (see Table 1 on the following page)

Table 2. AACE Cost Estimate Classification Matrix for Building and General Construction Industries[42]

	Primary Characteristic	*Secondary Characteristic*		
ESTIMATE CLASS	**MATURITY LEVEL OF PROJECT DEFINITION DELIVERABLES** Expressed as % of complete definition	**END USAGE** Typical purpose of estimate	**METHODOLOGY** Typical estimating method	**EXPECTED ACCURACY RANGE** Typical variation in low and high ranges at an 80% confidence interval
Class 5	0% to 2%	Functional area, or concept screening	SF or m^2 factoring, parametric models, judgment, or analogy	L: -20% to -30% H: +30% to +50%
Class 4	1% to 15%	or Schematic design or concept study	Parametric models, assembly driven models	L: -10% to -20% H: +20% to +30%
Class 3	10% to 40%	Design development, budget authorization, feasibility	Semi-detailed unit costs with assembly level line items	L: -5% to -15% H: +10% to +20%
Class 2	30% to 75%	Control or bid/tender, semi-detailed	Detailed unit cost with forced detailed take-off	L: -5% to -10% H: +5% to +15%
Class 1	65% to 100%	Check estimate or pre bid/tender, change order	Detailed unit cost with detailed take-off	L: -3% to -5% H: +3% to +10%

D. SJWC's Pre-Construction Projects Improve Transparency and Commission Oversight of the GRC Capital Budget

Contrary to Cal Advocates claims, the Pre-Construction Projects proposed by SJWC **enhance** transparency for the Commission and provide additional context for evaluating the capital projects proposed for completion in this rate case. In SJWC's experience, the permitting and regulatory environment in California has significantly increased in complexity, making it increasingly difficult to complete even routine station projects within a three-year GRC cycle. The Pre-Construction Projects provide an avenue to complete all the design and permitting associated with these more complex projects during a first GRC cycle, thereby allowing SJWC to be in the best position to provide total project costs with a high degree of confidence in the second GRC cycle (i.e., Class 1 project per AACE). By looking at more accurate estimates over two rate case cycles, the Commission will be better informed of the actual ratepayer impacts and better able to deliberate whether to approve or deny the project construction costs. Therefore, the uncertainties of schedule, scope, and cost that Cal Advocates claims is the issue with the current Pre-Construction Projects would be fully addressed once the design is complete and all permits secured if the construction phases of these Pre-Construction Projects were able to be presented in the next GRC.

[42] *Id.*

E. SJWC Alternative Proposal: Rate Base Offset Advice Letter for Larger Projects

Cal Advocates' testimony specifically highlighted the Williams Station PFAS Treatment Project (Index #6122) as a Pre-Construction Project example, given its total forecasted project cost of over $80 million and construction schedule expected to span through the 2027 – 2029 GRC period. Cal Advocates contends that this project is "…highly susceptible to fluctuations since the design work is not yet complete."[43] SJWC acknowledges the high forecasted cost of this project and that it will span multiple GRCs cycles, although SJWC notes that Cal Advocates did not challenge the merits of this project and that this project is critical to meet the new PFAS water quality regulations recently published by the U.S. Environmental Protection Agency.[44]

As an alternative to Cal Advocates' dismissal of the Williams Station PFAS Treatment Project and several other similarly large capital projects that will span multiple GRCs, SJWC proposes that the Commission authorize the design and permitting of such projects in the 2024 GRC as originally proposed with the construction portion submitted as a rate base offset advice letter project outside of the GRC proceeding with inclusion of Allowance for Funds Used During Construction (AFUDC).[45] This approach would follow a similar approach to the Commission decision on SJWC's Montevina Water Treatment Plant project where the Commission authorized the design as part of the 2009 GRC application and allowed SJWC to file a separate application outside of the GRC to seek approval and recovery for the construction portion of the project.[46] SJWC believes this approach, given that Cal Advocates did not challenges the merits of any of these projects, would provide the budget, schedule review, and scrutiny Cal Advocates desires but also provide SJWC with confidence that the merits and customer benefits of these projects have been recognized by the Commission.

A full list of the projects SJWC is proposing to receive this advice letter project status is presented in the table below.

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[43] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 2-1

[44] PFAS National Primary Drinking Water Regulation, 89 FR 32532 (published April 26, 2024)

[45] See Rebuttal Testimony of Rally Zerhouni on AFUCD

[46] D.09-11-032, pg. 25

Table 3. Proposed Advice Letter Construction Projects

Project Index Number	Description	Estimated Construction Completion	Proposed Design Project as part of 2024 GRC	Total Advice Letter Construction Costs	Total Estimated Project Cost[(a)]
6122	Williams Station PFAS Treatment	2028	$5,950,000	$75,134,600	$81,084,600
6265	Willow Glen Station PFAS Treatment	2031	$1,000,000	$65,452,500	$66,452,500
5211[(b)]	Mabury Groundwater Station Improvements	2029	$4,000,000	$21,120,300	$25,120,300
5576	Cottage Grove Station Improvements	2030	$1,000,000	$15,675,800	$16,675,800
6196	Lexington Reservoir Intake	2031	$1,000,000	$39,078,200	$40,078,200
5301	Bascom Station Improvements	2029	$1,000,000	$17,119,900	$18,119,900

Notes:
[(a)] Total Estimate Project Cost Dollar Amounts Based on Year of Completion

[(b)] Project Index #5211 is a Previously Funded Incomplete Project (see Chapter 1 for additional details)

Conclusion

SJWC recommends the Commission to reject Cal Advocates' proposal and to include the 10 Pre-Construction Projects as originally proposed and presented in Table 3 below. As previously discussed, the Commission has a long history of authorizing design and permitting projects, Cal Advocates did not challenge the merits of any of these projects, and the completion of the Pre-Construction Projects will provide the scope, schedule, and cost confidence for the final construction phase in the next GRC that all parties desire, therefore, SJWC's recommendation is the most prudent proposal for the Commission.

Table 3. Summary of SJWC's Pre-Construction Projects

Project Index Number	Description	Estimated Construction Completion	Proposed Design Project as part of 2024 GRC	Total Advice Letter Construction Costs	Total Estimated Project Cost[(a)]
6122[(b)]	Williams Station PFAS Treatment	2028	$5,950,000	$75,134,600	$81,084,600
6265[(b)]	Willow Glen Station PFAS Treatment	2031	$1,000,000	$65,452,500	$66,452,500
5576[(b)]	Cottage Grove Station Improvements	2030	$1,000,000	$15,675,800	$16,675,800
6196[(b)]	Lexington Reservoir Intake	2031	$1,000,000	$39,078,200	$40,078,200
5301	Bascom Station Improvements	2029	$1,000,000	$17,119,900	$18,119,900
5197	Hickerson Pump Station	2028	$1,000,000	N/A	$5,053,600
5282	More Ave Pump Station Improvements	2029	$1,000,000	N/A	$27,624,900
6039	Sunol Street Station Improvements	2028	$1,000,000	N/A	$7,439,000
6099	Pleasant Acres Pressure System	2028	$1,000,000	N/A	$6,189,100
6019	Redhill Tanks Replacement	2028	$1,000,000	N/A	$5,328,700

Notes:

[(a)] Total Estimate Project Cost Dollar Amounts Based on Year of Completion

[(b)] Design and Permitting costs recommended to be included in the 2024 GRC and remaining construction costs to be submitted as a rate base offset advice letter outside of the GRC proceedings

CHAPTER 3: CONTINGENCY

Issue:

SJWC's 2024 General Rate Case (GRC) application included a contingency factor on some specific capital projects that ranged between 5% - 10% of the total project construction costs.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 3-6 to 3-10)

Cal Advocates recommends the Commission deny all SJWC's proposed contingency costs in this proceeding, claiming these costs are unknown and unpredictable, and therefore unreasonable.[47] Moreover, given SJWC's "substantial experience conducting water system related projects", SJWC should be able to accurately estimate projects without the use of any contingencies and any cost overruns could be submitted in a future GRC for recovery. In support, Cal Advocates cites decisions D.19-05-202, D.21-008-036, and D.24-03-042, where the Commission removed contingencies on select projects in those GRC proceedings. Based on Cal Advocates' recommendation, removing contingencies would result in a total capital budget reduction in SJWC's 2024 GRC of $11,053,750.[48]

SJWC Rebuttal:

Cal Advocates misrepresents SJWC's contingency costs and alleges, without substantiation, that SJWC includes these adders merely in an effort to increase the cost of projects and shareholder returns at the expense of customer rates.[49] Cal Advocates does not challenge the individual merits of SJWC's contingency factors on specific projects, but rather recommends a complete disallowance of any contingency factor in this proceeding based solely on their misconceptions of what contingency factors are for. Cal Advocates' opinion of contingencies is a radical departure from industry best practice and places an unreasonable burden on SJWC to carry any cost overages into the next GRC. In addition, Cal Advocates fails to appreciate the Commission's intent in the decisions cited and erroneously assumes the

[47] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 3-7

[48] *Id.*, pg. 3-9

[49] *Id.*, pg. 3-7 and 3-8

Commission authorized the removal of all contingency factors going forward. In one particular example, Cal Advocates references D.96-12-066 to support their statement "contingency is by definition included to account for unknown future costs" yet this statement is neither supported by nor are contingencies even discussed within that Commission decision. For these reasons, and as discussed further below, SJWC recommends that the Commission reject Cal Advocates' position and include the full amount of contingency factors on all projects as originally proposed in the 2024 GRC.

A. Cal Advocates' Understanding of Contingencies is Inconsistent with Industry Best Management Practice

Cal Advocates erroneously claims that contingencies are only to address "unknown future costs" and as such are unpredictable and unreasonable.[50] This line of thinking is oversimplistic and a radical departure from current industry best management practices. According to the Project Management Institute (PMI), contingencies are defined as "an event or occurrence that could affect the execution of the project that may be accounted for with reserve."[51] Similarly, the AACE defines project contingencies as "an amount added to an estimate (of cost, time, or other planned resource) to allow for items, conditions, or events for which the state, occurrence, and/or effect is uncertain and that experience shows will likely result, in aggregate, in additional cost."[52] The Construction Management Association of America (CMAA) defines contingencies as funding "intended to be used for changes that are expected to happen even if the extent is not known."[53] CMAA further notes that professional and experienced estimators recommend contingencies and that "[w]eak contingency estimating and misuse account for a significant percentage of claims, which are failures in properly assigning and managing project risk." [54] The American Water Works Association (AWWA) guidelines stress the significance of risk management in water projects and in its *Manual of Water Supply Practices for Capital Project Delivery* (M47) state "[p]lanning-stage cost estimates are generally

[50] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 3-7
[51] PMI, *PMBOK Guide 6th Edition*, pg. 702
[52] AACE, *Total Cost Management*, 206-209.
[53] CMAA, White Paper: *Control of Project Risk for Owners*, 2.
[54] *Ibid.*

based on historical and recent projects of similar scope and include high percentages for allowances that typically range from 30 to 50 percent.."[55] AWWA's manual further states that "[w]hile the contingency amount may vary with the size of the project, an average-size project would typically have a contingency between 5 and 15 percent of the bid amount at the start of construction."[56]

The reoccurring theme across all these definitions from leading national associations is that contingencies are for **known or anticipated unknowns**. While the full extent of the future issues may not be fully understood at the time of budgeting, there is ample historical evidence for major national associations to advocate for contingencies as a recognized best management practice to address risk. Therefore, Cal Advocates' claim that contingencies are simply "unknown costs" is an oversimplification of the purpose and application of contingency factors. Moreover, Cal Advocates is mixing known-unknowns (i.e., future issues that are predictable and anticipated) with unknown-unknowns (i.e, future issues which cannot be imagined or anticipated at the time of budgeting). To illustrate the distinct differences between varying levels of risk, PMI provides the following table. Cal Advocates' opinion of contingencies being completely unknown and unpredictable is aligned with unknown-unknowns rather than the known-unknowns that SJWC and national associations are addressing with contingency costs.

Table 4. Schedule Structure of Modified Risk Categorization[57]

	Certain (Known)	**Uncertain (Unknown)**
Identified (Known)	Known known (identified knowledge)	Known unknown (identified risk)
Unidentified (Unknown)	Unknown known (untapped knowledge)	Unknown unknown (unidentified risk)

To further illustrate this concept, consider a hypothetical scenario of organizing a group flight to another city. An identified risk, or known-unknown, would be the possibility of the

[55] AWWA, M47 *Capital Project Delivery – Manual of Water Supply Practices* (2010), pg. 88

[56] *Ibid.*

[57] Kim, S.D., *Characterizing Unknown Unknowns*, Paper presented at PMI Global Congress 2012. Retrieved May 22, 2024, from: https://www.pmi.org/learning/library/characterizing-unknown-unknowns-6077

flight being delayed, canceled, or a member of the party becoming ill and missing the flight. A reasonable and prudent action in this situation may be to purchase some form of insurance as a contingency to address these known risks and mitigate their impacts. However, the risk of an airplane door rupturing mid-flight would be very difficult, if not impossible, to plan or adjust your budget around – this is an example of an unknown-unknown risk.

In summary, Cal Advocates' testimony is mixing risk management approaches, and their oversimplified concept of contingencies results in a radical recommendation that should be considered a significant departure from industry best management practices. The contingency costs proposed by SJWC in the 2024 GRC are part of an overall risk management strategy to address **actual** but still unknown costs necessary to deliver capital projects that SJWC anticipates it will incur based on industry guidelines and SJWC's own "substantial experience conducting water system related projects."[58]

B. Cal Advocates Mischaracterizes SJWC Cost Estimating Practice

Cal Advocates states that the inclusion of contingencies will "disincentivize SJWC from budgeting accurately and instead encourage it to rely on ballpark estimates for projects."[59] This allegation is made without any substantiation and mischaracterizes SJWC's cost estimating practices.

SJWC maintains a thorough and comprehensive library of historical project costs that is used to prepare all proposed capital project cost estimations. This cost library is reevaluated every three years to align with the rate case filing and ensure that costs used for estimating future projects are reasonable and reflect current market conditions. Additional quotes and/or estimates are obtained from general contractors, vendors, and consultants to further support SJWC's proposed capital project costs, where needed. Finally, based on SJWC's experience and on a case-by-case basis, contingency costs are incorporated into the project estimates with a 5% - 10% range of total project costs, depending on the level of known risk and anticipated challenges.

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[58] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 3-7
[59] *Ibid.*

SJWC **did not** broadly add contingencies across its projects, nor did SJWC use the same contingency factor in all cases. For example, SJWC's did not add contingencies to its annual programs, including projects in its pipeline replacement program, since these budgetary cost estimates are based on trends in historical costs and already account for year-to-year variation and unknowns (see Chapters 8 and 12 in this rebuttal book for additional details). Where contingencies were applied, SJWC determined the appropriate contingency factor on a project-by-project basis. For example, SJWC used a lower 5% contingency factor for generator replacements (Index #6225), new main installations (Index #5439, Index #5602, Index #5628), and electric vehicle charging stations (Index #5993), which are considered more straightforward projects with fewer known unknowns. On the other hand, for more complex projects such as tank replacements or pump station replacements, SJWC used a higher 10% contingency factor. All supporting documents for major capital projects were provided as part of the GRC filing for review by Cal Advocates and the Commission.

Cal Advocates' assumption that SJWC should be able to predict total project costs 3 to 4 years in advance without any contingencies is unreasonable. Over a GRC cycle it is expected that material prices will change, labor and contractor demand will fluctuate, and unforeseen issues will arise on construction projects (e.g., utility conflicts, unexpected soil condition, etc.). Despite SJWC's comprehensive cost and risk management approach and its commitment to providing safe and reliable water service to customers, Cal Advocates still imputes that the continued use of contingency factors in SJWC estimates will result in poor cost estimating. Cal Advocates provides no evidence to substantiate this claim or reasonable justification that following an industry-standard approach will negatively impact SJWC's cost estimates.

C. Cal Advocates Approach is Inconsistent with Forward-Looking Ratemaking

Cal Advocates proposes that "if a project goes over budget, SJWC always has the option of requesting additional funds in its next GRC…"[60] This is inconsistent with the Commission's General Rate Case Plan and forward-looking ratemaking process. Cal Advocates' cavalier approach would require SJWC to omit known costs that are highly probable to occur on capital projects in the 2024 GRC and to carry those costs until they can be submitted and authorized for

[60] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 3-10

recovery in the next GRC cycle. SJWC believes this approach is unreasonable for any utility and recommends the Commission reject this proposal.

D. Cal Advocates Rejects SJWC's Alternative Approach to Risk and Contingencies Mitigation

In its 2024 GRC application, SJWC proposed an alternative approach to complete 10 projects as design and permitting only within this GRC cycle (see Chapter 2 in this rebuttal book for additional details). This approach would increase certainty of project costs and schedule and minimize contingencies by allowing SJWC the necessary time to investigate and fully develop the complete scope of work in one GRC cycle and submit a comprehensive construction cost estimate in the next GRC cycle. However, Cal Advocates wholly opposes this strategy, arguing that it is impossible to assess the reasonableness of a project without seeing the entire budget upfront.[61] Cal Advocates' recommendation to categorically reject all of SJWC's project contingencies as a risk mitigation measure, while simultaneously rejecting any alternatives for addressing project uncertainty and risk, is counterproductive to SJWC's efforts to promote good project management, implement industry best practices, complete projects within schedule and budget, and is not in the best interest of ratepayers.

Conclusion

In summary, Cal Advocates' arguments misrepresent the Commission's past decisions, represent a significant departure from industry standard practices, and are based on false and misinformed assumptions regarding the purpose of contingencies and risk management. Contingencies are known but uncertain costs necessary to deliver capital projects that SJWC anticipates incurring based on industry guidelines and its own extensive experience. Therefore, the Commission should reject Cal Advocates' recommendation to impose a blanket disallowance of contingency costs for all capital projects. Instead, the Commission should adhere to its own precedent and review the circumstances of each capital project individually to determine whether the proposed contingency factor is justified.

[61] *Id.*, pg. 2-1 to 2-5

CHAPTER 4 RESERVOIRS AND TANKS

Issue: Miguelito Station Tanks, Index #5209

This project proposes to construct two pre-stressed concrete tanks with a combined capacity of 1.6 million gallons to replace the existing earth embankment reservoirs at Miguelito Station. The existing basins were identified for replacement based on their observed structural, geotechnical and water quality deficiencies.

Cal Advocates Position: (Cal Advocates Testimony, *Report and Recommendations on Capital Improvement Projects*, pg. 4-1 to 4-4)

Cal Advocates claims significant cost savings can be realized by implementing a repair rather than replacement approach at Miguelito Station and recommend the Commission approve a reduced project budget of $6 million in budget years 2024 through 2026 to repair and retrofit Miguelito Reservoir #3.

Cal Advocates also recommends that consistent with their Chapter 1 testimony regarding "Previously Funded Incomplete Projects", the Commission should add Project Index 5209: Miguelito Station Tanks to the rate base only after it is constructed, used, and useful[62]. Cal Advocates recommends removing the full $22.1 million that SJWC proposed for Miguelito Station Tanks in Budget Years 2024 through 2026, and Cal Advocates recommends cost recovery for this project as part of a subsequent GRC process.

SJWC Rebuttal:

Cal Advocates has presented conflicting recommendations regarding the proposed 2024-2026 budgets for Index #5209. They appear to suggest that the Commission either approve a reduced budget of $6 million for the years 2024 through 2026 or completely deny the project. The Chapter 11 workpapers might offer more clarity on their actual recommendation, as Cal Advocates identified a $0 recommendation in that document for the Miguelito Station Tank project.

[62] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 4-3

SJWC recommends the Commission should approve the budget of $1,000,000 in 2024, $5,000,000 in 2025, and $15,962,600 in 2026 as originally proposed for the points further discussed below.

A. Life Cycle Cost Analysis Supports Reservoir Replacement Alternative

As noted by Cal Advocates on page 4-2, lines 12-13, SJWC ruled out the Interim Repairs and Retrofits alternative due to the costs and limited remaining life of the reservoirs. SJWC developed a life cycle cost analysis for two capital improvement alternatives and presented them in SJWC's 2018 GRC Application (A18-01-004).[63] Capital and operations and maintenance (O&M) costs associated with the Interim Repairs and Retrofits alternative outpace costs of Two New Pre-Stressed Concrete Tanks over the concrete tanks' 75-year expected life span. Although the capital cost of constructing the concrete tanks is higher, maintenance items are minimized to miscellaneous upkeep work such as repair of minor cracks, therefore minimizing O&M costs. On the other hand, repairing the existing tanks involves large maintenance items such as roof replacements and reservoir liner resealing every 30 years.[64] As a result, the Interim Repairs and Retrofits alternative was ultimately rejected from consideration. As the Commission did not comment on the life cycle cost analysis nor the selected alternative during the 2018 GRC cycle, SJWC proceeded with designing the pre-stressed concrete tanks.

B. Phasing of Large Projects and Forward-Looking Ratemaking is Inconsistent with Prior Commission Decisions

As discussed in Chapter 2 of this rebuttal book, the phased approach across multiple GRCs is consistent with prior Commission decisions. Chapter 1 of Cal Advocates' testimony recommends that forecasted capital budgets of 14 projects, including Project Index 5209 Miguelito Station Tanks, be removed from rate base for this GRC and only added after they have been constructed, used, and useful.[65] This proposal is inconsistent with the Commission's

[63] A.18-01-004 SJWC 2018 GRC Application – Exhibit G – Capital Improvement Project and Program Justifications, pg. 603 of 936

[64] *Ibid*

[65] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 1-3

forward-looking ratemaking as discussed in detail in Chapter 2 of this rebuttal book. Furthermore, as noted on PDF page 135 of SJWC's *2024-2026 Capital Improvement Project and Program Justifications* SJWC anticipates construction completion in Q4 of 2026, and this project is anticipated to be used and useful by the end of this GRC cycle.

C. Reservoir Replacement Alternative Provides a Holistic Approach to System Reliability and Safety

In recommending the repairs alternative, Cal Advocates fails to consider the system reliability improvements that tank replacement will provide. Earth embankment reservoirs were some of the earliest water storage facilities constructed within the San Jose Water system. It was not until the 1970s that national design standards first began to include procedures for designing water storage tanks to withstand seismic events.[66] As mentioned on PDF page 129 of SJWC's *2024-2026 Capital Improvement Project and Program Justifications*, the site is located within a County Fault Rupture Hazard Zone and a State Seismic Hazard Zone of Potential Earthquake-induced Landsliding.

Additionally, the Kennedy Jenks (KJ) Earth Embankment Reservoir study which summarizes inspection and evaluation of 22 earth embankment reservoirs owned by SJWC, is over 10 years old, and existing roof and structural degradation on both reservoirs is expected to have continued to advance.[67] The need for additional roof replacement area, if not the entire roof, and structural members is now even more warranted.

The existing reservoirs have potential signs of movement and distress likely due to expansive soils. [68] The station is located only a few hundred feet from surface fault rupture hazard zones, and both reservoirs were constructed prior to the establishment of any seismic building design standards in California. The new tanks will be constructed to the latest structural and seismic building codes to further improve reliability in the event of a natural disaster. Replacement of both reservoirs with concrete tanks was deemed the most appropriate alternative

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[66] Meier et al., *Steel Water Storage Tanks* (2010), AWWA. pg. 1

[67] Kennedy/Jenks Consultants, *Earth Embankment Reservoirs Inspections* (2014)

[68] Kennedy/Jenks Consultants, *Earth Embankment Reservoirs Inspections* (2014)

to ensure a reliable source of high-quality potable water for the 11,000 customers served by Miguelito Station.

The existing chloramination system at Miguelito Station was the first of its kind to be installed by SJWC. Since then, SJWC's chloramination system design has been modified to operate more efficiently, improve safety, and incorporate more sophisticated controls. The hypochlorite pumps for the existing chloramination system were installed on top of the hypochlorite tank to provide secondary containment; leakage from the hypochlorite lines drains back into the tank. With this configuration, maintenance of the hypochlorite pumps is difficult and unsafe. Operators must climb a ladder to access and perform maintenance on the pumps. SJWC's updated chloramination system design incorporates the hypochlorite pumps in a concrete secondary containment over a sump. Additionally, the existing chloramination system is generally undersized. The size of the liquid ammonium sulfate (LAS) tank prevents mini-bulk shipments that can be pumped directly into the tank. Instead, the LAS tank is filled manually with 55-gallon drums. Salt must also be dumped manually into the brine tank from 50-lb bags. Properly sized tanks would eliminate the laborious work currently performed and allow for larger, more cost-effective chemical shipments. Finally, the existing chloramination system programming contains fewer checks to ensure proper dosing.

D. Conclusion

The Commission should approve the originally proposed budget of $1,000,000 in 2024, $5,000,000 in 2025, and $15,962,600 in 2026 for the reasons stated above. The tank replacement alternative recommended by SJWC was proven to be more economically feasible than the repairs alternative recommended by Cal Advocates, based on the life cycle cost analysis that SJWC presented in the 2018 GRC application. Second, SJWC maintains that projects that span more than one rate case be separated between design-only in the first GRC and construction in the second. In this instance, Miguelito Station tanks are still scheduled to be constructed, used, and useful by the end of this rate case. This approach is in keeping with forward-looking ratemaking and provides the most transparency to the Commission and ratepayers. Finally, SJWC takes a holistic approach to fortifying its water supply system. Reliability and safety are at the forefront of the justification for replacing the Miguelito Station reservoirs with the proposed concrete

tanks, and Cal Advocates acknowledges "SJWC has substantial experience conducting water system related projects."[69]

Issue: Cambrian Station Tanks, Index #5280

This project proposes to construct two 8-million-gallon pre-stressed concrete tanks with all other necessary appurtenances and site improvements, at a total project cost of $62,245,600. Of that total cost, $25,884,700 is expected to be spent in the 2024 GRC cycle with Tank #1 becoming used and useful to ratepayers by Q4, 2026 and the remaining project cost to construct Tank #2 planned in the 2027 GRC cycle. See PDF page 197 of SJWC's *2024-2026 Capital Improvement Project and Program Justifications* for more information.

Cal Advocates Position: (Cal Advocates Testimony, *Report and Recommendations on Capital Improvement Projects*, pg. 4-4 to 4-7)

Cal Advocate rejects SJWC's project as proposed and presents another alternative for consideration. Cal Advocates claims that there is a lower cost repair alternative that would "cost-effectively meet the capital improvement needs at the site."[70] Cal Advocates claims are based on three arguments: (1) SJWC did not provide support on how the tanks should be sized to avoid electrical surcharges, and if so, what the optimal sizing is from a cost-benefit perspective; (2) alternative approaches to sizing the tanks should be analyzed to "ensure a balance between the capital costs of larger tanks and the projected operational savings that result from avoiding electrical surcharges"[71]; and (3) historical operating data indicates that the existing Cambrian Reservoir #1 and Lower Northwood tank are "adequate to meet near-term demand in the Cambrian Zone; therefore adding new concrete tanks is not required during this GRC period."[72] Cal Advocates proposes SJWC provide additional information to support the need for this project in the next GRC, then a subsequent project to add concrete tanks could be considered at that time. In the near term, Cal Advocates asserts that the repair and retrofit of Cambrian

[69] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 3-7

[70] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 4-5

[71] *Id.*, pg. 4-6

[72] *Ibid.*

Reservoir #1 would address all identified deficiencies and reduce the capital budget to approximately $16 million.

SJWC Rebuttal:

Cal Advocates' bold arguments are both misleading and false. Cal Advocates is essentially requesting the Commission authorize an overhaul of SJWC's long established design standards for sizing its tanks and reservoirs. Moreover, Cal Advocates suggestion to focus solely on providing an immediate "near-term" solution as a way to reduce project cost contradicts the Commission's Standards of Service [73] and is contrary to the "well refined, fully examined, and considered holistically" review process that Cal Advocates is arguing for in this very proceeding.[74] Should the Commission approve Cal Advocates recommendation, this would set a dangerous precedent that utilities must design their infrastructure ad hoc based on "near-term" solutions that Cal Advocates deems preferable. For these reasons, and as further discussed below, SJWC recommends the Commission reject Cal Advocates arguments and authorize the Cambrian Station Tanks budget of $984,700 in 2024, $8,000,000 in 2025, and $16,900,000 in 2026 as originally proposed.

A. Tank Sizing to Avoid Electrical Surcharges is an Industry Standard Practice

Contrary to Cal Advocates' claim that SJWC did not provide sufficient analysis to support their tank sizing approach, SJWC's water storage tank sizing standard is based on an extensive review of industry standards, regulatory requirements, other utility approaches, and engineering and operational needs. The final approach is discussed at great length in SJWC's *Water Storage Tactical Asset Management Plan* (TAMP) presented in Appendix 2 of SJWC's *Capital Improvement Project and Program Justifications*.[75] While these standards are revaluated every GRC cycle, SJWC's approach to sizing of water storage tanks has been consistent since 2015 and used in every GRC application since.[76] Sizing tanks to address energy costs is an industry best management practice as energy cost from pumping water often account for "as

[73] General Order 103-A, Section II.

[74] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 2-5

[75] SJWC, 2024-2026 *Capital Improvement Project and Program Justification*, Appendix 2, pg.402-460

[76] SJWC, *Tank Evaluation and Asset Management* (2013)

much as 40 percent of operating costs for drinking water systems" according to the US Environmental Protection Agency (USEPA).[77] It is for this reason that the American Water Works Association (AWWA) recommends utilities reduce pumping costs by operating their system to pump more water into the storage tanks during hours when electrical power demands are low and to reduce pumping during periods when the demands are high.[78] AWWA further notes that "this technique requires increased storage capacity."[79] It is for this very reason that SJWC includes as part of its storage tank sizing standards consideration for optimizing the tank size to limit pumping during the higher energy costs periods. However, SJWC tank sizing does not solely focus on energy cost reductions but instead incorporates a holistic approach that considers many additional factors such as: seismic considerations, water age, peak usage, system reliability, fire flow requirements, operational emergency response, and tank structural configuration. All these concerns, some of which are competing concerns, are considered as part of SJWC sizing standards.

The required usable volume necessary for Cambrian Zone is presented in Table 3 on PDF page 214 of SJWC's *2024-2026 Capital Improvement Project and Program Justifications* and is comprised of three primary components: (1) Operational Volume, (2) Emergency Volume, and (3) Fire Flow Storage. The Operational Volume is equivalent to approximately 16 hours of Maximum Day Demand (MDD), determined using projected 2040 MDD values for each storage group. This demand is applied to a diurnal curve developed for that specific storage group based on past summer usage patterns. Sizing operational storage to avoid electrical surcharges from pumping during peak hours ensures operational reliability in the event of pump failures, Public Safety Power Shutoffs (PSPS), or unplanned power outages, when SJWC may have limited pumping capabilities and may need to rely more heavily on operational storage. The Emergency Volume is calculated as 2.5 hours of MDD to provide operational staff sufficient time to respond to any issue in the system (e.g., SCADA system failure, pump failure, leak, etc..). The Fire Flow Volume required is based on local fire jurisdictional requirements. This overall tank sizing approach was based on a review of over 16 other water utilities and industry standard practices

[77] USEPA, *Energy Efficiency for Water Utilities*. Retrieved May 23, 2024 from: https://www.epa.gov/sustainable-water-infrastructure/energy-efficiency-water-utilities

[78] AWWA, *M42 Steel Water-Storage Tanks* (2013), pg. 59

[79] *Ibid.*

for water storage design, including the AWWA and Ten State Standards, and has been presented in every SJWC GRC application since 2015.[80]

B. Cal Advocates' Emphasis on a "near-term" Solution Contradicts Sound Water System Management Practices

As stated in SJWC Response to Data Request MTN-003, the Interim Repairs and Retrofits alternative does include retirement of Fleming Tank #3, however Fleming Reservoirs # 2 and 4 would need to be repaired and returned into service as part of this alternative to provide sufficient future water storage for Cambrian Zone. While it is possible to increase the usable volume at Lower Northwood Tank in the future in addition to restoring Fleming Reservoirs, space at this station is not unlimited, and it will only be able to accommodate an additional one to three million gallons. This alternative without the Fleming Reservoirs would require an additional 6.5 million gallons of water to be stored at Lower Northwood Station which is not possible due to space constraints. Therefore, the Interim Repairs and Retrofit alternative requires Fleming Reservoirs returning to service. However, in accordance with the Commission's orders in Decision 22-10-005, Fleming Reservoir #4 was retired and removed from rate base, which makes this alternative infeasible.

Planning for population growth is an industry best practice since tanks require a large amount of capital and have long design lives. The Commission's Standard Practice U-22 recommends ensuring that equipment is not undersized to "provide for the maximum day and any growth anticipated with the next few years."[81] SJWC expects significant population growth in Cambrian Zone according to projections published by Association of Bay Area Governments (ABAG).[82] Furthermore, AWWA recommends "a tank should be sized to provide for anticipated future growth and the resulting increase in water demands. This consideration is particularly important in the design of water-storage tanks, since they represent a large capital investment, and future enlargement of their storage capacity is not always feasible."[83] In order to keep pace

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[80] See Attachment 2, Exhibit G, from A.15-01-002; Appendix 6, Exhibit G from A.18-01-004; Appendix 2, Exhibit G from A21-01-003; Appendix 2, Exhibit G from A24-01-001

[81] CPUC, U-22 *Standard Practice for Determining of Water Supply Requirements of Water Systems* (2005), pg. 8

[82] ABAG. *Plan Bay Area 2040* (July 2017).

[83] AWWA, *M42 Steel Water-Storage Tanks* (2013), pg. 59

with the projected population growth, SJWC must take a long-term approach to storage tank projects rather than Cal Advocates' near-term Repair and Retrofit proposal. Disregarding ABAG's population projections would be a failure on SJWC's part to prudently plan the water system.

C. Cal Advocates' Alternative Approach is Infeasible to Construct

Cal Advocates' alternative to repair only Cambrian Reservoir #1 is not constructable as it would require the reservoir to be taken offline for at least a year or more, at which point only Lower Northwood Tank would be providing water storage for the entire Cambrian Zone. Cambrian Zone is one of SJWC's largest pressure zones, providing water to over 238,000 residents and encompassing much of San Jose's downtown region.[84] SJWC cannot reliably serve this zone using just Lower Northwood Tank, especially during peak summer demands. The existing Cambrian Reservoir #1 was originally constructed in 1890, has long since outlived its useful life, and the most recent engineering study noted several seismic concerns with the existing structure.[85] Cal Advocates offers no details on how to address these issues or feasibly construct the Cambrian Reservoir #1 retrofit as they propose while allowing SJWC to continue to provide water service to customers and maintain a reliable water system for the future. Therefore, in addition to Cal Advocates' approach being inconsistent with industry standards and sound water system management, the solution is also infeasible and should be rejected.

[84] SJWC, 2024-2026 *Capital Improvement Project and Program Justification*, pg. 192
[85] Id., pg. 193

CHAPTER 5: REMOVAL COSTS

Issue: Facility Retirements, Index #23

SJWC uses Index #23 Facility Retirements, to budget for the costs to remove infrastructure that it plans to retire during the GRC period, specifically for infrastructure retirements that are related to proposed capital improvement projects or programs. These retirement/removal costs are budgeted separately from the proposed capital improvement project costs and then summed across all such retirements on an annual basis.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pgs. 5-1, 5-3)

Cal Advocates recommends the Commission reduce the capital budget for Index #23 by $1,725,700 in 2024, $2,670,700 in 2025, and $1,187,000 in 2026, as these adjustments to Index #23 are necessary for consistency with other capital improvement project budget recommendations made throughout Cal Advocates' testimony. Therefore, Cal Advocates recommends that the Commission approve $667,200 in 2024, $1,370,200 in 2025, and $458,000 in 2026 for Index #23.

Cal Advocates Issue 1: Retirement/Removal Costs Associated with the Pipeline Replacement Program

To be consistent with Chapter 8 of their testimony, Cal Advocates states that the Commission should remove retirement/removal costs associated with various main replacement projects since Cal Advocates already accounted for these retired infrastructure removal costs as part of its recommended annual pipeline replacement budget. Therefore, Cal Advocates states that SJWC's request for $3,153,000 in retirement/removal costs associated with its main replacement projects in the capital budget for Index #23 should be removed to avoid duplicative accounting of these retirement/removal costs.

SJWC Rebuttal to Issue 1:

SJWC recommends the Commission the budget as originally proposed, $2,392,900 in 2024, $4,040,900 in 2025, and $1,645,000 in 2026 for Index #23. SJWC recommends the Commission allow retirement/removal costs associated with its main replacement projects to be

included in the capital budget for Index #23, because SJWC does **not** account for these removal costs within its Pipeline Replacement Program budget as Cal Advocates asserts.

In their Chapter 8 testimony, Cal Advocates recommended annual pipeline replacement budget assumes a per-foot cost of $482.47, calculated using the average of SJWC's 2018-2023 historical costs normalized to a 2023 $/foot value.[86] Cal Advocates calculated these 2023 $/foot values using the recorded costs for 2018-2023 that SJWC provided in a response to Cal Advocates Data Request SIH-002 Pipeline Replacement Rate, Q.1. The recorded costs that SJWC provided only included improvement costs, not retirement/removal costs, as the data request was related to SJWC's Pipeline Replacement Program and the associated budget, which only covers improvement costs for pipeline replacements. Retirement/removal costs for pipeline replacements are covered under Index #23. Because the baseline data for Cal Advocates' per-foot cost estimate of $482.47 does not include retirement/removal costs, Cal Advocates recommended annual pipeline replacement budget similarly does not include retirement/removal costs. Therefore, the retirement/removal costs associated with pipeline replacements should not be removed from Index #23, as they are necessary costs that are not accounted for elsewhere in Cal Advocates' testimony.

Cal Advocates Issue 2: Retirement Removal Costs Associated with Previously Funded Incomplete Projects

To be consistent with Chapter 1 of their testimony, Cal Advocates states that the Commission should remove $1,730,400 in retirement/removal costs associated with capital improvement projects listed in Table 1-1[87] of their testimony that Cal Advocates similarly recommends removing from rate base for this GRC. Cal Advocates states that like the capital improvement costs associated with these projects, cost recovery for associated retirement/removal costs should be removed from SJWC's capital budget for Index #23 and requested as part of a subsequent GRC process after the improvement projects are complete.

[86] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 8-8

[87] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 1-1

SJWC Rebuttal to Issue 2:

SJWC recommends the Commission approve the budget as originally proposed, $2,392,900 in 2024, $4,040,900 in 2025, and $1,645,000 in 2026 for Index #23. SJWC recommends the Commission should allow retirement/removal costs associated with the projects presented in Table 1-1 of Cal Advocates' testimony to be included in the capital budget for Index #23.

SJWC disagrees with Cal Advocates' recommendation that no budget should be approved for the projects presented in Table 1-1 of Cal Advocates' testimony (see Chapter 1 in this rebuttal book for additional details). SJWC also disagrees with Cal Advocates' position that customers have already paid for these projects and therefore "…ratepayers should not pay a second time for shareholder profit on projects that have yet to produce benefit."[88] Past decisions from the Commission make it clear that SJWC has the ability to defer, relocate, and adjust projects within the capital budget as needed, and that the Commission approves capital budgets not individual projects. In lieu of the Table 1-1 projects that SJWC deferred from previous GRCs, SJWC reallocated the budget to other programs and projects as needed and still succeeded in completing the full authorized capital budget of $350 million from the 2021 GRC. Cal Advocates' arguments regarding the Table 1-1 projects are based on false assumptions that are inconsistent with past Commission rulings, utility rate making, and even Cal Advocates own previous statements. Therefore, these projects and their corresponding retirement/removal costs under Index #23 should be approved.

Cal Advocates Issue 3: Retirement Removal Costs Associated with Cambrian Station Tank

To be consistent with Chapter 4 of their testimony, Cal Advocates states the Commission should remove $700,000 in 2025 retirement/removal costs associated with Index #5280 Cambrian Station Tanks, since Cambrian Reservoir #1 would no longer be retired as part of their repair and retrofit alternative recommendation for Index #5280.

[88] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 1-8

SJWC Rebuttal to Issue 3:

SJWC recommends the Commission approve the budget as originally proposed, $2,392,900 in 2024, $4,040,900 in 2025, and $1,645,000 in 2026 for Index #23. SJWC recommends the Commission should allow retirement/removal costs associated with Index #5280 Cambrian Station Tanks to be included in the capital budget for Index #23.

SJWC disagrees with the repair and retrofit alternative recommended by Cal Advocates for Index #5280 (see Chapter 4 in this rebuttal book for additional details). SJWC recommends the Commission approve the project as originally presented including the corresponding retirement/removal costs.

CHAPTER 6: LAND

Issue: Kenny Lane Easement, Index #6102 and Graystone Heights Easement, Index #6111

SJWC's 2024 General Rate Case (GRC) application includes a capital funding request of $83,200 in 2024 for acquiring a 20-foot-wide easement referred to as the Kenny Lane Easement. This easement will enable SJWC to extend a pipeline from its Alum Rock Zone into its Tybalt Zone in a future GRC application, allowing for the retirement of the Tybalt Tank and pressure system.

This GRC application also includes a capital funding request of $161,400 in 2024 for acquiring a 20-foot-wide easement referred to as the Graystone Heights Easement. This easement will connect the Scenic Vista Station to the Graystone Heights Zone, facilitating the retirement of the Graystone Lane Pump Station and the Graystone Heights Tank. The pipeline to be installed within the Graystone Heights Easement is scheduled to be in service within this rate case period, by 2026. For further details on the Graystone Heights Pipeline project, see Index #5439 on PDF page 359 of SJWC's *2024-2026 Capital Improvement Project and Program Justifications.*

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 6-1 to 6-2)

Cal Advocates recommends the Commission deny SJWC's request to include in customer rates the cost to acquire the Kenny Lane Easement, estimated at $83,200 in 2024. Cal Advocates identified that the pipeline proposed for the Kenny Lane Easement will not be installed until a future GRC, and therefore, the easement should not be considered used and useful to ratepayers. Cal Advocates advised SJWC to seek recovery for the Kenny Lane Easement in a future GRC when the pipeline is installed.

Cal Advocates also recommends the Commission deny SJWC's request to include in customer rates the cost to acquire the Graystone Heights Easement, estimated at $161,400 in 2024. Cal Advocates recommends that the Graystone Heights Easement be included in a future GRC application when the Graystone Heights Main Installation, Index #5439, is complete. Cal Advocates expands their rationale for denial of Index #5439 in Chapter 1 of their Report and Recommendations on Capital Improvement Projects in what they refer to as Previously Funded but Incomplete Projects.

SJWC Rebuttal:

There is currently no defined timeline for installing a pipeline within the proposed Kenny Lane Easement, which would enable the retirement of the Tybalt Tank and Tybalt Pressure System. Therefore, SJWC agrees with Cal Advocates' recommendation to deny the original request to include the $83,200 cost to acquire the Kenny Lane Easement in customer rates for 2024.

Regarding the Graystone Heights Easement, SJWC disagrees with Cal Advocates' arguments. As outlined in SJWC's rebuttal to Chapter 1 of the Report and Recommendations on Capital Improvement Projects, Cal Advocates' position misinterprets the Commission's past decisions, significantly diverges from their own previous positions, contradicts standard utility rate-making practices, and sets an unrealistic expectation for typical construction management. In line with SJWC's rebuttal to Chapter 1 and given that the Graystone Heights Main Installation (Index #5439) is planned for completion within this GRC cycle, the requested budget of $161,400 to acquire this easement should be authorized by the Commission.

CHAPTER 7: ESCALATION FACTOR

Issue:

SJWC applies an annual escalation rate of 4% in forecasting its capital budgets for 2024, 2025, and 2026.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pgs. 7-1 to 7-3)

Cal Advocates recommends the Commission update SJWC's capital budget utilizing a revised annual escalation rate of 3.5%.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, utilizing an annual escalation rate of 4%. SJWC's proposed escalation rate was based on historic pre-pandemic escalation rates, expected increases in company and contract labor wages, and published forecasts for national inflation which are predicting a slow return to pre-pandemic levels of inflation. SJWC's historical escalation rate is presented in the following table and on PDF page 10 of SJWC's *2024-2026 Capital Improvement Project and Program Justifications*. SJWC's average pre-pandemic historical escalation rate was 4.3% for Contract Labor and Materials, and 3.4% for Company Labor. SJWC Contract Labor and Materials is the escalation rate for water main replacement projects covered by SJWC's annual contracts with general contractors, which accounts for a large share of the Capital Improvement Program (CIP) budget; SJWC Company Labor indicates the annual increase in hourly wages for SJWC's unionized staff, which account for a large share of the company's employees. As presented below, SJWC's overall average pre-pandemic historical escalation rate is approximately 4%, given that a majority of SJWC's costs are related to contract labor and materials. Assuming a same slow return to pre-pandemic levels of inflation as indicated by forecasts for national inflation, SJWC would expect a return to this 4% escalation rate. In proposing escalation rates for 2024-2026, SJWC did not assume that the high escalation rates experienced during the pandemic would persist in 2024-2026.

Year	SJWC Contract Labor and Materials	SJWC Company Labor
2015	2.5%	
2016	4.6%	
2017	3.7%	3.5%
2018	4.5%	3.0%
2019	5.0%	4.0%
2020[89]	5.3%	3.0%
Average	4.3%	3.4%

Cal Advocates directly uses pre-pandemic regional escalation rates for the San Francisco Bay Area in determining their recommended 3.5% escalation rate for SJWC[90], while SJWC derived its 4% proposed escalation rate based on pre-pandemic escalation rates that SJWC has observed as these are most applicable to SJWC. The measure of regional escalation rate that Cal Advocates uses is the Core Consumer Price Index for All Urban Consumers (CPI-U) for the San Francisco Bay Area. CPI-U is a measure of changes in prices paid by urban consumers for a market basket of consumer goods and services, which is not directly applicable to the water utility industry or the construction industry, and therefore should not be used directly in determining escalation rates for SJWC and its capital improvement program. SJWC referenced regional CPI-U on PDF page 10 of SJWC's *2024-2026 Capital Improvement Project and Program Justifications* only to demonstrate why forecasts for national inflation rates were used to inform trends for SJWC's forecasted escalation, but not used directly, as the San Francisco Bay Area region and SJWC have historically experienced higher inflation rates based on a pre-pandemic timeframe.

[89] Increases for contract labor, materials, and company labor between 2019 and 2020 are considered part of the pre-pandemic timeframe because contract negotiations were completed prior to the start of 2020.

[90] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 7-2

CHAPTER 8: PIPELINE REPLACEMENT PROGRAM

Issue: Pipeline Replacement Program Request

SJWC proposes to annually replace about 1% of its distribution system water mains, which includes sliplining or cured-in-place pipe replacements on a project-specific basis. SJWC's proposed pipeline replacement program for 2024-2026 includes the installation of 23.5 miles of pipe in 2024, 23.9 miles in 2025, and 24.0 miles in 2026.

Cal Advocates Position: (Cal Advocates Testimony, pg. 8-2)

Cal Advocates states that SJWC Proposed Replacement Miles is 25.81 in 2024, 24.69 in 2025, and 27.36 in 2026 based on SJWC's response to Cal Advocates DR SIH-002 Pipeline Replacement Program, Q.3.[91]

SJWC Rebuttal:

SJWC proposed a pipeline replacement program budget of $55,990,700 in 2024, $71,414,100 in 2025, and $82,030,300 in 2026 based on 23.5 miles of pipe proposed to be installed in 2024, 23.9 miles in 2025, and 24.0 miles in 2026. The same mileages for 2024-2026 are presented in SJWC's response to MDR II.E.11.[92] SJWC calculates the mileage of pipe proposed to be replaced based on the mileage of new pipe being installed. SJWC has several main replacement projects where parallel pipelines are proposed to be consolidated with a single pipeline, resulting in the slight difference in Cal Advocates' calculations of mileage based on pipes being retired, and SJWC's calculations of mileage based on pipes being installed.

Issue: Basis for Replacement Rate

SJWC proposes to annually replace about 1% of its distribution system water mains, which includes sliplining or cured-in-place pipe replacements on a project-specific basis. This

[91] Attachment 8-3 in the Attachments document included in Cal Advocates' "Report and Recommendations on Capital Improvement Projects"

[92] Attachment 8-1: MDR II.E.11

replacement rate is essential to normalize the long-term replacement rate for linear infrastructure and maintain a reliable pipeline network with minimal disruptions from leaks.

Cal Advocates Position: (Cal Advocates Testimony, pgs. 8-2 to 8-4)

Cal Advocates asserts that SJWC's replacement rate is unsupported because it solely uses an age-based approach to determine its replacement rate instead of a condition-based approach.[93] They argue that SJWC should use a condition-based approach to avoid prematurely replacing pipelines in good condition. Cal Advocates references the AWWA M77 *Condition Assessment of Water Mains* manual which states that age may not be an accurate indicator of condition. Cal Advocates argues that a condition-based approach is superior to SJWC's approach and also references an article from a utility that conducted condition assessments on asbestos-cement (AC) pipe and determined the useful life to be 142 years, much longer than expected.

SJWC Rebuttal:

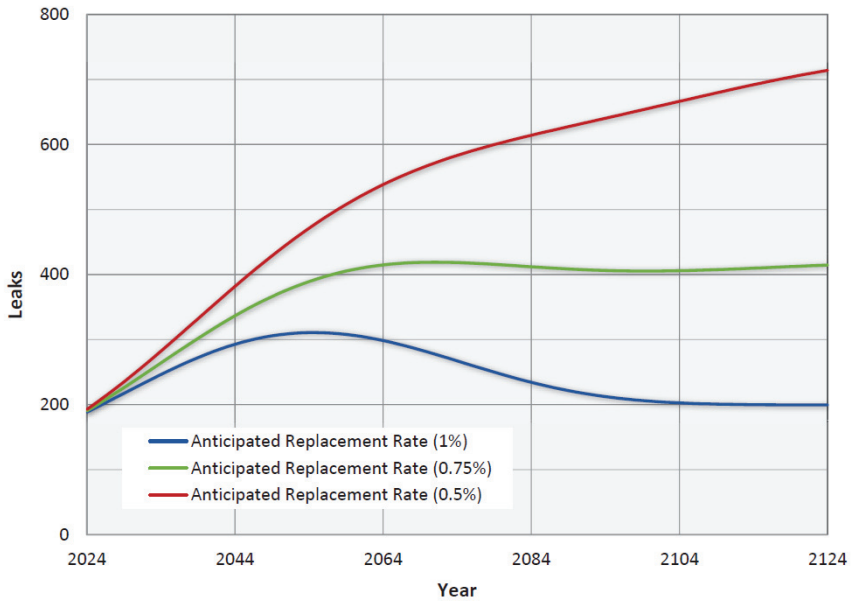
SJWC's method for determining its pipeline replacement rate is aligned with industry-leading practices and recommends the Commission approve the proposed 1% rate, as this is necessary to maintain safe and reliable service to customers. SJWC's response to Cal Advocates and reasoning for maintaining a 1% replacement rate is provided below.

A. SJWC's Robust Approach to Determining Replacement Rate

SJWC uses a robust methodology to determine its replacement rate. The main premise of Cal Advocates' argument is that SJWC uses an age-based approach to determine a replacement rate of 1%. Their premise is completely inaccurate, as SJWC does not use an age-based approach but a statistically robust and sound method of calculating failure rates projecting pipeline failures to justify a rate of 1%. This means SJWC's method is not an age-based approach but a probability of failure-based approach. SJWC developed failure rate and survival rate curves for

[93] Cal Advocates Testimony, pg. 8-3, lines 1-3; pg. 8-4, line 14

each major pipe type in the distribution system based on actual historical failure data. Because SJWC has retained decades of pipeline failure data, SJWC did not have to depend on external case studies or national averages to make assumptions but was able to develop failure curves reflective of utility-specific pipeline performance in the distribution system. This approach is supported by the AWWA. The AWWA M77 manual states that "often there is a sufficient break history to perform meaningful utility-specific statistical analysis. Variables such as material, age, diameter, and geographic location typically provide strong enough statistical correlations to forecast future breaks."[94] The aging parameters required for developing the failure rate curves were obtained using KANEW, a software associated with the AWWA Research Foundation's study *Quantifying Future Rehabilitation and Replacement Needs of Water Mains*. The failure rate curves for each pipe type were used to project the number of failures that would occur on SJWC's pipelines using three different replacement rate scenarios, as shown in the following figure, which was also included on PDF page 13 of SJWC's *2024-2026 Capital Improvement Project and Program Justifications*.



This figure shows projected leaks based on the replacement rates of 1%, 0.75%, and 0.5%. As depicted, a replacement rate of 1% will yield a sustainable long-term leak count of approximately 200. At a replacement rate of 0.75%, the long-term leak count will be drastically

[94] AWWA M77 *Condition Assessment of Water Mains*, pg. 32

higher (over 100% higher) and have a significant impact on SJWC's ability to provide safe, reliable water service to its customers. While Cal Advocates has unfortunately misconstrued SJWC's approach as being age-based, the Commission demonstrated a good understanding of SJWC's approach in Decision D.22-10-005, Section 5.3.3 *Pipeline Replacement Budget Issues*. Based on SJWC's methodology, the Commission stated, "We find that a 1% pipeline replacement rate, as reflected in the ASA, is appropriate to enable SJWC to continue to provide safe and reliable service to customers. SJWC's method of prioritizing pipeline replacements considers risks, costs, and benefits to customers."[95] Given SJWC's defensible, data-driven approach to pipeline asset management, SJWC maintains its position that a 1% average replacement rate is necessary and in the best interest of customers.

B. Condition Assessment-Based Pipeline Replacement Rate

Cal Advocates recommended SJWC use a condition assessment-based approach for its pipeline replacement program.[96] The main reason that they provide this recommendation is that an age-based approach ignores key factors that help determine a pipeline's useful life, such as soil conditions, average operating pressures, and water chemistry.[97] To state it another way, these key factors impact the deterioration of pipes at different rates, and an age-based replacement approach does not take these factors into account, inevitably leading to premature replacements. Cal Advocates also references AWWA's M77 manual multiple times to support its case for condition assessment-based approach to determine replacement rates. However, Cal Advocates fails to understand SJWC's approach as well as the AWWA's position on condition assessment and pipeline replacement, as explained in the following points:

1) **SJWC does not use an age-based approach**. Cal Advocates incorrectly asserts that SJWC uses an age-based method to determine its replacement rate. SJWC uses a failure rate and probability of failure-based approach to determine replacement rate. As previously discussed, these failure rates were based on actual historical failure and pipeline performance data.

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[95] California Public Utilities Commission, D.22-10-005, page 37

[96] Cal Advocates Testimony, pg. 8-3, lines 11-12

[97] Cal Advocates Testimony, pg. 8-3, lines 3-4

2) **Cal Advocates misunderstands AWWA's definition of "condition assessment."** Cal Advocates incorrectly quotes the following from AWWA's M77 manual with the intent to present SJWC's approach as deficient: "in many cases, condition assessment efforts reveal that most of the pipeline is in good condition."[98] Cal Advocates quotes this to suggest that SJWC does not conduct condition assessments and, therefore, mismanages its pipeline replacement program. Unfortunately, Cal Advocates takes this quote out of context and fails to realize that AWWA refers to "condition assessment" as both field and desktop condition assessment. In the same chapter, AWWA defines "condition assessment" and states, "Condition assessment may be performed in the field, via desktop, or both. The important objective is to do it, update it, and improve upon it as needed."[99] SJWC does indeed perform rigorous condition assessments per AWWA's definition. SJWC's approach is aligned with AWWA M77's recommendations to perform condition assessment, update it, and improve it. As a result, SJWC prudently selects its pipelines for replacement and continues to improve its approach. Furthermore, SJWC's non-age-based approach shows many young pipelines in poor condition and old pipelines in good condition, enabling SJWC to carry out replacements in a non-age-based fashion.

3) **AWWA does not promote replacement rates based on condition assessments**. Cal Advocates incorrectly uses AWWA's M77 manual to suggest that replacement rates should be based on condition assessments. Contrary to what Cal Advocates suggests, the AWWA M77 recommends a risk-based strategy for pipeline management decisions. The manual states, "risk analysis is used to rank assets by their risk of failure and to identify high-risk assets" (AWWA M77, page 2), and that "the overarching benefit of condition assessment is the ability to gather data for risk-based decision making."[100] AWWA's position is that condition assessments can support and provide additional data for risk-based

[98] AWWA M77 *Condition Assessment of Water Mains*, pg. 4

[99] AWWA M77 *Condition Assessment of Water Mains*, pg. 2

[100] AWWA M77 *Condition Assessment of Water Mains*, pg. 201

decision-making, not that condition assessments should be used as the basis of determining the pipeline replacement rate. Furthermore, AWWA states that "the data obtained from pipeline condition assessments helps drive decisions on pipeline repair or renewal based on risk."[101] SJWC is in full agreement and alignment with AWWA's stance. Hence, SJWC uses a comprehensive and rigorous risk-based approach for pipeline replacement, supporting the risk assessment with rigorous desktop condition assessment data to help create an effective pipeline replacement program.

4) **SJWC is not replacing pipelines based on age**. SJWC does not replace mains when they reach their expected useful life, as Cal Advocates suggests. There are many mains that have exceeded their expected useful life which are ranked low for replacement. This is due to SJWC's robust method of determining probability of failure using an artificial intelligence (AI) machine-learning algorithm, which considers an array of factors, including historical failures, diameter, material, age, soil type, geography, operating pressure, and more.

5) **SJWC's approach to forecast future failures is supported by the AWWA**. As explained previously, the AWWA's M77 manual states that "often there is a sufficient break history to perform meaningful utility-specific statistical analysis. Variables such as material, age, diameter, and geographic location typically provide strong enough statistical correlations to forecast future breaks."[102] SJWC agrees with this statement from the AWWA. Having many decades of excellent desktop condition and pipeline asset data, SJWC has been able to leverage high-quality data and use an AI machine-learning algorithm to accurately predict future failures. The AI machine-learning algorithm uses numerous factors to create complex statistical relationships that humans are not able to observe, leading to powerful predictive capabilities.

6) **Field condition assessment is often cost-prohibitive and provides limited information**. SJWC believes that direct field condition assessment may be

[101] AWWA M77 *Condition Assessment of Water Mains*, pg. 201

[102] AWWA M77 *Condition Assessment of Water Mains*, pg. 32

prudent and beneficial in select scenarios. However, SJWC also recognizes that field condition assessments for pipelines are often cost-prohibitive. The USEPA's report on *Condition Assessment Technologies for Water Transmission and Distribution System* states that "some of the data required for physical models (e.g., detailed soil properties and detailed pipe material properties, data obtained by inspection of the pipe current condition) can be obtained albeit at significant costs."[103] The significant costs of direct condition assessment are better understood when considering the involved process required. Costs include but are not limited to mobilization, excavation, shutdowns, notifications, temporary main installations, temporary service line installations, installation of vaults or fittings, repairs, bacterial sampling, potential contamination, permitting, backfill, repaving, cement work, landscaping, contractor and vendor fees, analysis fees, internal labor costs, and more. The costs are significant, and it would be completely unreasonable and imprudent for SJWC to base its annual replacement rate on direct field condition assessments. While there are ranges of costs for different methods, it must be noted that direct condition assessments will often provide limited and misleading information. AWWA's M77 manual states that "in many cases, the amount of damage that is detected will be understated, because no method detects every type of defect."[104] Cal Advocates references an article featuring Mesa Water District's use of field condition assessment that yielded unexpected results with their AC pipe having an expected useful life of 142 years.[105] It must be understood that not only is this result from Mesa Water District a statistical outlier, but, more importantly, SJWC determined asbestos cement pipe in its service area has a life expectancy of 85 years based on the KANEW analysis mentioned above. SJWC has a wealth of historical break data and statistically driven failure rate data for various pipeline materials and leveraging this data is in the best interest of ratepayers. SJWC does not discourage

[103] USEPA, *Condition Assessment Technologies for Water Transmission and Distribution System* (2012), 54

[104] AWWA M77 *Condition Assessment of Water Mains*, pg. 27

[105] Cal Advocates Testimony, pg. 8-4, line 4

the selective and prudent application of field condition assessments. In fact, SJWC has been exploring various field pipeline assessment technologies. However, SJWC maintains that its current approach ensures that SJWC replaces the appropriate length of pipelines to sustain safe and reliable service.

SJWC has determined that a replacement rate of 1% is necessary based on actual pipeline failure history and uses rigorous desktop condition assessment methods to support a comprehensive, AI-informed, risk-based pipeline replacement program. While SJWC's does not agree with Cal Advocates' position that field condition assessments are necessary to determine replacement rates, SJWC is aligned with the AWWA's suggested approach. While SJWC supports the use of field condition assessment technologies to provide more data and help refine pipeline replacement selections, SJWC maintains its belief that its current approach for its pipeline replacement program is sound, appropriate, and in the best interest of customers.

Issue: Pipeline Ranking and Prioritization System

SJWC proposes to annually replace about 1% of its distribution system water mains, which includes sliplining or cured-in-place pipe replacements on a project-specific basis. The pipes selected for replacement each year would be based on the replacement rank list developed in SJWC's 2022 Pipeline Asset Management Plan.

Cal Advocates Position: (Cal Advocates Testimony, pg. 8-5)

Cal Advocates states that SJWC largely ignores its own ranking and prioritization system for identifying pipeline segments for replacement. Cal Advocates states that of the 1414 pipeline segments that SJWC marked for replacement over the years 2024, 2025, and 2026, only 44 segments (3%) are within the top 100 of the priority replacement rankings, 281 segments are within the top 1000, and 257 segments fall within the bottom 50% of pipeline replacement priority rankings.

SJWC Rebuttal:

Cal Advocates incorrectly states that SJWC does not use its own ranking and prioritization system for identifying pipeline segments for replacement. SJWC uses risk ranking as a starting point for identifying pipe segments for replacement, in addition to other important considerations. The highest priority pipes for replacement are in the Priority 1 Replacement

Zone, as illustrated in Figure 26 of SJWC's Pipeline Asset Management Plan, which is not limited to pipes with a top 100 or top 1000 replacement rank. Pipeline replacements were also prioritized based on other considerations, as noted on PDF page 15 of SJWC's *2024-2026 Capital Improvement Project and Program Justifications*.

In selecting pipes for replacement, SJWC also considers the count of associated potential lead service laterals that could be eliminated with a main replacement project, as part of SJWC's plan to eliminate these services from the distribution system by December 31, 2030. SJWC also considers recent leaks on the pipe that may not have been input to the AI machine-learning algorithm and recommendations from field crew to replace certain pipes, based on observations of the pipe condition during leak repairs or nearby main replacement projects. Additional considerations include paving moratoriums on the streets where the pipes are located and the diameter of the pipe, as larger diameter main replacement projects are more expensive and only a certain number of these larger diameter main replacements could reasonably be incorporated into SJWC's 2024-2026 GRC Application. Furthermore, a few main replacements are prioritized as they are to be done in conjunction with other facility projects (such as the construction of a pump station, installation of an operational zone valve, or consolidation of pressure zones) which will allow for other system improvements and operational efficiencies.

Cal Advocates suggests that SJWC should have focused on the top 100 or top 1000 ranked pipelines to select pipeline projects. However, the Pipeline Asset Management Plan does not indicate any such intent for several sound reasons. The pipeline rankings do not take into consideration critical factors such as design complexity, permitting, constructability, location, budget limitations, and various other factors that affect the ability to successfully execute and complete projects. These critical factors related to project execution cannot be neglected when formulating an effective pipeline replacement program that is designed to reduce overall system risk.

Following Cal Advocates' suggested approach would be cost-prohibitive and increase overall system risk. Many of the top ranked pipes are part of complex, large-diameter alignments located in challenging areas associated with significant permitting and constructability

challenges. To illustrate this point, the table below lists the Top 10 ranked pipe segments[106] and an approximate replacement cost per foot based solely on pipe size and past SJWC projects of similar pipe size. Generally, the Top 10 pipe segments are larger diameter pipes and would be more expensive to replace. Filling the pipeline replacement program with these complex and difficult projects would result in an enormously expensive and cost-prohibitive program that is not in the best interest of ratepayers.

Replacement Rank	Water Main ID	Diameter (in)	Material	Approximate Replacement Cost Based on Pipe Diameter ($/ft)
1	602582	36	FKCL	$1,800
2	600878	24	FKCL	$1,300
3	600903	24	WS	$1,300
4	12447	20	WSCL	$1,300
5	54556	12	FKCL	$700
6	602237	18	FKCL	$1,000
7	54555	12	FKCL	$700
8	600779	18	WS	$1,000
9	602215	18	FKCL	$1,000
10	54559	12	WSCL	$700

On the other hand, following SJWC's approach of focusing on main replacement projects within the Priority 1 Replacement Zone enables SJWC to still focus on the highest ranked pipes without impacting SJWC's ability to successfully complete projects at a reasonable cost and decrease overall system risk. SJWC's method represents the best use of ratepayers' dollars to have an effective and sustainable replacement program that provides a smart balance of investment to customer benefits.

After specific pipe segments are identified for replacement, SJWC creates a main replacement project by incorporating connecting pipes into the project scope. These connecting pipes are related to the "segments falling in the bottom 50% of pipeline replacement priority rankings" noted by Cal Advocates. While these connecting pipes would not drive the priority for the main replacement project, replacing multiple pipe segments under the same project is more cost effective than replacing individual pipe segments in a scattered manner with repeated

[106] As presented in SJWC's 2022 *Pipeline Asset Management Plan*, Table 23

mobilization for construction. The connecting pipes are typically the same material or age as the initial pipe segment prioritized for replacement and are likely in a similar condition as the initial pipe segment, even if the connecting pipes do not have a history of leakage and are thus less highly ranked. Lastly, replacing pipe segments as a comprehensive main replacement project allows SJWC to upsize or downsize mains where prudent or relocate mains where the existing alignment is not optimal.

Issue: Historical Pipeline Replacement Rate

SJWC proposes to annually replace about 1% of its distribution system water mains, which includes sliplining or cured-in-place pipe replacements on a project-specific basis. SJWC's historical pipeline replacement rate has varied year to year.

Cal Advocates Position: (Cal Advocates Testimony, pgs. 8-5, 8-6)

Cal Advocates recommends the Commission approve a reduced pipeline replacement budget of $46,933,717 in 2024, $46,933,717 in 2025, and $46,933,717 in 2026 based on a 0.8% annual pipeline replacement rate. Cal Advocates states that over the previous GRC cycles, SJWC has completed fewer replacement miles than authorized and paid for by ratepayers.

SJWC Rebuttal:

SJWC recommends the Commission should approve the budget as originally proposed, $55,990,700 in 2024, $71,414,100 in 2025, and $82,030,300 in 2026 based on a 1% annual pipeline replacement rate.

Based on a 10-year history as presented in SJWC's response to Cal Advocates DR SIH-002 Pipeline Replacement Program Q.1. and excluding 2020 and 2021 which were outlier years due to the COVID-19 pandemic, SJWC's average pipeline replacement rate has been 0.9%.[107] The reduced replacement rate in 2020 was due to the significant challenges the COVID-19 pandemic put on numerous industries, including the water industry. In 2020, SJWC halted construction from March 17th to May 4th, during which time numerous health and safety

[107] Attachment 8-3 in the Attachments document included in Cal Advocates' ""Report and Recommendations on Capital Improvement Projects."

protocols were set into place that slowed the progress of contractors when field activities were restarted on May 18th. Field activities resumed at full speed as of May 28th; however, permitting challenges remained as workflows and staff at permitting agencies were impacted. Other challenges included delays on projects because of numerous vehicles parked in planned construction zones due to the public sheltering in place or working from home, as well as shortages in materials and supplies due to supply chain interruptions. Although conditions improved in 2021, supply chain interruptions continued for materials associated with main replacement projects, resulting in project delays.

SJWC consistently strives to achieve its pipeline replacement rate goal of 1% and makes the necessary improvements to its processes. Following supply chain interruptions in 2021, SJWC began a practice of preordering materials ahead of construction, allowing SJWC to increase its completed pipeline replacement rate in the following year. Remaining differences between its requested and completed replacement rates are due to SJWC prioritizing other critical capital improvement projects in lieu of a few main replacement projects. SJWC prudently applies its knowledge of system needs to prioritize projects that best serve its operations and customers and to achieve its authorized capital budgets.

Year	Requested Replacement Rate	Commission Adopted Replacement Rate	Completed Replacement Rate
2014	0.6%	0.6%	0.8%
2015	1.0%	1.0%	1.1%
2016	1.0%	1.0%	1.1%
2017	1.0%	1.0%	0.8%
2018	1.0%	1.0%	0.7%
2019	1.0%	1.0%	0.7%
2020*	1.0%	1.0%	0.6%
2021*	0.8%	0.8%	0.7%
2022	1.1%	1.1%	0.9%
2023	1.1%	1.1%	0.9%

* Outlier years due to COVID-19 pandemic and supply chain interruptions

Issue: Pipeline Replacement Cost Estimates

SJWC proposes to annually replace about 1% of its distribution system water mains, which includes sliplining or cured-in-place pipe replacements on a project-specific basis.

SJWC's proposed pipeline replacement program for 2024-2026 includes budgets of $55,990,700 in 2024, $71,414,100 in 2025, and $82,030,300 in 2026.

Cal Advocates Position: (Cal Advocates Testimony, pgs. 8-6 to 8-8)

Cal Advocates recommends that the Commission should approve a reduced pipeline replacement budget of $46,933,717 in 2024, $46,933,717 in 2025, and $46,933,717 in 2026 based on a per-foot cost of $482.47. Cal Advocates states that contrary to SJWC's forecast in this proceeding, SJWC's historical pipeline replacement spending shows that adjusted for inflation pipeline replacement per-foot costs have been relatively consistent. Cal Advocates also states that SJWC's pipeline replacement cost estimates include unnecessary and unreasonable cost adders.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $55,990,700 in 2024, $71,414,100 in 2025, and $82,030,300 in 2026. Cal Advocates' suggested approach of using the same per-foot cost of $482.47 across all projects is too simplistic. Because costs can vary significantly between projects, the pipeline replacement program budget should be based on the specific set of main replacement projects being proposed. For this GRC application, SJWC prepared individual cost estimates that were tailored to capture the specific attributes of each project, for a more comprehensive approach.

A. Cal Advocates' Unit Cost Recommendation Does Not Account for Variation in Costs by Pipe Size, Location, and Specific Project Attributes

As presented in SJWC's response to MDR II.E.11, the following table outlines the number of feet of and size of mains replaced for the last authorized test year, last five years of recorded data, and proposed test year amounts.[108] Weighted average diameter was calculated below to show how the sizes of pipeline replacements vary year to year, and similarly, unit costs for pipelines are also expected to vary. It would not be appropriate to apply the same unit cost across all projects as Cal Advocates suggests.

[108] Attachment 8-1: MDR II.E.11

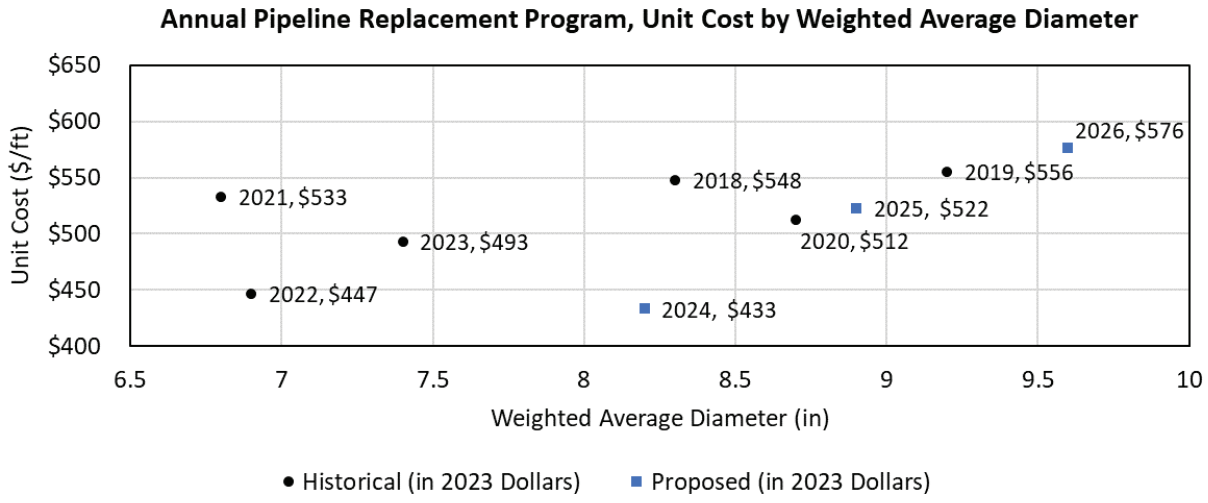
Pipe Length Installed or In-Progress (2018-23) or Planned (2024-26) by Size and Year									
Diameter (in)	2018	2019	2020	2021	2022	2023	2024	2025	2026
4	4,215	1,731	1,733	4,519	2,817	3,111	4,608	1,790	3,735
6	38,363	50,531	34,247	53,521	82,785	63,048	58,373	73,165	64,345
8	34,070	14,461	23,810	19,410	20,095	35,736	32,270	25,525	29,585
10	29	40	3,758	2,516	2,209	1,065	685	1,180	5,215
12	8,031	20,796	9,294	4,970	6,359	11,549	19,605	8,745	5,875
16	7,468	3,307	0	56	2,125	2,030	5,100	2,390	170
18	1,522	21	0	0	10	0	2,855	980	0
20	360	0	6	0	143	0	0	0	0
24	898	0	806	0	0	295	780	12,615	13,395
30	0	0	4	0	0	0	0	0	4,200
36	0	3,962	2,565	0	0	0	0	0	0
Total Length (Feet)	94,956	94,849	76,223	84,992	116,543	116,834	124,276	126,390	126,520
Total Length (Miles)	18.0	18.0	14.4	16.1	22.1	22.1	23.5	23.9	24.0
Weighted Average Diameter	8.3	9.2	8.7	6.8	6.9	7.4	8.2	8.9	9.6

In deriving their recommended per-foot cost of $482.47 in 2023 dollars[109], Cal Advocates applies lower escalation rates than what SJWC has historically observed, as presented on PDF page 10 of SJWC's *2024-2026 Capital Improvement Project and Program Justifications* and addressed in Chapter 7 of this rebuttal book. Furthermore, it is unclear how Cal Advocates calculated the unit costs for SJWC's 2024-2026 pipeline replacement program on page 8-7 of their testimony, as the calculated unit costs do not match with the budget and replacement miles in Table 8-2 on page 8-2 of Cal Advocates' testimony. The unit costs for SJWC's 2024-2026 pipeline replacement program are as follows.

[109] Cal Advocates Testimony, Table 8-4, pg. 8-8

Year	SJWC Requested Budget	SJWC Proposed Replacement Miles	SJWC Proposed Replacement Feet	Unit Cost
2024	$59,990,700	23.5	124,276	$451/ft
2025	$71,414,100	23.9	126,390	$565/ft
2026	$82,030,300	24.0	126,520	$648/ft

Using SJWC's historical escalation rates to normalize historical costs to 2023 dollars, and SJWC's proposed 4% escalation rate to normalize proposed costs to 2023 dollars, the plot below shows that SJWC's proposed unit costs for its 2024-2026 pipeline replacement program are not out of line with historical unit costs as Cal Advocates suggests. Pipeline replacement costs also depend on factors related to the specific location and attributes of a project, but based on pipe size alone, the plot below shows that SJWC's proposed unit costs for its 2024-2026 pipeline replacement program are in line with historical unit costs and scale with weighted average diameter.



B. SJWC References Historical Costs Appropriately and Does Not Include Unnecessary and Unreasonable Cost Adders

Cal Advocates incorrectly suggests that by taking historical average costs and then including additional cost adders, SJWC is double counting costs. SJWC evaluates historical cost data by sorting past projects by size (weighted average pipeline diameter), analyzing data separately for 4, 6, 8, 10, 12, and 16-inch diameter projects, and performing a trendline analysis of historical cost data to examine variation of unit costs by project footage. Project costs can vary

significantly depending on the specific site conditions, even across projects of the same size. Thus, when SJWC performs the trendline analysis, outlier projects are removed from the dataset to ensure that the trendline is a reasonable fit with the data and is meaningful. Outlier projects are ones that have special permitting requirements, extra paving requirements for major streets, railroad or bridge crossings, narrow alignments, or other challenging site conditions. The trendline-derived cost serves as a baseline and represents the average cost for a standard main replacement project. SJWC then adjusts the baseline cost estimate as needed to reflect the specific attributes of the project, particularly for projects that are complex and not considered a standard project. SJWC aims to use the most relevant information possible. Thus, in addition to using the trendline-derived cost as a starting point, if available, SJWC also references costs for specific past projects that are most similar and ideally nearby the project of interest. In some cases, a cost lower than the trendline-derived cost may be used, based on similar past projects in the vicinity. SJWC's adjustments are not necessarily cost adders as Cal Advocates states.

Cal Advocates states that using an average of historical costs already accounts for the variances that future projects will likely encounter. SJWC agrees with Cal Advocates that SJWC's trendline analysis represents an average cost for a standard main replacement project and captures variation of costs between these types of standard projects. For this reason, SJWC did not broadly apply contingencies across its main replacement projects.

CHAPTER 9: INFORMATION AND TECHNOLOGY PROJECTS

Issue: Customer Information System, Index #5527

SJWC proposes to replace its Oracle Utilities Customer Care and Billing (CC&B) system with a new Customer Information System (CIS) solution.

Cal Advocates Position: (Cal Advocates Testimony, *Report and Recommendations on Capital Improvement Projects*, pgs. 9-2 to 9-4)

Cal Advocates recommends the Commission deny SJWC's request to include $1,234,000 in 2024 and $3,482,500 in 2025 customer rates related to Index #5527 CIS. Cal Advocates states on page 9-4, lines 17-20 that "[i]f and when, SJWC determines to actually replace its CC&B system, it should present the capital project for recovery in a subsequent general rate case when it can be demonstrated to be used and useful." They justify this position by stating "[r]atepayers have been paying for the upgrades or replacement of the CIS for two GRCs now…"[110]

Cal Advocates further states on page 9-2, lines 9-10 that SJWC did not provide any testimony related to Index #5527. They suggest on pages 9-3 and 9-4 that there is confusion regarding the scope of this project and the need for SJWC to upgrade versus replace the existing CIS.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $1,234,000 in 2024 and $3,482,500 in 2025 for Index #5527. The assertion by Cal Advocates that SJWC should complete the CIS project outside of the normal GRC proceeding without Commission approval and then request recovery of these costs in a future GRC once the project is complete is contrary to California's forward-looking ratemaking process. As further discussed in Chapter 2 of this rebuttal book, not only would this require SJWC to carry costs through the next GRC application without any review or approval from the Commission, but it also presents an additional level of risk and uncertainty that would be unreasonable for any utility.

[110] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 9-4

Cal Advocates' rationale for justifying this approach is based on their flawed and incorrect assertion that this is a previously funded and incomplete project. As clarified in Chapter 1 of this rebuttal book, SJWC's 2018 and 2021 GRC decisions approved capital budgets rather than specific project budgets. The Commission has acknowledged that SJWC "…retains discretion to shift funds budgeted from one capital project to a different project as changing conditions may warrant. The utility has an obligation to exercise its expert judgement and management. The Commission does not micromanage every utility action."[111]

SJWC has the responsibility to identify and execute necessary capital projects to ensure safety, efficiency, and reliability, allowing for responsiveness to operational developments and challenges between rate cases. Therefore, Cal Advocates' arguments to exclude the CIS project or other specific projects in the 2024 GRC application, and to penalize SJWC for exercising its discretion in managing its capital improvement program, are inconsistent with the Commission's approach to overseeing capital budgets rather than individual projects.

Furthermore, Cal Advocates asserts that SJWC did not provide any testimony related to Index #5527. However, contrary to that claim, SJWC in its response to the Public Advocates Office Data Request SIH-003, Q.1 provided that very information.

Issue: EAM System Configuration, Index #5797

SJWC proposes to enhance its Enterprise Asset Management (EAM) system with new features and functionality designed to improve asset reliability and increase operational efficiency.

Cal Advocates Position: (Cal Advocates Testimony, *Report and Recommendations on Capital Improvement Projects*, pgs. 9-5, 9-6)

Cal Advocates recommends the Commission deny SJWC's request to include $1,500,000 in 2024, $780,000 in 2025, and $380,000 in 2026 customer rates for an Enterprise Asset Management (EAM) system called HxGN EAM. Their argument is that there is lacking evidence of the benefits of the EAM system implementations proposed in the 2024-2026 Capital Improvement Project and Program Justifications. Cal Advocates asserts that should the project

[111] D.22-10-005, pg. 34

be as beneficial as SJWC claims, it should be able to fund the project with the purported cost savings.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $1,500,000 in 2024, $780,000 in 2025, and $380,000 in 2026 for EAM system implementation work. Cal Advocates' position is that cost savings should be the basis of justification for the proposed budget. However, Cal Advocates is not recognizing the significant consequences of not continuing the implementation of HxGN EAM. Should SJWC halt this critical implementation work, SJWC would be forced to continue using Oracle WAM for work management for the Distribution Systems department and the Water Quality department. Attempting to continue to use this software comes with significant risks and disadvantages. The current software is 25 years old, has far exceeded its useful life, and the software provider, Oracle, has abandoned and discontinued support for the obsolete software. In addition, the Oracle database that supports Oracle WAM has also reached its end of life per Oracle. In the event of a failure, SJWC would be unable to perform numerous critical functions required for safe and reliable water service, public health and safety, and regulatory compliance. SJWC's ability to effectively respond to emergencies, make repairs, and maintain the system would be greatly impacted.

Work Orders are often complex and may comprise of utilities scoping, permitting, coordination with shutdown crews, repair work, backfill, cement work, paving, landscaping, and more. These various tasks are carried out by different internal and external parties, and their statuses and much of their documentation are managed in Oracle WAM. There are typically between 80,000 and 100,000 work order transactions per year in the system, and trying to manage myriads of tasks, schedule work, update statuses, coordinate with various parties, and collect all required data via spreadsheets, emails, and phone calls would be an infeasible and irresponsible undertaking. This would inevitably lead to mismanaged scheduling, overlooked work, poor prioritization of work, delayed response times, more occurrences of severe or catastrophic main breaks, extensive property damage, water quality issues, and elevated public safety risk. This would also give rise to disgruntled customers, frustrated employees, and regulatory compliance violations due to failure in maintaining adequate documentation on main repairs and maintenance tasks. SJWC believes that it would be totally irresponsible and unacceptable to provide this kind of poor and unsafe level of service to its customers and fall out

of compliance with regulations. The severity of the impacts of discontinuing the EAM system implementation distinguishes this project as an absolute necessity that should not be contingent on a financial cost analysis. While Cal Advocates has insisted that a cost analysis must be the justification for this work, it is not reasonable or appropriate to quantify the cost of mismanagement of the distribution system, water quality issues, regulatory compliance violations, elevated safety risk, and poor and unsafe service to customers.

The Water Quality department relies on Oracle WAM for their distribution system flushing operation, an essential public health and safety program to keep water quality at adequate levels within the distribution system. SJWC runs an industry-leading flushing operation using a Neutral Output Discharge Elimination System (NO-DES) circulating flushing truck, which eliminates large volumes of unnecessary water loss. To effectively utilize the NO-DES system, the flushing crew requires an application that helps plan routes, open and close many valves, create flushing loops, and track historical flushing events and asset data. The application being used to manage this program currently operates on Oracle WAM. SJWC has encouraged and pushed its customers to conserve water and has demonstrated its own commitment to the environment through this environmentally conscious way of maintaining system water quality, receiving much commendation from customers and the community. However, should the obsolete and unsupported Oracle WAM fail, SJWC would be unable to effectively maintain this program which prioritizes both the environment and customer health and safety.

The Water Quality department also oversees the lead service line replacement program, a critical program for both public health and regulatory compliance. SJWC must comply with lead service line verification and replacement requirements as put forth by the US Environmental Protection Agency and the Division of Drinking Water. This requires much coordination with the Surveying, Engineering, Distribution Systems, and Water Quality departments, and Oracle WAM serves as one of the central systems for data entry and storage. It has also been configured to integrate with outside sources to ensure proper and accurate management of the lead service line program. Should Oracle WAM fail, SJWC would be at risk of mismanaging this critical program, potentially leading to unaddressed lead service lines, public health and safety impact, and regulatory compliance violations.

Continuing the implementation work of HxGN EAM will also allow for more effective work performance by the Operations department and for optimized Capital Improvement

Program project prioritization. The benefits gained by the Operations department would consist of efficiencies due to streamlined work processes, increased data collection, and optimized maintenance, repair, and replacement decisions based on risk and reliability data. The Capital Improvement Program will be enhanced through optimizing project priorities and schedules enabled by real-time condition data and by leveraging cost and risk projections. Configuring HxGN EAM to optimize maintenance and capital decisions based on risk will lower the frequency of unexpected, impactful, and costly failures for many years to come.

