REQUEST FOR PROPOSALS

Memorial Park Wastewater Treatment and Infrastructure Replacement Project

County of San Mateo

Department of Public Works

Release Date: SEPTEMBER 26, 2016

Responses must be Received

by 4:00 p.m. Pacific Standard Time

on OCTOBER 21, 2016

REQUEST FOR PROPOSALS

FOR

MEMORIAL PARK WASTEWATER TREATMENT AND INFRASTRUCTURE REPLACEMENT PROJECT

By 4:00 p.m. Pacific Time on October 21, 2016

PROPOSALS WILL NOT BE ACCEPTED AFTER THIS DATE AND TIME

Note regarding the Public Records Act:

Government Code Sections 6250 *et seq.*, the California Public Records Act, defines a public record as any writing containing information relating to the conduct of the public business. The Public Record Act provides that public records shall be disclosed upon written request and that any citizen has a right to inspect any public record unless the document is exempted from disclosure.

Be advised that any contract that eventually arises from this Request For Proposals is a public record in its entirety. Also, all information submitted in response to this Request For Proposals is itself a public record **without exception**. Submission of any materials in response to this Request For Proposals constitutes a waiver by the submitting party of any claim that the information is protected from disclosure. By submitting materials, (1) you are consenting to release of such materials by the County if requested under the Public Records Act without further notice to you and (2) you agree to indemnify and hold harmless the County for release of such information.

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SECTION I – GENERAL INFORMATION

A. STATEMENT OF INTENT

As outlined in detail in Section II – Scope of Work, this Request for Proposals (RFP) seeks a qualified Consultant to design a wastewater treatment and infrastructure replacement for Memorial Park (Project) in the Loma Mar Area. The Consultant will work with the County to replace the aging Wastewater Treatment Plant (WWTP) and wastewater infrastructure; the work includes but is not limited to, perform a condition assessment of the existing wastewater infrastructure, develop conceptual plans, prepare a feasibility study, design, environmental and permitting process, prepare contract plans and specifications, and provide support through the bidding and construction phases of the Project.

The Consultant shall evaluate the existing WWTP, preform a condition assessment of the existing wastewater infrastructure including existing sanitary sewer (SS) lines, laterals, and sanitary sewer manholes (SSMH). The Consultant will then develop a feasibility study to make recommendations to replace the existing WWTP and wastewater infrastructure in the form of a project Feasibility Study. Based on the Feasibility Study, the County will select its preferred WWTP and wastewater infrastructure. The Consultant will then take the selected project through the environmental and permitting process, develop final Plans, Specifications and Engineer's Estimate for the proposed project, and provide support through the bidding and construction phases.

The target start date and term for the proposed services is December 2016 through December 2019, subject to negotiation of a final agreement.

B. BACKGROUND

Memorial Park

Existing WWTP

The existing WWTP at Memorial Park (Park) is over 40 years old and has reached the end of its useful life. It is located in a designated campground near Pescadero Creek and adjacent to several campsites.

The existing WWTP serving the Memorial Park is an extended aeration treatment facility that has a nominal hydraulic capacity of 30,000 gallons per day (gpd). The treatment plant has a design capacity of 15,000 gallons per day with flow equalization and 30,000 gallons per day without flow equalization. The plant consists of four concrete tanks that are used for equalization, aeration, sedimentation, and sludge storage. The final effluent is then pumped through an existing force main to spray irrigation area.

The San Mateo County Parks Department (Parks) hired Kennedy/Jenks Consultants to evaluate three alternatives for rehabilitation or replacement of the existing WWTP serving Memorial Park. Based on the 2003 Preliminary Engineering Report (Report) prepared by Kennedy/Jenks Consultants (Enclosure 5) the most suitable alternative was to abandon the existing WWTP and construct a new WWTP adjacent to an existing storage pond site. The Report is thirteen (13) years old and the conclusions drawn may be outdated and does not account for changes in the Park and wastewater treatment technology since the Report was prepared. This Report is provided for background information only; the Consultant will develop the Feasibility Study and provide their recommendation for the wastewater treatment and infrastructure replacement based on the Parks current condition and projected usage.

The County has records of potable and wastewater data that will be provided to the Consultant to help understand the existing quantity and quality being produce by the existing wastewater treatment plant.

Existing challenges for a WWTP are the variable quantity and quality of the influent entering the system. The current system has large amount of inflow and infiltration from stormwater in sanitary sewer lines which could over flow the system in large storm events. The existing wastewater treatment plant is located near Pescadero Creek, so any overflow or discharge could be release to the environmentally sensitive creek.

Existing Wastewater Infrastructure

The Memorial Park wastewater collection system consists of a sewage treatment plant, pumping stations for a spray field, spray fields, lift pumps, 2.26 miles of 4” and 6” sewer pipes, lateral connections throughout the Park, and numerous leach fields in youth camp areas.

The existing Sanitary Sewer (SS) Lines are shown on Enclosure 6 (Memorial Park Existing Improvement Plans, rev. 11/1/72) and Enclosure 8 (Memorial Park SS Rehabilitation Plans 2000, rev. 7/21/00). Segments of the existing SS lines have been repaired/replaced since 2000.

C. THE REQUEST FOR PROPOSAL PROCESS

This RFP seeks the submission of proposals to provide services from any and all interested and qualified proposers. The County of San Mateo seeks by way of this RFP to obtain the listed services in a manner that maximizes the quality of services while also maximizing value to the County and, by extension, the citizens of the County. Proposers must be able to show that they are capable of performing the services requested. Such evidence includes, but is not limited to, the respondent's demonstrated competency and experience in delivering services of a similar scope and type and local availability of the proposer's personnel and equipment resources.

SECTION II – SCOPE OF WORK

A. DESCRIPTION

The following scope of work for the Project is meant to provide a guideline for the preparation and review of proposals. Responses to this RFP may suggest alternative approaches to the scope, so long as the end result as outlined is achieved. Consultant is advised that each phase outlined below may be issued a Task Order with a not-to-exceed amount, culminating in a not-to-exceed amount for the entirety of the contract.

A majority of the tasks outlined below can be worked on concurrently. The Consultant will need adequate staffing and resources such that tasks may proceed in parallel when appropriate. The Consultant must identify the areas of potential delay and develop a work plan that will minimize these delays to the greatest extent possible.

There will be a pre-proposal field meeting on Thursday October 13, 2016. Meet at the Park Entrance at 9:00am. Consultants are encouraged to visit the site to help them with the proposal and so they are familiar with the existing conditions.

Phase 1. Preliminary Work

Task 1: Survey, Right of Way and Archeology

This task is to conduct a survey that will map the existing physical conditions and infrastructure of the existing wastewater treatment plant, sanitary sewer manholes and sanitary sewer lines (Project area) including any potholing, as needed. Items to be surveyed and mapped include, but are not limited to existing utilities and infrastructure (sewer, sewer laterals, manholes, water, leach fields, etc.) both above and below ground, roadway, existing land uses, and any physical features not mentioned above but would be required and that might affect the Project. Other items determined to be of importance by the Consultant should also be mapped. Consultant is advised that no additional task orders will be issued to survey the Project area in the future if more information is needed to complete any other Tasks in this RFP. The Consultant may choose to perform the survey in two stages. First an overview survey to use for the Feasibility Study and a second more detailed survey to be used for design once a preferred alternative is selected by the County.

Benchmark survey data may be requested through the County's Licensed Land Surveyor. The Consultant will also work with the County's Licensed Land Surveyor to ensure that the data provided to the County is in a format that is acceptable.

The Consultant team will also outline any testing work needed at this point to ensure any potential design will be feasible. Any potholing work, soils testing, boring, or other required testing will need to be accounted for and addressed by the Consultant

teams. The Consultant will be responsible for preparing and obtaining any and all tests that are required for the successful completion of this Project.

Deliverable: One reproducible hard copy (11" x 17"), one electronic file (.pdf) and one set of 2013 AutoCAD Softdesk/Civil 3D drawings of the survey (one draft and one final AutoCAD.dwg).

Task 2: Condition Assessment of Existing Wastewater Infrastructure

This task is to conduct a condition assessment of the existing wastewater infrastructure, including all SS lines, sanitary sewer manholes, sewer laterals, etc. throughout the Park. The Contractor will perform CCTV inspection based on NASSCO Pipeline Assessment and Certification Program (PACP) of the existing SS lines and identify the pipe condition, material, size, sags, root intrusion, etc.

In addition to the CCTV inspection, the Consultant will interview the Park's WWTP operators and Park's staff to develop a full understanding of the infrastructure and its current status, history of the infrastructure system, maintenance demands, and operation.

The results of the condition assessment will become part of the Feasibility Study (see Task 3) and will document the existing condition of the infrastructure (SS lines, SSMHs, etc), the proposed repair/replacement for each segment, a master plan or priority list for infrastructure replacement in the Park, and an engineering estimate of the construction cost for each segment.

Deliverable: One video in DVD format shall be made of the inspection and delivered along with a typed log of the inspection to the County for review and acceptance.

Task 3: Design Recommendations / Feasibility Study

The Consultant will be tasked to evaluate the existing WWTP and existing wastewater infrastructure (SS lines, SSMH, laterals, etc.), proved condition assessment (see Task 2) and provide design alternatives and recommendations for the Feasibility Study. Included in this analysis for the WWTP will be probable decommissioning and demolition cost, restoration of the existing site, replacement construction cost, cost of annual maintenance and operation, operator certification requirements, and impacts to the environment and Park users. The analysis for the wastewater infrastructure will include a condition assessment of each segment (see Task 2), and repair/replacement cost for each segment. The Consultant will prepare proposed construction sequencing to address how wastewater will be treated during construction.

These findings will be summarized in a Feasibility Study based on preliminary engineering analysis, which will contain information about the Project's background, purpose and need, Project description, alternatives investigated, and issues encountered in the engineering, environmental investigations, preliminary

alternatives not considered for recommendation, identification of the recommended alternative, the basis for that recommendation, and preliminary cost estimates.

The analysis will outline the level of CEQA (CATEX, IS/MND or EIR) review that will be required for an alternative evaluated through this Project. The Consultant will prepare a report similar to a Caltrans Preliminary Environmental Analysis Report to determine Project Development Category and type of environmental studies required. The Consultant will provide the report on the level of effort required to obtain CEQA clearance and provide a timeline and estimated budget. This report will be included in the Feasibility Study.

Issues anticipated for discussion in the Feasibility Study, at a minimum, will include environmental permits, ability to obtain required environmental permits, environmentally sensitive areas, environmental mitigation, operation and maintenance cost, estimated construction costs, or various other engineering and/or funding issues, and conclude with a recommendation on how to proceed.

Deliverable: Five (5) reproducible hard copies, and one electronic file (.pdf) of the Draft Feasibility Study and Five (5) reproducible hard copies, and one electronic file (.pdf) Final Feasibility Study.

Task 4: CEQA Compliance

In compliance with the California Environmental Quality Act (CEQA), the Consultant team will prepare an Initial Study and the required environmental document (i.e. negative declaration, mitigated negative declaration, or environmental impact report) to address the environmental impacts associated with the preferred design alternative selected by the County. The Consultant will need to review the necessary areas as per the Initial Study Environmental Evaluation Checklist located on the County of San Mateo's Department of Planning and Building website:

https://planning.smcgov.org/sites/planning.smcgov.org/files/events/CEQA_SRT.pdf

The proposal for this Task shall include any required studies needed to complete the Initial Study. Based on the findings from the Initial Study, the County will authorize the Consultant to move forward with the required CEQA document for the Project. Consultant shall provide a cost estimate for each of the potential documents that may be required:

1) Negative Declaration
2) Mitigated Negative Declaration
3) Environmental Impact Report

Deliverable: Five reproducible hard copies and one electronic file (.pdf) of the environmental document(s) as required (One draft MS Word with two rounds of response to comments, one final PDF and MS Word)

Task 5: Permitting

The Consultant will prepare all permit applications and respond to all questions in order to secure permits for construction of proposed replacement wastewater treatment plant and decommissioning of existing wastewater treatment plant facilities, replacement of SS lines, and any other improvements identified in the Feasibility Study where required. Permit applications shall be prepared for the following regulatory agencies or other agencies, if required: US Army Corps of Engineers, Regional Water Quality Control Board, State Water Resources Control Board, CA Department of Fish and Wildlife, County Department of Environmental Health, NOAA/NMFS, County Planning Division, County Building Division, and any other agencies required.

Phase 2: Design Plans and Specifications

Task 6: Design Plans and Specifications

The design of the Project will incorporate all requirements and ensure that conflicts do not arise during construction. The plans and specifications shall include, but not be limited to: existing and proposed conditions, installation of new WWTP, decommissioning, demolition and restoration of existing WWTP site, or restoration of existing WWTP, replacement of existing SS lines, SS laterals, and SSMH, and any other items needed for the design but not mentioned above for the Project.

The Consultant will need to provide a preliminary and final engineer's estimate and develop preliminary, 60%, 90%, 100% draft and 100% final plans, and a final bid package, that will include all the necessary plans and specifications, permits, monitoring requirements, and reporting requirements. The items above may be used as a guide and are not a comprehensive list of items to be developed and prepared, and any items not mentioned above, but required for a creative, implementable, and successful project design, including items for the various tasks above, will be included and no additional compensation will be allowed therefore.

An in person meeting will be required to review all comments received. All permit conditions shall be incorporated into the Design Plans and Specifications as applicable, and all permits and Final CEQA documents shall be added as appendices.

Design Plans and Specifications shall adhere and incorporate the following standards:

1. Caltrans 2006 Standard Plans and Specifications
2. California 2012 MUTCD
3. County Standard Plans and Specifications
4. Others not mentioned but necessary

Deliverables: Five reproducible hard copies (11"x17"), one electronic file (.pdf) of the Preliminary and Final Estimates, Preliminary and Final Bid Package, Five

reproducible hard copies, one electronic file (.pdf) and one set of CAD drawings (AutoCAD 2013 .dwg format) of the final design (60% Draft Plans with response to comments, 90% Draft Plans with response to comments, 100% Draft Plans with response to comments, and 100% Final Plans)

Task 7: Construction Administration and Support

The Consultant will be required to provide construction administration and support during the bid process. This includes support during the bidding phase, which will include, but is not limited to: pre-bid walkthroughs, responding to RFI's during the bid process, addendums to construction plans, and attending pre-bid meetings. During construction the Consultant will be required to respond to RFI's, review and approve submittals, review of shop drawings, address design changes if needed, and provide final As-Built drawings.

The Consultant shall provide an add alternate bid item for construction management, construction observation and inspection.

Deliverable for add alternative item: One reproducible hard copy, one electronic file (.pdf) and one set of CAD drawings (AutoCAD 2013 .dwg format) of the As-Built drawings.

Incidental Tasks

Task 8: Meeting Attendance/Conference Calls

There will be several meetings during the course of the Project deisgn that will require attendance by the Consultant and other key personnel on the Consultant's team based on the phase of the work. The Consultant will budget (at minimum) attendance at the following meetings:

- Project Kick-off meeting with County
- Design Recommendations Meetings
- CEQA Compliance scoping meeting(s)
- CEQA Compliance adoption Board Meeting
- Meeting at all deliverables (60%, 90%, 100%, etc.)
- Field Inspection Meetings – field meetings as required to facilitate design
- Meetings and Conference Calls with County Staff
- Pre-construction Meeting

This is not intended as a full list of meetings that will be required of the Consultant, but should be used as a guideline on the level of effort and frequency of required meetings. The Consultant will need to prepare and distribute meeting agendas, record and distribute meeting minutes, and provide a conference call in number for any required conference calls.