In summary, while the continued implementation work of HxGN EAM will benefit SJWC and its customers by increasing work efficiencies and supporting risk-based decision-making, the most significant benefit is that it will address the serious risk of operating without a functioning work management system. A failure of the obsolete and unsupported Oracle WAM system would lead to mismanagement of the distribution system, water quality issues, elevated safety risk, mismanagement of the lead service line replacement program, regulatory compliance violations, and poor and unsafe service to customers. While these consequences cannot be accurately or realistically quantified, SJWC believe that they are completely unacceptable, and the magnitude of their impact makes this continued configuration work an absolute necessity. Therefore, SJWC recommends the Commission approve SJWC's proposed budget to continue the configuration and implementation of its EAM system.

Issue: Software Application Development, Index #5621

SJWC's 2024 General Rate Case (GRC) application includes a capital funding request of $580,000 in 2024, $610,000 in 2025, and $640,000 in 2026 for software application development. SJWC regularly develops software and automation tools to boost employee productivity and enhance operational excellence. This software requires ongoing development to keep up with security and feature updates of software dependencies. Additionally, SJWC has historically used this annual program to develop new software for automating infrastructure deployment.

Cal Advocates Position: (Cal Advocates Testimony, *Report and Recommendations on Capital Improvement Projects*, pg. 9-7 to 9-8)

Cal Advocates recommends the Commission authorize a reduced budget of $63,763 annually in 2024, 2025, and 2026 for a total of $191,290. Cal Advocates on page 9-8, lines 4-7

claim that only third-party costs associated with software application development should be approved and "internal hours are not supported and should not be included in rates."

SJWC Rebuttal:

SJWC recommends the Commission approve the proposed budget of $580,000 for 2024, $610,000 for 2025, and $640,000 for 2026 in customer rates for software application development. The funding recommendation from Cal Advocates is confusing, because as detailed in SJWC's response to data request SIH-001, Q.1.f, the third-party quote represents a one-year engagement with an estimated completion date of 12/31/2024. There was no documentation provided by SJWC that would have reasonably led Cal Advocates to assume the quote covered budget years 2024-2026. Based on their flawed logic that only recommended the inclusion of third-party costs and disregarded internal labor costs, Cal Advocates should have presented at minimum an annual allowance of $191,290 for 2024, 2025, and 2026.

Regarding internal labor costs, Cal Advocates creates a hypothetical labor rate and estimate of hours worked, assuming a single employee will handle all software application development. In reality, multiple SJWC staff members contribute to software application development, making Cal Advocates' calculation irrelevant. Additionally, this work by SJWC employees qualifies for capitalization, and Cal Advocates' position to exclude internal labor hours from capitalization, only recommending third-party costs, is unfounded.

Issue: Customer Bill Usage, Index #6075

SJWC proposes to redesign the format of its water bills for an improved customer experience.

Cal Advocates Position: (Cal Advocates Testimony, *Report and Recommendations on Capital Improvement Projects*, pg. 9-8)

Cal Advocates recommends the Commission deny SJWC's request to include $103,500 in 2024 customer rates associated with this project.

SJWC Rebuttal:

As presented in SJWC's response to DR SIH-001 IT Project Cost Estimates, Q.1.x, SJWC plans to add the requested $103,500 to Index 5527, Customer Information Systems rather

than pursuing it as a separate capitalized project.[112] This work is associated with redesigning the format of SJWC's water bills for an improved customer experience. The existing customer bill format was last updated in 2008 and although the bill format meets regulatory requirements, it no longer meets customer expectations for information, personalization, readability, and presentment. This is an important project for customers and SJWC recommends the Commission approve the proposed budget of $103,500 in 2024 customer rates as originally proposed, with the understanding that it will not be a standalone capital improvement project, but part of the Customer Information Systems project.

[112] Attachment 9-1 in the Attachments document included in Cal Advocates' ""Report and Recommendations on Capital Improvement Projects."

CHAPTER 10 FLEET VEHICLES

Issue: Index #181 ICE Fleet Vehicles
Cal Advocates Position: (Cal Advocates Testimony, pg. 10-3 – 10-9)

Cal Advocates recommends the Commission deny SJWC's request for $3,301,400 for two additional Internal Combustion Engine (ICE) vehicles and nine ICE medium-or-heavy duty replacement vehicles for existing staff. Cal Advocates states on page 10-3, lines 5-7 that it is "unnecessary to increase SJWC's fleet and replace useful vehicles."

SJWC Rebuttal:

SJWC recommends the Commission approve a reduced request of $3,259,800 to allow SJWC to satisfy its fleet's operational demands and comply with standards and criteria set forth in SJWC Policy VIII-20. The requested ICE vehicle replacements are needed to ensure the efficient and effective operation of SJWC's fleet and the safe and reliable drinking water service they help crews maintain. SJWC further disagrees with inaccurate statements made by Cal Advocates regarding insurance payouts on page 10-5, lines 7-9. These points are further discussed in the following sections.

A. Operational Demands Exceed Fleet Capacity

Detailed justification for SJWC's request to purchase two additional ICE vehicles was provided to Cal Advocates in DR AN9-008 and DR AN9-010 and is summarized in the below sections. These Data Requests can be found in Cal Advocates' Attachment 10-2 and Attachment 10-8 within the Attachments document included in their "Report and Recommendations on Capital Improvement Projects".

Effective security and emergency response performance is critical to maintaining a safe and reliable water distribution system and the limitations of SJWC's current fleet hinders that performance. SJWC responds to various incidents, including break-ins, arson, work violence, theft, wildland fires, and any other type of natural or man-made incident. Currently, the response is inadequately performed with one assigned administrative vehicle (Tesla Model Y) and one pool vehicle (two-wheel drive F-150). There are no other pool vehicles that have 4-wheel drive and adequate clearance, which are required capabilities to provide reliable emergency response. Cal Advocates points out on page 10-4, lines 6 and 7 that SJWC alludes to possibilities that may

occur, such as a pool car being needed yet not available as its in use by another department, however, dealing in hypotheticals does not weaken SJWC's argument. Preparing for emergency scenarios involves serious consideration of potential outcomes and planning accordingly. This is how damage and downside from emergencies are mitigated. It would be irresponsible of SJWC to only plan for events that have occurred in the past when it is known that other potential scenarios are likely to arise.

However, there are known events justifying the need for this vehicle to reference, as presented in DR AN9-010 Q.2.a. SJWC presented accounts of the emergency and security staff being unable to reach some locations during the 2023 winter storms where snow and ice were present on the road and off-road. The same year, during a watershed inspection, the team encountered a road blocked by a fallen tree. The lack of a winch package being available for the current vehicles and therefore not installed left the team unable to move the tree. They were forced to delay the inspection and undergo unsafe driving practices (i.e., reverse down a long single lane mountain road).

The Emergency Management and Security Department is responsible for the security and management of emergencies at over 280 locations, many in remote and off-road locations, and the requested budget for a Jeep Wrangler enables emergency and security staff to access these sites safely, reliably, and effectively, especially when there is an emergency, and roadways may not be accessible. The ability to access stations during emergencies enhances SJWC's ability to maintain reliable and safe drinking water for its ratepayers during natural disasters and other emergency situations that may disrupt or degrade drinking water service.

A new Ford F-250 is requested to provide a dedicated vehicle for an existing Chemical Technician. The current vehicle used is a two-door F-150 which has insufficient space to safely store the equipment required for the technician's daily tasks. Currently, the entire bed of the truck and both the space behind the seats and the passenger seat are filled with tools and equipment. There is no way to safely secure this material and a larger vehicle is needed to transport the required equipment and ensure driver safety. Furthermore, there are no F-250 pool vehicles in SJWC's fleet that could be used in place of this vehicle. Additionally, the increase in storage space on the F-250 will allow for additional salt and chemicals to be delivered, thereby reducing the number of trips, saving both fuel and time.

SJWC requests for $205,000 for the purchase and upfit of a Jeep Wrangler for security and emergency response and a Ford F-250 for chemical deliveries should be approved as these additions to the fleet will benefit ratepayers through improved service resilience and increased operational efficiency and safety.

B. Incorrect Insurance Payout Information

Cal Advocates states on page 10-5, lines 12-14 "SJWC's F-250 Valve Truck (replacement year 2024) replacement should be denied because insurance has already paid for this vehicle replacement." This statement is incorrect. SJWC Valve Truck 607 was a 2013 Ford F250 Truck with a Power Take Off (PTO) and hydraulic valve actuator. It was due for replacement based on age or mileage in 2023. At the time of the accident, the vehicle was 10 years old with a recorded mileage of 112,960, however, because of 13,001 hours of PTO use, the equivalent drivetrain and engine mileage was 390,030 miles. Had the accident not occurred, the vehicle would have been replaced based on these criteria in 2023. However, because of the long-drawn-out insurance claim, it was pushed from 2023 to 2024. SJWC was told at first that the vehicle would be totaled. However, in March of 2024, it was settled that the insurance company would cover approximately 50% of the hydraulic valve actuator but would not pay for the vehicle.

SJWC should be able to replace the vehicle as it exceeded the age or mileage requirements defined in both California Department of General Services (CDGS) and SJWC's Vehicle Policy VIII-20. SJWC received $41,590 from insurance, which will only cover the cost of 50% of the valve actuator. SJWC estimated $158,000 is required to replace an F-250 Valve Truck and therefore one of the Valve Trucks requested should be reduced to $116,400.

C. Compliance with SJWC Policy VIII-20

SJWC's decisions regarding fleet operations and replacement rates are governed by SJWC Policy VIII-20. The replacement rates defined in this policy help increase driver safety, reduce repair costs and vehicle down time, and bolster the reliability and efficiency of the fleet. The defined rates of replacement retain vehicles in SJWC's fleet longer than common state adopted practices such as those used by the California Department of General Services (CDGS)

which replaces light and medium-duty vehicles every 5-7 years or 65,000 – 85,000 miles and heavy-duty vehicles every 11 years or 115,000 miles.[113] Policy VIII-20 requires SJWC to replace light-duty vehicles after 7 years or 100,000 miles while medium and heavy-duty vehicles are subject to Director of Logistics and Procurement determination of the economic feasibility to repair and maintain them, which typically translates to a 10-12 year or 200,000 mile replacement schedule. [114]

Cal Advocates incorrectly interprets SJWC Policy VIII-20 in its argument on page 10-6, lines 7-8, in stating that "eight vehicles have yet to meet the mileage (200,000 miles) and engine hour threshold that SJWC claims to utilize. SJWC's replacement criteria is not year, mileage, "**and**" engine hrs, rather years "**or**" mileage. This policy term is aligned with the CDGS vehicle policy and has been followed by SJWC for over a decade. In SJWC's current budget request for ICE vehicle replacements all vehicles planned for replacement from 2024-2026 meet the criteria governing the CDGS vehicle replacement policy and SJWC's Policy VIII-20. This claim was validated in the documentation of vehicle age and mileage provided to Cal Advocates in response to DR AN9-008 Q.2.

SJWC's vehicle policy, like other California vehicle replacement policies, allows for replacement based on age regardless of mileage. Cal Advocates incorrectly claim on page 10-8 that age is not dispositive of a vehicle's usefulness. Older vehicles experience natural wear and tear, material degradation, and exposure to harsh environmental conditions that compromise their reliability and safety. Additionally, outdated technology and parts become harder to replace, leading to more frequent and costly repairs. Even with low mileage, the aging of essential components can lead to unexpected failures and increased maintenance needs. Additionally, because of upfitting, tools, and materials required for daily operation, most non-administrative vehicles are permanently loaded with weight close to their Gross Vehicle Weight Rating. Vehicle suspensions are not meant to be laden with weight permanently and as these vehicles age, regardless of miles driven, they become more costly to keep up and significant repairs can lead

[113] https://www.dgs.ca.gov/Resources/SAM/TOC/4100/4126

[114] Attachment 10-4 within the Attachments document included in Cal Advocates' "Report and Recommendations on Capital Improvement Projects"

to long down times and affect productivity. Many non-administrative vehicles are upfit with specialized equipment and cannot be rented and acquiring replacements requires significant lead times, therefore, running vehicles to complete failure is not prudent or practical.

By replacing vehicles based on age, SJWC can ensure that they have a reliable and efficient fleet, reducing the risk of breakdowns and delays. Additionally, newer vehicles are often more fuel-efficient and environmentally friendly, helping the fleet reduce its carbon footprint and comply with stricter emissions regulations. Finally, replacing vehicles based on age allows the fleet to take advantage of advancements in technology and safety features, ensuring that their drivers and cargo are protected.

SJWC's low vehicle maintenance costs highlighted by the Cal Advocates on page 10-7, lines 9-10 is a testament to the effectiveness of its replacement policy. Vehicles are replaced before major issues arise that are costly and disruptive to operations. Furthermore, consistent with SJWC's Policy VIII-20, if a significant fault arises with a medium or heavy-duty vehicle and it is not economical to repair, then the vehicle is replaced, therefore, it is expected to see low maintenance costs when analyzing SJWC's medium and heavy-duty vehicles.

D. Conclusion

SJWC recommends the Commission approve a reduced request of $3,259,800 to ensure the fleet meets operational demands and adheres to SJWC Policy VIII-20. The two additional and nine replacement ICE vehicles are essential for efficient fleet operations and maintaining safe, reliable drinking water service. SJWC disputes Cal Advocates' claims regarding insurance payouts and fleet adequacy, emphasizing the necessity of these vehicles for effective emergency responses and operational efficiency. Adhering to vehicle replacement based on age, as per Policy VIII-20, ensures a reliable fleet, reduces maintenance costs, and allows the integration of newer, safer technologies.

Issue: Index 5290 ICE Fleet Vehicles (New Staff)
Cal Advocates Position: (Cal Advocates Testimony, pg. 10-9 – 10-11)

Cal Advocates recommends denying SJWC's request for $1,021,200 for the purchase of three Internal Combustion Engine (ICE) vehicles for new staff, as is stated on page 10-9, lines

11-14. Within this statement, Cal Advocates recommends denying the approval of $670,000 for an additional flush truck, as is stated on page 10-10, lines 6-7, as well as $238,000 for the purchase of two ICE vehicles for new staff.

SJWC Rebuttal:

SJWC recommends the commission approve a reduced request of $941,200 for the purchase of two Internal Combustion Engine (ICE) vehicles for new staff. The roles performed by these new employees are critical to maintaining a safe and reliable drinking water service for SJWC's ratepayers and require the addition of these vehicles.

A. Flushing Truck

The NO-DES flushing truck is indispensable for reducing water quality issues. The comprehensive study conducted on SJWC's distribution system revealed a critical finding: the sediment within the pipes is hydraulically mobile. This means even minor alterations in flow direction, pressure, or source can trigger significant disruptions and result in unacceptable water quality for customers. The NO-DES flushing truck represents a proactive solution to this pressing issue by enabling precise and controlled flushing activities that mitigate the risk of sediment and other contaminants from entering the customers service while minimizing the water removed from the system. Furthermore, in addition to the NO-DES flushing truck being instrumental in addressing water quality challenges it also ensures operational resilience in the face of drought conditions. Unlike conventional flushing methods that rely on high volumes of water discharged to the storm drain system, NO-DES technology allows flushing activities to continue even during periods of water scarcity, safeguarding the integrity and reliability of SJWC's distribution system.

Title 22 section 64447 identifies proper maintenance of distribution systems and lists "main flushing programs" as part of proper maintenance. The NO-DES flushing truck aids in meeting this requirement to properly maintain the distribution system for customers. By investing in the NO-DES flushing truck, SJWC is proactively enhancing the quality of service for our customers, minimizing disruptions, and upholding our commitment to environmental stewardship. The approval of this vital asset is imperative for fulfilling our regulatory obligations and ensuring the continued delivery of safe and reliable water to our community. See rebuttal

testimony of Suzanne DeLorenzo for more information on the staffing request associated with this new vehicle request.

B. F-250 Valve Truck

A new F-250 Valve Truck for new staff is needed to allow SJWC's Distribution Systems Department to continue proactive and preventative maintenance of its water system. SJWC's Distribution Systems Department is reassigning a valve truck to its Construction Department for sole use with capital projects and hiring an additional Valve Crew employee. A new F-250 Valve Truck is needed for this new hire so the department can continue effective implementation of its valve exercising program. SJWC does not possess any F-250 pool vehicles to consider as an additional valve truck. The SJWC Distribution Systems Department has been facing challenges in maintaining its valve exercising program due to an increased demand for valve truck support in capital projects. Introducing an additional valve truck for the new Distribution System Valve Crew employee would enhance the efficiency of the valve exercising maintenance program, reduce the risk of valve failures, and minimize both replacement costs and the likelihood of service disruptions. See rebuttal testimony of Stephanie Orosco for more information on the staffing request associated with this new vehicle request.

C. Jeep Wrangler

SJWC withdraws its request for an $80,000 Jeep Wrangler for new staff as it has already requested a Wrangler for existing staff in the Emergency Management and Security Department and one additional vehicle will be sufficient.

D. Conclusion

In conclusion, SJWC urges the Commission to approve a reduced request of $941,200 for the acquisition of two Internal Combustion Engine (ICE) vehicles for new staff, vital for ensuring safe and reliable drinking water service. The NO-DES flushing truck is essential for maintaining water quality and operational resilience, especially during droughts, by enabling precise flushing activities that prevent sediment disruption. Additionally, an F-250 Valve Truck is critical for the Distribution Systems Department to maintain an effective valve exercising program, reducing the risk of valve failures and service disruptions. SJWC has withdrawn its

request for an additional Jeep Wrangler, as one vehicle for the Emergency Management and Security Department suffices.

Issue: Index 6133 Electric Fleet Vehicles
Cal Advocates Position: (Cal Advocates Testimony, pg. 10-11 to 10-21)

Cal Advocates recommends the Commission deny the infrastructure budget of $12,237,300 and instead reduce SJWC's request to $1,032,600. Cal Advocates states on page 10-12, lines 1-2 that "[r]atepayers should not pay for retiring and replacing 66 vehicles due to SJWC's imprudent Vehicle Policy" and on page 10-16, lines 10-11 that "[r]atepayers should not pay for SJWC'S transition to an all-EV fleet because SJWC will provide the same service with an exorbitant increase in ratepayer cost." Cal Advocates maintains a position that a vehicle's functionality is not determined by age or mileage, but rather "a vehicle's maintenance and repair record (page 10-12, lines 14-15)".

SJWC Rebuttal:

SJWC recommends the Commission approve a reduced request of $12,227,300 proposed to allow SJWC to meet state regulations which restrict the adoption of ICE vehicles in fleets of 50 or more vehicles, to adhere with its fleet electrification plan and sustainability goals, and to comply with standards and criteria set forth in SJWC Policy VIII-20. These points are further discussed in the following sections. Table 1 and Table 2, below, present both the requested purchase counts of EV models by year as well as their respective budget, including both unit and upfitting costs. Note that the cost for the Tesla Model 3 was reduced by $10,000 as the original cost estimate was overestimated. There was only one Tesla Model 3 requested in this GRC.

Table 5. Index 6133 Electric Fleet Vehicles. Submitted Purchase Counts by Year

EV Model	2024	2025	2026	GRC Total
Ford Lightning	11	5	9	25
Tesla Model 3	5		3	8
Tesla Model Y			1	1
MT50e	1	2	4	7
ZEV3 Transit			7	7
ZEV4 Flat Bed	1			1
ZEVO 400		21	18	39
Combilift forklift	2			2
Hyster forklift	2			2
Total	**22**	**28**	**42**	**92**

Table 6. Index 6133 Electric Fleet Vehicles. Reduced Budget by Year

EV Model	Unit Cost	Upfitting	2024	2025	2026	GRC Total
Ford Lightning	$84,000	$7,640	$979,000	$478,000	$834,000	$2,291,000
Tesla Model 3	$65,000	$1,000	$330,000	$0	$198,000	$528,000
Tesla Model Y	$55,000	$1,000	$0	$0	$56,000	$56,000
MT50e	$240,000	$64,000	$304,000	$608,000	$1,216,000	$2,128,000
ZEV3 Transit	$145,000	$64,000	$0	$0	$1,463,000	$1,463,000
ZEV4 Flat Bed	$250,000	$90,000	$340,000	$0	$0	$340,000
ZEVO 400	$80,000	$15,000	$0	$1,995,000	$1,710,000	$3,705,000
Combilift forklift	$98,000	$0	$196,000	$0	$0	$196,000
Hyster forklift	$124,000	$0	$248,000	$0	$0	$248,000
Total Construction Cost			$2,397,000	$3,081,000	$5,477,000	$10,955,000
Contingency (2%)			$48,000	$61,600	$109,700	$219,300
Total Estimated Cost with 4% Annual Escalation			**$2,542,800**	**$3,399,000**	**$6,285,500**	**$12,227,300**

A. Regulatory Alignment

a. Compliance with California State Regulations

Cal Advocates contends on page 10-19, lines 14-17 and page 10-20, line 1 that California state regulations do not require utilities to transition to EV fleets. This statement is incorrect. On January 1, 2024, the Advanced Clean Fleets (ACF) regulation from the California Air Resource Board (CARB) went into effect which require fleets of 50 or more vehicles purchase only zero emission vehicles (ZEVs).[115] SJWC's fleet exceeds 50 vehicles and therefore must prepare to replace its ICE vehicles with electric vehicles (EVs) wherever possible to remain compliant. The ACF regulation allows for ZEV purchase exemptions in cases where a ZEV is not available in the needed configuration (i.e., the payload, driving range, and/or customization required for the vehicle to perform its daily duties is not available).[116] Therefore, some medium and heavy-duty vehicles in SJWC's fleet are still planned for replacement with an ICE vehicle. However, state regulations require the transition of ICE fleets to EV by 2035, and SJWC's proposed budget is in alignment with this state required transition. Cal Advocate's proposal on page 10-21, lines 12-13 for SJWC to "replace 24 of the 90 vehicles requested with comparable ICE vehicles" will violate state regulations. SJWC's compliance with the ACF regulation requires replacement of ICE vehicles with ZEV's as proposed.

b. Compliance with SJWC Policy VIII-20

Cal Advocates contend on page 10-12 that SJWC should not be able to retire based on Policy VIII-20. Cal Advocates again incorrectly ascertains that age is not dispositive of a vehicle's usefulness. Older vehicles experience natural wear and tear, material degradation, and exposure to harsh environmental conditions that compromise their reliability and safety. Additionally, outdated technology and parts become harder to replace, leading to more frequent and costly repairs. Even with low mileage, the aging of essential components can lead to unexpected failures and increased maintenance needs. Furthermore, age is used as a replacement

[115] https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary

[116] https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-exemptions-and-extensions-overview

criterion by CDGS. Cal Advocates' stance on page 10-12, lines 8-9 and page 10-13 line 9 that age and mileage are not dispositive of a vehicle's usefulness, as well as its concluding remarks on page 10-22, lines 17-18 directly conflict with the standards followed by state operated fleets.

All vehicles planned for replacement in the 2024-2026 GRC application should be approved for replacement as they have been shown to exceed the minimum age criteria for replacement as defined in SJWC Policy VIII-20. Appendix B in the justification for Index 6133 on page 1,908 of the Exhibit G, Appendix 1 Capital Improvement Project and Program Justification Appendices shows the age and mileage for vehicles planned for replaced with EVs.

A common claim in Cal Advocates' testimony is that SJWC's Vehicle Policy emphasizes an early retirement of "useful" vehicles, however they fail to acknowledge that SJWC uses a higher age and mileage criteria for replacement than CDGS. Cal Advocates further cites a report on page 10-12, lines 15-17 that "the average age of passenger cars and light trucks in the US have risen to a new record of 12.5 years". This statement fails to recognize there is a difference in the operational requirements for utility fleet vehicles and the average vehicle on the street. SJWC's fleet vehicles are loaded with much greater weight and are in operation more frequently than an average passenger car or light truck. As discussed previously, operating vehicles near their GVWR puts additional strain on the vehicle and increases the importance of replacing at a set age threshold to prevent expensive repairs and unexpected downtime.

Also outlined in Policy VIII-20, is the requirement that SJWC replace vehicles in accordance with its fleet electrification plan which calls for replacement of ICE vehicles with EVs where suitable EV alternatives can be procured, which aligns with the California Advanced Fleet Regulation. The EVs recommended in the fleet electrification plan are reviewed frequently and as more suitable EVs are found available on the market, they may be secured in place of those originally recommended. The EVs selected to replace current ICE vehicles due for replacement in this GRC represent the best EV alternative determined from a careful review of vehicle driving range, payload capacity, size, and cost.

Cal Advocates asserts on page 10-13 lines 1-4 that SJWC does not need to replace vehicles at predetermined age thresholds because there are vehicles in its fleet that exceed the expected retirement year. The presence of vehicles older than their anticipated retirement year does not indicate SJWC is confident that these vehicles will be functional for longer than the defined replacement criteria. Rather this is a result of the COVID-19 pandemic. Disruption of

supply chains, reduced operational activity, and work from home conditions all contributed to a delay in vehicle replacement. Furthermore, SJWC's commitment to its greenhouse gas emission reduction goals and plans to electrify its fleet led to a delay in replacement schedules as SJWC waited for more suitable electric vehicles to come to market.

Cal Advocates incorrectly interprets Policy VIII-20 when they assert on page 10-14, lines 5-7 that pool and service vehicles are driven for personal use. Only administrative and executive vehicles are allowed for personal use and the administrative vehicles can only be driven up to 3,500 miles for personal use, not including commute miles. SJWC fleet contains seven executive vehicles.

c. Compliance with the CPUC's Environmental and Social Justice Action Plan

The CPUC's 2022 Environmental and Social Justice (ESJ) Action Plan emphasizes the need to address pollution burdens and promote clean energy solutions in disadvantaged communities. The #2 stated goal within the 2022 ESJ Action Plan is to increase investment in clean energy resources to benefit ESJ communities, especially to improve local air quality and public health.[117] With 34% of SJWC's service area being defined as ESJ communities, the required transition to an EV fleet directly supports the Commission's stated ESJ goals of increasing investment in clean energy resources. Cal Advocates stance on page 10-20, lines 10-11 that "The commission should deny SJWC's EV fleet transition and only authorize ICE replacement vehicles into customer rates" directly conflict with this stated CPUC goal of amplifying investment in clean energy resources.

d. Support from Additional Policies:

Assembly Bill 32 (AB 32) - The Global Warming Solutions Act of 2006, mandates a reduction in greenhouse gas emissions to 1990 levels by 2020 and further reductions beyond 2020. AB 32 laid the foundation for California's comprehensive approach to addressing climate

[117] https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/news-office/key-issues/esj/esj-action-plan-v2jw.pdf

change. The transition of an ICE vehicle fleet to EV promotes the reduction of greenhouse gas emissions.

Assembly Bill 617 (AB 617) - Community Air Protection Program, focuses on reducing air pollution in disadvantaged communities through the adoption of best available retrofit control technologies and new emissions standards. The transition of an ICE vehicle fleet to EV collectively promotes the reduction of greenhouse gas emissions, increased use of renewable energy, and enhanced air quality.

B. Environmental Benefits

The State of California has recognized that greenhouse gas emissions pose a serious threat to public and environmental health. ZEV's and EV's present an opportunity to reduce these emissions which have direct benefits to communities. Cal Advocates assumption on page 10-16, lines 13-14 that "transitioning to an all-EV fleet does not provide an added service benefit to ratepayers" is misinformed and incorrect. The transition of an ICE fleet to an EV fleet provides direct benefits to ratepayers in the reduction of greenhouse gas emissions and their subsequent effects on air quality and public health. Cal Advocates' stance of ICE vehicles being an equal, if not better, alternative to ZEV's and EV's fails to address the innumerable disadvantages that ICE vehicles place on the built and natural environment. As previously discussed, SJWC is proactively in support of and working with the stated goals in the CPUC ESJ Action Plan which calls for increased investment in clean energy resources, as well as internal sustainability goals. By suggesting the continued incorporation of ICE vehicles in a fleet, Cal Advocates is further distancing itself from state regulations mandating the incorporation of EV's into fleets in consideration of greenhouse gas emissions, the CPUC's efforts to reduce these emissions, and public calls to reduce a reliance on ICE vehicles. If followed, Cal Advocates' suggestion to not only keep ICE vehicles within SJWC's fleet, but to further purchase ICE vehicles instead of EV alternatives, will lead to noncompliance with CARB regulations which can result in large fines, inability to register vehicles with the Department of Motor Vehicles, and even loss of ability to operate in the state of California.

C. Benefit to Customers

Cal Advocates maintains the position within their testimony that a transition to an EV fleet will not provide added benefits to customers while increasing ratepayer cost, as is stated on page 10-16, lines 10-12. As previously discussed, there are state regulations mandating the transition to an EV fleet and environmental components directly benefiting customers in the incorporation of EV's into SJWC's fleet which would be aligned with efforts to amplify renewable energy alternatives for utilities as stated in the CPUC's ESJ Action Plan goal #2. Furthermore, as stated on page 664 of the Capital Improvement Project and Program Justification, the financial and environmental benefits associated with SJWC electrifying its fleet are substantial. According to page 6-1 in the 2022 Fleet Electrification Plan[118] conducted for SJWC, over 10 years, SJWC is projected to save over $4,320,300 in maintenance and operational costs and annually reduce CO2 emissions by more than 1,200 metric tons through the electrification of its fleet.

D. Insufficient Alternatives

Cal Advocate's insistence on finding suitable ICE alternatives to the requested EV model is not aligned with these regulations and benefits. Despite their calls for less expensive alternatives to the requested EV model, and as was discussed in detail through Data Request AN9-001, alternatives to the requested Tesla Model Y, Ford Lightning, and Zevo 400 with a Chevy Bolt, an ICE equivalent, and Ford E-Transit, respectively, are insufficient due to their reduced technological advancement, recent recalls, limited range and space, and inability to tow a trailer hitch for small trailers.

E. Cost Assessments

As was also called out on page 10-16, lines 14-15, Cal Advocate's statement that an "EV replacement may cost 2 to 3 times as much as SJWC's current ICE vehicle" is not correct. The following statement by the California Air Resources Board (CARB) is provided to further inform

[118] Page 1911, Capital Improvement Project and Program Justification Appendices, Appendix C -2022 Fleet Electrification Plan

Cal Advocates on the benefits to customers, the environment, and operating costs for a utility with an EV fleet:

> "Zero-emission trucks have lower operating and maintenance costs than conventional trucks which can help offset the higher initial purchase price." [119]

F. Conclusion

SJWC believes that its current approach provides benefit to its ratepayers while complying with state regulatory requirements, company policies, the CPUC's ESJ Action Plan and supporting Assembly Bills calling for the mandated reduction in greenhouse gas emissions and air pollution in disadvantaged communities. SJWC recommends the Commission's approval of the reduced budget of $12,227,300.

Issue: Index #6324 Electric Vehicle Fleet (New Staff)

SJWC must purchase needed equipment for new staff positions, including one Field Service Supervisor, one Water Quality Inspector, one Distribution System Supervisor, and one Leak Detection Technician. Electric Vehicles (EVs) must be purchased for new staff wherever possible as SJWC must electrify its fleet to meet state regulations restricting the adoption of internal combustion engine vehicles (ICE), remain aligned with SJWC vehicle policy, and meet SJWC's sustainability goals.

Cal Advocates Position: (Cal Advocates Testimony, pg. 10-21 to pg. 10-22)

Cal Advocates asserts that no new staff should be hired and therefore no new vehicles will be necessary. They further state that SJWC has not justified expanding its fleet by failing to identify deficiencies in the current fleet and by not providing tangible benefits. Cal Advocates suggests reassigning pool vehicles as a better alternative.

SJWC Rebuttal:

SJWC recommends the Commission approve the reduced budget request of $711,600. Note that the cost for the Tesla Model 3 was reduced by $10,000 as the original cost estimate

[119] https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary

was overestimated. There was only one Tesla Model 3 requested for new staff in this GRC. See rebuttal testimony of Stephanie Orosco for more information on the staffing request associated with the Field Service Supervisor and the Distribution System Supervisor. See rebuttal testimony of Suzanne DeLorenzo for more information on the staffing request associated with the Water Quality Inspector. See rebuttal testimony of Jake Walsh for more information on the staffing request associated with the Leak Detection Technician. The addition of these employees directly addresses existing deficiencies and will provide tangible benefits to customers.

SJWC recommends purchasing EVs instead of ICE vehicles for these new staff positions in accordance with its fleet electrification plan. SJWC is electrifying its fleet to meet state regulations, achieve its fleet electrification plan and sustainability goals, to comply with SJWC Policy VIII-20, and in support the CPUC's Environmental and Social Justice (ESJ) Action Plan.[120]

Cal Advocates suggests on page 10-22, line 9, that SJWC has "better alternatives" to purchasing EVs for new staff, "such as reassigning pool vehicles." However, reassigning pool vehicles is not a viable alternative. First, the type of vehicle must match the position, ensuring appropriate features for required tasks. For example, the Leak Detection Technician requires a specialized vehicle set up and a Freightliner MT50e is proposed for that position. No pool vehicles are like the Freightliner MT50e, and so reassignment would not be appropriate and would prevent the Leak Detection Technician from being able to perform their required duties. This is again the case for the Water Quality Inspector vehicle, which is a specialized van with racking for coolers and testing equipment. The Field Service Supervisor and the Distribution System Supervisor positions are administrative roles and to remain aligned with SJWC's Vehicle Policy (VIII-20) and consistent across administrative employees, a new vehicle needs to be assigned. Furthermore, pool vehicles are assigned to various departments and are regularly used by staff that are not assigned a vehicle but need to drive to a SJWC station or facility to perform their duties. SJWC cannot reassign a pool vehicle as a permanent vehicle for an employee as this

[120] CPUC, "Environmental and Social Justice Action Plan" (2022), https://www.cpuc.ca.gov/news-and-updates/newsroom/environmental-and-social-justice-action-plan.

would hinder the ability of the staff at the department now missing a pool vehicle to travel offsite to conduct their responsibilities.

SJWC recommends the Commission approve the reduced budget of $711,600 for the Electric Vehicle Fleet for New Staff. The new staff positions are required positions which address clear deficiencies and ratepayers will benefit from these resources. The new staff must be provided with adequate equipment to successfully complete their duties, and electric vehicles are appropriate for these positions. Purchasing electric vehicles for these new staff is a prudent decision.

CHAPTER 11 CLEAN AND ALTERNATIVE ENERGY PROJECTS

Issue: McKean Station Solar System, Index #6198

McKean Station is a 1.58-acre water storage facility serving SJWC's Cheim Zone, situated within Calero County Park and adjacent to the Rancho San Vicente Open Space Preserve. Due to its remote location, there is no PG&E power available at this site. The station consists of a 1 MG welded steel water storage tank and is one of two sites identified in Exhibit G, Capital Improvement Project and Program Justifications, pg. 151-165 as needing a disinfectant residual management system. Installing a disinfectant residual management system was determined by SJWC to be a prudent and beneficial option for its customers to address and eliminate water quality and health and safety risks. To provide the necessary power supply, given the absence of PG&E power at the site, the McKean Station Solar System project was recommended by SJWC.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 11-8 to 11-13)

Cal Advocates asserts on page 11-2, lines 10-12 and page 11-3, line 1 of their Report and Recommendations on Capital Improvement Projects, that because the McKean Station Solar System project does not offset electricity costs or provide energy savings it should be denied.

SJWC Rebuttal:

SJWC recommends the Commission approve the proposed McKean Station Solar System project and its associated budget. The McKean site lacks PG&E power, making discussions on offsetting electricity costs or generating savings for customers irrelevant. The disinfectant residual management system at McKean Station requires a reliable power source. Therefore, SJWC seeks funding to install a solar power generation system to meet the energy needs of this critical water quality infrastructure.

Issue: All-Electric Vehicle Fleet Infrastructure: Index #5993 Electric Vehicle Charging Stations

SJWC must electrify its fleet to meet state regulations restricting the adoption of internal combustion engine vehicles (ICE), remain aligned with SJWC vehicle policy, and meet SJWC's sustainability goals. An electric fleet necessitates SJWC installing on-site electric vehicle (EV) charging infrastructure to operate its fleet efficiently and reliably. Table 1 presents the breakdown of expected costs by year.

Table 7. Cost Breakdown by Year

	2024	2025	2026	Total
Index #5993 Electric Vehicle Charging Stations	$2,263,900	$2,187,700	$2,187,600	$6,639,200

Cal Advocates Position:

Cal Advocates recommends that the Commission reject SJWC's proposed EV charging station budget of $6,639,200, as stated on page 11-1, lines 18-19. Cal Advocates states that SJWC did not provide an accurate "Do Nothing" alternative analysis and that SJWC does not need additional EV charging stations since the current fleet contains only 30 EVs, not the proposed 66, as stated on page 11-6, lines 4-12. Cal Advocates further recommends the denial of an EV charging station budget due to the unreasonable proposition of an EV fleet and the subsequent lack of need for charging infrastructure, noted on page 11-6, lines 13-15.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed due to state regulations requiring the transition of ICE fleets to EV's, and the necessity to have reliable charging infrastructure to support this transition. SJWC's current charging infrastructure will be insufficient to support the anticipated arrival of the required EV fleet. Failing to install additional charging infrastructure to support SJWC's electrified fleet would leave SJWC's field staff and operators dependent on limited third-party charging infrastructure. The provision of the requested budget for charging infrastructure would decrease SJWC's carbon footprint, decrease operational costs, and amplify fleet operators' ability to maintain reliable and safe water service across the system. These points are further discussed in the following sections.

A. Operational Efficiency

Although there are hundreds of public charging stations in San Jose, there are many disadvantages to relying on them. First, public chargers are offsite, therefore, drivers must commute to chargers and wait for the vehicle to charge. Depending on the speed of the charger and the battery capacity of the EV, charging may take hours. Since vehicles would be out of use during their charging time, employee's dependent on this vehicle would be unable to perform other critical tasks or respond to an emergency while waiting for the vehicles to charge and if unattended, vehicles are subject to potential theft and/or damage. Secondly, the number (i.e., 1 to 25) and types of chargers at each station varies, they cannot be reserved, and are limited to light-duty vehicles due to space constraints. Consequently, the capacity, model, and parking space of chargers at any given charging location will be insufficient for all EVs in the fleet. Not only is using third party chargers inefficient but it increases the time drivers are unable to perform other important duties. Lastly, relying on third party, off premise chargers leaves SJWC vulnerable to emergency electrical outages as public charging stations don't typically have a source of backup power. SJWC's fleet needs the ability to charge vehicles at will to dispatch them into the field for both normal and emergency work.

B. Regulatory Alignment

As stated on page11-6, lines 14-15, Cal Advocates' stance that an "EV fleet is unreasonable therefore the infrastructure necessary to support the EV fleet is also unreasonable" denies SJWC the ability to meet state regulations requiring the transition of utility fleets to EV. Cal Advocates' verbiage presented under 10-19, lines 14-17 and page 10-20, line 1 that California state regulations do not require utilities to transition to EV fleets is incorrect. On January 1, 2024, the Advanced Clean Fleets (ACF) regulation from the California Air Resource Board (CARB) went into effect which require fleets of 50 or more vehicles purchase only zero emission vehicles (ZEVs).[121] SJWC's fleet exceeds 50 vehicles and therefore must prepare to replace its ICE vehicles with electric vehicles (EVs) wherever possible to remain compliant. Noncompliance with CARB regulations can result in fines, inability to register vehicles with the

[121] https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary

Department of Motor Vehicles, and even loss of ability to operate in the state of California.[122] Cal Advocates' incorrect stance is assumed to have informed their decision to recommend denial of the requested funds for both EV infrastructure and vehicles. However, as noted, SJWC must transition to an EV fleet, as is required by state mandate. Thus, "EV infrastructure necessary to support the EV fleet", as was stated by Cal Advocates, will also be needed. Denial of funding for an EV fleet will restrict SJWC to comply with state mandates, among other restrictions presented in SJWC's response to Issue: Exhibit G, Capital Improvement Project and Program Justifications, pg. 660-666 and Exhibit G, Appendix 1 Capital Improvement Project and Program Justification Appendices, pg. 1905-1996. It then follows that the denial of necessary infrastructure to support an EV fleet will severely impact SJWC's ability to meet state regulation while prioritizing operational efficiency, reliability, staff safety, and ability to deliver clean and safe drinking water to customers, as discussed previously.

Issue: Three Mile Station Battery Energy Storage System, Index #6189[123]

Three Mile Station is an SJWC groundwater production facility collocated with operational and maintenance employee buildings in the City of San José (CSJ). The station serves as SJWC's main operational headquarters where fleet vehicles are stored and dispatched. The existing electric service to Three Mile Station lacks the necessary capacity and infrastructure to support the planned EV chargers and therefore, a secondary electric service from Pacific Gas and Electric (PG&E) is proposed at Three Mile Station. The new PG&E service at Three Mile Station will be isolated from the existing service and generator and therefore must have a connection to a new backup power source to ensure charging capabilities in the case of an electrical outage. SJWC proposed to install a battery energy storage system (also referred to interchangeably as a BESS) rather than a diesel generator, because of environmental benefits, regulatory alignment, and reduced operational costs.

[122] https://ww2.arb.ca.gov/resources/documents/enforcement-policy

[123] A.24-01-001, SJWC *Capital Improvement Project and Program Justification*, PDF pg. 667-676 and SJWC *Appendix 1 Capital Improvement Project and Program Justification*, pg. 1997-2001

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 11-1 to 11-8)

Cal Advocates recommends the Commission deny the infrastructure budget of $5,371,400 for a battery energy storage system at Three Mile Station. They state on page 11-1, lines 18-20 that the Commission should "[d]eny SJWC's transition to an all-EV fleet, thus denying … Index #6189 Three Mile Station Backup Energy Storage System." The rationale as stated on page 11-7, lines 6-9, is that "the status quo is a superior cost-effective alternative." Additionally, Cal Advocates asserts on page 11-7, lines 16-17 that, "[c]urrently, in emergencies it is unlikely that its existing EVs are necessary for a response…" and then suggests on page 11-8, lines 1-2 that electric vehicles and electric vehicle infrastructure are unnecessary assets.

SJWC Rebuttal:

SJWC recommends that the Commission approve the battery energy storage system project at Three Mile Station and its associated infrastructure budget, as initially proposed. While acknowledging that fleet electrification and its necessary infrastructure, such as this battery energy storage system, are more expensive than a traditional fleet of Internal Combustion Engine (ICE) vehicles, SJWC emphasizes that Cal Advocates' cost-based rationale overlooks key regulatory requirements and environmental benefits. The following sections elaborate on the alignment with regulatory mandates and the significant environmental advantages of this project.

A. Regulatory Alignment

1. **CARB Advanced Clean Fleet –** As discussed in SJWC's rebuttal to Issue: All-Electric Vehicle Fleet Infrastructure: Index #5993 Electric Vehicle Charging Stations, as of January 1st, 2024, fleets over 50 vehicles, such as SJWC's, must purchase ZEVs where possible to remain compliant with CARB regulations. Therefore, Cal Advocates' statement on page 11-1, lines 18-20 that the Commission should "[d]eny SJWC's transition to an all-EV fleet, thus denying … Index #6189 Three Mile Station Backup Energy Storage System" ignores the state mandates that SJWC must follow to remain compliant. Based on the Advanced Clean Fleet regulations, SJWC must acquire ZEVs and therefore it is essential that SJWC also acquire the supporting charging infrastructure and backup power for said infrastructure to maintain a reliable and effective fleet.

2. **Assembly Bill 32 (AB 32)** - The Global Warming Solutions Act of 2006 mandates a reduction in greenhouse gas emissions to 1990 levels by 2020, with further reductions beyond 2020. AB 32 established a comprehensive framework for addressing climate change in California.
3. **2022 Environmental and Social Justice (ESJ) Action Plan** – The CPUC's 2022 ESJ Action Plan aims to address pollution burdens and promote clean energy solutions in disadvantaged communities. The second goal of the plan is to increase investment in clean energy resources to benefit ESJ communities, improve local air quality, and enhance public health. SJWC's Three Mile Station is located across the street from the boundary of an ESJ community. Due to proximity, it is reasonable to assume that any greenhouse gas emission reduction at Three Mile Station associated with an electric fleet and a battery energy storage system would directly benefit an ESJ community and be in alignment with the 2022 ESJ Action Plan.
4. **Assembly Bill 617 (AB 617)** - This bill focuses on reducing air pollution in disadvantaged communities through the adoption of the best available retrofit control technologies and new emissions standards.
5. **Assembly Bill 2514 (AB 2514)** – This bill mandates procurement targets for energy storage systems, encouraging the adoption of battery energy storage systems to enhance grid reliability and reduce emissions. The proposed battery energy storage system at Three Mile Station would provide backup power during grid outages without the emissions and maintenance issues associated with diesel generators. Furthermore, a battery energy storage system allows Three Mile Station to store and use renewable energy provided through community choice aggregate, San Jose Clean Energy's GreenSource rate plan.[124] This use of 60% renewable energy and reduction in emissions supports climate resiliency and aligns with SJWC's commitment to reduce greenhouse emissions by 50% from 2019 to 2030.[125]

[124] https://sanjosecleanenergy.org/greensource/

[125] https://www.sjwater.com/corporate-sustainability-reports

B. Environmental Benefits

1. Reduction of Greenhouse Gas Emissions

Diesel generators emit significant amounts of CO_2 and other pollutants. According to the U.S. Environmental Protection Agency, diesel engines are major sources of emissions such as nitrogen oxides and particulate matter, which contribute to environmental and health problems. In contrast, the Three Mile Station battery energy storage system, which will be charged with 60% renewable energy, has negligible emissions, supporting California's goals to reduce greenhouse gases as outlined in the CARB Climate Change Scoping Plan[126].

2. Air Quality Improvement

The use of diesel generators contributes to local air pollution, affecting community health and air quality. The Office of Environmental Health Hazard Assessment (OEHHA) has documented the adverse health effects associated with diesel exhaust, including respiratory issues, cardiovascular diseases, and an increased risk of cancer.[127] Diesel exhaust contains a complex mixture of gases and fine particles that are known to be toxic. According to OEHHA, exposure to diesel particulate matter is a significant health concern, particularly in vulnerable populations. Replacing diesel generators with a battery energy storage system, which has no onsite emissions, offers a cleaner alternative that can substantially reduce these health risks and improve air quality in affected communities.

C. Emergency Response Related to Existing Electric Vehicles (EVs)

Cal Advocates' assertion that "[c]urrently, in emergencies it is unlikely that its existing EVs are necessary for a response, such as spare pool vehicles, IT, Mail Room, and Administration EVs" shows a lack of understanding of emergency logistics, especially in the Bay Area, where the threat of a major earthquake is significant. When SJWC activates its Emergency Operations Center following a major event, the company will deploy resources and assets as

[126] https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf

[127] https://oehha.ca.gov/air/health-effects-diesel-exhaust#:~:text=Like%20all%20fuel%2Dburning%20equipment,lung%20diseases%2C%20such%20as%20asthma.

needed. In the event of a major earthquake, all available resources, including electric vehicles from various departments (such as IT, Mail Room, and Administration), will be repurposed, or deployed to support emergency operations. A reliable backup power source that allows SJWC's fleet to operate continuously during power outages is vital for maintaining water supply, conducting repairs, and supporting community needs during emergencies.

Conclusion

Given the regulatory alignment and substantial environmental benefits, it is appropriate for the Commission to approve SJWC's plan to electrify its fleet and install the necessary infrastructure, including a battery energy storage system at Three Mile Station. This approval supports California's climate goals, is aligned with the CPUC's 2022 ESJ Action Plan, and ensures that SJWC can maintain reliable operations and emergency response, ultimately benefiting the ratepayers.

Issue: Williams Road Back Station Backup Battery Energy Storage System, Index #6263[128]

The Williams Road Back Station is a critical groundwater facility that can pump up to 15.1 MGD of chloraminated water to about 45,000 customers in five different pressure zones. The station relies on a dedicated electric service from PG&E and a backup generator to ensure an uninterrupted water supply in case of power outages. The existing generator, installed in 1996, is outdated and is proposed by SJWC for replacement with a battery energy storage system to maintain reliable backup power and water service.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 11-8 to 11-13)

Cal Advocates states on page 11-9, lines 1-2 that "SJWC's Williams Station Back Station's (Williams Station) backup generator has reached its useful life and should be replaced." However, Cal Advocates recommends that the Commission approve a reduced project budget of $1,242,133 in 2025 to replace the existing 650-kW diesel generator with an in-kind diesel

[128] A.24-01-001, SJWC *Capital Improvement Project and Program Justification*, PDF pg. 712-721 and SJWC *Appendix 1 Capital Improvement Project and Program Justification*, pg. 2015-2021

generator instead of a battery energy storage system as recommended by SJWC. Cal Advocates asserts that a battery energy storage system is unnecessarily costly and is an inferior alternative.

SJWC Rebuttal:

SJWC recommends the Commission approve a replacement of the Willliams Road Back Station diesel generator with a battery energy storage system and the budget as originally proposed. While acknowledging a battery energy storage system is a higher initial cost option when compared to a traditional diesel generator, this request is grounded in regulatory alignment, significant environmental benefits, superior operational benefits, and the need to future-proof investments. These points are further discussed in the following sections.

A. Regulatory Alignment

1. Compliance with the CPUC's Environmental and Social Justice Action Plan

The CPUC's 2022 Environmental and Social Justice (ESJ) Action Plan emphasizes the need to address pollution burdens and promote clean energy solutions in disadvantaged communities. The #2 stated goal within the 2022 ESJ Action Plan is to increase investment in clean energy resources to benefit ESJ communities, especially to improve local air quality and public health.[129] The Williams Road Back Station is located entirely within an ESJ community and is a clean energy resource. Replacing a diesel generator with a battery energy storage system at Williams Road Back Station directly supports the Commission's stated ESJ goals.

2. Support from Additional Policies

Assembly Bill 32 (AB 32) - The Global Warming Solutions Act of 2006, mandates a reduction in greenhouse gas emissions to 1990 levels by 2020 and further reductions beyond 2020. AB 32 laid the foundation for California's comprehensive approach to addressing climate change.

Assembly Bill 617 (AB 617) - Community Air Protection Program, focuses on reducing air pollution in disadvantaged communities through the adoption of best available retrofit control technologies and new emissions standards. As noted, the Williams Road Back Station is located

[129] https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/news-office/key-issues/esj/esj-action-plan-v2jw.pdf

entirely within an ESJ community. These policies collectively promote the reduction of greenhouse gas emissions, increased use of renewable energy, and enhanced air quality.

Assembly Bill 2514 (AB 2514) - Energy Storage Systems, mandates procurement targets for energy storage, encouraging the adoption of battery energy storage systems to enhance grid reliability and reduce emissions. By using batteries, backup power can be provided during emergency grid outages without the harmful emissions and resource-intensive maintenance associated with large diesel generators. Furthermore, a battery energy storage system allows Williams Road Back Station to store and use renewable energy provided through community choice aggregate, San Jose Clean Energy's GreenSource rate plan.[130] This use of 60% renewable energy and reduction in emissions supports climate resiliency and aligns with SJWC's commitment to reduce greenhouse emissions by 50% from 2019 to 2030.[131]

B. Environmental Benefits

1. Reduction of Greenhouse Gas Emissions

Diesel generators emit significant amounts of CO_2 and other pollutants. According to the U.S. Environmental Protection Agency (EPA), diesel engines are major sources of emissions such as nitrogen oxides (NOx) and particulate matter (PM), which contribute to environmental and health problems. In contrast, the Williams Road Back Station battery energy storage system, which will be charged with 60% renewable energy, has negligible emissions, supporting California's goals to reduce greenhouse gases as outlined in the California Air Resources Board's (CARB) Climate Change Scoping Plan[132].

2. Air Quality Improvement

The use of diesel generators contributes to local air pollution, affecting community health and air quality. The Office of Environmental Health Hazard Assessment (OEHHA) has documented the adverse health effects associated with diesel exhaust, including respiratory

[130] https://sanjosecleanenergy.org/greensource/

[131] https://www.sjwater.com/corporate-sustainability-reports

[132] https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf

issues, cardiovascular diseases, and an increased risk of cancer.[133] Diesel exhaust contains a complex mixture of gases and fine particles that are known to be toxic. According to OEHHA, exposure to diesel particulate matter (PM) is a significant health concern, particularly in vulnerable populations. Replacing diesel generators with a battery energy storage system, which has no onsite emissions, offers a cleaner alternative that can substantially reduce these health risks and improve air quality in affected communities.

C. Operational Benefits

1. Immediate Response and Reliability

A battery energy storage system delivers instantaneous power, ensuring a seamless transition during outages. In contrast, diesel generators require a start-up period before they can provide power. This immediate response capability enhances the reliability of SJWC's distribution system within the Cox, More, Prospect, Regnart, and Vickery Pressure Zones. These zones, partially supplied by the Williams Road Back Station, include about 5,800 services (approximately 27,500 people) identified as part of an ESJ community.

Cal Advocates contend on page 11-12, lines 3-5 that the 6-hour backup power duration of the proposed battery energy storage system is inferior to that of a diesel generator. However, the battery energy storage system is precisely sized to match the calculated duration of energy provided from the generator when fully fueled. SJWC anticipates that a 6-hour backup power supply at Williams Road Back Station is sufficient, making the assertion of this being a critical limitation incorrect.

2. Reduced Maintenance and Operational Costs

While the initial cost of a battery energy storage system is higher, its maintenance costs are significantly lower. Unlike diesel generators that necessitate regular fuel deliveries, oil changes, and weekly inspection, battery energy storage systems require minimal upkeep, leading to substantial operational savings over time.

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[133] https://oehha.ca.gov/air/health-effects-diesel-exhaust#:~:text=Like%20all%20fuel%2Dburning%20equipment,lung%20diseases%2C%20such%20as%20asthma.

Cal Advocates states on page 11-10, lines 11-13 that "[a]ccording to SJWC's generator contractor, rather than SJWC's weekly generator inspections, SJWC should reduce its operational testing by a quarter, every 30 days." While this recommendation may be suitable for certain generator applications that are unrelated to the reliable delivery of potable water, it does not align with SJWC's programmatic approach to the inspection and maintenance of its stations. SJWC has determined that a month is too long to go without detecting and addressing issues. Generators are crucial emergency backup assets, and SJWC considers weekly inspections and maintenance activities essential to ensure generators operate when needed, detect leaks, and prevent unnecessary shutdowns.

Furthermore, the National Fire Protection Association (NFPA) underlines the critical role of weekly inspections in maintaining the reliability and readiness of emergency power systems. SJWC aligns with the NFPA 110 Standard and adheres to the strict guidelines. Any deviation from these standards could potentially compromise the dependability of SJWC's emergency power systems. The current weekly inspection and maintenance scheme reflects SJWC's commitment to eliminating any potential risks and ensuring public health and safety.

Additionally, Cal Advocates raises concerns about the maintenance schedule of a battery energy storage system on page 11-12, lines 15-21 and page 11-13, lines 1-4. SJWC is committed to ensuring the highest reliability and performance standards for its backup power systems, including the proposed energy storage system at Williams Road Back Station. The suggestion by Cal Advocates that SJWC will not conduct adequate testing and maintenance of the battery energy storage system to ensure reliability of the unit is unfounded and misinformed.

The battery energy storage system at SJWC will be equipped with monitoring and diagnostic systems that continuously check the health and performance of the batteries. These systems provide real-time data and alerts, allowing for immediate detection and resolution of potential issues. Additionally, visual inspections and coolant refills are part of a comprehensive maintenance plan that also includes software diagnostics and remote monitoring. The 15-year comprehensive preventative maintenance plan, which is required to validate the warranty, will be administered through Stem US Operations, Inc. and ensures all recommended maintenance tasks will be performed in a timely manner and additionally frees up SJWC staff for other critical tasks throughout the system. The monitoring and diagnostic systems coupled with the comprehensive

maintenance plan ensure that any anomalies are identified and addressed promptly, reducing the need for frequent physical inspections.

D. Future-Proofing Investments

As environmental regulations become more stringent, diesel generators face increased scrutiny and higher compliance costs. A battery energy storage system, by contrast, is inherently aligned with regulatory trends favoring low-emission and renewable energy technologies. This alignment minimizes the risk of future regulatory penalties and ensures ongoing compliance with state and federal mandates.

Conclusion

SJWC and Cal Advocates agree that the existing 650-kW diesel generator should be replaced. While the upfront cost of SJWC's proposed battery energy storage system at Williams Road Back Station is higher than that of the diesel generator recommended by Cal Advocates, the regulatory alignment and direct benefit to an ESJ community, coupled with the environmental benefits, operational benefits, and future-proofing advantages make it the correct choice for SJWC and its ratepayers. The proposed battery energy storage system not only helps achieve California's sustainability goals but also ensures compliance with evolving regulations, supporting a cleaner, healthier, and more equitable energy future.

CHAPTER 12: CAPITAL IMPROVEMENTS - NON-SPECIFIC & ANNUAL

Issue: Attrition Rate Increase

SJWC filed Advice Letter (AL) 605 to implement revised rate schedules for 2024.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-2)

Cal Advocates states that where relevant, to reflect SJWC's 2024 Attrition Year filing, AL 605, the removal of SJWC's requested 2024 four percent Consumer Price Index (CPI) increase shown as an adjustment to its Annual Capital Improvement Projects is just and reasonable.

SJWC Rebuttal:

Many of SJWC's budgetary cost estimates for the non-specific and annual projects were prepared in terms of 2023 dollars. Thus, SJWC applied an annual 4% escalation rate as appropriate to derive budgetary cost estimates that reflect costs in future years 2024-2026. SJWC did not apply additional escalation beyond what was necessary. Thus, SJWC's requested 4% escalation rate should not be removed from its proposed 2024 Capital Improvement Projects.

Issue: Methodology for Estimating Recommended Funding

Cal Advocates and SJWC apply different methodologies in estimating the recommended funding for SJWC's Non-Specific & Annual projects.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-3)

Cal Advocates states that for Non-Specific projects, when an unsupported project's request is consistent with its 5-year historical average, that 5-year historical average, adjusted by the requested four percent CPI rate per year to projected Test Year is recommended. Cal Advocates states that for Annual programs and other projects, where appropriate, they used the same approach, historical average escalated to requested Test Year(s). If the recommendation is not based on the historical average, the requested budget is recommended, unless total denial of said budget.

SJWC Rebuttal:

As detailed in the remainder of SJWC's rebuttal testimony for Capital Improvements: Non Specific & Annual, for many projects, Cal Advocates bases its recommended budget on SJWC's 5-year historical average but does not appear to apply SJWC's requested 4% CPI as Cal Advocates states it does. Instead, Cal Advocates uses SJWC's 5-year historical average directly as the recommended budgets or uses a 3.5% CPI.

Furthermore, for many projects, Cal Advocates recommends in their Chapter 11 workpapers and in Attachment 12-2 of their testimony[134] that the Commission approve a different budget than what was originally proposed by SJWC, yet Cal Advocates does not provide the reasoning for the budget adjustment in their testimony. The opposite is true, where for many projects, Cal Advocates recommends in their testimony that the Commission approve a different budget than what was originally proposed by SJWC, yet Cal Advocates does not present any budget adjustments in their Chapter 11 workpapers.

Cal Advocates does not appear to accurately apply their stated methodology for estimating recommended funding. Cal Advocates is also not consistent in their recommendations across their Chapter 11 workpapers and testimony. Furthermore, Cal Advocates broadly applies its methodology of using a 5-year historical average to estimate necessary funding, even if not applicable for a given project or program, whereas as stated in SJWC's response to Cal Advocates Data Request KKE-001, SJWC prepared budgetary cost estimates for its Non-Specific and Annual projects using methodologies relevant to the specific project or program.

Issue: Index #5703 Station Valve Replacements

This is an annual program to replace potable water system valves within stations. These assets are to be replaced at the end of their useful lives and as failures occur, to maintain potable water system reliability.

Cal Advocates Position: (Cal Advocates Testimony, Attachments to the Report and Recommendations on Capital Improvement Projects, Attachment 12-2)

[134] Cal Advocates, *Attachments to the Report and Recommendations on Capital Improvement Projects*

Cal Advocates recommends the Commission approve $105,859 in 2024, $105,859 in 2025, and $105,859 in 2026 for Index #5703 as presented in their Chapter 11 workpapers and in Attachment 12-2 for their testimony. However, Cal Advocates does not provide the reasoning for the budget adjustment in their testimony.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $130,000 in 2024, $135,200 in 2025, and $140,600 in 2026 for Index #5703. Although Cal Advocates does not provide the reasoning for their recommended budget adjustment in their testimony, Cal Advocates appears to be using the 5-year historical average that was presented in SJWC's response to Cal Advocates Data Request KKE-003 Attachment A and copied below.

Year	Recorded Costs
2019	$0
2020	$162,929
2021	$41,527
2022	$110,150
2023	$214,691
5-year Average	$105,859

As stated in SJWC's response to Cal Advocates Data Request KKE-001 Q.2.b, SJWC's budgetary cost estimate for Index #5703 was based on the trend of past costs starting in 2021, consistent with how SJWC prepared its budgetary cost estimates for other annual programs for distribution system assets (e.g. Index #5494, Index #5331, Index #5777). SJWC believes that the trend of past costs starting in 2021 are more reflective of expected budgetary needs for Index #5703 than the 5-year historical average that Cal Advocates appears to be using. Cal Advocates does not appear to apply any escalation in their recommended budgets. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5726 Service Regulator Replacements

This is an annual program to replace ten percent of the service regulators and appurtenances throughout the potable water distribution system, including meter box and cover, as needed to meet current installation standards. Install new service regulators as needed. Replace service regulators due to end of useful life and as failures occur.

Cal Advocates Position: (Cal Advocates Testimony, Attachments to the Report and Recommendations on Capital Improvement Projects, Attachment 12-2)

Cal Advocates recommends the Commission approve $1,911 in 2024, $1,911 in 2025, and $1,911 in 2026 for Index #5726 as presented in their Chapter 11 workpapers and in Attachment 12-2 for their testimony. However, Cal Advocates does not provide the reasoning for the budget adjustment in their testimony.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $926,700 in 2024, $963,800 in 2025, and $1,002,400 in 2026 for Index #5726. Although Cal Advocates does not provide the reasoning for their recommended budget adjustment in their testimony, Cal Advocates appears to be using the 5-year historical average that was presented in SJWC's response to Cal Advocates Data Request KKE-003 Attachment A and copied below.

Year	Recorded Costs
2019	$0
2020	$0
2021	$9,103
2022	$465
2023	-$15
5-year Average	$1,911

SJWC is beginning to implement a Service Regulator Replacements program that considers the sustainable rate of replacement based on the expected life of these assets starting in 2024. Service regulator replacements for the 2024 program are currently underway. Therefore, a 5-year historical average would not be an appropriate baseline. As part of SJWC's response to Cal Advocates Data Request KKE-001 Q.2.b, SJWC provided a detailed budgetary cost estimate for Index #5726 with supporting contractor quotes, which is a more appropriate basis for the budget than the 5-year historical average that Cal Advocates appears to be using. Cal Advocates does not appear to apply any escalation in their recommended budgets. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5777 Water Main Replacements

This is an annual program to perform unplanned replacements of water mains, when field crews determine that a leak repair is not prudent.

Cal Advocates Position: (Cal Advocates Testimony, Attachments to the Report and Recommendations on Capital Improvement Projects, Attachment 12-2)

Cal Advocates recommends the Commission approve $880,367 in 2024, $880,367 in 2025, and $880,367 in 2026 for Index #5777 as presented in their Chapter 11 workpapers and in Attachment 12-2 for their testimony. However, Cal Advocates does not provide the reasoning for the budget adjustment in their testimony.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $1,352,000 in 2024, $1,406,100 in 2025, and $1,462,300 in 2026 for Index #5777. Although Cal Advocates does not provide the reasoning for their recommended budget adjustment in their testimony, Cal Advocates appears to be using the 5-year historical average that was presented in SJWC's response to Cal Advocates Data Request KKE-003 Attachment A and copied below. As SJWC only began its program for unplanned water main replacements in 2021, a 5-year historical average would not be an appropriate baseline.

Year	Recorded Costs
2019	$0
2020	$0
2021	$1,360,017
2022	$1,405,870
2023	$1,635,948
5-year Average	$880,367

Thus, as stated in SJWC's response to Cal Advocates Data Request KKE-001 Q.2.b, SJWC's budgetary cost estimate for Index #5703 was based on the trend of past costs starting in 2021, which is a more appropriate basis for the budget than the 5-year historical average that Cal Advocates appears to be using. Cal Advocates does not appear to apply any escalation in their recommended budgets. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #4093 Culvert Improvements

Install, replace, or modify between five to ten roadway culverts along watershed access roads. Culvert improvements are necessary to protect the environment and maintain roadways through erosion prevent and mitigation.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-3)

Cal Advocates recommends the Commission approve $161,895 in 2024 and $161,894[135] in 2026 for Index #4093, based on the historical average escalated by 3.5% CPI to requested Test Year adjusted by elimination of 2024 CPI.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $416,000 in 2024 and $449,900 in 2026 for Index #4093. Cal Advocates bases its recommended budget on SJWC's historical average. However, as SJWC only began installations for its Culvert Improvements program in 2022, with previous design that occurred in 2020 and 2021, a 5-year historical average would not be an appropriate baseline. This can be seen in SJWC's historical recorded costs for Index #4093 below[136], where recorded costs in 2022 are higher than other years. Also, as SJWC only requested budgets in 2024 and 2026 and did not propose Index #4093 as an annual budget item, a 5-year historical average would not be an appropriate baseline. Thus, as stated in SJWC's response to Cal Advocates Data Request KKE-001 Q.1.c, SJWC's budgetary cost estimate for Index #4093 was based on costs from the 2022 Culvert Improvements program, scaled to reflect the appropriate quantities and expected culvert sizes for 2024 and 2026. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

[135] Cal Advocates recommends $161,894 in 2026 for Index #4093 in their Chapter 11 workpapers, but $161,895 in 2026 for Index #4093 in Attachment 12-2 of their testimony

[136] Same as presented in SJWC's response to Data Request KKE-003 Attachment A

Year	Recorded Costs
2019	$0
2020	$4,816
2021	$37,671
2022	$730,885
2023	$8,728
5-year Average	$156,420

Issue: Index #5487 Station Lid and Ladder Replacements

Replacement of tank ladders and vault lids/ladders for regulators, altitude valves and flowmeters at stations. Large steel plate vault lids without spring or torsion assist and ladders that are not Occupational Safety and Health Administration (OSHA) compliant are a safety hazard and pose a risk of injury.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-3, 12-8)

Cal Advocates recommends the Commission approve $404,432 in 2024, $404,432 in 2025, and $404,432 in 2026 for Index #5487, based on only the contract amount with no 10% contingency and adjusting any 4% CPI to 3.5%. Cal Advocates presents duplicate testimonies for Index #5487 on pgs. 12-3 and 12-8 of their testimony.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $444,900 in 2024, $462,700 in 2025, and $481,200 in 2026 for Index #5487. A 10% contingency should be included, as detailed in Chapter 3 of this rebuttal book. SJWC selectively added contingencies to Index #5487 to account for project unknowns associated with station lid and ladder replacements that vary depending on the lid or ladder location and dimensions. SJWC did not broadly add contingencies to other annual programs where the budgetary cost estimate was based on trends in historical costs that already account for year-to-year variation and unknowns. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5699 Lake Kittredge Valve Platform

Replace or modify means for access and operation of the valve between Lake Kittredge and Lake Cozzens. The existing platform provides for access to operate a Division of Safety of Dams (DSOD) regulated facility and was found to be unsafe during a DSOD inspection and can no longer be used.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-3)

Cal Advocates recommends the Commission approve a budget for Index #5699 based on a 3.5% CPI. However, Cal Advocates did not present any budget adjustments for Index #5699 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $272,800 in 2024 for Index #5699. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #6088 Snell Station Improvements

Replace site fencing and gate, retire Snell B-2, clean up Regulator 2 (previously B-1) to a standard regulator set up, bring flowmeter and pumper connections above grade, replace vault lid and ladder on Regulator 1, replace building roof on motor control center (MCC) building, and create asphalt entryway to regulator and MCC. Existing vault lid and ladders do not comply with current Occupational Safety and Health Administration (OSHA) regulations and SJWC safety standards. Relocating infrastructure above grade where possible will eliminate safety hazards associated with the vault. Other site improvements are needed to address deteriorated infrastructure.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-4, 12-8)

Cal Advocates recommends the Commission approve a budget for Index #6088 based on a 3.5% CPI. However, Cal Advocates did not present any budget adjustments for Index #6088 in their Chapter 11 workpapers. Cal Advocates presents duplicate testimonies for Index #6088 on pgs. 12-4 and 12-8 of their testimony.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $899,900 in 2026 for Index #6088. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #6090 Los Gatos Oaks Regulator Vault

Lower the 2-inch bypass regulator for improved operator access and replace the vault lid and ladder. The existing vault lid and ladder do not comply with current Occupational Safety and Health Administration (OSHA) regulations and SJWC safety standards.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-4)

Cal Advocates recommends the Commission approve $5,014 in 2024 for Index #6090 based on a historical average increased by a 3.5% CPI rate to the requested year.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $68,200 in 2024 for Index #6090. SJWC submitted 2019-2023 recorded costs for this project in its response to Cal Advocates Data Request KKE-003 Attachment A as shown below. Costs incurred in 2023 are related to previous design for this project.

Year	Recorded Costs
2019	$0
2020	$0
2021	$0
2022	$0
2023	$25,069
5-year Average	$5,014

As this project is not an annual program, a 5-year historical average would not be an appropriate baseline for deriving the budget, as Cal Advocates is using. Cal Advocates did not apply any escalation rate as stated in their testimony. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #6092 Storage and Material Dry-Out Bins

Upsize slurry containment bins at Breeding Station. Slurry containment bins are needed for drying out slurry before it is disposed of. The slurry containment bins at Breeding Station need to be upsized to accommodate larger Vac-Con units.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-4)

Cal Advocates recommends the Commission approve $5,571 in 2025 for Index #6092 based on a historical average increased by a 3.5% CPI rate to the requested year.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $547,100 in 2025 for Index #6092. SJWC submitted 2019-2023 recorded costs for this project in its response to Cal Advocates Data Request KKE-003 Attachment A as shown below. Costs incurred in 2022 and 2023 are related to previous design and consultant support for this project.

Year	Recorded Costs
2019	$0
2020	$0
2021	$0
2022	$11,578
2023	$16,277
5-year Average	$5,571

As this project is not an annual program, a 5-year historical average would not be an appropriate baseline for deriving the budget, as Cal Advocates is using. Cal Advocates did not apply any escalation rate as stated in their testimony. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #6180 Hill Lane Station Flowmeter

Replace and relocate flowmeter for Hill Lane boosters above grade. Retire the existing flowmeter vault. Existing flowmeter vault lid is damaged. The heavy vault lid lacks spring or torsion assist and poses a safety hazard.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-4)

Cal Advocates recommends the Commission approve a budget for Index #6180 based on a 3.5% CPI. However, Cal Advocates did not present any budget adjustments for Index #6088 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $27,000 in 2025 for Index #6180. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #6262 Call of the Wild Road Improvements

Replace approximately 30 feet of the Call of the Wild Road and associated culvert and energy dissipation improvements. Road was damaged by an uprooted tree during a storm event. Work is needed to ensure safe and continued access to Ostwald Intake.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-4)

Cal Advocates recommends the Commission approve $321,657 in 2024 for Index #6262 based on only the contract amount with no 10% contingency, a 3.5% CPI and no funding for 2023.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $363,800 in 2024 for Index #6262. A 10% contingency should be included, as detailed in Chapter 3 of this rebuttal book. SJWC selectively added contingencies to specific non-annual projects, such as Index #6262, to account for project unknowns. SJWC did not broadly add contingencies to other annual programs where the budgetary cost estimate was based on trends in historical costs that already account for year-to-year variation and unknowns. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book. The funding for 2023 that Cal Advocates references in their testimony was never included in SJWC's 2024-2026 GRC application. SJWC's proposed budget only includes amounts to be spent in 2024.

Issue: Index #6266 Lake Williams Road Retaining Wall

Install approximately 100 feet of retaining wall along the road to Lake Williams. Slope erosion from previous storm events is inhibiting road access. Work is needed to maintain access to Lake Williams and ensure stability of road surface.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-4)

Cal Advocates recommends the Commission deny SJWC's request to include $504,800 in 2024 customer rates for the cost of Index #6266, due to lack of evidence of project being used and useful in this GRC cycle.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $504,800 in 2024 for Index #6266. Final design has been completed and materials for the retaining wall have been ordered. SJWC is waiting for final permitting approvals from the County of Santa Clara, but otherwise aims to complete construction in 2024 as indicated in SJWC's GRC application. Contrary to Cal Advocates' statement, Index #6266 will be used and useful this GRC cycle.

Issue: Index #5156 Distribution System Sample Stations

Replace or install up to 10 dedicated water quality sampling stations, throughout the potable water distribution system. New or replacement sample stations will ensure reliability and quality of representative sampling.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-5)

Cal Advocates recommends the Commission approve a budget for Index #5156 based on adjusting 4% CPI to 3.5%. However, Cal Advocates did not present any budget adjustments for Index #5156 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $99,300 in 2024, $103,300 in 2025, and $107,400 in 2026 for Index #5156. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #6320 District Metered Area Study

Study to evaluate select portions of the San Jose Water distribution network for creation of District Metered Areas (DMAs). The creation of DMAs will help SJW monitor, track, and reduce real water losses.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-5, 12-8)

Cal Advocates recommends the Commission approve a budget for Index #6320 based on elimination of the 5% contingency fee and adjusting 4% CPI to 3.5%. However, Cal Advocates did not present any budget adjustments for Index #6320 in their Chapter 11 workpapers. Cal Advocates presents duplicate testimonies for Index #6320 on pgs. 12-5 and 12-8 of their testimony.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $190,000 in 2024 for Index #6320. A 5% contingency should be included, as detailed in Chapter 3 of this rebuttal book. SJWC selectively added contingencies to specific non-annual projects, such as Index #6320, to account for project unknowns. SJWC did not broadly add contingencies to other annual programs where the budgetary cost estimate was based on trends in historical costs that already account for year-to-year variation and unknowns. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5181 Acoustic Leak Detection

This is an annual program to install, replace, and pilot new leak detection technology throughout the potable water distribution system. These sensors will reduce water loss and improve safety by proactively identifying leaks, often before they reach the surface.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-5)

Cal Advocates recommends the Commission approve a budget for Index #5181 based on adjusting 4% CPI to 3.5%. However, Cal Advocates did not present any budget adjustments for Index #5181 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $350,000 in 2024, $350,000 in 2025, and $350,000 in 2026 for Index #5181.

Issue: Index #5235 Water Main Blowoffs

This is an annual program to replace undersized potable water distribution system blowoff valves. New blowoff valves will ensure that water mains can be adequately flushed.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-6)

Cal Advocates recommends the Commission approve a budget for Index #5235 based on elimination of the 5% contingency fee and adjusting 4% CPI to 3.5%. However, Cal Advocates did not present any budget adjustments for Index #5235 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $11,800 in 2024, $12,200 in 2025, and $12,700 in 2026 for Index #5235. A 5% contingency should be included, as detailed in Chapter 3 of this rebuttal book. SJWC selectively added contingencies to Index #5235 to account for project unknowns, as SJWC's budgetary cost estimate for Index #5235 was based on contract and material costs for a standard 4-inch blowoff valve, as stated in SJWC's response to Cal Advocates Data Request KKE-001 Q.2.b. SJWC did not broadly add contingencies to other annual programs where the budgetary cost estimate was based on trends in historical costs that already account for year-to-year variation and unknowns. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5331 System Valve Replacements

This is an annual program to replace water distribution system line valves. Valves are to be replaced as failures occur.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-6)

Cal Advocates recommends the Commission approve $1,206,486 in 2024, $1,206,486 in 2025, and $1,206,486 in 2026 for Index #5331, based on a historical average increased by a 3.5% CPI rate for Test Years 2025 and 2026.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $1,352,000 in 2024, $1,406,100 in 2025, and $1,462,300 in 2026 for Index #5331. Cal Advocates bases its recommended budget on SJWC's historical average. However, as SJWC increased its System Valve Replacements program in recent years, a 5-year historical average would not be an appropriate baseline. This can be seen in SJWC's historical recorded costs for Index #5331 below[137], where recorded costs starting in 2021 are higher than previous years.

Year	Recorded Costs
2019	$650,216
2020	$413,631
2021	$1,583,701
2022	$1,316,729
2023	$2,068,152
5-year Average	$1,206,486

SJWC's System Valve Replacements program ramped up in 2021 after SJWC increased its staffing for the program in response to a backlog of system valves needing replacement. Furthermore, in recent years, as city jurisdictions have pursued more street overlay and paving projects, SJWC's costs for pavement restoration following a system valve replacement has increased, another contributing factor for why SJWC's costs for system valve replacements have increased in recent years. Thus, as stated in SJWC's response to Cal Advocates Data Request

[137] Same as presented in SJWC's response to Data Request KKE-003 Attachment A

KKE-001 Q.2.b, SJWC's budgetary cost estimate for Index #5331 was based on the trend of past costs starting in 2021. Cal Advocates did not apply any escalation rate as stated in their testimony. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5494 Air Valve Replacements

This is an annual program to replace air valves and air valve boxes, lids, laterals and appurtenances. These assets are to be replaced at the end of their useful lives and as failures occur.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-6)

Cal Advocates recommends the Commission approve $218,257 in 2024, $218,257 in 2025, and $218,257 in 2026 for Index #5494, based on the elimination of a 4% CPI. Cal Advocates presents duplicate testimonies for Index #5494 on pg. 12-6 of their testimony.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $312,000 in 2024, $324,500 in 2025, and $337,500 in 2026 for Index #5494. Cal Advocates states that its derived budget for Index #5484 is based on elimination of a 4% CPI. However, Cal Advocates appears to be using the 5-year historical average that was presented in SJWC's response to Cal Advocates Data Request KKE-003 Attachment A. As SJWC ramped up its Air Valve Replacements program in recent years, a 5-year historical average would not be an appropriate baseline. This can be seen in SJWC's historical recorded costs for Index #5494 below[138], where recorded costs starting in 2021 are higher than previous years.

[138] Same as presented in SJWC's response to Data Request KKE-003 Attachment A

Year	Recorded Costs
2019	$125,409
2020	$55,847
2021	$188,748
2022	$365,461
2023	$355,819
5-year Average	$218,257

SJWC ramped up its Air Valve Replacements program in 2021, following findings in 2020 from SJWC's *Enterprise Asset Management Plan* that indicated a sustainable replacement rate of between 95 and 100 small air valves (smaller than 1-in) per year and between 10 and 12 large air valves (1-in and larger) per year[139] was necessary for SJWC to manage risk and sustain reliable operation of the water system. Thus, as stated in SJWC's response to Cal Advocates Data Request KKE-001 Q.2.b, SJWC's budgetary cost estimate for Index #5494 was based on the trend of past costs since 2021. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #28 Service Replacements

This is an annual program to renew service laterals in conjunction with water main replacements and when repair is not prudent.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-6)

Cal Advocates recommends the Commission approve $13,326,757 in 2024, $13,326,757 in 2025, and $13,326,757 in 2026 for Index #28, based on the historical average increased by a 3.5% CPI rate for Test Years 2025 and 2026.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $15,160,100 in 2024, $15,766,500 in 2025, and $16,397,100 in 2026 for Index #28. SJWC

[139] SJWC *Enterprise Asset Management Plan*

submitted 2019-2023 recorded costs for this project in its response to Cal Advocates Data Request KKE-003 Attachment A as shown below.

Year	Recorded Costs
2019	$11,146,741
2020	$10,419,292
2021	$15,825,794
2022	$12,656,015
2023	$16,585,942
5-year Average	$13,326,757

Cal Advocates bases its recommended budget on SJWC's 5-year historical average. However, a 5-year historical average does not account for escalation over time. Historical costs since 2019 vary year to year but show a generally increasing trend. Thus, as stated in SJWC's response to Cal Advocates Data Request KKE-001 Q.2.b, SJWC referenced historical costs in preparing the budgetary cost estimate for Index #28 but considered the trend of past costs since 2018 to derive its 2024-2026 budgets. Including the 2018 recorded costs that SJWC considered in deriving its budgets, the full set of recorded costs for 2018-2023 are presented below. Again, a generally increasing trend of costs since 2018 can be seen.

Year	Recorded Costs
2018	$10,352,193
2019	$11,146,741
2020	$10,419,292
2021	$15,825,794
2022	$12,656,015
2023	$16,585,942

SJWC's proposed budgets of $15,160,100 in 2024, $15,766,500 in 2025, and $16,397,100 in 2026 for Index #28 are reasonable and in line with historical costs. Cal Advocates did not apply any escalation rate as stated in their testimony. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #38 Hydrant Installations

This is an annual program to install fire hydrants, as requested by various agencies.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-6)

Cal Advocates recommends the Commission approve a budget for Index #38 based on adjusting 4% CPI to 3.5%. However, Cal Advocates did not present any budget adjustments for Index #38 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $41,600 in 2024, $43,300 in 2025, and $45,000 in 2026 for Index #38. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #4304 Reservoirs and Tanks

This is an annual program to replace failed or deficient reservoir and tanks screens, roof and support structures, retaining walls, stairways, vent systems, hatches, overflow appurtenances, and water quality equipment. This program also includes inspection studies by consultants for deficient reservoirs and tanks. These assets are to be replaced as failures occur and as deficiencies are identified.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-6)

Cal Advocates recommends the Commission approve a budget for Index #4304 based on elimination of a 4% CPI. However, Cal Advocates did not present any budget adjustments for Index #4304 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $156,000 in 2024, $108,200 in 2025, and $112,500 in 2026 for Index #4304. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #4365 Purchase or Replacement of Tools

This is an annual program to purchase and replace tools, equipment and workstations essential for Operations, Distribution Systems, Environmental Health & Safety, Facilities, Meter Shop, Purchasing, Field Service, Water Quality, Leak Detection, and Environmental Compliance

departments. These assets are needed for work functions, personnel safety, fleet operations, and regulatory compliance.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-6)

Cal Advocates recommends the Commission approve a budget for Index #4365 based on adjusting 4% CPI to 3.5%. However, Cal Advocates did not present any budget adjustments for Index #4365 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $312,000 in 2024, $324,500 in 2025, and $337,500 in 2026 for Index #4365. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5153 Hydrant Replacements

This is an annual program to replace obsolete or damaged fire hydrants and hydrant valves.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-6)

Cal Advocates recommends the Commission approve $946,422 in 2024, $946,422 in 2025, and $946,422 in 2026 for Index #5153, based on a historical average increased by a 3.5% CPI for Test Years 2025 and 2026.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $1,820,000 in 2024, $1,892,800 in 2025, and $1,968,500 in 2026 for Index #5153. Cal Advocates bases its recommended budget on SJWC's historical average. However, as SJWC ramped up its Hydrant Replacements program in recent years towards a sustainable replacement rate for hydrants, a 5-year historical average would not be an appropriate baseline. This can be

seen in SJWC's historical recorded costs for Index #5153 below[140], where recorded costs starting in 2021 are higher than previous years.

Year	Recorded Costs
2019	$299,076
2020	$405,073
2021	$1,050,587
2022	$1,254,545
2023	$1,722,831
5-year Average	$946,422

SJWC ramped up its Hydrant Replacements program in 2021, following findings in 2020 from SJWC's *Enterprise Asset Management Plan* that indicated a sustainable replacement rate of approximately 160 hydrants per year[141] was necessary for SJWC to manage risks and sustain reliable operation of the water system. Thus, as stated in SJWC's response to Cal Advocates Data Request KKE-001 Q.2.b, SJWC's budgetary cost estimate for Index #5153 was based an average unit cost for a hydrant replacement and a sustainable replacement rate of 160 hydrants per year. Cal Advocates did not apply any escalation rate as stated in their testimony. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #394 Meters Smaller than 1.5"

This is an annual program to install approximately 150 positive displacement meters for services associated with new developments. Meters to be replaced as part of the separate Advanced Metering Infrastructure (AMI) advice letter project are not included.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-7)

Cal Advocates recommends the Commission approve a budget for Index #394 based on adjusting 4% CPI to 3.5%. However, Cal Advocates did not present any budget adjustments for Index #394 in their Chapter 11 workpapers.

[140] Same as presented in SJWC's response to Data Request KKE-003 Attachment A

[141] SJWC *Enterprise Asset Management Plan*

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $52,000 in 2024, $54,100 in 2025, and $56,200 in 2026 for Index #394. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5497 Furnishings, Fixtures & Equip.

This is an annual program to install heating, ventilation, and air conditioning (HVAC) and office furnishings, fixtures, and equipment improvements at the 1265 South Bascom Avenue building. The existing HVAC and workstations have reached the end of their useful lives. These improvements will accommodate staff relocations and improve the health and safety of staff.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-7)

Cal Advocates recommends the Commission approve $89,328 in 2024 for Index #5497, based on the historical average increased by a 3.5% CPI rate for the requested year. Cal Advocates also recommends the Commission approve a budget for the Test Years for Index #5497 based on a 3.5% CPI rate. However, Cal Advocates did not present any budget adjustments for the Test Years for Index #5497 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $312,000 in 2024, $19,300 in 2025, and $20,000 in 2026 for Index #5497. Cal Advocates bases its recommended budget on SJWC's historical average. Similarly, as stated in SJWC's response to Cal Advocates Data Request KKE-001 Q.1.c, SJWC referenced historical costs in preparing the budgetary cost estimate for Index #5497. However, SJWC also recognizes that annual costs for this program vary year to year, as this program is intended to cover as-needed improvements for the 1265 South Bascom building as failures occur and deficiencies are identified. This can be seen in SJWC's historical recorded costs for Index #5497 below[142], where recorded costs vary year to year. Recorded costs in 2020 and 2021 were low due to the COVID-19 pandemic and remote work policies that deferred many furnishings, fixtures, and equipment related work.

[142] Same as presented in SJWC's response to Data Request KKE-003 Attachment A

Year	Recorded Costs
2019	$3,015
2020	$6,302
2021	$0
2022	$120,463
2023	$316,650
5-year Average	$89,286

A 5-year historical average alone would not be an appropriate baseline. The budget for Index #5497 should consider historical costs and costs for future project scopes that are known. Thus, as stated in SJWC's response to Cal Advocates Data Request KKE-001 Q.1.c, SJWC's budgetary cost estimate for Index #5497 was based on costs for baseline furniture purchases, plus additional budget to cover previously identified office improvements, primarily for renovations to the Human Resources department workspace to accommodate staffing additions. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5702 Furnishings, Fixtures & Equipment

This is an annual program to install heating, ventilation, and air conditioning (HVAC) and office furnishings, fixtures, and equipment improvements at 1221a, 1221b and 1251 South Bascom. The existing HVAC and workstations have reached the end of their useful lives. These improvements will accommodate staff relocations and improve the health and safety of staff.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-7)

Cal Advocates recommends the Commission approve a budget for Index #5702 based on a 3.5% CPI. However, Cal Advocates did not present any budget adjustments for Index #5702 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $18,500 in 2024, $19,300 in 2025, and $20,000 in 2026 for Index #5702. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5926 Furnishings, Fixtures & Equip.

This is an annual program to install heating, ventilation, and air conditioning (HVAC) and office furnishings, fixtures, and equipment improvements at the 110 and 118 West Taylor Street buildings. The existing HVAC and workstations have reached the end of their useful lives. These improvements will accommodate staff relocations and improve the health and safety of staff.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-7)

Cal Advocates recommends the Commission approve a budget for Index #5926 based on a 3.5% CPI. However, Cal Advocates did not present any budget adjustments for Index #5926 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $18,500 in 2024, $19,300 in 2025, and $20,000 in 2026 for Index #5926. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5574 Health and Safety Improvements

Install or modify systems and equipment to improve the health and safety of the workforce and comply with regulations.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-7)

Cal Advocates recommends the Commission approve a budget for Index #5574 based on a 3.5% CPI. However, Cal Advocates did not present any budget adjustments for Index #5574 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $208,000 in 2024, $216,300 in 2025, and $225,000 in 2026 for Index #5574. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #5766 Water Quality Systems Equipment

Replace chlorine probes, chlorine analyzers, chemical feed pumps, and other chemical feed equipment at water storage reservoirs, tanks, and groundwater stations that have reached the end of their useful lives. This equipment is needed for continued operation of disinfectant dosing and water quality monitoring equipment to meet drinking water quality goals and standards.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-8)

Cal Advocates recommends the Commission approve a budget for Index #5766 based on the elimination of a 5% contingency and application of a 3.5% CPI. However, Cal Advocates did not present any budget adjustments for Index #5766 in their Chapter 11 workpapers.

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $459,500 in 2024, $477,900 in 2025, and $497,000 in 2026 for Index #5766. A 5% contingency should be included, as detailed in Chapter 3 of this rebuttal book. SJWC selectively added contingencies to Index #5766 to account for project unknowns, as SJWC's budgetary cost estimate for Index #5766 was based on vendor quotes for the material and estimated labor rates for SJWC staff to install the equipment, as stated in SJWC's response to Cal Advocates Data Request KKE-001 Q.2.b. SJWC did not broadly add contingencies to other annual programs where the budgetary cost estimate was based on trends in historical costs that already account for year-to-year variation and unknowns. A 4% escalation rate should be included, as detailed in Chapter 7 of this rebuttal book.

Issue: Index #613 Meters 1.5" and Larger

This is an annual program to install approximately 100 meters. This program includes the replacement of failed meters and installation of meters for service connections associated with new developments.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-8)

Cal Advocates recommends the Commission deny SJWC's request to include $104,000 in 2024 customer rates, $108,200 in 2025 customer rates, and $112,500 in 2026 customer rates for the cost of Index #613, based on Cal Advocates' review of SJWC's response to Cal Advocates Data Request KKE-003 Q.3 Attachment A and Cal Advocates' statement that "these costs added to 394".

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $104,000 in 2024, $108,200 in 2025, and $112,500 in 2026 for Index #613. In stating "these costs added to 394"[143], Cal Advocates appears to be referring to SJWC's response to Cal Advocates Data Request KKE-003 Q.3 Attachment A, where Cal Advocates requested historical recorded costs for SJWC's non-specifics and annual projects, and SJWC responded by indicating historical costs for Index #613 were "combined with Index #394". By this statement, SJWC meant that the historical costs presented under Index #394 were inclusive of historical costs for Index #613, not that Index #613 had $0 historical costs as Cal Advocates appears to be inferring. As presented in SJWC's response to Cal Advocates Data Request KKE-001 Q.2.b, specific budgetary cost estimates for Index #613 were prepared, based on the quantities of meters anticipated to be needed, 2023 Purchase Order pricing for meters, estimated labor rates for SJWC staff for meter installations, and 4% annual cost escalation.

Issue: Index #413 Recycled Water Meters

[143] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 12-8, lines 19-20

This is an annual program to install recycled water service meters for new developments and to replace existing recycled water meters, as needed.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-8)

Cal Advocates recommends the Commission deny SJWC's request to include $27,000 in 2025 customer rates and $28,100 in 2026 customer rates for the cost of Index #413, based on Cal Advocates' review of SJWC's response to Cal Advocates Data Request KKE-003 Q.3 Attachment A and Cal Advocates' statement that "these costs added to 394".

SJWC Rebuttal:

SJWC recommends the Commission approve the budget as originally proposed, $27,000 in 2025 and $28,100 in 2026 for Index #413. In stating "these costs added to 394"[144], Cal Advocates appears to be referring to SJWC's response to Cal Advocates Data Request KKE-003 Q.3 Attachment A, where Cal Advocates requested historical recorded costs for SJWC's non-specifics and annual projects, and SJWC responded by indicating historical costs for Index #413 were "combined with Index #394". By this statement, SJWC meant that the historical costs presented under Index #394 were inclusive of historical costs for Index #413, not that Index #413 had $0 historical costs as Cal Advocates appears to be inferring. As presented in SJWC's response to Cal Advocates Data Request KKE-001 Q.2.b, specific budgetary cost estimates for Index #413 were prepared, based on SJWC's estimate of needing approximately $25,000 to cover as-needed recycled water meters replacements or installations and 4% annual cost escalation.

Issue: Index #6321 Mobile Emergency Water Distribution Unit

The mobile Emergency Water Distribution Unit (EWDU) is a rapid-response tool that increases operational readiness by distributing potable water to the community and other partner agencies during emergencies and disasters.

Cal Advocates Position: (Cal Advocates Testimony, Report and Recommendations on Capital Improvement Projects, pg. 12-8)

[144] Cal Advocates, *Report and Recommendations on Capital Improvement Projects*, pg. 12-8, lines 23-24

Cal Advocates recommends the Commission deny SJWC's request to include $349,300 in 2026 customer rates associated with a mobile EWDU and asserts that a history of usage of the existing EWDU should be documented before a second purchase is justified.

SJWC Rebuttal:

SJWC recommends the Commission approve the purchase of an EWDU in 2026 as originally proposed, with a budget of $349,300 in 2026 for Index #6321. The proposed EWDU would enhance operational readiness and resilience during emergencies and ensure better access to high-quality water for all customers, with a particular focus on Environmental and Social Justice (ESJ) communities. The proposed EWDU would also strengthen SJWC's ability to perform public outreach and awareness regarding emergency preparedness efforts, especially within ESJ communities. Finally, the proposed EWDU would amplify the environmental benefits realized during emergency events. These points are elaborated upon in the following sections.

A. Operational Readiness

Cal Advocates argues that SJWC should provide usage history data for the EWDU acquired in December 2023 before purchasing a second unit. Although emergency events are infrequent, their impact can be substantial. Catastrophic regional events like earthquakes could interrupt or halt water service to a large number of customers. Relying on a single EWDU would limit SJWC's ability to support customers in a crisis due to limited distribution capacity and reduced consumer mobility following a major event.

An EWDU is not a typical asset where expansion is driven by utilization rates. The real measure of need is determined by the service population and the ability to provide potable water during significant service disruptions. SJWC must plan and prepare to serve customers during major emergency events, as it is unrealistic to expect that quickly acquiring and effectively deploying a secondary mobile EWDU would be feasible during an emergency.[145]

[145] USEPA, June 2011, "Planning for an Emergency Drinking Water Supply," EPA 600/R-11/054, https://www.epa.gov/sites/default/files/2015-03/documents/planning_for_an_emergency_drinking_water_supply.pdf, pg. 13

B. Improve Access to High-Quality Water

As noted in SJWC's Emergency Response Plan, the EWDU can treat and deliver 1,400 gallons of water per hour to customers. The EWDU enhances SJWC's resilience during major emergency events such as wildfires, earthquakes, and floods.

The purchase of an additional EWDU aligns with the CPUC's 2022 ESJ Action Plan, specifically Goal 3, which aims to "improve access to high-quality water… for ESJ communities."[146] The EWDUs support this goal by ensuring access to high-quality water for ESJ communities during outages or emergencies. Currently, SJWC provides bottled water at centralized locations during emergencies. EWDUs, however, enable the delivery of safe water closer to the affected areas, benefiting ESJ communities that often face higher barriers to accessing alternative water sources during outages.

During catastrophic events, ESJ communities are frequently the hardest hit due to economic, language, mobility, and knowledge barriers regarding available resources. SJWC is committed to ensuring water access for those with limited resources during crises, and an additional EWDU will bolster this effort. Within SJWC's service area, over 42% of customers belong to ESJ communities, encompassing over 76,000 services or about 427,000 people.

C. Improve Public Outreach

SJWC intends to use both the existing and proposed EWDUs at community events to enhance public understanding of SJWC's emergency response plans and to boost confidence in alternative water sources during emergencies. ESJ communities have historically experienced a disproportionate number of issues with their water supply and water quality nationwide, resulting in lower levels of confidence in the safety of their water supplies.[147] By conducting outreach

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[146] CPUC, "Environmental & Social Justice Action Plan," version 2.0, April 2022, https://www.cpuc.ca.gov/news-and-updates/newsroom/environmental-and-social-justice-action-plan

[147] Ewing-Chow, Daphne, "A Recent Survey Cast New Light on America's Racial Divide in Clean Tap Water Access" (2/28/2021), Forbes, https://www.forbes.com/sites/daphneewingchow/2021/02/28/a-recent-survey-casts-new-light-on-americas-racial-and-water-divide/?sh=64c43c9521a6; Robertson, Derek, "Flint Has Clean Water Now. Why Won't People Drink it?" (December 23, 2020), *Politico*,

with an EWDU, SJWC aims to improve emergency response through increased public acceptance. This initiative aligns with Goal 5 of the CPUC's ESJ Action Plan, which focuses on enhancing outreach to ESJ communities. SJWC is committed to similar efforts through actions like this.

D. Environmental Impacts

The EWDU supports SJWC's sustainability goals by reducing single-use plastic waste generated by distributing bottled water.[148] In addition to the increased operational efficiencies and improved community access, EWDUs can fill customers' water storage containers as well as reusable plastic bags for a more environmentally conscious and energy-efficient response.

E. EWDU Conclusion

Cal Advocates' assertion that a history of usage is required before SJWC completes its planned purchases for emergency response is unfounded. Emergency situations do not occur regularly and therefore SJWC cannot reasonably provide such usage history in a timely manner and delaying emergency preparations is not aligned with industry recommendations. SJWC recommends the Commission approve the proposed budget of $349,300 in 2026 to purchase a second EWDU. This purchase ensures SJWC will be appropriately equipped and prepared to respond to emergencies and can effectively educate the public for improved confidence during unexpected circumstances.

https://www.politico.com/news/magazine/2020/12/23/flint-water-crisis-2020-post-coronavirus-america-445459; Balazs C.L., Ray I., "The Drinking Water Disparities Framework: on the Origins and Persistence of Inequities in Exposure. *American Journal of Public Health*. 2014 Apr;104(4):603-11. doi: 10.2105/AJPH.2013.301664; Switzer, D. and Teodoro, M.P. (2018), "Class, Race, Ethnicity, and Justice in Safe Drinking Water Compliance," *Social Science Quarterly*, 99: 524-535. https://doi.org/10.1111/ssqu.12397

[148] SJW Group, Sustainability Report 2022, https://www.sjwgroup.com/sites/default/files/2024-03/2022%20SJW%20Sustainability%20Report_2.pdf

PUBLIC ADVOCATES OFFICE REPORT AND RECOMMENDATIONS ON EXPENSES AND SPECIAL REQUESTS - CHAPTER 5 PAYROLL, BENEFITS AND COMPENSATIONS

Issue: Leak Detection Technician Full-Time Employee Request

SJWC has requested the creation of 30 new positions. Among these 30 positions was the request for an additional Leak Detection Technician.

Cal Advocates Position: (Cal Advocates Testimony, pg. 5-1)

Cal Advocates states that the creation of 30 new positions is unreasonable and that the Commission should deny SJWC's request to include in customer rates the cost for these positions.

SJWC Rebuttal:

SJWC recommends the Commission approve the creation of 30 new positions, including the Leak Detection Technician position. Leak Detection Technicians play a central role in the operation of SJWC's leak detection system and leak detection program. The leak detection system is comprised of many leak detection sensors which are necessary to proactively monitor mains, reduce water loss, and prevent catastrophic breaks. They function by capturing the sound profile of the monitored pipe(s) and send alerts for potential leaks that must be investigated before becoming catastrophic breaks. Investigation of potential leaks by Leak Detection Technicians require proficiency in the use of specialized equipment and detection methods, knowledge of mains and services in the distribution system, and familiarity with the acoustic leak detection system. In addition, Leak Detection Technicians must constantly carry out sensor-related field activity such as installing, commissioning, retrieving, decommissioning, and redeploying sensors throughout the system due to construction, hydrant maintenance activities, and sensor relocation efforts.

Over the course of two years, from 2022 to 2023, there was a 63% increase in investigations conducted prompted by the leak detection system, and a 71% increase in leaks identified by the leak detection system. The increase in investigations and leaks are due to the purchase and installation of additional leak detection sensors, as well as improvement in sensor hardware and Artificial Intelligence algorithms in the leak detection software. This sudden

increase in demand for investigations requires additional field support. In addition, SJWC now has nearly 14,000 sensors installed in the distribution system, a 67% increase in commissioned sensors compared to early-2023. This increase in sensor count translates to a significant increase in sensor-related field activity necessary to maintain the leak detection system. Therefore, one additional Leak Detection Technician is required to support the leak detection program and ensure a well-functioning leak detection system.

The leak detection program has proven to be impactful in reducing water loss over recent years. In 2022 alone, it is estimated that about 203 million gallons of water were saved, which amounts to approximately $945,000 saved based on the cost of water per million gallons calculated in the 2021 SJWC Water Audit. This is also equivalent to over 90,500 kg CO2e saved according to some estimates. SJWC anticipates that the addition of a new Leak Detection Technician as requested in this GRC proceeding will lead to operational cost savings. Small pipe leaks or leaks at fittings and joints can go undetected for long periods of time and waste large amounts of water. By catching such leaks through an effective, properly staffed leak detection program, SJWC can avoid production costs on lost water, a prudent business practice as the value of water increases.

Other benefits include increased customer trust and satisfaction, greenhouse gas reductions due to less pumping, and improved system efficiency and integrity. Small leaks often become large main breaks when left unaddressed. Identifying leaks before they become large breaks provides numerous benefits including reduced health and safety risk for employees and the public, less disruptions for customers, lower repair costs, and reduced water loss. Because the addition of a Leak Detection Technician position provides clear and significant benefits to employees, customers, and the environment, and will also lead to operational cost savings, SJWC recommends the Commission approve the requested Leak Detection Technician.

SAN JOSE WATER COMPANY
STATEMENT OF QUALIFICATIONS
JAKE WALSH

My name is Jake Walsh, and my business address is 1265 South Bascom Ave., San Jose, California 95128. As a member of the San Jose Water Company team for 19 years, currently serving as an Assistant Chief Engineer, my responsibilities encompass planning, asset management, leak detection, and capital budgeting. I manage the annual Capital Improvement Program (CIP) budget, ensuring our assets are optimized to balance cost, level of service, and risk.

Furthermore, I am responsible for implementation of the robust Enterprise Asset Management (EAM) system, HxGN EAM, which plays a crucial role in SJWC's operations. My duties also include validating SJWC's annual water loss audits and formulating strategic water supply plans such as the Urban Water Management Plan and Water Supply Assessments. I also oversee a variety of special capital improvement projects from inception to completion, including the implementation of solar and energy storage systems, fleet electrification, and the replacement of large commercial and industrial compound water meters with more advanced ultrasonic meters.

I graduated with a Bachelor of Science Degree in Civil Engineering from San Jose State University and a Master's in Public Administration from the University of San Francisco. Professionally, I am a licensed Civil Engineer in California (License #71935), a certified Project Management Professional (Credential #2641864), and a certified Water Audit Validator with the CA-NV Section of the American Water Works Association.

I have prepared documentation and testimony for four General Rate Case applications and the Advanced Metering Infrastructure application with the California Public Utilities Commission. The capital budget and enterprise asset management plan submitted as Exhibit G in this General Rate Case application were prepared under my direction.

ATTACHMENT 1-1

MDR II.D.5

MDR II.D.5 List of Plant Authorized but not Built

Notes:
1. Budgeted Cost refers to the project costs that were presented in the 2021-2023 General Rate Case (GRC) applicatior

Budget Year	Index #	Project Name	Description	Budget Category	Budgeted Cost	Notes
2021	5235	Water Main Blowoffs	This is an annual program to replace undersized potable water distribution system blowoff valves. New blowoff valves will ensure that water mains can be adequately flushed.	A	$10,000	Not needed
2023	5868	Belgatos-Cahalan Operational Valve	Install an above grade 16" operational zone valve with an electrical service, telemetry equipment, and flowmeter near the intersection of Blossom Hill Road and Sanchez Drive. This will provide greater operational control for Belgatos and Cahalan zones and improve water quality in Cahalan zone.	A	$823,900	Cahalan Tank is offline and on an environmental hold. This operational zone valve is not needed while SJWC continues to evaluate the long-term plan for that water storage asset.
2021	8	City, County & State Projects	Fund facility relocations or improvements in conjunction with Department of Public Works (DPW) and Department of Transportation (DOT) projects undertaken by the city, county and state agencies per franchise agreements.	C	$78,100	Not needed
2022	5529	Field Service System Upgrade	Upgrade hardware and software to Oracle Field Service Cloud (OFSC). To maintain product level support and leverage enhanced features and functionality.	E-COMM	$652,100	This project was delayed due to its reliance on the Customer Information System. Costs for this are included with the Customer Information System project in the 2024-2026 GRC application, Index #5527.
2021	5926	Furnishings, Fixtures & Equip.	This is an annual program to install heating, ventilation, and air conditioning (HVAC) and office furnishings, fixtures, and equipment improvements at the 110 and 118 West Taylor Street buildings. The existing HVAC and workstations have reached the end of their useful lives. These improvements will accommodate staff relocations and improve the health and safety of staff.	E-CORP	$119,700	Due to delays bringing employees back to the office following the COVID-19 pandemic, the need for office improvements at 110 and 118 West Taylor in 2021 were delayed.
2022	5926	Furnishings, Fixtures & Equip.	This is an annual program to install heating, ventilation, and air conditioning (HVAC) and office furnishings, fixtures, and equipment improvements at the 110 and 118 West Taylor Street buildings. The existing HVAC and workstations have reached the end of their useful lives. These improvements will accommodate staff relocations and improve the health and safety of staff.	E-CORP	$16,100	SJWC evaluated its HVAC needs in 2022 at the West Taylor Campus and advanced a larger project to upgrade inefficient equipment in 2023 with new equipment that is aligned with the California Energy Commission and the recently adopted 2022 Energy Code.
2022	3303	Hardware and Software	This is an annual program to purchase and replace hardware and software to support and maintain business operations and address unexpected equipment failure or upgrades.	E-IT	$53,000	Not needed
2022	5595	Cybersecurity Improvements	This is an annual program to purchase software and contract services related to cybersecurity. Additional products and services are required to respond to evolving cybersecurity threats and comply with best practices.	E-IT	$75,900	Not needed
2023	5595	Cybersecurity Improvements	This is an annual program to purchase software and contract services related to cybersecurity. Additional products and services are required to respond to evolving cybersecurity threats and comply with best practices.	E-IT	$78,100	Not needed
2022	5997	Conference Room AV System Upgrades	Replace and upgrade audio/visual (AV) equipment in conference rooms to include web-based meeting and conferencing capabilities. These improvements will optimize collaboration with remote parties during meetings.	E-IT	$41,800	Not needed
2022	5998	AIO Tableau Connector for Jira	Purchase the All-in-One (AIO) Tableau connector software for Atlassian Jira. This software allows for Jira data to be imported into Tableau.	E-IT	$4,500	Not needed
2022	5999	Tableau for Confluence Pro	Purchase Tableau for Confluence Pro software. This will allow for embedding Tableau dashboards and enabling interactive visualizations within Atlassian Confluence.	E-IT	$4,800	Not needed

Budget Year	Index #	Project Name	Description	Budget Category	Budgeted Cost	Notes
2022	6003	Dossier Fleet Software Replacement	Replace the Dossier fleet management software. This replacement will provide greater functionality to optimize equipment operation and alignment with Enterprise Asset Management.	E-IT	$435,600	The Enterprise Asset Management System was configured to replace Dossier, which resulted in this project not being needed.
2021	6007	FME Engines	Purchase two engines for Feature Manipulation Engine (FME), a data integration platform. These engines will enhance performance and reliability of the FME Server, allowing it to keep pace with increased usage.	E-IT	$13,400	Not needed
2022	6010	GIS Offline Viewer	Replace the existing Geographic Data Integration (GDI) viewing application. The existing application has reached the end of its useful life.	E-IT	$76,200	Not needed
2022	6011	Mainbreak Software	Develop new custom code to replace and modernize the Mainbreak application functionality. These improvements will make Mainbreak configurable for use in other applications and databases.	E-IT	$195,000	Not needed
2022	6014	Microsoft SCCM Configuration	This project consists of 72 hours of Microsoft Systems Center Configuration Manager (SCCM) software configuration.	E-IT	$19,000	Not needed
2021	38	Hydrant Installations	This is an annual program to install fire hydrants, as requested by various agencies.	F	$36,500	Not needed
2022	38	Hydrant Installations	This is an annual program to install fire hydrants, as requested by various agencies.	F	$37,600	Not needed
2023	5354	Olsen Drive Main	Replace 1,565' of 6.625" WSCL pipe with 6" DICLZ pipe on Olsen Dr., from Cypress Ave. to EOM (1954).	M	$511,500	Deferred, change in priorities
2023	5382	Sierra Creek Way Main	Replace 1,150' of 6.625" SOMCL pipe with 6" DICLZ pipe on Sierra Creek Way, from Hostetter Rd. to Stone Creek Dr. (1963).	M	$395,700	Deferred, in 2024-2026 GRC
2023	5452	Dunster Drive Main	Replace 1,970' of 4" and 6" CI pipe with 8" DICLZ pipe on Dunster Dr., from Hamilton Ave. to Latimer Ave.; on Kamson Way, from Dunster Dr. to Sunberry Dr.; and on Lawndale Ave., from Kamson Way to end of cul-de-sac (1956, P1980).	M	$747,200	Deferred, in 2024-2026 GRC
2023	5659	Marian Lane Main	Replace 1,340' of 6" AC pipe with 6" DICLZ pipe on Marian Ln., from Madeline Dr. to Alum Rock Ave. (1929).	M	$494,300	Deferred, change in priorities
2023	5773	Halsey Avenue Main	Replace 3,745' of 4" and 6" CI pipe with 6" and 8" DICLZ pipe on Halsey Ave., from Pioneer Ave. to Los Coches Ave.; on Pioneer Ave., from Halsey Ave. to Scott St.; on Wainwright Ave., from Scott St. to Los Coches Ave.; and on Scott St., from Pioneer Ave. to Halsey Ave. (1946).	M	$1,305,500	Deferred, in 2024-2026 GRC
2023	5788	Blossom Hill Road Main	Replace 4,800' of 10" WS and 10.75" SOMCL pipe with 18" DICLZ pipe on Blossom Hill Rd. from Los Gatos Blvd. to Linda Ave. (1952).	M	$3,683,700	Deferred, change in priorities
2023	5810	Buena Vista Avenue Main	Replace 420' of 3" and 10" CI pipe with 10" DICLZ pipe on Scott St., from Buena Vista Ave. to Mayellen Ave.; and transfer services on Buena Vista Ave., from Scott St. to San Carlos St. (1926).	M	$230,100	Deferred, change in priorities
2023	5821	Sunrise Drive Main	Replace 1,250' of 6" WS pipe with 6" DICLZ pipe on Sunrise Dr., from De Anza Blvd. to Western Dr. (1951).	M	$466,500	Deferred, in 2024-2026 GRC
2022	5824	Bainter Way Main	Replace 950' of 4" AC pipe with 8" DICLZ pipe on Bainter Way, from Bainter Ave. to end of cul-de-sac (1957).	M	$474,200	Deferred, change in priorities
2023	5839	Walnut Grove Avenue Main	Replace 3,330' of 6", 8" and 10" CI pipe with 8" DICLZ pipe on Walnut Grove Ave., from Newhall St., to Bascom Ave.; on Dana Ave., from Walnut Grove Ave. to Heatherdale Ave; and on Heatherdale Ave., from Dana Ave. to Bascom Ave. (1946).	M	$1,146,500	Deferred, in 2024-2026 GRC
2023	5845	South 10th Street Main	Replace 2,700' of 4" CI pipe with 16" DICLZ pipe on South 10th St., from Margaret St. to Keyes St.; and on Martha St., between South 9th St. and South 10th St. (1905).	M	$2,454,400	Deferred, paving conflicts
2023	5848	Oakhurst Drive Main	Replace 850' of 6.625" FKCL pipe with 8" DICLZ pipe on Oakhurst Dr., from Ridgecrest Ave. to end of the cul-de-sac (1961).	M	$377,600	Deferred, in 2024-2026 GRC
2023	5850	South 3rd Street Main	Replace 2,200' of 6" CI pipe with 8" DICLZ pipe on South 3rd St., from San Salvador St. to Hwy 280; on South 2nd St., from William St. to Hwy 280; on William St., from South 1st St. to South 4th St.; and on San Salvador St., from South 3rd St. to South 4th St. (1892).	M	$1,002,800	Deferred, change in priorities

Budget Year	Index #	Project Name	Description	Budget Category	Budgeted Cost	Notes
2023	5857	Highwood Drive Main	Replace 2,600' of 6" and 8" AC pipe with 8" DICLZ pipe on Massar Ave., Penrod Pl., Pendragon Ln.; and Excalibur Dr., from Georginia Ave. to Capital Expwy.; and on Abed Ct., from Dobern Ave. to end of the cul-de-sac (1959).	M	$978,500	Deferred, in 2024-2026 GRC
2023	5858	Atlas Avenue Main	Replace 4,300' of 3" and 4" CI pipe with 6" DICLZ pipe on Atlas Ave., South Morrison Ave., South Keeble Ave., and Cleaves Ave., from The Alameda to West San Fernando St., on Garland Ave., from South Keeble Ave. to Race St.; and on Wilson Ave., from West San Fernando St., North (1890).	M	$1,376,300	Deferred, in 2024-2026 GRC
2023	5859	Driftwood Drive Main	Replace 2,280' of 6" and 8" CI pipe with 6" DICLZ pipe on Driftwood Dr., from Winchester Blvd. to Barkwood Way; on Barkwood Way, from Driftwood Dr. to Castlemont Ave.; and on Teakwood Dr., from Barkwood Way to Driftwood Dr. (1958).	M	$802,700	Deferred, change in priorities
2022	5862	Fairview Plaza Main	Replace 1,860' of 4" and 6" AC pipe, 6" CI pipe and 6.625" FKCL pipe with 8" DICLZ pipe on Fairview Plaza, from Wadsworth Ave. to end of the cul-de-sac; and on Broadway, from West Main Street to end of the cul-de-sac (1929).	M	$729,200	Deferred, paving conflicts
2023	5870	Eastside Drive Main	Replace 2,450' of 6" and 8" AC pipe with 8" DICLZ pipe on Eastside Dr., from McKee Rd. to North White Rd.; and on Ridge Vista Ave., from McKee Rd. to end of the cul-de-sac (1947).	M	$928,700	Deferred, change in priorities
2023	5873	Caldwell Avenue Main	Replace 150' of 4" CI pipe with 4" DICLZ pipe on Bella Vista Ave., from Caldwell Ave., north; and transfer services on Caldwell Ave., between Bella Vista Ave. to Templeton Ln. from a 2" CI main to 21.25" FKCL pipe (1898).	M	$251,900	Deferred, in 2024-2026 GRC
2023	5874	Benedict Lane Main	Replace 1,190' of 6.625" WSCL pipe with 6" DICLZ pipe on Benedict Ln., from Sunray Dr. to Chirco Dr. (1947).	M	$447,800	Deferred, paving conflicts
2023	5877	Minnesota Avenue Main	Replace 2,850' of 6" CI and 6" SI pipe with 8" DICLZ pipe on Minnesota Ave., from Willow St. to Belmont Ave.; on Dorothy Ave., from Minnesota Ave. to Prevost St.; and on Prevost St., from Dorothy Ave. to Whitehurst Ct. (1930).	M	$1,060,300	Deferred, in 2024-2026 GRC
2023	5885	Manning Avenue Main	Replace 895' of 6.625" SOMCL pipe with 6" DICLZ pipe on Manning Ave., from Alum Rock Ave. to Hyland Ave.; and on Hyland Ave., from North White Rd. to Manning Ave. (1964).	M	$353,200	Deferred, change in priorities
2023	5887	Martin Avenue Main	Replace 4,350' of 4" and 6" CI pipe with 6" DICLZ pipe on Martin Ave. and Hanchett Ave., from Park Ave. to The Alameda.; on Tillman Ave., from Shasta Ave. to Hanchett Ave.; on Tillman Ave., from Martin Ave. to Sierra Ave.; and on Sequoia Ave., from Martin Ave. to Sierra Ave. (1907).	M	$1,466,200	Deferred, paving conflicts
2023	5929	Hawthorne Way Main	Replace 3,410' of 4" CI, 6" CI, and 2" WI pipe with 6" DICLZ pipe on Hawthorne Way, from North San Pedro St. to North 1st St.; on Clayton Ave., from North San Pedro St. to North 1st St.; on Fox Ave., from North San Pedro St. to North 1st St.; on Rankin Ave., from North San Pedro St. to North 1st St.; on Losse Ct., from Rankin Ave. to Ayer Ave.; and on Ayer Ave., from North San Pedro St. to EOM. (1911).	M	$1,201,800	Deferred, in 2024-2026 GRC
2023	5931	South 11th Street Main	Replace 3,770' of 4", 5", and 6" CI pipe with 8" DICLZ pipe on East San Carlos St., from South 10th St. to South 12th St.; on South 11th St., from East San Fernando St. to East San Salvador St.; on East San Antonio St., from South 10th St. to South 12th St.; and on South 12th St., from East San Carlos St. to East San Salvador St. (1902).	M	$1,673,300	Deferred, change in priorities
2023	5932	El Solyo Avenue Main	Replace 1,250' of 6" CI pipe with 6" DICLZ pipe on El Solyo Ave., from South Bascom Ave. to South Midway St. (1945).	M	$466,500	Deferred, change in priorities

Budget Year	Index #	Project Name	Description	Budget Category	Budgeted Cost	Notes
2023	5936	South 16th Street Main	Replace 1,180' of 4" CI and 6" CI pipe with 8" DICLZ pipe on South 16th St., from East San Salvador St. to East San Antonio St.; and transfer services from the 4" CI and 6" CI pipes to the 17" FKCL pipe on South 17th St., from East San Salvador St. to East San Antonio St. (1905).	M	$481,200	Deferred, change in priorities
2023	5937	Daylight Way Main	Replace 1,640' of 8" WSCL pipe with 12" DICLZ pipe on Daylight Way, from Monterey Rd. to Pullman Way; and on Pullman Way, from Monterey Rd. to EOM. (1959).	M	$868,800	Deferred, in 2024-2026 GRC
2022	5942	South Almaden Avenue Main	Replace 3,260' of 5" CI, 6" CI, and 6" AC pipe with 8" DICLZ pipe on South Almaden Ave., from West Humboldt St. to Edwards Ave.; on Goodyear St., from South Almaden Ave. to Sherman St.; on Plum St., from Goodyear St. to West Humboldt St.; on Mastic St., from Goodyear St. to West Humboldt St.; and transfer services from the 6" AC and 6" CI pipes to the 12" DICL pipe on Goodyear St., from Sherman St. to South 1st St. (1891).	M	$1,252,200	Deferred, change in priorities
2023	5946	Boxwood Drive Main	Replace 2,700' of 6" CI pipe with 6" DICLZ pipe on Boxwood Dr., from Newhall St. to Winchester Blvd. (1948).	M	$864,100	Deferred, change in priorities
2022	5947	Stern Avenue Main	Replace 2,880' of 4" PVC and 6" WSCL pipe with 6" DICLZ pipe on Stern Ave., from Loree Ave. to Moretti Dr.; on Tilson Ave., from Stern Ave. to EOM.; on Johnson Ave., from Barnhart Ave. to Wunderlich Dr.; and on Wunderlich Dr., from Johnson Ave. to Gascoigne Dr. (1952).	M	$1,052,300	Deferred, change in priorities
2023	5948	North 11th Street Main	Replace 4,370' of 4" and 6" CI pipe with 8" DICLZ pipe on North 11th St., from East Julian St. to Jackson St.; on North 10th St., from East Julian St. to East Empire St.; and on East Empire St., from North 10th St. to North 11th St. (1898).	M	$1,719,400	Deferred, in 2024-2026 GRC
2022	5959	Lantana Avenue Main	Replace 1,450' of 6" WSCL and 6" FKCL pipe with 6" DICLZ pipe on Lantana Ave., from Bucknall Rd. to Grimsby Dr.; and on Grimsby Dr., from Camrose Ave. to Lantana Ave. (1950).	M	$439,000	Deferred, in 2024-2026 GRC
2022	5964	San Benito Avenue Main	Replace 1,670' of 6" CI and 6" WSCL pipe with 6" DICLZ pipe on San Benito Ave., from Los Gatos Saratoga Rd. to Andrews St.; and on Montgomery St., from Los Gatos Saratoga Rd. to Andrews St. (1953).	M	$607,300	Deferred, change in priorities
2022	5968	Boynton Avenue Main	Replace 1,590' of 8" SOMCL and 8" AC pipe with 8" DICLZ pipe on Boynton Ave., from Clardy Pl. to Akron Way; on Greenlee Dr., from Boynton Ave. to EOM; and on Akron Way, from Boyton Ave. to Westlake Dr. (1964).	M	$586,400	Deferred, change in priorities
2022	5971	Ravenwood Drive Main	Replace 1,080' of 6" WSCL pipe with 6" DICLZ pipe on Ravenwood Dr., from Marilyn Ln. to Quito Rd. (1953).	M	$394,800	Deferred, in 2024-2026 GRC
2023	5975	Sunnybrook Drive Main	Replace 620' of 6" WSCL and 6" AC pipe with 6" DICLZ pipe on Sunnybrook Dr., from Kenneth St. to EOM. (1953).	M	$257,400	Deferred, change in priorities
2023	5976	Lexford Avenue Main	Replace 1,560' of 6" WSCL pipe with 6" DICLZ pipe on Lexford Ave., from Potrero Dr. to Foxworthy Ave. (1955).	M	$510,100	Deferred, change in priorities
2023	5978	Pontiac Avenue Main	Replace Elva Regulating Station and replace 4,160' of 6" FKCL, 8" FKCL, 6" WSCL, 4" PVC, 6" AC, and 12" CI pipe with 6" DICLZ pipe on Pontiac Ave., from Trinity Ave. to Saratoga Hills Rd.; on Saratoga Hills Rd., from Pontiac Ave. to Reid Ln.; on Reid Ln., from Saratoga Hills Rd. to Michaels Dr.; on Canyon View Dr., from Michaels Dr. to Elvira St.; and on Elvira St., from Reid Ln. to EOM. (1929).	M	$1,932,100	Deferred, in 2024-2026 GRC
2023	5982	Kilchoan Way Main	Replace 3,750' of 8" FKCL, 4" AC, 6" AC, and 8" AC pipe with 6" DICLZ pipe on Kilchoan Way, from Holly Hill Dr. to Taper Ln.; on Kilchoan Ct.; on Dundee Ct.; on Dornoch Ave.; on Bali Ct.; on Glena Ct.; and on Taper Ct. (1964).	M	$1,200,300	Deferred, change in priorities

Budget Year	Index #	Project Name	Description	Budget Category	Budgeted Cost	Notes
2022	5983	Miller Avenue	Replace 5,200' of 6" FKCL and 4" AC pipe with 6" DICLZ pipe on Miller Ave., from Eric Dr. to Candy Ln.; on Candy Ln., from Miller Ave. to Eric Dr.; on Eric Dr., from Miller Ave. to Kristy Ln.; on Ardmore Ct.; on Ashton Ct.; on Arden Ct.; on Ladera Ct.; and on Ingrid Ct. (1962).	M	$1,840,900	Deferred, change in priorities
2022	5994	Camden Avenue Main	Replace 250' of 17.25" SOMCL pipe with 16" DICLZ pipe on Camden Ave., from Hicks Rd. to Guadalupe Mines Rd., crossing Guadalupe Creek (1966).	M	$400,000	Deferred, in 2024-2026 GRC
2023	6015	Thompson Avenue Main	Replace 940' of 6" WSCL pipe with 6" DICLZ pipe on Thompson Ave., from Shaw Dr. to Estelle Ave.; and on Estelle Ave., from Thompson Ave. to Cardin Ave. (1959).	M	$331,100	Deferred, in 2024-2026 GRC
2023	5890	Batista Station Pressure System	Replace Batista Station Pressure System B-3, B-4, B-5, and B-6 pumps and motors. The existing pump and motor have reached the end of their useful lives per the Pump and Motor Tactical Asset Management Plan.	P	$380,700	Deferred, change in priorities
2023	5919	Cottage Grove B-4 Motor	Replace Cottage Grove Station B-4 motor. The existing motor has reached the end of its useful life per the Pump and Motor Tactical Asset Management Plan.	P	$40,000	Deferred, change in priorities
2023	5922	17th St Station W-12 Pump and Motor	Replace 17th Street Station W-12 pump and motor. The existing pump and motor were identified for replacement per the Pump and Motor Tactical Asset Management Plan based on efficiency and design life.	P	$290,800	Deferred, change in priorities
2023	5670	Saratoga WTP Replacement Phase I	Complete design and all permitting necessary to begin replacing the Saratoga Water Treatment Plant (WTP) in 2024. The existing Saratoga WTP has reached the end of its useful life, is located on an active landslide, and uses a treatment technology that is inefficient and has become obsolete. The WTP is to be relocated and replaced with current membrane technology to maximize water production.	Q	$4,257,800	Deferred due to budgetary limits and customer rate impact. For now, SJWC plans to prioritize per- and polyfluoroalkyl substances (PFAS) removal systems and other water supply projects, but will continue to make necessary upgrades and improvements to the WTP at the existing site to ensure it remains a reliable and operational input.
2023	5731	17th Street Station Chloramination	Install a 7.2 MGD groundwater well onsite chlorine generation and chloramination dosing system including chemical storage, pumps, analyzers, conduit, power, and SCADA connectivity. This project is needed to meet water quality standards for the potable water system.	Q	$4,243,200	Deferred, change in priorities
2021	5786	Water Quality Master Plan	This plan will develop water quality objectives and goals and evaluate and recommend capital improvements and operational strategies for achieving those objectives and goals.	Q	$250,000	Not needed
2023	5204	Pleasant Vista Tank	Install an elastomeric polyurethane liner within the existing 203k gallon bolted steel water storage tank and add a perimeter guardrail and other tank safety improvements. The interior lining of the existing tank is in poor condition with significant blistering and corrosion.	R	$788,200	Deferred, in 2024-2026 GRC
2023	5305	Kittredge Wetland Creation MMRP	This is the fourth year of a ten-year mitigation, monitoring, and reporting program (MMRP). The MMRP is needed to comply with the Regional Water Quality Control Board clean water permit.	S	$38,700	Not needed. Original Kittredge wetland footprint to be expanded in 2023 with a Kittredge Wetland Expansion project (see Work Order J30086 in MDR II.D.6). Mitigation, monitoring, and reporting program (MMRP) for the original wetland footprint to be reset in 2024 with a combined MMRP for the expanded Kittredge wetland footprint (see Index #6098 in 2024-2026 GRC).
2023	5802	Three Mile Station Paving	Perform paving improvements, including localized digouts and replacement, a slurry seal and restripe of the entire station, and improvements to the sidewalk and driveway aprons, as needed.	W	$275,900	Deferred, change in priorities. Conflicts with other major projects at Three Mile Station, notably the solar system and electric vehicle charging projects. SJWC plans to repave Three Mile Campus following major site improvements.

ATTACHMENT 1-2

MDR II.D.6

MDR II.D.6 List of Plant Built but not Authorized

Notes:
1. Where applicable for main replacement projects, pipeline leak count and replacement ranking from corresponding Pipeline Asset Management Plan is provided as part of the project justification
2. For other non-main replacement projects, additional supporting documentation is provided for projects approaching or exceeding $500,000 in Cost to Date

Project Name	Project Description	Reason for Work	Budget Category	WO	WO Status	Cost to Date (1/1/2021-8/31/2023) [2]	Pipeline Asset Management Plan Year [1]	Pipeline Leak Count [1]	Pipeline Replacement Ranking [1]
Eastview Drive Main	Replace 5,270' of 8.625" WSCL pipe and 6" AC pipe with 8" and 6" DICL pipe on Clearview Dr., from La Rinconada Dr. to 290' west of La Rinconada Dr.; on La Rinconada Dr., from Clearview Dr. to Eastview Dr.; on Eastview Dr., from La Rinconada Dr. to Clearview Dr.; and on Clearview Dr., from La Rinconada Dr. to Eastview Dr. (1958).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00077	posted to CPR	$1,622,013	2019	5	326
John Drive Main	Replace 4,389' of 6.625" WSCL pipe with 6" DICL pipe on John Dr., from Farallone Dr. to South Blaney Ave.; on La Roda Dr., from Suisun Dr. to John Dr.; on Suisun Dr., from Farallone Dr. to South Blaney Ave.; on Farallone Dr., from Pacifica Dr. to John Dr.; and on Pinole Ct., from John Dr. to EOM (1959).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00090	posted to CPR	$1,433,601	2019	6	67
Mariposa Avenue Main	Replace 3,440' of 4" CI pipe and 6.625" FKCL pipe with 6" DICL pipe on Mariposa Ave., from San Benito Ave. to Santa Cruz Ave.; on San Mateo Ave., from San Benito Ave. to Santa Cruz Ave.; on Ashler Ave., from San Benito Ave. to Santa Cruz Ave.; on Olive St., from San Benito Ave. to Santa Cruz Ave.; and on Thurston Ave., from San Benito Ave. to Santa Cruz Ave. (1924).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00061	posted to CPR	$1,300,563	2019	5	172
South 7th Street Main	Replace 1,485' of 12" WSCL pipe with 12" DICLZ pipe on E Alma Ave., from S 7th St. to Cottage Grove Ave.; and on S 7th St., from E Alma Ave. to 650' south of E Alma Ave. (1951).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J20080	completed	$1,267,747	2019	3	61
Forest Avenue Main	Replace 2,975' of 4" and 6" CI pipe with 8" DICL pipe on Forest Ave., from North Bascom Ave. to Wabash Ave.; on Topeka Ave., from Forest Ave. to 350' north of Forest Ave.; on Cleveland Ave., from Forest Ave. to 120' north of Forest Ave.; and on Brooklyn Ave., from Forest Ave. to Garden Dr. (1905).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00057	posted to CPR	$1,253,961	2019	2	290
Sherman Oaks Drive Main	Replace 3,990' of 6" & 8" WS and 6" WSCL pipe with 6" DICL pipe on Sherman Oaks Dr., from Fruitdale Ave. to Kingman Ave.; on Kingman Ave., from Sherman Oaks Dr. to Mansfield Dr.; on Mansfield Dr., from Kingman Ave. to Randolph Dr.; on Randolph Dr., from Sherman Oaks Dr. to Del Mar Ave.; on Rexford Way, from Mansfield Dr. to Del Mar Ave.; and on Del Mar Ave., from Rexford Way to Fruitdale Ave. (1950).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00085	posted to CPR	$1,185,033	2019	1	4111
Telfer, Willow Glen & Dean Ave Main	Replace 3,975' of 6" and 4" CI pipe with 6" DICL pipe on Telfer Ave., from Searles Ave. to Willow Glen Way; on Willow Glen Way, from Newport Ave. to Lincoln Ave.; and on Dean Ave., from Newport Ave. to Lincoln Ave. (1927).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00079	posted to CPR	$1,106,143	2019	1	209
North 17th Street Main	Replace 2,275' of 4" & 6" CI pipe with 6" & 12" DICL pipe on E Taylor St., from N 16th St., to N 18th St.; and on N 17th St., from E Mission St. to Jackson St. (1911).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00102	posted to CPR	$1,080,232	2019	1	1271
Highland Oaks Drive Main	Replace 2,610' of 6.625" WSCL pipe and 2" SS pipe with 6" DICL pipe on Highland Oaks Dr., from Lark Ave. to EOM; on Highland Oaks Way, from Highland Oaks Dr. to EOM; on Oakmont Way, from Highland Oaks Dr. to EOM; on Oakpark Dr., from Highland Oaks Dr. to Garden Ln.; on Oakwood Way, from Highland Oaks Dr. to EOM; and on Oakdale Dr., from Highland Oaks Dr. to Garden Ln. (1957).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00098	posted to CPR	$1,077,676	2019	3	354
Fairview Avenue Main	Replace 2,735' of 4" & 6" CI pipe and 4" WS pipe with 6" DICL pipe on Fairview Ave., from Newport Ave. to Lincoln Ave.; on Newport Ave., from Pine Ave. to Norval Way; and on Norval Way, from Newport Ave. to Lincoln Ave. (1926).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00100	posted to CPR	$1,051,518	2019	1	872
Doralee Way Main	Replace 3,280' of 6.625" and 8.625" WSCL pipe with 6" DICL pipe on Janis Way, from Richland Ave. to Lincoln Ave.; on Delynn Way, from Richland Ave. to Lincoln Ave.; and on Doralee Way, from Richland Ave. to Lincoln Ave. (1951).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00096	posted to CPR	$964,858	2019	2	58
Puerto Vallarta Drive Main	Replace 2,683' of 6" FKCL and 8" SOMCL pipe with 8" DICL pipe on Puerto Vallarta Dr., from Camden Ave. to Vera Cruz Dr.; and on Via Madero Dr., from Coleman Rd. to Montellano Dr. (1965).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00084	posted to CPR	$925,997	2019	3	1647
Shawnee Lane Main	Replace 2,580' of 6.625" SOMCL pipe with 6" DICL pipe on Shawnee Ln., from Blossom Ave. to Comanche Dr.; and on Azule Ave., from Blossom Ave. to Calero Ave. (1966).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00059	posted to CPR	$904,949	2019	1	296
Menhart Lane Main	Replace 2,150' of 6.625" and 10.75" WSCL pipe with 6" DICL pipe on Menhart Ln., from Moretti Dr. to Calvert Dr.; and on Moretti Dr., from Menhart Ln. to Loree Ave. (1952).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00076	in service	$868,910	2019	2	181
Greenwood Road Main	Replace 2,140' of 6" AC pipe with 8" DICL pipe on Greenwood Rd., from 310' south of Saratoga-Los Gatos Rd. to EOM (1969).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00065	posted to CPR	$867,339	2019	1	264

Project Name	Project Description	Reason for Work	Budget Category	WO	WO Status	Cost to Date (1/1/2021-8/31/2023) [2]	Pipeline Asset Management Plan Year [1]	Pipeline Leak Count [1]	Pipeline Replacement Ranking [1]
Hillview Drive Main	Replace 3,290' of 6.625", 4.5", & 6" WSCL pipe & 4" AC pipe with 6" DICL pipe on Toyon Dr., from Hillview Dr. to Oak Dr.; on Hillview Dr., from Billingsley South R/W North; on Oak Dr., from Quito Rd. to Oak Dr.; on Billingsley S. R/W from Quito Rd. to Hillview Dr.; on Billingsley N. R/W from Hillview Dr. to Toyon Dr.; on Oak Dr., from 290' east of Laurel Dr. to EOM (1953).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00051	open	$1,275,319	2019	3	484
Downing Avenue Main	Replace 1,870' of 6" SI pipe with 6" DICL pipe on Downing Ave., from Empey Way to Delna Manor Ln. (1939).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00101	posted to CPR	$753,202	2019	2	1198
Poplar Avenue Main	Replace 1,350' of 4" & 6" CI pipe with 8" DICL pipe on Poplar Ave., from El Patio Dr. to Maple Ave.; and on Page St., from Hawthorne Ave. to E Campbell Ave. (1940).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00086	posted to CPR	$742,114	2019	3	3615
McAbee Road Main	Replace 2,010' of 8" AC pipe and 6.625" SOMCL pipe with 6" DICL pipe on McAbee Rd., from Golden Oak Way to Redmond Ave.; on McAbee Ct., from McAbee Rd. to EOM; and on Ridge Oak Ct., from McAbee Rd. to EOM. (1967).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00050	posted to CPR	$721,099	2019	3	252
Shilshone Cir & Keldon Dr Main	Replace 2,600' of 6.625" SOMCL pipe with 6" DICL pipe on Shilshone Circle, from Keldon Dr. to Keldon Dr.; on Keldon Dr., from Shilshone Circle to Shilshone Circle; on Keldon Ct., from Keldon Dr. to EOM; and on Shilshone Way, from Shilshone Circle to Sherlock Dr. (1969).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00078	posted to CPR	$712,124	2019	2	171
Blue Gum Drive Main	Replace 968' of 8" AC pipe with 10" DICL pipe on Blue Gum Dr., from Fleming Ave. to 170' south of Photinia Ln. (1978).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00064	completed	$659,114	2019	2	286
Will Wool Security Fence	Install 886 LF of 8' AmeriStar Impasse II steel fence (anti-scale gauntlet style) at Will Wool Station.	This facility stores critical emergency equipment needed to operate facilities and the current chain link fencing material is not providing the security required to keep assets safe.	W	J20109	posted to CPR	$555,590	n/a	n/a	n/a
Vista Loop Main	Replace 1,530' of 8" DICL pipe and 6" FKCL pipe with 6" DICL pipe on Vista Loop, from Hosta Ln. to 120' north of Glenrock Ct.; and on Glenrock Ct., from Vista Loop to EOM. (1964).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00058	posted to CPR	$542,021	2019	6	338
Almaden Valley Station Solar	Install a 258 kW roof mounted solar power generation system at Almaden Valley Station.	To offset the electric load and allow greater operational flexibility and reliability for the distribution of potable water from this pumping and storage station.	G	J20311	open	$509,814	n/a	n/a	n/a
Physical Security Gap Assessment	Conduct a study to evaluate the current state and desired future state of physical security infrastructure, and identify capital improvement projects needed to resolve gaps in physical security needs.	Physical security assets are siloed, fractured in their approach and application, and lack cohesion to protect water production, storage, processing and delivery.	W	J30066	open	$526,118	n/a	n/a	n/a
Glacier Drive Main	Replace 1,310' of 6.625" FKCL pipe with 6" DICL pipe on Glacier Dr., from Jarvis Ave. to Jacob Ave. (1964).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00060	posted to CPR	$456,062	2019	1	178
La Paloma Avenue Main	Replace 760' of 4" CI pipe and 6" AC pipe with 8" DICL pipe on La Paloma Ave., from Saratoga Ave. to Spaich Ct. (1928).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00097	posted to CPR	$434,754	2019	1	6659
Central Avenue Station Generator	Replace the existing 30 kW diesel generator used during a PG&E outage to power the Central Avenue Station pressure system.	The existing generator, installed in 1995, has reached the end of its useful life and is no longer functional. This asset cannot be repaired because replacement parts are now obsolete and no longer	P	J20087	open	$514,702	n/a	n/a	n/a
Sherman Street Main	Replace 965' of 6" & 8" CI pipe with 6" DICL pipe on Sherman St., from Oak St. to Willow St.; and on Edwards Ave., from Sherman St. to S 1st St. (1945).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00089	posted to CPR	$374,255	2019	1	888
Large Meter Accuracy Study	Perform a meter health study by analyzing real-time meter and usage information for register, measurement, crossover, sizing, and by-pass failures.	This study will identify and validate lost revenue associated with failures and inform future large meter capital replacement strategies.	D	J20081	posted to CPR	$356,696	n/a	n/a	n/a
East Humboldt Street Main	Replace 2,960' of 4" and 6" CI pipe with 6" DICL pipe on South 7th St., from East Humboldt St. to 640' east of East Humboldt St.; on East Humboldt St., from South 6th St. to South 8th St.; on South 8th St., from Keyes St. to East Humboldt St.; on South 7th St., from Keyes St. to East Humboldt St.; and on South 6th St., from Keyes St. to East Humboldt St. (1923).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00040	posted to CPR	$322,093	2019	8	477
Rogers Avenue Main	Replace 70' of 6" SB pipe with 8" HDPE pipe within an existing 14-in casing, near 1670 Rogers Ave. (1981).	Leak discovered on the 6" SB pipe and 14" bare steel casing under the railroad tracks on Rogers Ave. Main needs to be replaced to restore water service.	M	J20226	posted to CPR	$317,662	n/a	n/a	n/a
Brackish Desal Feasibility Study	Conduct a feasibility study for the construction of a new Brackish Water Desalination Plant near San Jose-Santa Clara Regional Wastewater Facility to treat brackish Bay Water. Components of the Feasibility Study will include geohydrological assessment, site assessment, development of construction costs, evaluation of regulatory requirements, and evaluation of alternatives for treatment technologies, brine management, distribution system conveyance, and energy generation and storage.	The proposed Brackish Water Desalination Feasibility Study will determine if an alternate source of potable water supply is available that will allow San Jose Water to increase the resiliency of its water supplies and better adapt to future impacts from climate change, droughts, and regulatory requirements.	S	J20289	open	$363,724	n/a	n/a	n/a

Project Name	Project Description	Reason for Work	Budget Category	WO	WO Status	Cost to Date (1/1/2021-8/31/2023) [2]	Pipeline Asset Management Plan Year [1]	Pipeline Leak Count [1]	Pipeline Replacement Ranking [1]
Saratoga Hills Station Surge Tank	Install a 375-gallon surge tank on the discharge line of Saratoga Hills Booster.	To mitigate hydraulic transients during booster pump operation.	P	J10191	open	$494,821	n/a	n/a	n/a
Graham Avenue Main	Replace 586' of 4" CI pipe with 6" DICL pipe on Graham Ave., from Mastic St. to Willow St. (1948).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00091	posted to CPR	$293,028	2019	2	2018
East Saint James Street Main	Replace 450' of 4" CI pipe with 6" and 8" DICL pipe on E St. James St., from 280' west of N 5th St. to N 6th St. (1889).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00099	posted to CPR	$260,496	2019	3	6419
Valve Exercising/Vacuum Truck	Purchase one Ford F-550 combination valve exercising and vacuum truck.	This truck is needed to efficiently exercise valves and clear debris from within valve boxes.	W	J10225	posted to CPR	$257,445	n/a	n/a	n/a
Saraglen Drive Main	Replace 2,185' of 8" and 4" AC pipe with 8" DICL pipe on Saraglen Dr., from Prospect Rd. to 500' west of Scully Ave.; and on Saraglen Ct., from Saraglen Dr. to EOM (1961).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J20188	open	$256,370	2019	2	226
Griffith Street Main	Replace 760' of 6.625" WSCL pipe with 6" DICL pipe on Griffith St., from Story Rd. to Vernice Ave. (1952).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00055	posted to CPR	$253,156	2019	2	69
North 11th Street Main	Replace 435' of 4" CI pipe with 8" DICL Pipe on N. 11th St., from E. St. John St., South (1898).	Due to developer improvements, the main was upsized in order to meet the required flow for the developer's work. The upsizing of the main to developer's project limit is at developer's expense. The upsizing of the main from developer's project end limit to E. St. John St. is at SJW's cost. Please refer J1-421 for the developer portion	M	J10220	posted to CPR	$201,000	n/a	n/a	n/a
Cayuga Court Main	Replace 350' of 4" PVC pipe with 4" DICL pipe on Cayuga Ct., from Cayuga Dr. to EOM; and on Cree Ct., from Cree Dr. to EOM (1967).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00054	posted to CPR	$190,933	2019	3	188
Prevost Court Main	Replace 365' of 6" AC pipe with 6" DICL pipe on Prevost Court, from Willow Street to end of cul-de-sac (1979).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00142	posted to CPR	$173,489	2019	2	260
Pipeline Asset Management Plan	This is a consultant study that will use artificial intelligence to assess complex data sets specific to San Jose Water in order to predict the probability of failure for all distribution system piping assets.	The selected consultant has shown success in accurately predicting pipeline failures for many utilities. This analysis will help us to optimally replace the right pipes before failure and to reduce the number of pipeline failures we experience. This will lead to increased customer satisfaction, reduced number of worker injuries, reduced water loss, and enhanced protection of the environment. In addition, having a 3rd party perform this analysis will free up staff time to carry out other high-value tasks.	M	J20154	posted to CPR	$165,600	n/a	n/a	n/a
Starrett Court Main	Replace 385' of 4.5" WSCL pipe and 2" SS pipe with 6" DICL pipe on Starrett Ct., from Sterling Blvd. to EOM (1953).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00056	posted to CPR	$163,697	2019	2	4780
Vickery Station Solar	Install a 310 kW roof mounted solar power generation system at Vickery Station.	To offset the electric load and allow greater operational flexibility and reliability for the distribution of potable water from this pumping and water storage station.	G	J20310	in service	$163,501	n/a	n/a	n/a
Sustainability Plan	Prepare a Sustainability Plan to define a roadmap to minimize SJWC's environmental footprint and provides guidance in the implementation of programs that are aligned with sustainable practices.	To lower cost of capital and operational risks by ensuring that infrastructure investments and operational practices, as well as those of its contractors and vendors, are aligned with best management practices as they relate to GHG emissions, environmental management, health & safety and procurement.	G	J10208	posted to CPR	$152,953	n/a	n/a	n/a
Fruitvale Avenue Main	Replace 2,150' of 6" DICL pipe with 12" DICLZ pipe on Fruitvale Ave., from Montauk Dr. to Douglass Ln. (1991).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30042	open	$1,033,056	2019	5	726
JDE Upgrade - Migration	Services to migrate JDE to new set of servers, E1 tool release, and bring E1 application up to date.	Work needed on JDE system in order to meet the schedule for Power Plan and JDE Merger projects.	E-GA	J10184	posted to CPR	$150,793	n/a	n/a	n/a
North 5th Street Main	Replace 940' of 6" DICL pipe with 6" DICLZ pipe, on N. 5th St., from E. Hedding St. to E Mission St. (1992).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30047	in service	$751,681	2019	5	221
Foss Avenue Main	Replace 400' of 6" DICL pipe with 6" DICL pipe on Foss Ave., from San Fernando St. to EOM (1984).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00052	posted to CPR	$149,109	2019	4	257
Senter Road Station Improvements	Replace the existing Senter Road Station W-1 check valve with a booster pump control valve, install a new deep well pump control valve, replace the gate and fencing, and repave the site.	These improvements are designed to mitigate water hammer, which has caused numerous plumbing and equipment failures within the chemical delivery system and improve site access and security.	P	J20086	open	$150,115	n/a	n/a	n/a
East San Fernando Street Main	Replace 1,105' of 6" and 8" CI pipe with 8" and 12" DICLZ pipe on S 7th St., from E Santa Clara St. to 280' north of E San Fernando St.; and on E San Fernando St., from S 7th St. to S 9th St. (1901).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J20079	open	$148,697	2019	2	1262

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Williams Sta. Well Blow off System	Construction of a well blowoff sediment removal and on-site infiltration system.	To bring well blowoff discharges from the site into compliance with the San Francisco Bay Regional Water Quality Control Board's general permit for drinking water discharges.	S	J40005	open	$151,167	n/a	n/a	n/a
Innovyze InfoWater Pro	Upgrade existing Innovyze hydraulic modeling software from InfoWater to InfoWater Pro.	The updated hydraulic modeling software is fully integrated into Esri ArcGIS Pro and has additional tools that will increase productivity.	E-ECP	J10295	posted to CPR	$141,179	n/a	n/a	n/a
PI System Configuration	Configure the PI system with new features and functionality. This work includes the creation of interactive dashboards for monitoring pump and station performance. The dashboards integrate multiple data streams and perform real-time and summary analytics to aid operators in pumping optimization, maintenance, and replacement decisions.	These enhancements will increase operational efficiency and better support the needs of the business.	E-ECP	J20083	posted to CPR	$139,878	n/a	n/a	n/a
Prospect Tank PCB Remediation Study	Planning, characterization, and report preparation activities related to PCBs discovered in the materials inside Prospect Tank. Work includes a Sampling and Analysis plan (SAP), Health and Safety Plan (HASP), and a PCB Remediation Work Plan.	To deliver a comprehensive assessment of the Prospect Tank materials needed to ensure that all PCBs in Prospect Tank are removed or remediated to protect human and environmental health.	R	J10211	posted to CPR	$134,576	n/a	n/a	n/a
Story Road Main	Replace 10' of 18" WSCL pipe with 18" PVCO pipe at Story Rd and Capitol Expressway intersection, in conjunction with J1-426 Capitol Expressway Santa Clara Valley Transportation Authority (VTA) Light Rail Extension project.	Pitting found below the existing 18" WSCL pipe (58-172) located on Story Road at Capitol Expressway forced the replacement at company cost of 10' of that piping with 18" PVCO piping. Replacement of pipe was necessary to connect to that main with the developer's piping.	M	J20200	posted to CPR	$129,362	n/a	n/a	n/a
Help Desk Software	Purchase and implement new help desk software.	To track IT and system trouble tickets and IT assets.	E-IT	J00141	posted to CPR	$128,718	n/a	n/a	n/a
McLaughlin Station Disinfection Sys	Treatment of groundwater produced and delivered through disinfection facilities using sodium hypochlorite or chloramination dosing depending on Water Quality Dept operational needs.	To maintain compliance of disinfectant residual within the transmission, distribution and storage system and reduce nitrification phenomena associated with blending of non	S	H90033	in service	$129,605	n/a	n/a	n/a
Remote-Controlled Slope Mower	Purchase a remote-controlled slope mower for watershed and company-wide vegetation management and fuel reduction projects.	Annual vegetation management is required on SJW watershed lands, near stations, and along SJW maintained access roads and facilities. The remote-controlled mower will reduce overall maintenance costs, improve worker health and safety, and increase efficiency of vegetation management activities. Purchase of the mower will also reduce reliance on rental equipment, and contracted and seasonal labor.	E-OM	J10294	posted to CPR	$124,764	n/a	n/a	n/a
Three Mile Station Generators ATS	Replace the Automatic Transfer Switch (ATS) for the main generator at 3-Mile Station.	To supply the new vehicles that Operations has added to their fleet.	P	J10173	posted to CPR	$118,439	n/a	n/a	n/a
Montevina Clearwell #1 Drain Line	Replace 42' of 12" HDPE and 30' of 8" HDPE Storm Drain piping for Montevina Clearwell #1.	The existing drain line has deteriorated and portions have failed and require replacement.	R	J30059	posted to CPR	$117,906	n/a	n/a	n/a
Montego Zone Operational Zone Valve	Install a new Operational Zone Valve (OZV), two new hydrants and one distribution system sample station.	The new OZV allows splitting the Montego Zone and allowing storage facilities to cycle to achieve better tank turnover and provide operational flexibility. The new fire hydrant on Montego Court was requested by San Jose FD and will improve fire flow availability. The additional hydrant at the OZV will allow for bi-directional flushing at the OZV and the sample station are needed for splitting Montego and Via Campagna zones per State Division of Drinking Water distribution system sample point requirements.	A	J20070	posted to CPR	$116,229	n/a	n/a	n/a
Los Gatos Blvd. Tie-in Modification	Modify 1-24" Tie-in DICL Pipe on Los Gatos Blvd, 300' N/N Terreno de Flores Ln.	Modification needed due to a field design change on a large developer project which did not meet the needs of SJW Operations.	M	J10224	open	$116,247	n/a	n/a	n/a
Trimble Court Main	Replace 150' of 4" AC pipe with 4" DICL pipe on Trimble Ct., from Trimble Rd. to EOM (1967).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00053	posted to CPR	$114,977	2019	3	184
Trimble Surveying Equipment	Purchase two Trimble R12i GPS rover units, one Trimble X7 scanner, one TSC5 Trimble data collector, and two additional Trimble Business Center software licenses.	The existing units have reached the end of their useful life. With technological advances, the newer models will help improve quality, accuracy, and efficiency of field and office survey duties.	E-ECP	J20140	posted to CPR	$114,363	n/a	n/a	n/a
West Walbrook Drive Main	Replace 1,350' of 6.625" WSCL pipe with 6" DICL pipe on West Walbrook Dr., from Miller Ave. to Bing Dr.; and on Wisteria Way, from Larkin Ave. to Miller Ave. (1960).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00042	posted to CPR	$111,466	2019	8	72
Saratoga WTP Air Compressor	Replace air compressor and receiver equipment for Saratoga Water Treatment Plant (WTP).	The existing equipment cannot be repaired economically.	Q	J20196	open	$112,168	n/a	n/a	n/a
Saint Regis Drive Main	Replace 120 feet of 6-inch DICL pipe (1994) along Saint Regis Drive from the end of the 2015 water main installation (H50079) to the end of the cul-de-sac.	Very poor condition of main discovered in conjunction with recent repair by DS.	M	J10116	posted to CPR	$107,542	n/a	n/a	n/a
Howell WTP Generator	Install a new 14 kW propane standby generator at the Howell Filter Plant to allow continued operation of the plant during a loss of PG&E power.	The Howell Filter Plant does not currently have a source of backup power supply.	Q	J20057	posted to CPR	$107,535	n/a	n/a	n/a
Lake Ranch Monitoring Equipment	Install raw water diversion/impoundment and bypass flow stream gauge monitoring equipment at Lake Ranch.	The company is required by regulators to monitor diverted and bypassed flows and to determine the minimum bypass flow necessary to sustain downstream habitats.	S	J00236	in service	$106,747	n/a	n/a	n/a
Sewer Discharge Sampling Vault	Replace existing vault and sample collection apparatus.	To accommodate both the existing flowmeter and a 5 gallon sample collection vessel to meet permit conditions. Improvements will address Occupational Safety and Health Administration (OSHA) compliance by correcting safety deficiencies with the current vault by installing lift assisted doors and access ladder.	Q	H90217	posted to CPR	$101,503	n/a	n/a	n/a

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Aldercroft Hts Rd Raw Water	Replace 420' of 30" WS pipe and 180' of 30" DICL and DCCL pipe for the Ostwald Intake conveyance system with 30" DICLZ pipe on Aldercroft Heights Rd. near the entrance to the Hooker Bypass road. Project to be done in conjunction with the Santa Clara County Department of Public Works project to replace three bridges crossing Los Gatos Creek and Hooker Creek. (1960).	Project to be done in conjunction with the Santa Clara County Department of Public Works project to replace three bridges crossing Los Gatos Creek and Hooker Creek. (1960).	C	J30037	open	$96,093	n/a	n/a	n/a
Daves Avenue Main	Replace 1,580' of 6" WSCL and 21" FKCL pipe with 6" and 24" DICLZ pipe on Daves Ave., from Saratoga Los Gatos Rd to Daves Ave Regulator Station; and on Laurel Dr., approx. 150' from Daves Ave. (1955).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30048	open	$95,759	2019	4	231
Franciscan Station Solar	Install a 60 kW ground mounted solar power generation system at Franciscan Station.	To offset the electric load and allow greater operational flexibility and reliability for the distribution of potable water from this pump station.	G	J30083	open	$90,001	n/a	n/a	n/a
Los Gatos Creek Watershed Study	The Watershed Study will include the following components: 1) watershed program and mitigation studies, 2) regulatory permit application packages, and 3) mitigation plan, site design, and mitigation monitoring and reporting program (MMRP) development. The existing Watershed Program, associated Maintenance Manual, and environmental permits will be reviewed to identify necessary updates to the Program. A consultant will assist with preparing permit application packages as needed, evaluating sites for compensatory mitigation potential, and coordinating with regulatory agencies.	This study and related tasks will support future CIP work associated with The Los Gatos Creek Watershed Maintenance Program and development of compensatory mitigation sites and Program assets. Permits, approvals, and mitigation credits for the current program will expire in April 2023. Renewal of permits and approvals, and mitigation site development, are required to maintain regulatory compliance for watershed programs and CIP activities. The scope of work and studies outlined above will support a short-term study and evaluation of mitigation site options, and environmental planning and compliance constraints. Permits and mitigation are a legal/regulatory requirement for SJW operations on the watershed. Benefits include greater operational flexibility, improved environmental management, source water quality protection, wildfire mitigation, and costs efficiencies associated with consolidated resource agency permitting, monitoring and reporting.	S	J10293	in service	$111,560	n/a	n/a	n/a
SJWC Fleet Electrification Plan	Develop an electrification plan for the San Jose Water Company vehicle fleet.	This plan will facilitate an effective conversion of San Jose Water Company's fleet of internal combustion engine vehicles to electric vehicles fleet to meet its sustainability objectives and California targets that all vehicle sales be zero emission by 2035.	G	J20197	posted to CPR	$83,149	n/a	n/a	n/a
Sunol Street Station Property	Appraisal, site assessment, negotiation, and survey work associated with the acquisition of a portion of a City of San Jose property on Sunol Street (APN 264-11-024). San Jose Water property at Home Street, Bryan Avenue, and Spring Street stations will be exchanged as part of a land swap negotiation. Properties will be tied to each other via a single purchase agreement.	The new Sunol Street property will allow an above grade regulating and pumping station to be installed, which will improve the management of interzone water transfers between Dow and Cambrian zones.	L	J30181	open	$82,715	n/a	n/a	n/a
Invoice Cloud	Implement the Invoice Cloud payment portal, which will provide customers with a more efficient and expanded payment method.	San Jose Water's current electronic bill presentment, payment, and digital customer service platform has reached the end of its useful life.	E-IT	J30145	in service	$108,046	n/a	n/a	n/a
LGCWMP Conservation Credits	Purchase Los Gatos Creek Watershed Maintenance Program (LGCWMP) conservation credits from commercial provider for the 5-year compensatory mitigation program related to construction of a mitigation site.	Per regulatory and permitting requirements associated with the LGCWMP, San Jose Water is required to offset impacts to special-status species and their habitats. Species credits are not generated through the provision of onsite habitat establishment. As such, SJW will purchase species credits for special-status species through an established conservation bank. Habitat mitigation will be accomplished through establishment of an onsite mitigation area.	S	J20180	posted to CPR	$76,500	n/a	n/a	n/a
Emergency Operations Center	Build an Emergency Operations Center (EOC) at the 1221a South Bascom Ave. building.	An EOC is needed to provide a centralized location and environment where real-time information, standard operating procedures, and leadership can guide operations in critical emergency events.	W	J30067	open	$726,194	n/a	n/a	n/a
Morrill & Hostetter Turnout Improv	Replace the turnout regulators, flowmeters, electrical equipment, and appurtenances in the existing vault and retrofit the vault lids.	This turnout was identified for improvement based on the age and condition of the existing assets, water production criticality, and consequence of failure at this location.	S	J30146	open	$95,111	n/a	n/a	n/a
Prospect Tank Improvements	Install a liner in the interior of the 3.94 MG concrete tank, retrofit the overflow pipe, install perimeter guardrails, and modify tank access hatches.	Improvements are needed to address high concentrations of polychlorinated biphenyls (PCBs) found in the interior tank caulking material and to address sanitary and safety deficiencies.	R	J20103	open	$84,819	n/a	n/a	n/a
McKean Solar and Storage System	Install a ground mounted solar system with battery storage.	A solar system with battery storage is needed to power the disinfectant residual management system.	G	J30183	open	$70,218	n/a	n/a	n/a
OnBase Software Development	Perform software configuration, coding, and testing for OnBase software.	Improvements to OnBase to increase productivity.	E-IT	J20212	posted to CPR	$66,675	n/a	n/a	n/a
Wildfire Sensor Network	Purchase and install wildfire sensors.	These real-time sensors will provide early detection of wildfires and air quality throughout the watershed to help mitigate fires.	S	J30296	open	$65,940	n/a	n/a	n/a
ArcGIS Configuration	This is an annual program to build and add new functionality to web mapping applications using the Esri software platform.	This work ensures that relevant GIS data are available to inform and support the work of operating departments.	E-IT	J30101	in service	$61,686	n/a	n/a	n/a
Saratoga Recycled Water Sys Upgrade	Upgrade Saratoga's WTP recycled water system to include a complete programming overhaul, new PLC hardware, and valve upgrades.	The project will keep Saratoga Filter Plant in compliance with state and federal regulations regarding backwash water.	Q	J30224	open	$61,392	n/a	n/a	n/a
Franciscan Entrance Improvements	Upper site access driveway paving with other minor improvements to the area adjacent to the proposed driveway pavement.	Existing driveway is loose rock and relatively steep which hampers access and creates rock movement nuisance. Project provides all weather access for maintenance and operations activities such as security and landscape as well as reduce the transport of materials from the driveway and site to residential roads. Also to better fit with the aesthetic character of the neighborhood.	W	H80272	posted to CPR	$61,068	n/a	n/a	n/a

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110 West Taylor Office Solar	Installation of a 120 kW roof mounted solar power generation system.	To recover a portion of the total electric load and allow greater operational flexibility and reliability for energy needs at the Taylor campus.	G	J30062	open	$61,428	n/a	n/a	n/a
Buena Vista W-8 Flowmeter Cage	Install a flowmeter cage for Buena Vista W-8.	The existing flowmeter is installed in a partially buried vault that is broken and cannot be economically repaired.	W	J30061	completed	$58,502	n/a	n/a	n/a
Dow Station Solar	Design, permitting, and construction of a 126 kW ballasted solar system on Dow Station Tank 2.	To recover the total electric load and allow greater operational flexibility and reliability for energy needs at the Dow Drive Station.	G	J30226	open	$55,460	n/a	n/a	n/a
More Ave Pump Sta. Improvements	Replace booster pumps, motors, yard piping, and motor control center (MCC). Station modifications will include new surge protection devices, regulators, and turbines inside a concrete masonry unit structure.	These facilities were identified for replacement in the 2020 Pump and Motor Tactical Asset Management Plan (TAMP). The TAMP prioritized boosters for replacement based on business risk exposure.	P	J30056	open	$54,504	n/a	n/a	n/a
Torre Avenue Main	Replace 2,995' of 6.625" WSCL and 12.75" FKCL pipe with 6" and 12" DICLZ pipe on Torre Ave., from Rodriguez Ave. to Pacifica Dr.; on Pacifica Dr., from Torre Ave. to S. De Anza Blvd., and on Silverado Ave., from Whitney Way to S. De Anza Blvd. (1954).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30157	open	$54,857	2022	3	14
Kittredge Wetland Expansion	Design, permit, and construct wetlands on the northwest side of Lake Kittredge (north of existing SJWC wetlands).	Creation of wetlands is needed for compensatory habitat mitigation. Per regulatory and permitting requirements associated with the Los Gatos Creek Watershed Maintenance Program, SJWC is required to offset impacts to special-status species and their habitats.	S	J30086	open	$77,066	n/a	n/a	n/a
Recycled Water Master Plan Update	Update of the 2011 Recycled Water Master Plan to revise projected usage, potential customer sites, and costs.	The San Jose Water (SJW) Board authorized Strategic Water Resources Report indicated that it was important to continue proceeding with an expansion of SJW's recycled water system. In addition, City of San Jose has indicated that they would like to perform an expansion of the recycled water system in SJW's service area and requested an update to help prioritize water supply projects.	RW	J20187	posted to CPR	$49,918	n/a	n/a	n/a
Remote & Office Computer Equipment	Purchase additional computers and monitors to support work function for staff in conjunction with the company's Return to Office (RTO) program.	Return to Office (RTO) program to enable employees to have computer workspaces at home and at SJW office concurrently. Laptop computer will be moved between remote and office space. Monitor(s) and other necessary peripherals will remain at each location.	E-IT	J10248	posted to CPR	$49,658	n/a	n/a	n/a
Varner Court Main	Replace 335' of 6" DICL pipe with 6" DICLZ pipe on Varner Ct., from Varner Ct. Station to the end of the cul-de-sac. (1995).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30163	open	$64,689	2022	5	273
Cumberland Drive Main	Replace 3,280' of 6.625", 8.625", and 12.75" FKCL, 12.75" WSCL, 6.625" SOMCL, 4" PVC, and 4" AC pipe with 4", 6", and 18" DICLZ pipe on Cumberland Dr., from Winter Ln. to Scotland Dr.; all of Charters Ct.; all of Angus Ct.; and Via Escuela Dr., from Cumberland Dr. to EOM (1956).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30041	open	$103,505	2019	1	7786
Chapel Hill Way Main	Replace 2,470' of 6.625" and 8.625" WSCL pipe with 6" and 8" DICLZ pipe on Chapel Hill Way, from Martello Dr., to 100' East of Grenadine Way; on Courtney Ave., from Phelan Ave. to Holly Hill Dr.; on Holly Hill Dr., from Courtney Ave. to McLaughlin Ave.; on Martello Dr., from Holly Hill Dr. to Granada Way, and on Granada Way, from Martello Dr. to 560' East of Lucretia Ave. (1960).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30242	open	$46,603	2022	3	413
Lake Ranch Culvert Outflow MMRP	Mitigation monitoring reporting and maintenance services for the Lake Ranch Culvert Outflow Project.	The MMRP is needed to comply with the Regional Water Quality Control Board clean water permit.	S	J10276	posted to CPR	$42,973	n/a	n/a	n/a
Howell Filter Plant Improvements	Purchase a backwash unit and control panel components to replace existing obsolete components.	Current components are obsolete.	Q	J20056	posted to CPR	$42,801	n/a	n/a	n/a
Portable Hydrant Meters	Purchase 50 - 3" Badger portable hydrant meters with Zenner check valves.	Portable meters will be used to bill developers and contractors for water use relate to construction activities.	D	J20275	in service	$41,817	n/a	n/a	n/a
Clayton Road Main	Retire 220' of 6" GG, 6" DICL, and 10" DICL pipe and install 70' of 6" DICLZ pipe to a new hydrant on Clayton Road at South Babb Creek.	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J20091	open	$42,097	2019	4	17919
Donington Drive Main	Replace 2,420' of 4" AC and 6.625" FKCL, CCCL pipe on Donington Dr., from Countess Dr. to Johnson Ave.; on Countess Ct., from Countess Dr. to end; and on Lockhaven Way, from Countess Dr. to Donington Dr. (1964).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30165	open	$44,154	2022	2	288
Hydrant Pressure Impulse Recorders	Purchase ten hydrant pressure recorders for monitoring water pressure and transients at pump stations and within the distribution system along with a Traka locker to store the equipment.	The existing 3G hydrant pressure recorders have reached the end of their useful life and need to be replaced with new 4G recorders.	E-ECP	J20088	posted to CPR	$35,535	n/a	n/a	n/a
PI System Configuration	Configure the PI system with new features and functionality.	These enhancements will increase operational efficiency and better support the needs of the business.	E-ECP	J30109	in service	$34,686	n/a	n/a	n/a
Santa Rosa Station Solar	Installation of a 24 kW solar power generation system.	To recover a portion of the total electric load and allow greater operational flexibility and reliability for energy needs at the Santa Rosa Station.	G	J30214	open	$34,290	n/a	n/a	n/a
Webb Canyon Station Access Road	Slope stabilization and roadway restoration for a section of the access road to Webb Canyon Station.	Storm damage and slope failure cause a section of road failure resulting in a unsafe passage due to narrowed drivable path and unstable embankment. Corrective action is needed to prevent further erosion and protect the existing tank inlet/outlet main that runs beneath the road.	W	J30228	open	$49,931	n/a	n/a	n/a