B. LENGTH OF AGREEMENT

The anticipated duration of the agreement will be for 3 years, with the term tentatively to begin December, 2016 and end December, 2019.

C. ADDITIONAL REQUIREMENTS/CONSIDERATIONS

The Consultant should provide their qualifications with their proposal in the following listed areas; however, if the Consultant does not have the following qualifications they shall hire a sub consultant that does meet the qualifications listed below:

1) At least 3 years of experience with similar work on small wastewater systems

2) Demonstrate experience regionally in the area

3) Experience with permitting of small wastewater treatment plants in California

The Consultant shall provide references that may be contacted by the County to verify their experiences.

SECTION III – GENERAL TERMS AND CONDITIONS

Read all Instructions. Read the entire RFP and all enclosures before preparing your proposal.

Proposal Costs. Costs for developing proposals are entirely the responsibility of the proposer and shall not be charged to the County or otherwise reimbursed by the County.

Proposal Becomes County Property. The RFP and all materials submitted in response to this RFP will become the property of the County.

Questions and Responses Process. Submit all questions relating to this RFP by one of three methods:

A.	**Mailed to:**	Matthew Ruble and Carter Choi County of San Mateo, DPW 555 County Center, 5th Floor Redwood City, CA 94063
B.	**E-mailed to**:	mruble@smcgov.org and cchoi@smcgov.org
C.	**Faxed to:**	650-361-8220 Attn: Matthew Ruble and Carter Choi

All questions must be received no later than 4:00 p.m. on Monday, Oct 11, 2016.

All questions and responses will be posted on the Department website by October 14, 2016 at:

http://publicworks.smcgov.org/memorial-park-wwtp

The Department may, at its option, email prospective proposers with the questions and responses in addition to posting them on the website listed above. If you wish to receive such information, you may email Matthew Ruble and Carter Choi at the email

address above before you submit a proposal. This does not, however, relieve consultants from their responsibility to check the Department website listed above for all questions and responses provided by the Department.

If changes to the RFP are warranted, they will be made in writing, clearly marked as addenda to the RFP, and posted to the website listed above. It is the responsibility of each proposer to check the website listed above for changes and/or clarifications to the RFP prior to submitting a response, and a proposer's failure to do so will not provide a ground for protest.

Alteration of Terms and Clarifications. No alteration or variation of the terms of this RFP is valid unless made or confirmed in writing by the County. Likewise, oral understandings or agreements not incorporated into the final contract are not binding on the County.

If a proposer discovers any ambiguity, conflict, discrepancy, omission, or other error in the RFP, the proposer must immediately notify the County of such error in writing and request modification or clarification of the document. If a proposer fails to notify the County of an error in the RFP prior to the date fixed for submission, the proposer shall submit a response at his/her own risk, and if the proposer enters into a contract, the proposer shall not be entitled to additional compensation or time by reason of the error or its later correction.

Modifications or clarifications to the RFP will be posted to the Department website as outlined in Section III., without divulging the source of the request for same. The Department may, at its discretion, also give electronic notice by email to all parties who have notified the Department of their electronic contact information in response to this RFP, but no party that fails to receive email notice has any basis for protest given that all clarifications will be available online. It is the obligation of all proposing parties to check the Department website for updates regarding the RFP if they wish to be kept advised of clarifications prior to submitting a proposal.

Selection of Provider(s). The selection of a provider will be memorialized in the form of a "County Agreement with Independent Contractor" (see the enclosed sample of the Standard Contract Template), authorized by a resolution of the County Board of Supervisors and signed by both parties.

The County reserves the right to reject any or all proposals without penalty. The County's waiver of any deviation in the proposal shall in no way modify the RFP documents or excuse the proposer from full compliance with any eventual contract.

Once a provider is selected, the Agreement with that provider must still be negotiated and submitted to the County of San Mateo Board of Supervisors for approval, and there is no contractual agreement between the selected provider unless and until the Board of Supervisors accepts and signs the Agreement. Selection of a proposal for negotiation of contract terms and eventual submission to County leadership by way of an

Agreement does not constitute an offer, and proposers acknowledge by submission of a proposal that no agreement is final unless and until approved by the Board of Supervisors.

Equal Benefits. Contractor shall comply with all laws relating to the provision of benefits to its employees and their spouses or domestic partners, including, but not limited to, such laws prohibiting discrimination in the provision of such benefits on the basis that the spouse or domestic partner of the Contractor's employee is of the same or opposite sex as the employee.

Jury Duty. The contractor must comply with the County Ordinance requiring that the contractor have and adhere to a written policy that provides its full-time employees who live in San Mateo County with no fewer than five days of regular pay for actual jury service in San Mateo County. This policy may provide that employees deposit any fees received for such jury service with the contractor or that the contractor deduct from the employee's regular pay the fees received for jury service. See the Jury Service Requirements Chapter 2.85 of the Ordinance Code of San Mateo County enclosure. If the proposer has no employees that qualify for jury duty in San Mateo County, the proposer may satisfy this requirement by providing the County with written confirmation of the fact that (1) it has no such employees and (2) it will comply with the jury service pay ordinance with respect to any future qualifying employees.

Insurance. The County has certain insurance requirements that must be met. In most situations those requirements include the following: the contractor must carry $1,000,000 or more in comprehensive general liability insurance; the contractor must carry motor vehicle liability insurance, and if travel by car is a part of the services being requested, the amount of such coverage must be at least $1,000,000; if the contractor has two or more employees, the contractor must carry the statutory limit for workers' compensation insurance; if the contractor or its employees maintain a license to perform professional services (e.g., architectural, legal, medical, psychological, etc.), the contractor must carry professional liability insurance; and generally the contractor must name the County and its officers, agents, employees, and servants as additional insured on any such policies (except workers compensation). Depending on the nature of the work being performed, additional requirements may need to be met.

Incomplete Proposals May be Rejected. If a proposer fails to satisfy any of the requirements identified in this RFP, the proposer may be considered non-responsive and the proposal may be rejected.

Contact With County Employees. As of the issuance date of this RFP and continuing until the final date for submission of proposals, all proposers are specifically directed not to hold meetings, conferences, or technical discussions with any County employee for purposes of responding to this RFP except as otherwise permitted by this RFP. Any

proposer found to be acting in any way contrary to this directive may be disqualified from entering into any contract that may result from this RFP.

Proposers should submit questions or concerns about the process as stated above. The proposer should not otherwise ask any County employees questions about the RFP or related issues, either orally or by written communication, unless invited to do so.

Travel Costs. If the services requested will require you or your employees to travel to the Bay Area, and if the County opts to permit travel expenses to be reimbursed, there are some general guidelines regarding reimbursement rates that will apply. In general, the following restrictions should be kept in mind: reimbursement for the actual cost of lodging, meals, and incidental expenses ("LM&I Expenses") is limited to the then-current Continental United States ("CONUS") rate for the location of the work being done (San Mateo/Foster City/Belmont, California), as set forth in the Code of Federal Regulations and as listed by the website of the U.S. General Services Administration (available online by searching www.gsa.gov for the term 'CONUS'); airline and car rental travel expenses ("Air & Car Expenses") are limited to reasonable rates obtained through a cost-competitive travel service (for example, a travel or car-rental website), with air travel restricted to coach fares and car rental rates restricted to the mid-level size range or below; and certain other reasonable travel expenses ("Other Expenses") such as taxi fares, parking costs, train or subway costs, etc. may be reimbursable on an actual-cost basis. You should not assume that the County will permit travel from the Bay Area to be reimbursed, and your proposal should include such travel costs if applicable. Travel costs should be minimized or eliminated in order for a proposal to be competitive.

Miscellaneous. This RFP is not a commitment or contract of any kind. The County reserves the right to pursue any and/or all ideas generated by this RFP. The County reserves the right to reject any and all proposals and/or terminate the RFP process if deemed in the best interest of the County. Further, while every effort has been made to ensure the information presented in this RFP is accurate and thorough, the County assumes no liability for any unintentional errors or omissions in this document. The County reserves the right to waive or modify any requirements of this RFP when it determines that doing so is in the best interest of the County. Finally, the County may revise or clarify aspects of the required services after proposals are submitted by communicating directly to some or all of the providers that submitted proposals.

SECTION IV – REQUEST FOR PROPOSALS PROCEDURE

This section describes the general RFP procedure used by the County, and the remaining sections of this RFP list detailed requirements.

A. TENTATIVE SCHEDULE OF EVENTS

EVENT	DATE
Release Request for Proposals	SEPT 26, 2016
Pre-Proposal Field Meeting at 9:00am	OCT 13 , 2016
Questions Submitted to County Deadline by 5:00PM	OCT 13 , 2016
Release Responses to Questions	OCT 18, 2016
Proposal Deadline-Proposal Must be RECEIVED by 4:00PM	OCT 21, 2016
Formal Review of Proposals (1)	OCT 24-OCT 28, 2016
Creation of Short List (1)	OCT 31, 2016
Interview of Short List (1)	NOV 7-NOV 10, 2016
Announcement of Standing(1)	NOV 14, 2016
Protest Deadline (1)	NOV 21, 2016
Final Resolution of a Protest(1)	DEC 5, 2016
Recommendation to Board of Supervisors (1)	DEC 13, 2016

(1) Dates are subject to change

B. SUBMISSION OF PROPOSALS

Proposal: One (1) original and five (5) copies and one (1) PDF copy on a CD must be received and date stamped by the Department no later than 4:00 p.m. on Friday, October 21, 2016 as listed in the TENTATIVE SCHEDULE OF EVENTS. Proposals should be in the format required in Section V. There will be no public opening of proposals. All proposals shall be firm offers, and will so be considered by the County, although the County reserves the right to negotiate terms upon evaluation of the proposals. Proposals will be considered valid offers for a period of ninety (90) days following the close of the RFP.

By submitting a proposal, each proposer certifies that its submission is not the result of collusion or any other activity which would tend to directly or indirectly influence the selection process. The proposal will be used to determine the proposer's capability of rendering the services to be provided. The failure of a proposer to comply fully with the instructions in this RFP may eliminate its proposal from further evaluation as determined in the sole discretion of the County. The County reserves the sole right to evaluate the contents of proposals submitted in response to this RFP and to select a contractor, if any.

Proposals received late will not be opened or given any consideration for the proposed services unless doing so is deemed to be in the best interest of the County, as determined in the sole discretion of the County.

All proposals must be delivered as required by Section V, to:

Department of Public Works
James C. Porter, Director of Public Works
County of San Mateo
555 County Center, 5th Floor
Redwood City, CA 94063-1665

Attention: Gil Tourel, Principal Civil Engineer

Upon receipt by the Department, all proposals will be date/time stamped. All proposals received prior to the deadline for proposals will be kept in a secure place. **Electronic or faxed proposals will not be considered**

C. CONFIDENTIALITY OF PROPOSALS

California Government Code Sections 6250 et seq. (the "California Public Records Act" or the "Act") defines a public record as any writing containing information relating to the conduct of the public business. The Act provides that public records shall be disclosed upon written request and that any citizen has a right to inspect any public record unless the document is exempted from disclosure. The materials submitted in response to this RFP are subject to the California Public Records Act.

Be advised that any contract that eventually arises from this RFP is a public record in its entirety. Also, all information submitted in response to this RFP is itself a public record without exception. Submission of any materials in response to this RFP constitutes a waiver by the submitting party of any claim that the information is protected from disclosure. By submitting materials, (1) you are consenting to release of such materials by the County if requested under the Public Records Act without further notice to you and (2) you agree to indemnify and hold harmless the County for release of such information.

If the County receives a request for any portion of a document submitted in response to this RFP, the County will not assert any privileges that may exist on behalf of the person or entity submitting the proposal, and the County reserves the right to disclose the requested materials without notice to the party who originally submitted the requested material. To the extent consistent with the Public Records Act and applicable case law interpreting those provisions, the County and/or its officers, agents, and employees retain discretion to release or withhold any information submitted in response to this RFP.

Submission of a proposal constitutes a complete waiver of any claims whatsoever against the County and/or its officers, agents, or employees that the County has

violated a proposer's right to privacy, disclosed trade secrets, or caused any damage by allowing the proposal to be inspected.

D. PROPOSAL EVALUATION

All proposals received will be evaluated by an RFP Evaluation Committee. During the evaluation process, the County may require a proposer's representative to answer specific questions orally and/or in writing. The County may also require a visit to the proposer's offices, other field visits or observations by County representatives, or demonstrations as part of the overall RFP evaluation. Once a finalist or group of finalists is selected, additional interactions or information may be required. The most qualified individual or firm will be recommended by the RFP Evaluation Committee based on the overall strength of each proposal, and the evaluation is not restricted to considerations of any single factor such as cost.

Responses to this RFP must adhere to the format for proposals detailed in Section V - PROPOSAL SUBMISSION REQUIREMENTS. The criteria used as a guideline in the evaluation will include, but not be limited to, the following:

- Qualifications and experience of the entity, including capability and experience of key personnel and experience with other public or private agencies to provide these services
- Proposed approach, including clarity of understanding of the scope of services to be provided and appropriateness of the proposed solution/services
- Customer service
- History of successfully performing services for public or private agencies
- Ability to meet any required timelines or other requirements
- Claims and violations against you or your organization
- Cost to the County for the primary services described by this RFP
- References
- Compliance with County RFP and contractual requirements

The County may consider any other criteria it deems relevant, and the Evaluation Committee is free to make any recommendations it deems to be in the best interest of the County. Inaccuracy of any information supplied within a proposal or other errors constitute grounds for rejection of the proposal. However, the County may, in its sole discretion, correct errors or contact a proposer for clarification.

Note that the County reserves the right to evaluate proposals solely based on each provider's written submission. In relation to written materials, evaluation will be performed only on the material included directly in the proposal itself unless otherwise indicated or requested by the County. Your proposal must be complete without relying on external websites, sales brochures, marketing materials or white papers.

The County reserves the right to accept proposals other than those with lowest costs.

E. PROPOSAL RECOMMENDATION

The Evaluation Committee will recommend a provider or providers or may recommend that the proposals be rejected. The County will then make its own decision as to whether to accept or reject the recommendations from the Evaluation Committee. Ultimate acceptance or rejection of the recommended proposal and execution of a contractual agreement is the independent prerogative of the County, notwithstanding any recommendations made by the Evaluation Committee. The County reserves the right to negotiate with any provider to finalize an agreement in relation to the proposer's response.

F. NOTICE TO PROPOSERS

The County is not required to give notice to proposers in any specific format or on any particular timeline. At some point prior to execution of a final agreement for the requested services, the County will notify those who submitted proposals of their non-selection. Proposers may be notified at different times depending on the needs of the County.

G. PROTEST PROCESS

If a proposer desires to protest the selection decision, the proposer must submit by facsimile or email a written protest within five (5) business days after the delivery of the notice about the decision. The written protest should be submitted to the Director of Public Works as outlined below. Protests received after the deadline will not be accepted. Protests must be in writing, must include the name and address of the proposer and the RFP number, and must state all the specific grounds for the protest. A protest that merely addresses a single aspect of the selected proposal (for example, comparing the cost of the selected proposal in relation to the non-selected proposal) is not sufficient to support a protest. A successful protest will include sufficient evidence and analysis to support a conclusion that the selected proposal, taken as a whole, is an inferior proposal.

The County will respond to a protest within ten (10) business days of receiving it, and the County may, at its election, set up a meeting with the proposer to discuss the concerns raised by the protest. The decision of the County will be final. The protest letter must be sent as follows:

James C. Porter
Director of Public Works
jporter@smcgov.org
Facsimile: 650-361-8220

SECTION V – PROPOSAL SUBMISSION REQUIREMENTS

The proposal should be submitted in the following format:

A. GENERAL INSTRUCTIONS

All proposals should be typewritten or prepared on a computer and have consecutively numbered pages, including any exhibits, charts, and/or other attachments.