Project Name	Project Description	Reason for Work	Budget Category	WO	WO Status	Cost to Date (1/1/2021-8/31/2023) [2]	Pipeline Asset Management Plan Year [1]	Pipeline Leak Count [1]	Pipeline Replacement Ranking [1]
Bottomline Upgrade	Upgrade Bottomline software to be compatible with the updated version JD Edwards software 9.2.	Upgrading this application will improve its functionality and product support, leverage newer databases, servers, and operating systems for use with SJWC's recently upgraded JD Edwards 9.2 software, and eliminate the need to maintain desktop-based software.	E-GA	J30084	in service	$46,719	n/a	n/a	n/a
1221A S Bascom Perimeter Landscape	Landscape modifications adjacent to structure of 1221A S. Bascom Ave., including the replacement of existing landscape irrigation controls and vegetation.	To improve building function by reducing risks for source of water collection adjacent to and beneath the building causing moisture intrusion.	W	H90053	in service	$37,860	n/a	n/a	n/a
Rundell Way Easement	Appraisal, negotiation, and survey work for an easement from Cal Fire on APN #558-41-027, near the intersection of Old Santa Cruz Highway and Rundell Way. Acquiring this easement will allow the neighboring 4" main, customer services, and meters next to Lexington Reservoir to be relocated into the more accessible easement alignment. This scope of work will only cover expected costs in calendar year 2022. The easement acquisition and water main replacement/relocation work will be budgeted for separately in the 2023 CIP Budget.	In their current location, the customer services, meters, and pressure regulators next to Lexington Reservoir cannot be safely accessed and maintained by San Jose Water staff.	L	J20184	open	$35,584	n/a	n/a	n/a
Fleming Station Improvements	Replace B-1 and B-2 pumps, modify booster piping configuration, install a 6" pressure regulator, and install two 6" pumper connections.	The piping modification and regulator will increase operational flexibility between Cambrian, Columbine, and Miguelito zones.	P	J30064	open	$33,691	n/a	n/a	n/a
Lake Ranch Culvert MMRP	This is the second year of a five-year mitigation, monitoring, and reporting program (MMRP).	The MMRP is needed to comply with the Regional Water Quality Control Board clean water permit.	S	J20133	posted to CPR	$30,983	n/a	n/a	n/a
Pumping Equipment Sensors	Installation of EKM power monitors, cellular routers, and Rosemount pressure transmitters for monitoring pump efficiency at various stations.	These sensors will be used to calculate real-time pumping efficiency. This information will then be used to prioritize pumping operations and reduce energy costs. Continuous monitoring will also help inform decisions related to the replacement of pumping equipment.	P	J30089	open	$42,368	n/a	n/a	n/a
Rancho Place Main	Replace 220' of 6" DICL pipe with 6" and 4" DICLZ pipe on Rancho Place, from Rancho Dr. to the end of the main (1983).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30065	open	$43,112	2019	5	10204
ArcGIS Configuration	This is an annual program to build and add new functionality to web mapping applications using the Esri software platform.	This work ensures that relevant GIS data are available to inform and support the work of operating departments.	E-IT	J20253	posted to CPR	$29,575	n/a	n/a	n/a
Turriff Way Main	Replace 1,540' of 6" AC and 4" PVC with 4" and 6" DICLZ pipe on Turriff Way, from Hostetter Rd. to Queens Crossing Dr., and on Tantallon Ct., from Turriff Way to End. (1972).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30244	open	$31,408	2022	1	414
Camino Vista Way Easements	Acquire property rights for installation of distribution main within various APN's along Camino Vista Way (private road).	To facilitate legal installation and operational rights for new infrastructure placement for the benefit of SJW's T&D system infrastructure.	L	J00223	posted to CPR	$28,695	n/a	n/a	n/a
Storage and Material Dry-Out Bins	Improve and upsize the slurry containment bins at Breeding Station.	Slurry containment bins are needed for drying out slurry before it is disposed of and the bins at Breeding Station need to be upsized to accommodate larger Vac-Con units.	W	J30035	open	$27,856	n/a	n/a	n/a
Cambrian Station Solar	Installation of a 300 kW solar power generation system.	To recover a portion of the total electric load and allow greater operational flexibility and reliability for energy needs at the Cambrian Station.	G	J30215	open	$27,245	n/a	n/a	n/a
Belgatos Station Solar	Installation of a 90 kW solar power generation system.	To recover a portion of the total electric load and allow greater operational flexibility and reliability for energy needs at the Belgatos Station.	G	J30216	open	$26,785	n/a	n/a	n/a
Three Mile Meter Shop Main	Replace 115' of 8" DICL Pipe with 8" DICLZ pipe at Bascom Campus in front of the Meter Shop.	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30063	open	$26,095	n/a	2	n/a
Miguelito Station Solar	Installation of a 83 kW solar power generation system.	To recover a portion of the total electric load and allow greater operational flexibility and reliability for energy needs at the Miguelito Station.	G	J30217	open	$25,875	n/a	n/a	n/a
SJW Group Website Design	Redesign the SJW Group website.	To bring the website to Americans with Disabilities Act (ADA) Standards mandated by the state.	E-IT	J10168	posted to CPR	$25,752	n/a	n/a	n/a
Lake Kittredge Valve Platform	Replace the operating valve platform at Lake Kittredge or provide an alternate method to operate valves.	The existing platform provides for access to operate a DSOD regulated facility and was found to be unsafe during DSOD inspection. Access to the facility was deemed unsafe and can no longer be used to operate the valve, which isolates or allows water to flow from Lake Kittredge to Lake Cozzens.	W	J00069	open	$31,879	n/a	n/a	n/a
Large Meter Accuracy Study	Perform a meter health study by analyzing real-time meter and usage information for register, measurement, crossover, sizing, and by-pass failures.	To identify and validate lost revenue associated with these failures and inform future large meter capital replacement strategies.	D	J10212	posted to CPR	$25,000	n/a	n/a	n/a
Kim Louis Drive Main	Replace 2,555' of 4" AC and 4.5" and 6" FKCL pipe with 6" DICLZ pipe on Kim Louise Dr., from W. Campbell Ave. to Bucknall Rd., on Kim Ct. from Kim Louise Dr. to end, on Nero Ct., from Via Montalvo to end, on Saveno Ct., from Bucknall Rd. to end and on La Miel Wy., from Bucknall Rd. to Bucknall Rd. (1961, 1962, 1964).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30221	open	$29,728	2022	8	126
1221B S. Bascom Ice Machine	Replace one ice machine for the operating department at the Bascom Campus outside of 1221B.	The existing ice machine has failed and repair is not economically feasible.	W	J30136	completed	$24,592	n/a	n/a	n/a
Microsoft M365 Security POC	Implement Microsoft M365 Security POC (Proof of Concept).	Current email security functionality does not meet future business needs. Modernize and consolidate e-mail security software.	E-IT	J00160	posted to CPR	$24,360	n/a	n/a	n/a

Project Name	Project Description	Reason for Work	Budget Category	WO	WO Status	Cost to Date (1/1/2021-8/31/2023) [2]	Pipeline Asset Management Plan Year [1]	Pipeline Leak Count [1]	Pipeline Replacement Ranking [1]
Almaden Valley Station Improvements	Install a new B-3 booster and replace the motor control center. Station improvements will include surge protection and replacing the existing 36" altitude valve.	The existing booster station has insufficient boosting capacity, system reliability concerns and aging infrastructure. The existing altitude valve was identified for improvements per the Control Valve Tactical Asset Management Plan.	P	J30058	open	$25,074	n/a	n/a	n/a
Plotters Purchase	Purchase two large format plotters, One for Distribution Systems Dept and one for Construction Dept.	To replace two existing Canon ipf655 plotters that are end of life, one of which has already failed.	E-IT	J00227	posted to CPR	$23,412	n/a	n/a	n/a
Regnart Heights Tanks CP Anodes	Install cathodic protection anodes in Regnart Heights Tank #1 and #2.	Cathodic protection will protect the tanks interior from corrosion and extend the life of the interior linings.	R	J30088	open	$32,696	n/a	n/a	n/a
South Clover Avenue Main	Replace 630' of 6" WS pipe with 6" DICLZ pipe on S. Clover Ave., from Stevens Creek Blvd. to Hemlock Ave. (1951).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30158	open	$28,477	2022	3	140
Lindy Lane Main	Replace 4,860' of 4" AC, 6" FKCL, and 6" CI pipe with 4", 6", 8", and 12" DICLZ pipe on Lindy Ln., from Lindy Pl. to Regnart Rd.; on Regnart Ct; and on Regnart Rd., from Lindy Ln. west to end. (1962).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30154	open	$21,325	2022	9	43
Upgrade Leak Detector Vans	Upgrade the air conditioning and heating system of two existing leak detection vans to accommodate the rear of each van.	To extend heat and cooling comfort during the cold and hot season to the back of the vans. The existing system only provides limited heat and air conditioning in the front of the cab.	W	J20168	posted to CPR	$20,485	n/a	n/a	n/a
Holden Way Main	Replace 2,720' of 2" SS and 6" WSCL pipe with 4" and 6" DICLZ pipe on Holden Way, from Wyrick Ave. to Holden Ct.; on Leigh Ct., from Leigh Ave to end; on Payton Ave., from South of Cole Dr. to Acton Ct.; on Acton Ct., from Payton Ave. to Acton Dr.; and on Acton Dr., from South of Cole Dr. to Acton Ct. (1951).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30156	open	$40,780	2022	4	93
Fuel Station Improvements	Install a NEMA 4 rated enclosure outside of 1221 B South Bascom to store the Veeder-Root tank level sensor for the fuel station.	The existing tank level sensor is in the server room and presents a security vulnerability.	W	J20089	posted to CPR	$19,059	n/a	n/a	n/a
Recycled Water Service Installation	Install recycled water (RW) services on previously installed SJWC owned RW pipelines.	This project will provide service laterals and meter boxes for customers SJWC has coordinated with to perform on-site consumer plumbing retrofits necessary to meet SBWR and CDPH (DDW) regulations.	RW	J02503	posted to CPR	$18,754	n/a	n/a	n/a
Lake Ranch CRLF Survey/Assessment	The scope of work includes surveys, study, reporting and habitat assessments for California red-legged frog (CRLF) associated with the Lake Ranch Reservoir Bypass Flow Project.	Regulatory commitment associated with the Lake Ranch Culvert Streambed Alteration Agreement. This task supports the annual monitoring report and compliance with permit success criteria.	S	J20198	posted to CPR	$18,018	n/a	n/a	n/a
Cheim Tank CP Anodes	Install cathodic protection anodes in Cheim Tank.	Cathodic protection will protect the tank interior from corrosion and extend the life of the interior lining.	R	J30087	open	$23,441	n/a	n/a	n/a
Photocopiers	Purchase two photocopiers.	Current equipment has reached the end of its life cycle.	E-IT	J20202	posted to CPR	$17,041	n/a	n/a	n/a
Bascom Station Improvements	Convert Bascom Station to a direct groundwater pumping station that pumps directly from the wells to the distribution system, without the need for intermediate suction tanks or boosters.	Consultant evaluation is needed at the Planning phase to properly size pumps and for surge analysis.	S	J30225	open	$22,909	n/a	n/a	n/a
Gish Station Carbon Dioxide Tanks	Install two carbon dioxide tanks at Gish Station.	The existing tanks have reached the end of their useful lives and require replacement.	E-OM	J30085	posted to CPR	$15,781	n/a	n/a	n/a
Blythswood Drive Main	Retire 900' of 6" SS and 6.625" FKCL pipe and install 1,345' of 6" DICLZ pipe on Blythswood Dr., from hydrant C-00105 to Blythswood R/W, on Drummond Dr., from Blythswood R/W to 260' S/S Blythswood R/W and on Blythswood Dr., from hydrant C-00106 to Drummond Dr. (1925).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30192	open	$15,857	2022	1	15
Lochridge Drive Main	Replace 2,650' of 6" and 8" WSCL pipe with 6" and 8" DICLZ pipe on Lockridge Dr., from N. King Rd. to end, on Schulte Dr., from N. King Rd. to Avalani Ave., and on Berrywood Dr., from N. King Rd. to Lochridge Dr. (1954)	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30219	open	$15,091	2022	4	99
Geneva Street Main	Replace 1,520' of 2" SS and 6.625" WSCL pipe with 4" and 6" DICLZ pipe on Geneva St., from Taper Ave. to Jennifer Way, on Jennifer Way, from Geneva St. to Byron Dr.; on Byron Dr., from Jennifer Way to Union Ave.; on Elaine Dr., from Geneva St to end; and on Browning Ave., from Geneva St. to end (1955).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30161	open	$29,383	2022	1	159
Shofner Place Main	Replace 570' of 6" DICL pipe with 6" DICLZ pipe on Shofner Pl., from Sieber Pl. to Carpentier Way; and on Sieber Ct. from Sieber Pl. to end. (1981).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30164	open	$23,301	2022	4	145
Septic Leach System Replacement	Replace the drip emitter and conveyance system of the septic system leach field at Montevina Filter Plant (MWTP).	The existing system does not operate properly and requires replacement.	W	J00218	posted to CPR	$14,058	n/a	n/a	n/a
Grossmont Drive Main	Replace 1,630' of 4" AC and 6.625" CCCL pipe with 4" and 6" DICLZ pipe on Grossmont Dr., from Whitman Way to Marengo Ln.; on Marengo Ln., from Whitman Way to end; and on Burgundy Dr., from Suncrest Ave. to Whitman Way. (1960).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30162	open	$15,547	2022	1	217
Hill & Graystone Lane Main	Replace 2,700' of 6" AC, 6" SOMCL, and 8" AC pipe with 12" DICL pipe on Graystone Ln., from EOM to Hill Ln.	This is a cross-country alignment that will allow for the retirement of Vista de Almaden Tank and Hill Lane Pump Station.	M	J50005	open	$13,720	n/a	n/a	n/a
Rundell Way Main	Replace 850' of 4" PVC pipe with 2,200' of 12" DICLZ pipe next to the intersection of Old Santa Cruz Highway and Rundell Way (1994). Pipeline and associated customers services are to be relocated into a new easement from Cal Fire on APN 558-41-027, where these assets can be safely accessed and maintained by staff.	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30152	open	$16,589	2022	1	101
Senter Station Carbon Dioxide Tanks	Install carbon dioxide tanks at Senter Road Station.	Carbon dioxide is needed for anti-scaling on station piping and sampling lines	E-OM	J30072	posted to CPR	$13,117	n/a	n/a	n/a
Mt Springs Pump Sta Improvements	Replace booster pumps B-3 and B-4 and install surge protection.	The existing booster station poses reliability and sanitary concerns due to its location within the potable water reservoir.	P	J30091	open	$12,936	n/a	n/a	n/a

Project Name	Project Description	Reason for Work	Budget Category	WO	WO Status	Cost to Date (1/1/2021-8/31/2023) [2]	Pipeline Asset Management Plan Year [1]	Pipeline Leak Count [1]	Pipeline Replacement Ranking [1]
Sunol Street Station Regulator	Install a 10-inch Singer regulator, flowmeter, enclosure, electrical control cabinet (ECC), pressure transmitters, concrete pads, and associated piping and power at a new station on Sunol Street (pending land purchase negotiations with City of San Jose).	This project will improve the management of interzone water transfers between Dow and Cambrian zones.	A	J30028	open	$12,770	n/a	n/a	n/a
Singletary Avenue Main	Replace 5,080' of 3" and 4" CI and 6" AC pipe with 6" DICLZ pipe on Singletary Ave., from The Alameda to Park Ave.; on Fremont St., from the Alameda to Park Ave.; on Chapman St., from Singletary Ave. to Randol Ave., and on Morse St., from Fremont St. to Randol Ave. (1914, 1930).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30253	open	$25,752	2022	1	2215
Automate Software Implementation	Implement the latest version of Automate, a Robotic Process Automation (RPA) software by HelpSystems.	Automate will eliminate repetitive and time-consuming manual file transfer processing, by automating file transfers from and to secure File Transfer Protocol (FTP) servers.	E-COMM	J20155	posted to CPR	$10,625	n/a	n/a	n/a
Sterling Gate Drive Main	Replace 810' of 8" and 10" DICL pipe with 8" and 12" DICLZ pipe on Sterling Gate Dr., from Sterling Gate Ct. to Spring Hill Way, and on Spring Hill Way, from Sterling Gate Dr. to Shelby Creek Ln. (1985).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30159	open	$10,343	2022	9	74
Howell Catwalk Pipeline Replacement	Replace sections of catwalk and 2" & 10" HDPE pipeline associated with the Howell intake and water treatment facility. Install new bypass flow infrastructure.	Pipeline and catwalk damaged beyond repair due to recent storm events. These assets need to be replaced. Bypass flow valve need to be installed for regulatory program and compliance.	S	J30207	in service	$185,075	n/a	n/a	n/a
Los Gatos Oaks Regulator Vault	Lower the 2-inch bypass regulator for improved operator access and replace the vault lid and ladder.	To comply with OSHA's regulation for vault lid and ladder.	W	J30097	open	$13,903	n/a	n/a	n/a
Pleasant Acres Drive Property	Appraisal, negotiation, and survey work associated with the acquisition of a 0.35 acre portion of an 11.4 acre parcel (APN 652-03-020) from Santa Clara Valley Water District.	Acquiring this land will allow for the installment of a pressure system to supply Pleasant Vista Zone and the subsequent retirement of the Pleasant Vista Dr. Reservoir Station.	L	J20224	open	$9,597	n/a	n/a	n/a
Truck Mounted Valve Exerciser	Purchase and install 5 Wach's TM-7 operator.	To safely perform valve operations and maintenance and reduce operator injuries from manual valve operation.	W	J00179	posted to CPR	$8,642	n/a	n/a	n/a
Williams Station PFAS Treatment	Construct an onsite ion exchange (IX) treatment system at Williams Station to address per- and polyfluoroalkyl substances (PFAS).	Treatment system is needed to meet regulatory guidance for PFAS compounds published by the State Water Resources Control Board and United States Environmental Protection Agency. See Index #6122 in the 2024-2026 General Rate Case (GRC) application for additional details on this project.	Q	J30238	open	$393,082	n/a	n/a	n/a
Jerries Drive Main	Replace 1,870' of 2" SS, 4" AC, 6" AC, and 6" WSCL pipe with 4" and 6" DICLZ pipe, on Jerries Dr., from Herriman Ave. to Loma Rio Dr.; on June Way; and on Gerneil Ct. (1956).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30153	open	$8,385	2022	3	64
Awning for Electric Forklifts	Construct an awning to protect new electric forklifts at Three Mile station.	Electric forklifts are being purchased to meet compliance with future environmental requirements around gas-powered tools and equipment. The awning will provide a covering for the forklifts and their charging stations.	W	J30074	open	$8,272	n/a	n/a	n/a
Graystone Heights Easements	Acquisition of property rights through negotiation of easements from multiple private property owners along the proposed pipeline alignment.	To accommodate the future installation of new transmission main.	L	J30012	open	$8,741	n/a	n/a	n/a
Cottage Grove Station Improvements	Convert Cottage Grove Station to a direct groundwater pumping station that pumps directly from the wells to the distribution system, without the need for intermediate suction tanks or boosters.	No assets being replaced or retired in 2023 associated with this request. Capitalized costs will cover consultant work needed ahead of design.	S	J30255	open	$13,303	n/a	n/a	n/a
Active Directory Integration	Merge Microsoft Active Directory Domains across the organization into a single enterprise-wide computing network environment.	This project will give employees access to all computing resources, data, and applications, regardless of location.	E-IT	J20297	in service	$6,988	n/a	n/a	n/a
North 7th St Main	Install 635 feet of 8" DICL Pipe and 1-8" DICL Pipe Tie-in in conjunction with the Developer's Project (H9-416).	The developer only required a portion of the main up to the hydrant. The company is completing the main to complete the grid system. Please refer H9-416 for the developer portion.	M	H90174	posted to CPR	$5,936	n/a	n/a	n/a
Quail Hill Road Main	Replace 410' of 6" DICL pipe with 6" DICLZ pipe on Quail Hill Rd., from Short Rd. to end. (1984)	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30223	open	$5,867	2022	3	147
Hubble Web Upgrade	Install Hubble Web to be compatible with the updated version of JD Edwards Software 9.2.	Upgrading this application will improve its functionality and product support, leverage newer databases, servers, and operating systems for use with SJWC's recently upgraded JD Edwards 9.2 software, and eliminate the need to maintain desktop-based software.	E-GA	J30080	in service	$5,400	n/a	n/a	n/a
Lake Ranch Culvert MMRP	This is the third year of a five-year mitigation, monitoring, and reporting program (MMRP).	The MMRP is needed to comply with the Regional Water Quality Control Board clean water permit.	S	J30108	in service	$5,669	n/a	n/a	n/a
GIS Database Development	Annual program to develop spatial relational databases for GIS.	Establish database architecture and perform database development and configuration of spatial databases that support application development and operations.	E-IT	J30133	in service	$5,419	n/a	n/a	n/a
Everbridge Enterprise Notification	Internal labor to deploy a mass notification platform for both external and internal communication needs.	An event notification (emergency and non-emergency) system is needed to reach all employees, subgroups, sites, and customers.	E-IT	J30287	in service	$10,038	n/a	n/a	n/a
Tableau Cloud Migration	Migrate the Tableau Server from on-premise hosting to an Amazon Web Services (AWS) cloud platform.	AWS will be able to provide a more stable and reliable server environment for the Tableau implementation, to support upgrades and future growth. On-premise server resources can be reclaimed to provide a more available and reliable environment to other departments currently utilizing on-premise server resources.	E-IT	J20108	posted to CPR	$4,307	n/a	n/a	n/a
Hardware for IP Address Management	Purchase Infobox for IP Address management.	To eliminate conflicts associated with duplicate IP addresses.	E-IT	H90221	posted to CPR	$3,754	n/a	n/a	n/a
Capitol Park Court Main	Replace 320' of 8" DICL pipe with 8" DICLZ pipe on Capitol Park Ct., from N. Capitol Ave to end. (2002)	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30220	open	$11,067	2022	4	107

Project Name	Project Description	Reason for Work	Budget Category	WO	WO Status	Cost to Date (1/1/2021-8/31/2023) [2]	Pipeline Asset Management Plan Year [1]	Pipeline Leak Count [1]	Pipeline Replacement Ranking [1]
Linkhorne Court Main	Replace 705' of 6" AC pipe with 8", 6" and 4" DICLZ pipe on Linkhorne Ct., from Schulte Dr., to end and on Schulte Dr., from Educational Park Dr. to 65' West of Linkhorne Ct. (1979).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30241	open	$3,602	2022	1	354
Perie Lane Main	Reset seven existing linear expansion joints along the 8" DICL main (H4-024) on Perie Ln., from Steinbaugh Ct. to the 8" DICL main (B6-061).	Linear expansion joints need to be reset at regular intervals to protect pipelines that are installed in areas that experience regular ground movement. Field investigations have shown that these specific joints must be reset every 7 years.	M	J30068	open	$4,815	2019	0	2793
Vistamont Drive Main	Replace 3,130' of 6.625" and 8.625" WSCL pipe with 6" DICLZ pipe on Vistamont Dr. from Kimberly Dr. to south of Mary Lee Way; on Carlsen Way, from Vistamont Dr. to Jenkins Ave., and on Lindsay Way, from Vistamont Dr. to Jenkins Ave. (1958).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30243	open	$24,482	2022	1	392
Emergency Water Distribution Unit	Purchase a mobile Emergency Water Distribution Unit (EWDU) to quickly dispense potable water during emergency events including boil water notices.	The Emergency Water Distribution Unit (EWDU) is a rapid-response tool that increases operational readiness by distributing potable water to the community and other partner agencies during emergencies and disasters.	E-OM	J30254	open	$146,819	n/a	n/a	n/a
Spencer Avenue Main	Replace 580' of 6" AC pipe and 6" CI pipe with 6" DICL pipe on Spencer Ave., from Dorothy Ave. to end of cul-de-sac; and on Prevost Ct., from Willow St. to end of cul-de-sac. (1946).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00045	posted to CPR	$1,929	2019	2	260
Illinois Avenue Main	Replace 1,000' of 6" AC pie with 4" and 6" DICLZ pipe on Illinois Ave., from W. Virginia St. to Jerome St.; on Jerome St. from Illinois Ave. to Willis Ave. and on Willis Ave., from Jerome St to end. (1973).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30240	open	$16,400	2022	3	351
Bambi Lane Main	Replace 3,490' of 6.625" CCCL pipe with 6" DICL pipe on Bambi Ln., from South Jackson Ave. to Galahad Ave.; on Peter Pan Ave., from Bambi Ln. to Cinderella Ln.; and on Cotton Tail Ave., from Bambi Ln. to Cinderella Ln. (1958).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00043	posted to CPR	$1,737	2019	1	114
Alignment 'D' Phase 3A	Install 13,800 feet of 6", 8" and 24" DICL recycled water pipe.	To enhance the non-potable recycled water transmission and distribution system within the service area and reduce overall potable water demand.	RW	J50004	open	$8,858	n/a	n/a	n/a
Wellington Park Drive Main	Replace 1,365' of 6" and 8" AC pipe with 6" DICL pipe on Wellington Park Dr., from Branham Ln. to Hyde Park Dr.; on Royal Gate Place, from Wellington Park Dr. to EOM; and on Fort Royal Place, from Branham Ln. to EOM (1974).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J00047	posted to CPR	$1,241	2019	4	80
Newhall Drive Main	280' - 12'' main relocation in connection with the future Bay Area Rapid Transit (BART) extension.	San Jose Water Company portion of main relocation in connection with the future Bay Area Rapid Transit (BART) extension.	M	J20204	open	$946	n/a	n/a	n/a
Violet Way Main	Replace 775' of 6.625" FKCL pipe with 6" DICLZ pipe on Violet Way, from Bucknall Rd. to W. Rincon Ave. (1961).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30308	open	$4,465	2022	1	445
Electric Forklifts	Purchase and upfit electric forklifts to ensure staff productivity and safety and support the conversion of gas-powered forklifts to electric forklifts.	Fleet vehicles will be replaced based on age, mileage, engine hour, and condition criteria. Gas-powered vehicles will be replaced with electric alternatives as available, to meet the company's sustainability objectives and California targets that all vehicle sales be zero emission by 2035.	G	J30073	open	$2,099	n/a	n/a	n/a
N. King Road RW Main Extension	Install 100' 4" DICL recycled water pipe on N. King Road from Salamoni Court, north to serve new recycled water service to the BART Berryessa Station and City of San Jose irrigation services. The existing recycled water main at this location is over 20' deep and the installation of this new 4" main will be a more cost effective way to provide these new recycled water services.	Installation of main required to serve Recycled water services to the Bart Berryessa Station and CSJ (PRNS & DOT)	RW	H90198	posted to CPR	$434	n/a	n/a	n/a
Marsh Street Main	Replace 4,175' of 6" and 8"AC, 6.625", 8.625" and 12.75" CCCL pipe with 6" DICLZ pipe on Marsh St., from S. King Rd. to Terilyn Ave.; on Knox Ave., from Terilyn Ave. to Marsh St.; on Lynn Ave., from Knox Ave to Marsh St., on Longview St., from Marsh St. to Pompano St. and on Pompano St., from Marsh St. to Longview St. (1958).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future and is part of the continuing effort to replace problem pipes in the water system.	M	J30307	open	$2,623	2022	4	464
Alignment 'E' Phase 1	Install 20,750 feet of 6", 8", 12" and 20" DICL recycled water pipe.	To enhance the non-potable recycled water transmission and distribution system within the service area.	RW	J40004	open	$202	n/a	n/a	n/a
Truck Mounted Concrete Mixer	Replace the concrete mixer attached to DS Truck #569.	The existing concrete mixer has reached the end of its useful life.	W	J30248	completed	$28,488	n/a	n/a	n/a
Portable Pump	Purchase a new Goulds portable pump.	An additional portable pump is needed to provide pumping during power outages or when normal pumping facilities are out of service.	E-OM	J30069	open	$0	n/a	n/a	n/a
COR Breakout for Book and Tax	Services to break out life depreciation and Cost of Removal (COR) for Book to ensure proper flow into the PowerPlan Tax Provision module.	Services to break out life depreciation and Cost of Removal (COR) for Book to ensure proper flow into the PowerPlan Tax Provision module.	E-GA	J30334	open	$0	n/a	n/a	n/a
GPS Data Conversion	Obtain and convert GPS data for a new application.	Capture asset locations to support the GIS Department and system operations.	E-IT	J30299	open	$0	n/a	n/a	n/a
Lumifi Outsourced MDR	Purchase NetWitness hardware, licenses and configuration services for Cyber Security.	Managed Detection and Response (MDR) will help rapidly identify and limit the impact of cyber threats.	E-IT	J30309	open	$234,452	n/a	n/a	n/a
PromisePay Invoice Platform	Implement PromisePay Payment Plan Platform for customer payments.	PromisePay Payment Plan Platform provides flexibility and convenience for customers to make payment thru various payment methods.	E-IT	J30333	open	$0	n/a	n/a	n/a

Project Name	Project Description	Reason for Work	Budget Category	WO	WO Status	Cost to Date (1/1/2021-8/31/2023) [2]	Pipeline Asset Management Plan Year [1]	Pipeline Leak Count [1]	Pipeline Replacement Ranking [1]
Culbertson Drive Main	Replace 3,210' of 4" AC and 6.625" WSCL pipe with 4" and 6" DICLZ pipe on Culbertson Dr., from Pendergast Ave. to Meiggs Ln.; on Morengo Dr., from Tuggle Ave. to Meiggs Ln., on Hunter Way, from Carver Dr., to Morengo Dr.; on Meiggs Ln., from S. Tantau Ave. to Morengo Dr. and on Morengo Dr., from Meiggs Ln. to end. (1954, 1964).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The Study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future, and is part of the continuing effort to replace problem pipes in the water system.	M	J30305	open	$3,397	2022	3	636
Tamalpais Avenue Main	Replace 4,310' of 4" AC, 6.625" FKCL and 19.25" FKCL and SOMCL pipe with 4", 6" and 18" DICLZ pipe on Tamalpais Ave., from Rafael Dr. to Camden Ave.; on Camden Ave., from Redmond Ave. to Almaden Expwy.; on Menlo Dr., from Tamalpais Ave., to Almaden Expwy.; on Vegas Dr., from Rafael Dr. to Menlo Dr.; on Rafael Dr., from Vegas Dr. to Tamalpais Ave., and on Montana Ct., from Vegas Dr. to end. (1963, 1965).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The Study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future, and is part of the continuing effort to replace problem pipes in the water system.	M	J30304	open	$1,159	2022	6	347
Hillsdale Avenue Main	Replace 5,870' of 2" SS, 8.625" WSCL and 6.625" CCCL, 16" WSCL pipe with 4", 6", 8" and 16" DICLZ pipe on Hillsdale Ave., from Ross Ave. to Manda Dr.; on Donna Ln., from Camden Ave. to Kersten Dr.; on Kersten Dr., from Ledgewood Dr. to Hallmark Ln.; on Hallmark Ln., from Ross Ave. to Woodford Dr.; on Ross Ave., from Donna Ln. to Ledgewood Dr. and on Justine Dr., from Kersten Dr. to Hallmark Ln. (1957, 1958, 1961).	These pipes were identified for replacement in the Pipelines Infrastructure Study. The Study helps prioritize pipes to be replaced by targeting pipes most likely to leak in the future, and is part of the continuing effort to replace problem pipes in the water system.	M	J30331	open	$0	2022	7	371
Webb Canyon Drive Main	Replace 145' of 12.75" SOMCL pipe with 12" DICLZ pipe on Webb Canyon Dr. (1966).	This roadway has failed and the pipeline needs to be relocated to accommodate retaining wall installation for roadway repairs.	M	J30310	open	$135	2022	0	18579
Williams Suction Tanks Overflow Imp	Install a Dechlorinating Overflow Security Assembly (DOSA) on Williams Suction Tanks 1 and 2.	Following completion of the new chloramination system at Williams Station, DOSAs will be needed on each suction tank to prevent chloraminated residual discharges into San Tomas Aquinas Creek.	R	J30208	open	$0	n/a	n/a	n/a
Call of Wild Road Replacement	Replace and expand 30-foot section of watershed road, culvert improvements, and energy dissipation.	Work needed to ensure safe and continued access to intake.	W	J30297	open	$0	n/a	n/a	n/a
Williams Road Improvement	Install retaining walls to reestablish safe access and ensure a stable road surface for ingress and egress.	This work provides safety improvements, wildfire mitigation, and improved access to the lake.	W	J30298	open	$6,411	n/a	n/a	n/a
JN Trail Catch Basin Installation	Install a catch basin at John Nicholas (JN) trail retaining wall to improve drainage. Includes road improvement and culvert improvement.	To ensure integrity of road and retaining wall infrastructure and improve drainage features of road surface.	W	J30332	open	$0	n/a	n/a	n/a

MEMORANDUM

TO: Jake Walsh
FROM: Erina Szeto, Raul Cabrera
SUBJECT: Saratoga Hills Station Surge Tank Recommendation
DATE: 2/26/2021

Introduction

In 2020, while Pike Tank was being replaced and three small temporary tanks were installed, San Jose Water (SJW) became aware of pressure transients in Pike Zone following a customer complaint at 14430 Pike Road. Pike Tank has now been replaced and the temporary tanks feeding that zone are removed; however, the customer and pressure zone continues to be impacted by pressure transients. The SJW Planning group was brought in to both verify that the problem is associated with normal pumping operations and also to develop a solution to mitigate pressure transients in Pike Zone.

Results

A calibrated surge model of Pike Zone was built and normal pumping operations at Saratoga Hills Station were determined to be the cause of the aforementioned pressure transients. Various solutions were analyzed and ultimately a surge tank was found to be the preferred mitigation solution.

SJW surge tank design standards aim to satisfy the following criteria: (1) all services within the pressure zone remain above 5 pounds per square inch (psi) at all times and where possible below 150 psi, and (2) the surge tank maintains an air volume ratio between 25% and 80% of total tank volume.

Modeling results are presented in the following tables and figures. Results indicate that a pump shutdown has a larger surge impact than a pump start. Table 1 shows maximum and minimum pressures during a pump shutdown for model nodes near two high and low pressure Pike Road Zone service lines. Table 2 evaluates the impact of precharge pressure on the air ratio in a 375-gallon surge tank during a pump shutdown. Figures 1 and 2 show the effect of surge tank size on the pressure at the booster pump discharge during a pump start and shutdown.

Table 1. Service Line Surge Pressure (psi) for Pump Shutdown

		Surge Tank Capacity							
		None		200 Gallon		375 Gallon		500 Gallon	
Service Line ID	Address	Max	Min	Max	Min	Max	Min	Max	Min
11796	14420 Pike Rd	62	13	47	37	45	39	45	39
11785	14020 Pike Rd	199	7	151	105	143	111	137	116
11827	14684 Pike Rd	116	10	96	67	91	72	88	75

Table 2. Air Ratio (%) of a 375-gallon Surge Tank for Pump Shutdown

	Precharge Pressure		
Air Ratio (%)	65 psi	55 psi	45 psi
Max	79%	70%	60%
Min	64%	55%	47%

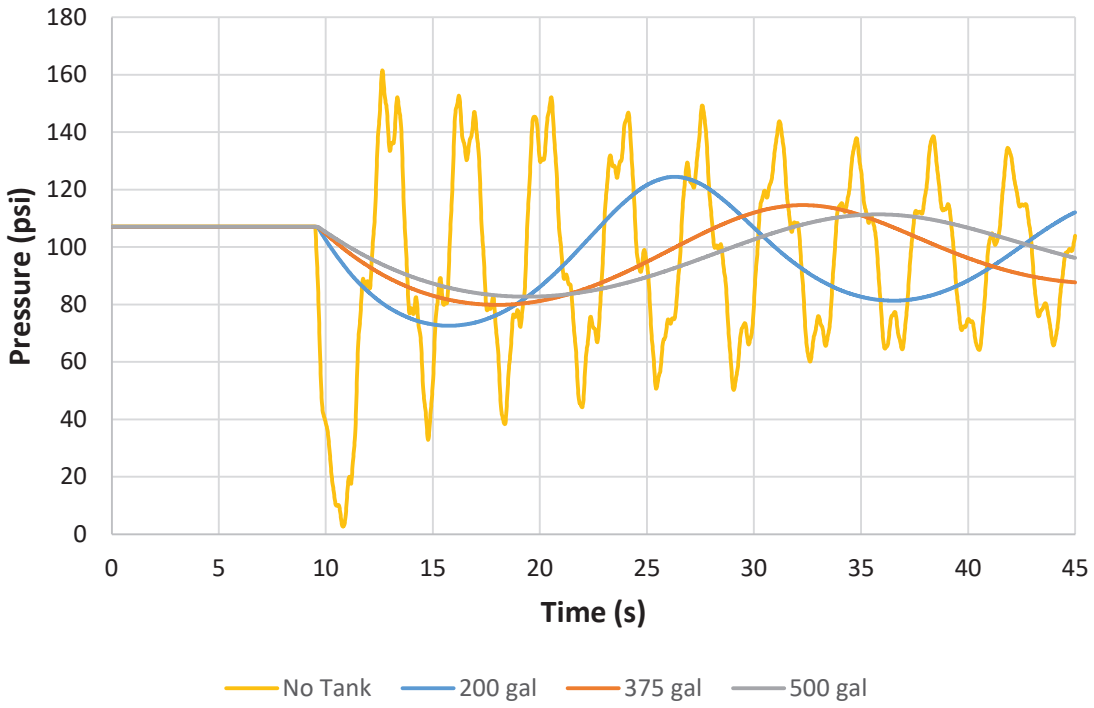


Figure 1. Pressure at Saratoga Hills B-1 Discharge during Pump Shutdown

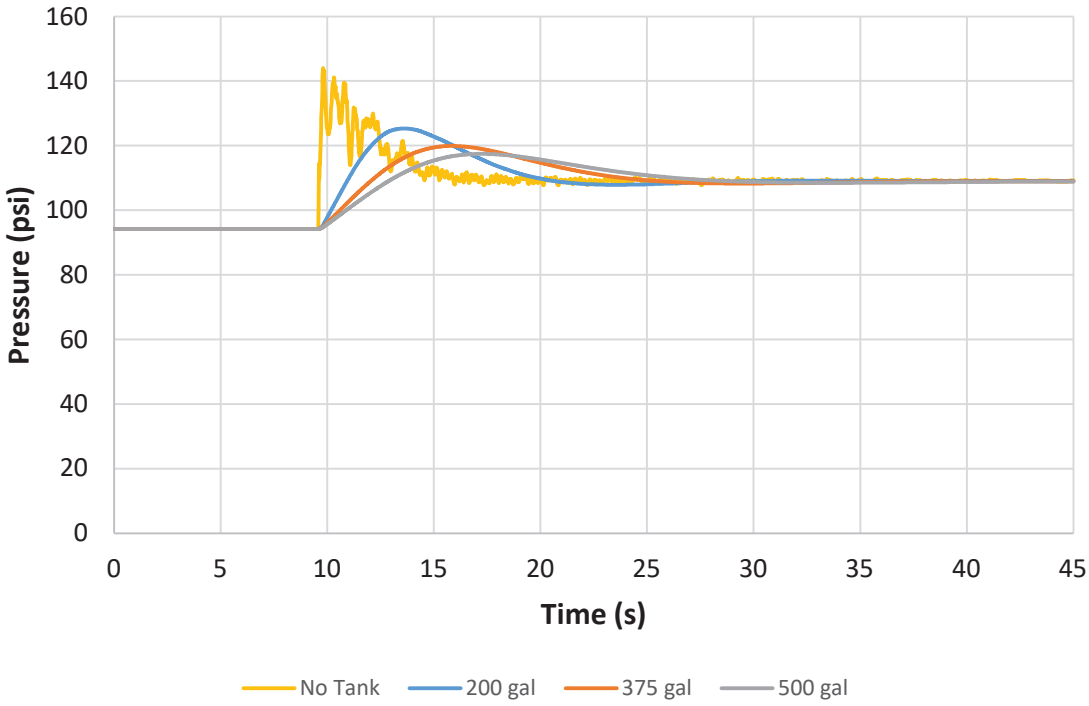


Figure 2. Pressure at Saratoga Hills B-1 Discharge during Pump Startup

Recommendation

A 375-gallon surge tank, precharged to 45 psi, satisfies SJW design criteria and should therefore be installed on the discharge line of the Saratoga Hills booster. Further upsizing of the surge tank would not provide significant improvement in surge pressures. A precharge pressure of 45 psi keeps the air-water ratio in the center of the established bounds. The location of the proposed surge tank is shown in Figure 3. The estimated project budget is shown in Table 3, and Figure 4 shows a more detailed estimated cost breakdown.

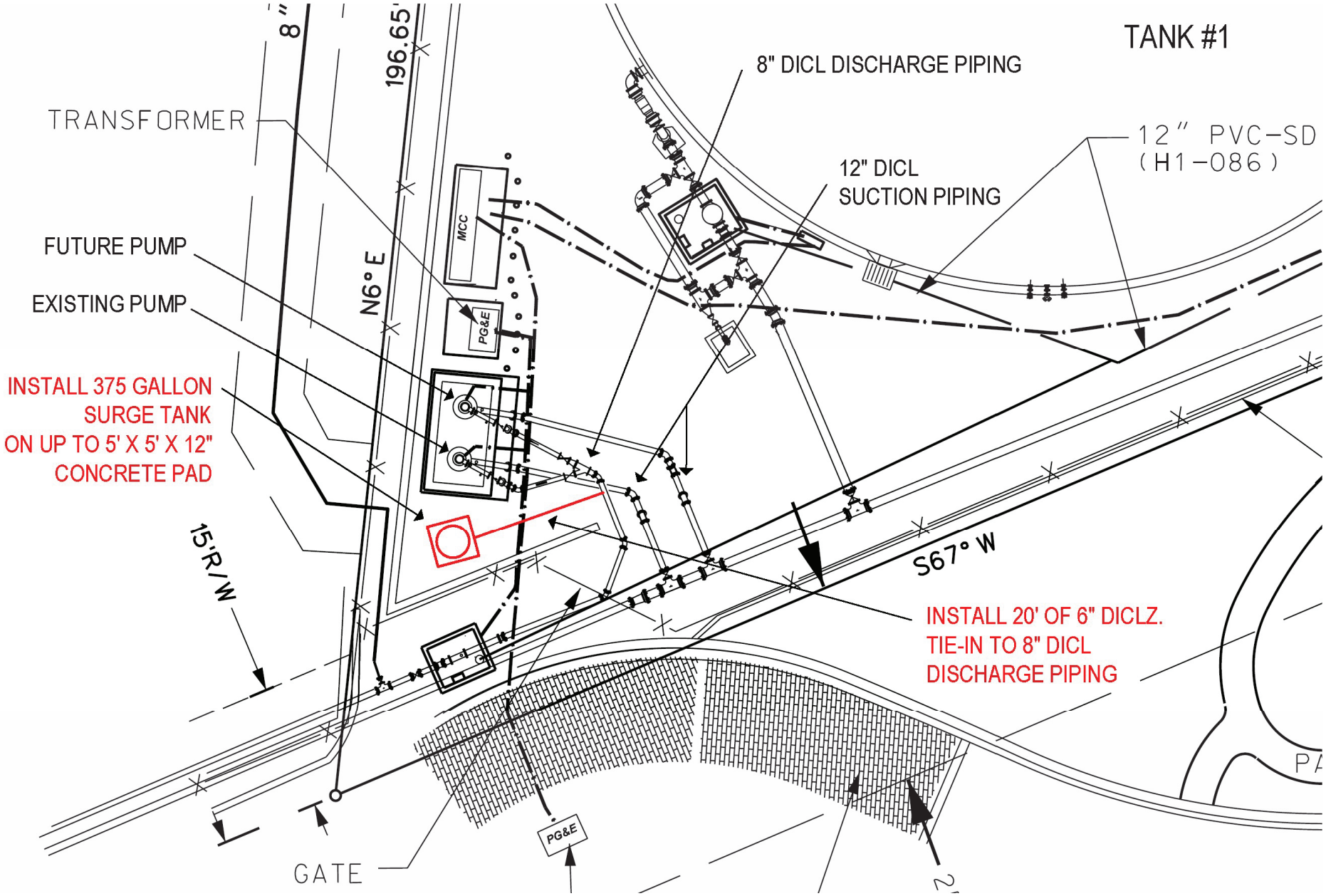


Figure 3. Placement of Surge Tank at Saratoga Hills Station

Budget

Table 3. Capital Improvement Budget

Conceptual Cost Estimate	
Year	2021
Index Number	N/A
Project Name	Saratoga Hills Surge Tank
Recommendation	Install surge tank at Saratoga Hills Station

Item	Estimated Amount
Contract Cost	$ 79,800
Material Cost	$ 46,400
Company Labor	$ 10,000
Permits and Fees	$ 3,800
Contingencies (20%)	$ 28,000
Overhead (15%)	$ 25,200
Total Estimated Project Cost (2020)	**$ 193,200**
Total Estimated Project Cost (2021)	**$ 199,000**

Project Conceptual Cost Estimate

Year	2021	By:	ES
Project	Saratoga Hills Station Surge Tank	Date:	1/22/2021
Alternative		QA/QC:	
File Location	J:\wkgrps\PLANNING\Studies_and_Reports\Saratoga Hills Surge Tank\Documentation\Cost Estimate.xlsx	Date:	

Item	Description	Estimated Quantity	Unit	Material Unit Cost	Contract Unit Cost	Estimated Amount
All Items						
	Install 375 Gallon Pre-charged Hydropneumatic Surge Tank (by PULSCO)	1	EA	$57,500	$20,500	$78,000
	Install Concrete Pad (4.5' x 4.5' x 9" Thick) for Surge Tank	1	EA	$625	$3,500	$4,125
	Install 10-20 Piping from Discharge Line to Surge Tank and Back	20	LF	$1,000	Included	$20,000
	Install Steel, Removeable Guard Post	1	EA	$450	$1,150	$1,600
	Install electrical & signal conduits with trenching from electrical box to surge tank	1	LS	$1,200	$21,200	$22,400
	Subtotal			**$79,775**	**$46,350**	**$126,100**
PROJECT COST SUMMARY						
	Subtotal, All Items					$126,100
	Estimated Construction Cost					**$126,100**
	SJW Design/Labor Cost					$10,000
	Consultants, Permits, and Fees (3% of Estimated Construction)					$3,800
	Estimated Design and Management Cost					**$13,800**
	Project Contingencies (20% of Estimated Design & Construction)					$28,000
	SUBTOTAL					**$167,900**
	SJW Overhead (15%)					$25,200
	TOTAL ESTIMATED PROJECT COST (Present Value)					**$193,100**
	TOTAL ESTIMATED PROJECT COST (2021)					**$198,900**

Figure 4. Project Cost Breakdown

SAN JOSE WATER COMPANY IMPROVEMENT **ESTIMATE NO.** **J1-191**

DATE : 19-Jul-22

SEE EST. NO.

COMPLETION REPORT BY : **CONSTRUCTION DEPT.**

Description: **Saratoga Hills Station (SM: 020) - Surge Tank**

Install :

PUMPING PLANT (PP): 3240 Pumping Plant Equipment

01) 1 - 375 Gallon Surge Tank, Valves, Appurtenances, Bladder Monitoring Panel and Connections
02) 21' - 6" DICL Piping, Valves, Fittings and Appurtenances
03) 2 - Bollards
04) 5'x13' Conc Pad for Surge Tank
05) Electrical Improvements: Conduits, Wire and Trenching for power and signal

PUMPING PLANT (PP): 3215 PP Structures & Improvements Misc & Yard Impr.

06) Cotterman Aluminum Series 'A' Safety Ladder, 5-Step Ladder (A5R2630C0)

Est. In Service Date: December 1st, 2022

Est. Completion Date: December 18th, 2022

Reason : To mitigate pressure transients in Pike Zone.

PROPOSED ADDITIONS	AMOUNT
MATERIAL	$190,600
COMPANY LABOR	$75,200
CONSTRUCTION CONTRACT	$230,500
CONSULTANT	$4,300
PERMIT (INCL. PG&E)	$2,800
CONTINGENCIES (8%)	$40,500
OVERHEAD (16%)	$87,400
Total Cost of Additions	**$631,300**
EXTENSION DEPOSIT	
Refundable	
Non-Refundable	
PROPOSED RETIREMENTS	
Original Cost of Property Retired	
Cost of Retiring :	
Material	
Company Labor	
Contract	
Total Cost of Retiring	

FIXED CAPITAL DISTRIBUTION	
Account No.	Amount
3240	**$594,000**
3215	**$37,300**
BUDGET DATA	
Schedule	Amount
SJW018899 P-1008 ($25,000)	**$631,300**
T-25 ($37,000)	
E-IT-117 ($22,000)	
E-IT-118 ($3,400)	
W-134 ($30,700)	
RW-1017 ($75,000)	
A-85 ($37,300)	
E-0M-123 ($400,900)	
Prepared By	**Date**
Frank Du (CX)	14-Jul-22
Approvals	**Date**
Digitally signed by H. Frank Du Date: 2022.07.19 16:42:23 -07'00'	

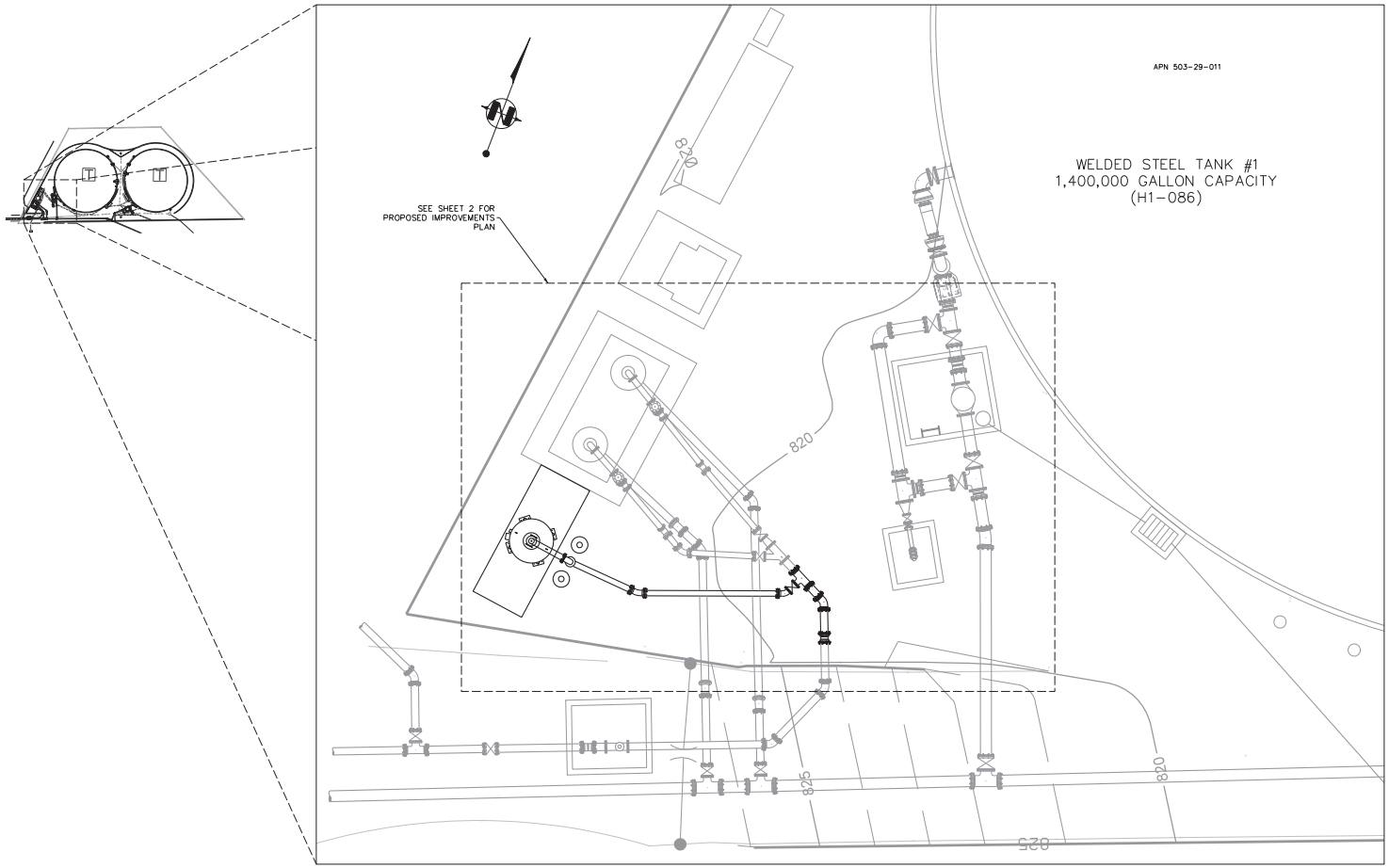
ESTIMATED COST DETAIL

Charge To	Description (J1-191)		
	PUMPING PLANT (PP): 3240 Pumping Plant Equipment		
	Install:		
3240	01) **1 - 375 Gallon Surge Tank, Valves, Appurtenances, Bladder Monitoring Panel and Connections**		
	6410	MATERIAL	$153,300
	6011	COMPANY LABOR	$12,700
	6300	CONSTRUCTION CONTRACT	$20,700
	6315	CONSULTANT	$3,000
	6510	PERMIT (INCL. PG&E)	$2,000
	6700	CONTINGENCIES (8%)	$15,400
	7910	OVERHEAD (16%)	$33,200
		SUBTOTAL	**$240,300**
3240	02) **21' - 6" DICL Piping, Valves, Fittings and Appurtenances**		
	6410	MATERIAL	$19,500
	6011	COMPANY LABOR	$12,700
	6300	CONSTRUCTION CONTRACT	$71,200
	6315	CONSULTANT	$0
	6510	PERMIT (INCL. PG&E)	$0
	6700	CONTINGENCIES (8%)	$8,300
	7910	OVERHEAD (16%)	$17,900
		SUBTOTAL	**$129,600**
3240	03) **2 - Bollards**		
	6410	MATERIAL	$2,900
	6011	COMPANY LABOR	$12,700
	6300	CONSTRUCTION CONTRACT	$11,200
	6315	CONSULTANT	$0
	6510	PERMIT (INCL. PG&E)	$0
	6700	CONTINGENCIES (8%)	$2,200
	7910	OVERHEAD (16%)	$4,700
		SUBTOTAL	**$33,700**
3240	04) **5'x13' Conc Pad for Surge Tank**		
	6410	MATERIAL	$4,600
	6011	COMPANY LABOR	$12,700
	6300	CONSTRUCTION CONTRACT	$70,400
	6315	CONSULTANT	$1,300
	6510	PERMIT (INCL. PG&E)	$800
	6700	CONTINGENCIES (8%)	$7,200
	7910	OVERHEAD (16%)	$15,600
		SUBTOTAL	**$112,600**

ESTIMATED COST DETAIL

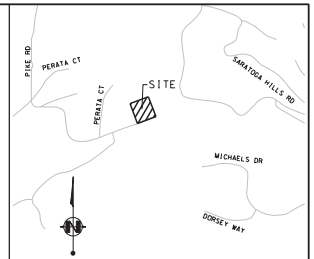
Charge To	Description (J1-191)		
	PUMPING PLANT (PP): Varies		
	Install:		
3240	05) **Electrical Improvements: Conduits, Wire and Trenching for power and signal**		
	6410	MATERIAL	$5,300
	6011	COMPANY LABOR	$12,700
	6300	CONSTRUCTION CONTRACT	$44,000
	6315	CONSULTANT	$0
	6510	PERMIT (INCL. PG&E)	$0
	6700	CONTINGENCIES (8%)	$5,000
	7910	OVERHEAD (16%)	$10,800
		SUBTOTAL	**$77,800**
3215	06) **Cotterman Aluminum Series 'A' Safety Ladder, 5-Step Ladder (A5R2630C0)**		
	6410	MATERIAL	$5,000
	6011	COMPANY LABOR	$11,700
	6300	CONSTRUCTION CONTRACT	$13,000
	6315	CONSULTANT	$0
	6510	PERMIT (INCL. PG&E)	$0
	6700	CONTINGENCIES (8%)	$2,400
	7910	OVERHEAD (16%)	$5,200
		SUBTOTAL	**$37,300**

SAN JOSE WATER COMPANY
SARATOGA HILL STATION
SURGE TANK INSTALLATION



GENERAL PLAN

0 5 10 15
SCALE: 1" = 10'



SITE LOCATION
NO SCALE

INSTALL: J1-191 DICL PIPE < ZINC COATED V-BIO ENCASEMENT

01) 375 GALLON SURGE TANK & APPURTENANCES
02) 2I' - 6" DICL PIPING, FITTINGS, & VALVES
03) 2 - BOLLARDS
04) 5'x13' CONC PAD FOR SURGE TANK
05) ELECTRICAL IMPROVEMENTS: CONDUITS, WIRE AND TRENCHING FOR POWER AND SIGNAL
06) COTTERMAN ALUMINUM SERIES 'A' SAFETY LADDER, 5-STEP LADDER (A5R2630CO)

THE (SJWC) CONTRACTOR SHALL:

- INSTALL ALL PIPE AND APPURTENANCES IN ACCORDANCE WITH CURRENT SJWC STANDARDS AND SPECIFICATIONS.
- FOLLOW METHODS AND PROCEDURES OF SHUTDOWN AS DIRECTED BY THE SJWC CONSTRUCTION DEPT.
- USE DWG. J-191 FOR SHUTDOWN AND SERVICE INVOLVEMENT PLAN.
- NOTIFY CONSUMERS OF SHUTDOWN.
- NOTIFY UNDERGROUND SERVICE ALERT (USA) AT 1-800-227-2600, 48 HOURS PRIOR TO EXCAVATION.
- ESTABLISH PIPE GRADES USING TOP OF ASPHALT.
- REMOVE VALVE BOXES AND HYDRANT HEAD & BURIES FROM FACILITIES BEING RETIRED AND RESTORE SURFACE.
- GRADE MAIN TO AVOID USE OF AIR VALVES.
- VERTICAL CLEARANCE WHEN CROSSING UTILITIES SHALL BE A MINIMUM OF 12", UNLESS OTHERWISE NOTED ON PLANS.
- MAINTAIN MINIMUM 10 FEET CLEARANCE BETWEEN MAINS AND SANITARY SEWERS, UNLESS OTHERWISE NOTED ON PLANS.
- CENTER A FULL LENGTH OF PIPE WHEN UNDERCROSSING SANITARY SEWERS OR LATERALS. THE VERTICAL CLEARANCE SHALL BE A MINIMUM OF 12", UNLESS OTHERWISE NOTED ON PLANS.
- MAINTAIN MINIMUM 10 FEET CLEARANCE BETWEEN HYDRANTS AND DRIVEWAYS.
- USE CALTRANS CLASS II AB ROCK OR CALTRANS CLASS III AB ROCK FOR IMPORT BACKFILL MATERIAL, EXCEPT WHERE A CONTROLLED DENSITY FILL (CDF) IS NECESSARY BY PERMIT CONDITION OR WHERE TRADITIONAL COMPACTION METHODS ARE NOT ACCEPTABLE.
- INSTALL VALVE STEM RISER AND GATE BOXES PER SJW STD. DWG. MAIN-VB.
- USE STD. DWG. MAIN-RPM FOR RESTRAINED MARKER TAPE AND STD. DWG. MAIN-TW FOR COPPER TRACER WIRE INSTALLATION.
- USE STD. DWG. MAIN-AVDOVT FOR AIR VALVE INSTALLATION.
- CONTRACTOR SHALL COMPLY WITH THE SANITARY SEWER AND STORM DRAIN DISCHARGE REQUIREMENTS COMPLIANCE POLICY DOCUMENTS WO-5030, WO-5040, WO-5110, WO-5140A & WO-5140B.

PRESSURE ZONES:

ZONE: PIKE ROAD ZONE
PRESSURE: 90 PSI TO 96 PSI

ZONE: SARATOGA HILLS ZONE
PRESSURE: 0 PSI TO 5 PSI

PERMITS: CITY OF SARATOGA BUILDING PERMIT

UTILITY LOCATION AND POTHOLE NOTE:

NO WARRANTY IS MADE REGARDING THE LOCATION OF THE EXISTING UTILITIES SHOWN ON THESE PLANS. THE CONTRACTOR SHALL USA AND HIRE A PROFESSIONAL LICENSED THIRD PARTY UTILITY LOCATOR TO IDENTIFY AND CONFIRM LOCATION OF ALL EXISTING SUBSURFACE INFRASTRUCTURE PRIOR TO ALIGNMENT LAYOUT AND SAW CUTTING EXISTING PAVEMENT OR PERFORMING EXCAVATION. THE CONTRACTOR SHALL POTHOLE THE WIDTH OF THE TRENCH AND ONE FOOT BELOW THE ANTICIPATED PIPELINE DEPTH TO CONFIRM HORIZONTAL AND VERTICAL ALIGNMENT OF THE PROPOSED PIPELINES. CONTRACTOR SHALL NOTIFY SJWC CONSTRUCTION SUPERVISOR OF ANY CONFLICTS FOR RESOLUTION WITH SJWC ENGINEERING DEPARTMENT.

INDEX OF SHEETS

Steber, Brandon

REGISTERED PROFESSIONAL ENGINEER BRANDON J. STEBER No. C78269 Exp. 9/30/23 Civil STATE OF CALIFORNIA

CONTRACTOR _____
FOREMAN _____
DATE TO CONTRACTOR _____
PROPOSED START DATE _____
ACTUAL START DATE _____
COMPLETION DATE _____
AS BUILT CHECK: CONST. _____
ENGINEERING _____

AS-BUILT STAMP ONLY

BY	DATE	REVISION	CK	DATE

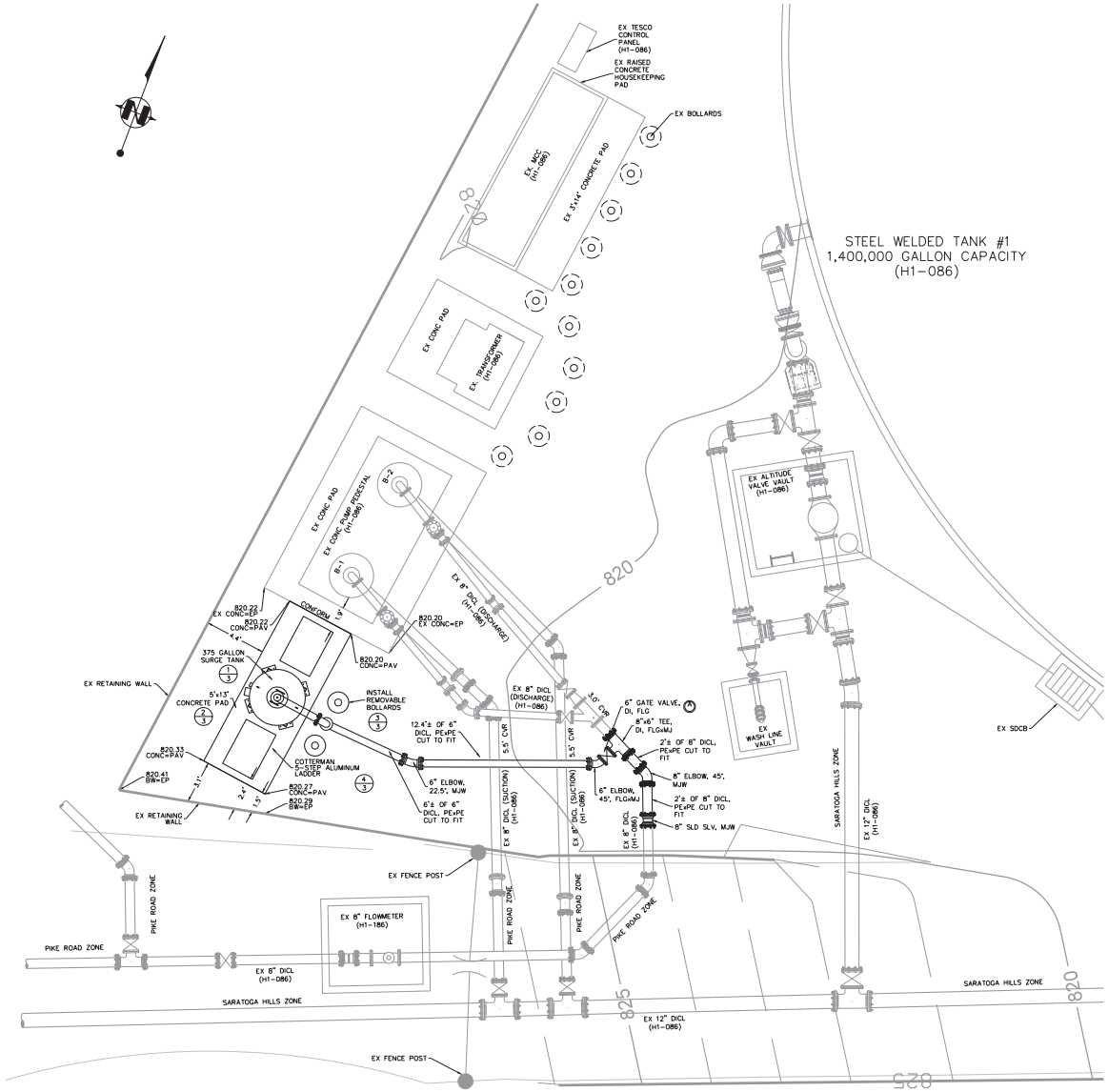
BUDGET # P-1008 (SJW018899)

SJJJ SAN JOSE WATER

SARATOGA HILL STATION
SURGE TANK INSTALLATION

GENERAL PLAN

	Ozgur, Naci — HEALTH AND SAFETY/DATE	
BY: CPX	OPERATIONS/DATE	REF. NOS. SM: 020
DATE: 6/3/22	Walsh, Jake — ENGINEERING, PLANNING/DATE	C1
CHECK / DATE	ENGINEERING, SPECIAL FACILITIES/DATE	DWG. NO. J-191
SCALE: AS SHOWN	Lambing, Ed — CHIEF ENGINEER/DATE	SHEET 1 OF 4



PROPOSED IMPROVEMENTS PLAN

0 4 8 12

SCALE: 1" = 4'

LEGEND

⊙ VALVE CALLOUT, SEE BELOW

NEW VALVE CALLOUTS

(A) 6" VALVE GATE DI FLG LHO
MAKE:_____ TURNS:____ W/____" EXT
EX. PAV'T THICKNESS:____" MAIN CVR:____'

IMPROVEMENT NOTES

1. ALL MECHANICAL JOINT FITTINGS SHALL USE MEGALUGS® FOR PVC PIPE, USE EBAA SERIES 2000PV MEGALUGS. ALL FLANGE CONNECTIONS SHALL HAVE U.S. PIPE FULL FACE FLANGE-TYTE GASKETS PER SJWC MATERIALS SPECIFICATION LIST (MSL).
2. IF UTILITY CROSSING HAS LESS THAN 12" CLEARANCE (6" MINIMUM), PLACE HIGH DENSITY POLYURETHANE FOAM BLOCK SECURELY BETWEEN PIPES/FACILITIES. BACKFILL W/2 SACK CEMENT SAND SLURRY.
3. ALL BELOW GRADE DICL PIPE BEING INSTALLED SHALL BE ZINC COATED WITH Y-BIO ENCASEMENT PER SJWC STANDARDS. ALL EXPOSED, ABOVE GRADE PIPING SHALL BE CLEANED, SURFACE PREPARED, AND PAINTED PER SJWC STANDARD PAINTING SPECIFICATIONS (SECTION 09900) AND PAINT MANUFACTURER'S RECOMMENDATIONS.
4. ALL UNSUITABLE MATERIAL, INCLUDING ANY DELETERIOUS VEGETATION, RUBBLE, ASPHALT, CONCRETE, ETC., SHALL BE COMPLETELY REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL LOCATION, AT THE CONTRACTORS EXPENSE AND SHALL NOT BE UTILIZED FOR ANY BACKFILL OR STRUCTURAL MATERIAL.
5. RECYCLED CLASS 2 AGGREGATE BASE SHALL NOT BE USED.
6. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING UTILITY LINES TO REMAIN.
7. ALL PIPING, FITTINGS, PAINT, COATINGS, AND APPURTENANCES IN CONTACT WITH POTABLE WATER SHALL BE NSF-61 CERTIFIED.

Stieber, Brandon

REGISTERED PROFESSIONAL ENGINEER BRANDON J. STIEBER No. C78289 Exp. 9/30/23 Civil STATE OF CALIFORNIA

AS-BUILT STAMP ONLY

BY	DATE	REVISION	CK	DATE

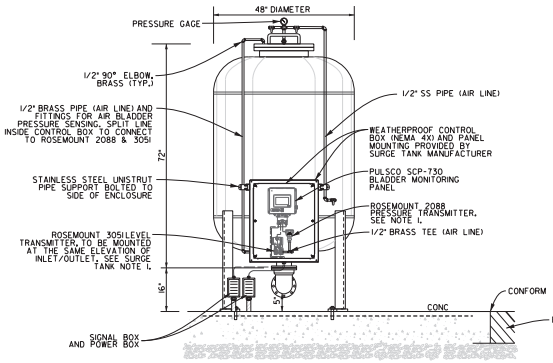
BUDGET # P-1008 (SJW018899)

SJJ SAN JOSE WATER

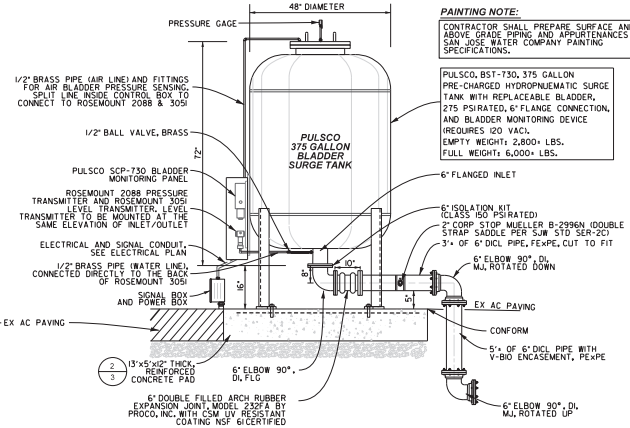
SARATOGA HILL STATION
SURGE TANK INSTALLATION

PROPOSED IMPROVEMENTS PLAN

BY CPX	Ozgur, Naci — HEALTH AND SAFETY/DATE	REF. NOS. SM: 020
	OPERATIONS/DATE	
DATE 6/3/22	Walsh, Jake — ENGINEERING, PLANNING/DATE	C2
CHECK / DATE	ENGINEERING, SPECIAL FACILITIES/DATE	DRG. NO. J1-191
SCALE AS SHOWN	Lambing, Ed — CHIEF ENGINEER/DATE	SHEET 2 OF 4



SURGE TANK - SIDE VIEW
SCALE: N.T.S.



SURGE TANK - FRONT VIEW
SCALE: N.T.S.

PAINTING NOTE:

CONTRACTOR SHALL PREPARE SURFACE AND PAINT ABOVE GRADE PIPING AND APPURTENANCES PER SAN JOSE WATER COMPANY PAINTING SPECIFICATIONS.

SURGE TANK NOTES

1) GENERAL CONTRACTOR SHALL CONTACT KEVIN GUBITZ AT 949-261-1717 TO ORDER ROSEMOUNT 305ICD2A22AIA-DW-M4 LEVEL TRANSMITTER, ROSEMOUNT 2088G3S22A1 PRESSURE TRANSMITTER, SCP-730 BLADDER MONITORING PANEL, AND THE 375 GALLON SURGE TANK. THE SURGE TANK SHALL BE PREFABRICATED WITH THE MOUNTING BRACKET, THE TRANSMITTER BRACKET, AND THE SUPPORT LEGS WITH BASE PLATES.

2) SURGE TANK SHALL BE TESTED AND PRECHARGED ONSITE BY TANK MANUFACTURER DURING STARTUP.

3) GENERAL CONTRACTOR SHALL DISINFECT THE SURGE TANK PRIOR TO BRINGING TANK IN TO SERVICE. CONTACT PHYLLIP NGUYEN FROM WATER QUALITY DEPARTMENT AT 408-918-0805 FOR DIRECTION.

4) TANK SHALL BE COATED BY THE TANK MANUFACTURER. SELECT INTERIOR COATINGS FOR THE 375 GALLON TANK SHALL BE CERTIFIED IN ACCORDANCE WITH NSF/ANSI STD. 61. COATINGS SHALL BE APPROPRIATE FOR THE SIZE OF THE TANK AND FOR WETTED CONDITIONS UNDER PRESSURE. CONTRACTOR SHALL PROVIDE SUBMITTALS FOR SJWC APPROVAL PRIOR TO CONSTRUCTION.

INTERIOR SURFACE PREPARATION: SSPC-SP10/NACE NO. 2 NEAR-WHITE BLAST CLEAN TO CREATE A DENSE, UNIFORM AND ANGULAR ANCHOR PROFILE OF 3.0 MILS MINIMUM
INTERIOR LINING: TNEMEC SERIES 22 EPOXOLINE (OR APPROVED EQUAL): 20.0 TO 30.0 MILS DFT

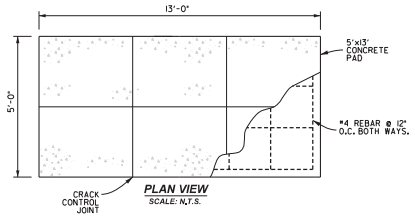
EXTERIOR SURFACE PREPARATION: SSPC-SP10/NACE NO. 3 COMMERCIAL BLAST CLEAN TO CREATE A DENSE, UNIFORM AND ANGULAR ANCHOR PROFILE OF 2.0 MILS MINIMUM
EXTERIOR PRIMER: TNEMEC SERIES 94-H20 HYDRO-ZINC (OR APPROVED EQUAL): 2.5 TO 3.5 MILS
EXTERIOR INTERMEDIATE: TNEMEC SERIES 740 UVX (OR APPROVED EQUAL): 3.0 TO 5.0 MILS DFT PER COAT
EXTERIOR FINISH: TNEMEC SERIES 740 UVX (OR APPROVED EQUAL): 3.0 TO 5.0 MILS DFT PER COAT

5) FOR FINAL TANK EXTERIOR PAINT COLOR, CONTRACTOR SHALL MATCH THE EXTERIOR PAINT COLOR OF THE EXISTING SARATOGA HILLS WATER STORAGE TANKS (HI-086 TANK 1 & H2-022 TANK 2). CONTRACTOR SHALL SUBMIT COLOR SAMPLES TO SJW ENGINEERING FOR IN COMBINATION WITH THE SURGE TANK SHOP DRAWINGS FOR REVIEW AND APPROVAL.

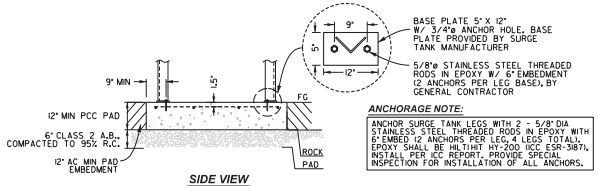
PULSCO SURGE TANK DETAIL
1/3
N.T.S.

CONCRETE PAD NOTES

1. CONCRETE SHALL HAVE COMPRESSIVE STRENGTH OF 3,000 PSI MINIMUM. REINFORCING SHALL BE ASTM A706 OR ASTM A615 GRADE 60.
2. RECYCLED CLASS 2 AGGREGATE BASE SHALL NOT BE USED.



PLAN VIEW
SCALE: N.T.S.

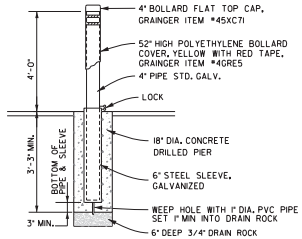


SIDE VIEW
SCALE: N.T.S.

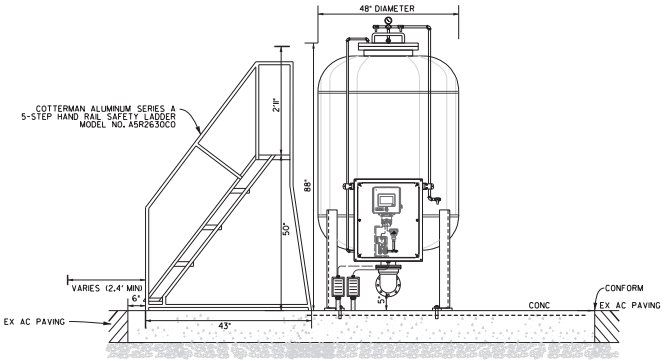
ANCHORAGE NOTE:

ANCHOR SURGE TANK LEGS WITH 2 - 5/8" DIA STAINLESS STEEL THREADED RODS IN EPOXY WITH 6" EMBED (2 ANCHORS PER LEG, 4 LEGS TOTAL). EPOXY SHALL BE HILTI HIT HY-200 (ICC ESR-3187). INSTALL PER ICC REPORT. PROVIDE SPECIAL INSPECTION FOR INSTALLATION OF ALL ANCHORS.

SURGE TANK CONCRETE PAD DETAIL
2/3
N.T.S.



REMOVABLE BOLLARD DETAIL
3/3
N.T.S.



SURGE TANK - SIDE VIEW
SCALE: N.T.S.

PORTABLE LADDER
4/3
N.T.S.

Stieber, Brandon

REGISTERED PROFESSIONAL ENGINEER
BRANDON J. STIEBER
No. C78269
Exp. 9/30/23
Civil
STATE OF CALIFORNIA

AS-BUILT STAMP ONLY

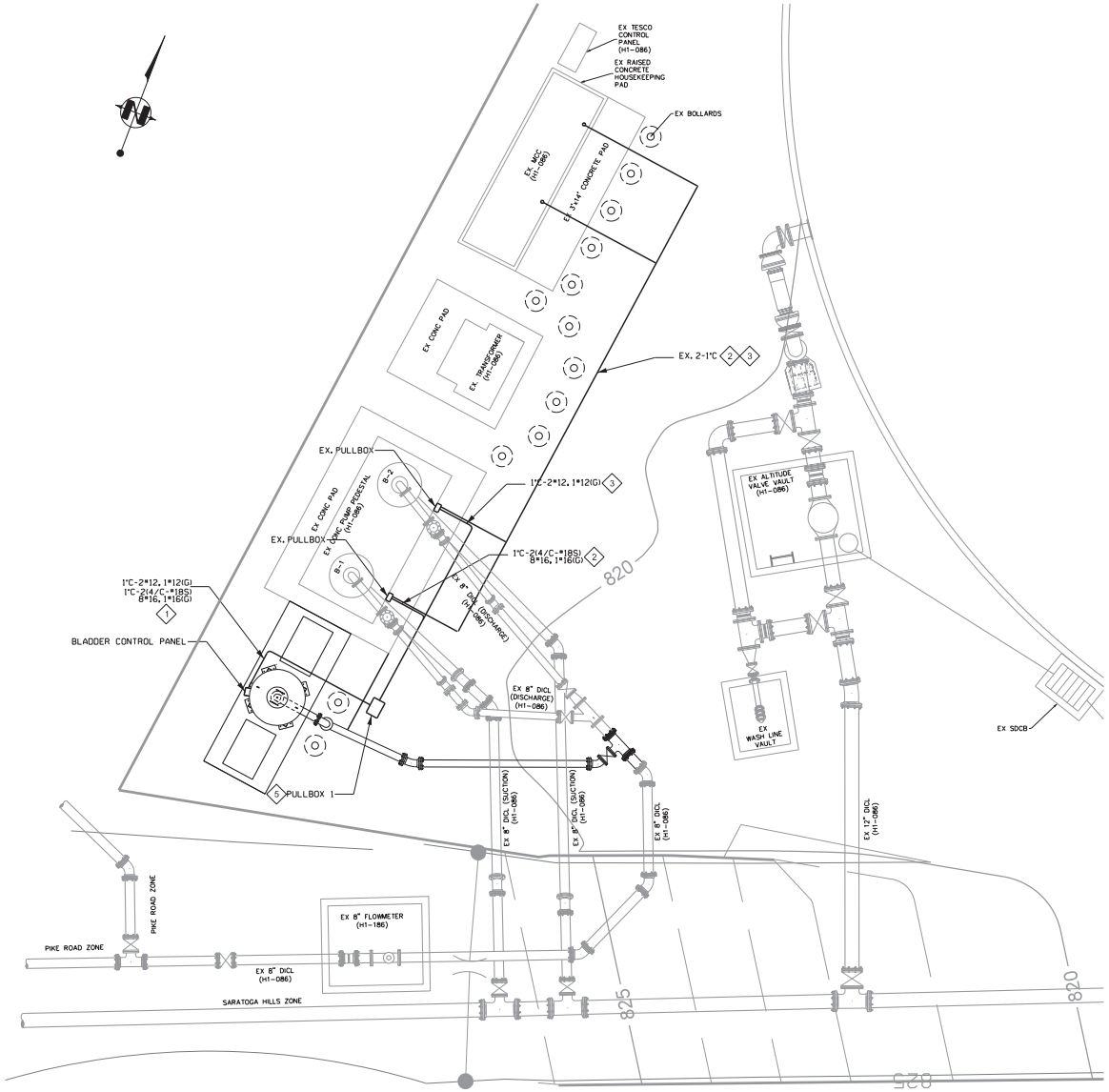
BY	DATE	REVISION	CK	DATE

BUDGET # P-1008 (SJW018899)

SJJ SAN JOSE WATER

SARATOGA HILL STATION
SURGE TANK INSTALLATION
SECTIONS AND DETAILS

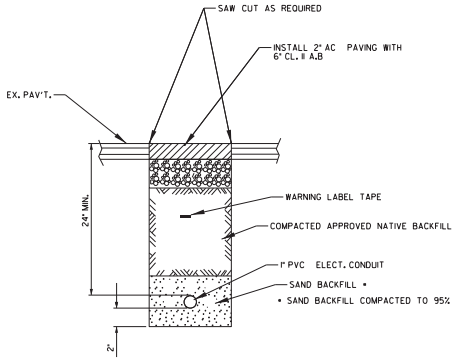
	Ozgur, Naci — HEALTH AND SAFETY/DATE	
BY CPX	OPERATIONS/DATE	REF. NOS. SM: 020
DATE 6/3/22	Walsh, Jake — ENGINEERING, PLANNING/DATE	C3
CHECK / DATE	ENGINEERING, SPECIAL FACILITIES/DATE	DRG. NO. J1-191
SCALE AS SHOWN	Lambing, Ed — CHIEF ENGINEER/DATE	SHEET 3 OF 4



POWER PLAN

0 4 8 12

SCALE: 1" = 4'



TYPICAL ELECTRICAL TRENCH DETAIL 1
NO SCALE

KEY NOTES:

1. PROVIDE 2-1" UNDERGROUND CONDUITS IN A TRENCH FROM NEW BLADDER CONTROL PANEL TO EX. PULLBOXES NEAR BOOSTER 1 & 2, APROX 20' OF TRENCHING. BREAK CONCRETE PAD AS NEEDED.
2. ROUTE POWER CABLES IN A NEW 1"CONDUIT FROM BLADDER CONTROL PANEL TO EXISTING PULLBOX NEAR B1. EXTEND POWER CABLES IN EXISTING 1" SPARE CONDUIT FROM EX. PULLBOX NEAR B1 TO EXISTING MCC.
3. ROUTE CONTROL CABLES IN A NEW 1"CONDUIT FROM BLADDER CONTROL PANEL TO EXISTING PULLBOX NEAR B2. EXTEND CONTROL CABLES IN EXISTING 1" SPARE CONDUIT FROM EX. PULLBOX NEAR B2 TO EXISTING MCC.
4. USE EXISTING 20A, 1P SPARE BREAKER IN PANEL A FOR BLADDER CONTROL PANEL
5. PROVIDE A PULLBOX, CHRISTY B09 WITH TRAFFIC RATED COVER

PANEL A SCHEDULE

BREAKERS AMPS/POLES	LUGS X	MAIN	AIC	AMP BUS	WIRE	Ø	VOLT
LEGEND PLATE	BREAKER ☐	90	10K	100	3	1	120/240

LEGEND PLATE

		NEUTRAL			
METER VAULT DRAIN PUMP	20/1	1	2	20/1	BOOSTER PAD 1 RECEPTACLE
TANK 1 LEVEL RECEPTACLE	15/1	3	4	20/1	BOOSTER PAD 2 RECEPTACLE
TELEMETRY	15/1	5	6	20/1	ADEMCO ALARM PANEL
MCC LIGHTING	15/1	7	8	20/1	MCC RECEPTACLE
ALT VALVE VAULT #1	20/1	9	10	20/1	ALT VALVE VAULT #2
SUMP PUMP VAULT #1	20/1	11	12	20/1	SUMP PUMP VAULT #2
RED LION & DURANT B1 & B2	20/1	13	14	15/1	SPARE
SUB PANEL B	60/2	15	16	15/1	W/W #1 FAN & HEATER
		17	18	15/1	W/W #2 FAN & HEATER
SPACE		19	20	20/1	PRESSURE CONTROLS CABINET
TANK LOAD CENTER		21	22	20/1	BLADDER CONTROL PANEL 4
SPACE		23	24	30/2	SPARE
SPACE		25	26		
SPACE		27	28	90/2	PANEL A MAIN
SPACE		29	30		

GENERAL ELECTRICAL NOTES

ALL WORK SHALL CONFORM TO AND BE PERFORMED IN ACCORDANCE WITH CODES, STANDARDS, AND ORDINANCES AS SET FORTH BY THE AUTHORITIES HAVING JURISDICTION AND THEIR LATEST ADOPTED EDITIONS OF THE FOLLOWING PUBLICATIONS:

(A) CALIFORNIA CODE OF REGULATIONS TITLE 24; INCLUDES; 2019 CALIFORNIA ELECTRICAL CODE, CALIFORNIA FIRE CODE, CALIFORNIA BUILDING CODE, ETC.

(B) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

(C) AMERICANS WITH DISABILITIES ACT (ADA)

GENERAL NOTE:

NOTIFY UNDERGROUND SERVICE ALERT (USA) AT 1-800-227-2600, 48 HOURS PRIOR TO EXCAVATION.

ALL CONDUITS UNDERGROUND SHALL BE PVC
ALL CONDUITS ABOVE GROUND SHALL BE METAL PER NEC

NOTIFY OPERATIONS DEPT. AT LEAST 48 HRS PRIOR TO START OF WORK @ (408) 279-7807

Mirza, Hasan
REGISTERED PROFESSIONAL ENGINEER
HASAN ALI MIRZA
E19129
Exp. 6/30/22
ELECTRICAL
STATE OF CALIFORNIA

AS-BUILT STAMP ONLY

BY	DATE	REVISION	CK	DATE

BUDGET # P-1008 (SJW018899)

SJJ SAN JOSE WATER

SARATOGA HILL STATION
SURGE TANK INSTALLATION

POWER PLAN

	Ozgur, Naci — HEALTH & SAFETY/DATE	
BY MK	OPERATIONS/DATE	REF. NOS. SM- 020
DATE 6/3/22	Walsh, Jake — ENGINEERING, PLANNING/DATE	C2
CHECK / DATE	ENGINEERING, SPECIAL FACILITIES/DATE	DRG. NO. J1-191
SCALE AS SHOWN	Lamberg, Ed — CHIEF ENGINEER/DATE	SHEET 4 OF 4

SAN JOSE WATER COMPANY IMPROVEMENT **REVISED EST.** **J2-087**

DATE : 24-Apr-23

SEE EST. **J2-087R**

COMPLETION REPORT BY : **CONSTRUCTION DEPT.**

Description : **PUMPING PLANT: Pumping Equipment**
Central Ave. Station (SM-042)

Install:

01) 20kW stand-by generator
02) 100A wall mounted ATS
03) Conduits, cables for connecting new Generator to ATS, Panel A and PLC
04) Two ground rods for Generator grounding
05) 11'-6" x 8'-0" x 24" concrete pad for Generator
06) Portable Generator

Reason : The existing generator is old and obsolete and does not meet SJW standards. In addition, there are no economically viable equipment modification or technology available to retrofit the existing generator.
See Est # J2-087R for the retirement costs.

PROPOSED ADDITIONS	AMOUNT
Material (Include Tax & Delivery)	$234,600
Company Labor	$51,000
Construction Contract	$73,300
Permit	$8,000
Contingencies (5%)	$18,600
Construction Overhead (16%)	$62,000
Total Cost of Additions	**$447,500**
EXTENSION DEPOSIT	
Refundable	
Non-Refundable	
PROPOSED RETIREMENTS	
Original Cost of Property Retired	
Cost of Retiring :	
Material	
Company Labor	
Contract	
Total Cost of Retiring	

FIXED CAPITAL DISTRIBUTION	
Account No.	Amount
3240	**$447,500**
BUDGET DATA	
Schedule	Amount
SJW019219	**$447,500**
Prepared By	**Date**
Hasan Mirza (MK)	24-Apr-23
Approvals	**Date**

ESTIMATED COST DETAIL

Charge To	Description (J2-087)		Amount
	PUMPING PLANT: Pumping Equipment		
	Central Ave Station (SM-042)		
	Install:		
3240	**01) A new 20kW stand-by generator**		
	6410	MATERIAL	$200,400
	6011	COMPANY LABOR	$24,000
	6300	CONSTRUCTION CONTRACT	$24,500
	6510	PERMIT	$8,000
	6700	CONTINGENCIES (5%)	$12,900
	7910	OVERHEAD (16%)	$43,200
		SUB TOTAL:	**$313,000**
3240	**02) New 100A wall mounted ATS**		
	6410	MATERIAL	$7,500
	6011	COMPANY LABOR	$10,000
	6300	CONSTRUCTION CONTRACT	$4,700
	6700	CONTINGENCIES (5%)	$1,200
	7910	OVERHEAD (16%)	$3,800
		SUB TOTAL:	**$27,200**
3240	**03) Provide conduits, cables for connecting new Generator to ATS, Panel A and PLC**		
	6410	MATERIAL	$5,000
	6011	COMPANY LABOR	$5,000
	6300	CONSTRUCTION CONTRACT	$19,000
	6700	CONTINGENCIES (5%)	$1,500
	7910	OVERHEAD (16%)	$4,900
		SUB TOTAL:	**$35,400**
3240	**04) Provide two ground rods for Generator grounding**		
	6410	MATERIAL	$1,000
	6011	COMPANY LABOR	$1,000
	6300	CONSTRUCTION CONTRACT	$3,500
	6700	CONTINGENCIES (5%)	$300
	7910	OVERHEAD (16%)	$1,000
		SUB TOTAL:	**$6,800**

3240	**05) New 11'-6" x 8'-0" x 24" concrete pad for Generator**		
	6410	MATERIAL	$13,700
	6011	COMPANY LABOR	$10,000
	6300	CONSTRUCTION CONTRACT	$21,600
	6700	CONTINGENCIES (5%)	$2,300
	7910	OVERHEAD (16%)	$7,700
		SUB TOTAL:	**$55,300**
3240	**06) Portable Generator**		
	6410	MATERIAL	$7,000
	6011	COMPANY LABOR	$1,000
	6300	CONSTRUCTION CONTRACT	$0
	6700	CONTINGENCIES (5%)	$400
	7910	OVERHEAD (16%)	$1,400
		SUB TOTAL:	**$9,800**
		TOTAL: J2-087	**$447,500**

SAN JOSE WATER COMPANY **RETIREMENT** **EST.** **J2-087R**

DATE : 25-Apr-23

SEE EST. **J2-087**

COMPLETION REPORT BY : **CONSTRUCTION DEPT.**

Description : **PUMPING PLANT: Pumping Equipment**
Central Ave Station (SM-042)

Retire:

01) Remove existing 30kW Generator and ATS

Reason : The existing generator is old and obsolete and does not meet SJW standards. In addition, there are no economically viable equipment modification or technology available to retrofit the existing generator. See Est # J2-087 for the improvement costs.

PROPOSED ADDITIONS	AMOUNT
Material	
Company Labor	
Contract	
Contingencies	
Construction Overhead	
Total Cost of Additions	
EXTENSION DEPOSIT	
Refundable	
Non-Refundable	
PROPOSED RETIREMENTS	
Original Cost of Property Retired	**$14,000.00**
How computed (See reverse side)	
By : HM-ML	
Cost of Retiring :	
Material	$8,500
Company Labor	$1,000
Contract	$55,600
Total Cost of Retiring	**$65,100**

FIXED CAPITAL DISTRIBUTION

Account No.	Amount
3240	**$14,000.00**

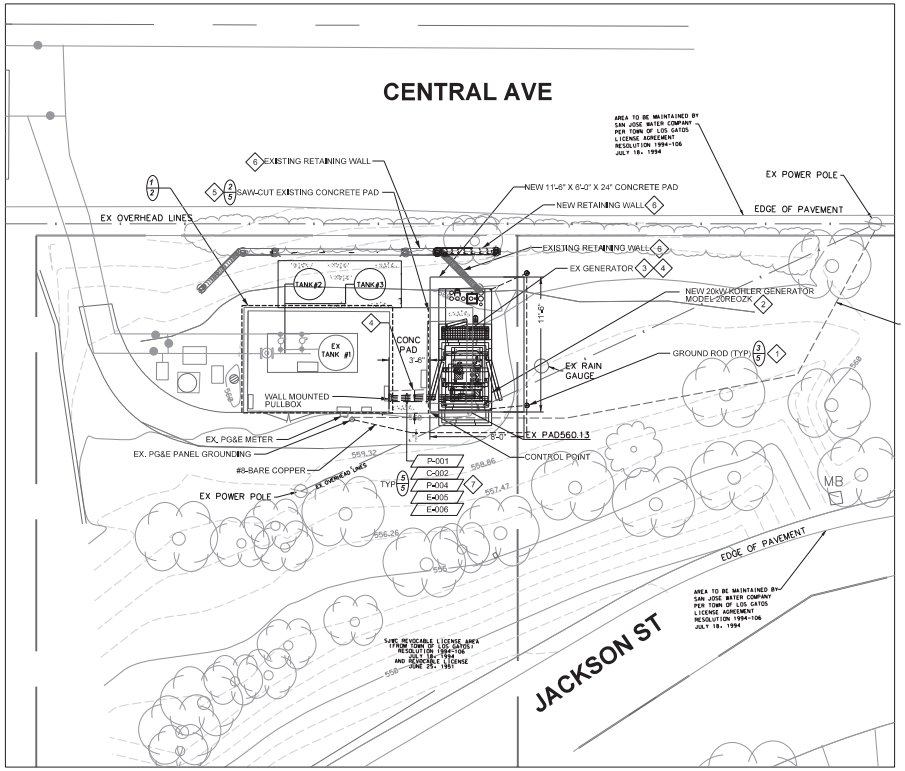
BUDGET DATA

Schedule	Amount
SJW019045	**$65,100**

Prepared By	**Date**
Hasan Mirza (MK)	25-Apr-23
Approvals	**Date**

RETIREMENT DETAIL

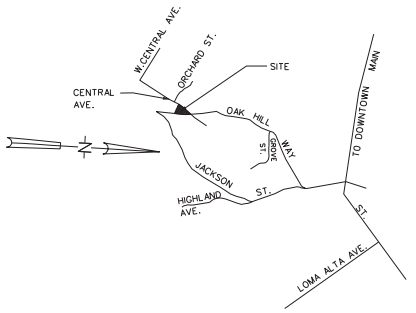
Account	Description **(J2-087R)**	Book Cost	Fed Tax Cost	CA Tax Cost	Cost to Retire
	PUMPING PLANT:Pumping Equipment				
	Central Ave Station (SM-042)				
3240	**Retire :**				
	30kW Stand-by Generator and ATS (E4-145)				
	Asset # 10072619 Year 1994	$14,000.00			
	TOTAL: J2-087R	$14,000.00			



SITE POWER PLAN

0 1' 2' 5' 10'

SCALE: 1" = 5'



SITE LOCATION

NO SCALE

KEY NOTES:

1. PROVIDE 2-3/4" X 10' GROUND RODS FOR GENERATOR GROUNDING AND CONNECT GROUND RODS TO EXISTING PG&E PANEL GROUNDING.
2. SEE GENERATOR DRAWINGS ON SHEET 4 FOR DETAILS
3. ELECTRICAL CONTRACTOR TO WORK WITH MAT SMITH FROM JJ KANE AUCTIONEERS, C: 707-333-9993, O: 707-678-8071, MAT.SMITH@JJKANE.COM TO REMOVE EXISTING 30kW GENERAC GENERATOR
4. REMOVE EXISTING CABLES BETWEEN ATS, PLC, PANEL A AND EX. GENERATOR. CAP EXISTING CONDUITS AND ABONDON IN PLACE
5. SAW CUT EXISTING CONCRETE PAD AND POUR NEW 11'-6" X 8'-0" X 24" CONCRETE PAD FOR NEW GENERATOR AND INSTALL DOWELS BETWEEN OLD AND NEW PADS
6. REMOVE EXISTING 5' WOOD RETAINING WALL AND INSTALL NEW RETAINING WALL AT NEW LOCATION AND MATCH HEIGHT OF EXISTING WALL.
7. SAW CUT EXISTING CONCRETE PAD TO TRENCH NEW CONDUITS FROM NEW GENERATOR TO WALL MOUNTED PULLBOX, TRENCH TO AVOID 24" FOOTING, 12" OFF THE PAD

INSTALL: J2-087

01) PROVIDE NEW 20KW KOHLER GENERATOR MODEL 20REOZK

02) PROVIDE NEW 11'-6" X 8'-0" X 24" CONCRETE PAD

03) PROVIDE 2 NEW 3/4" X 10' GROUND RODS AND CONNECT TO EXISTING PG&E PANEL GROUNDING

04) PROVIDE NEW 100A WALL MOUNTED MODEL # KCS-AFNA-0104S ATS AND CONNECT TO NEW GENERATOR

RETIRE: J2-087

01) REMOVE EXISTING CABLES BETWEEN EXISTING GENERATOR AND EXISTING ATS, PANEL A AND PLC, APPROX 20'

02) REMOVE EXISTING 30kW, 1PHASE, 120/240V GENERATOR

03) REMOVE PARTIAL EXISTING CONCRETE PAD

04) REMOVE EXISTING 100A ATS

THE (SJWC) CONTRACTOR SHALL:

NOTIFY CONSUMERS OF SHUTDOWN.

FOLLOW METHODS AND PROCEDURES OF SHUTDOWN AS DIRECTED BY SJWC CONSTRUCTION DEPARTMENT.

NOTIFY UNDERGROUND SERVICE ALERT (USA) AT 1-800-227-2600, 48 HOURS PRIOR TO EXCAVATION.

ESTABLISH PIPE GRADES USING TOP OF CURB.

NOTE THAT EXISTING PAVEMENT IS SHOWN SHADED ON THE GENERAL PLAN.

DEVELOPER:

SAN JOSE WATER COMPANY
1265 SO. BASCOM AVE.
SAN JOSE, CA 95128

FRANK DU, P.E.
(408) 279-7880

GENERAL ELECTRICAL NOTES

ALL WORK SHALL CONFORM TO AND BE PERFORMED IN ACCORDANCE WITH CODES, STANDARDS, AND ORDINANCES AS SET FORTH BY THE AUTHORITIES HAVING JURISDICTION AND THEIR LATEST ADOPTED EDITIONS OF THE FOLLOWING PUBLICATIONS:

(A) CALIFORNIA CODE OF REGULATIONS TITLE 24; INCLUDES: 2019 CALIFORNIA ELECTRICAL CODE, CALIFORNIA FIRE CODE, CALIFORNIA BUILDING CODE, ETC.

(B) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

(C) AMERICANS WITH DISABILITIES ACT (ADA)

GENERAL NOTE:

NOTIFY UNDERGROUND SERVICE ALERT (USA) AT 1-800-227-2600, 48 HOURS PRIOR TO EXCAVATION.

CONTRACTOR SHALL LOCATE ALL UNDERGROUND FACILITIES USING GPR WITHIN THE TRENCH AREA PRIOR TO TRENCHING

TRENCH AND BACK FILL CONDUITS AND WIRING

RESTORE EX. PAVING AFTER CONSTRUCTION TO ORIGINAL CONDITION

ALL CONDUITS UNDERGROUND SHALL BE PVC
ALL CONDUITS ABOVE GROUND SHALL BE METAL
PER NEC

NOTIFY OPERATIONS DEPT. AT LEAST 48 HRS PRIOR TO START OF WORK @ (408) 279-7807

Mirza, Hasan
Digitally signed by Mirza, Hasan
Date: 2022.09.30 10:39:46 -07'00'

REGISTERED PROFESSIONAL ENGINEER
HASAN ALI MIRZA
E19129
Exp. 6/30/24
ELECTRICAL
STATE OF CALIFORNIA

CONTRACTOR _____
FOREMAN _____
DATE TO CONTRACTOR _____
PROPOSED START DATE _____
ACTUAL START DATE _____
COMPLETION DATE _____
AS BUILT CHECK: CONST. _____
ENGINEERING _____
PLEASE ORDER MATERIAL. SJWC CONSTRUCTION DEPT. WILL NOTIFY YOU OF THE WORK SCHEDULE.

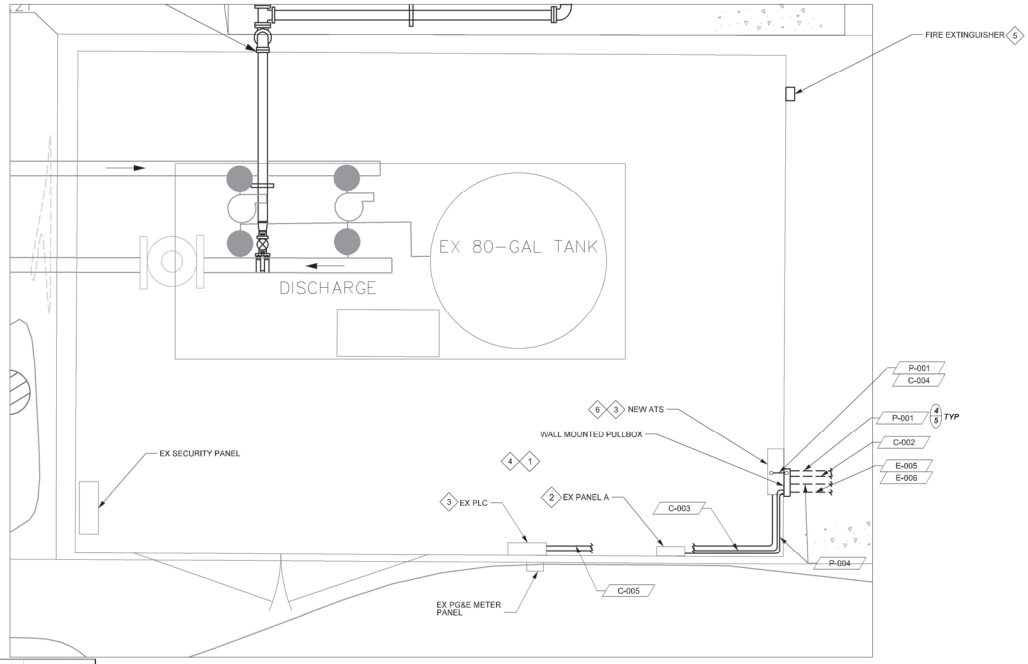
AS-BUILT STAMP ONLY

BUDGET # P-22 (#6058)

SJW SAN JOSE WATER

CENTRAL AVE STATION
GENERATOR REPLACEMENT PROJECT
SITE POWER PLAN

BY MK	Ozgur, Naci HEALTH AND SAFETY/DATE	REF. NOS. SM: 042
	OPERATIONS/DATE	
DATE	Walsh, Jake ENGINEERING, PLANNING/DATE	
CHECK / DATE	Mirza, Hasan ENGINEERING, SPECIAL FACILITIES/DATE	EST. NO. J2-087
SCALE AS SHOWN	Lambing, Ed CHIEF ENGINEER/DATE	SHEET 1 OF 5



PUMP ROOM PLAN 1/2

SCALE: 1" = 10'

CONDUIT SCHEDULE

GENERATOR INSTALLATION

CENTRAL AVE STATION

CREATE PRINT SHEET

CONDUIT			CONDUCTORS			GROUND						CONNECTING SEGMENTS
NUMBER	DWG	SIZE	#	SIZE	TYPE	#	SIZE	TYPE		#	SIZE	DESCRIPTION
P-001	J2-087-01	1.5"	3	#2	THWN	1	#8	THWN	FR: TO:			GENERATOR ATS
										3	#2	>> GCN
C-002	J2-087-01	1"	18 2	#16 4/C-#18S	THWN 21804	1	#16	THWN	FR: TO:			GENERATOR WALL MOUNTED PULLBOX
										4	#16	>> GEN INTRUSION ALARM
										4	#16	>> START GEN (BLUE/BRWN)
										2	4/C-#18S	>> FUEL ALARM MONITORING (HIGH, HIGH/HIGH)
										2	#16	>> RUN STATUS (BLUE/BRWN)
										2	#16	>> NOT IN AUTO (PURPLE/PURPLE)
										2	#16	>> TANK LEAK (GRAY/GRAY)
										2	#16	>> LOW FUEL ALARAM (GRAY/GRAY)
										2	#16	>> GEN COMMON TROUBLE (GRAY/GRAY)
C-003	J2-087-01	1"	14 2	#16 4/C-#18S	THWN 21804	1	#16	THWN	FR: TO:			WALL MOUNTED PULLBOX PLC
										4	#16	>> GEN INTRUSION ALARM
										2	4/C-#18S	>> FUEL ALARM MONITORING (HIGH, HIGH/HIGH)
										2	#16	>> RUN STATUS (BLUE/BRWN)
										2	#16	>> NOT IN AUTO (PURPLE/PURPLE)
										2	#16	>> TANK LEAK (GRAY/GRAY)
										2	#16	>> LOW FUEL ALARAM (GRAY/GRAY)
										2	#16	>> GEN COMMON TROUBLE (GRAY/GRAY)
C-004	J2-087-01	1"	4	#16	THWN	1	#16	THWN	FR: TO:			WALL MOUNTED PULLBOX ATS
										4	#16	>> START GEN (BLUE/BRWN)
P-004	J2-087-01	1"	3	#10	THWN	1	#10	THWN	FR: TO:			GENERATOR LOAD CENTER PANEL A
										3	#10	>> LOAD CENTER GEN
C-005	J2-087-01	1"	4	#16	THWN	1	#16	THWN	FR: TO:			ATS PLC
										2	#16	>> START CONTROL GEN (ORG/RED)
										2	#16	>> RUN STATUS GEN (BLUE/BRWN)
E-005	J2-087-01	2"	1	PULL	ROPE				FR: TO:			GENERATOR WALL PULLBOX
										1	PULL	>>
E-006	J2-087-01	1"	1	PULL	ROPE				FR: TO:			GENERATOR WALL PULLBOX
										1	PULL	>>

END OF CONDUIT SCHEDULE

KEY NOTES:

1. ROUTE CONDUITS FROM NEW GENERATOR TO NEW WALL MOUNTED PULLBOX.
2. REMOVE EXISTING GENERATOR BATTERY CABLES BETWEEN EX PANEL AND AND EX GENERATOR
3. REMOVE EXISTING CABLES AND CONDUITS BETWEEN EXISTING GENERATOR AND PLC, AND ATS
4. PROVIDE NEW HOFFMAN WALL MOUNTED PULLBOX, OUTDOOR RATED.
5. PROVIDE A 20-B:C PORTABLE FIRE EXTINGUISHER AND MOUNT ON THE WALL.
6. DEMOLISH EXISTING ATS AND PROVIDE NEW 100A WALL MOUNTED KOHLER ATS MODEL # KCS-AFNA-0104S IN THE SAME LOCATION

Mirza, Hasan — Digitally signed by Mirza, Hasan Date: 2022.09.30 10:41:12 -07'00'

REGISTERED PROFESSIONAL ENGINEER — HASAN ALI MIRZA — E19129 — Exp. 6/30/24 — ELECTRICAL — STATE OF CALIFORNIA

AS-BUILT STAMP

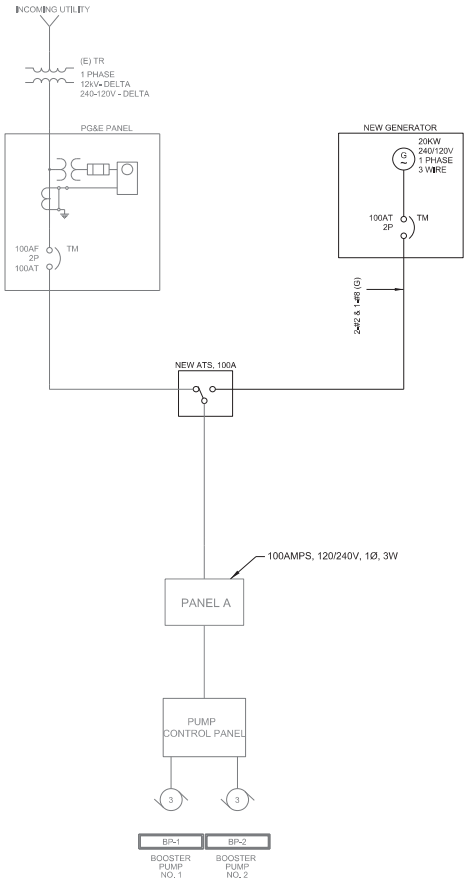
REVISION	DATE	CK	DATE	CK

BUDGET # P-22 (#6058)

San Jose Water Company

CENTRAL AVE STATION
GENERATOR REPLACEMENT PROJECT
PUMP ROOM PLAN

	Ozgur, Naci — HEALTH AND SAFETY / DATE	
	— OPERATIONS / DATE	
BY: MK	Walsh, Jake — ENGINEERING, PLANNING / DATE	REF. NOS. SM-042
CHECK / DATE		
CHECK / DATE	Mirza, Hasan — ENGINEERING, SPECIAL FACILITIES / DATE	DWG. NO. J2-087
SCALE: AS SHOWN	Lambing, Ed — CHIEF ENGINEER / DATE	SHEET 2 OF 5



PANEL A SCHEDULE

BREAKERS AMPS/POLES	LUGS [X]	MAIN	AIC	AMP BUS	WIRE	Ø	VOLT
LEGEND PLATE	BREAKER [ ]	100	10K	100	3	1	120/240

LEGEND PLATE

NEUTRAL

SPARE	60/1	1 / 2	15/1	FAN LIGHT
RECEPTACLE	20/1	3 / 4	15/1	ALARM PANEL
◇1 GEN BATTERY CHARGER	15/1	5 / 6	15/1	RTU
PUMP PANEL	60/2	7,9 / 8,10	30/2	GEN LOAD CENTER ◇2
SPACE		11 / 12		SPACE

KEY NOTES:

◇1 DISCONNECT EXISTING GENERATOR BATTERY AND RELABEL EXISTING 15A BREAKER AS SPARE.

◇2 PROVIDE NEW 30A-2P BREAKER FOR NEW GENERATOR LOAD CENTER IN EXISTING MAIN PANEL.

OVERALL ONE LINE DIAGRAM

SCALE: NTS

Mirza, Hasan
Digitally signed by Mirza, Hasan
Date: 2022.09.30 10:42:17 -07'00'

REGISTERED PROFESSIONAL ENGINEER
HASAN ALI MIRZA
E19129
Exp. 6/30/24
ELECTRICAL
STATE OF CALIFORNIA

AS-BUILT STAMP

REVISION	DATE	CK	DATE	CK

BUDGET # P-22 (#6058)

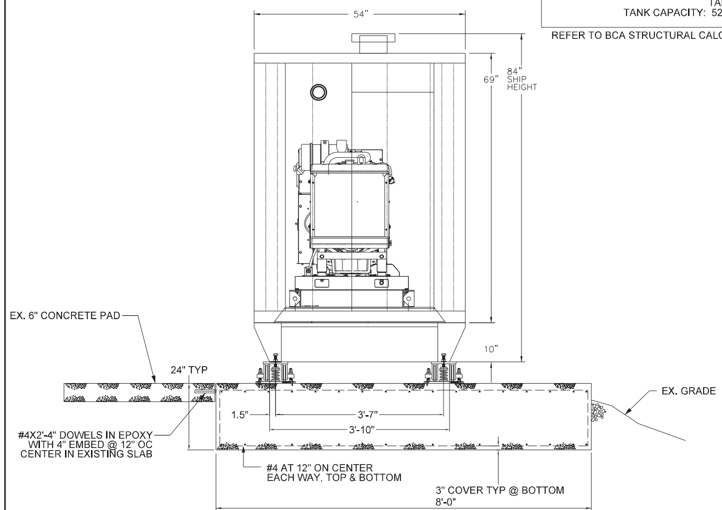
San Jose Water Company

CENTRAL AVE STATION
GENERATOR REPLACEMENT PROJECT
SINGLE LINE DIAGRAM

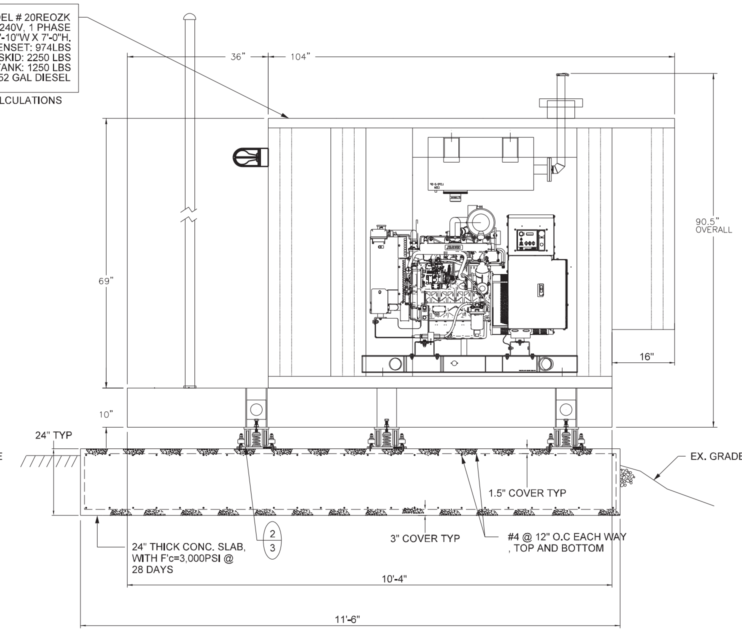
	Ozgur, Naci — HEALTH AND SAFETY / DATE	
	Strutt — OPERATIONS / DATE	
BY MK	Walsh, Jake — ENGINEERING, PLANNING / DATE	REF. NOS. SM-042
CHECK / DATE	Mirza, Hasan — ENGINEERING, SPECIAL FACILITIES / DATE	DWG. NO. J2-087
CHECK / DATE	Lambing, Ed — CHIEF ENGINEER / DATE	SHEET 3 OF 5
SCALE AS SHOWN		

NEW KOHLER GENERATOR MODEL # 20REOZK
20 kW, 28.8 KVA, 120/240V, 1 PHASE
11'-8"L X 3'-10"W X 7'-0"H,
GENSET: 974LBS
ENCL/SKID: 2250 LBS
TANK: 1250 LBS
TANK CAPACITY: 52 GAL DIESEL

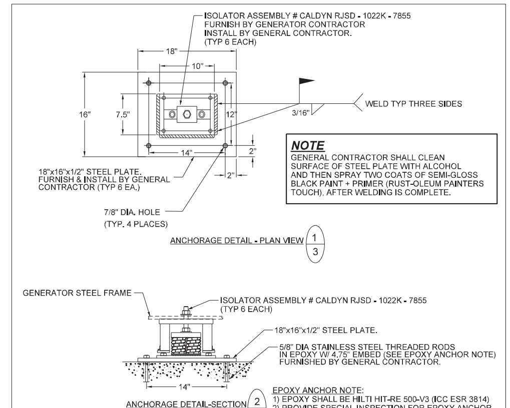
REFER TO BCA STRUCTURAL CALCULATIONS



RAD END



ELEVATION VIEW

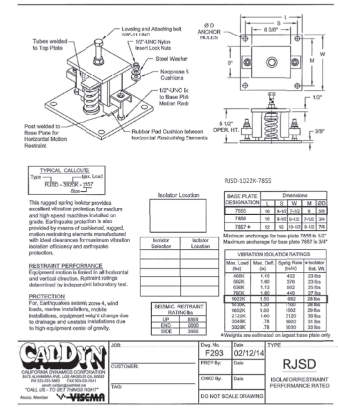


NOTE
GENERAL CONTRACTOR SHALL CLEAN SURFACE OF STEEL PLATE WITH ALCOHOL AND THEN SPRAY TWO COATS OF SEMI-GLOSS BLACK PAINT + PRIMER (RUST-OLEUM PAINTERS TOUCH), AFTER WELDING IS COMPLETE.

EPOXY ANCHOR NOTE:
1) EPOXY SHALL BE HILTI HIT-RE 500-V3 (ICC ESR 3814)
2) PROVIDE SPECIAL INSPECTION FOR EPOXY ANCHOR INSTALLATION PER ICC REPORT
3) PROVIDE INSULATION BETWEEN THE SS ANCHOR AND THE STEEL BASE PLATE. OR CLEAN AND PAINT THE ENTIRE BASE PLATE AND THE ANCHOR, PER THE PAINT NOTE ABOVE

GENERAL CONTRACTOR SHALL COORDINATE WITH BIGGS CARDOSA AT 408-702-8224 FOR SPECIAL INSPECTIONS. (CONTACT CSJ'S INSPECTOR TO WITNESS IF REQUIRED.)

NOTE: ANCHORAGE DETAIL INFORMATION PROVIDED BY BAY CITY ELECTRIC ON 03/25/2022



GENERAL NOTES:

1. CONTRACTOR SHALL OFF LOAD GENERATOR AT CENTRAL AVE STATION UPON ARRIVAL AND SHALL TRANSFER AND SET GENERATOR ON PREPARED CONCRETE PAD WITH STEEL PLATES (TYP 6 EACH).

2. CONTRACTOR SHALL TRENCH & BACKFILL FOR THE ELECTRICAL CONDUITS. ELECTRICAL CONTRACTOR SHALL FURNISH & INSTALL CONDUITS PER CONDUIT SCHEDULE.

3. CONTRACTOR SHALL LOCATE EX. PIPING & ELECT. CONDUITS PRIOR TO TRENCHING FOR PADS & ELECT. CONDUITS.

4. ELECTRICAL CONTRACTOR SHALL CONNECT THE NEW STANDBY GENERATORS TO LIGHTING PANEL & TRANSFER SWITCH.

5. SJWC STAFF SHALL INSTALL AN INTRUSION SWITCH ON EACH GENERATOR DOOR TO ALARM WHEN THE GENERATOR DOOR IS OPEN WHILE THE STATION IS ALARMED. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING CABLES BETWEEN PLC AND INTRUSION SWITCHES.

6. CONTRACTOR SHALL INSTALL THE REBAR MAT TO AVOID CONFLICT WITH THE BASE PLATE ANCHORS. SEE BASE PLATE PATTERN LAYOUT DETAIL.

7. CONTRACTOR SHALL FIELD VERIFY THE GENERATOR ANCHOR AND CONDUIT STUB UP WINDOW LOCATION PRIOR TO GENERATOR INSTALLATION. ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

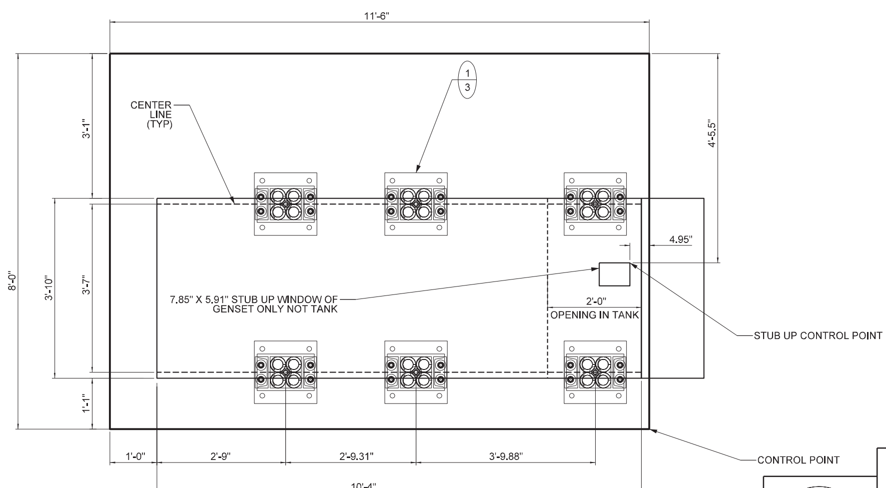
ALARM SIGNAL CKT. REQUIRED

ELECTRICAL CONTRACTOR SHALL BRING IN THE FOLLOWING ALARM SIGNAL FROM GENERATOR TO THE PLC.

1. LOW FUEL ALARM
2. FUEL LEAK ALARM ON SECONDARY CONTAINMENT
3. GENERATOR RUNNING STATUS ON/OFF
4. UNIT NOT IN AUTO START
5. GENERATOR COMMON TROUBLE ALARM
6. FUEL LEVEL INDICATION

COLOR SCHEME FOR GENERATOR WIRING

1. LOW FUEL ALARM - GRAY/GRAY
2. FUEL LEAK ALARM ON SECONDARY CONTAINMENT - GRAY/GRAY
3. GENERATOR RUNNING STATUS ON/OFF - BLUE/BRN
4. UNIT NOT IN AUTO START - PUR/PUR
5. GENERATOR COMMON TROUBLE ALARM - GRAY/GRAY
6. GENERATOR INHIBIT FROM PLC - RED/ORG
7. TRANSFER SWITCH STATUS - BLUE/BRN



CONCRETE PAD - PLAN VIEW
NO SCALE

REGISTERED PROFESSIONAL ENGINEER HAIFENG DU No. C55522 Exp. 9/30/22 CIVIL STATE OF CALIFORNIA

Digitally signed by Frank Du Date: 2022.09.30 10:23:06 -07'00'

AS-BUILT STAMP

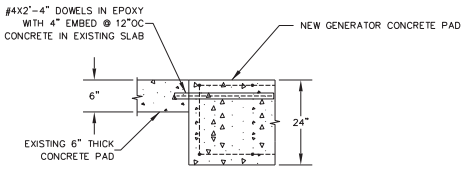
BY	REVISION	DATE	CK	DATE	CK

BUDGET # P-22 (#6058)

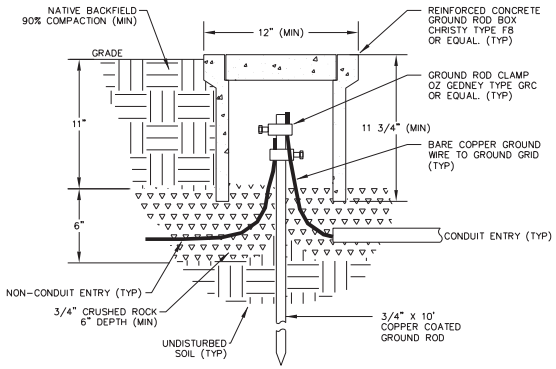
San Jose Water Company

CENTRAL AVE. STATION
GENERATOR REPLACEMENT
MODEL #20REOZK-20kW STANDBY GENERATOR

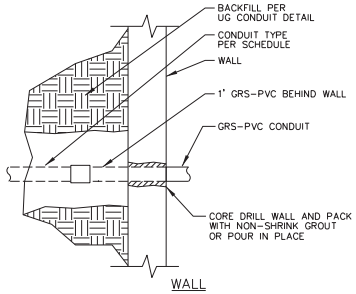
	Ozgur, Naci (HEALTH AND SAFETY)	
	(OPERATIONS)	
BY MK / CHECK / DATE	Walsh, Jake (ENGINEERING, PLANNING)	REF. NOS. SM: 042
CHECK / DATE	Mirza, Hasan (ENGINEERING, SPECIAL FACILITIES)	DWG. NO. J2-087
SCALE AS SHOWN	Lambing, Ed (CHIEF ENGINEER)	SHEET 4 OF 5



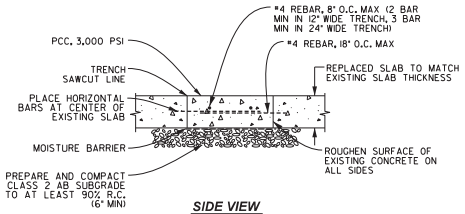
CONCRETE EXTENSION DETAIL 2
SCALE: NTS



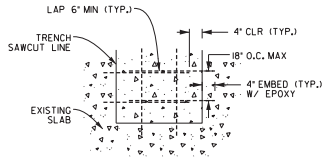
GROUND INSPECTION BOX DETAIL 3
SCALE: NTS



WALL PENETRATION DETAIL 4
SCALE: NTS



SIDE VIEW
N.T.S.



TOP VIEW
N.T.S.

CONCRETE TRENCH DETAIL 5
SCALE: NTS

Mirza, Hasan
Digitally signed by Mirza, Hasan
Date: 2022.09.30 10:43:27 -07'00'

REGISTERED PROFESSIONAL ENGINEER
HASAN ALI MIRZA
E19129
Exp. 6/30/24
ELECTRICAL
STATE OF CALIFORNIA

AS-BUILT STAMP ONLY

BUDGET # P-22 (#6058)

SJJ SAN JOSE WATER

CENTRAL AVE STATION
GENERATOR REPLACEMENT PROJECT
DETAILS

	Ozgur, Naci — HEALTH AND SAFETY/DATE	
BY MK	OPERATIONS/DATE	REF. NOS. SM: 042
DATE	Walsh, Jake — ENGINEERING, PLANNING/DATE	
CHECK / DATE	Mirza, Hasan — ENGINEERING, SPECIAL FACILITIES/DATE	EST. NO. J2-087
SCALE AS SHOWN	Lambing, Ed — CHIEF ENGINEER/DATE	SHEET 5 OF 5

MEMORANDUM

TO: Special Facilities Group
FROM: Capital Planning & Asset Management Group
SUBJECT: Will Wool Security Fencing (Index # 6038)
DATE: September 20, 2021

Introduction

Will Wool Station is an SJW well station and storage area located adjacent to Coyote Creek. There have been numerous incidents of break-ins and theft at Will Wool Station. Per the Prosegur security guards at Will Wool Station, there are three main areas where break-ins have occurred, which are circled in Figure 1. Of the three locations, the most frequent break-ins have occurred at the eastern corner along the back property line. Per Robert Doudell (Prosegur), people often ride bikes in the street/alley behind the station and seem to wait for an opportunity to break-in when no one is watching. Trespassers typically gain access by cutting through the fence and have stolen electrical cables, damaging SJW electrical equipment in the process. The thefts and accompanying vandalism damage emergency equipment and therefore compromise SJW's ability to respond to emergency situations. Additionally, Prosegur indicated that the lights on the property are 'off' throughout the night. Planning brought the lighting issue to the attention of the Operations Department, Jim Wollbrinck, and Thomas Vais in April 2021.

In order to curb trespassing and theft of SJW property at Will Wool Station, in March 2021 Operations requested that the existing station fencing along the back (east) property line be replaced.

Figure 1. Will Wool Break-in Locations (circled in red)

Recommended Improvements

Since break-ins have occurred on both the east and north property lines, the existing fencing for the entire station will be replaced. High security steel palisade fencing was chosen as the preferred alternative over CMU and post and panel walls due to cost. The front (west) property line has an existing CMU wall and gates which will remain.

Scope of Work

The scope of the project is described in this section and shown in Figure 2.

- Clear brush and vegetation around existing fence
- Remove and dispose of existing chain link fence
- Obtain and install approximately 870 LF of 8-ft Ameristar Impasse II Anti-Scale Gauntlet Style 2-Rail Black Fencing

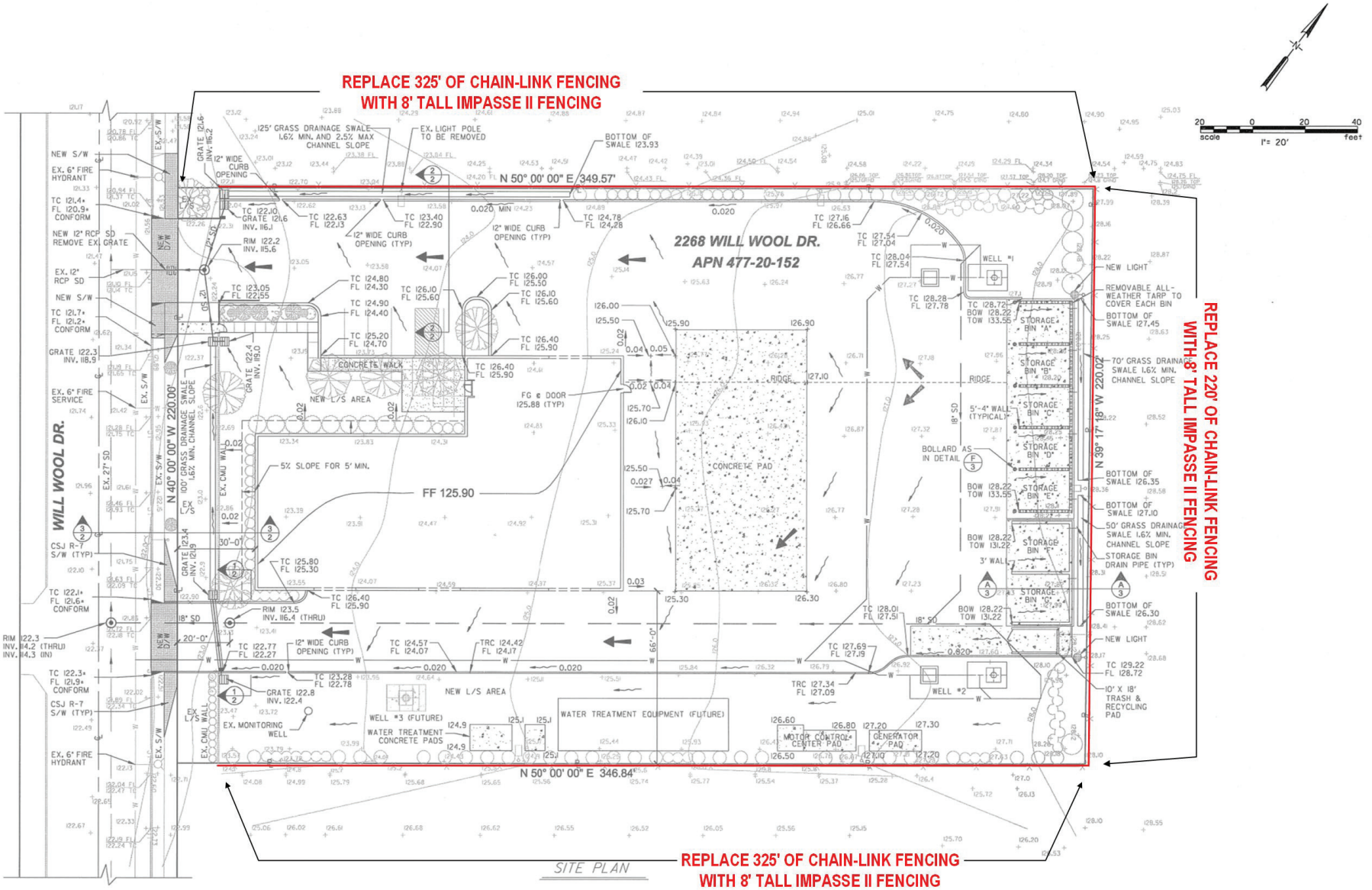


Figure 2. Station map showing scope of Impasse II Fencing

Budget

The budgetary estimate for the project is shown in Table 1.

Table 1. Capital Improvement Budget

Conceptual Cost Estimate	
Year	2022
Index Number	6038
Project Name	Will Wool Replacement Fencing
Recommendation	Ameristar 8' Impasse II Anti-Scale Gauntlet Style 2-Rail Black Fencing

Item	Estimated Amount
Contract Cost	$ 328,800
Material Cost	$ 208,800
Company Labor	$ 5,000
Permits and Fees	$ 0
Contingencies (10%)	$ 54,300
Overhead (15%)	$ 89,500
Total Estimated Project Cost (Present Value)	**$ 686,400**
Total Estimated Project Cost (2022)	**$ 707,000**

NOTE: Present value costs are for 2021
3% annual cost escalation assumed from 2021 to 2022

Enclosed

1- Cost proposal from Arktos

ARKTOS INCORPORATED

PERIMETER PROTECTION & CONTROL SYSTEMS

Access Controls (CSI Divisions 27 & 28) • Fencing
Automatic: Barriers • Bollards • Gates • Parking Controls
(Bi-Fold, Cantilevered, K-Rated, Rolling, Speed, Swing, Tilt, & Vertical)
Overhead: Roll-Up Doors • Gates • Grills

Date: August 19, 2021
Project: San Jose Water Will wool Dr.
Job Location: 2268 Will wool Dr. San Jose, CA
Submitted To: Jessica Kissel, Junior Engineer, San Jose Water
Submitted By: Tre'Sean Gray
510-692-6246
tgray@arktosincorporated.com

Specifications: N/A
Drawings: N/A
Addendums: N/A

QTY	Major Material To Be Supplied & Installed
	OPTION 1: Regular Impasse
1	Provide & Install Approx. 870' of 8'H Impasse II Gauntlet Style 2-Rail Black Fencing (Line Post-I-BEAMS, END POST 3" SQ)
1	Demo of Existing Fence
	Exclusion: Clearing of Brush and vegetation
	Note: Fence Post will be cut to grade and no footings removed.

Per FT. Unit Cost $ 480
TOTAL LUMP SUM BID $ 417,539

	OPTION 2: Impasse Anti-scale
1	Provide & Install Approx. 870' of 8'H Impasse II ANTI-SCALE Gauntlet Style 2-Rail Black Fencing (Line Post-I-BEAMS, END POST 3" SQ)
1	Demo of Existing Fence
	Exclusion: Clearing of Brush and vegetation
	Note: Fence Post will be cut to grade and no footings removed.

Per FT. Unit Cost $ 597
TOTAL LUMP SUM BID $ 519,481

Certified California & Federal Small Business & Disabled Veteran Business Enterprise (DVBE & SDVOSB)
Signatory to IBEW, Laborer's & Carpenter Agreements

4061 Castro Valley Blvd #406, Castro Valley, Ca 94552
TEL: 510-356-2750 – FAX: 510-356-2760
License: 855272 (B, C-7, C-10, C-13, C-61/D28)
SB/DVBE DGS #43439
DIR Registration #1000005246

EXCLUSIONS & CONDITIONS

Bid prices valid for 30 days from date of proposal.

Excluded from proposal, unless specifically included above:

-- Demolition, coredrilling, saw-cutting, digging/excavation by hand, hydro-excavation, scanning, rebar, rebar cages, clearing, grubbing, grading, drilling, removal of spoils from site, surveys, staking, signage, traffic control, temporary fence, environmental safety, SWIP or tree fencing, fence maintenance, mow band, embeds, post sleeves or pockets in walls or barriers, bollards, A/C or concrete work (including patching), concrete pads, footings (except for fence posts), backfilling post holes, and Knox boxes.

-- Staking by others. Must include all: fence lines, end posts, corner posts, gate posts, and finish grade(s).

-- All posts in concrete walls, slabs, etc., to be set prior to pours, or blocked out by G.C.

-- Security/detention hardware excluded.

-- Power, fence or gate grounding, conduits, telephone line(s), access control wiring, and access controls excluded unless specifically included above. (Conduits by others must be clearly labeled, marked on drawings, and have pull strings--if missing, extra charges will result.)

-- Permits, fees (including Notary), bond costs, engineering calculations, stamped drawings, cad drawings, 3D drawings, BIM modeling, express freight, expedited handling, and costs of complying with owner restrictions excluded and will result in extra charges if required.

-- Underground utilities beyond U.S.A. are to be located and clearly marked, or exposed by others prior to mobilization by Arktos Incorporated to begin digging; if site not ready, extra mobilization charge will be apply.

-- Arktos Incorporated is not responsible for any damage to landscaping, flower/planter beds, trees, shrubbery, incorrectly marked underground utilities, including but not limited to conduits, electrical, phone/access control lines, drain pipes, sprinklers, etc.

-- Site to be clean and free of environmental contaminants and pollutants. Arktos Incorporated is not responsible for cleaning or disturbance of existing environmental contaminants or pollutants.

Proposal Subject to the Following Conditions:

Arktos Incorporated shall be entitled to equitable adjustments of the contract time and the contract price, including but not limited to:

-- Labor or material in addition to the above scope of work; changes to already completed work; additional site visits to inspect, coordinate work done by other parties, or additional requested site verifications; production of any drawings beyond standard manufacture drawings; overtime work.

-- Proposal includes one (1) move-in . Additional move-ins at $ 1,000.00 / ea. Additional move-ins include being requested or instructed by the Customer to commence or continue work and being unable to accomplish said work due to work by others not ready for Arktos Incorporated's scope of work.

-- Any increased costs of labor, supervision, equipment or materials, plus 15% for overhead and 10% profit, for any modification of the project schedule differing from the bid schedule, and for any other delays, acceleration, out-of-sequence work and schedule changes beyond its reasonable control, including but not limited to those caused by labor unrest, fires, floods, acts of nature or government, wars, embargos, vendor priorities and allocations, transportation delays, suspension of work for non-payment or as ordered by Customer, or other delays caused by Customer or others. Additionally, Arktos Incorporated's bid is based on Arktos Incorporated's usual and customary efficiency in the progress of work, should Arktos Incorporated’s efficiency in the progress of the work be impeded or impinged by any cause whatsoever, including but not limited to schedule or sequence changes by Customer or by atypical rest or heat breaks required by law, Arktos Incorporated shall be entitled to an equitable adjustment of contract time and contract price. Should work be delayed by any of the aforementioned causes for a period exceeding ninety (90) days, Arktos Incorporated shall be entitled to terminate the subcontract.

-- Customer shall respond to RFI’s within 5 days. Arktos Incorporated change proposals must be processed in not more than 30 calendar days or as otherwise indicated on the change proposal. In-field work directives that add to or change Arktos Incorporated’s work shall be deemed a Arktos Incorporated change proposal and shall be processed within 30 calendar days following the date the directive issued. Arktos Incorporated shall be entitled to markup of 15% for overhead and 10% for profit on the cost of any extra, change order or in-field directive work.

-- If changes in the work, whether separately or cumulatively amount to 10% or more of the original subcontract amount, Arktos Incorporated shall have the right to markup the cost of changes in excess of 10% of the original subcontract amount by 20% for overhead and 10% for profit or to terminate the subcontract.

-- One (1) year warranty on workmanship and material from date of delivery to the jobsite; warranty limited to failure due to poor workmanship or hardware failure. Warranty work performed during normal business hours. Non-warranty work will be billed at service call rates in effect at time of service. Arktos Incorporated is not responsible for damage to its work by other parties or natural causes, and any repair work necessitated by such damage is extra work. All materials shall be furnished in accordance with the respective industry tolerance of color variation, thickness, size, finish, texture and performance standards. All warranty claims must be received by Arktos Incorporated not more than one (1) year after completion of Arktos Incorporated’s work, and Arktos Incorporated must be provided a reasonable opportunity to inspect and make corrections, or such warranty claims are barred.
THE EXPRESS WARRANTIES SET FORTH IN THE SUBCONTRACT DOCUMENTS ARE PROVIDED IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY ARKTOS INCORPORATED.

-- Arktos Incorporated has devoted time, money, and resources toward preparing this bid in exchange for customer's express agreement that the parties shall have a binding contract consistent with the terms of this bid proposal and customer unconditionally and irrevocably accepts this bid proposal if (a) customer in any way uses or relies on the bid proposal or information therein to prepare a bid or proposal for the project at issue and customer is awarded a contract for the work; or (b) customer divulges the bid or any information therein to others competing with Arktos Incorporated for the work.

-- Allowing or directing Arktos Incorporated to commence work or preparation for work will constitute acceptance by customer of this bid proposal, and the terms herein shall be incorporated in any subcontract entered between Customer and Arktos Incorporated.

-- A change in the price of labor or materials of more than 5% between the date of this bid proposal and the date of installation shall warrant an equitable adjustment in the subcontract price.

-- Arktos Incorporated's obligation to examine documents, the project site and materials and work furnished by others is limited to notification of the customer of any defects or deficiencies that a person in the trade of Arktos Incorporated would discover by reasonable visual inspection. No testing beyond reasonable visual inspection shall be required. Arktos Incorporated is entitled to rely on the accuracy and completeness of plans, specifications and reports of site conditions provided to Arktos Incorporated. Any design services provided by Arktos Incorporated will be reviewed by Owner's or Customer's design professionals to assure acceptability when integrated with the entire work. Customer is entitled to rely on the accuracy and completeness of design services or certifications provided by Arktos Incorporated only to the extent that design responsibility is specifically delegated to Arktos Incorporated by agreement in writing and all design and performance criteria are furnished to Arktos Incorporated.

-- Arktos Incorporated's schedule of values shall be used to determine progress payments. Payment is due to Arktos Incorporated within 30 days of date of invoice. No retention shall be withheld from any payment due to Arktos Incorporated. All sums not paid when due shall bear interest at the rate of 1½ % per month from due date until paid or the maximum rate permitted by law whichever is less; and all costs of collection, including a reasonable attorney's fee, shall be paid by Customer. Arktos Incorporated shall be entitled to stop work and/or terminate the contract upon 5 days' written notice if payment is not received by due date.

-- Arktos Incorporated shall indemnify, defend, and hold harmless Customer and others for claims, losses, damages, and liability only to the extent proven in a court of law to have been caused by the negligence or willful misconduct of Arktos Incorporated.

-- Arktos Incorporated will not be required to name additional insureds to its general liability insurance policy, nor to waive subrogation for claims covered by workers' compensation or commercial general liability insurance. Arktos Incorporated shall maintain insurance with coverage and limits only as provided by Arktos Incorporated's existing insurance program evidenced by its certificate of insurance available on request. Arktos Incorporated shall not be required to participate in any wrap-up insurance program.

-- Arktos Incorporated shall not be liable to Customer for any incidental, consequential or other undefined damages. If the Contract Documents provide an amount for liquidated damages, liquidated damages shall be assessed only to the extent caused by negligence or willful misconduct of Arktos Incorporated. Arktos Incorporated's liability for delay damages shall not exceed 5% of the original subcontract amount. If delays are caused from circumstances out of Arktos Incorporated's control, liquidated damages shall not be assessed.

-- Customer shall give notice to Arktos Incorporated as soon as possible after notice or service of any actual or potential action or proceeding against Customer that may arise out of or relate to Arktos Incorporated's work. Additionally, Customer shall file, serve, and give notice of any action or proceeding initiated by Customer against Arktos Incorporated before the end of the term of any OCIP or other wrap insurance program covering the Project. Such notice and service of Contactor's action or proceeding against Arktos Incorporated is essential to Arktos Incorporated's ability to obtain insurance indemnity and defense for such claims, and, therefore, failure by Customer to give timely notice and service of Customer's action or proceeding against Arktos Incorporated shall be deemed Customer's waiver and release of all claims against Arktos Incorporated of any kind and nature, including indemnity and contribution, which are raised or could be raised in such action or proceeding.

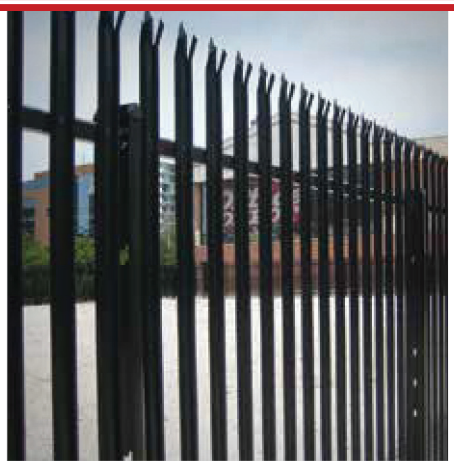
-- Except as specifically required by the work and specifications included in this bid proposal, Customer shall furnish all temporary site facilities, including but not limited to site access, storage space, hoisting facilities, guard rails, covers for floor, roof and wall openings, security, parking, safety orientation, break and lunch facilities, toilet and wash facilities, drinking water and other water facilities, electrical service, telecommunication service, lighting, heat, ventilation, weather protection, fire protection, and trash and recycling services.

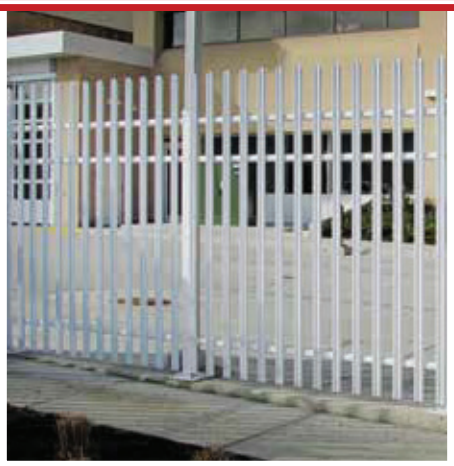
-- Customer shall give Arktos Incorporated reasonable notice and opportunity to cure any claimed default by Arktos Incorporated or defect in Arktos Incorporated's work. The proper venue to resolve any disputes arising under the subcontract shall be the place where the project is located, and the laws of said place shall govern all such disputes.

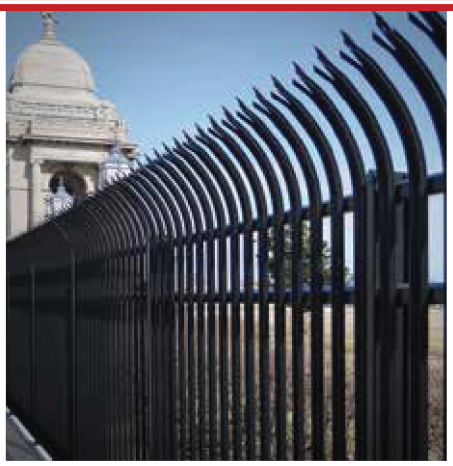
-- Prior to commencement of work, a contract containing terms mutually agreeable to both parties shall be prepared and exectuted. This proposal shall be attached to and become part of the contract. In the event of any inconsistency between such contract and this proposal, the terms of this proposal shall prevail.

IMPASSE II®

HIGH SECURITY STEEL PALISADE FENCING







FENCE PRODUCTS

AMERISTARFENCE.COM | 800-321-8724

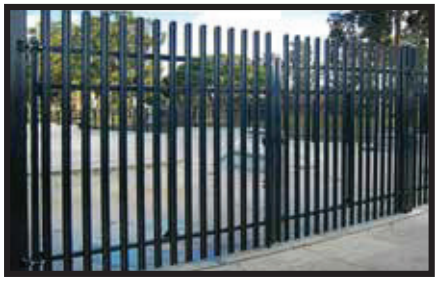
Experience a safer and more open world

AMERISTAR®

ASSA ABLOY

AESTHETIC APPEAL. UNPARALLELED PROTECTION.

Traditional security fences of chain link or wire mesh ***are no longer enough*** to meet todays increased security demands. Ameristar's Impasse II security fence offers the ***resistive strength*** of heavy-duty ***steel pales secured vertically*** to a framework of ***specially formed rails and I-beam posts.*** The stylish design of the Impasse II, combined with its strength and security, ***provides a successful first line of defense.***



Primary applications for Impasse II ornamental steel fence systems include:

- ***Military Sites***
- ***Government Facilities***
- ***Petroleum & Chemical Facilities***
- ***Power Plants & Substations***
- ***Airports***
- ***Data Centers***
- ***Ports of Entry***
- ***Water Treatment & Storage***

IMPASSE II®

HIGH SECURITY **STEEL PALISADE FENCE**

TRIDENT™

The Impasse Trident ***pale rises above the topmost rail and terminates with a menacing triple-pointed splayed spear tip.*** The intimidating look of the Trident corrugated pale is a ***visual deterrent*** to any who would dare to intrude.

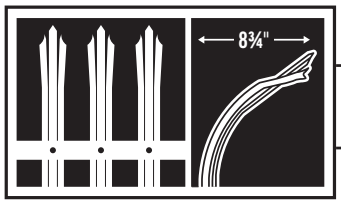
- **3-RAIL PANELS | 6', 7', 8', 9' & 10' HEIGHTS**
- **2-RAIL PANELS | 6', 7' & 8' HEIGHTS**

STRONGHOLD™

The blunt, slightly rounded tip of the Stronghold offers strength when necessary, while providing ***safety and security to the general public.*** The Stronghold features the ***same structural configurations of its high-security counterparts.***

- **3-RAIL PANELS | 6', 7', 8', 9' & 10' HEIGHTS**
- **2-RAIL PANELS | 6', 7' & 8' HEIGHTS**

2.75"w x 14ga PALES | 2" x 2" x 11ga RAILS | 3" x 2.75" x 12ga & 4" x 2.75" x 11ga I-BEAM POSTS



GAUNTLET™

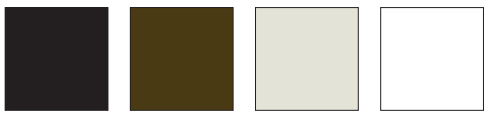
Gauntlet is designed with ***high-tensile steel corrugated pales that rise above the topmost rail with an outward curve*** and terminate with a triple-pointed splayed spear tip. The outward curved pales ***discourage attempts to gain access*** by would be intruders.

- **3-RAIL PANELS | 6', 7', 8', 9' & 10' HEIGHTS**
- **2-RAIL PANELS | 6', 7' & 8' HEIGHTS**

ANTI-SCALE OPTION

The Impasse II *Anti-Scale fence system* has ***decreased pale spacing,*** which helps deter the assailant from climbing, and ***increases the delay time when trying to cut or pry through the fence.***

COLOR OPTIONS



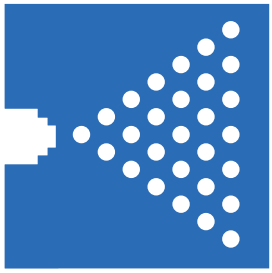
BLACK | BRONZE | SAND | WHITE

Custom colors also available

PERMACOAT™

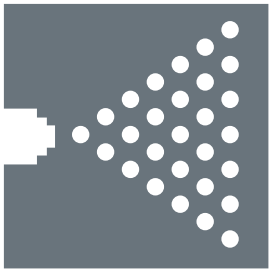
Impasse II is protected by the unique PermaCoat process. Our **PRE-GALVANIZED STEEL BASE MATERIAL** is subjected to an **11-STAGE PROCESS** to cleanse & prepare the steel for a **DUAL TOP-COAT FINISH**. PermaCoat's corrosion resistant abilities far surpass those of painted surfaces and have a *"no-mar"* polyester powder top coat. This dual coating not only provides **RESISTANCE FROM WEATHERING** but also reduces scratch & burnishing marks typically encountered during shipping.

PRE-TREATMENT



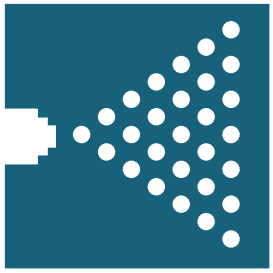
ALKALINE WASH
Cleans metal for proper adhesion of zinc phosphate

1



FIXIDINE RINSE
Rinses excess alkaline prior to zinc phosphate application

2



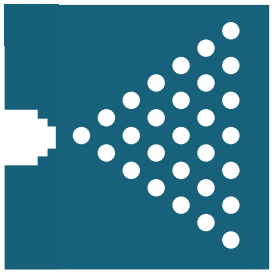
PHOSPHATE RINSE
Corrosion resistant layer that assists in bonding powder coating

3

CLEAR WATER RINSE
A bit of clean H2O to prep for the next phase

4

DOUBLECOATING

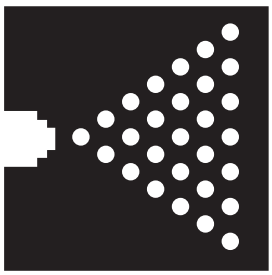


EPOXY POWDER COAT
Epoxy powder is electrostatically applied

8

EPOXY GEL OVEN
Powder is gelled & cured to finish coat

9

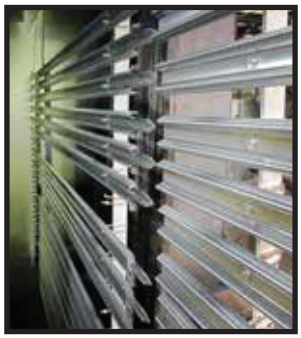


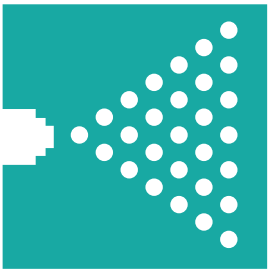
POLYESTER POWDER
TGIC powder is electro-statically applied

10

FINISH CURING OVEN
Seals finish for years of maintenance free use

11





NON-CHROMATE SEAL

Barrier to prevent moisture from reaching base metal

5

CLEAR WATER RINSE

Final wash in H2O to remove any excess debris or particles

6

DRYING OVEN

Eliminates all moisture prior to double coating

7

ONCE COMPLETED, THESE **7-STAGES** WILL HAVE **REMOVED EVERYTHING** FROM THE SURFACE OF THE STEEL THAT **MIGHT INHIBIT** THE FINISH FROM **PROPERLY ADHERING** DURING THE **NEXT 4-STAGES** OF THE COATING PROCESS.

CORROSION**TESTING**

Corrosion occurs more easily without the proper preparation & protection, which is why Ameristar has put our fence products to the test based on ASTM B117 standards. ***The results speak for themselves.***

PAINTED STEEL

PRIMED & PAINTED STEEL

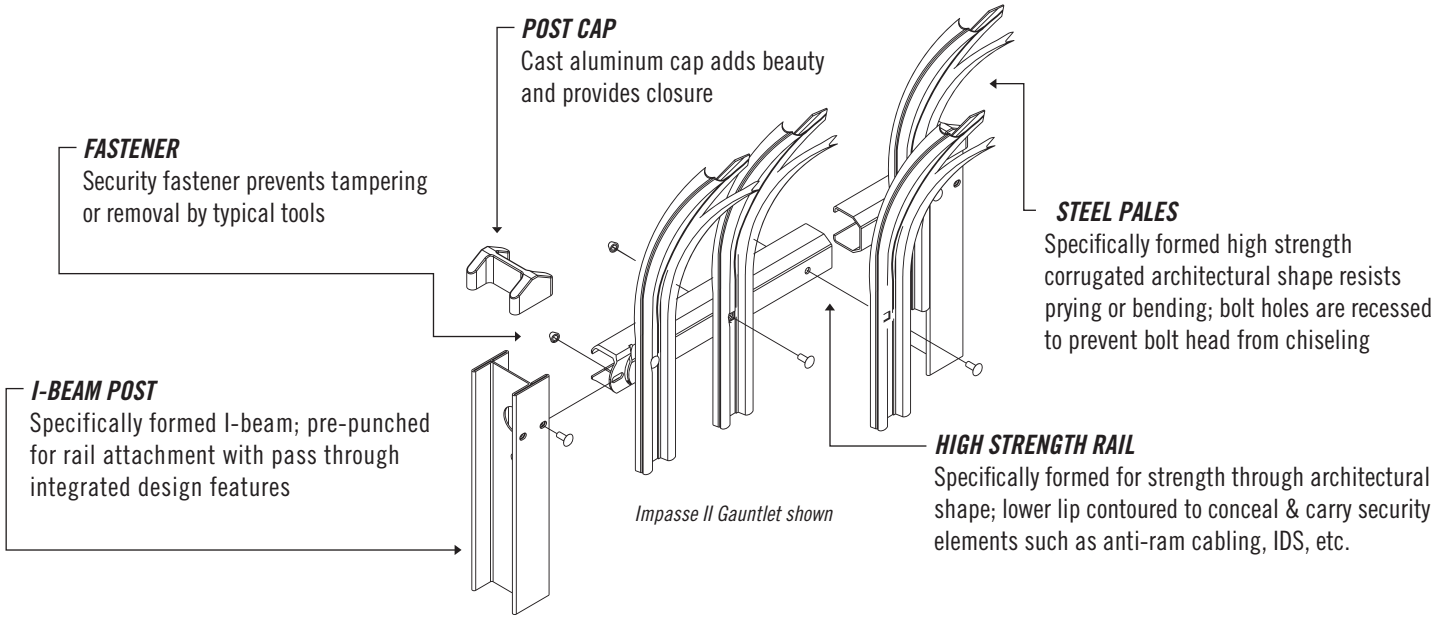
SINGLE COAT PROCESS
Iron Phosphate + Polyester Powder Coat

SINGLE COAT PROCESS
Zinc Phosphate + Polyester Powder Coat

PERMACOAT PROCESS
Zinc Phosphate + Epoxy Powder Coat + Polyester Powder Coat

IMPASSABLE **DESIGN**

Impasse II panels and posts are manufactured using **HIGH-TENSILE PRE-GALVANIZED G-90 STEEL.** Each component has been **ROLL-FORMED** into a unique profile that yields significant strength properties. Impasse II's distinct design enables the fence to **TRAVERSE AGGRESSIVE CHANGES IN GRADE IN ORDER TO MAINTAIN SECURITY** along any perimeter. Each connection point of the Impasse II system is secured with **TAMPER-PROOF FASTENERS** providing the **HIGHEST LEVEL OF SECURITY & VERSATILITY.**



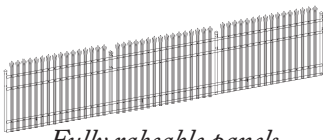
Impasse II Gauntlet shown

PRIVACY SCREENING OPTION

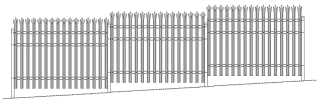
A security fence should cover multiple aspects of perimeter security, which is why Ameristar created the steel privacy screening option for its Impasse high security fence system. Secured by each adjacent pale, the overlapping design achieves the maximum level of opacity for visual screening.

RAKEABLE VS STAIR-STEP

Biasability at a minimum of 25% that requires no additional assembly. This unique feature eliminates unsightly stair-stepping panels.



Fully rakeable panels



Stair-stepping panels

DESIGN INTEGRATION

The Impasse II framework is a raceway for wiring, conduits & security cabling required around the perimeter of a project. This integrated design eliminates the need for costly trenching & boring becoming a value added solution for perimeter security upgrades.

(inside of rail shown above / view from protected side)

When installing these security elements use Impasse II as a platform:

- ***Communication & Video Cables***
- ***Intrusion Detection / Fiber Optic Cables***
- ***Access Control Wiring***
- ***Conduits***
- ***Anti-Ram Cabling*** *(Stalwart IS)*

Certified by the US Department of Homeland Security as a method of risk management against acts of terrorism

Ameristar's Impasse II is backed by over 30 years of excellence in the fencing industry

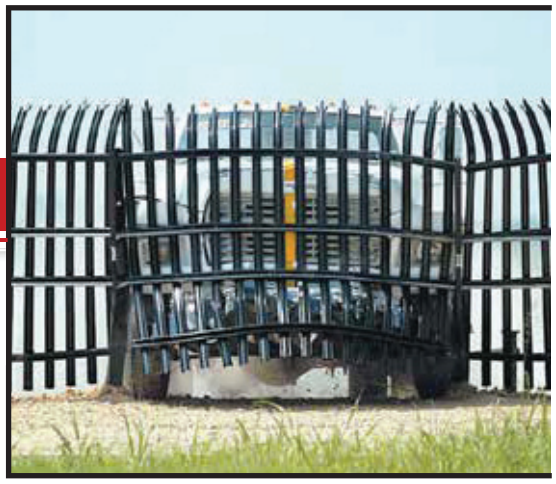
MEETS BUY AMERICAN ACT

Ameristar is committed to providing products that meet the Buy American Act

Ameristar products have the opportunity to earn LEED points

STALWART IS®

ANTI-RAM BARRIER + SECURITY FENCE



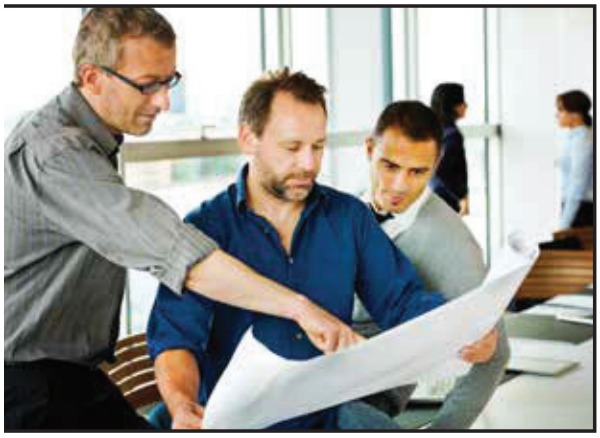
Stalwart IS unites the ***strongest security fence available*** with the ***most widely used anti-ram perimeter barrier.*** The appearance of Stalwart IS is a great ***visual deterrent*** that delivers strength and fortitude for keeping any assailant from easily breaching the perimeter.

M50 M40 M30

PU60 PU50 K12 K8 K4

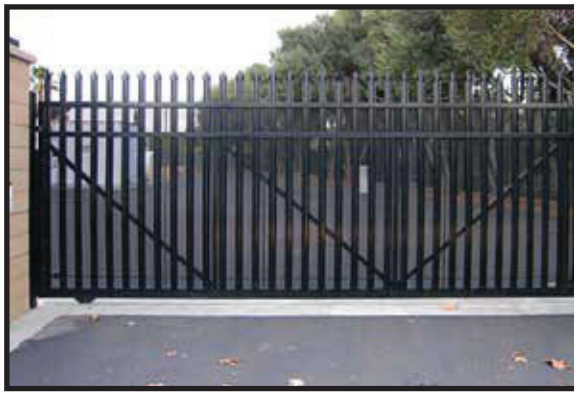
Stalwart IS offers ***multiple anti-ram ratings.*** Each installation can be designed with the most appropriate standoff distance from the asset.

ARCHITECTURAL SUPPORT & SOLUTION SPECIALISTS



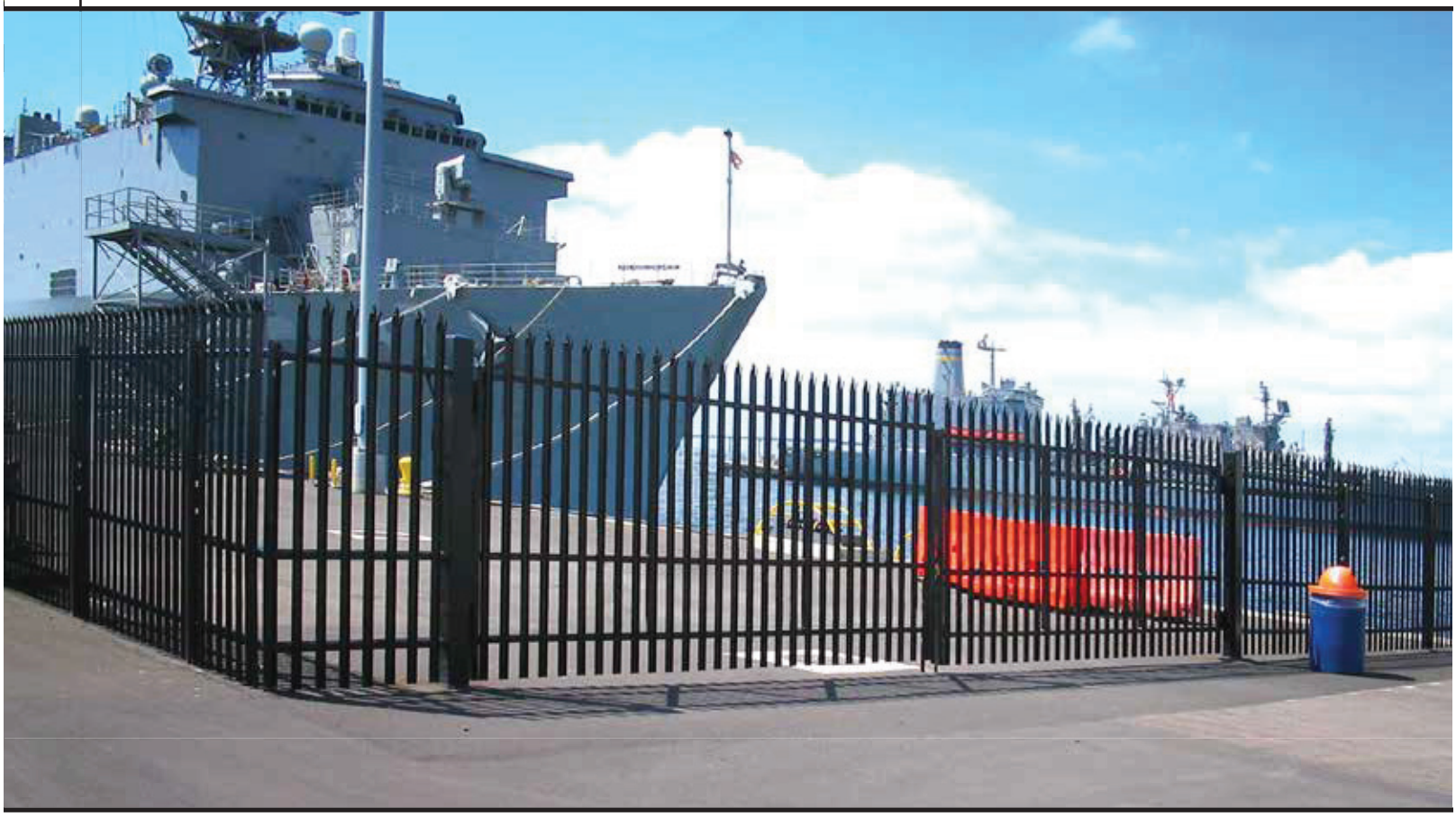
Ameristar's ***Project Solution Specialists*** are ***experienced in every facet of perimeter security design.*** Our goal is to assist the architectural community in finding the ***best perimeter & entry solutions*** for their projects. Ameristar's extensive library of project photos, CAD drawings, architectural specifications & project budget quotes are just a few of the services ***our team offers to complete your project design.***

SLIDE GATES & SWING GATES



Egress & ingress requirements are unique to each application. ***Managing traffic flow & usage demands*** are of the utmost importance, which is why Impasse II is manufactured in a variety of gate types built to ***balance function, security & beauty***.

Ameristar ***Transport™ & Passport™*** sliding gates perfectly match the perimeter fence system to create a ***seamless & stunning design*** while exuding a ***commanding presence*** of security built to unite perimeter and entry.



WHY CHOOSE AMERISTAR

KNOWLEDGE & EXPERIENCE

Ameristar was chartered over ***30 years ago*** in response to the ***demand by consumers*** & ***specifiers for specialty fence products***. Ameristar offers an ***aesthetically pleasing product*** that is both ***high in quality*** & ***affordability.*** This has been achieved by maximizing ***high-volume productivity***, increasing product design strength, and promoting ***simplistic installation.***

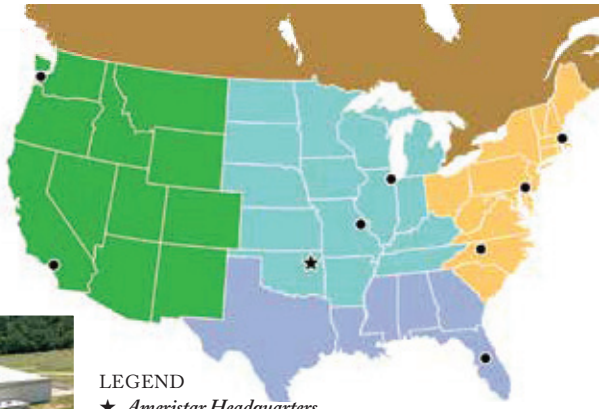
PROVEN CAPABILITY

Ameristar's integrated ***in-house process*** & ***extensive raw material inventory*** results in much improved productivity and availability compared to the competition. By having a ***vast finished goods inventory***, Ameristar is capable of ***delivering finished products faster*** than competitors who sublet the majority of their operations.

INDUSTRY LEADERSHIP

Over the years Ameristar has continually ***raised the bar*** across the board in the ***manufacturing of high quality***, innovative fencing products. Our demonstrated commitment to ***upholding higher values*** translates into superior products that ***go far beyond*** merely meeting minimum industry standards.

Ameristar's world headquarters, manufacturing & coil processing facilities in Tulsa, Oklahoma, USA.



#9718 | REVISED 06/2020

SAN JOSE WATER COMPANY IMPROVEMENT EST # J2-109

DATE : 26-Sep-22

SEE EST. NO.

COMPLETION REPORT BY : CONSTRUCTION DEPT.

Description: Will Wool Drive Station Security Fencing (SM-252)

Install : GENERAL PLANT - General S&I Chain Link Fence (3713)

01) 886 LF - 8' AmeriStar Impasse II Steel Fence (Anti-scale Gauntlet Style)

Reason : The current chain link fencing material is not providing the security required to keep critical assets safe.