All proposals should adhere to the specified content and sequence of information described by this RFP.

Submit one (1) original and five (5) copies and provide a PDF copy on a CD. All printing shall be double-sided (duplex).

B. COVER LETTER

Provide a one page cover letter on your letterhead that includes the address, voice and facsimile numbers, and e-mail address of the contact person or persons. List the name and title of each person authorized to represent the proposer in negotiations.

Unless the proposer is an individual, all proposals must be signed with a firm/company/partnership/entity name and by a responsible officer or employee indicating that officer or employee's authorization to commit the proposer to the terms of the proposal. Obligations assumed by such signature must be fulfilled.

C. SPECIFIED CONTENT AND DETAILED SEQUENCE OF INFORMATION IN THE RFP

Each proposal should include sections addressing the following information in the order shown in the following section. The proposer should be sure to include all information that it feels will enable the Evaluation Committee and, ultimately, the County to make a decision. Failure of the proposer to provide specific, detailed information may result in its proposal being rejected in favor of a sufficiently-detailed proposal. Any necessary exhibits or other information, including information not specifically requested by this RFP but that you feel would be helpful, should be attached to the end of the proposal. The party submitting the materials should keep in mind the limitations on confidential information described in Section IV.

D. TABBING OF SECTIONS

TAB 1 Qualifications and Experience (5-duplex pages (equal to 10 single sided) maximum):

1) Provide a one page introduction that demonstrates an overview of your firm's history and provide a project overview based on the Scope of Work presented in this RFP. The Consultant will provide a high level description of their approach to addressing the project tasks.

2) Provide a statement of qualifications for your organization, including an organization chart, a statement of the size of firm, a description of services provided by your organization, and a statement of the extent of experience/history providing the services requested by this RFP.
3) Provide a summary and details of prior experience working on similar types of projects. Please provide past experience with a similar scope and scale of project and how these past projects are similar to what is requested in this RFP.
4) How many full time employees (FTEs) do you plan to assign to this project if you are selected? Include total number of employees assigned to the project and total number of employees who will be assigned to the project on a full time basis.
5) How many people in total are employed by your company? Please delineate between employees and sub-consultants.
6) If applicable, list the professional qualifications for each individual that would be assigned to provide services requested by this RFP, including date and school of any applicable degrees, additional applicable training, and any professional certifications/licensing. In lieu of listing this information, you may submit a resume or curriculum vitae (CV) for each such individual if the resume/CV includes all the requested information. Resume/CV will not be counted towards the page limit for TAB 1.
7) If your firm requires the services of other sub-consultants for some of the qualifying elements, please indicate and include sub-consultant information in support of their qualifying experience for that particular element. Include that information with the proposal.

TAB 2 Proposed Approach (10-duplex pages (equal to 20 single sided) maximum):

This section must describe the Consultant's proposed approach for meeting the services required by the Department, as listed in Section II. Relevant considerations include the quality and feasibility of the Consultant's approach to meeting these needs, the manner in which adequate staffing is to be provided (including planning for absences and back-up coverage, training, background checks, and monitoring, etc.), and equipment or other resources provided by you (if applicable). Remain cognizant of the following considerations when responding to the RFP:

1) Describe how you will fulfill the requirements of the Department included in this RFP. Please attach a Project plan, if appropriate. Provide a detailed Project approach description. Identify any unique insights or strengths that your firm may have related to this Project. Provide a description of the required tasks and how each task will be undertaken by the design team. Add details on how each task will be accomplished and provide a potential

timeline of the anticipated work and key issues that may affect this timeline. Include any issues that you believe will require special consideration or attention during the design phase.

2) List any needs for physical space and/or equipment at the Department.
3) Identify how you will meet all other aspects of the scope of work and related requirements listed in Section II, above, and list any items you cannot provide.
4) Describe the measurements/metrics/deliverables/assessments you will provide to allow the Department to assess the services you will provide. Provide information on how deliverables will be provided to the County and how comments on draft deliverables will be addressed.
5) Provide information on any other pertinent services, if any, you can offer that will enhance the project or project delivery.

TAB 3 Customer Service (1-single sided page maximum):

1) How will your services meet the needs of County customers and/or the public?
2) In the event of a routine problem, who is to be contacted within your organization?
3) In the event of the identification of a problem by the County, its customers and/or other applicable constituents, describe how you will address such problems and the timeframe for addressing them.

TAB 4 Claims, Licensure, Non-Discrimination, and Health Insurance Portability and Accountability Act (HIPAA) Violations Against Your Organization:

List any current licensure, HIPAA, non-discrimination claims against you/your organization and those having occurred in the past five years, especially any resulting in claims or legal judgments against you.

TAB 5 Cost to the Department for Primary Services (4-duplex pages (equal to 8 single sided) maximum):

1) Provide a detailed explanation for all costs associated with the Project budget. Provide a proposed hourly rate schedule for your firm and that of each sub-consultant. Both of these will need to be provided in a sealed envelope with the proposal. The envelope will be opened after the competing firm(s) have been ranked according to the proposal evaluation rating criteria and selection interviews.
2) Is travel time to the Department expected to be billable? If so, how will travel time invoices be calculated? Generally, proposals that do not include such travel

time or expenses are preferred unless the services requested require travel as part of the service.

TAB 6 References (1-duplex page (equal to 2 single sided) maximum):

1) List at least three business references for which you have recently provided similar services. Include contact names and phone numbers for all references provided.
2) Provide at least three client references, if applicable and appropriate, for whom you provide more than occasional services. Include names and phone numbers for these individuals.

TAB 7 Statement of Compliance with County Contractual Requirements (1-single sided page maximum):

A sample of the County's standard contract (including Exhibits A and B) is attached to this RFP. Each proposal must include a statement of the proposer's commitment and ability to comply with each of the terms of the County's standard contract, including but not limited to the following:

1) The County non-discrimination policy
2) The County equal employment opportunity requirements
3) County requirements regarding employee benefits
4) The County jury service pay ordinance
5) The hold harmless provision
6) County insurance requirements
7) All other provisions of the standard contract

In addition, the proposer should include a statement that it will agree to have any disputes regarding the contract venued in San Mateo County or Northern District of California.

The proposal must state any objections to any terms in the County's contract template and provide an explanation for the inability to comply with the required term(s). If no objections are stated, the County will assume the proposer is prepared to sign the County standard contract template as-is.

NOTE: The sample standard contract enclosed with this RFP is a template and does not constitute the final agreement to be prepared for the selected Consultant. Do not insert any information or attempt to complete the enclosed sample contract template. Once a Consultant is selected, the County will work with the selected Consultant to draft a Consultant-specific contract using the template. However, each proposal should address the general terms of the standard contract as requested within this RFP.

SECTION VI – ENCLOSURES

Enclosure 1 Sample of Standard Contract Template

Enclosure 2 Jury Service Requirements Chapter 2.85 of the Ordinance Code of San Mateo County

Enclosure 3 Attachment I: Assurance of Compliance with Section 504 of the Rehabilitation Act of 1973, as Amended

Enclosure 4 List of Consultants

Enclosure 5 2003 Preliminary Engineering Report prepared by Kennedy/Jenks Consultants

Enclosure 6 Memorial Park Existing Improvements Plans (rev. 11/1/72)

Enclosure 7 Memorial Park Water Treatment Improvement Plans (10/17/14)

Enclosure 8 Memorial Park SS Rehabilitation Plans 2000 (7/21/00)

Agreement No. _____

AGREEMENT BETWEEN THE COUNTY OF SAN MATEO AND [Contractor name]

This Agreement is entered into this _____ day of _____ , 20_____, by and between the County of San Mateo, a political subdivision of the state of California, hereinafter called "County," and [Insert contractor legal name here], hereinafter called "Contractor."

* * *

Whereas, pursuant to Section 31000 of the California Government Code, County may contract with independent contractors for the furnishing of such services to or for County or any Department thereof; and

Whereas, it is necessary and desirable that Contractor be retained for the purpose of providing engineering and other related professional and technical services in connection with the Memorial Park Wastewater Treatment Project.

Now, therefore, it is agreed by the parties to this Agreement as follows:

1. Exhibits and Attachments

The following exhibits and attachments are attached to this Agreement and incorporated into this Agreement by this reference:

Exhibit A—Services
Exhibit B—Payments and Rates
Attachment I—§ 504 Compliance
Attachment IP – Intellectual Property

2. Services to be performed by Contractor

In consideration of the payments set forth in this Agreement and in Exhibit B, Contractor shall perform services for County in accordance with the terms, conditions, and specifications set forth in this Agreement and in Exhibit A.

3. Payments

In consideration of the services provided by Contractor in accordance with all terms, conditions, and specifications set forth in this Agreement and in Exhibit A, County shall make payment to Contractor based on the rates and in the manner specified in Exhibit B. County reserves the right to withhold payment if County determines that the quantity or quality of the work performed is unacceptable. In no event shall County's total fiscal obligation under this Agreement exceed [write out amount] ($Amount). In the event that the County makes any advance payments, Contractor agrees to refund any amounts in excess of the amount owed by the County at the time of contract termination or expiration. Contractor is not entitled to payment for work not performed as required by this agreement.

4. Term

Subject to compliance with all terms and conditions, the term of this Agreement shall be from [Month and day] , 20[last 2 digits of start year], through [Month and day] , 20[last 2 digits of end year].

5. Termination

This Agreement may be terminated by Contractor or by the [Title of County Department Head] or his/her designee at any time without a requirement of good cause upon thirty (30) days' advance written notice to the other party. Subject to availability of funding, Contractor shall be entitled to receive payment for work/services provided prior to termination of the Agreement. Such payment shall be that prorated portion of the full payment determined by comparing the work/services actually completed to the work/services required by the Agreement.

County may terminate this Agreement or a portion of the services referenced in the Attachments and Exhibits based upon the unavailability of Federal, State, or County funds by providing written notice to Contractor as soon as is reasonably possible after County learns of said unavailability of outside funding.

County may terminate this Agreement for cause. In order to terminate for cause, County must first give Contractor notice of the alleged breach. Contractor shall have five business days after receipt of such notice to respond and a total of ten calendar days after receipt of such notice to cure the alleged breach. If Contractor fails to cure the breach within this period, County may immediately terminate this Agreement without further action. The option available in this paragraph is separate from the ability to terminate without cause with appropriate notice described above. In the event that County provides notice of an alleged breach pursuant to this section, County may, in extreme circumstances, immediately suspend performance of services and payment under this Agreement pending the resolution of the process described in this paragraph. County has sole discretion to determine what constitutes an extreme circumstance for purposes of this paragraph, and County shall use reasonable judgment in making that determination.

6. Contract Materials

At the end of this Agreement, or in the event of termination, all finished or unfinished documents, data, studies, maps, photographs, reports, and other written materials (collectively referred to as "contract materials") prepared by Contractor under this Agreement shall become the property of County and shall be promptly delivered to County. Upon termination, Contractor may make and retain a copy of such contract materials if permitted by law.

7. Relationship of Parties

Contractor agrees and understands that the work/services performed under this Agreement are performed as an independent contractor and not as an employee of County and that neither Contractor nor its employees acquire any of the rights, privileges, powers, or advantages of County employees.

8. **Hold Harmless**

a. General Hold Harmless

Contractor shall indemnify and save harmless County and its officers, agents, employees, and servants from all claims, suits, or actions of every name, kind, and description resulting from this Agreement, the performance of any work or services required of Contractor under this Agreement, or payments made pursuant to this Agreement brought for, or on account of, any of the following:

(A) injuries to or death of any person, including Contractor or its employees/officers/agents;

(B) damage to any property of any kind whatsoever and to whomsoever belonging;

(C) any sanctions, penalties, or claims of damages resulting from Contractor's failure to comply, if applicable, with the requirements set forth in the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and all Federal regulations promulgated thereunder, as amended; or

(D) any other loss or cost, including but not limited to that caused by the concurrent active or passive negligence of County and/or its officers, agents, employees, or servants. However, Contractor's duty to indemnify and save harmless under this Section shall not apply to injuries or damage for which County has been found in a court of competent jurisdiction to be solely liable by reason of its own negligence or willful misconduct.

The duty of Contractor to indemnify and save harmless as set forth by this Section shall include the duty to defend as set forth in Section 2778 of the California Civil Code.

b. Intellectual Property Indemnification

Contractor hereby certifies that it owns, controls, and/or licenses and retains all right, title, and/or interest in and to any intellectual property it uses in relation to this Agreement, including the design, look, feel, features, source code, content, and/or other technology relating to any part of the services it provides under this Agreement and including all related patents, inventions, trademarks, and copyrights, all applications therefor, and all trade names, service marks, know how, and trade secrets (collectively referred to as "IP Rights") except as otherwise noted by this Agreement.

Contractor warrants that the services it provides under this Agreement do not infringe, violate, trespass, or constitute the unauthorized use or misappropriation of any IP Rights of any third party. Contractor shall defend, indemnify, and hold harmless County from and against all liabilities, costs, damages, losses, and expenses (including reasonable attorney fees) arising out of or related to any claim by a third party that the services provided under this Agreement infringe or violate any third-party's IP Rights provided any such right is enforceable in the United States. Contractor's duty to defend, indemnify, and hold harmless under this Section applies only provided that: (a) County notifies Contractor promptly in writing of any notice of any such third-party claim; (b) County cooperates with Contractor, at Contractor's expense, in all reasonable respects in connection with the investigation and defense of any such third-party claim; (c) Contractor retains sole control of the defense of any action on any such claim and all negotiations for its settlement or compromise (provided Contractor shall not have the right to settle any criminal action, suit, or proceeding without County's prior written consent, not to be unreasonably withheld, and provided further that any settlement permitted under this Section shall not impose any financial or other obligation on County, impair any right of County, or contain any stipulation, admission, or acknowledgement of wrongdoing on the part of County without County's prior written consent, not to be unreasonably withheld); and (d) should services under this Agreement become, or in Contractor's opinion be likely to become, the subject of such a claim, or in the event such a third party claim or threatened claim causes County's reasonable use of the services under this Agreement to be seriously endangered or disrupted, Contractor shall, at Contractor's option and expense, either: (i) procure for County the right to continue using the services without infringement or (ii) replace or modify the services so that they become non-infringing but remain functionally equivalent.

Notwithstanding anything in this Section to the contrary, Contractor will have no obligation or liability to County under this Section to the extent any otherwise covered claim is based upon: (a) any aspects of the services under this Agreement which have been modified by or for County (other than modification performed by, or at the direction of, Contractor) in such a way as to cause the alleged infringement at

issue; and/or (b) any aspects of the services under this Agreement which have been used by County in a manner prohibited by this Agreement.

The duty of Contractor to indemnify and save harmless as set forth by this Section shall include the duty to defend as set forth in Section 2778 of the California Civil Code.

9. Assignability and Subcontracting

Contractor shall not assign this Agreement or any portion of it to a third party or subcontract with a third party to provide services required by Contractor under this Agreement without the prior written consent of County. Any such assignment or subcontract without County's prior written consent shall give County the right to automatically and immediately terminate this Agreement without penalty or advance notice.