PROPOSED ADDITIONS	AMOUNT
MATERIAL	$330,600
COMPANY LABOR	$20,000
CONSTRUCTION CONTRACT	$110,200
CONSULTANT	$2,100
PERMIT	$0
CONTINGENCIES (8%)	$37,100
OVERHEAD (16%)	$80,000
Total Cost of Additions	**$580,000**
EXTENSION DEPOSIT	
Refundable	
Non-Refundable	
PROPOSED RETIREMENTS	
Original Cost of Property Retired	
Cost of Retiring :	
Material	
Company Labor	
Contract	
Total Cost of Retiring	
SJW 163-S	

FIXED CAPITAL DISTRIBUTION	
Account No.	Amount
3713	**$580,000**
BUDGET DATA	
Schedule	Amount
W-93 (SJW019284)	**$580,000**
Prepared By	**Date**
H. Frank Du (HFD)	26-Sep-22
Approvals	**Date**
Digitally signed by Frank Du Date: 2022.09.26 09:14:08 -07'00'	

ESTIMATED COST DETAIL

Charge To		Description (J2-109)		
		GENERAL PLANT - General S&I Chain Link Fence (3713)		
	Install:			
3713	01)	**886 LF - 8' Tall AmeriStar Impasse II Anti-scale Gauntlet Style Steel Fence**		
		6410	MATERIAL	$330,600
		6011	COMPANY LABOR	$20,000
		6300	CONSTRUCTION CONTRACT	$110,200
		6315	CONSULTANT	$2,100
		6510	PERMIT	$0
		6700	CONTINGENCIES (8%)	$37,100
		7910	OVERHEAD (16%)	$80,000
			SUBTOTAL	**$580,000**

SAN JOSE WATER COMPANY RETIREMENT **EST #** J2-109

DATE : 26-Sep-22

SEE EST. NO. J2-109 Page 1 of 2

COMPLETION REPORT BY : **CONSTRUCTION DEPT.**

Description : **Will Wool Drive Station Security Fencing (SM-252)**

Retire :

1. Remove 886 LF of old fence

Reason : Expand the driveable area onsite to allow safer and easier pick up and drop off of sludge bins

PROPOSED ADDITIONS	AMOUNT	FIXED CAPITAL DISTRIBUTION	
Material		Account No.	Amount
Company Labor		3713	$7,940.99
Contract			
Contingencies			
Construction Overhead			
Total Cost of Additions			
EXTENSION DEPOSIT			
Refundable			
		BUDGET DATA	
		Schedule	Amount
		A-34	$0
		Prepared By	Date
		H. Frank Du (HFD)	26-Sep-22
		Approvals	Date
PROPOSED RETIREMENTS		Digitally signed by Frank Du Date: 2022.09.26 09:14:49 -07'00'	
Original Cost of Property Retired	$7,940.99		
Cost of Retiring :			
Permit	$0		
Material	$0		
Company Labor	$0		
Consulting	$0		
Contract	$0		
Total Cost of Retiring	$0		

SJW 163-S

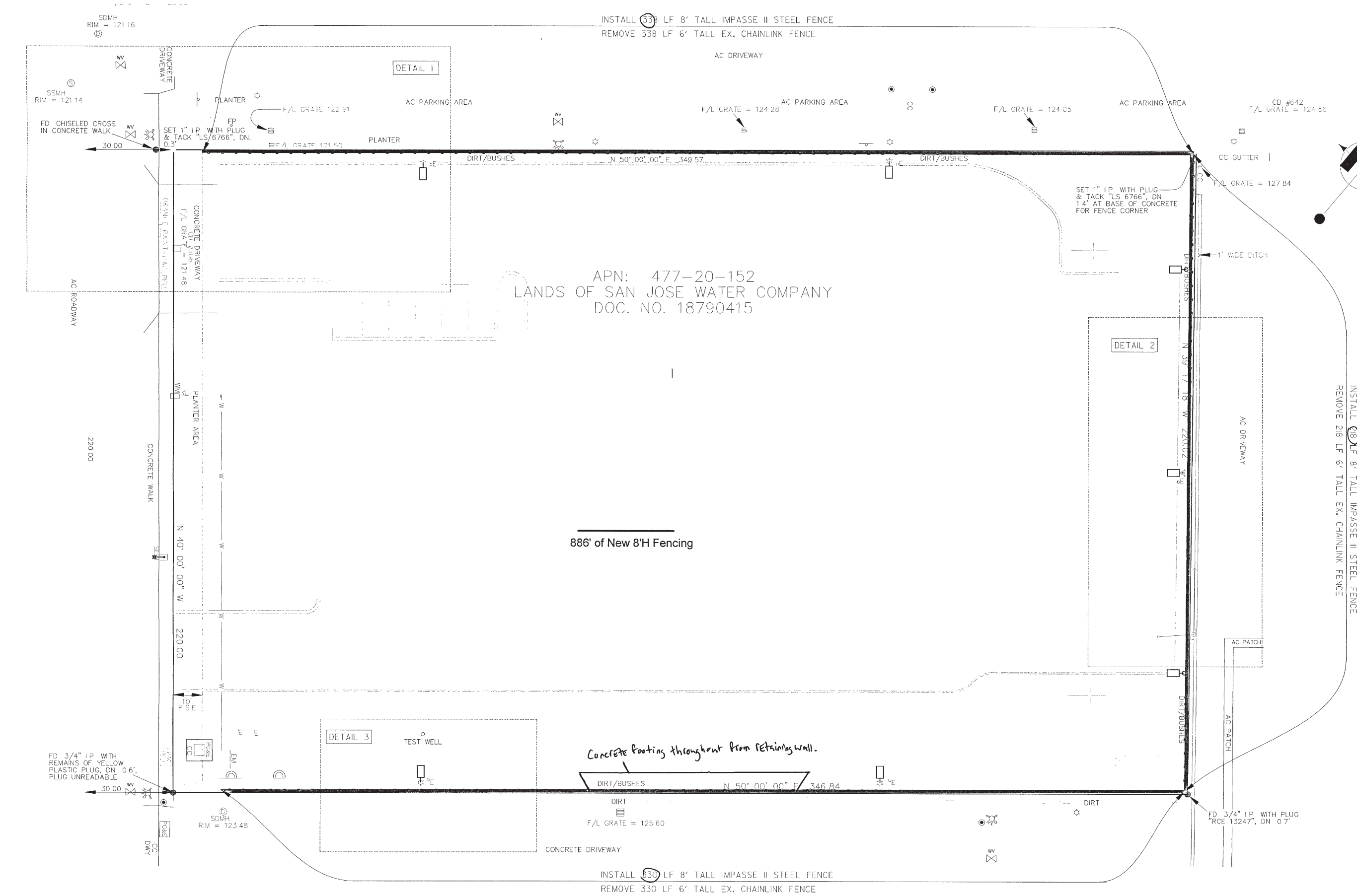
RETIREMENT ESTIMATE J2-109

Will Wool Drive Station Security Fencing (SM-252)

Account #	Description				Book Cost	Fed Tax Cost	CA Tax Cost	Cost to Retire
	Retirement Item	Est. #	Asset #	Year				
3713	Fencing	G70083	11369849	2008	$7,940.99			

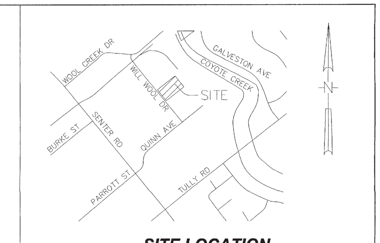
ATTACHMENT 1-2

SAN JOSE WATER COMPANY
WILL WOOL DR STATION SECURITY FENCING



GENERAL PLAN

SCALE: 1" = 20'



SITE LOCATION
NO SCALE

INSTALL: J2-109

886' 1) (886) – 8' TALL AMERISTAR IMPASSE II STEEL FENCE, ANTI-SCALE GAUNTLET STYLE, 2 RAIL PANELS, BLACK COLOR. INCLUDING REMOVING AND DISPOSAL OF 886' EX. 6' TALL CHAIN LINK FENCE (G7-083)

LEGEND

- BOUNDARY LINE
- PROPOSED NEW STEEL FENCE
- EASEMENT LINE
- SURVEY CONTROL LINE
- 6' HIGH CHAINLINK FENCE
- 8' HIGH CONCRETE WALL
- WATER LINE
- BLOCK RETAINING WALL
- BOLLARD
- CATCH BASIN
- CC CONCRETE
- EP EDGE OF PAVEMENT
- EM ELECTRIC METER
- 10" DIA. ELECTRIC UTILITY/ELECTRIC LINE
- ELECTROLIER
- FP FLAG POLE
- FIRE HYDRANT
- FOUND MONUMENT AS NOTED
- GP 8" DIA. GATE POST
- GS GATE STOP
- GUY WIRE
- JOINT POLE
- LIGHT POLE ON 2' DIA. CONCRETE BASE
- SANITARY SEWER MANHOLE
- SET 1" I.P. WITH PLUG & TACK "LS 6766"
- CO SEWER CLEAN OUT
- SPOT ELEVATION
- STORM SEWER MANHOLE
- SL STREET LIGHTING BOX
- STREET SIGN
- SURVEY CONTROL POINT, AS NOTED
- TREE AS NOTED
- WM WATER METER
- WATER VALVE

SHEET INDEX

1 – LOCATION MAP AND GENERAL PLAN
2 – SECTIONS AND DETAILS

PRESSURE ZONES:

ZONE: DOW ZONE
PRESSURE: 82 PSI TO 92 PSI

PERMITS: N/A

CONTRACTOR Arktos Incorporated
FOREMAN [signature]
DATE TO CONTRACTOR 09/23/22
PROPOSED START DATE 10/10/2022
ACTUAL START DATE 10/10/2022
COMPLETION DATE 12/27/2022
AS BUILT CHECK: CONST. E. Rusteo 5/30/23
ENG:

THE (SJWC) CONTRACTOR SHALL:

- INSTALL FENCE AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION SECTION 32 31 19 AND THE CAST-IN-PLACE CONCRETE FOUNDATION SPECIFICATION SECTION 03 30 00.
- CONTRACT WITH CROSS LAND SURVEYING INC. TO ESTABLISH SURVEY CONTROL AND PERFORM CONSTRUCTION STAKING IN ORDER TO MEET THE LINES AS SHOWN ON THE PLAN.
- SET BACK FENCE POST CENTER MINIMUM 11" FROM THE PROPERTY LINE TO ENSURE THE ENTIRE NEW FENCE IS WITHIN SJWC'S PROPERTY.
- CUT EX FENCE POSTS FLUSH WITH THE TOP OF THE FOUNDATIONS. REMOVE THE OLD FENCE AND RETIRE THE FOUNDATIONS IN PLACE.
- COORDINATE W/ SJWC'S LOGISTICS AND PROCUREMENT DEPARTMENT TO TRIM AND/OR REMOVE EXISTING TREES/IVIES/BUSHES IN THE LANDSCAPED AREA ALONG THE PERIMETER FENCE. SJWC WILL ALSO REMOVE ANY TEMPORARILY STORED MATERIALS ADJACENT TO THE EXISTING FENCE.
- THE PRIMARY CONSTRUCTION ACCESS IS FROM SJWC'S PROPERTY. THE CONTRACTOR MAY OBTAIN ACCESS FROM NEIGHBORING PROPERTIES TO FACILITATE CONSTRUCTION. NOTIFY NEIGHBORING PROPERTY OWNERS AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL PROTECT THE NEIGHBORS' FACILITIES AND REPAIR ANY DAMAGES DUE TO THE CONSTRUCTION.
- KEEP THE SITE SECURE AT ALL TIMES DURING CONSTRUCTION WITH EITHER THE EX FENCE, THE NEW FENCE OR TEMPORARY FENCE. WHEREVER ACCESS FROM THE NEIGHBORING PROPERTIES IS FEASIBLE, THE CONTRACTOR MAY INSTALL THE NEW FENCE FIRST AND REMOVE THE OLD FENCE SECOND. IF THIS IS NOT FEASIBLE, THEN THE NEW FENCE SHALL BE INSTALLED IMMEDIATELY AFTER REMOVAL OF THE OLD FENCE SO THAT THERE IS NO GAP LEFT AT THE END OF EACH DAY'S WORK. ALTERNATIVELY, THE CONTRACTOR MAY USE TEMPORARY FENCE TO SECURE THE SITE IF THE NEW FENCE CAN NOT BE INSTALLED THE SAME DAY AFTER REMOVAL OF THE OLD FENCE.
- NOTIFY UNDERGROUND SERVICE ALERT (USA) AT 1-800-227-2600, 48 HOURS PRIOR TO EXCAVATION.

SURVEYOR'S NOTES:

BASIS OF BEARINGS

THE BEARING OF NORTH 50° 00' 00" EAST ALONG THE CENTERLINE OF QUINN AVENUE, AS SHOWN ON THE PARCEL MAP FILED ON MAY 18, 1984 IN BOOK 529 OF MAPS AT PAGES 5 THROUGH 7, SANTA CLARA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY AND WAS ESTABLISHED BETWEEN FOUND MONUMENTS

BENCH MARK

DIGITAL LEVELS WERE RUN FROM SCVWD BM443, BEING A FOUND 2" BRASS DISK STAMPED "SCVWD BM443 1998" IN THE TOP OF CURB AT THE SOUTHWESTERLY CORNER OF NEEDLES DRIVE AND ROCK SPRING DRIVE, HAVING A PUBLISHED NAVD88 ELEVATION OF 105.45 FEET, THROUGH SITE CONTROL POINTS AND THEN CLOSED ON SCVWD BM1018, BEING A FOUND 3-1/2" BRASS DISK WITH CROSS STAMPED "US COAST & GEODETIC SURVEY BENCH MARK K1077 1967" IN CONCRETE SIDEWALK AT NORTHEASTERLY CORNER OF TULLY ROAD BRIDGE OVER COYOTE CREEK, HAVING A PUBLISHED NAVD88 ELEVATION OF 124.67 FEET. VERTICAL DATUM IS NAVD88.

PROPERTY NOTES

APN: 477-20-152
PM: 2427
LOT: XXX
ADDRESS: 2268 WILL WOOL DRIVE SAN JOSE, CA 95112

CONTACT 811 BEFORE YOU DIG — SAFE DIGGING PARTNER

DEVELOPER: SAN JOSE WATER, 1265 SOUTH BASCOM AVE., SAN JOSE, CA 95128 — FRANK DU, P.E. (408) 279-7880

REGISTERED PROFESSIONAL ENGINEER — HAIFENG DU — No. C65522 — Exp. 9/30/23 — CIVIL — STATE OF CALIFORNIA

AS-BUILT STAMP

AS BUILT JUN 13 2023
SCANNED

BUDGET # W-93

SAN JOSE WATER

WILL WOOL DRIVE STATION SECURITY FENCING

LOCATION MAP AND GENERAL PLAN

Ozgur, Naci — HEALTH AND SAFETY / DATE	
BY: HFD — OPERATIONS / DATE	REF. NOS. SM: 252
DATE: 08/23/2022 — Walsh, Jake — ENGINEERING, PLANNING / DATE	
CHECK / DATE — ENGINEERING, SPECIAL FACILITIES / DATE	DWG. NO. J2-109
SCALE: AS SHOWN — Lambing, Ed — CHIEF ENGINEER / DATE	SHEET 1 OF 2

BY | REVISION | DATE | CK | DATE | CK

2/7/2022

GENERAL CONTRACTOR

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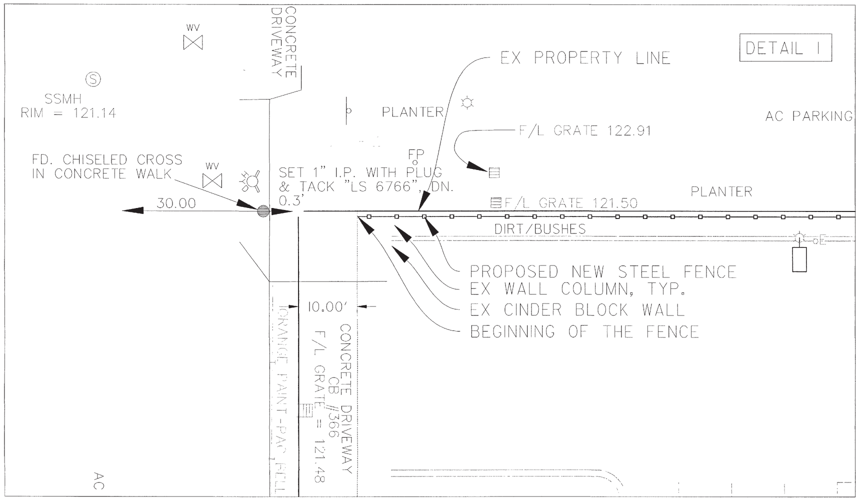
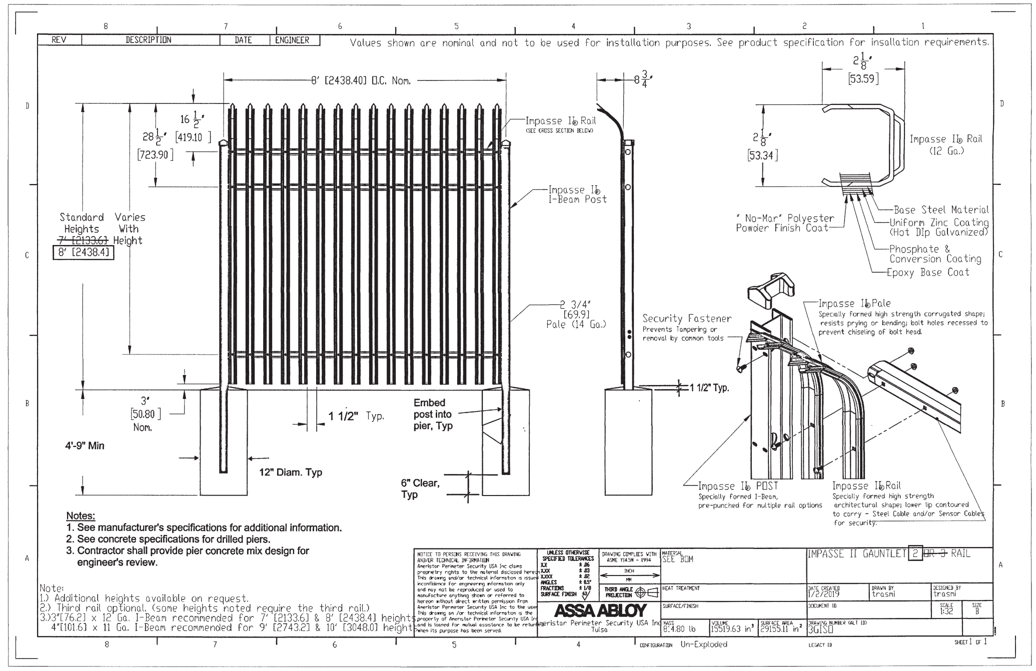
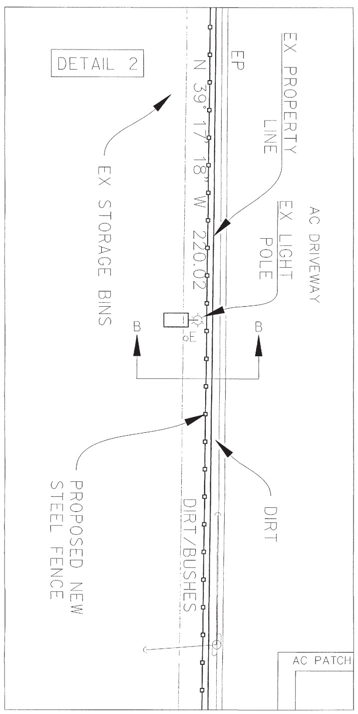
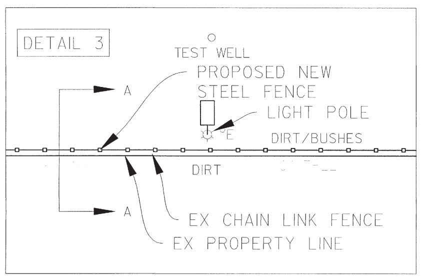
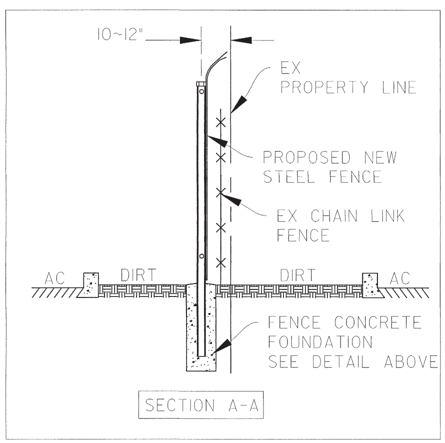
ATTACHMENT 1-2
67 of 103

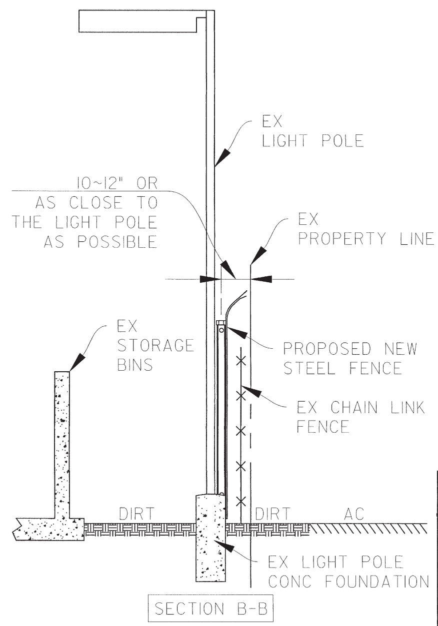












AS-BUILT STAMP

Digitally signed by H. Frank Du, Date: 2022.09.08 19:49:18

REGISTERED PROFESSIONAL ENGINEER — HAIFENG DU — No. C65522 — Exp. 9/30/23 — CIVIL — STATE OF CALIFORNIA

AS BUILT JUN 13 2023
SCANNED

BY	REVISION	DATE	CK	DATE	CK

BUDGET # W-93

SAN JOSE WATER

WILL WOOL DR STATION SECURITY FENCING

DETAILS AND SECTIONS

BY: HFD	Ozgur, Naci — HEALTH AND SAFETY / DATE	REF. NOS.
DATE: 08/18/2022	OPERATIONS / DATE	SM: 252
CHECK / DATE	Walsh, Jake — ENGINEERING, PLANNING / DATE	
SCALE: AS SHOWN	ENGINEERING, SPECIAL FACILITIES / DATE	DWG. NO. J2-109
	Lambing, Ed — CHIEF ENGINEER / DATE	SHEET 2 OF 2

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2/3/2022

SAN JOSE WATER

Unbudgeted Capital R

WO	Description	Category	Budget	Index #	FP
J20311	Almaden Valley Solar	G	1013	0	SJW019761

Instructions

Form should be completed in one sitting. Incomplete forms will not be saved. Your session will expire after approx. 15 minutes of inactivity. Users should view the entire form first before filling it out.

Software projects need to be reviewed and approved by Accounting & Finance (Stephen Chu). Refer to the Accounting & Finance Policies & Procedures memo, "Accounting for the Costs of Internal Use Software", and complete the associated work order attachment. Accounting & Finance approval should be attached with this form.

Submitted forms will be routed for approval in the following order: Department Head, Jake Walsh, Bill Tuttle, Andrew Walters. You will be notified after your request receives final approval or is rejected.

Questions? Contact Jake Walsh (jake.walsh@sjwater.com) or Kateline Lin (kateline.lin@sjwater.com).

Attachment

Attach any relevant photos, documentation, and/or cost estimates.

General Information

Project Name *
Almaden Valley Solar

Submitted By *
Jake Walsh

Department *
Engineering

Submitter Email *
jake.walsh@sjwater.com

Department Head Email *
Bill.Tuttle@sjwater.com

PowerPlant Project Manager *
Jake Walsh

Individual responsible for managing work order in PowerPlant.

Budget Year *
2022

Budget Cat
G (Green & Alternative Energy)

Project Description

Describe scope of work. *
Install a 258 kW roof mounted solar power generation system at Almaden Valley Station.

Station Alphanumeric Selection
STATIONS # & A

Major Location
ALMADEN VALLEY STATION –117

Asset Location

For IT Projects Only

Reason for Request

Describe reason for request and benefits that will be provided. *

To offset the electrical load and allow greater operational flexibility and reliability for the distribution of potable water from this pumping and storage station.

PowerPlan Justification – R1: To incorporate costs not covered by the OII expense tracking work order SOLALM.

☑ Regulatory or Commitment ☐ Reactive Replacement ☐ Proactive Replacement

☑ New Asset ☐ Other

Asset Replacement/Retirement Information

Identify assets being replaced or retired. If known, include retirement info (original work order or year of purchase). *

N/A

Proposed Schedule

Provide estimate of project schedule.

Est. In Service Date *

03/31/2023

Est. Completion Date *

04/30/2023

Capital Cost Estimate

Input present value costs.

Type of Project *

Construction

COST BREAKDOWN	AMOUNT (Round to the nearest $100)
Material	$0.00
Tax (%) 0.000000	$0.00
9.375% for San Jose as of July 1, 2021. Leave blank if not applicable.	
Freight	
Contract	$436,700.00
Consulting Services	
Company Labor	$5,000.00
Company Labor Burden (%) Included	
0	
45% as of April 2022. Leave blank if company labor estimate includes burden.	
Permits and Fees	$0.00
Contingencies (%) 0	$0.00

Typically 5%-15% based on project uncertainties.

Overhead (%)	16	$70,672.00

16% as of January 2022.

Total	512372

Notes

Approvals to be completed by Capital Budgeting group (Jake Walsh).

From Project	Budget #	Amount
Main Replacement Projects	M-32	$512,400.00

Total Amount
512400.00

Approved by

Department Head Approval

- (•) Approved
- ( ) Rejected

Department Head *

William Tuttle

Date *
12/16/2022

Planning Approval

- (•) Approved
- ( ) Rejected

Jake Walsh
Asst. Chief Engineer, Planning *

Jake Walsh

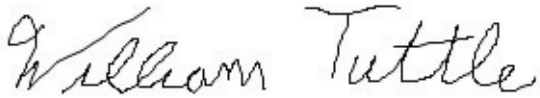
Date *
12/16/2022

Engineering Approval

- (●) Approved
- ( ) Rejected

Bill Tuttle
VP of Engineering *

Date *
12/16/2022



Finance Approval

- (●) Approved
- ( ) Rejected

Andrew Walters
Chief Financial Officer *

Date *
12/19/2022

VISTA SOLAR

Saving Analysis for Almaden Valley Station (Phase 1& 2) POST TOU

Prepared For

San Jose Water Company
(000) 000-0000
jake.walsh@sjwater.com

Vista Solar is a California-based commercial solar electric design and installation firm. We specialize in analyzing commercial and agricultural utility rate structures and optimizing solar system designs to generate the maximum energy bill savings for our clients. Solar is more than equipment, it's an investment that pays dividends for decades – let us help you start saving money today!

Prepared By

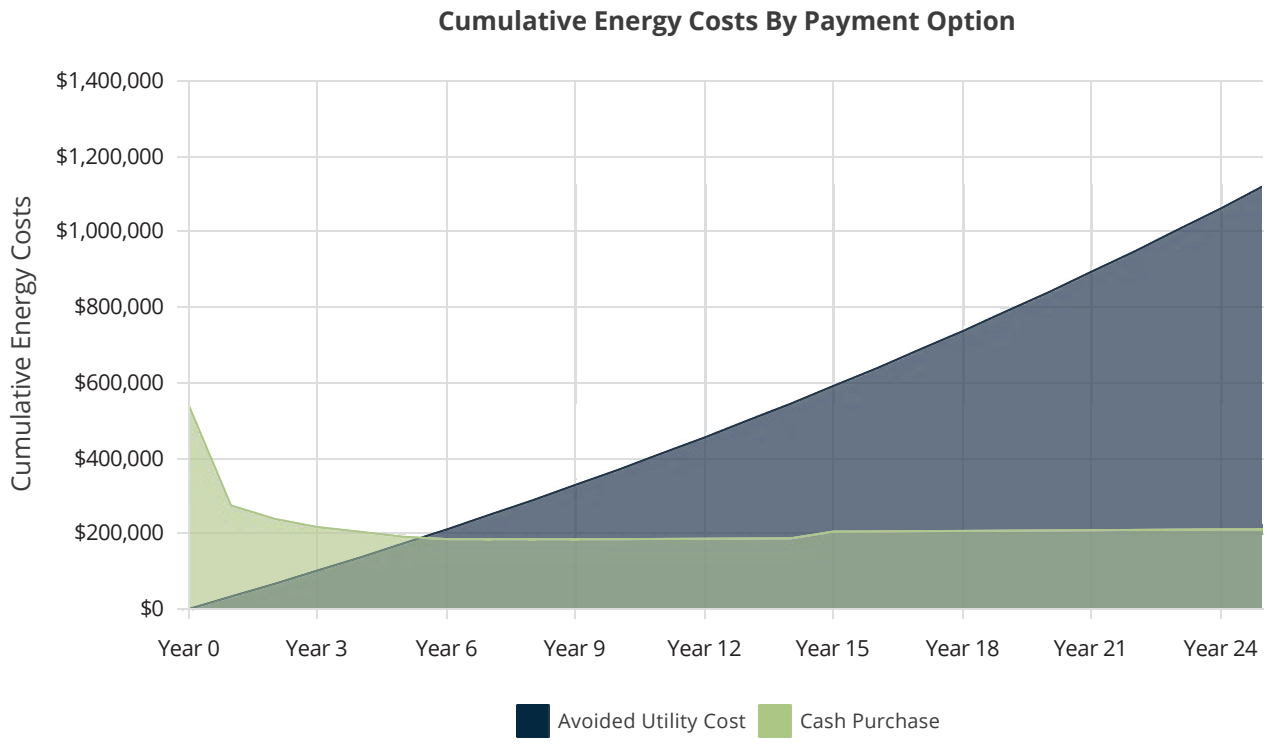
7/5/2017

Brian Brogan
(408) 844-7126
brian@vista-solar.com

1 Project Summary

Payment Options	Cash Purchase
System Price ($)	$538,425
Rebates and Incentives	$353,207
Electric Bill Savings Year 1	$55,909
10-Year IRR	9.33%
20-Year IRR	14.08%
25-Year NPV	$252,413
Payback Period	5.4 Years
Blended Savings Per kWh PV	$0.147
Electricity Escalation Rate	3%

Combined Solar PV Rating
Power Rating: 263,175 W-DC
Power Rating: 234,699 W-AC-CEC



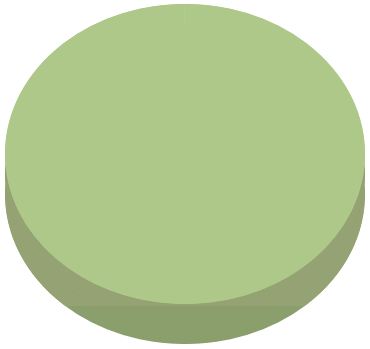
2.1.1 PV System Details

General Information
Facility: Almaden Valley Station
Address: 878 Boynton Ave San Jose CA 95117

Solar PV System Rating
Power Rating: 263,175 W-DC
Power Rating: 234,699 W-AC-CEC

Solar PV Equipment Description
Solar Panels: (605) SunPower SPR-E20-435-COM
Inverters: (5) Chint Power Systems CPS SCA50KTL-DO/US-480 V2.0

Energy Consumption Mix
Annual Energy Use: 246,812 kWh



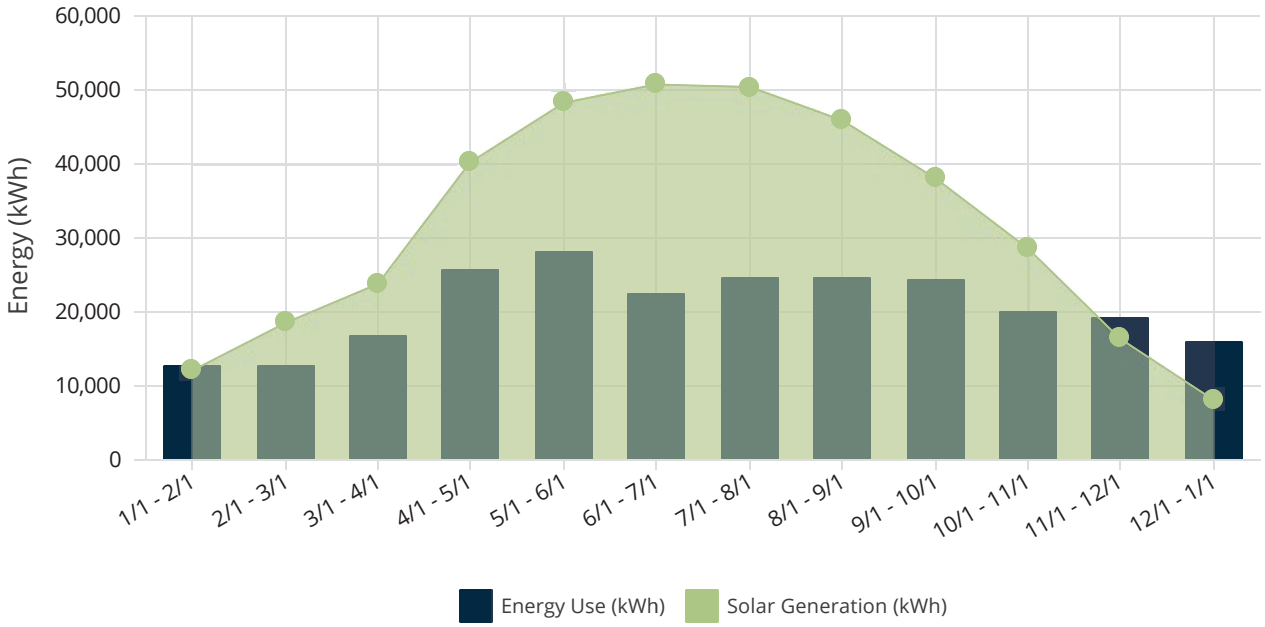
Utility	-134,088 kWh (0.00%)
Solar PV	380,900 kWh (100.00%)

Solar PV Equipment Typical Lifespan
Solar Panels: Greater than 30 Years
Inverters: 20 Years

Solar PV System Cost And Incentives

Solar PV System Cost	$538,425
Federal Tax Credit	-$161,527
Federal - MACRS Bonus Depreciation	-$160,181
State (CA) MACRS Depreciation	-$31,498
Net Solar PV System Cost:	**$185,218**

Monthly Energy Use vs Solar Generation



2.1.2 Rebates and Incentives

This section summarizes all incentives available for this project. The actual rebate and incentive amounts for this project are shown in each example.

Business Energy Investment Tax Credit (ITC)

Businesses that install solar photovoltaic (PV) systems are eligible to receive a tax credit in the amount of 30% of the total PV system cost. Unlike tax deductions, this tax credit can be used to directly offset your tax liability dollar for dollar. If your tax credit exceeds your tax liability you can roll the credit into future tax periods for 20 years.

Total Incentive Value: $161,527

Federal MACRS, Bonus Depreciation - 50%

Under the federal Modified Cost Recovery System (MACRS), businesses may recover investments in certain property through depreciation deductions. MACRS establishes a lifespan for various types of property over which the property may be depreciated. For PV systems, the taxable basis of the equipment must be reduced by 50% of any federal tax credits associated with the system. The 50% Bonus Depreciation provision means that in the first year of service, companies can elect to depreciate 50% of the basis while the remaining 50% is depreciated under the normal MACRS schedule.

Total Incentive Value: $160,181

State (CA) Modified Accelerated Cost-Recovery System (MACRS)

Under the Modified Cost Recovery System (MACRS), businesses may recover investments in certain property through depreciation deductions. The MACRS establishes a set of class lives for various types of property over which the property may be depreciated.

Total Incentive Value: $48,458

2.1.3 Utility Rates

You have the option to remain on your current rate schedule (A-6) or switch to an alternative rate schedule (A-6, 3-Phase (PROPOSED)). The rates for each are shown below and your estimated electric bills are shown on the following page for each rate schedule.

Fixed Charges			Energy Charges		
Type	A-6	A-6, 3-Phase (PROPOSED)	Type	A-6	A-6, 3-Phase (PROPOSED)
W Daily	$0.86		W Part Peak	$0.20442	
S Daily	$0.86	$1.31	W Off Peak	$0.18618	
W1 Daily		$1.31	S On Peak	$0.55478	$0.30395
W2 Daily		$1.31	S Part Peak	$0.25796	$0.23958
			S Off Peak	$0.18638	$0.19434
			W1 On Peak		$0.21342
			W1 Off Peak		$0.19303
			W2 On Peak		$0.21342
			W2 Off Peak		$0.19303
			W2 Super Off Peak		$0.17659

2.1.4 Current Electric Bill

The table below shows your annual electricity costs based on the most current utility rates and your previous 12 months of electrical usage.

Rate Schedule: PG&E - A-6

Time Periods	Energy Use (kWh)			Charges	Charges	
Bill Ranges & Seasons	On Peak	Part Peak	Off Peak	Other	Energy	Total
1/1/2015 - 2/1/2015 W	0	6,326	6,341	$27	$2,474	$2,500
2/1/2015 - 3/1/2015 W	0	4,824	7,797	$24	$2,438	$2,462
3/1/2015 - 4/1/2015 W	0	4,132	12,655	$27	$3,201	$3,227
4/1/2015 - 5/1/2015 W	0	7,209	18,372	$26	$4,894	$4,920
5/1/2015 - 6/1/2015 S	1,100	5,044	21,848	$27	$5,983	$6,010
6/1/2015 - 7/1/2015 S	53	3,455	18,805	$26	$4,426	$4,451
7/1/2015 - 8/1/2015 S	175	4,600	19,886	$27	$4,990	$5,017
8/1/2015 - 9/1/2015 S	311	3,773	20,409	$27	$4,950	$4,976
9/1/2015 - 10/1/2015 S	475	5,670	18,183	$26	$5,115	$5,141
10/1/2015 - 11/1/2015 S	340	2,844	16,879	$27	$4,068	$4,095
11/1/2015 - 12/1/2015 W	0	5,699	13,580	$26	$3,693	$3,719
12/1/2015 - 1/1/2016 W	0	8,515	7,513	$27	$3,139	$3,166
Totals:	2,454	62,091	182,268	$313	$49,371	$49,684

2.1.5 New Electric Bill

Rate Schedule Option 1: PG&E - A-6

Time Periods	Energy Use (kWh)			Charges	Charges	
Bill Ranges & Seasons	On Peak	Part Peak	Off Peak	Other	Energy	Total
1/1/2015 - 2/1/2015 W	0	-2,151	2,761	$27	$74	$101
2/1/2015 - 3/1/2015 W	0	-8,584	2,657	$24	-$1,260	-$1,236
3/1/2015 - 4/1/2015 W	0	-12,272	5,271	$27	-$1,527	-$1,501
4/1/2015 - 5/1/2015 W	0	-20,136	5,533	$26	-$3,086	-$3,060
5/1/2015 - 6/1/2015 S	-19,348	-5,951	5,026	$27	-$11,332	-$11,306
6/1/2015 - 7/1/2015 S	-22,613	-9,668	3,858	$26	-$14,320	-$14,294
7/1/2015 - 8/1/2015 S	-23,174	-8,065	5,507	$27	-$13,911	-$13,884
8/1/2015 - 9/1/2015 S	-20,024	-6,629	5,252	$27	-$11,840	-$11,813
9/1/2015 - 10/1/2015 S	-17,810	-3,270	7,405	$26	-$9,344	-$9,318
10/1/2015 - 11/1/2015 S	-13,295	-3,049	7,849	$27	-$6,699	-$6,673
11/1/2015 - 12/1/2015 W	0	-5,394	8,275	$26	$438	$464
12/1/2015 - 1/1/2016 W	0	2,444	5,507	$27	$1,525	$1,551
Totals:	-116,264	-82,725	64,901	$313	-$6,704	-$6,391

New Rate Schedule Option 2: PG&E - A-6, 3-Phase (PROPOSED)

Time Periods	Energy Use (kWh)				Charges	Charges	
Bill Ranges & Seasons	On Peak	Part Peak	Off Peak	Super Off Peak	Other	Energy	Total
1/1/2015 - 2/1/2015 W1	2,956	0	-2,346	0	$41	$178	$219
2/1/2015 - 3/1/2015 W1	1,826	0	-7,753	0	$37	-$1,107	-$1,070
3/1/2015 - 4/1/2015 W2	365	0	4,333	-11,700	$41	-$1,152	-$1,111
4/1/2015 - 5/1/2015 W2	-766	0	7,356	-21,193	$39	-$2,486	-$2,447
5/1/2015 - 6/1/2015 W2	486	0	3,830	-24,590	$41	-$3,499	-$3,459
6/1/2015 - 7/1/2015 S	-3,225	-6,270	-18,927	0	$39	-$6,161	-$6,121
7/1/2015 - 8/1/2015 S	-2,680	-7,052	-16,000	0	$41	-$5,614	-$5,573
8/1/2015 - 9/1/2015 S	-1,880	-6,628	-12,893	0	$41	-$4,665	-$4,624
9/1/2015 - 10/1/2015 S	229	-5,276	-8,627	0	$39	-$2,871	-$2,832
10/1/2015 - 11/1/2015 W1	1,409	0	-9,903	0	$41	-$1,611	-$1,570
11/1/2015 - 12/1/2015 W1	1,860	0	1,021	0	$39	$594	$633
12/1/2015 - 1/1/2016 W1	1,807	0	6,144	0	$41	$1,572	$1,612
Totals:	2,387	-25,226	-53,765	-57,483	$480	-$6,704	-$6,225

Annual Electricity Savings: $55,909

3.1 Cash Purchase

Inputs and Key Financial Metrics

System Price ($)	$538,425	25-Year NPV	$252,413	Discount Rate	7%
10-Year IRR	9.33%	Payback Period	5.4 Years	Electricity Escalation Rate	3%
20-Year IRR	14.08%	25-Year ROI	168.9%	Federal Income Tax Rate	35%
25-Year IRR	14.73%	PV Degradation Rate	0.52%	State Income Tax Rate	9%

Years	System Price ($)	O&M / Equipment Replacement	Electric Bill Savings	Change in State Tax Liability	Change in Federal Tax Liability	Total Cash Flow	Cumulative Cash Flow
Upfront	-$538,425	-	-	-	-	-$538,425	-$538,425
1	-	-	$55,909	$4,660	$236,437	$297,006	-$241,419
2	-	-	$57,287	$10,351	$1,956	$69,594	-$171,825
3	-	-	$58,697	$4,021	-$6,574	$56,144	-$115,681
4	-	-	$60,140	$170	-$11,882	$48,428	-$67,253
5	-	-	$61,617	$37	-$12,353	$49,302	-$17,951
6	-	-	$63,129	-$2,890	-$16,470	$43,768	$25,817
7	-	-	$64,676	-$5,821	-$20,599	$38,256	$64,073
8	-	-	$66,258	-$5,963	-$21,103	$39,192	$103,264
9	-	-	$67,878	-$6,109	-$21,619	$40,150	$143,414
10	-	-	$69,535	-$6,258	-$22,147	$41,130	$184,544
11	-	-$921	$71,230	-$6,328	-$22,393	$41,588	$226,131
12	-	-$940	$72,964	-$6,482	-$22,940	$42,603	$268,734
13	-	-$958	$74,739	-$6,640	-$23,499	$43,641	$312,375
14	-	-$977	$76,554	-$6,802	-$24,071	$44,704	$357,079
15	-	-$29,946	$78,411	-$4,362	-$15,436	$28,667	$385,746
16	-	-$1,017	$80,310	-$7,136	-$25,255	$46,902	$432,648
17	-	-$1,037	$82,253	-$7,309	-$25,867	$48,039	$480,687
18	-	-$1,058	$84,240	-$7,486	-$26,494	$49,202	$529,889
19	-	-$1,079	$86,273	-$7,667	-$27,134	$50,392	$580,281
20	-	-$1,101	$88,351	-$7,853	-$27,789	$51,608	$631,890
21	-	-$1,123	$90,476	-$8,042	-$28,459	$52,853	$684,742
22	-	-$1,145	$92,650	-$8,235	-$29,144	$54,125	$738,867
23	-	-$1,168	$94,872	-$8,433	-$29,845	$55,426	$794,293
24	-	-$1,192	$97,145	-$8,636	-$30,561	$56,756	$851,049
25	-	-$1,215	$99,468	-$8,843	-$31,293	$58,116	$909,166
Totals:	-$538,425	-$44,878	$1,895,062	-$118,058	-$284,535	$909,166	-

4.1 Cash Purchase

Inputs and Key Financial Metrics

System Price ($)	$538,425	25-Year IRR	14.73%	25-Year ROI	168.9%	Electricity Escalation Rate	3%
10-Year IRR	9.33%	25-Year NPV	$252,413	PV Degradation Rate	0.52%	Federal Income Tax Rate	35%
20-Year IRR	14.08%	Payback Period	5.4 Years	Discount Rate	7%	State Income Tax Rate	9%

Years	Upfront	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Cash									
System Price ($)	-$538,425	-	-	-	-	-	-	-	-
O&M / Equipment Replacement	-	-	-	-	-	-	-	-	-
Electric Bill Savings	-	$55,909	$57,287	$58,697	$60,140	$61,617	$63,129	$64,676	$66,258
Cash	-$538,425	$55,909	$57,287	$58,697	$60,140	$61,617	$63,129	$64,676	$66,258
State Taxes									
Income Decrease (O&M / Equipment Replacement)	-	-	-	-	-	-	-	-	-
Income Decrease (State (CA) MACRS Depreciation)	-	$107,685	$172,296	$103,378	$62,027	$62,027	$31,013	-	-
Income Increase (Electric Bill Savings)	-	-$55,909	-$57,287	-$58,697	-$60,140	-$61,617	-$63,129	-$64,676	-$66,258
Change in Taxable Income	-	$51,776	$115,009	$44,680	$1,886	$409	-$32,116	-$64,676	-$66,258
Change in State Tax Liability	-	$4,660	$10,351	$4,021	$170	$37	-$2,890	-$5,821	-$5,963
Federal Taxes									
Income Decrease (Federal - MACRS Bonus Depreciation)	-	$274,597	$73,226	$43,935	$26,361	$26,361	$13,181	-	-
Income Decrease (O&M / Equipment Replacement)	-	-	-	-	-	-	-	-	-
Income Increase (Electric Bill Savings)	-	-$55,909	-$57,287	-$58,697	-$60,140	-$61,617	-$63,129	-$64,676	-$66,258
Change in State Tax Liability	-	-$4,660	-$10,351	-$4,021	-$170	-$37	$2,890	$5,821	$5,963
Change in Taxable Income	-	$214,028	$5,588	-$18,783	-$33,949	-$35,293	-$47,058	-$58,855	-$60,295
Federal Tax Liability	-	$74,910	$1,956	-$6,574	-$11,882	-$12,353	-$16,470	-$20,599	-$21,103
Federal Tax Credit	-	$161,527	-	-	-	-	-	-	-
Change in Federal Tax Liability	-	$236,437	$1,956	-$6,574	-$11,882	-$12,353	-$16,470	-$20,599	-$21,103
Total Cash Flow	-$538,425	$297,006	$69,594	$56,144	$48,428	$49,302	$43,768	$38,256	$39,192
Cumulative Cash Flow	-$538,425	-$241,419	-$171,825	-$115,681	-$67,253	-$17,951	$25,817	$64,073	$103,264

4.1 Cash Purchase

Inputs and Key Financial Metrics

System Price ($)	$538,425	25-Year IRR	14.73%	25-Year ROI	168.9%	Electricity Escalation Rate	3%
10-Year IRR	9.33%	25-Year NPV	$252,413	PV Degradation Rate	0.52%	Federal Income Tax Rate	35%
20-Year IRR	14.08%	Payback Period	5.4 Years	Discount Rate	7%	State Income Tax Rate	9%

Years	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17
Cash									
System Price ($)	-	-	-	-	-	-	-	-	-
O&M / Equipment Replacement	-	-	-$921	-$940	-$958	-$977	-$29,946	-$1,017	-$1,037
Electric Bill Savings	$67,878	$69,535	$71,230	$72,964	$74,739	$76,554	$78,411	$80,310	$82,253
Cash	$67,878	$69,535	$70,309	$72,025	$73,781	$75,577	$48,465	$79,293	$81,216
State Taxes									
Income Decrease (O&M / Equipment Replacement)	-	-	$921	$940	$958	$977	$29,946	$1,017	$1,037
Income Decrease (State (CA) MACRS Depreciation)	-	-	-	-	-	-	-	-	-
Income Increase (Electric Bill Savings)	-$67,878	-$69,535	-$71,230	-$72,964	-$74,739	-$76,554	-$78,411	-$80,310	-$82,253
Change in Taxable Income	-$67,878	-$69,535	-$70,309	-$72,025	-$73,781	-$75,577	-$48,465	-$79,293	-$81,216
Change in State Tax Liability	-$6,109	-$6,258	-$6,328	-$6,482	-$6,640	-$6,802	-$4,362	-$7,136	-$7,309
Federal Taxes									
Income Decrease (Federal - MACRS Bonus Depreciation)	-	-	-	-	-	-	-	-	-
Income Decrease (O&M / Equipment Replacement)	-	-	$921	$940	$958	$977	$29,946	$1,017	$1,037
Income Increase (Electric Bill Savings)	-$67,878	-$69,535	-$71,230	-$72,964	-$74,739	-$76,554	-$78,411	-$80,310	-$82,253
Change in State Tax Liability	$6,109	$6,258	$6,328	$6,482	$6,640	$6,802	$4,362	$7,136	$7,309
Change in Taxable Income	-$61,769	-$63,277	-$63,981	-$65,543	-$67,140	-$68,775	-$44,103	-$72,157	-$73,906
Federal Tax Liability	-$21,619	-$22,147	-$22,393	-$22,940	-$23,499	-$24,071	-$15,436	-$25,255	-$25,867
Federal Tax Credit	-	-	-	-	-	-	-	-	-
Change in Federal Tax Liability	-$21,619	-$22,147	-$22,393	-$22,940	-$23,499	-$24,071	-$15,436	-$25,255	-$25,867
Total Cash Flow	$40,150	$41,130	$41,588	$42,603	$43,641	$44,704	$28,667	$46,902	$48,039
Cumulative Cash Flow	$143,414	$184,544	$226,131	$268,734	$312,375	$357,079	$385,746	$432,648	$480,687

4.1 Cash Purchase

Inputs and Key Financial Metrics

System Price ($)	$538,425	25-Year IRR	14.73%	25-Year ROI	168.9%	Electricity Escalation Rate	3%
10-Year IRR	9.33%	25-Year NPV	$252,413	PV Degradation Rate	0.52%	Federal Income Tax Rate	35%
20-Year IRR	14.08%	Payback Period	5.4 Years	Discount Rate	7%	State Income Tax Rate	9%

Years	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Totals
Cash									
System Price ($)	-	-	-	-	-	-	-	-	-$538,425
O&M / Equipment Replacement	-$1,058	-$1,079	-$1,101	-$1,123	-$1,145	-$1,168	-$1,192	-$1,215	-$44,878
Electric Bill Savings	$84,240	$86,273	$88,351	$90,476	$92,650	$94,872	$97,145	$99,468	$1,895,062
Cash	$83,182	$85,193	$87,250	$89,354	$91,504	$93,704	$95,953	$98,253	$1,311,759
State Taxes									
Income Decrease (O&M / Equipment Replacement)	$1,058	$1,079	$1,101	$1,123	$1,145	$1,168	$1,192	$1,215	$44,878
Income Decrease (State (CA) MACRS Depreciation)	-	-	-	-	-	-	-	-	$538,425
Income Increase (Electric Bill Savings)	-$84,240	-$86,273	-$88,351	-$90,476	-$92,650	-$94,872	-$97,145	-$99,468	-$1,895,062
Change in Taxable Income	-$83,182	-$85,193	-$87,250	-$89,354	-$91,504	-$93,704	-$95,953	-$98,253	-$1,311,759
Change in State Tax Liability	-$7,486	-$7,667	-$7,853	-$8,042	-$8,235	-$8,433	-$8,636	-$8,843	-$118,058
Federal Taxes									
Income Decrease (Federal - MACRS Bonus Depreciation)	-	-	-	-	-	-	-	-	$457,661
Income Decrease (O&M / Equipment Replacement)	$1,058	$1,079	$1,101	$1,123	$1,145	$1,168	$1,192	$1,215	$44,878
Income Increase (Electric Bill Savings)	-$84,240	-$86,273	-$88,351	-$90,476	-$92,650	-$94,872	-$97,145	-$99,468	-$1,895,062
Change in State Tax Liability	$7,486	$7,667	$7,853	$8,042	$8,235	$8,433	$8,636	$8,843	$118,058
Change in Taxable Income	-$75,696	-$77,526	-$79,398	-$81,312	-$83,269	-$85,271	-$87,317	-$89,410	-$1,274,464
Federal Tax Liability	-$26,494	-$27,134	-$27,789	-$28,459	-$29,144	-$29,845	-$30,561	-$31,293	-$446,063
Federal Tax Credit	-	-	-	-	-	-	-	-	$161,527
Change in Federal Tax Liability	-$26,494	-$27,134	-$27,789	-$28,459	-$29,144	-$29,845	-$30,561	-$31,293	-$284,535
Total Cash Flow	$49,202	$50,392	$51,608	$52,853	$54,125	$55,426	$56,756	$58,116	$909,166
Cumulative Cash Flow	$529,889	$580,281	$631,890	$684,742	$738,867	$794,293	$851,049	$909,166	-

SAN JOSE WATER ALMADEN VALLEY SOLAR
1084 FOXHURST WAY, SAN JOSE, CA 95120
258.3KWDC PHOTOVOLTAIC INSTALLATION

REGIONAL MAP

PROJECT TEAM

PV ENGINEER:

HENRY HOLBROOK HYDE III
HYDE ENGINEERING SERVICES, INC.
4735 WALNUT STREET, SUITE #110
BOULDER, CO 80301
WWW.HYDEENG.COM
P: (720) 900-1009

PROJECT DEVELOPER:

CENTRICA BUSINESS SOLUTIONS
2985 KIEFER RD
SANTA CLARA, CA 95051
P: (408) 844-7134
WWW.CENTRICABUSINESSSOLUTIONS.COM

SYSTEM SPECIFICATION

MODULES:
BOVIET BVM6612M-450S-H-HC-BF-DG
TOTAL MODULE COUNT: 574
STC RATING: 450W
TOTAL DC SYSTEM SIZE (STC) : 258.3KW

INVERTER	QTY	KW
CPS SCA36KTL-DO/US-480	2	36KW
CPS SCA60KTL-DO/US-480	2	60KW
-	-	-
-	-	-
TOTAL	4	192KW

CODES AND DESIGN

APPLICABLE CODES:
1. 2019 CALIFORNIA ELECTRIC CODE (CEC)
2. 2019 CALIFORNIA BUILDING CODE (CBC)
3. 2019 CALIFORNIA FIRE CODE (CFC)
4. 2019 CALIFORNIA MECHANICAL CODE (CMC)
5. 2019 CALIFORNIA PLUMBING CODE (CPC)
6. 2019 CALIFORNIA ENERGY COMMISSION BUILDING ENERGY EFFICIENCY STANDARDS
7. 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

DESIGN CRITERIA:
1. COLD DESIGN TEMPERATURE: 0°C
2. HOT DESIGN TEMPERATURE: 36°C

ARCHITECTURAL INFO:
1. OCCUPANCY CLASS: GROUP F
2. CONSTRUCTION TYPE: TYPE III-B
3. SPRINKLERS: N/A
4. NUMBER OF STORIES: 1
5. BUILDING AREA: 81891 SQ. FEET

9/19/22

SCOPE OF WORK

INSTALLATION OF NEW ROOFTOP PHOTOVOLTAIC SYSTEM AND ASSOCIATED EQUIPMENT.
THE SYSTEM WILL BE DISTRIBUTED BEHIND ONE UTILITY METER.

OWNER:	CLIENT APPROVAL:
SJW ALMADEN VALLEY 1084 FOXHURST WAY, SAN JOSE, CA 95120	SIGNATURE: DATE: PRINT (FIRST AND LAST):

DRAWING INDEX

S.NO	SHEET TITLE
T0.0.0	TITLE PAGE
E0.0.0	GENERAL
E0.0.1	LEGEND
E0.1.0	DETAILS 01
E0.1.1	DETAILS 02
E1.0.0	SITE PLAN
E1.1.0	FIRE & SAFETY
E1.2.0	PV CIRCUIT 01
E2.0.0	SLD
E2.0.1	GND
E2.1.0	CALCS 01
E2.1.1	CALCS 02
E2.2.0	COMM PLAN
E3.0.0	SIGNAGE 01
E3.0.1	SIGNAGE 02
E4.0.0	SPECS 01
E4.0.1	SPECS 02
RM.100	COVER SHEET
RM.200	KEY PLAN
RM.301	ROOF 1 – ARRAY 1
RM.302	ROOF 1 – ARRAY 2
RM.303	ROOF 1 – ARRAY 3
RM.304	ROOF 1 – ARRAY 4
RM.305	ROOF 2 – ARRAY 1
RM.306	ROOF 2 – ARRAY 2
RM.400	SM DETAILS
RM.500	ATTACHMENT DETAILS

BE 22-703631
PC 22-675565

centrica Business Solutions

REGISTERED PROFESSIONAL ENGINEER
HENRY HOLBROOK HYDE III
21290
ELECTRICAL
STATE OF CALIFORNIA

HYDE ENGINEERING SERVICES

HYDE ENGINEERING SERVICE, INC
4735 WALNUT ST., SUITE #110
BOULDER, CO 80301
INFO@HYDEENG.COM
720-900-1009
WWW.HYDEENG.COM

SCALE: AS NOTED
(PRINT ON 36"X24")

LEGEND:

- RESTRAINED JOINT PIPE *
- UNRESTRAINED PIPE
- ACTIVE WATER MAIN
- PIPE TO BE RETIRED (SEE NOTE FOR AC PIPE REMOVAL)
- SOIL RESISTIVITY
- EXISTING AC CUT
- RECORDED MONUMENT
- FOUND MONUMENT
- COPPER SERVICE KILL & INSTALL
- PLASTIC SERVICE KILL & INSTALL

*USE MEGALUGS W/MJ FITTINGS AND VALVES ON RESTRAINED PIPE.

AS BUILT STAMP ONLY

CB	09/19/22	AHJ COMMENTS	TH	09/23/22
JM	09/07/22	MODULE CHANGE – BOVIET 450	TH	09/23/22
AA	02/28/22	STRUCTURAL DESIGN ADDED	TH	02/28/22
JM	02/16/22	ADDRESS UPDATE	TH	02/16/22
AK	07/29/21	90% DESIGN – DRAFT 01	TH	07/29/21
BY	DATE	REVISION	CK	DATE

CITY OF SAN JOSE APPROVAL STAMP

APPROVED
City of San Jose, Building Division
Electrical
Brian Price (408) 535 7876
Plan No. 22-675565 Date: 11/29/2022

SAN JOSE WATER COMPANY

CBS – SJW ALMADEN VALLEY
1084 FOXHURST WAY, SAN JOSE, CA 95120

Ozgur, Naci — DIRECTOR OF ENGG / DATE
Walsh, Jake — DIRECTOR OF OPERATIONS / DATE
Tuttle, Bill — DIRECTOR OF ENGINEERING / DATE
CHIEF ENGINEER / DATE

BY: TRIPP HYDE
DATE: 02/16/2022
CHECK / DATE:
SCALE: AS SHOWN
REF. NOS.: CBS_SJWC
DWG. NO.: T0.0.0 TITLE PAGE
SHEET 1 OF 27

9/19/22

CONSTRUCTION NOTES

1. DISRUPTION OF ANY BUILDING SYSTEMS, INCLUDING POWER, TELEPHONE, HVAC, ETC., MUST BE COORDINATED AND APPROVED.
2. ALL ENERGY STORAGE COMPONENTS AND ELECTRICAL EQUIPMENT MUST BE ANCHORED AND SEISMICALLY BRACED PER APPLICABLE CODES.
3. PROJECT SITE MUST BE MAINTAINED IN A CLEAN AND ORDERLY FASHION. ALL TRASH AND DERBIS MUST BE COLLECTED AND REMOVED ON A DAILY BASIS. ALL MUD AND DERBIS MUST BE KEPT OUT OF PUBLIC RIGHT-OF-WAYS.
4. CONSTRUCTION MATERIALS ON SITE MUST BE PROPERLY STACKED AND PROTECTED IN A SAFE MANNER AS TO PREVENT DAMAGE AND DETERIORATION UNTIL USE.
5. PROVIDE BARRIERS TO PREVENT UNAUTHORIZED ENTRY INTO CONSTRUCTION AREAS WHILE MAINTAINING SITE ACCESS TO EMPLOYEES.
6. ALL FINISHES AND CONSTRUCTION MUST BE PROTECTED BY THE CONTRACTOR FROM POTENTIAL DAMAGE CAUSED BY CONSTRUCTION ACTIVITY. DAMAGE TO FINISHES OR CONSTRUCTION MUST BE REPAIRED OR REPLACED (OWNER'S DECISION) BY THE CONTRACTOR WITH IDENTICAL MATERIAL AND/OR FINISHES. CONTRACTOR MUST MAKE AND MAINTAIN A PHOTOGRAPHIC RECORD NOTEBOOK DATED/INDEXED PHOTOS.
7. ALL TRENCHES AND EXCAVATIONS MUST BE CONSTRUCTED IN STRICT COMPLIANCE WITH THE APPLICABLE SECTIONS OF CALIFORNIA AND FEDERAL O.S.H.A. REQUIREMENTS AND OTHER APPLICABLE SAFETY ORDINANCES. CONTRACTOR MUST BEAR FULL RESPONSIBILITY FOR TRENCH SHORING DESIGN AND INSTALLATION.
8. PROTECTIVE BARRICADES, FENCING, HANDRAILS, AND BRIDGES, TOGETHER WITH WARNING AND GUIDANCE DEVICES AND SIGNS, MUST BE UTILIZED SO THAT PASSAGEWAY FOR PEDESTRIANS, ESPECIALLY DISABLED PERSONS, IS SAFE AND WELL DEFINED.
9. WALKWAYS IN CONSTRUCTION AREAS MUST BE MAINTAINED AT LEAST 4 FEET IN WIDTH OR EQUAL TO SIDEWALK/ENTRY WAY WIDTH, WHICHEVER IS GREATER, UNLESS EXPRESSLY PERMITTED OTHERWISE BY THE CUSTOMER IN WRITING; AND MUST BE FREE OF ABRUPT CHANGES IN THE GRADE. THESE WALKWAYS MUST BE CLEARLY MARKED AND PROVIDE SAFE PASSAGE FOR PEDESTRIANS. OBSTRUCTIONS WITHIN THE WALKWAYS MUST BE ILLUMINATED DURING HOURS OF DARKNESS. MINIMUM VERTICAL CLEARANCE TO ANY OBSTRUCTION WITHIN THE WALKWAY MUST BE 6'-8'.
10. WHERE WALKWAYS, PATHWAYS, OR ACCESS WAYS ARE CLOSED BY THE WORK, AN ADA COMPLIANT, OR ALTERNATE WALKWAY MUST BE PROVIDED, PREFERABLY WITHIN THE IMMEDIATE LOCATION OF THE PATHWAY OR ACCESS WAY TO BE CLOSED. WHERE IT IS NECESSARY TO DIVERT PEDESTRIANS INTO MAJOR DETOUR AND/OR INTO A PARKING LANE OR TRAFFIC AREA, AT NO TIME SHOULD PEDESTRIANS BE DIVERTED INTO A PORTION OF A STREET USED FOR VEHICULAR TRAFFIC. ANY DEVIATION FROM THE ABOVE MUST HAVE PRIOR APPROVAL OF THE CUSTOMER.
11. AT LOCATIONS WHERE ADJACENT ALTERNATE WALKWAYS CANNOT BE PROVIDED, ADA COMPLIANT DETOURS WILL BE CLEARLY PLANNED, MARKED, AND CONSTRUCTED. APPROPRIATE SIGNS AND BARRICADES MUST BE INSTALLED AT THE LIMITS OF CONSTRUCTION AND IN ADVANCE OF THE CLOSURE (OR DETOUR) IN ORDER TO DIVERT PEDESTRIANS TO THE APPROPRIATE WALKWAY OR DETOUR
12. ASPHALT AND CONCRETE BARRIERS: ALL ASPHALT TRAFFIC IS RATED. ALL ASPHALT REPAIRS MUST BE REPAIRED TO MATCH ADJACENT BASE COURSE, BINDER COURSE, AND WEARING COURSES. CONTRACTOR MUST COVER ASPHALT TRENCHES WITH HOT MIX ASPHALT, ROLL FOR COMPACTION, AND COVER THE WIDTH OF THE TRENCH WITH A SLURRY SEAL AFTER THE CURE PERIOD. CONCRETE MUST BE REPLACED "JOINT-TO-JOINT" WHEN DISTURBED DURING CONSTRUCTION.
13. UNDERGROUND BUILDUP IN FIRE LANES WILL MEET EXISTING FIRE LANE SPECS AND ROADWAYS WILL MEET EXISTING ROADWAY SPECS. CONTRACTOR MUST SUBMIT CUT SHEETS FOR THESE REPAIRS.
14. ENSURE THAT ALL REMAINING ACTIVE AND NEW DRAINAGE AND UTILITY LINES ARE PROTECTED AND UNDAMAGED FROM TRENCHING AND FOOTING EXCAVATIONS FOR NEW FOOTINGS, PARTICULARLY FOR NEW FENCING AND WALLS.
15. DELIVERIES MUST BE KEPT AWAY FROM EMPLOYEES BY SEPARATING THE DELIVERY AREA OR ESCORTING THE DELIVERIES WHILE ON SITE.
16. ALL SIGNAGE REMOVED DURING THE COURSE OF CONSTRUCTION MUST BE RELOCATED OR REPLACED.
17. ALL LANDSCAPING DAMAGED DURING THE COURSE OF CONSTRUCTION MUST BE REPAIRED BACK TO ITS ORIGINAL CONDITION.
18. ROOF TOP MOUNTED PHOTOVOLTAIC PANEL SYSTEM SHALL BE TESTED, LISTED AND IDENTIFIED WITH A FIRE CLASSIFICATION IN ACCORDANCE WITH UL 1703 AND UL 2703 AND COMPLY WITH TABLE 1505.1 BASED ON TYPE OF CONSTRUCTION.
19. SIGNAGE SHOULD BE A MINIMUM OF 3 FEET DISTANCE FROM SHUTDOWN DEVICES/SWITCHES.

WIRING AND WIRING METHODS

1. ALL GROUNDED CONDUCTORS MUST BE COLOR-CODED IN COMPLIANCE WITH NEC ARTICLE 200.6.
2. ALL DC EQUIPMENT AND COMPONENTS MUST BE LISTED FOR USE AT 1000VDC UON.
3. ALL CONDUCTORS IN VERTICAL RACEWAYS MUST COMPLY WITH NEC ARTICLE 300.19(A), 300.19(B), 376.30(B), AND TABLE 300.19(A).
4. ALL CONNECTIONS AND CONNECTORS MUST BE TORQUED PER DEVICE LISTING OR MANUFACTURER'S RECOMMENDATIONS.
5. WIRE NUTS MUST NOT BE USED ON ENERGY STORAGE CONDUCTORS. SPLICES AND CONNECTORS MUST BE INSULATED BY APPROVED MEANS. UL LISTED ELECTRICAL TAPE ALONE IS NOT SUITABLE AS THE ONLY INSULATION MEANS.
6. ENERGY STORAGE OUTPUT CIRCUITS, AND INVERTER OUTPUT CIRCUITS MUST BE PROTECTED IN ACCORDANCE WITH NEC ARTICLE 240.
7. PROTECTIVE BUSHINGS MUST BE USED FOR ALL CONDUIT CONNECTIONS.

WIRING AND BONDING METHODS

1. GROUND AND BOND ALL EQUIPMENT, SUPPORTING STRUCTURES, MOUNTS, RACEWAYS, PANELBOARDS, SWITCHBOARDS, ETC., IN ACCORDANCE WITH NEC ARTICLE 250 AND 690.43.
2. THE EQUIPMENT GROUNDING CONNECTION TO ANY MODULE OR COMPONENT OF THIS STORAGE SYSTEM MUST BE ARRANGED SUCH THAT REMOVAL FROM THE SYSTEM DOES NOT INTERRUPT THE GROUND FAULT PATH OF ANY COMPONENT WITHIN THE SYSTEM.
3. ALL GROUNDING AND BONDING EQUIPMENT MUST BE LISTED AND USED IN ACCORDANCE WITH ITS LISTING.

INVERTER NOTES

1. INVERTER MUST HAVE GROUND FAULT DETECTION NOTIFICATION AND INTERRUPTION FOR DC CIRCUITS SUPPLYING POWER TO IT PER NEC 690.35(C).
2. THE INVERTERS MUST AUTOMATICALLY DE-ENERGIZE THEIR OUTPUT TO THE CONNECTED ELECTRICAL SYSTEM UPON LOSS OF VOLTAGE IN THAT SYSTEM, AND MUST REMAIN IN THAT STATE UNTIL THE VOLTAGE HAS BEEN RESTORED IN COMPLIANCE WITH NEC ARTICLE 690.61.
3. ALL SOLAR INVERTERS MUST BE APPROVED BY AND LISTED ON CALIFORNIA ENERGY COMMISSION'S "LIST OF ELIGIBLE INVERTERS PER SB1 GUIDELINES." ALL STORAGE INVERTERS MUST BE UL-LISTED OR MUST OBTAIN UL FIELD CERTIFICATION.

EQUIPMENT NOTES

1. ALL EQUIPMENT MUST BE LISTED/LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
2. ALL DEVICES AND EQUIPMENT INSTALLED OUTDOORS OR EXPOSED TO THE WEATHER MUST BE OF WEATHERPROOF CONSTRUCTION AND RATED FOR UV EXPOSURE.
3. ALL FIELD-INSTALLED JUNCTION, PULL, AND OUTLET BOXES LOCATED BEHIND MODULES MUST BE ACCESSIBLE DIRECTLY OR BY DISPLACEMENT OF THE MODULE(S) SECURED BY REMOVABLE FASTENERS.
4. PROVIDE "WARNING: POTENTIAL ARC FLASH HAZARD" LABEL FOR ALL SWITCHBOARDS, PANELBOARDS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS PER NEC ARTICLE 110.16. "FLASH PROTECTION" APPLIES TO DESIGNATED SCOPE OF WORK ONLY.

EQUIPMENT PADS AND CONDUIT ROUTING

1. CONDUIT ROUTING IS DIAGRAMMATIC IN NATURE. EXACT ROUTING AND LOCATIONS WILL BE COORDINATED IN FIELD UON.

EXISTING EQUIPMENT UTILIZED FOR THIS PROJECT

1. ANY EXISTING CUSTOMER EQUIPMENT USED FOR THIS PROJECT (OCPD'S, DISCONNECTS, CONDUCTORS, ETC.) MUST BE INSPECTED AND TESTED BY THE CONTRACTOR TO ENSURE THEY ARE SAFE FOR USE AND FULLY FUNCTIONAL AND OPERATIONAL.

CODES

1. ALL COMPONENTS MUST BE DESIGNED, MANUFACTURED, AND TESTED IN ACCORDANCE WITH THE LATEST APPLICABLE STANDARDS OF NEMA, ANSI, NEC, AND UL.
2. SPECIFIC REQUIREMENTS FOR INDIVIDUAL COMPONENTS OF ANY POWER SYSTEMS INCLUDE BUT ARE NOT LIMITED TO THE GUIDELINES SHOWN HEREIN.
3. THE WORK ON THE PROJECT MUST BE DESIGNED AND INSTALLED IN ACCORDANCE WITH BASED ON THE NATIONAL ELECTRIC CODE AND WITH THE LATEST EDITION OF ALL APPLICABLE CODES, STANDARDS, AND RECOMMENDATIONS OF THE FOLLOWING AGENCIES:

* ANSI – AMERICAN NATIONAL STANDARDS INSTITUTE
* ASCE – AMERICAN SOCIETY OF CIVIL ENGINEERS
* ADA – AMERICAN DISABILITIES ACT
* ASME – AMERICAN SOCIETY OF MECHANICAL ENGINEERS
* ASTM – AMERICAN SOCIETY FOR TESTING AND MATERIALS
* CBMA – CERTIFIED BALLAST MANUFACTURERS ASSOCIATION
* EIA – ELECTRONIC INDUSTRIES ASSOCIATION
* ETL – ELECTRICAL TESTING LABORATORIES
* IBC – INTERNATIONAL BUILDING CODE
* IEEE – INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
* IESNA – ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA
* ICEA – INSULATED CABLE ENGINEERS ASSOCIATION
* IAEI – INTERNATIONAL ASSOCIATION OF ELECTRICAL INSPECTORS
* IPCEA – INSULATED POWER CABLE ENGINEERS ASSOCIATION
* IPMVP – INTERNATIONAL PERFORMANCE MEASUREMENTS AND VERIFICATION PROTOCOL
* NFPA – NATIONAL FIRE PROTECTION ASSOCIATION
* NEMA – NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
* NESC – NATIONAL ELECTRICAL SAFETY CODE
* NETA – NATIONAL ELECTRICAL TESTING ASSOCIATION
* NEC – NATIONAL ELECTRICAL CODE
* NECA – NAITONAL ELECTRIC CONTRACTORS ASSOCIATION
* OSHA – OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
* UL – UNDERWRITERS LABORATORY

INSPECTIONS

ALL INDEPENDENT TESTING AND INSPECTIONS MUST BE PAID FOR AND SCHEDULED BY THE CUSTOMER.

ABBREVIATIONS

AFF – ABOVE FINISH FLOOR
AL – ALUMINUM CONDUCTOR OR BUS
AWG – AMERICAN WIRE GAUGE
ATS – AUTOMATIC TRANSFER SWITCH
C – CONDUIT
CO – CONDUIT ONLY
COMM – COMMUNICATIONS CIRCUIT OR CONDUIT AS NOTED
CU – COPPER CONDUCTOR OR BUS
DAS – DATA ACQUISITION SYSTEM
DC – DIRECT CURRENT
(E) – EXISTING
EGC – EQUIPMENT GROUND CONDUCTOR
EQ – EQUAL
EMT – ELECTRICAL METALLIC TUBING
ESS – ENERGY STORAGE SYSTEM
FBO – FURNISHED BY OTHERS
FIBO – FURNISHED AND INSTALLED BY OTHERS
GEC – GROUND ELECTRODE CONDUCTOR
GND – GROUND
LAEC – LOS ANGELES ELECTRIC CODE
IBO – INSTALLED BY OTHERS
IG – ISOLATED GROUND CONDUCTOR
ISC – SHORT CIRCUIT CURRENT
KVA – KILOVOLT-AMPERES
KW – KILOWATTS
MCA – MINIMUM CIRCUIT AMPERES
MLO – MAIN LUGS ONLY
(N) – NEW
NIC – NOT IN CONTRACT
NIS – NOT IN SCALE
NTS – NOT TO SCALE
NEC – NATIONAL ELECTRICAL CODE
NS – NO SCALE
NL – NIGHT LIGHT, TIME CLOCK, OR PHOTOCELL CONTROLLED LUMINAIRE
OCP – OVERCURRENT PROTECTION
OAE – OR APPROVED EQUIVALENT
PV – PHOTOVOLTAIC
PMRS – PERFORMANCE MONITORING AND REPORTING
POCC – POINT OF COMMON COUPLING
POT – PATH OF TRAVEL
(R) – REMOVE
(RL) – RELOCATE, RELOCATED
SLD – SINGLE LINE DIAGRAM
SSBJ – SUPPLY SIDE BONDING JUMPER
STC – STANDARD TEST CONDITIONS
TYP – TYPICAL
UON – UNLESS OTHERWISE NOTED
VD – VOLTAGE DROP
VOC – OPEN CIRCUIT VOLTAGE
W – WALL MOUNTED
WP – EQUIPMENT OF WEATHERPROOF CONSTRUCTION OR DESIGN
XFMR – TRANSFORMER

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SCALE: AS NOTED
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LEGEND:

- RESTRAINED JOINT PIPE *
- UNRESTRAINED PIPE
- ACTIVE WATER MAIN
- PIPE TO BE RETIRED (SEE NOTE FOR AC PIPE REMOVAL)
- SOIL RESISTIVITY (RESISTANCE / DEPTH) / (RESISTANCE / NEW DEPTH)
- EXISTING AC CUT
- RECORDED MONUMENT
- FOUND MONUMENT
- COPPER SERVICE KILL & INSTALL
- PLASTIC SERVICE KILL & INSTALL

*USE MEGALUGS W/MJ FITTINGS AND VALVES ON RESTRAINED PIPE.

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Plan No. 22-67505 Date: 11/29/2022

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CBS – SJW ALMADEN VALLEY
1084 FOXHURST WAY, SAN JOSE, CA 95120

	Ozgur, Naci – DIRECTOR OF ENGR. / DATE	
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BY: TRIPP HYDE	Walsh, Jake – DIRECTOR OF PLANNING / DATE	REF. NOS. CBS_SJWC
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CHECK / DATE	Tuttle, Bill – CHIEF ENGINEER / DATE	
SCALE: AS SHOWN		SHEET 2 OF 27

SINGLE LINE DIAGRAM

- FEEDER OR BUS
- FEEDER UNDERGROUND
- LOW VOLTAGE
- FUTURE
- CONDUIT CAP
- CONTINUATION
- PT WIRING
- — C5 — ETHERNET CABLE
- — FO — FIBER OPTIC CABLE
- TWISTED PAIR
- SINGLE PHASE CT WIRING
- THREE PHASE CT WIRING
- N / G — "N" INDICATES NEUTRAL BUS; "G" INDICATES GROUND BUS
- E GEN (N G) — ENGINE GENERATOR RATING AS NOTED
- 400A 3P3N — AUTOMATIC TRANSFER SWITCH 400A, 3-POLE, SOLID NEUTRAL
- 400A 4P — AUTOMATIC TRANSFER SWITCH WITH ISOLATION BYPASS, 400A, 4-POLE
- PANEL HA 225A MCB | SEC 2 — PANELBOARD "HA" (2 SECTIONS) 225A MAIN CIRCUIT BREAKER
- PANEL LA 225A MLO — PANELBOARD "LA" 225A MAIN LUGS ONLY
- TRANSFORMER VOLTAGE AND RATING AS NOTED
- NEUTRAL GROUNDING RESISTOR
- EARTH GROUND
- COPPER CLAD GROUND ROD
- C/T — CABLE TAP BOX
- INVERTER/RECTIFIER
- DC-DC CONVERTER
- BATTERY

SINGLE LINE DIAGRAM

- STATIC SWITCH
- MOV — SURGE PROTECTION DEVICE
- ANN — REMOTE ANNUNCIATOR
- DM — DIGITAL POWER METER
- (2) PT 4:1 — POTENTIAL TRANSFORMER "(2)" INDICATES QUANTITY "4:1" INDICATES RATIO
- TEST SWITCH OR TERMINAL BLOCK
- Y: ZMR X2–X4 — CURRENT TRANSFORMER "Y" = PRIMARY CURRENT "Z" = SECONDARY CURRENT X2=X4 = TAP SETTING
- Y: ZMR X2–X4 — GROUND FAULT CURRENT XFMR
- M — "M" = METER "T" = TEMP PROBE "ST" = SHUNT TRIP
- K — KIRK KEY LOCK, KEY HOLD HATCH INDICATES LOCATION OF KEY
- SKR — KIRK KEY SOLENOID KEY RELEASE
- 100AS 100AF — DISCONNECT SWITCH "S" = SWITCH RATING "F" = FUSIBLE "NF" = NON-FUSIBLE
- MOTOR START WITH OPTIONAL HOA AND OVERLOAD
- 100AS 100AF — COMBINATION MOTOR STARTER FUSIBLE DISCONNECT SWITCH
- V — VARIABLE FREQUENCY DRIVE
- 100AF 100AT 10KAIC — FIXED-MOUNT ENCLOSED CIRCUIT BREAKER, AIC AS NOTED
- 100AF 100AT — FIXED-MOUNT CIRCUIT BREAKER "F" = FRAME RATING "T" = TRIP RATING
- 100AS — DISCONNECT SWITCH "S" = SWITCH RATING
- 100AS 100AF — FUSED DISCONNECT SWITCH CLASS L OR R FUSES AS NOTED "S" SWITCH, "F" FUSE RATINGS
- (3) 100AF — L OR R FUSES AT NOTED "(3)" INDICATES QUANTITY
- (3) 800AF 600AT LSIG — DRAWOUT CB – LOW VOLTAGE INSULATED CASE OR AIR TYPE LSIG = ELECTRONIC TRIP DEVICE "L" = LONG TIME TRIP "S" = SHORT TIME TRIP "I" = INSTANTANEOUS TRIP "G" = GROUND FAULT
- 100A — DRAWOUT FUSE LOW VOLTAGE INSULATED CASE OR AIR TYPE
- 52 2000AF 1600AT — DRAWOUT CIRCUIT BREAKER – MED VOLTAGE VACUUM OR ARC RESISTANT TYPE "F" FRAME, "T" TRIP RATING
- TAP CONNECTORS
- MEDIUM VOLTAGE BUSHING ON LOW VOLTAGE LUGS
- CABLE LIMITERS

SINGLE LINE DIAGRAM

- MEDIUM VOLTAGE LOAD/DEAD-BREAK ELBOW OR STRESS CONE
- SURGE ARRESTOR AIR GAP
- SURGE ARRESTOR MOV
- THERMAL OVERLOAD
- GROUNDED BAR WITH EARTH CONNECTION

SITE DISTRIBUTION

- PRI — UNDERGROUND VAULT PRIMARY/UTILITY OR MED VOLTAGE
- SEC — UNDERGROUND VAULT SECONDARY/UTILITY OR LOW VOLTAGE
- COM — UNDERGROUND VAULT COMM/UTILITY OR TELEDATA/SECURITY
- P — PRIMARY/MEDIUM VOLTAGE DISTRIBUTION
- S — SECONDARY/600V AND BELOW DISTRIBUTION
- C — COMMS DISTRIBUTION
- U — UTILITY

EQUIPMENT SYMBOLS

- 480V DISTRIBUTION BOARD
- 208V DISTRIBUTION BOARD
- 480V BRANCH CIRCUIT PANEL
- 208V BRANCH CIRCUIT PANEL
- LCP — LIGHTING CONTROL PANEL
- LMP — LIGHTING MANAGEMENT PANEL
- 75 — TRANSFORMER, RATING AS INDICATED
- GROUND BAR WITH CONNECTION TO GROUNDING ELECTRODE

ANNOTATION SYMBOLS

- X — NOTE REFERENCE SYMBOL
- X — REVISION REFERENCE SYMBOL
- RELOCATE EXISTING DEVICE
- 12G — FEEDER TAG
- A / X — LIGHT FIXTURE TAG "A" TYPE, "X" QUANTITY
- XX / X — EQUIPMENT TAG

POWER AND DATA SYMBOLS

- MOTOR FURNISHED AND INSTALLED BY OTHERS
- EQUIPMENT TERMINATION/CONNECTION
- LUG TERMINATION/CONNECTION
- JUNCTION BOX

PHASE	240/120V, 1ϕ	240/120V, 3ϕ, HIGH-LEG	208/120V, 3ϕ	480/277V, 3ϕ
A	BLACK	BLACK	BLACK	BROWN
B	RED	RED	RED	ORANGE
C	N/A	ORANGE	BLUE	YELLOW
NEUTRAL	WHITE	WHITE	WHITE	GRAY
GROUND	GREEN	GREEN	GREEN	GREEN

PHASE	DC (600V)	DC (1000V)	DC (1500V)	DC (2000V)
POSITIVE	RED	RED	RED	RED
NEGATIVE	BLACK	BLACK	BLACK	BLACK
GROUND	GREEN	GREEN	GREEN	GREEN

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SCALE: AS NOTED
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LEGEND:

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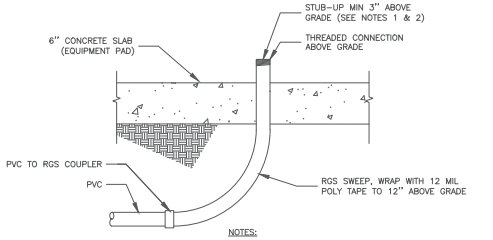
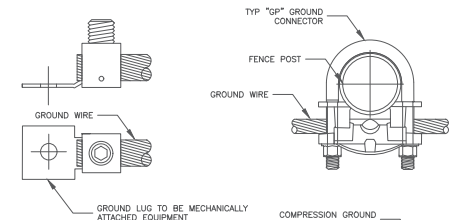


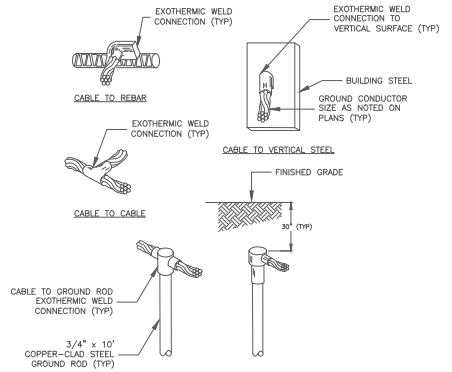
NOTES:

1. INITIALLY INSTALL COUPLING AND CAP TO PREVENT DAMAGE TO STUB-UP UNTIL GEAR IS SET.
2. INSTALL ROUNDED FITTING BEFORE PULLING CABLES TO AVOID DAMAGE TO CABLES.

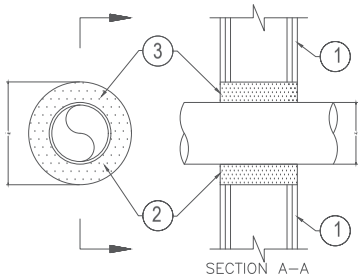
A E0.1.0 EQUIPMENT PAD STUB UP DETAIL
SCALE: N.T.S



C E0.1.0 GROUNDING CONNECTION DETAILS
SCALE: N.T.S



D E0.1.0 GROUNDING CONNECTION DETAILS
SCALE: N.T.S



3" CONDUIT PENETRATION DETAIL

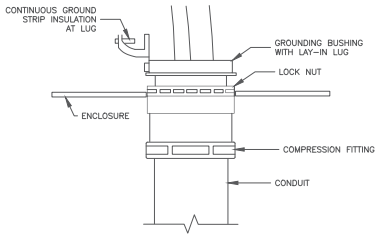
ANSI/UL 1479 (ASTM E814)	
F RATING	2 HOURS
T RATING	0 HOURS
L RATING AT AMBIENT	LESS THAN 1 CFM/SQ.FT
L RATING AT 400 F	LESS THAN 1 CFM/SQ.FT

2-HOUR FIRE-RATED WALL PENETRATION DETAIL, HILTI SYSTEM NO. W-L-1054

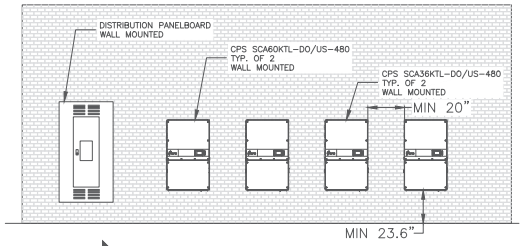
1. WALL ASSEMBLY – SEE 2-HOUR FIRE-RATED WALL ASSEMBLY DETAIL. WHEN THE DIAMETER OF THE OPENING EXCEEDS THE WIDTH OF STUD CAVITY, THE OPENING SHALL BE FRAMED ON ALL SIDES USING LENGTHS OF STEEL STUD INSTALLED BETWEEN THE VERTICAL STUDS AND SCREW-ATTACHED TO THE STEEL STUDS AT EACH END. THE FRAMED OPENING IN THE WALL SHALL BE 4 TO 6 INCHES WIDER AND 4 TO 6 INCHES HIGHER THAN THE DIAMETER OF THE PENETRATING ITEM SUCH THAT, WHEN THE PENETRATING ITEM IS INSTALLED IN THE OPENING, A 2 TO 3 INCH CLEARANCE IS PRESENT BETWEEN THE PENETRATING ITEM AND THE FRAMING ON ALL FOUR SIDES. MAXIMUM DIAMETER OF OPENING IS 32½ INCHES. THE F & FH RATINGS OF THE FIRESTOP SYSTEM ARE EQUAL TO THE FIRE RATING OF THE WALL ASSEMBLY.
2. THROUGH-PENETRANTS – ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED WITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE SHALL BE MINIMUM 0 IN. TO MAXIMUM 2-1/4 INCHES. PIPE MAY BE INSTALLED WITH CONTINUOUS POINT CONTACT. PIPE, CONDUIT OR TUBING MAY BE INSTALLED AT AN ANGLE NOT GREATER THAN 45 DEGREES FROM PERPENDICULAR. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
   - 2.1. STEEL PIPE – NOMINAL 30 INCH DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
   - 2.2. IRON PIPE – NOMINAL 30 INCH DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE.
   - 2.3. CONDUIT – NOMINAL 4 INCH DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR 6 INCH DIAMETER STEEL CONDUIT.
   - 2.4. COPPER TUBING – NOMINAL 6 INCH DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
   - 2.5. COPPER PIPE – NOMINAL 6 INCH DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE
3. FILL, VOID OR CAVITY MATERIAL* – SEALANT – MINIMUM ⅜ INCH THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT OR CONTINUOUS CONTACT LOCATIONS BETWEEN PIPE AND WALL, A MINIMUM ⅜ INCH DIAMETER BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE WALL INTERFACE ON BOTH SURFACES OF WALL. HILTI FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT.