10. Insurance

a. General Requirements

Contractor shall not commence work or be required to commence work under this Agreement unless and until all insurance required under this Section has been obtained and such insurance has been approved by County's Risk Management, and Contractor shall use diligence to obtain such insurance and to obtain such approval. Contractor shall furnish County with certificates of insurance evidencing the required coverage, and there shall be a specific contractual liability endorsement extending Contractor's coverage to include the contractual liability assumed by Contractor pursuant to this Agreement. These certificates shall specify or be endorsed to provide that thirty (30) days' notice must be given, in writing, to County of any pending change in the limits of liability or of any cancellation or modification of the policy.

b. Workers' Compensation and Employer's Liability Insurance

Contractor shall have in effect during the entire term of this Agreement workers' compensation and employer's liability insurance providing full statutory coverage. In signing this Agreement, Contractor certifies, as required by Section 1861 of the California Labor Code, that (a) it is aware of the provisions of Section 3700 of the California Labor Code, which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of the Labor Code, and (b) it will comply with such provisions before commencing the performance of work under this Agreement.

c. Liability Insurance

Contractor shall take out and maintain during the term of this Agreement such bodily injury liability and property damage liability insurance as shall protect Contractor and all of its employees/officers/agents while performing work covered by this Agreement from any and all claims for damages for bodily injury, including accidental death, as well as any and all claims for property damage which may arise from Contractor's operations under this Agreement, whether such operations be by Contractor, any subcontractor, anyone directly or indirectly employed by either of them, or an agent of either of them. Such insurance shall be combined single limit bodily injury and property damage for each occurrence and shall not be less than the amounts specified below:

(a) Comprehensive General Liability… $1,000,000

(b) Motor Vehicle Liability Insurance… $1,000,000

(c) Professional Liability…….. $1,000,000

County and its officers, agents, employees, and servants shall be named as additional insured on any such policies of insurance, which shall also contain a provision that (a) the insurance afforded thereby to County and its officers, agents, employees, and servants shall be primary insurance to the full limits of liability of the policy and (b) if the County or its officers, agents, employees, and servants have other insurance against the loss covered by such a policy, such other insurance shall be excess insurance only.

In the event of the breach of any provision of this Section, or in the event any notice is received which indicates any required insurance coverage will be diminished or canceled, County, at its option, may, notwithstanding any other provision of this Agreement to the contrary, immediately declare a material breach of this Agreement and suspend all further work and payment pursuant to this Agreement.

11. Compliance With Laws

All services to be performed by Contractor pursuant to this Agreement shall be performed in accordance with all applicable Federal, State, County, and municipal laws, ordinances, and regulations, including but not limited to the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Federal Regulations promulgated thereunder, as amended (if applicable), the Business Associate requirements set forth in Attachment H (if attached), the Americans with Disabilities Act of 1990, as amended, and Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of disability in programs and activities receiving any Federal or County financial assistance. Such services shall also be performed in accordance with all applicable ordinances and regulations, including but not limited to appropriate licensure, certification regulations, provisions pertaining to confidentiality of records, and applicable quality assurance regulations. In the event of a conflict between the terms of this Agreement and any applicable State, Federal, County, or municipal law or regulation, the requirements of the applicable law or regulation will take precedence over the requirements set forth in this Agreement.

Contractor will timely and accurately complete, sign, and submit all necessary documentation of compliance.

12. Non-Discrimination and Other Requirements

a. General Non-discrimination

No person shall be denied any services provided pursuant to this Agreement (except as limited by the scope of services) on the grounds of race, color, national origin, ancestry, age, disability (physical or mental), sex, sexual orientation, gender identity, marital or domestic partner status, religion, political beliefs or affiliation, familial or parental status (including pregnancy), medical condition (cancer-related), military service, or genetic information.

b. Equal Employment Opportunity

Contractor shall ensure equal employment opportunity based on objective standards of recruitment, classification, selection, promotion, compensation, performance evaluation, and management relations for all employees under this Agreement. Contractor's equal employment policies shall be made available to County upon request.

c. Section 504 of the Rehabilitation Act of 1973

Contractor shall comply with Section 504 of the Rehabilitation Act of 1973, as amended, which provides that no otherwise qualified individual with a disability shall, solely by reason of a disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in the performance of any services this Agreement. This Section applies only to contractors who are providing services to members of the public under this Agreement.

d. Compliance with County's Equal Benefits Ordinance

Contractor shall comply with all laws relating to the provision of benefits to its employees and their spouses or domestic partners, including, but not limited to, such laws prohibiting discrimination in the provision of such benefits on the basis that the spouse or domestic partner of the Contractor's employee is of the same or opposite sex as the employee.

e. Discrimination Against Individuals with Disabilities

The nondiscrimination requirements of 41 C.F.R. 60-741.5(a) are incorporated into this Agreement as if fully set forth here, and Contractor and any subcontractor shall abide by the requirements of 41 C.F.R. 60–741.5(a). This regulation prohibits discrimination against qualified individuals on the basis of disability and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified individuals with disabilities.

f. History of Discrimination

Contractor certifies that no finding of discrimination has been issued in the past 365 days against Contractor by the Equal Employment Opportunity Commission, the California Department of Fair Employment and Housing, or any other investigative entity. If any finding(s) of discrimination have been issued against Contractor within the past 365 days by the Equal Employment Opportunity Commission, the California Department of Fair Employment and Housing, or other investigative entity, Contractor shall provide County with a written explanation of the outcome(s) or remedy for the discrimination prior to execution of this Agreement. Failure to comply with this Section shall constitute a material breach of this Agreement and subjects the Agreement to immediate termination at the sole option of the County.

g. Reporting; Violation of Non-discrimination Provisions

Contractor shall report to the County Manager the filing in any court or with any administrative agency of any complaint or allegation of discrimination on any of the bases prohibited by this Section of the Agreement or the Section titled "Compliance with Laws". Such duty shall include reporting of the filing of any and all charges with the Equal Employment Opportunity Commission, the California Department of Fair Employment and Housing, or any other entity charged with the investigation or adjudication of allegations covered by this subsection within 30 days of such filing, provided that within such 30 days such entity has not notified Contractor that such charges are dismissed or otherwise unfounded. Such notification shall include a general description of the circumstances involved and a general description of the kind of discrimination alleged (for example, gender-, sexual orientation-, religion-, or race-based discrimination).

Violation of the non-discrimination provisions of this Agreement shall be considered a breach of this Agreement and subject the Contractor to penalties, to be determined by the County Manager, including but not limited to the following:

i. termination of this Agreement;

ii. disqualification of the Contractor from being considered for or being awarded a County contract for a period of up to 3 years;
iii. liquidated damages of $2,500 per violation; and/or
iv. imposition of other appropriate contractual and civil remedies and sanctions, as determined by the County Manager.

To effectuate the provisions of this Section, the County Manager shall have the authority to offset all or any portion of the amount described in this Section against amounts due to Contractor under this Agreement or any other agreement between Contractor and County.

13. Compliance with County Employee Jury Service Ordinance

Contractor shall comply with Chapter 2.85 of the County's Ordinance Code, which states that Contractor shall have and adhere to a written policy providing that its employees, to the extent they are full-time employees and live in San Mateo County, shall receive from the Contractor, on an annual basis, no fewer than five days of regular pay for jury service in San Mateo County, with jury pay being provided only for each day of actual jury service. The policy may provide that such employees deposit any fees received for such jury service with Contractor or that the Contractor may deduct from an employee's regular pay the fees received for jury service in San Mateo County. By signing this Agreement, Contractor certifies that it has and adheres to a policy consistent with Chapter 2.85. For purposes of this Section, if Contractor has no employees in San Mateo County, it is sufficient for Contractor to provide the following written statement to County: "For purposes of San Mateo County's jury service ordinance, Contractor certifies that it has no full-time employees who live in San Mateo County. To the extent that it hires any such employees during the term of its Agreement with San Mateo County, Contractor shall adopt a policy that complies with Chapter 2.85 of the County's Ordinance Code." The requirements of Chapter 2.85 do not apply if this Agreement's total value listed in the Section titled "Payments", is less than one-hundred thousand dollars ($100,000), but Contractor acknowledges that Chapter 2.85's requirements will apply if this Agreement is amended such that its total value meets or exceeds that threshold amount.

14. Retention of Records; Right to Monitor and Audit

(a) Contractor shall maintain all required records relating to services provided under this Agreement for three (3) years after County makes final payment and all other pending matters are closed, and Contractor shall be subject to the examination and/or audit by County, a Federal grantor agency, and the State of California.

(b) Contractor shall comply with all program and fiscal reporting requirements set forth by applicable Federal, State, and local agencies and as required by County.

(c) Contractor agrees upon reasonable notice to provide to County, to any Federal or State department having monitoring or review authority, to County's authorized representative, and/or to any of their respective audit agencies access to and the right to examine all records and documents necessary to determine compliance with relevant Federal, State, and local statutes, rules, and regulations, to determine compliance with this Agreement, and to evaluate the quality, appropriateness, and timeliness of services performed.

15. Merger Clause; Amendments

This Agreement, including the Exhibits and Attachments attached to this Agreement and incorporated by reference, constitutes the sole Agreement of the parties to this Agreement and correctly states the rights, duties, and obligations of each party as of this document's date. In the event that any term, condition,

provision, requirement, or specification set forth in the body of this Agreement conflicts with or is inconsistent with any term, condition, provision, requirement, or specification in any Exhibit and/or Attachment to this Agreement, the provisions of the body of the Agreement shall prevail. Any prior agreement, promises, negotiations, or representations between the parties not expressly stated in this document are not binding. All subsequent modifications or amendments shall be in writing and signed by the parties.

16. Controlling Law; Venue

The validity of this Agreement and of its terms, the rights and duties of the parties under this Agreement, the interpretation of this Agreement, the performance of this Agreement, and any other dispute of any nature arising out of this Agreement shall be governed by the laws of the State of California without regard to its choice of law or conflict of law rules. Any dispute arising out of this Agreement shall be venued either in the San Mateo County Superior Court or in the United States District Court for the Northern District of California.

17. Notices

Any notice, request, demand, or other communication required or permitted under this Agreement shall be deemed to be properly given when both: (1) transmitted via facsimile to the telephone number listed below or transmitted via email to the email address listed below; and (2) sent to the physical address listed below by either being deposited in the United States mail, postage prepaid, or deposited for overnight delivery, charges prepaid, with an established overnight courier that provides a tracking number showing confirmation of receipt.

In the case of County, to:

Name/Title:	County of San Mateo Department of Public Works
Address:	555 County Center, 5th Floor Redwood City, CA 94063
Telephone:	(650) 363-4100
Facsimile:	(650) 361-8220
Email:	mruble@smcgov.org or cchoi@smcgov.org

In the case of Contractor, to:

Name/Title:	[insert]
Address:	[insert]
Telephone:	[insert]
Facsimile:	[insert]
Email:	[insert]

18. Electronic Signature

Both County and Contractor wish to permit this Agreement and future documents relating to this Agreement to be digitally signed in accordance with California law and County's Electronic Signature

Administrative Memo. Any party to this Agreement may revoke such agreement to permit electronic signatures at any time in relation to all future documents by providing notice pursuant to this Agreement.

* * *

In witness of and in agreement with this Agreement's terms, the parties, by their duly authorized representatives, affix their respective signatures:

For Contractor: [**SERVICE PROVIDER COMPANY NAME**]

_____	_____	_____
Contractor Signature	Date	Contractor Name (please print)

COUNTY OF SAN MATEO

By:

President, Board of Supervisors, San Mateo County

Date:

ATTEST:

By:

Clerk of Said Board

Exhibit A

In consideration of the payments set forth in Exhibit B, Contractor shall provide the following services:

Exhibit B

In consideration of the services provided by Contractor described in Exhibit A and subject to the terms of the Agreement, County shall pay Contractor based on the following fee schedule and terms:

2.85.010 - Definitions.

For the purposes of this chapter:

(a) "Contract" means a legal agreement between the County and a contractor for public works, consulting, or other services, or for purchase of supplies, material or equipment.

(b) "Contractor" means a party who enters into a contract with the County for which the contractor receives consideration of $100,000 or more.

(c) "Contract Authority" means the Board of Supervisors or the head of the department or agency presenting the proposed contract to the Board of Supervisors.

(d) "Employee" means any California resident who is a full-time employee of a contractor under the laws of California.

(e) "Full time" means 40 hours or more worked per week, or a lesser number of hours if: (1) the lesser number is a recognized industry standard as determined by the County Manager, or (2) the contractor has a long standing practice that defines the lesser number of hours as full time.

(Ord. 4324, 08/15/06)

2.85.020 - Contractor jury service policy.

(a) A contractor shall have and adhere to a written policy that provides that its employees shall receive from the contractor, on an annual basis, no less than five days of regular pay for actual jury service in San Mateo County. The policy may provide that employees deposit any fees received for such jury service with the contractor or that the contractor deduct from the employees' regular pay the fees received for jury service.

(b) At the time of seeking a contract, a contractor shall certify to the County that it has and adheres to a policy consistent with this chapter or will have and adhere to such a policy prior to award of the contract.

(c) The Board of Supervisors may waive the requirements of this chapter when it determines that it is in the best interests of the County for such reasons as follows:

1. Award of a contract or amendment is necessary to respond to an emergency;
2. The contractor is a sole source;
3. No compliant contractors are capable of providing goods or services that respond to the County's requirements;
4. The requirements are inconsistent with a grant, subvention or agreement with a public agency;
5. The County is purchasing through a cooperative or joint purchasing agreement.

(d) Contractors should submit requests for waivers of the terms of this chapter to the Contract Authority or the County Manager.

(e) The County Manager may reject a contractor's bid or proposal, or terminate a contract, if he determines that the contractor is in violation of the requirements of this chapter or was established, or is being used, for the purpose of evading the intent of this chapter.

(f) No contract shall be executed with a contractor unless such contractor is in compliance with this chapter.

(Ord. 4324, 08/15/06)

2.85.030 - Powers and duties of the County Manager.

The County Manager's office shall have the authority to:

(a) Adopt rules and regulations, in accordance with this chapter and the Ordinance Code of the County of San Mateo, establishing standards and procedures for effectively carrying out this chapter;

(b) Receive notification from employees of contractors regarding violations of this chapter;

(c) Determine and recommend to the Board of Supervisors for final decision the imposition of appropriate sanctions for violation of this chapter by contractors including, but not limited to:

1. Disqualification of the contractor from bidding on or being awarded a County contract for a period of up to 5 years, and

2. Contractual remedies, including, but not limited to termination of contract.

(d) Impose other appropriate contractual sanctions for violations of this chapter;

(e) Allow for remedial action after a finding of noncompliance;

(f) Perform such other duties as may be required or which are necessary to implement the purposes of this chapter.

(Ord. 4324, 08/15/06)

2.85.040 - Date of application.

The provisions of this chapter shall apply to any contract awarded or amended on or after September 1, 2005, provided that if the contractor is then signatory to a collective bargaining agreement, this chapter shall only apply to any contract with that contractor which is awarded or amended after the effective date of the next collective bargaining agreement.

(Ord. 4324, 08/15/06)

Enclosure 3

ATTACHMENT I

Assurance of Compliance with Section 504 of the Rehabilitation Act of 1973, as Amended

The undersigned (hereinafter called "Contractor(s)") hereby agrees that it will comply with Section 504 of the Rehabilitation Act of 1973, as amended, all requirements imposed by the applicable DHHS regulation, and all guidelines and interpretations issued pursuant thereto.

The Contractor(s) gives/give this assurance in consideration of for the purpose of obtaining contracts after the date of this assurance. The Contractor(s) recognizes/recognize and agrees/agree that contracts will be extended in reliance on the representations and agreements made in this assurance. This assurance is binding on the Contractor(s), its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign this assurance on behalf of the Contractor(s).

The Contractor(s): (Check a or b)

☐ a. Employs fewer than 15 persons.

☐ b. Employs 15 or more persons and, pursuant to section 84.7 (a) of the regulation (45 C.F.R. 84.7 (a), has designated the following person(s) to coordinate its efforts to comply with the DHHS regulation.

Name of 504 Person:	
Name of Contractor(s):	
Street Address or P.O. Box:	
City, State, Zip Code:	

I certify that the above information is complete and correct to the best of my knowledge

Signature:	
Title of Authorized Official:	
Date:	

*Exception: DHHS regulations state that: "If a recipient with fewer than 15 employees finds that, after consultation with a disabled person seeking its services, there is no method of complying with (the facility accessibility regulations) other than making a significant alteration in its existing facilities, the recipient may, as an alternative, refer the handicapped person to other providers of those services that are accessible."

ENCLOSURE 4. List of Consultants

	CONTACT	SITE ADDRESS	SITE CITY	STATE	SITE ZIP	PHONE	EMAIL
AECOM Technical Services	Ramsey Hissen	100 W. San Fernando	San Jose	CA	95113	408-297-9585	Ramsey.hissen@aecom.com
Bellecci & Associates	Frank Bellecci	2290 Diamond Blvd. #100	Concord	CA	94520	925-685-4569	jgerow@bellecci.com
BKF Engineers	Dave LaVelle	255 Shoreline Drive, Suite 200	Redwood City	CA	94065	650-482-6308	dlavelle@bkf.com
Bracewell Engineering	Lloyd W. Bracewell	P.O. BOX 21	San Juan Bautista	CA	95045	831-623-2526	info@bracewellengineering.com
Creegan + D'Angelo Infrastructure Engineers	Robert S. Jones	2420 Martin Road, Suite 380	Fairfield	CA	94534	707-429-5300	rsjones@cdengineers.com
EOA	Don Eisenberg	1410 Jackson Street	Oakland	CA	94612	510-832-2852	doneisenberg@eoa.com
Fall Creek Engineering	Peter Haase	1525 Seabright Avenue	Santa Cruz	CA	95062	831-426-9054	phaase@fallcreekengineering.com
HDR Engineers, Inc.	Kuang Lim/Jeannie Bloxham	2121 N. California Blvd,	Walnut Creek	CA	94596	925-974-2500	jeannie.bloxham@hdrinc.com
HydroScience Engineers, Inc.	Curtis Lam	741 Allston Way	Berkeley	CA	94710	510-540-7100	clam@hydroscience.com
Infrastructure Engineering Corporation	Anna Buising	39199 Paseo Padre Parkway, Suite D	Fremont	CA	94538	510-574-0820	abuising@iecoration.com
Jacobs Engineering	Tyler Sheldon	160 Spear Street, Suite 1200	San Francisco	CA	94105	415-356-2040	tyler.sheldon@jacobs.com
Mark Thomas	Sasha Danskey	1960 Zanker Road	San jose	CA	95112	408-453-5373	sdanskey@markthomas.com
Parsons Brinkerhoff, Inc.	Patricia Cantley/ Sabine van der Sluis	303 Second Street, Suite 700 North	San Francisco	CA	94107	415-243-4710	cantleypr@pbworld.com
RMC Water and Environment	Steve Bui	100 West San Fernando Street, Suite 3	San Jose	CA	95113	408-240-8160	sbui@rmcwater.com
Schaaf & Wheeler	Charles D. Andreson	1171 Homested Road, Suite 255	Santa Clara	CA	95050	831-883-4848	canderson@swsv.com
Water Works Engineers, LLC	Michael Fisher	1322 Blue Oaks Blvd., Suite 300	Roseville	CA	95678	916-780-2888	mikef@wwengineers.com
Wreco	HanBin Liang	1243 Alpine Road, Suite 108	Walnut Creek	CA	94596	925-941-0018	HanBin_Liang@wreco.com

Enclosure 5

Kennedy/Jenks Consultants

2191 E. Bayshore Road #200
Palo Alto, CA 94303
650-852-2820
650-856-8527 (Fax)

PRELIMINARY ENGINEERING REPORT SAN MATEO COUNTY MEMORIAL PARK WASTEWATER TREATMENT PLANT

27 June 2003

Prepared for

San Mateo County
Environmental Services Agency
Parks & Services Division
455 County Center, Fourth Floor
Redwood City, CA 94063

K/J Project No. 025012.00

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Section 1: EXECUTIVE SUMMARY

The existing wastewater treatment plant (WWTP) at San Mateo County Memorial Park is over 40 years old and has reached the end of its useful life. Most of the mechanical and electrical equipment has been replaced on several occasions and many items need to be replaced again. In addition, the existing WWTP is located in a designated campground adjacent to several campsites.

At the request of San Mateo County, Kennedy/Jenks Consultants evaluated three alternatives for the rehabilitation or replacement of the existing WWTP serving Memorial Park. The alternatives evaluated included:

- Alternative 1: Abandoning the existing WWTP and constructing a new WWTP adjacent to the existing storage pond site.
- Alternative 2: Abandoning the existing WWTP and replacing it with multiple septic tank/drainfield systems, and
- Alternative 3: Rehabilitation of the existing WWTP.

The alternatives were evaluated based on their ability to effectively treat the wastewater, probable cost of construction, cost of operation and maintenance, potential cost savings that could be realized by replacement of the existing gravity sewers, and impact to the environment and Park users.

Based on the above listed criteria, Alternative 1 is the most suitable alternative for the Park. Alternative 1 has the lowest probable construction cost of the three alternatives and will replace the existing WWTP with new facilities that are located away from existing campsites and Pescadero Creek. All three alternatives had the additional advantage of reducing the maintenance effort required as compared to the existing WWTP.

As part of the WWTP replacement in Alternative 1, all of the mechanical equipment at the existing WWTP will be removed and the existing tanks cleaned and filled with sand. In addition to abandoning the WWTP, the existing pump station and associated 4-inch forcemain, will also be abandoned and replaced with a new underground submersible pump station and 4-inch forcemain. The estimate of probable construction cost is $702,000 and the estimated engineering, environmental review, and county administration costs are $361,480.

Alternative 1 will also relocate the wastewater treatment facilities away from Pescadero Creek and out of existing camping areas. This will provide a safer and more enjoyable experience for Park users. The current WWTP is located within the Sequoia Flat camping area, approximately 30 feet from the edge of the Pescadero Creek gully and approximately 30 yards from the nearest campground. If accidental wastewater spills occur at the current plant location, there is only a short downhill slope before reaching the edge of the Pescadero Creek gully. Relocating the plant should also reduce the logistical problems associated with sludge pumping at the existing WWTP. Each time the pumping truck is required to pump sludge, it must have an escort through the Sequoia campground to prevent traffic conflicts. In addition, towing of the

pumping truck has been required on occasion because of the weight of the loaded truck and the slope that the truck must back down to get to the WWTP.

The new WWTP should also reduce the amount of maintenance currently required to run the existing WWTP. Maintenance efforts for the existing WWTP are higher than what would normally be expected for a similar size facility primarily due to the age of the existing treatment facility, which is over 40 years old. Approximately 2 man-hours per day are currently required to maintain the existing WWTP. Replacement of the WWTP with a new package treatment system should reduce the maintenance effort to approximately 1 man-hour per day. The reduction in effort is primarily due to completely new equipment and the fact that the system is designed so that minimal operator attention is required.

Section 2: INTRODUCTION

2.1 Purpose and Scope

San Mateo County has retained Kennedy/Jenks Consultants to evaluate the options that exist with respect to the rehabilitation or replacement of the existing wastewater treatment plant (WWTP) serving Memorial Park.

The three options are:

- Alternative 1 – Construct a new WWTP
- Alternative 2 – Abandon the existing WWTP and replace with multiple septic tank/drainfield systems
- Alternative 3 – Rehabilitate the existing WWTP

This report is the preliminary engineering report that determines the cost-effectiveness of the various options and documents the recommendation defining the preferred alternative. Additional design and environmental work is required to implement the preferred option.

2.1.1 Alternative 1 – Construct New WWTP

For this alternative, the existing WWTP is abandoned and replaced by a new WWTP that will be located near the existing storage pond site. Three wastewater treatment system options were investigated for alternative 1. The system options included a conventional extended aeration treatment plant with steel tanks, a conventional extended aeration treatment plant with concrete tanks and a closed loop reactor (oxidation ditch).

In addition to replacing the WWTP, the existing pump station and force main that currently transfers treated wastewater to the storage pond will be replaced by a new raw wastewater pump station and force main. After treatment, effluent will be stored in the existing storage pond until it is finally disposed of in the existing spray irrigation field.

2.1.2 Alternative 2 – Abandon Existing WWTP and Replace with Multiple Septic Tank/Drainfield Option

Alternative 2 is referred to as the decentralized wastewater treatment option. In this alternative, both the existing wastewater collection system and the existing WWTP are abandoned. New septic tanks are installed at each wastewater generating facility, and the septic tank effluent is collected for treatment. Treatment is provided by a number of recirculating sand (or textile) filters. The effluent from these treatment units will be collected and pumped to the existing spray irrigation fields for final disposal.

2.1.3 Alternative 3 – Rehabilitate Existing WWTP

The existing WWTP is an extended aeration plant with a nominal hydraulic capacity of approximately 30,000 gallons per day. The mechanical and electrical elements of this facility have reached the end of their useful life and extensive rehabilitation is required. The only part of this facility that can be salvaged is the concrete tankage. Two of the larger existing tanks will be rehabilitated and used as aeration basins in the new treatment system while the remaining tanks will be abandoned and filled with sand. A circular clarifier, ultra-violet disinfection system, and sludge holding tank will be added as separate structures from the existing WWTP. The treated effluent will be pumped through a new 4-inch force main to the existing holding pond for storage.

Section 3: BACKGROUND

3.1 Memorial Park

Memorial Park was founded to honor the men of San Mateo County who served in the First World War. It was later established as a project camp for the Work Projects Administration created by President Roosevelt during the Depression.

Memorial Park is open year-around for camping, picnicking, and youth group activities. The Park has three main camping regions (See Figure 1). Sequoia Flat is designated as a large family camping area that encompasses 105 campsites. Azalea Flat is quite smaller with 30 campsites, both regions can accommodate up to 8 people. Bay Tree Flat consists of 22 campsites that can accommodate 4 people each, with handicap facilities, and two larger campsites that can accommodate 50 people each. The Homestead Flat area consists of six youth group areas available for day or night use.

The general use picnic areas are situated on the eastern side of the Park and include Tan Oak Flat, Legion Flat, and Creek Flat. The Tan Oak day camp is available for youth groups during the day and on weekends. Four group picnic areas accommodating 50 to 300 people are known as the Huckleberry Flat areas. Table 1 summarizes the facilities available in the different Park regions, as they are pertinent to this report.

Table 1: Memorial Park Facilities

Park Regions	Number of Restrooms		Toilets		Urinals	
	New	Old	New	Old	New	Old
Sequoia Flat	5	2	25	6	5	2
Azalea Flat	1	1	5	1	1	0
Bay Tree Flat	0	3	0	9	0	3
Homestead Flat	1	3	5	9	1	3
Huckleberry Flat	1	1	5	3	1	1
Picnic Areas	2	4	10	10	2	3
Corporation Yard	0	3	0	9	0	3
Total	10	17	50	47	10	15

3.2 Existing WWTP

The existing WWTP serving the Memorial Park is an extended aeration treatment facility that has a nominal hydraulic capacity of 30,000 gallons per day (gpd). The plant consists of four concrete tanks that are used for equalization, aeration, sedimentation, and sludge storage. The

two larger tanks are used for equalization and aeration and are approximately 13.5 feet wide, 16 feet long, and 10.25 feet deep (approximately 16,500 gallons). The tanks are configured so that the equalization tank can be used as an aeration tank during maintenance and high flow periods. Water from the equalization tank is transferred to the aeration tank via pumps.

After aeration, water flows to the third tank that is approximately 4200 gallons, for clarification. Settled solids are pumped from the clarifier to the fourth tank for storage. The fourth tank provides approximately 5200 gallons for sludge storage.

Following treatment, the effluent is pumped through an existing force main to a 75,000-gallon holding pond for storage. The water is disinfected using sodium hypochlorite prior to disposal in a remote 3000-square foot spray irrigation area.

There are several deficiencies with the existing WWTP that include:

- Bar screen: the existing plant does not have a bar screen to remove heavy debris from the influent such as plastic and sanitary napkins which can accumulate and cause failure of pumps, valves and other mechanical equipment.

- Dedicated equalization tank: the existing plant uses a converted aeration tank for flow equalization which has reduced their flow capacity by 50%. As a result of the reduced flow capacity, more intensive monitoring of the plant is required during busy periods.

- More reliable air lift pumps: the existing air lift pumps have deteriorated considerably and require frequent maintenance to clear plugs in the pipelines.

- Sludge handling equipment and sludge holding tank: the existing plant does not have dedicated sludge handling equipment or a dedicated sludge holding tank. One clarifier was converted to a sludge holding tank but if the plant capacity is exceeded, there is a potential for solids to wash out of the tank and enter the effluent pump station resulting in poor effluent quality.

3.3 Existing and Design Flows

The staff at Memorial Park maintains detailed and extensive records of daily flow and usage at the Park. Appendix A contains detailed monthly flow and attendance figures for 1998 through 2001. These flow records show that August is typically the peak month for usage, and that there is some flow during non-peak winter months as well. The flow during non-peak winter months is primarily inflow/infiltration (I/I) into the collection system and not domestic wastewater.

The Park has invested approximately $200,000 to date in projects to reduce I/I and has succeeded in reducing I/I during the winter months by over 50% from 1,700,000 gallons to 800,000 gallons. Additional improvements to the existing collection system are being planned by the Park but are not expected to significantly reduce I/I much further since most of the major I/I sections of the collection system have been addressed.

In addition to monthly flow records, daily flow records for August were reviewed. Table 2 presents a summary of the monthly flow data for August 1998, 1999, 2000, and 2001.

Table 2: August Flow Data

Period	Monthly Flow (gallons)	Attendance	Usage (gallons per day per person)	Peak Day Flow (gallons)
AUGUST 1998	652,559	28,963	23	25,237*
AUGUST 1999	476,288	22,491	21	24,725
AUGUST 2000	512,431	23,347	22	24,585
AUGUST 2001	462,452	26,219	18	23,458

* The actual August 1998 high was 37,675 gallons but the value appeared unusually high when compared to the previous and subsequent days flow measurements. The value shown in the table is the average of the previous day's flow (12,798-gallons) and the 37,675-gallon value.

Based on available flow data, a design flow of 30,000 gpd is selected for a new WWTP and for retrofitting the existing WWTP. This design flow will accommodate the anticipated flow and provide a slight hydraulic factor of safety of 1.2. Future flow increases due to park expansion is not expected but future reductions in flow may take place if water saving fixtures, such as waterless urinals, are installed in Park facilities.

3.4 Design Organic Loading

Besides the hydraulic loading, the other significant factor in the design of a WWTP plant is the organic loading. One parameter used to measure the organic loading is the 5-day biochemical demand (BOD_5). Typical values for untreated domestic wastewater are:

- Weak domestic waste – BOD_5 = 110 mg/l
- Medium domestic waste – BOD_5 = 220 mg/l
- Strong domestic waste – BOD_5 = 400 mg/l.

However, the wastewater at Memorial Park may not be typical wastewater since it is comprised primarily of toilet waste. Ideally the way to determine the organic loading of the influent would be to take a number of composite samples of the raw influent. Since this data is not available, another option must be used.