* INDICATES SUCH PRODUCTS SHALL BEAR THE UL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL CERTIFICATION.

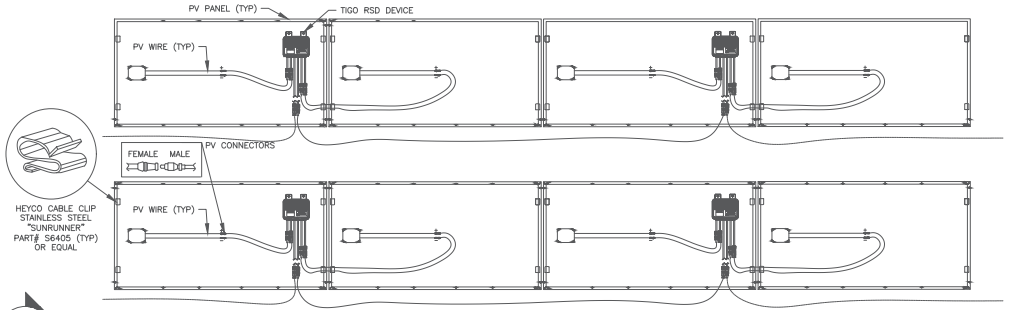
B E0.1.0 WALL PENETRATION DETAIL
SCALE: N.T.S



F E0.1.0 CONDUIT GROUNDING DETAIL
SCALE: N.T.S



G E0.1.0 WALL MOUNTED EQUIPMENT
SCALE: N.T.S



E E0.1.0 PV WIRE MANAGEMENT DETAIL
SCALE: N.T.S

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AS BUILT STAMP ONLY

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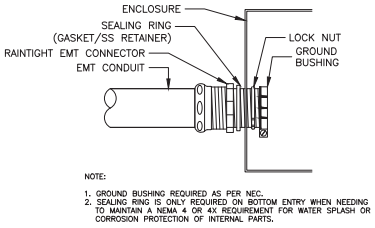
Plan No. 22-67505 Date: 11/29/2022

SAN JOSE WATER COMPANY

CBS – SJW ALMADEN VALLEY
1084 FOXHURST WAY, SAN JOSE, CA 95120

	Ozgur, Naci — DIRECTOR OF ENGR. / DATE	
	DIRECTOR OF OPERATIONS / DATE	
BY: TRIPP HYDE	Walsh, Jake — DIRECTOR OF PLANNING / DATE	REF. NOS. CBS_SJWC
DATE: 02/16/2022	DIRECTOR OF ENGINEERING / DATE	DWG. NO. E0.1.0 DETAILS 01
CHECK / DATE:	Tuttle, Bill — CHIEF ENGINEER / DATE	SHEET 4 OF 27
SCALE: AS SHOWN		



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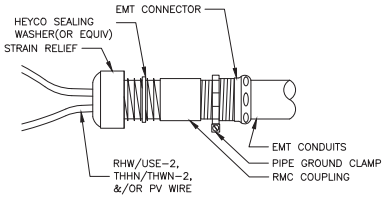

B EO.1.1 WIRE TO EMT
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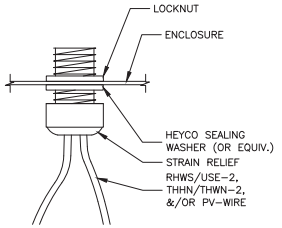

C EO.1.1 WIRE TO ENCLOSURE
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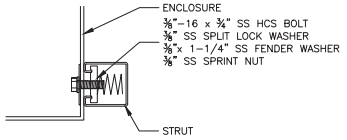

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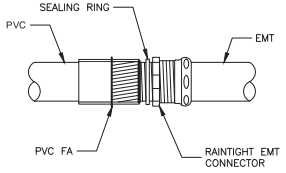

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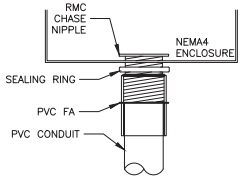
SCALE: N.T.S



F EO.1.1 PVC INTO BOTTOM – EXTERIOR
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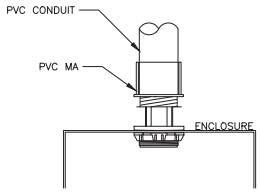

G EO.1.1 PVC INTO TOP – EXTERIOR
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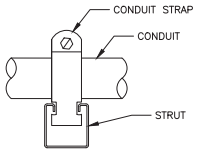
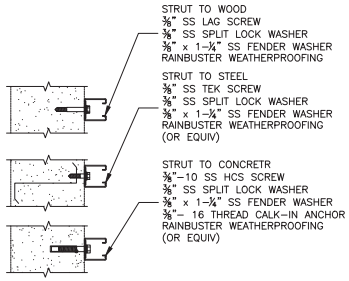
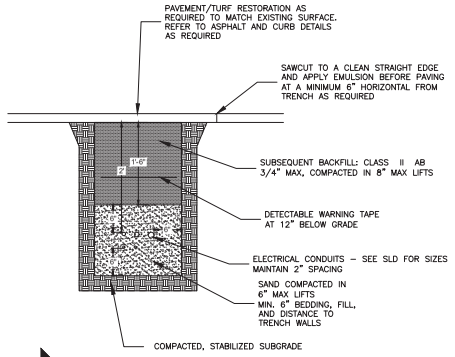


H EO.1.1 STRUT STRAP
SCALE: N.T.S



I EO.1.1 STRUT TO WALL
SCALE: N.T.S



J EO.1.1 AC TRENCH DETAIL
SCALE: N.T.S

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THESE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED BY HYDE ENGINEERING SERVICES, INC. FOR THEIR EXCLUSIVE USE IN ACCORD WITH SEC. 6737.3 OF THE 2015 PROFESSIONAL ENGINEERS ACT OF THE STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
HENRY HOLBROOK HYDE III
21290
ELECTRICAL
STATE OF CALIFORNIA

HYDE ENGINEERING SERVICES

HYDE ENGINEERING SERVICE, INC
4735 WALNUT ST., SUITE #110
BOULDER, CO 80301
INFO@HYDEENG.COM
720-900-1009
WWW.HYDEENG.COM

SCALE: AS NOTED
(PRINT ON 36"X24")

LEGEND:

- RESTRAINED JOINT PIPE *
- UNRESTRAINED PIPE
- ACTIVE WATER MAIN
- PIPE TO BE RETIRED (SEE NOTE FOR AC PIPE REMOVAL)
- SOIL RESISTIVITY
- EXISTING AC CUT
- RECORDED MONUMENT
- FOUND MONUMENT
- COPPER SERVICE KILL & INSTALL
- PLASTIC SERVICE KILL & INSTALL

*USE MEGALUGS W/MJ FITTINGS AND VALVES ON RESTRAINED PIPE.

AS BUILT STAMP ONLY

BY	DATE	REVISION	CK	DATE
CB	09/19/22	AHJ COMMENTS	TH	09/23/22
JM	09/07/22	MODULE CHANGE – BOVIET 450	TH	09/23/22
AA	02/28/22	STRUCTURAL DESIGN ADDED	TH	02/28/22
JM	02/16/22	ADDRESS UPDATE	TH	02/16/22
AK	07/29/21	90% DESIGN – DRAFT 01	TH	07/29/21

CITY OF SAN JOSE APPROVAL STAMP

APPROVED
City of San Jose, Building Division
☒ Electrical
Brian Price (408) 535 7876
Plan No. 22-67 5505 Date: 11/29/2022

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SCALE: AS SHOWN		SHEET 5 OF 27

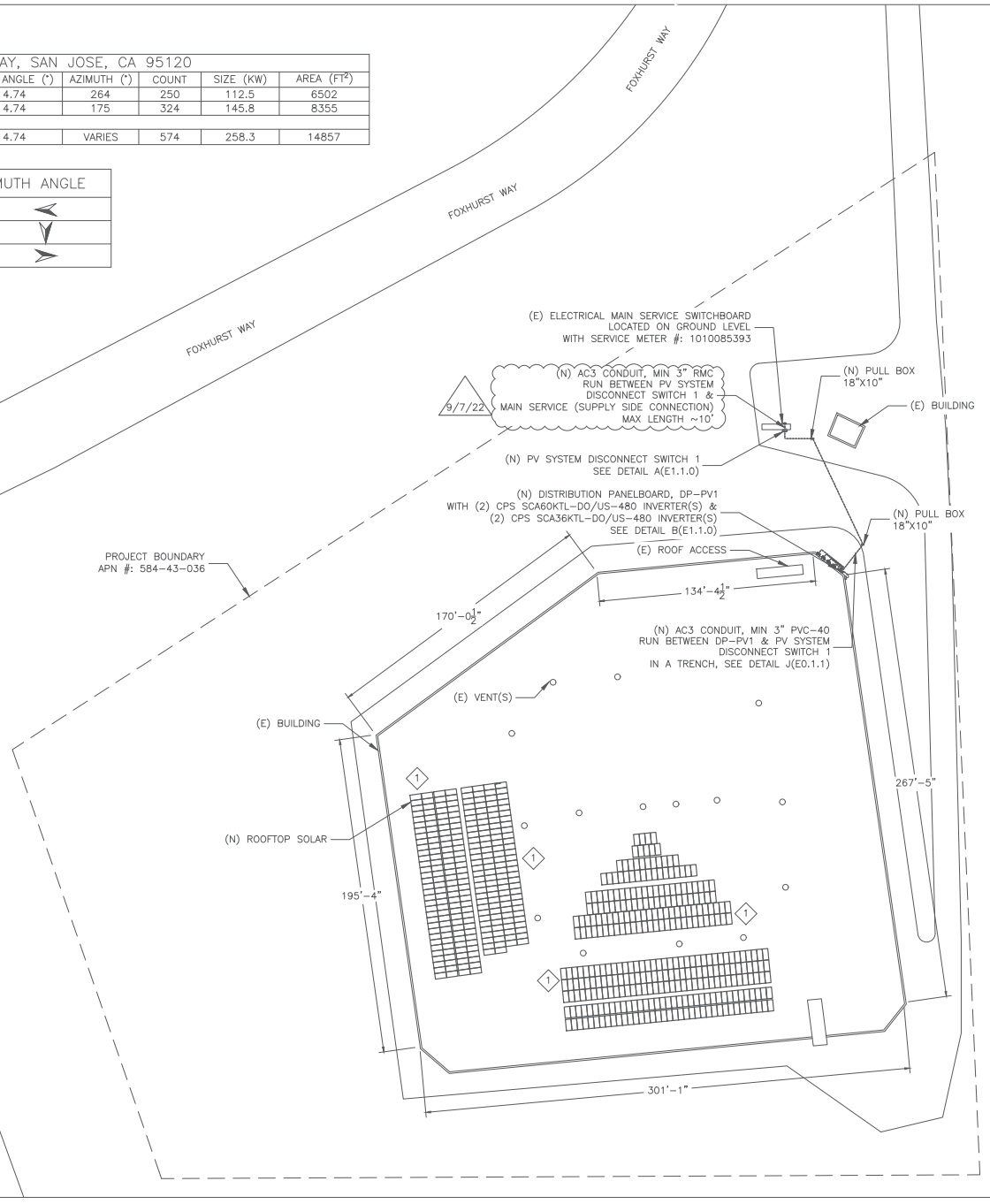
SJW ALMADEN VALLEY– 1128 FOXHURST WAY, SAN JOSE, CA 95120							
PV ARRAY	EQUIPMENT	DIMENSION	TILT ANGLE (°)	AZIMUTH (°)	COUNT	SIZE (KW)	AREA (FT^2)
ROOF MOUNT	BOVIET BVM6612M–450S–H–HC–BF–DG	84.06" X 41.19"	4.74	264	250	112.5	6502
ROOF MOUNT	BOVIET BVM6612M–450S–H–HC–BF–DG	84.06" X 41.19"	4.74	175	324	145.8	8355
TOTAL	BOVIET BVM6612M–450S–H–HC–BF–DG	84.06" X 41.19"	4.74	VARIES	574	258.3	14857

UTILITY: PG&E				
INVERTER	STRINGS	QTY	INTXN (V)	METER NO
CPS SCA36KTL–DO/US–480	MAX 10	2	480VAC	1010085393
CPS SCA60KTL–DO/US–480	MAX 12	2	480VAC	1010085393
TOTAL	41	4		

AZIMUTH ANGLE	
90°	
180°	
270°	

SHEET LEGEND

- PV MODULES
- HVAC
- SKYLIGHT
- VENTS
- HATCH
- DISH
- (E) CONDUIT



GENERAL NOTES:

1. OPERATIONS SHALL BE COMPLIANT WITH STANDARDS AND REGULATIONS OUTLINED IN NFPA 70E.
2. CAL FIRE 2.2.3 A STATES THAT ARRAYS SHOULD BE NO GREATER THAN 150 BY 150 FEET IN DISTANCE IN EITHER AXIS.
3. 8' CENTERLINE PATHWAYS 2.2.3(B)(1) OR 4' OR GREATER IN WIDTH PATHWAY AND BORDERING 4'X8' "VENTING CONDUITS" EVERY 20' ON ALTERNATING SIDES OF THE PATHWAY.
4. CONDUIT RUNS BETWEEN SUB ARRAYS AND TO DC COMBINER BOXES SHOULD USE DESIGN GUIDELINES THAT MINIMIZE TOTAL AMOUNT OF CONDUIT ON THE ROOF BY TAKING THE SHORTEST PATH FROM THE ARRAY TO THE DC COMBINER BOX. THE DC COMBINER BOXES ARE TO BE LOCATED SUCH THAT CONDUIT RUNS ARE MINIMIZED IN THE PATHWAYS BETWEEN ARRAYS.
5. TO LIMIT THE HAZARD OF CUTTING LIVE CONDUIT IN VENTING OPERATIONS, DC WIRING SHOULD BE RUN IN METALLIC CONDUIT OR RACEWAYS WHEN LOCATED WITHIN ENCLOSED SPECS IN A BUILDING AND SHOULD BE RUN, TO THE MAXIMUM EXTENT POSSIBLE, ALONG THE BOTTOM OF LOAD–BEARING MEMBERS.
6. REQUIREMENTS FOR CONTROLLED CONDUCTORS SHALL APPLY ONLY TO PV SYSTEM CONDUCTORS OF MORE THAN 1.5M (5FT) IN LENGTH INSIDE A BUILDING, OR MORE THAN 3M (10FT) FROM THE PV ARRAY IN ACCORDANCE WITH CEC 690.12(2).

SHEET NOTES:

1 PERMANENTLY AFFIX A DURABLE WEATHER AND FADE RESISTANT PLACARD ON OR NEAR THE PHOTOVOLTAIC SYSTEM, VISIBLE FROM ALL SIDES OF ROOF LOCATION. THIS MAY REQUIRE PLACARDS IN MULTIPLE LOCATIONS

9/19/22

N

SCALE: 1/32"–1'

0 32 64 128

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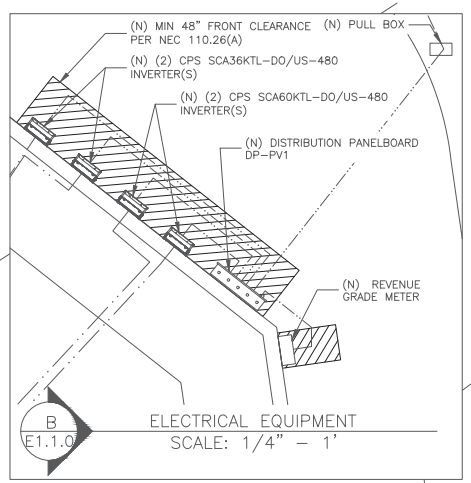
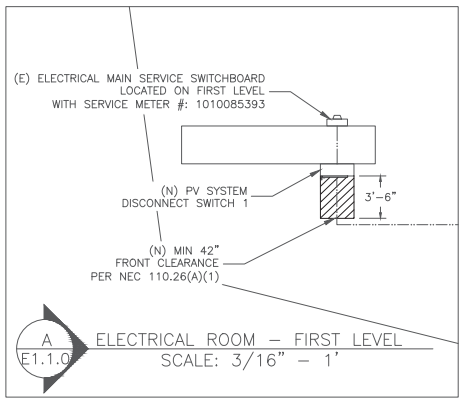
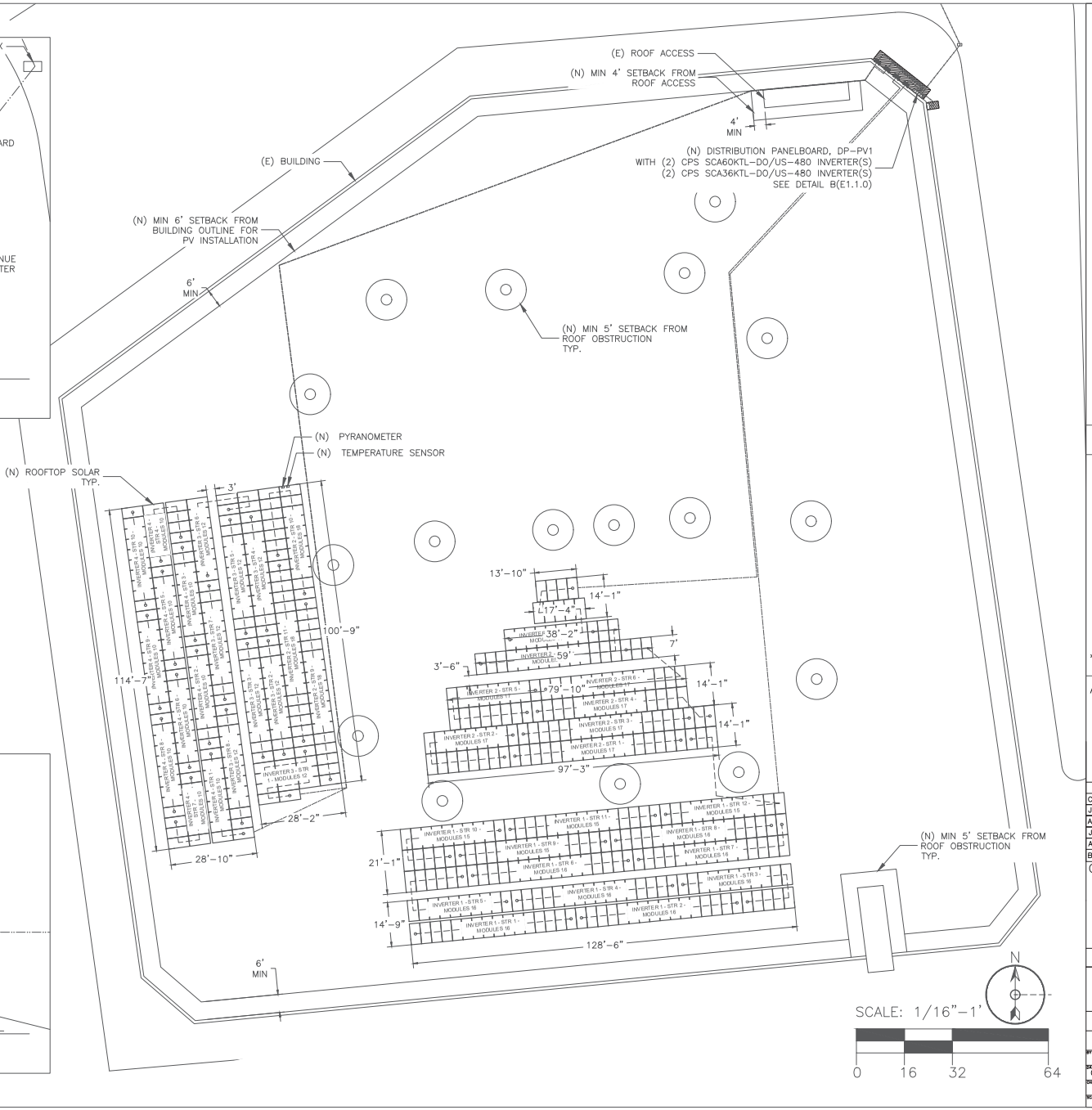
CHECK / DATE	Tuttle, Bill — CHIEF ENGINEER / DATE	SITE PLAN
SCALE: AS SHOWN		SHEET 6 OF 27







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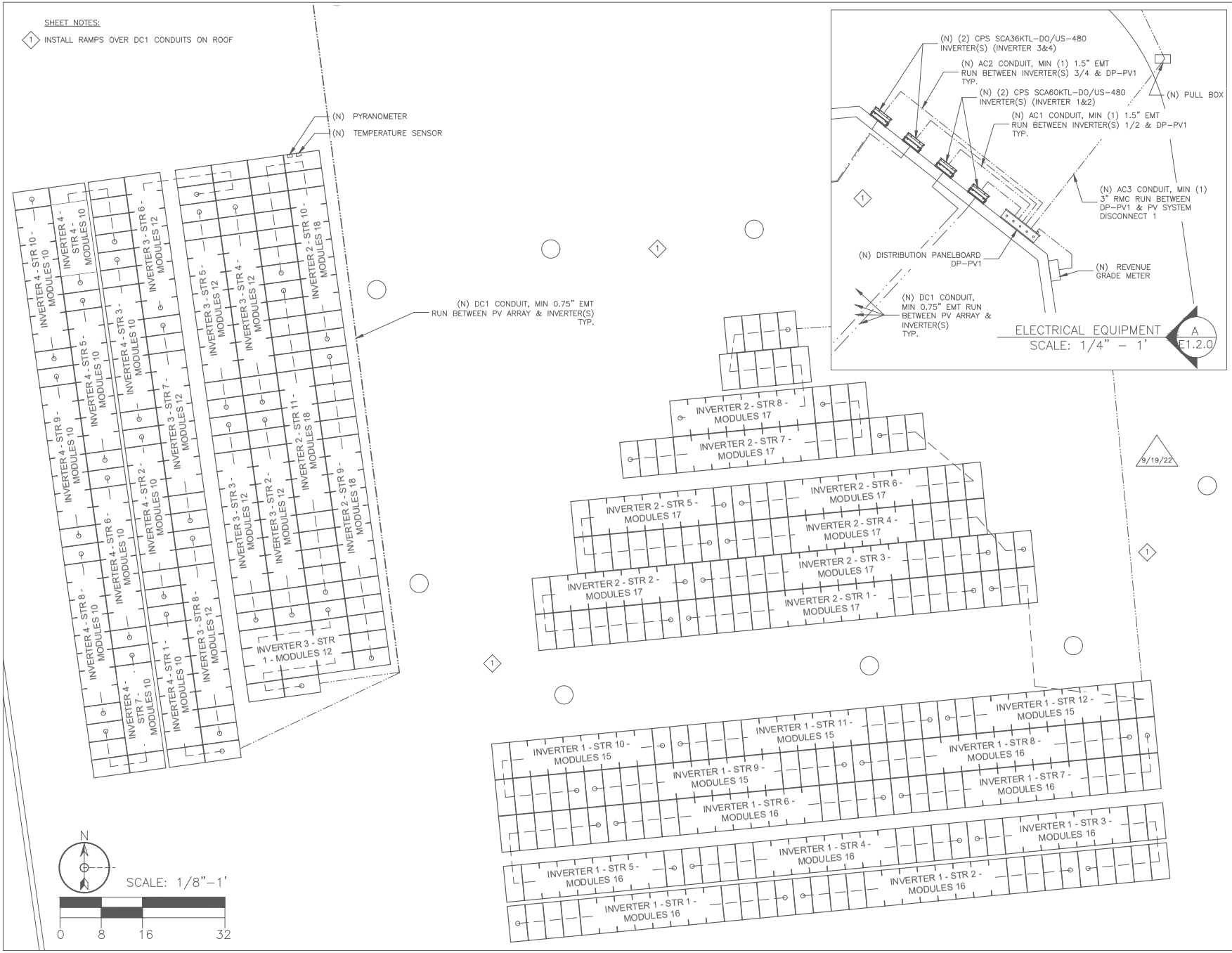
SCALE: AS SHOWN		SHEET 7 OF 27

SHEET NOTES:

1 INSTALL RAMPS OVER DC1 CONDUITS ON ROOF



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CHECK / DATE:	Tuttle, Bill — CHIEF ENGINEER / DATE	SHEET 8 OF 27
SCALE: AS SHOWN		

GENERAL NOTES:

1. ALL EQUIPMENT TO BE LISTED BY A RECOGNIZED NRTL.
2. ALL EQUIPMENT WIRING AND GROUNDING SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDED PRACTICES. REFER TO THE INSTALLATION AND USER MANUALS FOR GUIDANCE.
3. EXPOSED NON-CURRENT CARRYING METAL PARTS OF MODULE FRAMES, EQUIPMENT, AND ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250.134 AND 250.136. CONTRACTOR TO REFER TO MANUFACTURES INSTALLATION MANUAL FOR APPROVED METHOD OF GROUNDING.
4. ALL EXPOSED RACEWAY OPENINGS SHALL BE SEALED USING A SUITABLE METHOD TO PREVENT ENTRY OF INSECTS.
5. NEW OCPD SHALL HAVE THE SAME INTERRUPTING CURRENT RATING(KAIC) AS THE RATING OF THE PANELBOARD OR SWITCHBOARD IN WHICH THEY ARE LOCATED.
6. THE UTILITY COMPANY MUST BE NOTIFIED PRIOR TO USE AND ADDITIONAL DETAILS.
7. HYDE ENGINEERING SERVICES, INC IS NOT RESPONSIBLE FOR ENGINEERING ON EXISTING CIRCUITS.
8. BONDING SHALL BE PROVIDED WHERE NECESSARY TO ENSURE ELECTRICAL CONTINUITY AND CAPACITY TO CONDUCT SAFETY.
9. SYSTEM INCLUDING CONDUIT AND CONDUCTORS SHALL BE INSTALLED IN A NEAT AND A WORKMANLIKE MANNER IN ACCORDANCE WITH NEC 110.12.
10. ALL ELECTRICAL EQUIPMENT EXPOSED RACEWAYS, CONDUCTORS, AND CONNECTIONS SHALL BE MECHANICALLY SECURED VIA HARDWARE RATED FOR OUTDOOR AND UV LIGHT EXPOSURE AND WITH A DESIGN LIFE GREATER THAN ANTICIPATED LIFE EXPECTANCY OF THE SYSTEM.
11. ALL PLAQUES, LABELS AND WARNINGS CAN BE FOUND ON THE SHEET E3.0.0 & E3.0.1.

SHEET NOTES:

1. SUPPLY CONNECTION PER NEC 705.12(A) IN CUSTOMER SUPPLY SIDE OF MAIN SERVICE BREAKER. USE MECHANICAL CONNECTORS TO TERMINATE THE CONDUCTORS AT THE FEEDER TAP CONNECTION. CABLE LIMITERS ARE NOT REQUIRED IF THE DISTANCE TO PV SYSTEM FUSED DISCONNECT FROM SUPPLY SIDE CONNECTION IS LESS THAN 10'.
2. USE FERRAZ SHAWMUT AMP-TRAP 2000, CLASS J (AJT300) OR EQUIVALENT TIME DELAY FUSE TO LIMIT 24024A TO 15000A.
3. PV SYSTEM FUSED DISCONNECT SWITCH 1 MUST BE LISTED AND LABELED AS 'SUITABLE TO USE AS SERVICE EQUIPMENT' PER ARTICLE 230.66 OF NEC 2017. INSTALL #2AWG THWN-2 AL NEUTRAL TO GROUND MAIN BONDING JUMPER WIRE WITHIN FUSED DISCONNECT PER ARTICLE 250.24(B) OF NEC.
4. IF ADDITIONAL LUGS ARE NOT AVAILABLE ON THE MAIN BREAKER USE MULTI-PORT ILSCO OR POLARIS CONNECTORS TO TAP CONDUCTORS FOR SOLAR FEEDERS JUST BEFORE MAIN BREAKER TERMINALS.
5. POWER PRODUCTION SOURCE CONDUCTORS CONNECTED TO THE SUPPLY SIDE OF THE SERVICE DISCONNECT MUST BE TERMINATED TO MANUFACTURE LISTED BUSBAR FLAGS OR CONTRACTOR MUST PROVIDE A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) OR APPROVED SAN JOSE 3RD PARTY FIELD EVALUATION REPORT TO THE AUTHORITY HAVING JURISDICTION AT THE TIME OF INSPECTION.

9/7/22

CONDUIT NOTES

DC1: 3 CONDUCTORS PER STRING
AMPHENOL UTX PV CONNECTORS
2-#8AWG PV WIRE CU 1000/2000V CONDUCTOR
1-#6AWG THWN-2 CU EGC/GEC
PV WIRE MUST BE RATED FOR 90°C CU 2000V, DIRECT BURIAL, WET RATED, AND UV RESISTANT

AC1: MIN (1) 1.5" EMT CONDUIT:
3-#1AWG THWN-2 AL 600V
1-#6AWG THWN-2 AL EGC
1-#6AWG THWN-2 AL NEUTRAL(OPTIONAL)
(1) 1" EMT FOR MONITORING
LENGTH ~20'

AC2: MIN (1) 1.5" EMT CONDUIT:
3-#4AWG THWN-2 AL 600V
1-#8AWG THWN-2 AL EGC
1-#8AWG THWN-2 AL NEUTRAL(OPTIONAL)
(1) 1" EMT FOR MONITORING
LENGTH ~20'

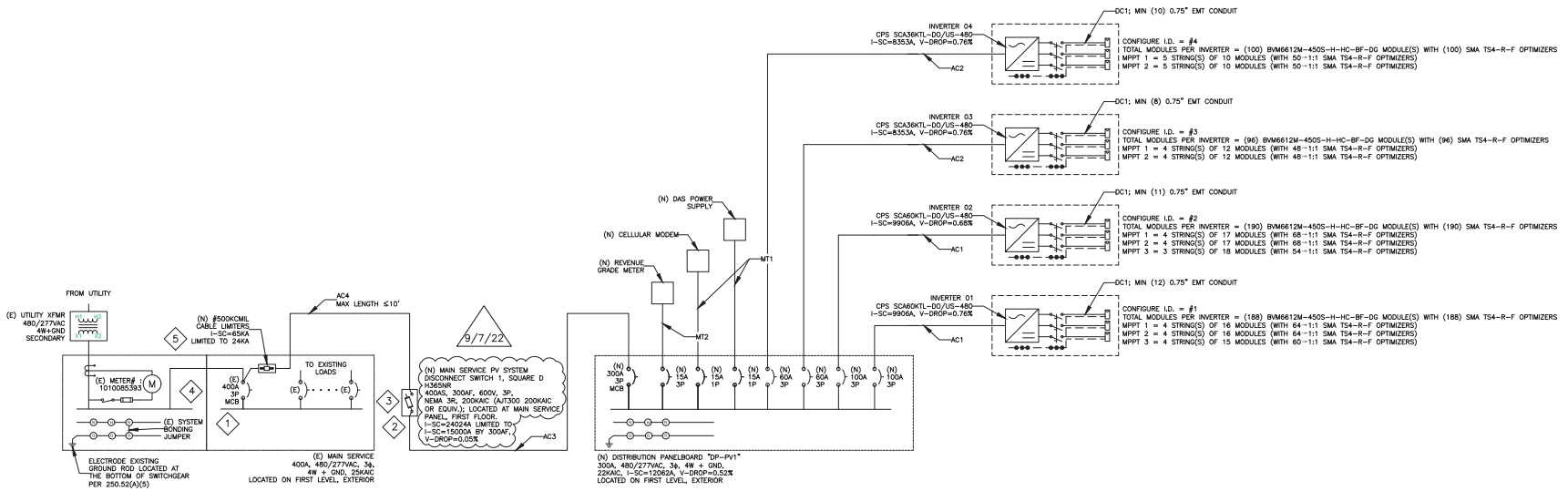
AC3: MIN (1) 3" EMT/PVC CONDUIT:
3-#500KCMIL THWN-2 AL 600V
1-#2AWG THWN-2 AL EGC
1-#2AWG THWN-2 AL NEUTRAL
LENGTH ~ 100'

AC4: MIN (1) 3" RMC CONDUIT:
3-#500KCMIL THWN-2 AL 600V
1-#1/0AWG THWN-2 AL GEC
1-#1/0AWG THWN-2 AL NEUTRAL
LENGTH ~ 10'

9/7/22

MT1: MIN (1) 1" EMT CONDUIT:
2-#12AWG THWN-2 AL 600V
1-#12AWG THWN-2 AL EGC

MT2: MIN (1) 1" EMT CONDUIT:
3-#12AWG THWN-2 AL 600V
1-#12AWG THWN-2 AL EGC
1-#12AWG THWN-2 AL NEUTRAL



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BY	DATE	REVISION	CK	DATE

CITY OF SAN JOSE APPROVAL STAMP

APPROVED
City of San Jose, Building Division
Electrical
Brian Price (408) 535 7876
Plan No. 22-67505 Date: 11/29/2022

SAN JOSE WATER COMPANY

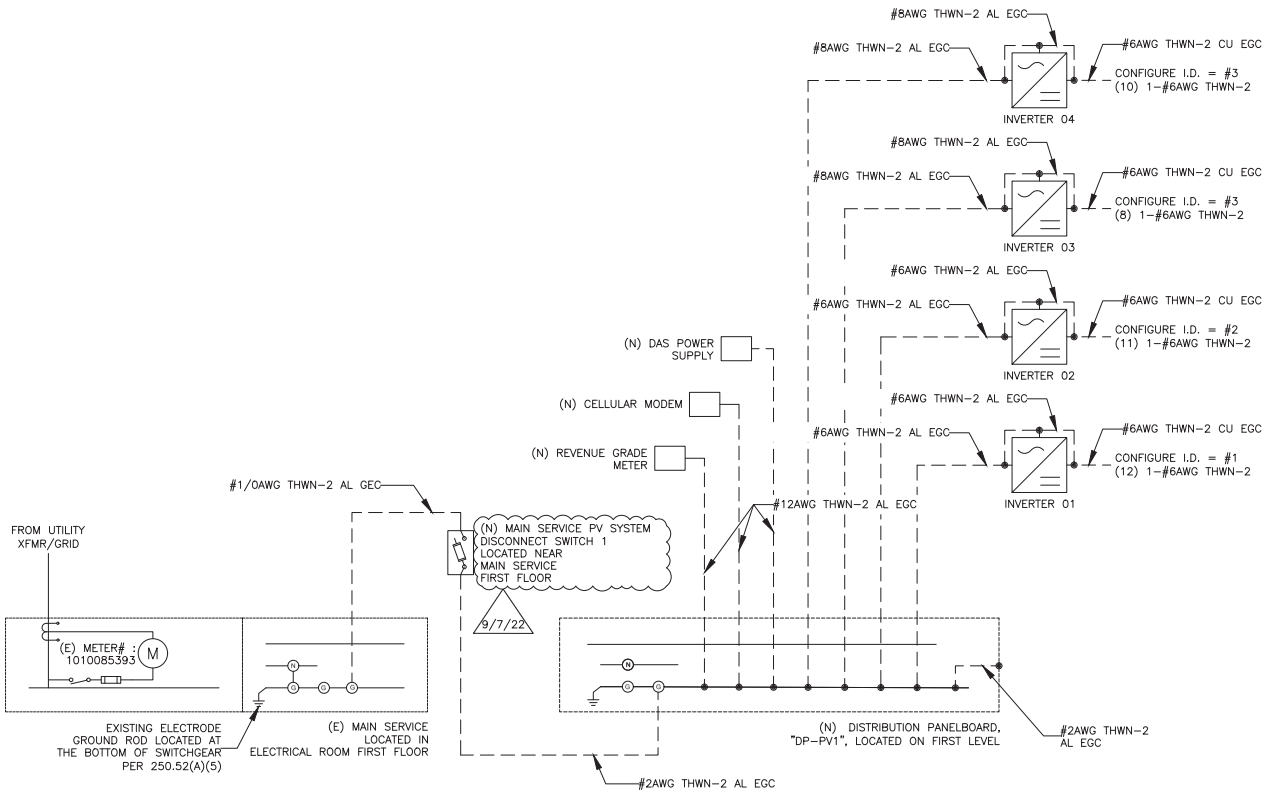
CBS - SJW ALMADEN VALLEY
1084 FOXHURST WAY, SAN JOSE, CA 95120

	Ozgur, Naci — DIRECTOR OF ENGR. / DATE	
	Walsh, Jake — DIRECTOR OF OPERATIONS / DATE	
BY: TRIPP HYDE	Tuttle, Bill — DIRECTOR OF PLANNING / DATE	REF. NOS. CBS_SJWC
DATE: 02/16/2022	DIRECTOR OF ENGINEERING / DATE	DWG. NO. E2.0.0 SLD
CHECK / DATE	CHIEF ENGINEER / DATE	
SCALE: AS SHOWN		SHEET 9 OF 27

GENERAL NOTES:

1. SEE SINGLE LINE FOR ADDITIONAL INFORMATION ON E2.0.0
2. GROUND WIRE TO BE PROTECTED FROM PHYSICAL DAMAGE, PER NEC 250.120(C)
3. GROUNDING EARTH RESISTANCE SHALL NOT EXCEED 25 OHMS. IF A SINGLE ROD, PIPE OR PLATE HAS AN EARTH RESISTANCE IN EXCESS OF 25 OHMS, SUPPLEMENTAL GROUNDING ELECTRODES SHALL BE ADDED AT 6 FEET MAXIMUM INTERVALS TO ACHIEVE EARTH RESISTANCE LESS THAN 25OHMS.
4. COMBINED DC GROUNDING ELECTRODE CONDUCTOR (GEC) AND AC EQUIPMENT GROUNDING MUST COMPLY PER 690.47(C). USE COPPER CONDUCTORS ONLY.
5. GEC IS PROTECTED UNDER ARRAY ON ROD AND CONDUIT WHEN TRANSITIONING FROM ARRAY DOWN TO INVERTERS. GROUNDING ELECTRODE SIZED PER ART 250.64
6. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE CONNECTED TO THE GROUNDING ELECTRODE CONDUCTOR AT THE BUILDING SUPPORTING THE PV ARRAY(S) PER ART. 250 PART III.

9/7/22



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SCALE: AS NOTED
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LEGEND:

- RESTRAINED JOINT PIPE *
- UNRESTRAINED PIPE
- ACTIVE WATER MAIN
- PIPE TO BE RETIRED (SEE NOTE FOR AC PIPE REMOVAL)
- SOIL RESISTIVITY
- EXISTING AC CUT
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*USE MEGALUGS W/MJ FITTINGS AND VALVES ON RESTRAINED PIPE.

AS BUILT STAMP ONLY

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SCALE: AS SHOWN		SHEET 10 OF 27

DESIGN CRITERIA	
STC TEMPERATURE (C)	25.00
ASHRAE 0.4% HIGH AMBIENT TEMPERATURE (C)	36.00
ASHRAE EXTREME MIN. LOW AMBIENT TEMPERATURE (C)	0.00
VOLTAGE TEMPERATURE COEFFICIENT (%/C)	−0.30
TEMPERATURE DIFFERENCE LOW TEMP −25C (C)	−25.00
COLD WEATHER VOLTAGE ADJUSTMENT (V)	3.68

MODULE DESIGN SPECIFICATION	
MANUFACTURER	BOVIET SOLAR USA
PV MODULE	BVM6612M-450S-H-HC-BF
MODULE POWER (W)	450
OPEN CIRCUIT VOLTAGE (V)	49.05
VOLTAGE TEMPERATURE COEFFICIENT (%/C)	−0.30
POWER TEMPERATURE COEFFICIENT (%/C)	−0.37
CURRENT TEMPERATURE COEFFICIENT (%/C)	0.06
LOAD VOLTAGE (V)	40.76
LOAD CURRENT (A)	11.06
SHORT−CIRCUIT CURRENT (A)	11.6

MAX CONDUCTORS IN EMT CONDUIT, PER NEC 2017

PV SOURCE CIRCUITS	NO OF CONDUCTORS	MIN CONDUIT SIZE (INCHES)	CONDUIT TYPE	SIZE OF THE CONDUCTORS	GROUND SIZE (ONE PER CONDUIT)
3	6	0.75	EMT	10 AWG	6 AWG
4	8	1	EMT	10 AWG	6 AWG
7	14	1.25	EMT	8 AWG	6 AWG
10	20	1.5	EMT	8 AWG	6 AWG
17	34	2	EMT	8 AWG	6 AWG
25	50	2.5	EMT	6 AWG	6 AWG
25	50	3	EMT	6 AWG	6 AWG
25	50	3.5	EMT	6 AWG	6 AWG
25	50	4	EMT	6 AWG	6 AWG

MAX CONDUCTORS IN PVC CONDUIT, PER NEC 2017

PV SOURCE CIRCUITS	NO OF CONDUCTORS	MIN CONDUIT SIZE (INCHES)	CONDUIT TYPE	SIZE OF THE CONDUCTORS	GROUND SIZE (ONE PER CONDUIT)
4	8	0.75	PVC	10 AWG	6 AWG
5	10	1	PVC	8 AWG	6 AWG
8	16	1.25	PVC	8 AWG	6 AWG
12	24	1.5	PVC	8 AWG	6 AWG
19	38	2	PVC	8 AWG	6 AWG
21	42	2.5	PVC	6 AWG	6 AWG
25	50	3	PVC	6 AWG	6 AWG
25	50	3.5	PVC	6 AWG	6 AWG
25	50	4	PVC	6 AWG	6 AWG

INVERTER & ARRAY SPECIFICATION

CONFIGURE I.D.#		#1	#2	#3	#4
INVERTER LOCATION		ROOF	ROOF	ROOF	ROOF
PG&E POI METER #		1010085393			
INVERTER BRAND		CHINT POWER SYSTEMS	CHINT POWER SYSTEMS	CHINT POWER SYSTEMS	CHINT POWER SYSTEMS
INVERTER MODEL		CPS SCA60KTL-DO/US-480	CPS SCA60KTL-DO/US-480	CPS SCA36KTL-DO/US-480	CPS SCA36KTL-DO/US-480
RATED AC POWER OUTPUT (KW)		60	60	36	36
NOM. AC VOLTAGE (V)		480	480	480	480
MAX. DC INPUT CURRENT (A)		204.00	204.00	125.00	125.00
MIN. VOLTAGE START−UP (V)		330	330	320	320
INVERTER QUANTITY		1	1	1	1
INVERTER AC OUTPUT CURRENT (A)		72.2	72.2	43.5	43.5
SAFETY FACTOR 690.8(B)(1)		1.25	1.25	1.25	1.25
MAX. CONTINUOUS CURRENT (A)		90.25	90.25	54.375	54.375
NUMBER OF MPPT		3	3	2	2
MAX AC CONDUIT SIZE		#6AWG - #3/0AWG	#6AWG - #3/0AWG	#6AWG - #3/0AWG	#6AWG - #3/0AWG
RSD RATIO		SMA TS4-R-F [1:1]	SMA TS4-R-F [1:1]	SMA TS4-R-F [1:1]	SMA TS4-R-F [1:1]
NUMBER OF INPUTS PER MPPT		5	5	5	5
MPPT 1:	# OF STRINGS	4	4	4	5
	# OF MODS	16	17	12	10
MPPT 2:	# OF STRINGS	4	4	4	5
	# OF MODS	16	17	12	10
MPPT 3:	# OF STRINGS	4	3		
	# OF MODS	15	18		
RATED VOLTAGE (PER PANEL) (V)		40.76	40.76	40.76	40.76
MAX. OPEN CIRCUIT VOLTAGE (PER PANEL) (V)		52.73	52.73	52.73	52.73
MAX. PANELS PER STRING		16	18	12	10
MAX. OPEN CIRCUIT VOLTAGE (V)		843.66	949.12	632.75	527.29
MAX DC INPUT VOLTAGE AT INVERTER (V)		1000	1000	1000	1000
OPERATING VOLTAGE (PER STRING) (V)		712.48	801.55	534.36	445.30
SHORT−CIRCUIT CURRENT(PER STRING) (A)		11.6	11.6	11.6	11.6
PEAK OPERATION SAFETY FACTOR 690.8(B)(1)		1.25	1.25	1.25	1.25
CONTINUOUS CURRENT RATING (A)		14.50	14.50	14.50	14.50
SAFETY FACTOR 690.8(B)(1)		1.25	1.25	1.25	1.25
MAX. STRING CONTINUOUS CURRENT (A)		18.13	18.13	18.13	18.13
MAX. STRING LOAD CURRENT (A)		13.83	13.83	13.83	13.83
INPUT CURRENT PER MPPT (A)		44.53	44.53	44.53	55.66
PTC RATING (W)		422.10	422.10	422.10	422.10
INVERTER EFFICIENCY (%)		98.50	98.50	98.00	98.00
CEC−AC RATING (KW)		78.16	79.00	39.71	41.37
MAX INPUT CURRENT PER INVERTER (A)		140.12	128.44	93.41	116.77
RATED MAX DC INPUT POWER(KW)		90.00	90.00	54.00	54.00
DC POWER (KW)		84.75	85.65	43.28	45.08
AC POWER (KW)		60.00	60.00	36.00	36.00
DC/AC RATIO (%)		141.25	142.76	120.21	125.22
TOTAL MODULE QUANTITY PER #C_I.D		188	190	96	100
TOTAL MODULE QUANTITY PER AREA		188	190	96	100
TOTAL MODULE QUANTITY PER PROJECT		574			
TOTAL INVERTER QUANTITY		4			
TOTAL RSD/OPTMIZER QUANTITY		574			
TOTAL KWDC OF THE PROJECT (KW)		258.30			
TOTAL KWAC OF THE PROJECT (KW)		192.00			
TOTAL CEC−AC RATING OF THE PROJECT (KW)		238.24			
DC/AC RATIO (%)		134.53			

CONDUCTOR	OCPD	NO OF CONDUCTORS	AREA OF CONDUCTOR (Ch9 T5)	SUB-TOTAL AREA OF CONDUCTOR	GROUND SIZE	GROUND TYPE	MATERIAL PROPERTY	NO OF GROUNDING CONDUCTOR	AREA OF CONDUCTOR (Ch9 T5)	SUB-TOTAL AREA OF CONDUCTOR	NEUTRAL SIZE	NEUTRAL TYPE	MATERIAL PROPERTY	NO OF NEUTRAL CONDUCTOR	AREA OF CONDUCTOR (Ch9 T5)	SUB-TOTAL AREA OF CONDUCTOR	TOTAL AREA OF CONDUCTOR	CONDUIT TYPE	CONDUIT SIZE	AREA OF CONDUCTOR Ch9 T4	MAX FILL CONDUIT	ACTUAL FILL CONDUIT	AFC INITIAL	AFC FINAL
DC1	20	2	0.0366	0.0732	6 AWG	THWN-2	CU 1000/2000V	1	0.0507	0.0507	N/A	N/A	N/A	N/A	N/A	N/A	0.1239	EMT	0.75	0.213	40	23.27	-	-
AC1	100	3	0.1562	0.4686	6 AWG	THWN-2	AL 600V	1	0.0507	0.0507	6 AWG	THWN_2	AL 600V	1	0.0507	0.0507	0.57	EMT	1.5	0.814	40	28.01	12062.05	9906.20
AC2	60	3	0.0824	0.2472	8 AWG	THWN-2	AL 600V	1	0.0366	0.0366	8 AWG	THWN_2	AL 600V	1	0.0366	0.0366	0.3204	EMT	1.5	0.814	40	15.74	12062.05	8353.47
AC3	300	3	0.7073	2.1219	2 AWG	THWN-2	AL 600V	1	0.1158	0.1158	2 AWG	THWN_2	AL 600V	1	0.1158	0.1158	2.3535	PVC	3	3.278	40	28.72	15000.00	12062.05
AC4	N/A	3	0.7073	2.1219	1/0 AWG	THWN-2	AL 600V	1	0.1855	0.1855	1/0 AWG	THWN_2	AL 600V	1	0.1855	0.1855	2.4929	RMC	3	3	40	33.24	25000.00	24024.72

9/7/22

CONDUCTOR	PATH	MAX CURRENT (A)	MAX CURRENT * 125% (A)	SIZE	TYPE	MATERIAL PROPERTIES	ONE WAY LENGTH (FT)	CONDUCTOR AMPACITY	COLUMN RATING TABLE 310.15(B)(2)(16)	ENCLOSURE	ABOVE SURFACE	310.15(B)(3)(C) HIGH AMBIENT TEMP IN SUNLIGHT	TEMP DERATING 310.15(B)(2)(A)	BUNDLE ADJUSTMENT FACTOR 310.15(b)(3)(A)	NO OF CONDUCTORS IN PARALLEL	DERATED CONDUCTOR AMPACITY	MIN TERMINAL SIZE	TERMINAL AMPACITY 75C	EQUIPMENT OCPD	VOLTAGE	RESISTANCE (OHM/FT)	V-DROP (V)	PHASING	VOLTAGE DROP AT LOAD(%)
DC1	MODULE TO INVERTER	15.00	18.75	8 AWG	PV WIRE	CU 1000/2000V	400	55	90	IN CONDUIT	N/A	36	0.91	1	1	50.05	8 AWG	50	20	445.30	0.00078	11.70	2.00	2.63
AC1	INVERTER (CPS SCA60KTL-DO/US-480) TO PANELBOARD, DP-PV1	72.20	90.25	1 AWG	THWN-2	AL 600V	20	115	90	IN CONDUIT	N/A	36	0.91	1	1	104.65	1 AWG	100	100	480	0.00025	0.78	1.73	0.16
AC2	INVERTER (CPS SCA36KTL-DO/US-480) TO PANELBOARD, DP-PV1	43.50	54.38	4 AWG	THWN-2	AL 600V	20	75	90	IN CONDUIT	N/A	36	0.91	1	1	68.25	4 AWG	65	60	480	0.00051	0.96	1.73	0.20
AC3	DP-PV1 TO PV SYSTEM DISCONNECT	231.40	289.25	500 KCMIL	THWN-2	AL 600V	100	350	90	IN CONDUIT	N/A	36	0.91	1	1	318.5	500 KCMIL	310	300	480	0.000045	2.25	1.73	0.47
AC4	PV SYSTEM DISCONNECT TO MAIN SERVICE METER	231.40	289.25	500 KCMIL	THWN-2	AL 600V	10	350	90	IN CONDUIT	N/A	36	0.91	1	1	318.5	500 KCMIL	310	N/A	480	0.000045	0.23	1.73	0.05

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THESE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED BY HYDE ENGINEERING SERVICES, INC. FOR THEIR EXCLUSIVE USE IN ACCORD WITH SEC. 6737.3 OF THE 2015 PROFESSIONAL ENGINEERS ACT OF THE STATE OF CALIFORNIA

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LEGEND:

- RESTRAINED JOINT PIPE *
- UNRESTRAINED PIPE
- ACTIVE WATER MAIN
- PIPE TO BE RETIRED (SEE NOTE FOR AC PIPE REMOVAL)
- @1'-4' LAYER DEPTH / @4'-8' LAYER DEPTH — SOIL RESISTIVITY
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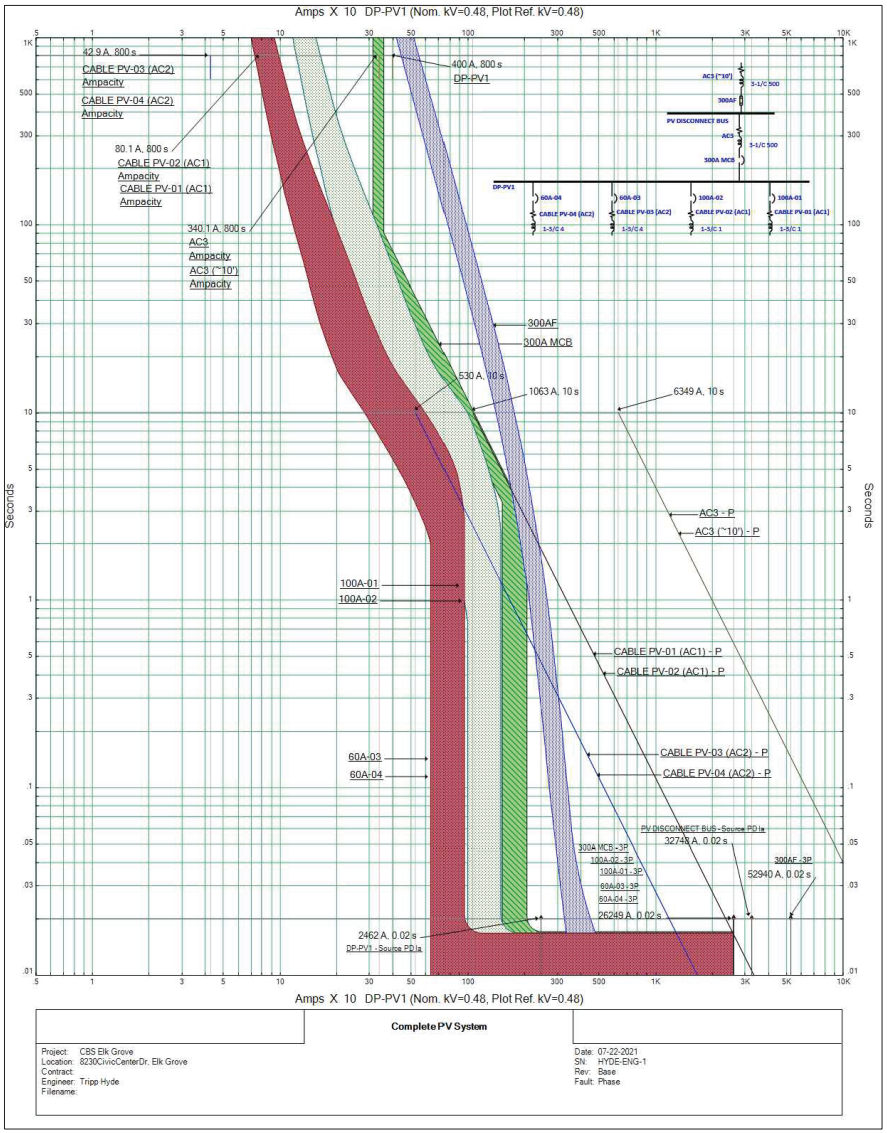

Complete PV System

Project: CBS Elk Grove	Date: 07-22-2021
Location: 8230CivicCenterDr, Elk Grove	SN: HYDE-ENG-1
Contract:	Rev: Base
Engineer: Tripp Hyde	Fault: Phase
Filename:	

TCC CURVE – SELECTIVE COORDINATION STUDY

COORDINATION STUDY NOTES:

1. ETAP, VERSION 20.6, SOFTWARE PACKAGE WAS USED IN THE COURSE OF THIS ANALYSIS.
2. ELECTRICAL SYSTEM CHANGES WITHIN THE FACILITY OR IN THE UTILITY SYSTEM CAN HAVE A SIGNIFICANT IMPACT ON THE RESULTS OF THIS POWER SYSTEM ANALYSIS, WHICH IS A "SNAPSHOT" OF AS-FOUND OR PROPOSED SYSTEM CONDITIONS. AS SUCH, IT IS RECOMMENDED THAT THIS ANALYSIS BE RE-EVALUATED ON A REGULAR BASIS, NOT TO EXCEED 5 YEARS, TO ACCOUNT FOR ELECTRICAL SYSTEM CHANGES. FAILURE TO PROPERLY MAINTAIN EQUIPMENT MAY INVALIDATE THESE RESULTS.
3. BASED ON THE INFORMATION PROVIDED, THE SYSTEM WAS COORDINATED AS BEST AS POSSIBLE USING SCHNEIDER ELECTRIC SQUARE D & LITTLEFUSE OVERCURRENT PROTECTION DEVICES. COORDINATION WAS ACHIEVED THROUGH MOST LONG AND SHORT TIME REGIONS, BUT PERFECT COORDINATION WAS NOT POSSIBLE IN THE INSTANTANEOUS REGIONS PRIMARILY DUE TO THE USE OF LV SOLID STATE TRIP DEVICES WITH FIXED TRIP SETTINGS FOR THE LOWER AMPERAGE CIRCUITS, WHICH WAS EXPECTED. A POTENTIAL SOLUTION WOULD BE TO PROCURE LV SOLID STATE TRIP DEVICES WITH SHORT-TIME-DELAY FUNCTIONALITY.
4. STUDY ASSUMPTIONS:
   - 4.1. ALL FEEDER LENGTHS ARE EXPECTED TO BE WITHIN 5% ACCURACY, AS THESE ARE DESIGN LENGTHS AND NOT ACTUAL INSTALLATION LENGTHS. THE VARIATION IN THE FEEDER LENGTHS IS NOT EXPECTED TO CHANGE THE ARC FLASH RATINGS OF EQUIPMENT, OR CREATE A PROBLEM WITH THE EQUIPMENT SHORT CIRCUIT DUTY.
   - 4.2. STUDY INPUTS ASSUMPTIONS:
     - 4.2.1. POSITIVE SEQ X/R: 2.324
     - 4.2.2. ZERO SEQ X/R: 1.217
     - 4.2.3. THREE-PHASE ASYMMETRIC FAULT CURRENT = 3634A

Fuse:	**300AF**				
MFR:	Gould Shawmut (Ferraz)	Tag #:		3-Phase kA:	52.94 Sym. (Calc.)
Model:	AJT	kV:	0.600	LG kA:	56.86 Sym. (Calc.)
Speed:	Time Delay	Int. kA:	200.000	Base kV:	0.480 (Calc.)
Size:	300A	Cont. Amp:	300.000		
CB:	**100A-01**				
MFR:	Square-D	Tag #:		3-Phase kA:	26.25 Sym. (Calc.)
Model:	BJ	Rating:	25 kA, 0.6 kV	LG kA:	22.57 Sym. (Calc.)
Size:	100	Cont. Amp:	100.000	Base kV:	0.480 (Calc.)
Thermal Magnetic Trip Device					
MFR:	Square-D	Thermal Trip:	FIXED		
Model:	Powerpact B-frame (60Hz)	Magnetic Trip:	FIXED		
ID:	100A				

CB:	**300A MCB**				
MFR:	Siemens	Tag #:		3-Phase kA:	26.25 Sym. (Calc.)
Model:	SHLD6	Rating:	100 kA, 0.24 kV	LG kA:	22.57 Sym. (Calc.)
Size:	300	Cont. Amp:	300.000	Base kV:	0.480 (Calc.)
LV Solid State Trip Device					
MFR:	Siemens				
Model:	Sensitrip III-LD				
Sensor:	300				
	Phase Setting			Ground Setting	
Long-Time	LT Pickup 1.0			Ground Pickup 0.2	
	LT Band 3			Ground Band 0.1	I^xt=IN
Short-Time	ST Pickup 7				
	ST Band 0.05s	I^xt=OUT			
INST	Inst. Pickup 6				
CB:	**60A-03**				
MFR:	Square-D	Tag #:		3-Phase kA:	26.25 Sym. (Calc.)
Model:	BJ	Rating:	25 kA, 0.6 kV	LG kA:	22.57 Sym. (Calc.)
Size:	60	Cont. Amp:	60.000	Base kV:	0.480 (Calc.)
Thermal Magnetic Trip Device					
MFR:	Square-D	Thermal Trip:	FIXED		
Model:	Powerpact B-frame (60Hz)	Magnetic Trip:	FIXED		
ID:	60A				

RECOMMENDED DEVICE SETTINGS

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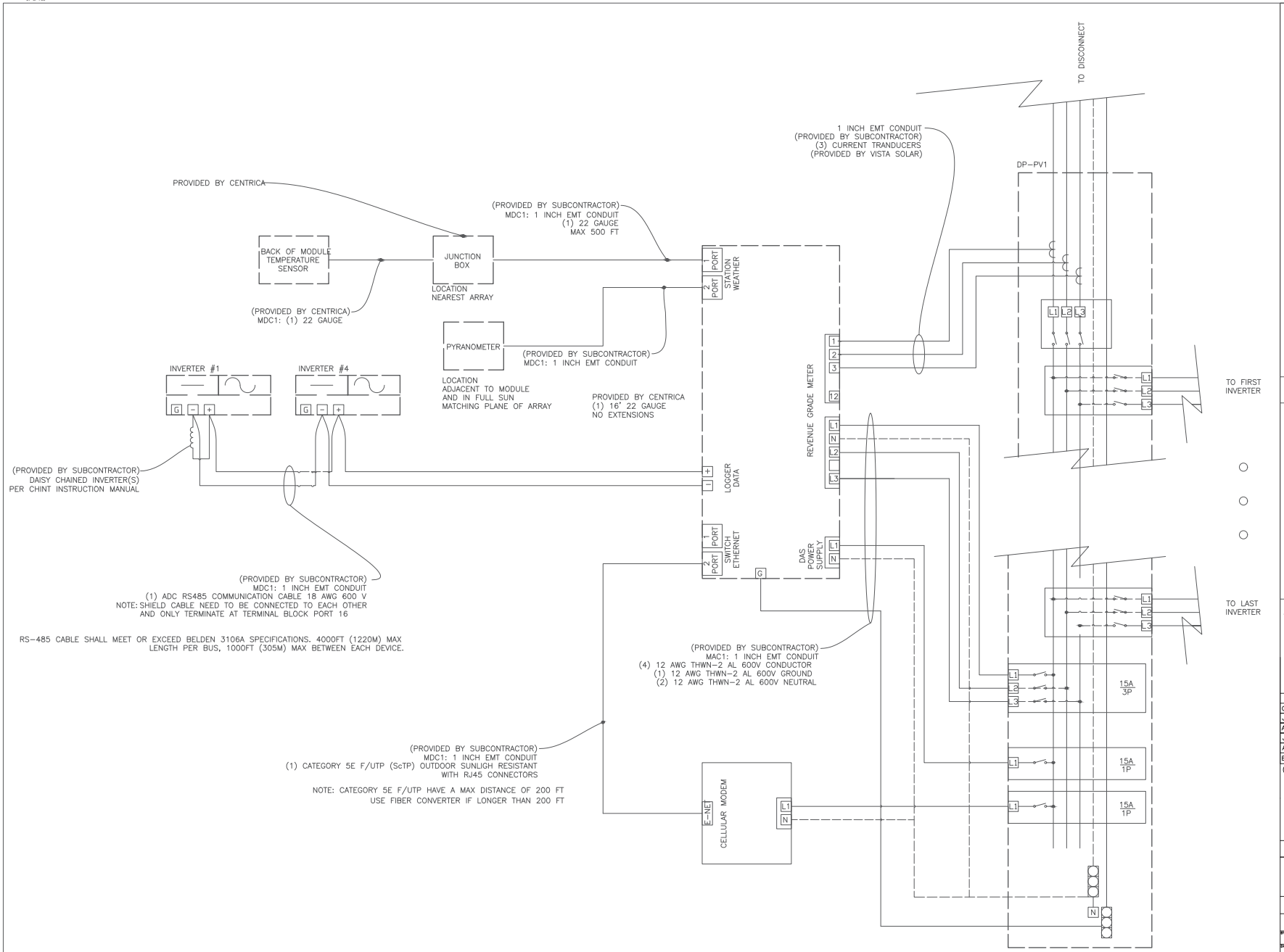

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WWW.HYDEENG.COM

SCALE: AS NOTED
(PRINT ON 36"X24")

LEGEND:

- RESTRAINED JOINT PIPE *
- UNRESTRAINED PIPE
- ACTIVE WATER MAIN
- PIPE TO BE RETIRED (SEE NOTE FOR AC PIPE REMOVAL)
- SOIL RESISTIVITY
- EXISTING AC CUT
- RECORDED MONUMENT
- FOUND MONUMENT
- COPPER SERVICE KILL & INSTALL
- PLASTIC SERVICE KILL & INSTALL

*USE MEGALUGS W/MJ FITTINGS AND VALVES ON RESTRAINED PIPE.

AS BUILT STAMP ONLY

CB	09/19/22	AHJ COMMENTS	TH	09/23/22
JM	09/07/22	MODULE CHANGE – BOVIET 450	TH	09/23/22
AA	02/28/22	STRUCTURAL DESIGN ADDED	TH	02/28/22
JM	02/16/22	ADDRESS UPDATE	TH	02/16/22
AK	07/29/21	90% DESIGN – DRAFT 01	TH	07/29/21
BY	DATE	REVISION	CK	DATE

CITY OF SAN JOSE APPROVAL STAMP

APPROVED
City of San Jose, Building Division
Electrical
Brian Price (408) 535 7876
Plan No. 22-67505 Date: 11/29/2022

SAN JOSE WATER COMPANY

CBS – SJW ALMADEN VALLEY
1084 FOXHURST WAY, SAN JOSE, CA 95120

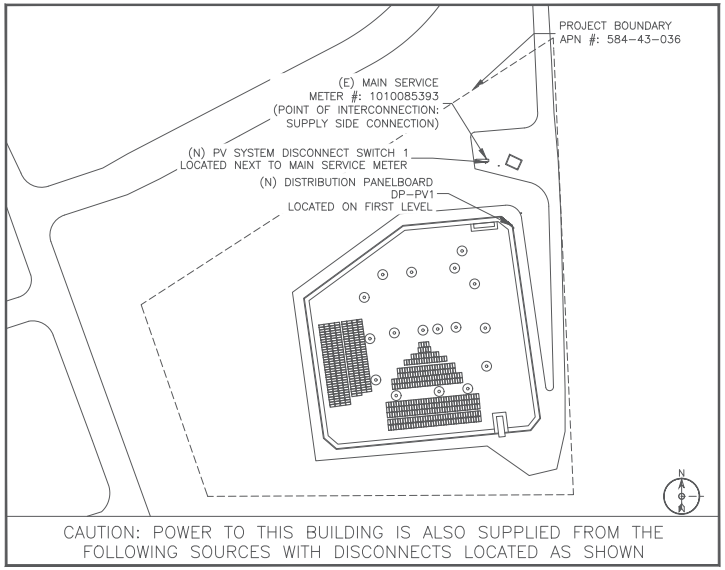
	Ozgur, Naci — DIRECTOR OF ENGR. / DATE	
	DIRECTOR OF OPERATIONS / DATE	
BY: TRIPP HYDE	Walsh, Jake — DIRECTOR OF PLANNING / DATE	REF. NOS. CBS_SJWC
DATE: 02/16/2022	DIRECTOR OF ENGINEERING / DATE	DWG. NO. E2.2.0 COMM PLAN
CHECK / DATE:	Tuttle, Bill — CHIEF ENGINEER / DATE	SHEET 13 of 27
SCALE: AS SHOWN		

LABELS AND WARNINGS:

NOTE:
THE WARNING SIGN(S) OR LABEL(S) SHALL COMPLY WITH NEC ARTICLE 110.21(B). PLAQUES WILL HAVE LETTER ENGRAVED ON A METAL OR PLASTIC PLAQUE. PLAQUES SHALL HAVE A RED BACKGROUND WITH ENGRAVED LETTERING. ATTACH PLAQUE USING OUTDOOR RATED ADHESIVE OR WITH RIVETS OR SCREWS WHILE MAINTAINING ENCLOSURE RATING. THE LABEL SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HAND WRITTEN. THE LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED UNLESS OTHERWISE SPECIFIED ALL LETTERING HEIGHT FOR LABELS AND WARNING SHALL BE 1/4". FONT TYPE TO BE AERIAL NARROW. PLAQUES CONTAINING THE WORD 'WARNING' LETTERING HEIGHT WILL BE 3/4" AERIAL BOLD.

9/19/22

SCHEDULE OF LABELS	
LABEL ID	PLACEMENT LOCATION(S)
L1	DISCONNECT(S), MAIN SERVICE
L2	EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS
L3	MAIN SERVICE, INVERTER(S)
L4	CABLES, ISOLATION DEVICES, FUSE HOLDER
L5	PV SYSTEM AC DISCONNECT SWITCH & INVERTER(S)
L6	DC DISCONNECT(S) & INVERTER(S)
L7	MAIN SERVICE
L8	DC DISCONNECT(S) & INVERTER(S)
L9	PV AC SYSTEM DISCONNECT SWITCH
L10	DC COMBINERS, INVERTERS(S), MAIN SERVICE
L11	MAIN SERVICE DISCONNECT
L12	INVERTER(S)
L13	INVERTER(S)
L14	DP-PV1
L15	MAIN SERVICE, PV AC SYSTEM DISCONNECT SWITCH
L16	PV AC SYSTEM DISCONNECT SWITCH
L17	PV AC SYSTEM DISCONNECT SWITCH
L18	INVERTER: CPS SCA60KTL-DO/US-480
L19	INVERTER: CPS SCA36KTL-DO/US-480
L20	PV AC SYSTEM DISCONNECT SWITCH
L21	PHOTOVOLTAIC SYSTEM (SEE E1.0.0)



CAUTION: POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN

SIGN L7 – LABEL REQUIRED PER CEC690.56(B) AND 705.10
NOTE: MAPS SHALL BE LOCATED AT THE MAIN SERVICE. MAPS LOCATED OUTDOORS SHALL BE ENGRAVED LETTERS ON A METAL OR PLASTIC PLAQUE. MAPS LOCATED INDOORS MAY BE LAMINATED PRINTS. MAPS SHALL HAVE A RED BACKGROUND WITH THE WHITE LETTERING AND ATTACHED USING A SUITABLE ADHESIVE OR WITH RIVETS OR SCREWS WHILE MAINTAINING ENCLOSURE RATING

WARNING

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

SIGN L01 – REQ'D PER NEC 690.13(B)
APPLY TO: DISCONNECT(S), DISTRIBUTION PANEL(S), JUNCTION BOX(ES), COMBINER BOX(ES), SWITCHBOARD(S), MAIN SERVICE

WARNING

DO NOT DISCONNECT UNDER LOAD

SIGN L04 – LABEL REQUIRED PER NEC 690.15(C)
APPLY TO: CABLES, ISOLATING DEVICES PER NEC 690.33, FUSE HOLDER

WARNING

PHOTOVOLTAIC POWER SOURCE

DO NOT TOUCH TERMINALS. DO NOT RELOCATE THIS OVERCURRENT DEVICE

SIGN L02 – REQ'D PER NEC 690.31(G)(3)
APPLY TO: EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS, JUNCTION BOX(ES), CONDUIT BODIES. "WARNING: PHOTOVOLTAOC POWER SOURCE" LABELS ON DC RACEWAYS AND EQUIPMENT. PLACE THESE EVERY 10' AND CHANGES IN DIRECTION

WARNING

PV AC DISCONNECT

SIGN L05 – LABEL REQUIRED PER NEC 690.4(B)
APPLY TO: PV SYSTEM AC DISCONNECT SWITCH

WARNING

PHOTOVOLTAIC SYSTEM COMBINER PANEL

DO NOT ADD LOADS

SIGN L03 – LABEL REQUIRED PER NEC 690.4(D)
APPLY TO: MAIN SERVICE, INVERTER(S)

WARNING

PV DC DISCONNECT

SIGN L06 – LABEL REQUIRED PER NEC 690.4(B)
APPLY TO: INVERTER(S)

centrica Business Solutions

REGISTERED PROFESSIONAL ENGINEER
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21290
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AS BUILT STAMP ONLY

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CITY OF SAN JOSE APPROVAL STAMP

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Brian Price (408) 535 7876
Plan No. 22-67 5505 Date: 11/29/2022

SAN JOSE WATER COMPANY

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Ozgur, Naci — DIRECTOR OF ENGR. / DATE
DIRECTOR OF OPERATIONS / DATE
Walsh, Jake — DIRECTOR OF PLANNING / DATE
DIRECTOR OF ENGINEERING / DATE
Tuttle, Bill — CHIEF ENGINEER / DATE

BY: TRIPP HYDE
DATE: 02/16/2022
CHECK / DATE:
SCALE: AS SHOWN

REF. NOS.: CBS_SJWC
DWG. NO.: E3.0.0
SIGNAGE 01
SHEET 14 OF 27

WARNING

ELECTRIC SHOCK HAZARD

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

SIGN L08 – REQ'D PER NEC 690.13(B)
APPLY TO: DC DISCONNECT(S), INVERTER(S)

WARNING

ELECTRICAL SHOCK HAZARD
IF A GROUND FAULT IS INDICATED, NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

SIGN L12 – REQ'D BY NEC 690.5(C)
APPLY TO: INVERTER(S)

MAXIMUM OPERATING CURRENT: 231A
OPERATING VOLTAGE: 480V

SIGN L17 – REQ'D: NEC 690.54
APPLY TO: PV SYSTEM DISCONNECT

RATED MAXIMUM POWER-POINT CURRENT: 204A
RATED MAXIMUM POWER-POINT VOLTAGE: 1000V
MAXIMUM SYSTEM VOLTAGE: 949V
MAXIMUM SYSTEM CURRENT: 140A

SIGN L18 – REQ'D BY NEC 690.53
APPLY TO: INVERTER(S): CPS SCA60KTL-DO/US-480

WARNING

IDENTIFICATION OF MULTIPLE SERVICE DISCONNECTS

AN ADDITIONAL POWER SOURCE IS PRESENT IN THIS EQUIPMENT:
SEE "LOCATION OF FACILITY'S POWER SYSTEMS DISCONNECTING MEANS" FOR LOCATION OF MAIN ENERGY STORAGE AC DISCONNECT
TURN OFF DISCONNECT PRIOR TO SERVICING THIS EQUIPMENT

SIGN L09 – LABEL REQUIRED PER CEC 705.10
APPLY TO: PV SYSTEM AC DISCONNECT(S)

WARNING

ARC FLASH HAZARD

APPROPRIATE PPE REQUIRED

FAILURE TO COMPLE MAY RESULT IN INJURY OR DEATH

REFER TO NFPA 70E

SIGN L13 – REQ'D BY NEC 110.16
APPLY TO: INVERTER(S)

WARNING

ARC FLASH HAZARD

APPROPRIATE PPE REQUIRED

FAILURE TO COMPLE MAY RESULT IN INJURY OR DEATH

REFER TO NFPA 70E

SIGN L14 – REQ'D BY NEC 110.16
APPLY TO: DISTRIBUTION PANELBOARD DP-PV1

RATED MAXIMUM POWER-POINT CURRENT: 125A
RATED MAXIMUM POWER-POINT VOLTAGE: 1000V
MAXIMUM SYSTEM VOLTAGE: 633V
MAXIMUM SYSTEM CURRENT: 117A

SIGN L19 – REQ'D BY NEC 690.53
APPLY TO: INVERTER(S): CPS SCA36KTL-DO/US-480

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

SIGN L20 – REQ'D: NEC 690.12 & 690.56(C)(3)
APPLY TO: PV SYSTEM DISCONNECT

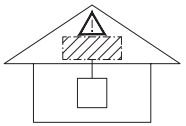
WARNING

ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

SIGN L10 – REQ'D BY NEC 690.17(E)
APPLY TO: DISCONNECT(S), DISTRIBUTION PANEL(S), JUNCTION BOX(ES), COMBINER BOX(ES), INVERTER(S)

THIS SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE 'OFF' POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS WITHIN ARRAY REMAIN ENERGIZED IN SUNLIGHT.



SIGN L15 – REQ'D: NEC 690.56(C)(1)(B)
APPLY TO: MAIN SERVICE PANEL, PV AC SYSTEM DISCONNECT(S)
TEXT HEIGHT: MIN 3/16" IN BLACK ON WHITE BACKGROUND

WARNING

Flash & Shock Hazard with Covers or Doors Open
Appropriate PPE Required

Flash Protection		Shock Protection	480 VAC
Level A		Shock Hazard when	covers removed
Incident Energy (cal/cm²)	0.8	Limited Approach	3.5 ft
Working Distance	18.0 in	Restricted Approach	1.0 ft
Arc Flash Boundary	1.2 ft	PPE Glove Class	00
Non-melting or untreated natural fiber long-sleeve shirt and long pants		V-Rating	500 VAC

Equipment: PV DISCONNECT BUS — Source Protective Device: 300AF
Equipment Name:
Contract # — Engineer: Tripp Hyde — Date: 07-22-2021
Changes in equipment settings or system configuration will invalidate the calculated values and PPE requirements which may result in a hazardous condition.

WARNING

Flash & Shock Hazard with Covers or Doors Open
Appropriate PPE Required

Flash Protection		Shock Protection	480 VAC
Level E		Shock Hazard when	covers removed
Incident Energy (cal/cm²)	28.7	Limited Approach	3.5 ft
Working Distance	18.0 in	Restricted Approach	1.0 ft
Arc Flash Boundary	10.9 ft	PPE Glove Class	00
Multilayer FR flash jacket and FR bib overalls (minimum arc rating of 4) or FR long-sleeve shirt and FR pants (minimum arc rating of 4) worn over untreated natural fiber long-sleeve shirt and pants, worn over an untreated		V-Rating	500 VAC

Equipment: SUPPLY SIDE CONNECTION — Source Protective Device: Fuse1
Equipment Name:
Contract # — Engineer: Tripp Hyde — Date: 07-22-2021
Changes in equipment settings or system configuration will invalidate the calculated values and PPE requirements which may result in a hazardous condition.

WARNING

NUMBER OF POWER SOURCES: 2
2ND SOURCE IS PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

AN ADDITIONAL POWER SOURCE IS PRESENT IN THIS EQUIPMENT:
SEE "LOCATION OF FACILITY'S POWER SYSTEMS DISCONNECTING MEANS" FOR LOCATION OF POWER SOURCE.
TURN OFF DISCONNECT PRIOR TO SERVICING THIS EQUIPMENT

SIGN L11 – LABEL REQUIRED PER NEC 690.54
PLACED ADJACENT TO MAIN SERVICE DISCONNECT

WARNING

ARC FLASH AND SHOCK HAZARD
APPROPRIATE PPE REQUIRED

FLASH PROTECTION	SHOCK PROTECTION
INCIDENT ENERGY AT: 18" MIN. ARC RATING : 3.093CAL/CM^2 ARC FLASH BOUNDARY: 32.551" HAZARD RISK CATEGORY: 3 GLOVE CLASS: 00	SHOCK RISK WHEN COVER IS REMOVED: 480VAC LIMITED APPROACH BOUNDARY: 42" RESTRICTED APPROACH BOUNDARY: 12"
PPE: 1. SHIRT & PANTS OR COVERALL NONMELTING (ASTM F1506) OR UNTREATED FIBER 2. HARD HAT 3. SAFETY GLASSES 4. HEARING PROTECTION	EQUIPMENT ID: PV SYSTEM DISCONNECT SWITCH 1

SIGN L16 – LABEL REQUIRED PER NEC 110.16
APPLY TO: PV SYSTEM DISCONNECT SWITCH

WARNING

THIS IS A BALLASTED PHOTOVOLTAIC PANEL SYSTEM. DO NOT REMOVE / RELOCATE ANY ARRAYS AND/OR BALLASTS (CMU). ANY CHANGES TO THE PV SYSTEM, ROOFING MATERIAL, ROOF STRUCTURE AND OTHER ALTERATIONS SHALL BE MADE WITH ALL REQUIRED BUILDING AND ELECTRICAL PERMITS.
DO NOT REMOVE THIS PLACARD

SIGN L21 – REQ'D BY SAN JOSE PLAN BULLETIN #274
APPLY TO: PHOTOVOLTAIC SYSTEM (SEE E1.0.0)

9/19/22

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CHECK / DATE:	Tuttle, Bill — CHIEF ENGINEER / DATE	
SCALE: AS SHOWN		SHEET 15 OF 27

ATTACHMENT 1-2
90 of 103

boviet SOLAR USA

Advancing the Power of the Sun

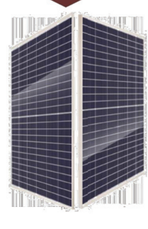
144 Cell Mono 440-450W

BVM6612M(S)-HC-BF-DG

0~+5W Power Tolerance

20.2% Maximum Efficiency

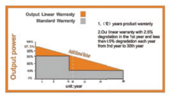
440-450W Power Output Range



41.19 x 84.06 Inches
Silver Frame / Double-sided glass

High Quality and Reliable Modules
- Double-sided glass technology, more power generation
- Withstand up to 5400 Pa snow load and 2400 Pa wind load
- 2 EL inspections per cell/module for defect-free consistency
- High salt and ammonia resistance certified
- 0~+5 W guaranteed positive tolerance
- Rugged design for long-term durability; passed extended reliability tests

Warranty
- 12-year product warranty
- 30-year linear power output warranty



Comprehensive Certificates for Products and Management
- UL 61730, IEC 61215, IEC 61730, CEC listed, MCS and CE
- ISO 9001 for Quality Management Systems
- ISO 14001 for Environmental Management Systems
- OHSAS 18001 Occupational Health and Safety Systems

Listed in Bloomberg New Energy Finance's tier 1 list as of 1Q 2018

2107 N 1st Street Suite 550 San Jose, CA 95131
BOVIETSOLARUSA.COM • 877.253.2858 • SALES@BOVIETSOLARUSA.COM

Electrical Characteristics STC	BVM6612M-440S-H-HC-BF-DG	BVM6612M-445S-H-HC-BF-DG	BVM6612M-450S-H-HC-BF-DG
Maximum Power (Pmax)	440W	445W	450W
Maximum Power Current (Imp)	10.92A	10.99A	11.06A
Maximum Power Voltage (Vmp)	40.37V	40.57V	40.76V
Short Circuit Current (Isc)	11.48A	11.55A	11.60A
Open Circuit Voltage (Voc)	48.60V	48.80V	49.05V
Module Efficiency	19.7%	19.9%	20.2%
Power Tolerance	0~+5W	0~+5W	0~+5W
STC: AM1.5, Irradiance 1000W/㎡, 25°C			

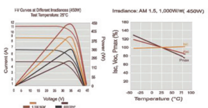
Electrical Characteristics NOCT	BVM6612M-440S-H-HC-BF-DG	BVM6612M-445S-H-HC-BF-DG	BVM6612M-450S-H-HC-BF-DG
Maximum Power (Pmax)	324W	342W	361W
Maximum Power Current (Imp)	8.46A	8.65A	8.84A
Maximum Power Voltage (Vmp)	38.29V	39.54V	40.8V
Short Circuit Current (Isc)	8.87A	9.08A	9.28A
Open Circuit Voltage (Voc)	47.8V	48.2V	48.6V
NOCT: AM1.5, Irradiance 800W/㎡, 20°C, Wind speed 1m/s			

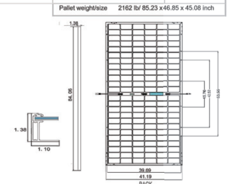
Mechanical Characteristics		Thermal Characteristics	
Solar Cell	Bifacial-Monocrystalline 6.54 x 3.27 inch, 144 (6 x 24) pcs. in series	Pmax Temperature Coefficient	-0.37%/K
Double glass	2.0mm AR coating tempered glass+2.0mm Semi-tempered glass,low iron	Voc Temperature Coefficient	-0.30%/K
Frame	Anodized aluminum alloy	Isc Temperature Coefficient	+0.06%/K
Junction Box	IP67 rated, with 3 bypass diode	NOCT	113±35.6°F
Output Cable	4 mm² (EU)/12 AWG (US), 39.38 inch		
Connector	MC4 compatible		
Dimension	84.06x 41.19 x 1.38 inch		
Weight	68.34 lb		

Maximum Ratings		Packing Information	
Operating Temperature	-40°F~185°F	Pieces per pallet	30
Maximum Series Fuse Rating	20A	Pallets per container (40HQ)	22
Maximum System Voltage	1000/1500V DC	Pieces per container (40HQ)	660
		Pallet weight/size	2162 lb/ 85.23 x46.85 x 45.08 inch

Bifacial Output-Backside Power Gain

10%	Pmax (W)	484	489	495
	Module efficiency (%)	21.67	21.89	22.17
20%	Pmax (W)	528	534	540
	Module efficiency (%)	23.64	23.91	24.18





CPS

Datasheet

50/60kW, 1000Vdc String Inverters for North America

The 50 & 60kW (55 & 66kVA) medium power CPS three phase string inverters are designed for ground mount, large rooftop and carport applications. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiency at 98.8% peak and 98.5% CEC, wide operating voltages, broad temperature ranges and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 50/60KTL products ship with either the Standard wire-box or the Rapid Shutdown wire-box, each fully integrated and separable with touch safe fusing, monitoring, and AC and DC disconnect switches. The integrated PLC transmitter in the Rapid Shutdown wire-box enables PVRSS certified module-level rapid shutdown when used with the Tigo TS4-F/TS4-A-F products, APS RSD-S-PLC-A products, and NEP PVG-4 products. The CPS Flex Gateway enables monitoring, controls and remote product upgrades.

Key Features

- NEC 2017 PVRSS Certified Rapid Shutdown
- 55 & 66kVA rating allows max rated Active Power @±0.91PF
- Selectable Max AC Apparent Power of 50/55kVA and 60/66kVA
- NEC 2014/17 compliant & UL listed Arc-Fault circuit protection
- 15-90° Mounting orientation for low profile roof installs
- Optional Flex Gateway enables remote FW upgrades
- Integrated AC & DC disconnect switches
- 3 MPPT's with 5 inputs each for maximum flexibility
- *Copper and Aluminum compatible AC connections*
- NEMA Type 4X outdoor rated, tough tested enclosure
- UL1741 SA Certified to CA Rule 21, including SA14 FW and SA15 VW
- Separable wire-box design for fast service
- Standard 10 year warranty with extensions to 20 years
- Generous 1.8 and 1.5 DC/AC Inverter Load Ratios

CPS SCA50KTL-DO/US-480
CPS SCA60KTL-DO/US-480

50/60KTL Standard Wire-box

50/60KTL Rapid Shutdown Wire-box

Chint Power Systems America
6800 Koll Center Parkway, Suite 235 Pleasanton, CA 94566
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

CPS

Technical Data

Model Name	CPS SCA50KTL-DO/US-480	CPS SCA60KTL-DO/US-480
DC Input		
Max. PV Power	90kW (33kW per MPPT)	
Max. DC Input Voltage	1000Vdc	
Operating DC Input Voltage Range	200-950Vdc	
Start-up DC Input Voltage / Power	330V / 80W	
Number of MPP Trackers	3	
MPPT Voltage Range @ PF>0.99	480-850Vdc	540-850Vdc
Max. PV Short-Circuit Current (Isc x 1.25)	204A (68A per MPPT)	
Number of DC Inputs	15 inputs, 5 per MPPT	
DC Disconnection Type	Load-rated DC switch	
DC Surge Protection	Type II MOV, 2800V_C, 20kA I_{TM} (8/20μS)	
AC Output		
Rated AC Output Power @ PF>0.99 to ±0.91[1]	50kW	60kW
Max. AC Apparent Power (Selectable)	50/55kVA	60/66kVA
Rated Output Voltage	480Vac	
Output Voltage Range[2]	422 - 528Vac	
Grid Connection Type	3Φ / PE / N (Neutral optional)	
Max. AC Output Current @480Vac	60.2/66.2A	72.2/79.4A
Rated Output Frequency	60Hz	
Output Frequency Range[2]	57 - 63Hz	
Power Factor	>0.99 (±0.8 adjustable)	
Current THD @ Rated Load	<3%	
Max. Fault Current Contribution (1 Cycle RMS)	64.1A	
Max. OCPD Rating	110A	125A
AC Disconnection Type	Load-break rated AC switch	
AC Surge Protection	Type II MOV, 1240V_C, 15kA I_{TM} (8/20μS)	
System and Performance		
Topology	Transformerless	
Max. Efficiency	98.8%	
CEC Efficiency	98.5%	
Stand-by / Night Consumption	<1W	
Environment		
Enclosure Protection Degree	NEMA Type 4X	
Cooling Method	Variable speed cooling fans	
Operating Temperature Range[3]	-22°F to +140°F / - 30°C to +60°C	
Non-Operating Temperature Range[4]	No low temp minimum to +158°F / +70°C maximum	
Operating Humidity	0 to 100%	
Operating Altitude	13,123.4ft / 4000m (derating from 9842.5ft / 3000m)	
Audible Noise	<60dBA @ 1m and 25°C	
Display and Communication		
User Interface and Display	LCD+LED	
Inverter Monitoring	SunSpec, Modbus RS485	
Site Level Monitoring	CPS Flex Gateway (1 per 32 inverters)	
Modbus Data Mapping	CPS	
Remote Diagnostics / FW Upgrade Functions	Standard / (with Flex Gateway)	
Mechanical		
Dimensions (HxWxD)	39.4 x 23.6 x 10.24in. (1000 x 600 x 260mm)	
Weight	Inverter: 123.5lbs/56kg; Wire-box: 33lbs/15kg	
Mounting / Installation Angle[5]	15 to 90 degrees from horizontal (vertical or angled)	
AC Termination	M8 Stud Type Terminal Block (Wire range: #6 - 3/0AWG CU/AL, Lugs not supplied)	
DC Termination[6]	Screw Clamp, Neg. Busbar (RSD version[6]) Wire range: #14 - #6AWG CU	
Fused String Inputs (5 per MPPT)[7]	15A fuses provided (Fuse values up to 30A acceptable)	
Safety		
Certifications and Standards	UL1741SA-2016, UL1699B, CSA-C22.2 NO.107.1-01, IEEE1547a-2014; FCC PART15	
Selectable Grid Standard	IEEE 1547a-2014, CA Rule 21, ISO-NE	
Smart-Grid Features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAr, Freq-Watt, Volt-Watt	
Warranty		
Standard	10 years	
Extended Terms	15 and 20 years	

1) Active Power Derating begins; at PF=±0.91 to ±0.8 when Max AC Apparent Power is set to 55 or 66kVA.
2) The "Output Voltage Range" and "Output Frequency Range" may differ according to the specific grid standard.
3) Active Power Derating begins; at 40°C when PF=±0.9 and MPPT ≥Vmin, at 45°C when PF=1 and MPPT ≥Vmin, and at 50°C when PF=1 and MPPT V ≥ 700Vdc.
4) See user manual for further requirements regarding non-operating conditions.
5) Shade Cover accessory required for installation angles of 75 degrees or less.
6) RSD wire-box only includes fuses/fuseholders on the positive polarity, compliant with NEC 2017, 690.9 (C).
7) Fuse values above 20A have additional spacing requirements or require the use of the Y-Comb Terminal Block. See user manual for details.

Product data sheet
Characteristics

H365NR

Safety switch, heavy duty, fusible, 400A, 3 poles, 250 hp, 600 VAC/DC, NEMA 3R, neutral factory installed

Product availability : Stock - Normally stocked in distribution facility

SQUARE D

Price* : 5,765.00 USD

Main

Product	Single Throw Safety Switch
Current Rating	400 A
Number of Poles	3
Voltage Rating	600 V AC/DC
Wire Size	AWG 1/0...750 kcmil copper or aluminium
Disconnect Type	Fusible disconnect
Short Circuit Current Rating	10 kA H or K 200 kA R, J or L
Mounting Type	Surface
Factory Installed Neutral	Neutral (factory installed)
Electrical Connection	Lugs
Duty Rating	Heavy duty
Certifications	UL listed file E2875
Enclosure Rating	NEMA 3R galvannealed steel

Complementary

Maximum Horse Power Rating	100 hp 480 V AC 50...60 Hz 3 phase NEC 240.6 250 hp 480 V AC 50...60 Hz 3 phase NEC 430.52 125 hp 600 V AC 50...60 Hz 3 phase NEC 240.6 350 hp at 600 V AC 50...60 Hz for 3 phases motors conforming to NEC 430.52 50 hp 250 V DC 50 hp 600 V DC
Width	27.88 in (708.15 mm)
Height	50.31 in (1277.87 mm)
Depth	10.13 in (257.30 mm)

* Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.

Tightening torque	550 lbf.in (62.14 N.m) AWG 1/0...750 kcmil)

Ordering and shipping details

Category	00054 - H&HU SW,NEMA3R,400-1200A
Discount Schedule	DE1
GTIN	00785901026686
Nbr. of units in pkg.	1
Package weight(Lbs)	186 lb(US) (84.37 kg)
Returnability	Yes
Country of origin	MX

Packing Units

Unit Type of Package 1	PCE
Package 1 Height	14.02 in (35.6 cm)
Package 1 width	28.31 in (71.9 cm)
Package 1 Length	51.50 in (130.8 cm)

Offer Sustainability

Sustainable offer status	Green Premium product
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov
REACh Regulation	REACh Declaration
REACh free of SVHC	Yes
EU RoHS Directive	Compliant EU RoHS Declaration
Mercury free	Yes
RoHS exemption information	Yes
China RoHS Regulation	China RoHS declaration Product out of China RoHS scope. Substance declaration for your information.
Environmental Disclosure	Product Environmental Profile
PVC free	Yes
Halogen content performance	Halogen free plastic parts product

Contractual warranty

Warranty	18 months

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HYDE ENGINEERING SERVICES

HYDE ENGINEERING SERVICE, INC
4735 WALNUT ST., SUITE #110
BOULDER, CO 80301
INFO@HYDEENG.COM
720-900-1009
WWW.HYDEENG.COM

SCALE: AS NOTED
(PRINT ON 36"X24")

LEGEND:
- RESTRAINED JOINT PIPE *
- UNRESTRAINED PIPE
- ACTIVE WATER MAIN
- PIPE TO BE RETIRED (SEE NOTE FOR AC PIPE REMOVAL)
- @ 2'-4' LAYER DEPTH / @ 4'-6' LAYER DEPTH — SOIL RESISTIVITY
- EXISTING AC CUT
- RECORDED MONUMENT
- FOUND MONUMENT
- COPPER SERVICE KILL & INSTALL
- PLASTIC SERVICE KILL & INSTALL

*USE MEGALUGS W/MJ FITTINGS AND VALVES ON RESTRAINED PIPE.

AS BUILT STAMP ONLY

BY	DATE	REVISION	CK	DATE
CB	09/19/22	AHJ COMMENTS	TH	09/23/22
JM	09/07/22	MODULE CHANGE – BOVIET 450	TH	09/23/22
AA	02/28/22	STRUCTURAL DESIGN ADDED	TH	02/28/22
JM	02/16/22	ADDRESS UPDATE	TH	02/16/22
AK	07/29/21	90% DESIGN – DRAFT 01	TH	07/29/21

CITY OF SAN JOSE APPROVAL STAMP

APPROVED
City of San Jose, Building Division
☒ Electrical
Brian Price (408) 535 7876
Plan No. 22-675565 Date: 11/29/2022

SJW SAN JOSE WATER COMPANY

CBS – SJW ALMADEN VALLEY
1084 FOXHURST WAY, SAN JOSE, CA 95120

BY: TRIPP HYDE	Ozgur, Naci (Digitally signed by Ozgur, Naci Date: 2022.05.05 15:59:36 -07'00') — DIRECTOR OF EH&S / DATE	
DATE: 02/16/2022	(Digitally signed by Sneed, Colby Date: 2022.05.06 15:07:21 -07'00') — DIRECTOR OF OPERATIONS / DATE	REF. NOS. CBS_SJWC
CHECK / DATE	Walsh, Jake (Digitally signed by Walsh, Jake Date: 2022.04.26 12:38:37 -07'00') — DIRECTOR OF PLANNING / DATE	DWG. NO. E4.0.0 SPECS 01
SCALE: AS SHOWN	(Digitally signed by H. Frank Du Date: 2022.05.11 12:57:49 -07'00') — DIRECTOR OF ENGINEERING / DATE	
	Tuttle, Bill (Digitally signed by Tuttle, Bill Date: 2022.05.11 17:05:51 -07'00') — CHIEF ENGINEER / DATE	SHEET 16 OF 27

ATTACHMENT 1-2
91 of 103

SMARTSPOT INDICATOR AMP-TRAP 2000®

AJT

TIME DELAY/CLASS J

SMARTSPOT® WITH *MAXIMUM* CIRCUIT PROTECTION

Amp-trap 2000® SmartSpot® AJT fuses now provide a visual open fuse indicator. With advanced material technology added to the existing product line the AJT fuse provides IEC Type "2" (No Damage) protection to main, feeder, and branch circuits, for all types of loads — yet, they require only half the mounting space needed for 600VAC Class RK fuses. AJT's time delay characteristics for handling typical in-rush currents, its current limiting ability.

Features/Benefits

- **Solid State SmartSpot Indicator**
- **Time delay** for motor starting and transformer inrush
- **300kA interrupting rating** - self-certified, UL witnessed tests
- **Extremely current limiting** for low peak let-thru current
- **Most current limiting UL class fuse**
- **Recommended for Arc Flash energy reduction**
- **Small footprint** requires less mounting space and allows smaller, more economical fuse blocks
- **Easy 2-to-1 selectivity** for prevention of nuisance shutdowns
- **Unique Class J dimensions** prevent replacement errors
- **High-visibility orange label** gives instant recognition
- **Metal-embossed date and catalog number** for traceability and lasting identification
- **Fiberglass body** provides dimensional stability in harsh industrial settings
- **High-grade silica filler** ensures fast arc quenching
- **Optional El Indicator/Switch mount** for AJT70 to 600 open fuse indication

HIGHLIGHTS:

- Smart Spot Indicator
- Time Delay
- Highly Current Limiting
- Arc Flash Mitigating
- DC Ratings
- Optional Mechanical Indicator (70 to 600A fuses)

APPLICATIONS:

- Motor Circuits
- Mains
- Feeders
- Branch Circuits
- Lighting, Heating & General Loads
- Transformers
- Control Panels
- Circuit Breaker Back-up
- Bus Duct
- Load Centers
- Note: See Motor Fuse Applications Tables on page L9

Ratings

- **AC:** 1 to 600A 600VAC, 200kA I.R. (self certified for 600VAC, 300kA I.R., UL witnessed)

DC: 1 to 600A 500VDC, 100kA I.R.

Approvals

AJT (1-600):
- UL Listed to Standard 248-8 File E2137
- DC Listed to UL Standard 248
- CSA Certified to Standard C22.2 No. 248.8
- IEC 269-2-1

AJT (70-600) EI:
- UL Listed to File E60314
- DC Tested to UL Standard 248

ArcFlash

SMARTSPOT INDICATOR AMP-TRAP 2000®

TIME DELAY/CLASS J FUSES

AJT

Standard Fuse Ampere Ratings, Catalog Numbers

AMPERE RATING	CATALOG NUMBER	AMPERE RATING	CATALOG NUMBER	AMPERE RATING	CATALOG NUMBER	AMPERE RATING	CATALOG NUMBER
1	AJT1	4-1/2	AJT4-1/2	25	AJT25	125	AJT125
1-1/4	AJT1-1/4	5	AJT5	30	AJT30	150	AJT150
1-1/2	AJT1-1/2	5-6/10	AJT5-6/10	35	AJT35	175	AJT175
1-6/10	AJT1-6/10	6	AJT6	40	AJT40	200	AJT200
1-8/10	AJT1-8/10	6-1/4	AJT6-1/4	45	AJT45	225	AJT225
2	AJT2	7	AJT7	50	AJT50	250	AJT250
2-1/4	AJT2-1/4	8	AJT8	60	AJT60	300	AJT300
2-1/2	AJT2-1/2	9	AJT9	70	AJT70	350	AJT350
2-8/10	AJT2-8/10	10	AJT10	80	AJT80	400	AJT400
3	AJT3	12	AJT12	90	AJT90	450	AJT450
3-2/10	AJT3-2/10	15	AJT15	100	AJT100	500	AJT500
3-1/2	AJT3-1/2	17-1/2	AJT17-1/2	110	AJT110	600	AJT600
4	AJT4	20	AJT20				

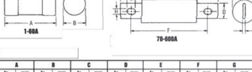
Note: Indicator Not Available (1-7A)

Recommended Fuse Blocks With Box Connectors for Amp-trap® Class J Fuses

Fuse Ampere Rating	Catalog Number 600V OR LESS 1 Pole	3 pole
0-30	US3J1I	US3J3I
31-60	US6J1I	US6J3I
61-100	61036J	61038J
101-200	62001J	62003J
201-400	64031J	64033J
401-600	6631J	6633J

A variety of pole configurations and termination provisions is available.

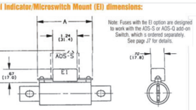
A



Dimensions

AMPERE RATING	A In.	A mm	B In.	B mm	C In.	C mm	D In.	D mm	E In.	E mm	F In.	F mm	G In.	G mm	H In.	H mm
1-30	2-1/4	57	13/16	21	-	-	-	-	-	-	-	-	-	-	-	-
31-60	2-3/8	60	1-1/16	27	-	-	-	-	-	-	-	-	-	-	-	-
61-100	4-5/8	117	1-1/16	27	1/8	3.2	3/4	19	1	25	3-5/8	92	3/8	10	9/32	7
101-200	5-3/4	146	1-5/8	41	3/16	4.8	1-1/8	29	1-3/8	35	4-3/8	111	3/8	10	9/32	7
201-400	7-1/8	181	2-1/8	54	1/4	6.3	1-5/8	41	1-7/8	48	5-1/4	133	17/32	14	13/32	10
401-600	8	203	2-1/2	64	3/8	9.5	2	51	2-1/8	54	6	152	11/16	18	17/32	13

Optional Indicator/Microswitch Mount (EI) dimensions:



Note: Fuses with the EI option are designed to work with the AOS-S or AOS-Q add-on Switch, which is ordered separately. See page J7 for details.

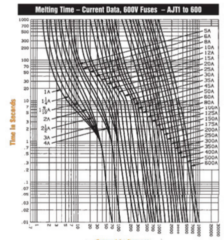
CATALOG NUMBER	A
AJT(70-100)-EI	2.80 (71.0)
AJT(110-200)-EI	3.22 (81.8)
AJT(225-400)-EI	3.24 (82.2)
AJT(450-600)-EI	3.61 (91.8)

SMARTSPOT INDICATOR AMP-TRAP 2000®

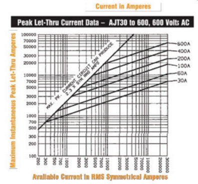
TIME DELAY/CLASS J FUSES

AJT

Melting Time – Current Data, 600V Fuses – AJT1 to 600



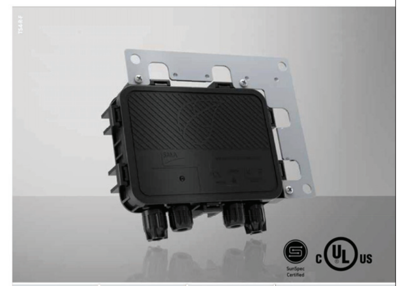
Peak Let-Thru Current Data – AJT30 to 600, 600 Volts AC



Note: See Motor Fuse Application Tables on page L9.

TS4-R-F SUNSPEC RAPID SHUTDOWN

SMA



Cost-effective
- Simple to install via existing DC wires
- No additional components necessary, reducing balance of system costs

Simple and robust
- Power line based communication compatible with SunSpec signal for rapid shutdown
- Shuts down PV module whenever SunSpec signal is interrupted

Safe and reliable
- SunSpec compliant rapid shutdown that fulfills:
  - UL 1741
  - NEC 2014
  - NEC 2017

Reduced risk
- Technical support from SMA's #1 ranked service organization
- Simple, safe repair or replacement of proprietary snap-in cover—no cabling work

TS4-R-F SUNSPEC RAPID SHUTDOWN

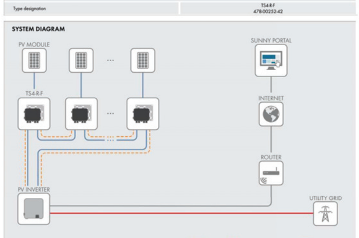
Compliance made simple and economical

The new TS4-R-F rapid shutdown solution is a cost-effective way to fulfill UL 1741, NEC 2014 and NEC 2017 requirements. It is compatible with the power line based SunSpec communication signal for rapid shutdown, making it simple to implement with robust functionality. Using the existing DC wires between the inverter and module-level electronics as a communication channel significantly reduces installation time and labor costs, since no additional communication equipment is needed. The TS4-R-F's compliance with the SunSpec open standard makes it the most flexible solution on the market, as it can be combined with multiple types of inverters.

www.SMA-America.com

Technical data	TS4-R-F 478-00252-42
Input	
Rated DC input power	475 W
Maximum PV module open circuit voltage @ STC	75 V
Maximum input voltage	90 V
Maximum current Isc	12 A
Output	
Output power range	0 - 475 W
Output voltage range	0 - Voc
Communication type	SunSpec Rapid Shutdown
Rapid shutdown compliant (NEC 2017 690.12)	Yes
Maximum system voltage	1000 V
Maximum series fuse rating	15 A
Mechanical	
Operating temperature range	−40°C to +85°C (−40°F to +185°F)
Non-operating temperature range	−40°C to +85°C (−40°F to +185°F)
Cooling method	Natural convection
Dimensions with cover	152.5 mm x 108 mm x 25.3 mm
Weight with cover	610 g
Environmental rating	IP68, NEMA 4X
Cabling	
Cabling type / Output cable length	H1Z2Z2-K / 1.2 m (solar cable, certified to EN 50618)
Cabling	MC4
UV resistance	500 hr with UVB light between 300 and 400 nm at 65° C
Type designation	TS4-R-F 478-00252-42

SYSTEM DIAGRAM



Toll Free +1 888 4 SMA USA
www.SMA-America.com

SMA America, LLC

CPS

Datasheet

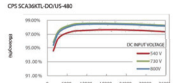
36kW, 1000Vdc String Inverters for North America

The 36kW medium power CPS three phase inverter has been designed for small commercial rooftop, ground mount, and carport applications. Featuring dual MPPTs, 98.5% peak efficiency, and a wide operating window, the CPS 36kW performs well across a variety of applications. This inverter includes; a separable wiring box with generous wiring space to reduce installation time, the ability to mount the inverter 15-90 degrees from horizontal allowing greater design options, and integrated AC and DC disconnects as standard features. The CPS Flex Gateway enables monitoring and controls necessary in today's PV systems.

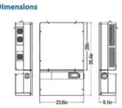
CPS SCA36KTL-DO/US-480

Efficiency Curve

CPS SCA36KTL-DO/US-480



Dimensions



High Efficiency
- Maximum efficiency of 98.5%, CEC efficiency of 98%
- 3-level technology and enhanced control mechanism to achieve high efficiency over wide load range
- 2 MPPTs to achieve higher system efficiency
- Transformerless design

High Reliability
- Standard warranty: 10 years, extension up to 20 years
- Advanced thermal design, with variable speed fans
- Ground-fault detection and interruption circuit
- AFCI Integrated (per UL1699B)
- UL1741 SA Certified to CA Rule 21

Broad Adaptability
- NEMA 4X (IP65) rated for outdoor applications
- Utility interactive controls: Active power derating, reactive power control
- Separable wiring box design for fast service
- Integrated DC & AC disconnect switches
- Wide MPPT range for flexible string sizing
- 1000V Max. DC input voltage for flexible configuration
- 15 - 90 degree from horizontal installation angle
- AC output terminal compatible with AL/CU wire

Chint Power Systems America
6800 Koll Center Parkway, Suite 235 Pleasanton, CA 94566
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

CPS

Technical Data

Model Name	CPS SCA36KTL-DO/US-480
DC Input	
Max. PV Power	54kW (27kW per MPPT)
Max. DC Input Voltage	1000Vdc
Operating DC Input Voltage Range	240-950Vdc
Start-up DC Input Voltage / Power	320V / 80W
Number of MPP Trackers	2
MPPT Voltage Range	540-800Vdc
Max. PV Short-Circuit Current (Isc x 1.25)	125A (62.5A per MPPT)
Number of DC Inputs	10 inputs, 5 per MPPT
DC Disconnection Type	Load rated DC switch
DC Surge Protection	Type II MOV, 2000V_C, 10kA I_{TM} (8/20μS)
AC Output	
Rated AC Output Power	36kW
Max. AC Apparent Power	36kVA
Rated Output Voltage	480Vac
Output Voltage Range[1]	422 - 528Vac
Grid Connection Type	3Φ / PE / N (Neutral optional)
Max. AC Output Current @480Vac	43.5A
Rated Output Frequency	60Hz
Output Frequency Range[1]	57 - 63Hz
Power Factor	>0.99 (±0.8 adjustable)
Current THD @ Rated Load	<3%
Max. Fault Current Contribution (1 Cycle RMS)	73.2A
AC Disconnection Type	Load rated AC switch
AC Surge Protection	Type II MOV, 1500V_C, 10kA I_{TM} (8/20μS)
System and Performance	
Topology	Transformerless
Max. Efficiency	98.5%
CEC Efficiency	98.0%
Stand-by / Night Consumption	<1W
Environment	
Enclosure Protection Degree	NEMA Type 4X
Cooling Method	Variable speed cooling fans
Operating Temperature Range	-22°F to +140°F / - 30°C to +60°C (derating from +113°F / +45°C)
Non-Operating Temperature Range[2]	No low temp minimum to +158°F / +70°C maximum
Operating Humidity	0 to 100%
Operating Altitude	13,123.4ft / 4000m (derating from 6561.7ft / 2000m)
Audible Noise	<50dBA @ 1m and 25°C
Display and Communication	
User Interface and Display	LCD+LED
Inverter Monitoring	Modbus RS485
Site Level Monitoring	CPS Flex Gateway (1 per 32 inverters)
Modbus Data Mapping	CPS
Remote Diagnostics / FW Upgrade Functions	Standard / (with Flex Gateway)
Mechanical	
Dimensions (HxWxD)	Inverter: 26 x 23.6 x 9.1in. (660 x 600 x 230mm); Wire-box 13.4 x 23.6 x 9.1in. (340 x 600 x 230mm)
Weight	Inverter: 121lbs/55kg; Wire-box: 24lbs/11kg
Mounting / Installation Angle[3]	15 to 90 degrees from horizontal (vertical or angled)[3]
AC Termination	Screw Clamp Terminal Block (Wire range: #14 - 1/0AWG CU/AL)
DC Termination	Screw Clamp Fuse Holder (Wire range: #14 - #6AWG CU)
Fused String Inputs (5 per MPPT)[4]	15A fuses provided (Fuse values up to 30A acceptable)[4]
Safety	
Certifications and Standards	UL1741SA-2016, UL1699B, CSA-C22.2 NO.107.1-01, IEEE1547; FCC PART15
Selectable Grid Standard	IEEE 1547-2003, CA Rule 21, ISO-NE
Smart-Grid Features	Voltage-RideThru, Frequency-RideThru, Soft-Start, Volt-Var, Frequency-Watt, Volt-Watt
Warranty	
Standard	10 years
Extended Terms	15 and 20 years

1) The "Output Voltage Range" and "Output Frequency Range" may differ according to the specific grid standard.
2) See user manual for further requirements regarding non-operating conditions.
3) Shade Cover accessory required for installation angles of 75 degrees or less.
4) Fuse values above 20A have additional spacing requirements. See user manual for further details.

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4735 WALNUT ST., SUITE #110
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INFO@HYDEENG.COM
720–900–1009
WWW.HYDEENG.COM

SCALE: AS NOTED
(PRINT ON 36"X24")

LEGEND:

- RESTRAINED JOINT PIPE *
- UNRESTRAINED PIPE
- ACTIVE WATER MAIN
- PIPE TO BE RETIRED (SEE NOTE FOR AC PIPE REMOVAL)
- SOIL RESISTIVITY (@1'-4' LAYER DEPTH / @4'-8' LAYER DEPTH)
- EXISTING AC CUT
- RECORDED MONUMENT
- FOUND MONUMENT
- COPPER SERVICE KILL & INSTALL
- PLASTIC SERVICE KILL & INSTALL

*USE MEGALUGS W/MJ FITTINGS AND VALVES ON RESTRAINED PIPE.

AS BUILT STAMP ONLY

BY	DATE	REVISION	CK	DATE
CB	09/19/22	AHJ COMMENTS	TH	09/23/22
JM	09/07/22	MODULE CHANGE – BOVIET 450	TH	09/23/22
AA	02/28/22	STRUCTURAL DESIGN ADDED	TH	02/28/22
JM	02/16/22	ADDRESS UPDATE	TH	02/16/22
AK	07/29/21	90% DESIGN – DRAFT 01	TH	07/29/21

CITY OF SAN JOSE APPROVAL STAMP

APPROVED
City of San Jose, Building Division
☒ Electrical
Brian Price (408) 535 7876
Plan No. 22-675565 Date: 11/29/2022

SJW SAN JOSE WATER COMPANY

CBS – SJW ALMADEN VALLEY
1084 FOXHURST WAY, SAN JOSE, CA 95120

	Ozgur, Naci (Digitally signed) DIRECTOR OF ENG / DATE	
	(signature) DIRECTOR OF OPERATIONS / DATE	
BY TRIPP HYDE	Walsh, Jake (Digitally signed) DIRECTOR OF PLANNING / DATE	REF. NOS. CBS_SJWC
DATE 02/16/2022	(signature) DIRECTOR OF ENGINEERING / DATE	DWG. NO. E4.0.1 SPECS 02
CHECK / DATE	Tuttle, Bill (Digitally signed) CHIEF ENGINEER / DATE	
SCALE AS SHOWN		SHEET 17 OF 27

GENERAL NOTES:

1. ALL CONSTRUCTION FOR UNIRAC'S 'ROOF MOUNT' (RM) RACKING SYSTEM SHALL CONFORM TO THE CODES SHOWN IN THE RM DESIGN CRITERIA TABLE BELOW. LOCAL JURISDICTION AMENDMENTS TO THE CODE MUST BE TAKEN INTO CONSIDERATION.
2. WHENEVER THE TERM "CONTRACTOR" IS USED IN THE CONSTRUCTION DOCUMENT, IT SHALL BE DEFINED TO MEAN THE GENERAL CONTRACTOR AND ANY SUB-CONTRACTOR COLLECTIVELY AS APPLICABLE AND AS REQUIRED.
3. THE CONTRACT "STRUCTURAL RACKING" DRAWINGS REPRESENT THE FINISHED STRUCTURE. UNIRAC AND THE ENGINEER OF RECORD WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF CONSTRUCTION.
4. UNIRAC AND THE ENGINEER OF RECORD WILL NOT BE RESPONSIBLE FOR CONSTRUCTION SITE SAFETY OR SAFETY PRECAUTIONS AND PROGRAMS INCIDENT HERETO.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT AND ENSURE THAT ALL WORK IS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY STRUCTURAL INSPECTION/OBSERVATION PROVIDED BY OTHERS (INCLUDING UNIRAC AND THE ENGINEER OF RECORD) DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY. ANY DEVIATION FROM THE CONTRACT DOCUMENTS THAT IS ENCOUNTERED AT A LATER DATE AND IS DECLARED TO BE SIGNIFICANT BY UNIRAC AND THE ENGINEER OF RECORD SHALL BE CORRECTED BY THE CONTRACTOR (AT THE CONTRACTOR'S EXPENSE). ANY INDIVIDUALS FROM UNIRAC OR THE ENGINEER OF RECORD'S OFFICE PERFORMING SITE VISITS OR STRUCTURAL OBSERVATIONS ARE NOT AUTHORIZED TO DIRECT OR APPROVE ANY CHANGES FROM THE CONTRACT DOCUMENTS OR STOP AND/OR DELAY THE WORK.
6. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATE SITE CONDITIONS WITH THE DRAWING PRIOR TO BIDDING AND THE START OF CONSTRUCTION. ANY CONFLICTS, DISCREPANCIES, OR OMISSIONS SHALL BE RESOLVED WITH UNIRAC AND THE ENGINEER OF RECORD PRIOR TO PROCEEDING. DO NOT SCALE DIMENSIONS FROM DRAWINGS. WRITTEN DIMENSIONS SHALL BE USED OR WHERE NO DIMENSION IS PROVIDED. CONSULT WITH UNIRAC FOR CLARIFICATION BEFORE PROCEEDING.
7. WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER (MOST CONSERVATIVE) REQUIREMENTS SHALL GOVERN. WHERE NO SPECIFIC DETAIL IS SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT. IF THERE IS NO SIMILAR WORK CONSTRUCTION SHALL CONFORM TO INDUSTRY STANDARDS. CONTRACTOR MUST INFORM UNIRAC OF ANY DISCREPANCIES.
8. ANY EQUIPMENT OR CONDUIT BEING SUPPORTED BY OR SUSPENDED FROM THE RACKING STRUCTURE SHALL BE COORDINATED WITH UNIRAC AND THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO PURCHASE AND INSTALLATION OF EQUIPMENT OR CONDUIT.
9. ASTM SPECIFICATIONS ON THE DRAWINGS SHALL BE OF THE LATEST ASTM STANDARD SPECIFICATION OR ASTM STANDARD ADOPTED BY THE SITE JURISDICTION.
10. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF THE LOCAL JURISDICTION.
11. THE FOLLOWING DESIGN CRITERIA IS EXCLUDED FROM DESIGN: FLOOD LOADING, DEBRIS LOADING , DYNAMIC ANALYSIS ,ACTS OF GOD (TORNADO, HURRICANE, WATER INUNDATION LOADING, ETC.), AND DYNAMIC LOADING FROM SEISMIC EVENTS AND CONDITIONS.
12. THE MINIMUM DISTANCE BETWEEN ROOF EDGE AND MODULES OR RM RACKING SYSTEM MUST BE 4 FT UNLESS NOTED OTHERWISE IN THE UNIRAC ENGINEERING REPORT.
13. UNIRAC IS NOT RESPONSIBLE FOR THE ORIGINAL BUILDING STRUCTURE. CONSULT WITH A LICENSED PROFESSIONAL ENGINEER IN THE JURISDICTION OF THE PROJECT TO ENSURE THE EXISTING BUILDING IS CAPABLE OF HANDLING ADDITIONAL LOAD FROM THE RM STRUCTURE.
14. IN THE EVENT THAT THE ARRAY IS DISPLACED FOR ANY REASON, THE ARRAY SHALL BE REPOSITIONED INTO ITS ORIGINAL DESIGN LOCATION SO AS TO ENSURE THAT PROPER SEISMIC AND FIREFIGHTING ACCESS CLEARANCES AND SEPARATIONS ARE MAINTAINED, IN ADDITION TO ELECTRICAL WIRING SEISMIC SLACK REQUIREMENTS.
15. THESE GENERAL NOTES APPLY TO ALL SHEETS IN THIS PACKAGE.

SOLAR DESIGN:

UNIRAC IS NOT THE SOLAR DESIGN ENGINEER OF RECORD AND IS NOT RESPONSIBLE FOR ANY SOLAR DESIGN, OUTPUT EFFICIENCIES, SHADING, ETC. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO CONFIRM THAT THE LOCATION OF THE RACKING/MODULES DOES NOT INTERFERE WITH OR BECOME SHADED BY OBSTRUCTIONS.

ELECTRICAL DESIGN:

UNIRAC IS NOT THE ELECTRICAL ENGINEER OF RECORD AND IS NOT RESPONSIBLE FOR THE ELECTRICAL DESIGN FOR THIS PROJECT. THE UNIRAC SYSTEM IS CERTIFIED TO UL-2703 WHEN PROPERLY INSTALLED. SEE THE RM INSTALLATION GUIDE FOR MORE DETAIL.

MATERIAL MANAGEMENT:

1. PRIOR TO INSTALLATION , ALL MATERIALS MUST BE STORED PROPERLY. THIS MEANS MATERIALS REMAINING IN ONE PLACE FOR MORE THAN ONE WEEK MUST BE IN OPEN AIR CONDITIONS (I.E. UP AND ABOVE THE GROUND AND WATER TABLE). IF TARPS OR OTHER PROTECTIVE COVERS ARE USED, THEN ENDS SHALL BE LEFT OPEN FOR VENTILATION. TIGHT FITTING COVERINGS ARE NOT RECOMMENDED SINCE THEY CAN TRAP MOISTURE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND PROVIDE ALL MEASURES NECESSARY TO PROTECT THE RACKING SYSTEM FROM THE POINT OF UNIRAC DELIVERY THROUGHOUT THE
3. COMPLETION OF CONSTRUCTION.

RM ALUMINUM COMPONENTS:

1. ALL ALUMINUM RM BAY MEMBERS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE "2010 ALUMINUM DESIGN MANUAL" BY THE ALUMINUM DESIGN ASSOCIATION.
2. ALL ALUMINUM BAY MEMBERS SHALL CONFORM TO ONE OF THE FOLLOWING:
   SKI MATERIAL: ALLOY: 6063 TEMPER 5 (Ftu = 38 KSI, Fcy = 35 KSI)
   SKI MATERIAL: ALLOY: 6105 TEMPER 52 (Ftu = 38 KSI, Fcy = 35 KSI)
   DOWEL MATERIAL: ALLOY: 6063 TEMPER 5 (Ftu = 38 KSI, Fcy = 35 KSI)
   CLAMP MATERIAL: ALLOY: 6005A TEMPER 61 (Ftu = 38 KSI, Fcy = 35 KSI)

HARDWARE:

1. 3/8"-16 X 1-3/4" UNC 2A HARDWARE SHALL CONFORM TO 18/8 STAINLESS STEEL (AISI 300 SERIES), DIMENSIONS PER ASME B18.2.1.

TORQUE REQUIREMENTS
3/8"Ø HARDWARE = 8 +/-1 FT-LBS
SINGLE USE ONLY- DO NOT RE-TORQUE ONCE FULLY SEATED

BALLAST BLOCK (CMU):

1. INSTALLER IS RESPONSIBLE FOR PROCURING THE BALLAST BLOCKS (CMU) AND VERIFYING THE REQUIRED MINIMUM WEIGHT NEEDED FOR THIS DESIGN. CMU TO COMPLY WITH ASTM STANDARD SPECIFICATION FOR CONCRETE ROOF PAVERS DESIGNATION C1491-14 or C90-16a FOR A "NORMAL WEIGHT" DENSITY CLASSIFICATION WITH A COMPRESSIVE STRENGTH OF 3000 PSI. IT IS RECOMMENDED THAT THE BLOCKS ARE INSPECTED PERIODICALLY FOR ANY SIGNS OF DEGRADATION.
2. ACTUAL BLOCK DIMENSIONS ARE 3/8" LESS THAN NOMINAL DIMENSIONS.

BE 22-703631
PC 22-675565

1128 FOXHURST WAY,
SAN JOSE, CA 95120

DESIGN CRITERIA	
BUILDING CODE	ASCE 7-16
OCCUPANCY/RISK CATEGORY	IV
WIND SPEED	103 MPH
WIND EXPOSURE	C
GROUND SNOW LOAD	0 PSF
ROOF HEIGHT	10 FT
ROOF PITCH	3°

MAXIMUM JOINT REACTIONS		
FACTORED LOADS ASD 7-16		
	ZONE 1	ZONE 2
UPLIFT POINT LOAD	-452.1 LB	-642.3 LB
DOWN POINT LOAD	455.6 LB	455.6 LB

PROJECT OVERVIEW	
PROJECT SIZE	258.3 KW DC
MODULE QUANTITY	574

MODULE SPECIFICATIONS	
MANUFACTURER	BOVIET SOLAR
MODEL	BVM6612M(S)-HC-BF-DG
LENGTH	84.06 IN
WIDTH	41.19 IN
FRAME THICKNESS	1.38 IN
WEIGHT	68.34 LB
OUTPUT	450 WATT

ENGINEERING OUTPUT - SM	
PRODUCT LINE	SM HD
CLAMP TYPE	UNIVERSAL AF
RAIL DIRECTION	EW (PERP. TO THE MODULE)
ROOF TYPE	OTHER
MAXIMUM RAIL SPAN	132 IN
RAIL SPAN USED FOR THIS DESIGN	120 IN & 114 IN
MAX CANTILEVER AT DESIGN SPAN	40 IN

ARRAY PARTS LIST - SM		
PART NUMBER	DESCRIPTION	QUANTITY
TBD1	SMHD, RAIL 120" MILL	414
302045M	UNIVERSAL AF SERIES MID CLAMP MILL	1,106
302050M	UNIVERSAL AF SERIES END CLAMP MILL	84
TBD2	T-BOLTS	456
008009P	ILSCO LAY IN LUG (GBL4DBT)	62

SHEET INDEX	
SM.100	COVER SHEET
SM.200	KEY PLAN
SM.301-SM.306	ARRAY LAYOUT ROOF 1 & 2
SM.400	SM DETAILS
SM.500	ATTACHMENT DETAILS

UNIRAC
1411 BROADWAY BOULEVARD NE
ALBUQUERQUE, NEW MEXICO, USA, 87102
WWW.UNIRAC.COM

ENGINEER'S STAMP

09/30/2022

REVISIONS

REV	DATE	DESCRIPTION	DRW	CHK
0	09/29/2022	INITIAL RELEASE	IS	NT

FOR

CENTRICA WEST
(VISTA SOLAR, INC.)

APPROVED
City of San Jose, Building Division
Building
Kathy Bucciarelli, P.E. (408) 535-3528
Plan No. 22-675565 Date: 10/26/2022

TITLE

COVER SHEET

SAN JOSE WATER COMPANY

SJWC – ALMADEN
1128 FOXHURST WAY,
SAN JOSE, CA 95120

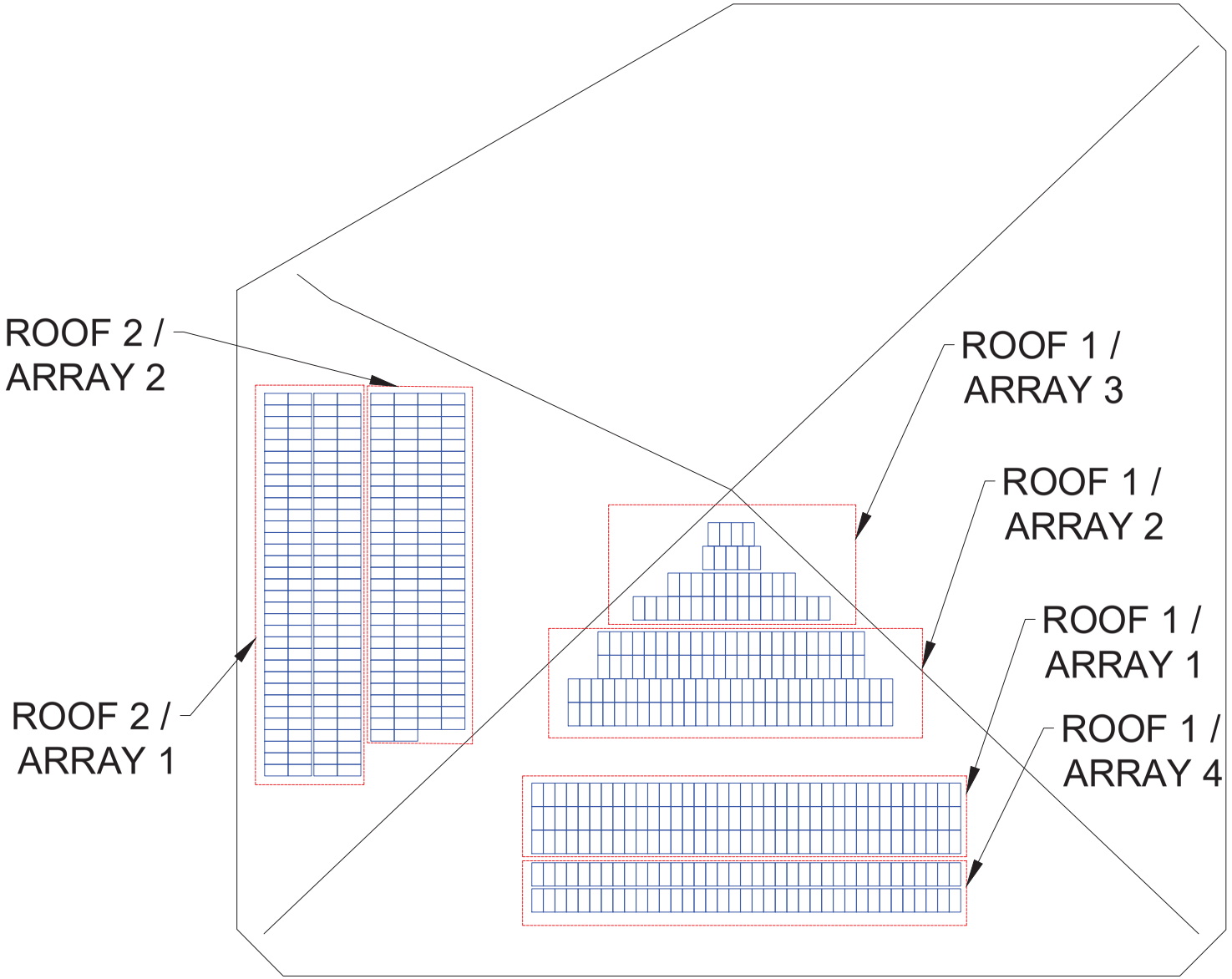
BY: UNIRAC
DATE: 09/29/2022
CHECK / DATE:
SCALE: AS SHOWN

Ozgur, Naci — DIRECTOR OF BDNS / DATE
Walsh, Jake — DIRECTOR OF OPERATIONS / DATE
DIRECTOR OF PLANNING / DATE
Tuttle, Bill — DIRECTOR OF ENGINEERING / DATE
CHIEF ENGINEER / DATE

REF. NOS.
CBS_SJWC

DWG. NO.
RM.100

SHEET 18 OF 27



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FOR

CENTRICA WEST
(VISTA SOLAR, INC.)

APPROVED
City of San Jose, Building Division
Building
Kathy Bucciarelli, P.E. (408) 535-3528
Plan No. 22-055165 Date: 10/26/2022

TITLE

KEY PLAN

SAN JOSE WATER COMPANY

SJWC – ALMADEN
1128 FOXHURST WAY,
SAN JOSE, CA 95120

Ozgur, Naci
DIRECTOR OF EMEA / DATE

DIRECTOR OF OPERATIONS / DATE

Walsh, Jake
DIRECTOR OF PLANNING / DATE

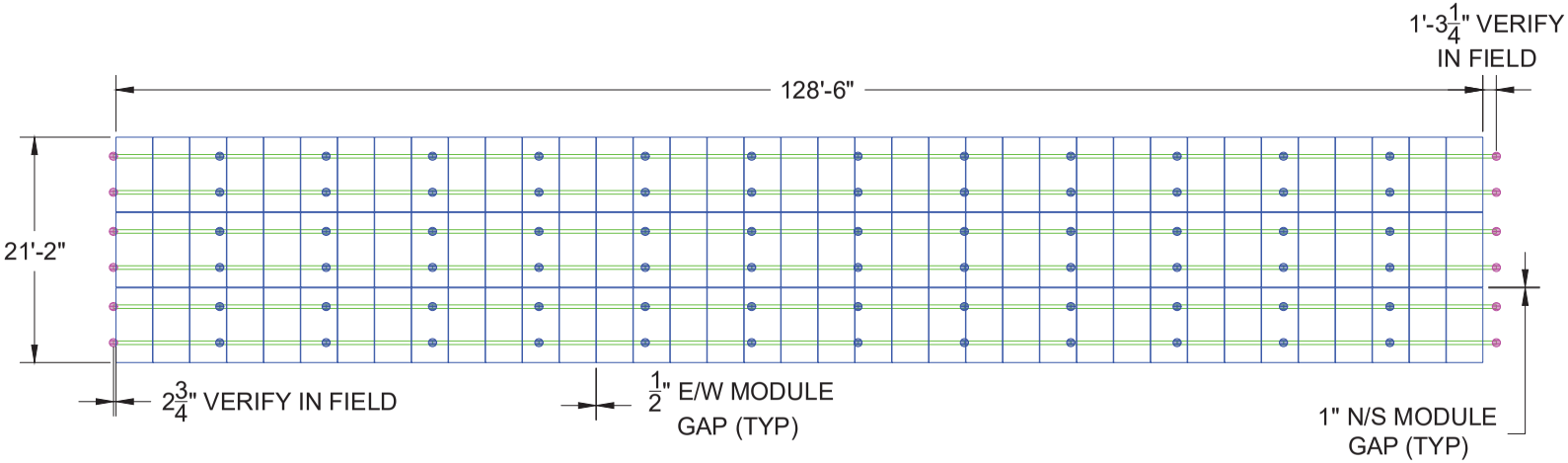
DIRECTOR OF ENGINEERING / DATE

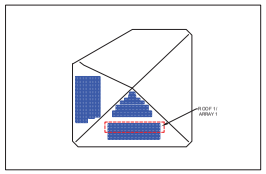
Tuttle, Bill
CHIEF ENGINEER / DATE

BY UNIRAC
DATE 09/29/2022
CHECK / DATE
SCALE AS SHOWN

REF. NOS. CBS_SJWC
DWG. NO. RM.200
SHEET 19 OF 27

- 120" RAIL
- CUT-ONSITE RAIL
#'-#" - CUT-ONSITE RAIL LENGTH
- DOUBLE L-FOOT ATTACHMENT
- SINGLE L-FOOT ATTACHMENT





KEY PLAN
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FOR
CENTRICA WEST
(VISTA SOLAR, INC.)

APPROVED
City of San Jose, Building Division
Building
Kathy Bucciarelli, P.E. (408) 535-3528
Plan No. 22-035165 Date: 10/26/2022

TITLE
ARRAY LAYOUT
ROOF 1 / ARRAY 1

SAN JOSE WATER COMPANY

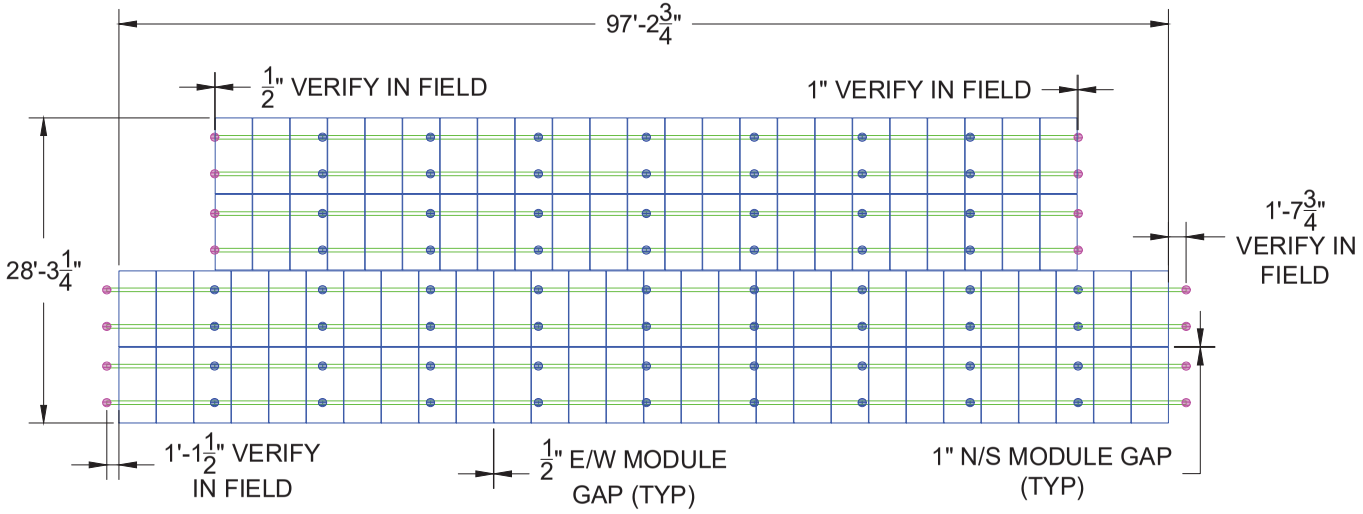
SJWC – ALMADEN
1128 FOXHURST WAY,
SAN JOSE, CA 95120

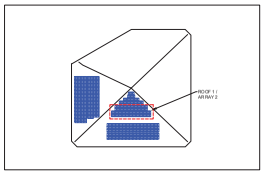
Ozgur, Naci — DIRECTOR OF ENGG / DATE
Walsh, Jake — DIRECTOR OF OPERATIONS / DATE
DIRECTOR OF PLANNING / DATE
Tuttle, Bill — DIRECTOR OF ENGINEERING / DATE
CHIEF ENGINEER / DATE

BY: UNIRAC
DATE: 09/29/2022
CHECK / DATE:
SCALE: AS SHOWN

REF. NOS.: CBS_SJWC
DWG. NO.: RM.301
SHEET 20 OF 27

- 120" RAIL
- CUT-ONSITE RAIL
#'-#" - CUT-ONSITE RAIL LENGTH
- DOUBLE L-FOOT ATTACHMENT
- SINGLE L-FOOT ATTACHMENT





KEY PLAN
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CENTRICA WEST
(VISTA SOLAR, INC.)

APPROVED
City of San Jose, Building Division
Building
Kathy Bucciarelli, P.E. (408) 535-3528
Plan No. 22-055165 Date: 10/26/2022

TITLE

ARRAY LAYOUT
ROOF 1 / ARRAY 2

SAN JOSE WATER COMPANY

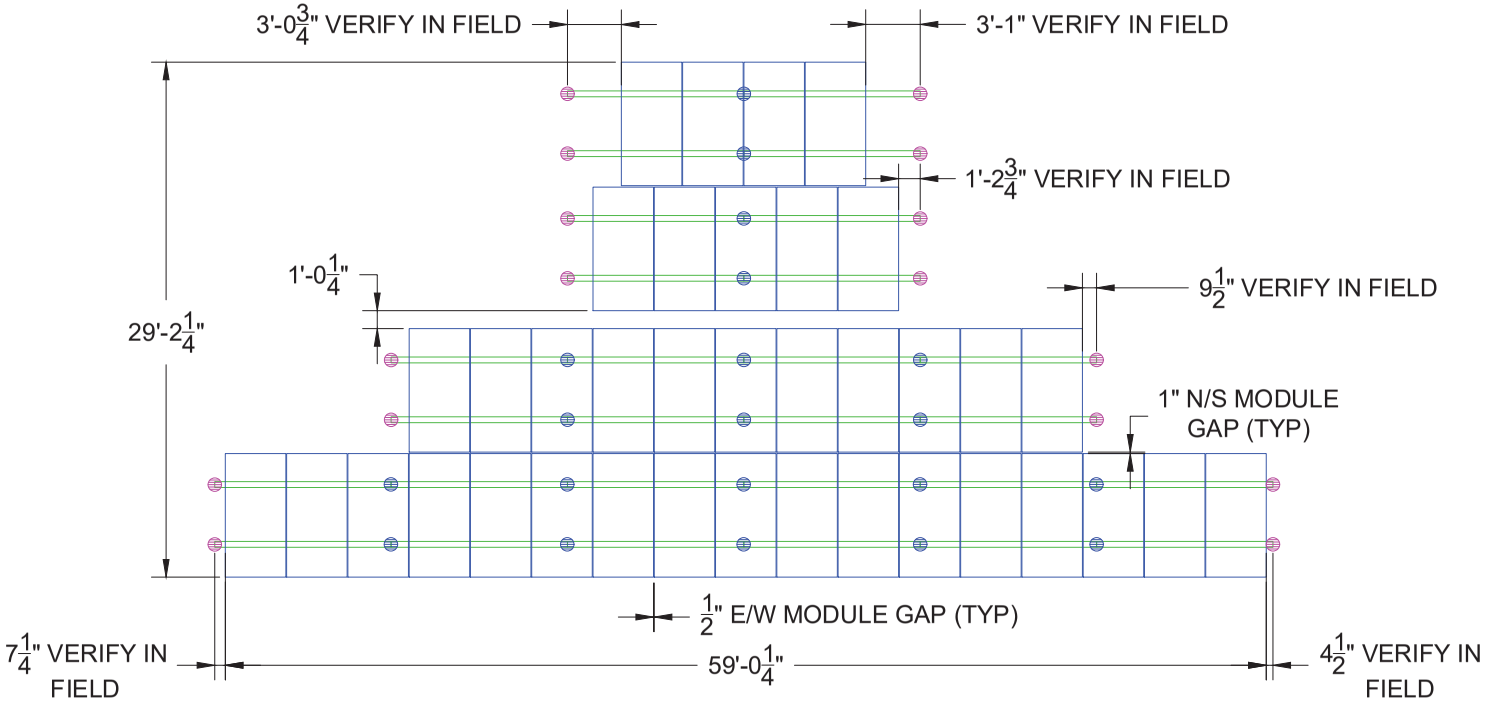
SJWC – ALMADEN
1128 FOXHURST WAY,
SAN JOSE, CA 95120

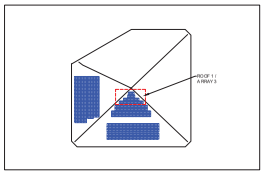
BY	UNIRAC	
DATE	09/29/2022	
CHECK / DATE		
SCALE	AS SHOWN	

Ozgur, Naci — DIRECTOR OF ENG'G / DATE
DIRECTOR OF OPERATIONS / DATE
Walsh, Jake — DIRECTOR OF PLANNING / DATE
DIRECTOR OF ENGINEERING / DATE
Tuttle, Bill — CHIEF ENGINEER / DATE

REF. NOS. CBS_SJWC
DWG. NO. RM.302
SHEET 21 OF 27

- 120" RAIL
- CUT-ONSITE RAIL
#'-#" - CUT-ONSITE RAIL LENGTH
- DOUBLE L-FOOT ATTACHMENT
- SINGLE L-FOOT ATTACHMENT





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CENTRICA WEST
(VISTA SOLAR, INC.)

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City of San Jose, Building Division
Building
Kathy Bucciarelli, P.E. (408) 535-3528
Plan No. 22-055165 Date: 10/26/2022

TITLE

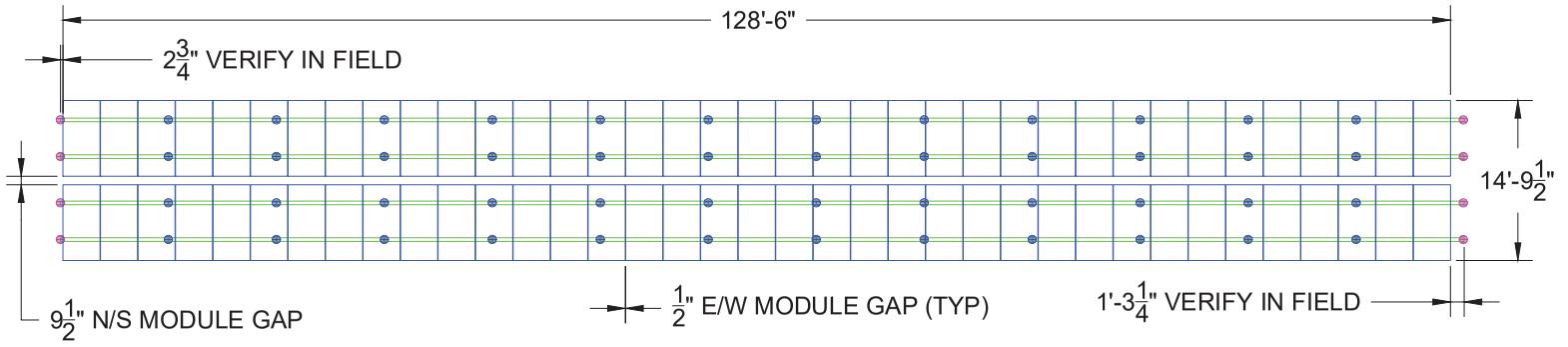
ARRAY LAYOUT
ROOF 1 / ARRAY 3

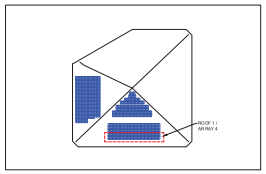
SAN JOSE WATER COMPANY

SJWC – ALMADEN
1128 FOXHURST WAY,
SAN JOSE, CA 95120

BY: UNIRAC	Ozgur, Naci — DIRECTOR OF ENGG / DATE	REF. NOS. CBS_SJWC
DATE: 09/29/2022	Walsh, Jake — DIRECTOR OF OPERATIONS / DATE	
CHECK / DATE:	— DIRECTOR OF PLANNING / DATE	DWG. NO. RM.303
SCALE: AS SHOWN	Tuttle, Bill — DIRECTOR OF ENGINEERING / DATE; CHIEF ENGINEER / DATE	SHEET 22 OF 27

- 120" RAIL
- CUT-ONSITE RAIL
#'-#" - CUT-ONSITE RAIL LENGTH
- DOUBLE L-FOOT ATTACHMENT
- SINGLE L-FOOT ATTACHMENT





KEY PLAN
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PLAN NORTH

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ALBUQUERQUE, NEW MEXICO, USA, 87102
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09/30/2022

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CENTRICA WEST
(VISTA SOLAR, INC.)

APPROVED
City of San Jose, Building Division
Building
Kathy Bucciarelli, P.E. (408) 535-3528
Plan No. 22-055065 Date: 10/26/2022

TITLE

ARRAY LAYOUT
ROOF 1 / ARRAY 4

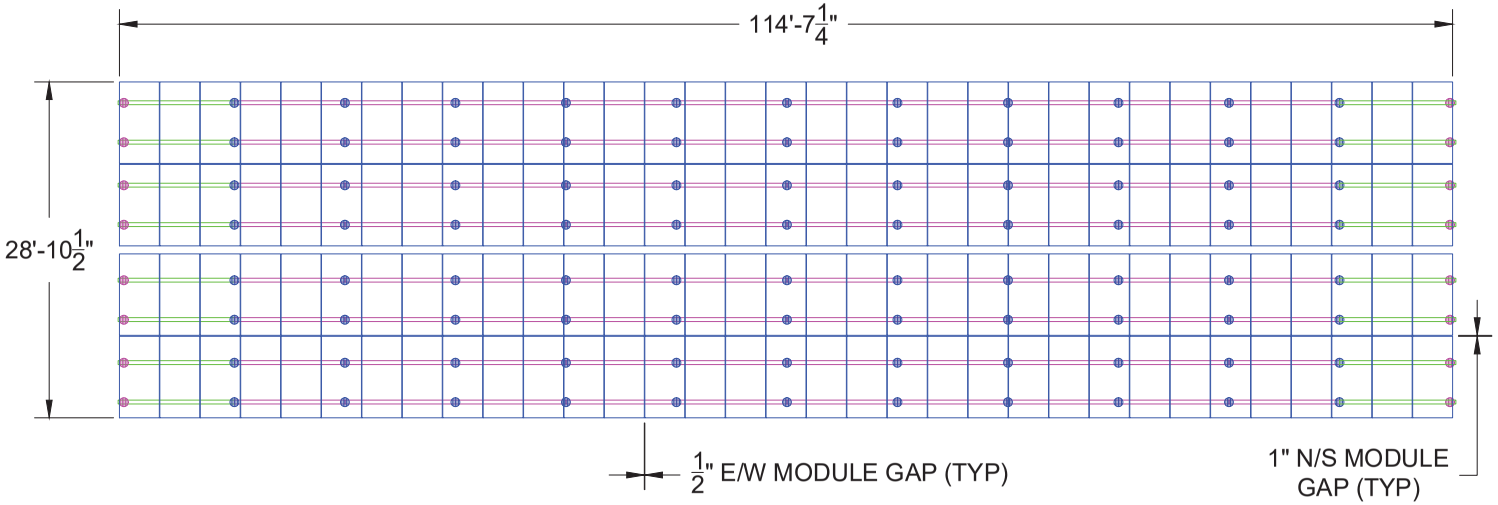
SAN JOSE WATER COMPANY

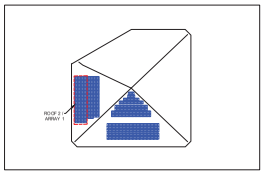
SJWC – ALMADEN
1128 FOXHURST WAY,
SAN JOSE, CA 95120

BY	UNIRAC	REF. NOS.	CBS_SJWC
DATE	09/29/2022	DWG. NO.	RM.304
CHECK / DATE		SHEET	23 OF 27
SCALE	AS SHOWN		

Ozgur, Nac — DIRECTOR OF ENGG / DATE
Walsh, Jak — DIRECTOR OF OPERATIONS / DATE
DIRECTOR OF PLANNING / DATE
Tuttle, Bill — DIRECTOR OF ENGINEERING / DATE
CHIEF ENGINEER / DATE

- 120" RAIL
- 114" RAIL
- CUT-ONSITE RAIL
#-##" - CUT-ONSITE RAIL LENGTH
- DOUBLE L-FOOT ATTACHMENT
- SINGLE L-FOOT ATTACHMENT





KEY PLAN
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PLAN NORTH

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UNIRAC
1411 BROADWAY BOULEVARD NE
ALBUQUERQUE, NEW MEXICO, USA, 87102
WWW.UNIRAC.COM

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CENTRICA WEST
(VISTA SOLAR, INC.)

APPROVED
City of San Jose, Building Division
Building
Kathy Bucciarelli, P.E. (408) 535-3528
Plan No. 22-055065 Date: 10/26/2022

TITLE

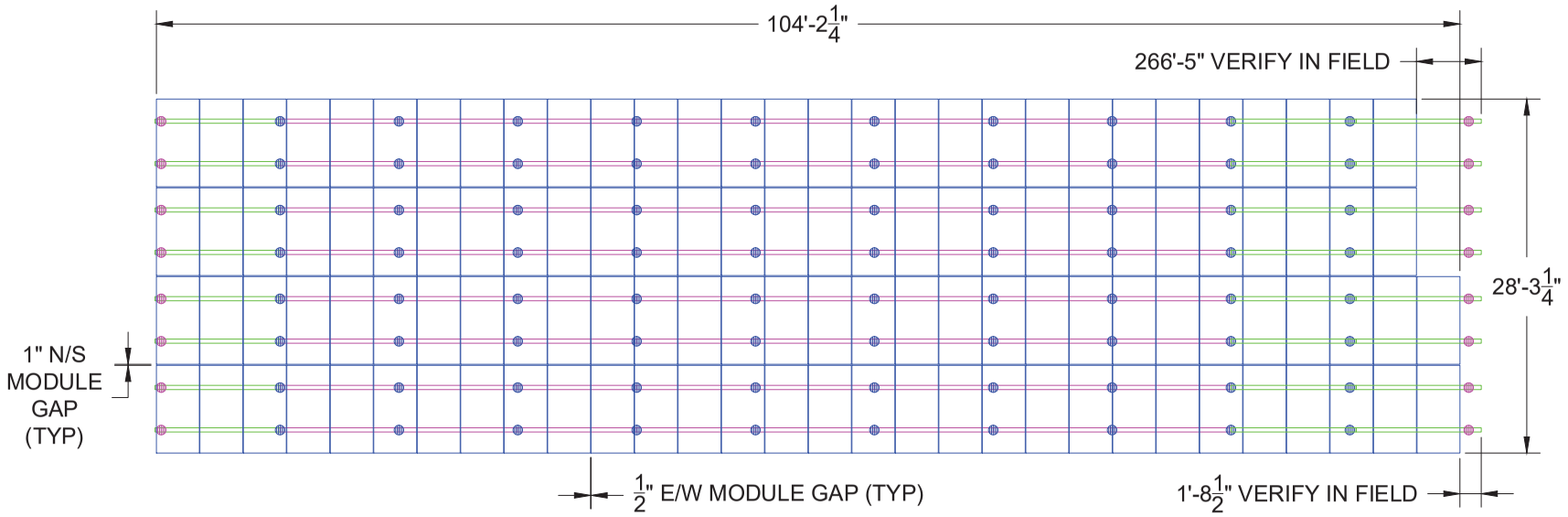
ARRAY LAYOUT
ROOF 2 / ARRAY 1

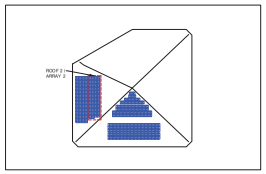
SAN JOSE WATER COMPANY

SJWC – ALMADEN
1128 FOXHURST WAY,
SAN JOSE, CA 95120

BY: UNIRAC	DIRECTOR OF PLANNING / DATE: Walsh, Jake	REF. NOS.: CBS_SJWC
DATE: 09/29/2022	DIRECTOR OF ENGINEERING / DATE: Tuttle, Bill	DWG. NO.: RM.305
CHECK / DATE:	CHIEF ENGINEER / DATE:	SHEET 24 OF 27
SCALE: AS SHOWN		

- 120" RAIL
- 114" RAIL
- CUT-ONSITE RAIL
- #-##" - CUT-ONSITE RAIL LENGTH
- DOUBLE L-FOOT ATTACHMENT
- SINGLE L-FOOT ATTACHMENT





KEY PLAN
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PLAN NORTH

NOT TO SCALE

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1411 BROADWAY BOULEVARD NE
ALBUQUERQUE, NEW MEXICO, USA, 87102
WWW.UNIRAC.COM

ENGINEER'S STAMP

09/30/2022

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FOR

CENTRICA WEST
(VISTA SOLAR, INC.)

APPROVED
City of San Jose, Building Division
Building
Kathy Bucciarelli, P.E. (408) 535-3528
Plan No. 22-055165 Date: 10/26/2022

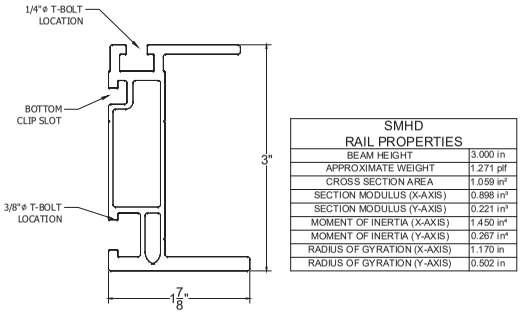
TITLE

ARRAY LAYOUT
ROOF 2 / ARRAY 2

SAN JOSE WATER COMPANY

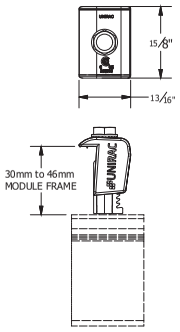
SJWC – ALMADEN
1128 FOXHURST WAY,
SAN JOSE, CA 95120

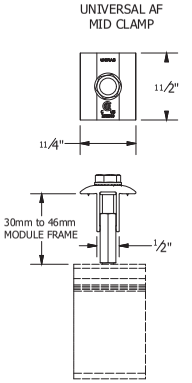
BY: UNIRAC	Ozgur, Naci — DIRECTOR OF SYMS / DATE	
DATE: 09/29/2022	Walsh, Jake — DIRECTOR OF OPERATIONS / DATE	REF. NOS.: CBS_SJWC
CHECK / DATE:	— DIRECTOR OF PLANNING / DATE	DWG. NO.: RM.306
SCALE: AS SHOWN	Tuttle, Bill — DIRECTOR OF ENGINEERING / DATE; CHIEF ENGINEER / DATE	SHEET 25 OF 27



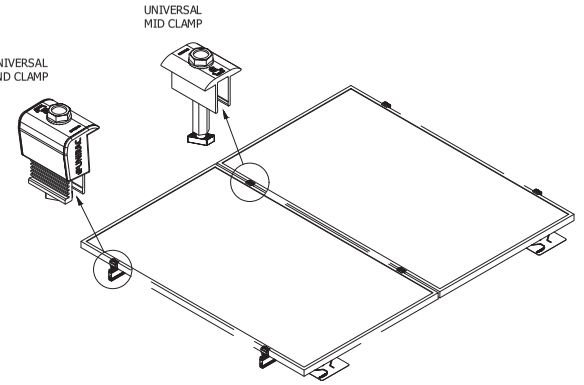
SMHD RAIL PROPERTIES	
BEAM HEIGHT	3.000 in
APPROXIMATE WEIGHT	1.271 plf
CROSS SECTION AREA	1.059 in²
SECTION MODULUS (X-AXIS)	0.898 in³
SECTION MODULUS (Y-AXIS)	0.221 in³
MOMENT OF INERTIA (X-AXIS)	1.450 in⁴
MOMENT OF INERTIA (Y-AXIS)	0.267 in⁴
RADIUS OF GYRATION (X-AXIS)	1.170 in
RADIUS OF GYRATION (Y-AXIS)	0.502 in

1 SMHD RAIL



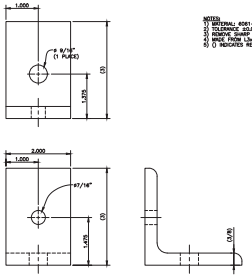


END VIEW - UNIVERSAL AF CLAMP MIDCLAMP

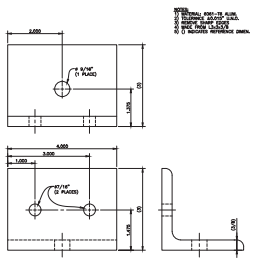


ISO VIEW - INSTALLED

2 UNIVERSAL AF CLAMP MODULE MOUNTING HARDWARE



3 CUSTOM SINGLE L-FOOT SOLAR RAIL ATTACHMENT



4 CUSTOM DOUBLE L-FOOT SOLAR RAIL ATTACHMENT

UNIRAC
1411 BROADWAY BOULEVARD NE
ALBUQUERQUE, NEW MEXICO, USA, 87102
WWW.UNIRAC.COM

ENGINEER'S STAMP

09/30/2022

REVISIONS				
REV	DATE	DESCRIPTION	DRW	CHK
0	09/29/2022	INITIAL RELEASE	IS	NT

FOR

CENTRICA WEST
(VISTA SOLAR, INC.)

APPROVED
City of San Jose, Building Division
Building
Kathy Bucciarelli, P.E. (408) 535-3528
Plan No. 22-055065 Date: 10/26/2022

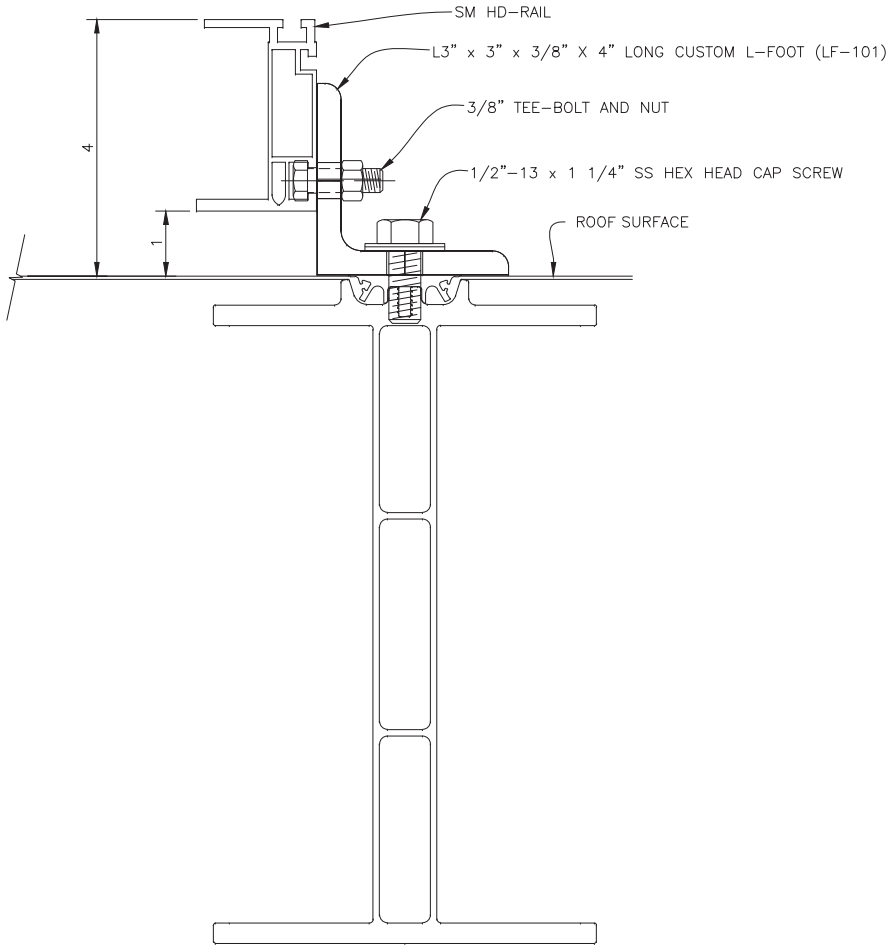
TITLE

SM DETAILS

SAN JOSE WATER COMPANY

SJWC – ALMADEN
1128 FOXHURST WAY,
SAN JOSE, CA 95120

BY UNIRAC	Ozgur, Naci — DIRECTOR OF ENG. / DATE	REF. NOS. CBS_SJWC
DATE 09/29/2022	Walsh, Jake — DIRECTOR OF OPERATIONS / DATE	
CHECK / DATE	— DIRECTOR OF PLANNING / DATE	DWG. NO. RM.400
SCALE AS SHOWN	Tuttle, Bill — DIRECTOR OF ENGINEERING / DATE; CHIEF ENGINEER / DATE	SHEET 26 OF 27



RAIL SECTION AT STRUT SM HD RAIL WITH L-FOOT

UNIRAC
1411 BROADWAY BOULEVARD NE
ALBUQUERQUE, NEW MEXICO, USA, 87102
WWW.UNIRAC.COM

ENGINEER'S STAMP

09/30/2022

REVISIONS				
REV	DATE	DESCRIPTION	DRW	CHK
0	09/29/2022	INITIAL RELEASE	IS	NT

FOR

CENTRICA WEST
(VISTA SOLAR, INC.)

APPROVED
City of San Jose, Building Division
Building
Kathy Bucciarelli, P.E. (408) 535-3528
Plan No. 22-055165 Date: 10/26/2022

TITLE

ATTACHMENT DETAILS

SAN JOSE WATER COMPANY

SJWC – ALMADEN
1128 FOXHURST WAY,
SAN JOSE, CA 95120

	Ozgur, Naci — DIRECTOR OF EMES / DATE	
	DIRECTOR OF OPERATIONS / DATE	
BY: UNIRAC	Walsh, Jake — DIRECTOR OF PLANNING / DATE	REF. NOS.: CBS_SJWC
DATE: 09/29/2022	Tuttle, Bill — DIRECTOR OF ENGINEERING / DATE; CHIEF ENGINEER / DATE	DWG. NO.: RM.500
CHECK / DATE:		
SCALE: AS SHOWN		SHEET 27 OF 27

Physical Security Emergency Management
2022 - 2023
CAPEX Project Projections

Assumptions:

1. All studies/assessments shall be conducted on soon to be retired equipment and new equipment planned to be purched throuh CIP as part of a physical security modernization effort
2. Studdies are intended for CIP projects in 2023 and for 2024 rate-case
3. All systems soffware and hardware shall be amortourized in CIP
4. Utilization of vendors is intended to maximize organizational output and reduce internal strain on resources

Project 1

Title: Physical Security mitigation current state assessment, gap and process analysis and study to define requirements for CAPEX design/build (Consultant/Contract labor only)

Project Description

1. Systems including access control, video surveillance, physical key management, and intrusion detection
2. Physical barriers including fencing, locks, bollards, glass, doors, and walls
3. Policy, SOP, national standards and best practice use of physical security assets and equipment
4. Infrastructure to support situational awareness across a landscape of disparate urban and rural environments

Reason for Work

Objective: Understand our current state, vision of what success looks like, and define milestones/path to achievement

Why: Physical Security assets are siloed, fractured in their approach and application, and lack cohesion to protect water production, storage, processing and delivery.

End Product:

1. Site assessments at 100 Tier 1 AWIA J100 locations
2. Inventory and assessment of equipment and barriers used to protect assets
3. Definition of business requirements, cost, and architecture of CAPEX solutions
4. Evaluation of functions, features and benefits of identified CAPEX solutions
5. Development of KPIs from present state to future state and related data, reports and visualizations
6. Produce RFPs, selection methodology, and evaluate provided CAPEX solution meets/exceeds expectations

Project Manager: Mark Hatcher
Estimated In-Service Date:
Estimated Completion Date:

	2022	2023
Material (include sales tax and freight)	$ -	
Contract Labor (services)	$ 500,000	$ 500,000
Company Labor	$ -	
Contract (installation costs)	$ -	
Permits (if applicable)	$ -	
Contingencies (between 0% and 15%)	~~$ 80,000~~	$80,000
Overhead (16% for constructed assets)	~~$ 80,000~~	
Gross Spend	$ 660,000 $500,000	$ 500,000 $580,000

Index #6129

Physical Security Emergency Management
2022 - 2023
CAPEX Project Projections

Assumptions:

1. All studies/assessments shall be conducted on soon to be retired equipment and new equipment planned to be purched throuh CIP as part of a physical security modernization effort
2. Studdies are intended for CIP projects in 2023 and for 2024 rate-case
3. All systems soffware and hardware shall be amortourized in CIP
4. Utilization of vendors is intended to maximize organizational output and reduce internal strain on resources

Project 2

Title: Emergency Management Emergency Operation Center (EOC) design/build

1. Evaluate current EOC environment and define business requirements
2. Produce engineered floorplan, equipment placement, workflow analysis
3. Scope cost of construction, equipment and installation
4. Build and provide finished product

Reason for Work

Objective: Create an environment where best practice can guide continuity of business in emergency circumstances

Why: SJWC does not have an EOC where real-time information, SOP, and leadership can guide operations in critical situations

End Product:

1. Environment centrally located in SJWC Operations where strategic real-time data can be collocated, stored and viewed
2. Visual platform to receive, share and disseminate reports and notifications of data, video, and audio communications
3. Command and control of strategic resources by key organizational leadership
4. Equipment and resources to document actions through logs, recording, forms and notes

Project Manager: David Fernandez
Estimated In-Service Date:
Estimated Completion Date:

	2022	2023
Material (include sales tax and freight)	$ 245,000	
Contract Labor (services)	$ 160,000	$ -
Company Labor	$ -	
Contract (installation costs)	$ 15,000	
Permits (if applicable)	$ -	
Contingencies (between 0% and 15%)	$ 63,000	
Overhead (16% for constructed assets)	$ 67,200	
Gross Spend	$ 550,200	$ -

90% of costs in 2023

ATTACHMENT 1-3

DR AN9-003

SAN JOSE WATER
110 W. Taylor Street
San Jose, CA 95110-2131

February 6, 2024

Andrew Rubang
Public Advocates Office
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Re: Response to Data Request AN9-003
General Rate Case Application 24-01-001

Dear Mr. Rubang:

Enclosed you will find San Jose Water Company's (SJWC) response to data request DR AN9-003 Recorded Plant dated January 19, 2024. The information was prepared by:

Rick Sekhon
Fixed Assets Manager
(408) 279-7950
rick.sekhon@sjwater.com

Kateline Lin
Engineering Supervisor
(408) 918-7386
Kateline.lin@sjwater.com

SJWC will only provide responses electronically. Hard copies will not be provided.

If you have any questions, please contact me.

Very truly yours,

John B. Tang
Vice President of Regulatory Affairs
& Government Relations

cc: Mukunda Dawadi, Public Advocates Office
Brian Yu, Public Advocates Office

Scott Merrill, Public Advocates Office
Lori Ann Dolqueist, Nossaman

RESPONSES

Utility Plant In Service Additions to Rate Base
For all utility plant in service assets added into rate base between the years 2013 through 2023, please provide an Excel table detailing the following information:

1. A description of asset. Such as asset categories.
2. The project number or index number that can identify the project.
3. The project name.
4. Brief description of the project.
5. The system to which it belongs.
6. The department to which it belongs.
7. The budget group to which it belongs.
8. The month and year the addition was added into rate base.
9. The dollar amount recorded and added into rate base related to the asset.
10. Identify whether the addition is still in service.
11. If the asset has been retired, identify the month and year it was removed from service.
    And provide Net Book Value (NBV) at the time of retirement.
12. The decision in which the budget associated with the asset was adopted into rate base.

SJWC Response:
SJWC provided attachment DR AN9-003 Recorded Plant (Planning Ver) on Janaury 30 without the NBV. SJWC have requested an extension for to provide the NBV.

Please see attachment DR AN9-003 Recorded Plant – Revised. This version includes the NBV. While reviewing the data request, SJWC has discovered an error in the Year added to Rate Base and Year Added to CPR columns. The incorrect date and year was inserted. The correct date and year were inserted in the this revised Excel.

END OF REQUEST

ATTACHMENT 8-1

MDR II.E.11

Pipe Length Installed or In-Progress (2018-23) or Planned (2024-26) by Size and Year									
Diameter (in)	2018	2019	2020	2021	2022	2023	2024	2025	2026
4	4,215	1,731	1,733	4,519	2,817	3,111	4,608	1,790	3,735
6	38,363	50,531	34,247	53,521	82,785	63,048	58,373	73,165	64,345
8	34,070	14,461	23,810	19,410	20,095	35,736	32,270	25,525	29,585
10	29	40	3,758	2,516	2,209	1,065	685	1,180	5,215
12	8,031	20,796	9,294	4,970	6,359	11,549	19,605	8,745	5,875
16	7,468	3,307	0	56	2,125	2,030	5,100	2,390	170
18	1,522	21	0	0	10	0	2,855	980	0
20	360	0	6	0	143	0	0	0	0
24	898	0	806	0	0	295	780	12,615	13,395
30	0	0	4	0	0	0	0	0	4,200
36	0	3,962	2,565	0	0	0	0	0	0
Total Length (Feet)	94,956	94,849	76,223	84,992	116,543	116,834	124,276	126,390	126,520
Total Length (Miles)	18.0	18.0	14.4	16.1	22.1	22.1	23.5	23.9	24.0