The recent USEPA publication *Onsite Wastewater Treatment Systems Manual* (EPA625/R-00/008) provides a good summary of information on domestic residential wastewater generation. According to this Manual, an average person generates 16.7 grams of BOD_5 daily, and the range of this BOD_5 generation is 6.9 to 23.6 grams per day. An average person also uses approximately 18.5 gallons per day for toilet flushing. The range of toilet flushing water used is 15.7 to 22.9 gallons per day. Using average values this computes to a BOD_5 strength of approximately 230 mg/l.

At Memorial Park, the average water use per person is 22 gallons per day. If all the water were used for toilet flushing purposes, then BOD_5 loading would be 200 mg/l. Since this is a very small facility and the BOD_5 loading could be higher on some occasions, a design BOD_5 of 250 mg/l will be used.

3.5 Treatment and Discharge Requirements

The California Regional Water Quality Control Board (CRWQCB) is in the process of revising the previous waste discharge requirements for the Memorial Park as specified in Order No. 86-46. CRWQCB expects the revisions will go into effect by the end of 2003 at the earliest. The revisions include adding discharge limitations for coliform and total suspended solids (TSS) and addition of a back-up generator and telemetry system to the wastewater treatment facilities. The current and anticipated future discharge limits are summarized in Table 3 below.

Table 3: Memorial Park Effluent Discharge Limits

Description	Current Limits	Future Limits
Biological Oxygen Demand (BOD_5)	40 mg/l	30 mg/l
Total Suspended Solids (TSS)	No current limit	30 mg/l
Coliform	No current limit	240 mpn

Currently, the Park does not measure coliform removal but is required to maintain a 0.5 mg/l chlorine residual in the effluent throughout a contact time of 30 minutes. The Park satisfies this disinfection requirement with a chlorine contact tank located at the storage pond site.

The storage pond volume will also be assessed as part of the permit reissuing process but CRWQCB does not believe that the capacity of the storage pond will have to be increased as part of the new permit requirements. Currently, the Park must meet specifications the Board has designated with respect to waste within one foot of the holding pond surface. Grab samples taken from the holding pond must not exceed the limits listed in Table 4 below:

Table 4: Holding Pond Grab Sample Limits

DESCRIPTION	GRAB SAMPLE LIMIT	UNITS
Dissolved Oxygen (DO)	2.0 (minimum)	mg/l
Dissolved Sulfides	0.1 (maximum)	mg/l
pH	6.0	minimum
pH	9.0	maximum

All of the proposed treatment alternatives are designed to meet the current and proposed treatment requirements as listed in Tables 3 and 4. There is a possibility however, that CRWQCB could change the treatment requirements for the current storage pond and spray irrigation disposal system. Based on Article 4 of the Title 22 California Water Recycling Criteria, the change would most likely require additional treatment processes such as coagulation and filtration. The proposed alternatives will be able to accommodate addition of separate treatment modules for coagulation and filtration in the future.

Section 4: ALTERNATIVE 1 – CONSTRUCT NEW WASTEWATER TREATMENT FACILITIES

4.1 Site Layout

For Alternative 1 the existing wastewater treatment plant will be abandoned and will be replaced by new treatment facilities that will be located adjacent to the existing storage pond and spray fields. In addition to abandoning the wastewater treatment plant, the existing pump station, which consists of an existing septic tank with pumps, will be abandoned.

To transfer raw wastewater to the proposed treatment plant, a duplex submersible lift station will be constructed near the current treatment plant site. The proposed pump station will be sized to deliver 120 gallons per minute (gpm) at 205 feet of head to the new wastewater treatment facility. Each pump will be approximately 25 horsepower.

The wastewater will be transported to the new WWTP via a new 4-inch PVC force main that will replace the existing force main. The existing force main condition is unknown, but the varying pipe size and materials used throughout its run suggest that the force main has been repaired several times in the past. The existing force main consists of 3-inch steel pipe from the existing lift station to the existing bridge, 4-inch ABS pipe for the bridge crossing, 3-inch schedule 80 PVC from the bridge to Pescadero Road, 3-inch Transite pipe beneath Pescadero Road, and 3-inch schedule 80 PVC from Pescadero Road to the storage pond.

4.2 Extended Aeration Treatment Plant Options

4.2.1 Conventional Extended Aeration

A typical package extended aeration treatment system consists of concrete tanks or pre-fabricated steel tanks with various compartments, weirs, baffles and equipment used for treatment. Treatment processes consist of a bar screen followed by an aerated equalization tank, main aeration tank, clarifiers, and sludge holding tank. Aeration is accomplished with the use of blowers and bubble diffusers. Recycling and/or removal of sludge and scum from the clarifier is accomplished by airlift pumps. Basic dimensions and features of some conventional extended aeration treatment systems are summarized in Table 5 below.

Table 5: Summary of Conventional Extended Aeration Systems

	Purestream	Ashbrook	Aeration Industries
Preliminary Treatment	Bar screen	Bar screen	Bar screen
Equalization Tank	7500 gallons	9000 gallons	9000 gallons
Aeration Chamber	30000 gallons	30000 gallons	30000 gallons
Secondary Clarifier	5000 gallons	5000 gallons	5000 gallons
Sludge Holding Tank	10000 gallons	10000 gallons	10000 gallons
Tank Material	Steel	Steel	Concrete
Footprint (LxWxD in feet)	75 x 12 x 11	64x12x11	85x11x14
Additional footprint for UV (LxWxD in feet)	7.5 x 1.5 x 2	NA	NA

The treatment systems are placed above grade and the treatment plants with steel tanks are usually anchored to a concrete foundation pad. For typical drawings of the Purestream and Ashbrook systems, see Appendix B. The equipment used in the Aeration Industries treatment system is very similar to the equipment shown in the Purestream and Ashbrook system drawings.

The UV disinfection units for the Ashbrook and Aeration Industries systems are integrated into the outlet structure of the treatment plants. The UV disinfection unit that will be used for the Purestream system is a stand-alone system that requires additional piping and a separate structure to house the electrical equipment associated with the disinfection unit.

4.2.2 Closed Loop Reactor

In addition to conventional extended aeration that uses blowers and diffusers for aeration, a modified form of an extended aeration reactor called a Closed Loop Reactor (sometimes referred to as an oxidation ditch) can be used. The Closed Loop Reactor (CLR) system offered by Lakeside, consists of a reactor and peripheral feed clarifier. The reactor is configured in a loop or "race track" around the clarifier that is located at the center of the treatment plant.

Aeration and mixing is provided by a rotating brush that consists of 5-foot long stainless steel blades that rotate in the mixed liquor. Oxygen transfer and mixing can be adjusted via a 2-foot long adjustable effluent weir that is mounted to the outer wall of the reactor. The basic system dimensions and features are listed in Table 6 below.

Table 6: Closed Loop Reactor Summary

	Lakeside
Preliminary Treatment	Bar screen
Equalization Tank	None
Aeration Chamber	22200 gallons
Secondary Clarifier	7050 gallons
Sludge Holding Tank	10000 gallons
Footprint (LxWxD in feet)	35 x 35 x 14
Additional footprint for UV (LxWxD in feet)	7.5 x 1.5 x 2

All tanks for this system will be made of reinforced concrete and will be constructed on-site. This system does not have an equalization tank. For a typical drawing of the CLR system, see Appendix C.

A stand-alone UV disinfection unit will be used for disinfection. Additional piping and a separate structure to house the electrical equipment will be required for the disinfection system.

4.3 Operation & Maintenance

Minor operator maintenance and operation procedures are associated with plants of this type and size. Some common maintenance procedures that can be expected are summarized below.

Daily maintenance should consist of visual inspection of pertinent mechanical equipment such as the sludge return pumps, and airlift skimmer. Air distribution should be equal along the entire length of the aeration tank. The weekly maintenance routine includes cleaning the grease and floating solids from the aeration and settling tanks. Any accumulation of solids should also be cleaned from weirs and pipe inlets. Diffusers and airlift sludge return pump should be checked for clogs and cleaned if necessary. The oil level in the blower should be checked, and the sidewalls and hopper components of the clarifiers should be scraped. Monthly maintenance includes lubricating motor bearings, and cleaning air filters as needed.

Long term maintenance for the tanks for each system varies due mainly to the tank materials and whether the tank is installed above or below grade. The conventional extended aeration systems that use steel tanks are coated with epoxy paint. Approximately every 10-15 years the tanks should be taken off-line and the protective coating inspected and repaired as needed. With diligent maintenance of the tanks, their ultimate useful life should be around 30-40 years.

The reinforced concrete tanks used for the Aeration Industries treatment system and the CLR have a useful life greater than 50 years if maintained properly. A protective epoxy coating can be applied to the interior of the tank that will help extend the useful life of the concrete as long

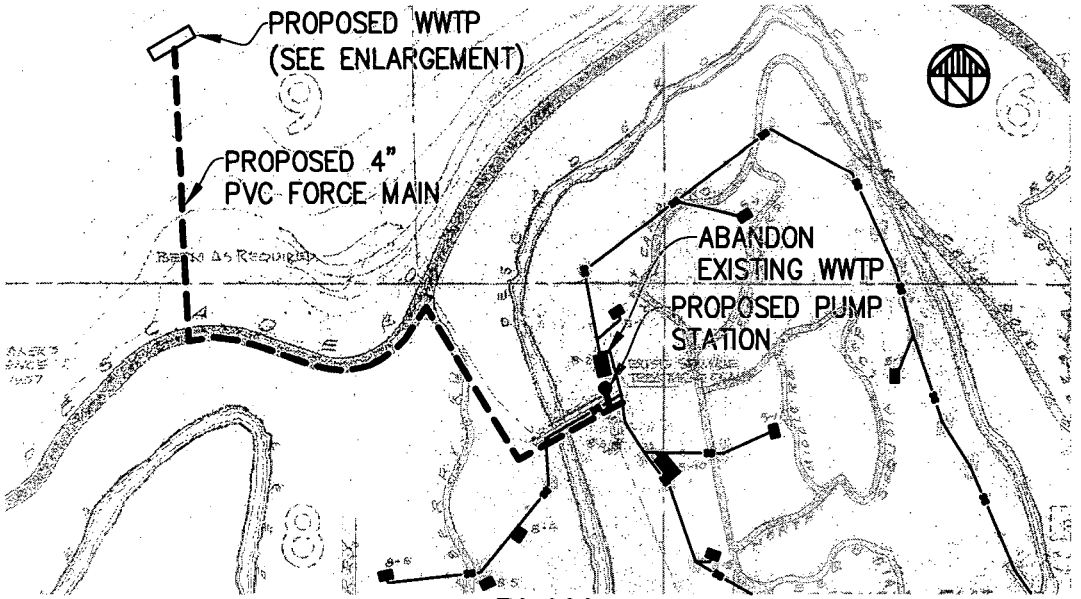
as the coating is maintained properly. Periodic inspections of the tank and sealant should be made to ensure that the integrity of the concrete is not compromised.

Typical operation and maintenance estimates for these types of plants are approximately 1 man-hour per day on average. This labor estimate is dramatically lower than the roughly 2 man-hours per week required for operating and maintaining the existing WWTP. The reduction in effort is primarily due to completely new equipment and the fact that the system is designed so that minimal operator attention is required. The existing WWTP is over 40 years old and most of the mechanical and electrical equipment has been replaced on several occasions and many items need to be replaced again. Close operator attention is required to ensure that the aging equipment will serve its intended purpose properly.

4.3.1 Solids Handling

Solids handling for the systems proposed consist of an aerated 10,000-gallon open top storage tank. The storage tank will provide approximately 30 days of sludge storage based on an estimated sludge production rate of 300 gallons per day. The sludge production rate was estimated based on the total August flow data from 1998 to 2001, a sludge yield of 0.5 pounds of sludge per pound of BOD, and a solids content of 1.5 percent.

Enclosure 5



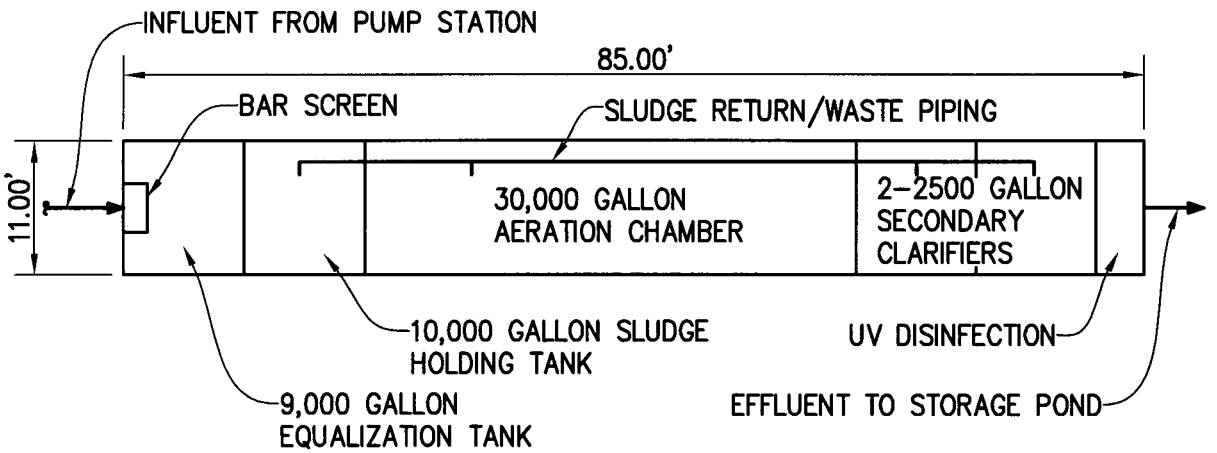
PLAN

0 50 100 150

1"=100'

LEGEND

- EXISTING WASTEWATER COLLECTION SYSTEM
- EXISTING RESTROOM FACILITIES
- PROPOSED PRESSURE MAINS



ENLARGEMENT

NTS

Kennedy/Jenks Consultants

SAN MATEO COUNTY ENVIRONMENTAL SERVICES AGENCY
PARKS & SERVICES DIVISION
REDWOOD CITY, CALIFORNIA

SAN MATEO COUNTY MEMORIAL PARK
PRELIMINARY ENGINEERING REPORT

025012.00
NOV 2002

FIGURE 2

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Section 5: ALTERNATIVE 2 – ABANDON EXISTING WWTP AND REPLACE WITH MULTIPLE SEPTIC TANK/DRAINFIELDS

Not only are there deficiencies associated with the existing WWTP, but there are also deficiencies with respect to the wastewater collection system. The collection system is old and is subject to inflow/infiltration (I/I). Steps have been taken to correct the I/I problems and have resulted in an I/I reduction from 1,700,000 gallons to 800,000 gallons during the winter months. Further work to reduce I/I is planned but is not expected to reduce I/I as significantly as previous projects. One alternative is to abandon the collection system and the existing WWTP and construct several decentralized treatment facilities throughout the Park.

5.1 System Description

The Park will be segregated into 4 treatment regions and each region will contain a decentralized treatment facility consisting of a recirculating textile or gravel filter followed by a UV disinfection system. Table 7 summarizes which park areas will be included in each treatment region and the associated facilities in each region.

Table 7: Decentralized Wastewater Treatment Facilities

REGION	PARK AREA	FACILITIES	NUMBER OF RESTROOMS		TOILETS		URINALS	
			New	Old	New	Old	New	Old
1	Sequoia Flat	105 8-person Campsites	5	2	25	6	5	2
2	Azalea Flat	30 8-person Campsites	1	1	5	1	1	0
	Bay Tree Flat	22 4-person Campsites 2 50-person Campsites	0	3	0	9	0	3
	Tan Oak, Legion, & Creek Picnic Areas	450 people max (day use)	2	4	10	10	2	3
3*	Homestead Flat	300 people max (overnight use)	1	3	5	9	1	3
	Corporation Yard		0	3	0	9	0	3
4*	Huckleberry Flat	350 people max (day use)	1	1	5	3	1	1

* Alternative collection system layouts were investigated that combined the Homestead Flat area with Huckleberry Flat. This alternative layout did not provide a significant cost advantage.

Each decentralized treatment facility will collect and treat septic tank effluent from new septic tanks installed at existing Park facilities. New gravity sewer piping will deliver the water from the septic tanks to the treatment facilities. Each treatment facility will have its own pump station that will transfer the treated water to the existing holding pond for storage. The proposed decentralized system layout is shown in Figure 1.

Each treatment facility will consist of a recirculation tank, textile or gravel filter, and UV disinfection system. A schematic of a typical recirculating gravel filter system and a cross section of a typical recirculating gravel filter are shown in Appendix D.

The size of the treatment system will vary depending on the flow for each region. The largest system will serve Sequoia Flat and is expected to treat approximately 16,800 gallons per day. A summary of the flows for each treatment region is provided in Table 8.

Table 8: Summary of Flows for Decentralized Treatment Regions

Region	Included Areas	# of restrooms in area	Septic Tanks Required	Flow (gpd)
1	Sequoia Flat	7	7	16800
2	Azalea & Bay Tree Flat & Picnic Areas	13	10	8560
3	Homestead Flat & Corporation Yard	8	8	6000
4	Huckleberry Flat	3	3	5250

5.2 Operation & Maintenance

Operation and maintenance efforts for the proposed treatment facilities will primarily be focused on the recirculation tank. Periodic inspections of the mechanical equipment should be performed at least once per week and pumping of accumulated solids in the tank will also be required. The frequency of pumping will depend on how well the septic tanks and collection systems are maintained.

Maintenance of the gravel or textile filters would involve yearly inspections of the flow emitters used to spread the effluent over the filter media. Inspections are required to ensure that the entire filter area is being loaded equally. Proper emitter performance will help prevent localized biological film build-up on the filter media. In addition to the emitter inspections, the timing mechanism for filter dosing should be checked twice a year.

As long as the dosing mechanisms for the filter are properly maintained and serviced and the filter is not being overloaded with organic material or fats, oils, and greases, the filter media should not have to be changed for approximately 20-25 years. If sections of the filter get overloaded and there is significant biological growth on the media, portions of gravel or textile media can be removed, washed, and replaced.

Section 6: ALTERNATIVE 3 – REHABILITATE EXISTING WWTP

6.1 Removal, Demolition, and Rehabilitation

The existing mechanical equipment at the wastewater treatment plant has reached the end of its useful life and will be completely removed as part of the rehabilitation. The two smaller concrete basins currently used for clarification and sludge holding will be cleaned and filled with sand.

The two larger concrete basins will be rehabilitated for reuse as aeration basins. The interior of the tanks will be cleaned, repaired where required, and then coated with a protective epoxy coating prior to the installation of the new aeration equipment.

6.2 Plant Configuration

The rehabilitated wastewater treatment plant will consist of two 16,500-gallon aeration basins, a 15-foot diameter clarifier, an ultra-violet (UV) disinfection system, and a 10,000-gallon aerated sludge storage tank. The existing 16,500-gallon aeration basins will be refitted with new fine bubble air diffusers, blowers, and associated piping.

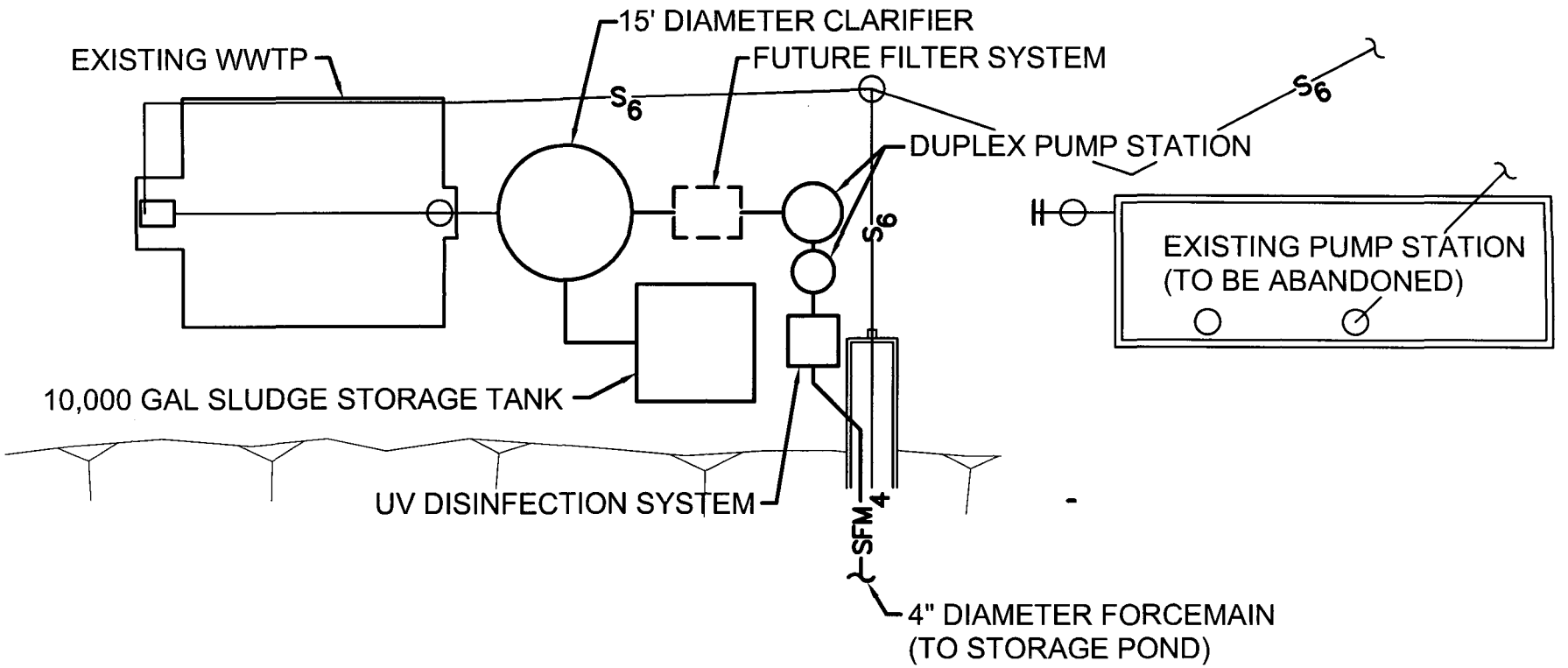
The delivery of raw wastewater to the rehabilitated aeration basins will not be altered from the existing WWTP. After aeration, the effluent will flow by gravity to the proposed sedimentation tank that will be installed at grade. Following sedimentation, the water will flow to a new pump station that will transfer the treated water to the existing storage pond through a new 4-inch force main. UV disinfection will take place on the discharge pipe from the pump station.

Sludge piping will be installed to allow recycling and wasting of sludge from the clarifier. The sludge digester will be a reinforced concrete open top tank with submerged air diffusers. The tank will be approximately 15-feet tall.

The sedimentation tank, UV disinfection system, and sludge holding tank will be installed near the existing wastewater treatment facility as separate structures. Approximately 800 square feet of additional land will be required for the sedimentation tank, UV disinfection equipment, and sludge digester. See Figure 2 for the proposed system layout.

6.3 Maintenance and Operation

The components and operation of the plant are similar to Alternative 1 (extended aeration treatment plant) discussed in Section 4.



Kennedy/Jenks Consultants

SAN MATEO COUNTY ENVIRONMENTAL SERVICES AGENCY
PARKS & SERVICES DIVISION
REDWOOD CITY, CALIFORNIA

SAN MATEO COUNTY MEMORIAL PARK
PRELIMINARY ENGINEERING REPORT

025012.00
NOV 2002

FIGURE 3

Section 7: COST ESTIMATES

This section provides estimates of the probable cost of construction for Alternatives 1, 2, and 3 as described in the previous sections, and of the associated engineering design, construction review, and environmental reviews. The total construction cost for each system is summarized in Table 9. Total costs include excavation, equipment, equipment installation, concrete work, electrical work, and 20 percent contingency. Detailed cost breakdowns for each Alternative are provided in Appendix E.

Table 9: Summary of Probable Total Costs of Construction

Alternative	Description	TOTAL COST
1-a	Construct New WW Treatment Facilities (steel tanks) Manufacturer: Ashbrook	$739,000
1-b	Construct New WW Treatment Facilities (concrete tanks) Manufacturer: Aeration Industries	$702,000
1-c	Construct New WW Treatment Facilities (CLR) Manufacturer: Lakeside	$821,000
2	Abandon Existing WWTP and replace with multiple septic tank/drainfields	$1,490,000
3	Rehabilitate Existing WWTP	$755,000

Initial estimates of engineering design, construction review, and environmental review can be made based on a percentage of the cost of construction. These costs for Alternative 1-b are presented in Table 10. The costs listed in Table 10 are similar for all of the Alternatives except for Alternative 2. Engineering and environmental review costs for Alternative 2 are roughly $600,000.

Table 10: Estimated Engineering and Environmental Review Costs

ITEM	ASSUMED %	TOTAL COST
Design Engineering	15%	$105,300
Surveying	Lump Sum	$7,500
Geotechnical Investigation	Lump Sum	$10,000
Construction Review	7%	$49,140
Environmental Review	7%	$49,140
County Project Management	20%	$140,400
TOTAL		$361,480

Therefore for initial budget purposes, the probable project cost can be estimated as $1,063,480.

Section 8: RECOMMENDED ALTERNATIVE

8.1 Evaluation of Alternatives

All of the systems investigated will provide adequate treatment of the wastewater to meet the current and near future CRWQCB waste discharge requirements (see Table 3). None of the systems appeared to have a significant treatment advantage over the other.

As indicated in Table 9, Alternative 2 – Abandon Existing WWTP and Replace with Multiple Septic Tank/Drainfields is the most costly option. The high costs are primarily due to septic tank installations at the park facilities and installation of new gravity sewers to convey wastewater to the regional treatment systems. Cost savings could have been realized by the reduction of I/I due to the replacement of the aging collection system however, recent improvements to the collection system have already fixed most of the major I/I areas. A small cost savings could be realized on the few I/I projects that are planned but the savings will be small compared to the $200,000 already spent on the existing collection system. In addition to not realizing the cost savings from I/I reduction, this alternative will not take advantage of the $200,000 worth of improvements to the existing collection system that have been made by the Park thus far.

The excavation required for installing new gravity sewers is also undesirable since more park area will be disturbed than other alternatives. Based on the higher initial construction costs and disturbance to the Park, Alternative 2 is not recommended.

Alternatives 1 and 3 are relatively similar in cost however, Alternative 3 – Rehabilitation of the existing WWTP, is not an appealing option because additional structures will be added near the existing WWTP. The additional structures will add to the visual, noise, and potential odor impacts of the plant. The impacts are particularly sensitive for Alternative 3 because the existing WWTP is located within the Sequoia Flat Camp area.

Moving the WWTP away from the public use areas has less impact on the public and the environment. These impacts will be of less concern for Alternative 1 because the WWTP will be placed near the existing storage pond that is located in a remote area of the park.

8.2 Recommended Alternative

At this time the recommended alternative is Alternative 1 – Construct new WWTP. Alternative 1 provides sufficient capacity and treatment and more importantly, relocates the treatment facilities away from the camping areas of the park. In order to maximize the service life of the new treatment unit, concrete tanks for the treatment plant are recommended over steel tanks.

Enclosure 5

AREA	FACILITIES	DAY USE OR OVERNIGHT
SEQUOIA FLAT	105 8-PERSON CAMPSITES	OVERNIGHT
AZALEA FLAT	30 8-PERSON CAMPSITES	OVERNIGHT
BAY TREE FLAT	22 4-PERSON CAMPSITES	OVERNIGHT
TAN OAK, LEGION, AND CREEK PICNIC AREAS	2 50-PERSON CAMPSITES 450 PEOPLE MAX	OVERNIGHT DAY USE
HOMESTEAD FLAT	300 PEOPLE MAX	OVERNIGHT
HUCKLEBERRY FLAT	4 SITES 350 PEOPLE MAX	GROUP PICNIC

LEGEND

- EXISTING WASTEWATER COLLECTION SYSTEM
- EXISTING RESTROOM FACILITIES
- PROPOSED RECIRCULATING SAND FILTER
- PROPOSED PRESSURE MAINS
- PROPOSED GRAVITY SEWER

NO.	REVISION	DATE	BY

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

DESIGNED TEY
DRAWN LLK
CHECKED TEY

SAN MATEO COUNTY
ENVIRONMENTAL SERVICES AGENCY, PARKS AND SERVICES DIVISION
MEMORIAL PARK

Kennedy/Jenks Consultants
PALO ALTO, CALIFORNIA

EXISTING FACILITIES AND DECENTRIALIZED TREATMENT OPTION

FILE NAME
JOB NO. 025012.00
DATE NOV 2002
SHEET OF
FIGURE 1

Appendix A

Detailed WWTP Flow Data

Enclosure 5

Monthly Flow Data Summary

Month	1998			1999			2000			2001		
	Flow (gal)	Atten.	Gal/person	Flow (gal)	Atten.	Gal/person	Flow (gal)	Atten.	Gal/person	Flow (gal)	Atten.	Gal/person
January	430,666	3487	124	101,814	2,314	44	77,317	3,530	22	131,026	3,538	37
February	166,130	220	755	93,138	3,282	28	74,692	3,507	21	132,986	3,355	40
March	234,250	1291	181	176,758	4,538	39	270,931	5,054	54	157,450	4,500	35
April	528,271	7044	75	260,460	7,101	37	183,190	9,120	20	77,284	5,621	14
May	321,634	11533	28	197,271	14,874	13	314,614	15,477	20	225,055	12,938	17
June	397,033	14601	27	269,199	14,113	19	284,473	17,307	16	334,444	15,410	22
July	577,999	25954	22	464,889	25,503	18	412,650	21,605	19	437,312	23,076	19
August	652,559	28963	23	476,288	22,491	21	512,431	23,347	22	462,452	26,219	18
September	357,851	14338	25	205,112	14,379	14	248,933	14,285	17	245,267	13,168	19
October	143,707	9810	15	121,800	11,959	10	138,304	8,721	16	143,730	10,108	14
November	94,122	2974	32	55,312	3,969	14	43,185	3,904	11	91,684	3,897	24
December	94,036	2238	42	39,571	2,288	17	44,298	3,343	13	113,135	2,890	39

Data obtained from San Mateo County Memorial Park Annual Self-monitroing Reports

Enclosure 5

Flow Data For Memorial Day Weekend 2002

Date	Flow (gal)	Atten.
24-May	11,379	910
25-May	22,612	1,122
26-May	22,189	1,266
27-May	23,276	997
28-May	16,996	232

Data provided by Don Curran, Memorial Park Staff

June 2001

WASTEWATER TREATMENT PLANT SELF MONITORING PROGRAM
SAN MATEO COUNTY MEMORIAL PARK

DATE	TIME	OPERATOR	WEATHER	RAINFALL in.	FLOW gal.	COD mg/L	CHLORINE DOSAGE mg/L	CHLORINE RESIDUAL mg/L	CHLORINE DEMAND mg/L	SETTLEABLE SOLIDS ml/L	pH	DISSOLVED OXYGEN mg/L	TURBIDITY ntu
1	9:00	DC	cloudy	0	10136								
2	9:00	DC	clear	0	12307								
3	9:00	DC	clear	0	16902	125		1.00			6.4	5.1	14
4	8:00	JK	clear	0	9667								
5	8:10	JK	clear	0	6150								
6	9:00	DC	clear	0	3273								
7	9:00	DC	clear	0	11168								
8	9:00	DC	o'cast	0	8791								
9	9:00	DC	o'cast	0	9189								
10	9:00	DC	o'cast	0	18123	110		.57		ND	6.7	4.4	11
11	8:30	JK	o'cast	0	8930								
12	8:30	JK	o'cast	0	4202								
13	9:00	DC	clear	0	5055			>2.20		ND			
14	9:00	DC	clear	0	10857			>2.20					
15	9:00	DC	clear	0	11936								
16	9:00	DC	clear	0	11126	85		>2.20		ND	6.8	8.7	10
17	9:00	DC	clear	0	17914			.62		ND			
18	8:30	JK	clear	0	18457								
19	8:30	JK	clear	0	6036								
20	9:00	DC	clear	0	5725								
21	9:00	DC	clear	0	18735			.51					
22	9:00	DC	clear	0	12127								
23	9:00	DC	o'cast	0	15398	85		.82			6.8	5.2	6.2
24	9:00	DC	clear	0	22289			1.34					
25	9:30	JK	clear	0	12574								
26	9:30	JK	clear	0	4176								
27	9:00	DC	o'cast	0	5468			1.30		ND		3.1	
28	9:00	DC	clear	0	15225								
29	9:00	DC	clear	0	10271			1.74					
30	9:00	DC	cloudy	0	11787		38	.71	37	ND			
31													

Enclosure 5

WASTEWATER TREATMENT PLANT SELF MONITORING PROGRAM
SAN MATEO COUNTY MEMORIAL PARK
MONTH OF JULY 2001

DATE	TIME	OPERATOR	WEATHER	RAINFALL in.	FLOW gal.	COD mg/L	CHLORINE DOSAGE mg/L	CHLORINE RESIDUAL mg/L	CHLORINE DEMAND mg/L	SETTLEABLE SOLIDS ml/L	pH	DISSOLVED OXYGEN mg/L	TURBIDITY ntu
1	9:00	DC	Clear	0	19830								
2	9:15	JK	Clear	0	17033								
3	9:00	DC	Cloudy	0	7596								
4	9:00	DC	O'Cast	0	8504			1.41		ND			
5	9:00	DC	O'Cast	0	17889								
6	9:00	DC	Cloudy	0	9915								
7	9:00	DC	Clear	0	22875	80		>2.20		ND	7.3	7.2	2.6
8	9:00	DC	O'Cast	0	21587			1.29					
9	9:00	JK	O'Cast	0	3730								
10				0	7000								
11	9:00	DC	O'Cast	0	7438								
12	8:20	JK	O'Cast	0	15199								
13	9:00	JK	O'Cast	0	15591								
14				0	22003								
15	9:10	JK	O'Cast	0	7078								
16	8:55	JK	O'Cast	0	19016			1.01			6.5		
17	9:45	JK	O'Cast	0	17583								
18	8:50	JK	O'Cast	0	5394								
19	10:30	JK	O'Cast	0	10782								
20	10:00	JK	O'Cast	0	12074								
21	12:15	JK	O'Cast	0	19753								
22	9:35	JK	O'Cast	0	18961			2.02			7.7	5.9	
23	9:15	JK	O'Cast	0	16873								
24	8:55	JK	O'Cast	0	10020								
25	11:35	JK	O'Cast	0	7125								
26	9:20	JK	O'Cast	0	13369								
27	9:45	JK	O'Cast	0	20600								
28	9:00	JK	O'Cast	0	18844								
29	9:30	JK	O'Cast	0	22320								
30	8:40	JK	O'Cast	0.1	19338								
31	9:35	JK	O'Cast	0.1	1992								
				Total Flow	437,312		14,107	Average Daily Flow					

Enclosure 5

WASTEWATER TREATMENT PLANT SELF MONITORING PROGRAM
SAN MATEO COUNTY MEMORIAL PARK
AUGUST 2001

DATE	TIME	OPERATOR	WEATHER	RAINFALL in.	FLOW gal.	COD mg/L	CHLORINE DOSAGE mg/L	CHLORINE RESIDUAL mg/L	CHLORINE DEMAND mg/L	SETTLEABLE SOLIDS ml/L	pH	DISSOLVED OXYGEN mg/L	TURBIDITY ntu
1	9:45	JK	O' Cast	0	14,869			1.54			7.4	5.4	
2	10:10	JK	O' Cast	0	13,527					0.10	7.35	2.20	
3	9:40	JK	O' Cast	0	14,253								
4	11:00	JK	O' Cast	0	18,358								
5	9:25	JK	Clear	0	20,769								
6	8:30	JK	Clear	0	21,356								
7	9:05	JK	Clear	0	11,382			>2.20			7.7		
8	9:20	JK	Clear	0	13,158			1.73				4.4	
9	10:00	JK	Clear	0	15,036								
10	8:50	JK	O' Cast	0	15,081								
11	8:30	JK	O' Cast	0	23,458								
12	8:45	JK	O' Cast	0	23,201			1.74					
13	9:55	JK	O' Cast	0	20,934								
14	9:54	JK	O' Cast	0	6,568			1.99					
15	8:45	JK	O' Cast	0	12,087						7.7	5.9	
16	8:20	JK	O' Cast	0	15,820					0.10	7.7	5.10	
17	10:00	JK	Clear	0	16,408								
18	9:45	JK	O' Cast	0	21,582								
19	10:30	JK	O' Cast	0	22,446			.95					
20	9:15	JK	Clear	0	21,023								
21	8:50	JK	O' Cast	Trace	7,364			1.51			7.8	4.7	
22	9:30	JK	Clear	0	11,643								
23	9:45	JK	O' Cast	0	6,216								
24	9:10	JK	O' Cast	0	11,107								
25	9:20	JK	O' Cast	0	15,222								
26	8:20	JK	Clear	0	22,326								
27	9:50	JK	Clear	0	14,883								
28	9:05	JK	O' Cast	0	8,036								
29	9:05	JK	O' Cast	0	7,657			1.31			7.4	5.7	
30	9:15	JK	O' Cast	0	5,769								
31	9:45	JK	O' Cast	0	10,913								

August-98

WASTEWATER TREATMENT PLANT SELF MONITORING PROGRAM
SAN MATEO COUNTY MEMORIAL PARK

	DATE	TIME	OPERATOR	WEATHER	RAINFALL In.	FLOW gal.	COD mg/L	CHLORINE RESIDUAL mg/L	CHLORINE DOSAGE mg/L	ETTLEABL MATTER ml/L	pH	DISSOLVED OXYGEN	TURBIDITY ntu	TEMP centigrade
	1	900	DC	clear		23423								
	2	900	DC	clear		23141		1.11						
	3	900	JK	clear		25976								
	4	900	JK	clear		17160								
	5	900	DC	clear		15161								
	6	900	DC	o'cast		24546		1.40						
	7	900	DC	o'cast		19392		1.47						
	8	900	DC	clear		28336								
	9	900	DC	o'cast		21456								
	10	900	JK	clear		21319								
	11	1230	JK	clear		19538								
	12	900	DC	clear		13946		1.08						
	13	900	DC	clear		20066								
	14	900	DC	o'cast		20508		1.06						
	15	900	DC	o'cast		25002								
	16	1030	JK	clear		19751								
	17	1100	JK	clear		20538								
	18	900	JK	o'cast		22421								
	19	1030	JK	o'cast		22613								
	20	945	JK	o'cast		19973								
	21	1100	JK	clear		24709								
sat	22	1000	JK	clear		12798								
sun	23	900	JK	clear		37675								
	24	830	JK	clear		23263								
	25					4488								
	26	900	DC	o'cast		27483		1.11						
	27	900	DC	clear		19361								
	28	900	DC	clear		16256		.95						
	29	900	DC	o'cast		17054	60	1.19		ND	7.8	7.3	4.87	
	30	900	DC	clear		22166								
	31	900	JK	clear		23040								

August 1999

WASTEWATER TREATMENT PLANT SELF MONITORING PROGRAM
SAN MATEO COUNTY MEMORIAL PARK

DATE	TIME	OPERATOR	WEATHER	RAINFALL in.	FLOW gal.	COD mg/L	CHLORINE RESIDUAL mg/L	CHLORINE DOSAGE mg/L	SETTLEABLE MATTER ml/L	pH	DISSOLVED OXYGEN	TURBIDITY ntu	TEMP centigrade
1	900	DC	o'cast		24,545	55	1.21	20.1	ND	7.9	8.1	14.0	
2	850	JK	clear		22,251								
3	850	JK	o'cast		13,299								
4	900	DC	o'cast	trace	15,166		2.12	20.1					
5	900	DC	o'cast	0.10	11,330								
6	900	DC	o'cast	0.22	19,823								
7	900	DC	o'cast	0.10	15,784								
8	900	DC	o'cast		24,725	40	1.49	20.1	ND	7.7	8.9	14.5	
9	925	JK	o'cast		19,819								
10	930	JK	o'cast		12,691								
11	900	DC	o'cast	0.08	16,874								
12	900	DC	o'cast		11,897								
13	900	DC	o'cast		15,802								
14	915	JK	clear		16,862		1.18	20.1					
15	945	JK	o'cast		20,362								
16	920	JK	o'cast		15,069								
17	950	JK	o'cast		7,768								
18	850	JK	o'cast		16,101								
19	1130	JK	clear		17,389								
20	930	JK	o'cast		18,260								
21	1000	JK	clear		18,283								
22	845	JK	clear		17,305								
23	900	JK	clear		19,406		0.99	20.1					
24	900	JK	o'cast		10,528								
25	900	DC	clear		6,480								
26	900	DC	o'cast		11,447								
27	900	DC	clear		9,490								
28	900	DC	o'cast		13,874								
29	900	DC	o'cast		20,224	60	1.22	20.1	<0.1	8.1	7.7	10.5	
30	810	JK	o'cast		8,957								
31	845	JK	clear		4,477								

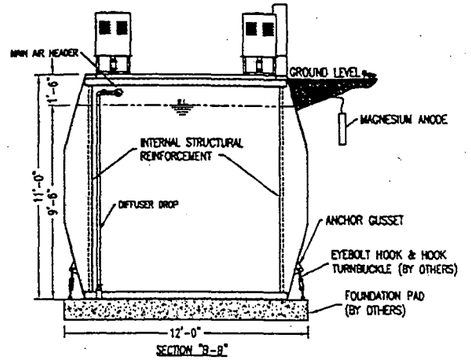
August 2000

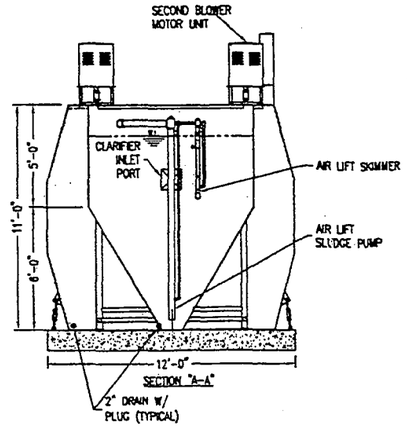
SAN MATEO COUNTY MEMORIAL PARK

DATE	TIME	OPERATOR	WEATHER	RAINFALL in.	FLOW gal.	COD mg/L	CHLORINE RESIDUAL mg/L	CHLORINE DOSAGE mg/L	SETTLEABLE MATTER ml/L	pH	DISSOLVED OXYGEN	TURBIDITY ntu	TEMP centigrade
1	8:40	JK	o'cast		5813								
2	9:00	DC	clear		14068								
3	9:00	DC	o'cast		18751								
4	9:00	DC	clear		13526		1.10		ND		5.4		
5	9:00	DC	clear		20458								
6	9:00	DC	o'cast		21356		1.59						
7	8:10	JK	o'cast		19978								
8	9:00	JK	o'cast		13498								
9	9:00	DC	o'cast		16428								
10	9:00	DC	o'cast		13204		1.18						
11	9:00	DC	clear		14381		.91						
12	9:00	DC	clear		20876	50	.90	31.2	ND	7.4	8.8	2.5	
13	9:00	DC	clear		21589		1.12	26.7					
14	1500	BG	clear		24585								
15	1010	BG	clear		10182								
16	9:00	DC	clear		12395		.86						
17	9:00	DC	clear		20627		.86	22.7					
18	9:00	DC	clear		15013		.82	22.7	ND				
19	9:00	DC	clear		22807		1.37						
20	9:00	DC	clear		23107	60	1.84		ND	7.7	8.3	2.1	
21	8:45	JK	o'cast		21916								
22	9:45	JK	clear		17108								
23	9:00	DC	o'cast		9508								
24	9:00	DC	o'cast		13960								
25	9:00	DC	clear		10242								
26	9:00	DC	o'cast		16276		.61						
27	9:00	DC	o'cast		15986		.99			7.7	6.2	11	
28	9:20	JK	o'cast		23274								
29	8:50	JK	o'cast		12952								
30	11:00	DC	o'cast		15870								
31	9:00	DC	cloudy		12697								

Appendix B

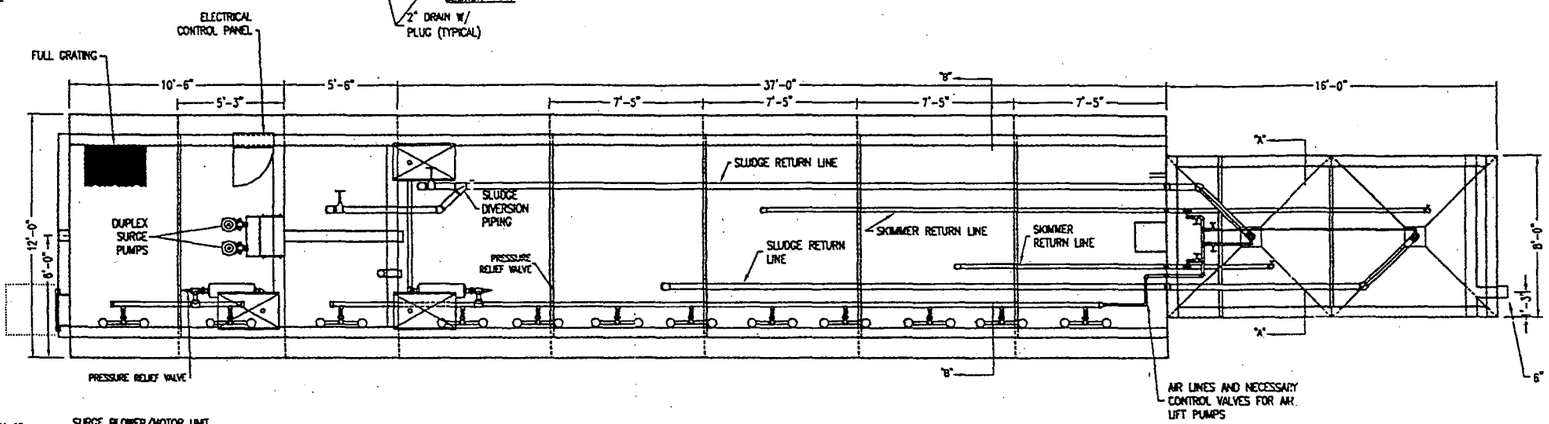
Typical Drawings – Conventional Extended Aeration

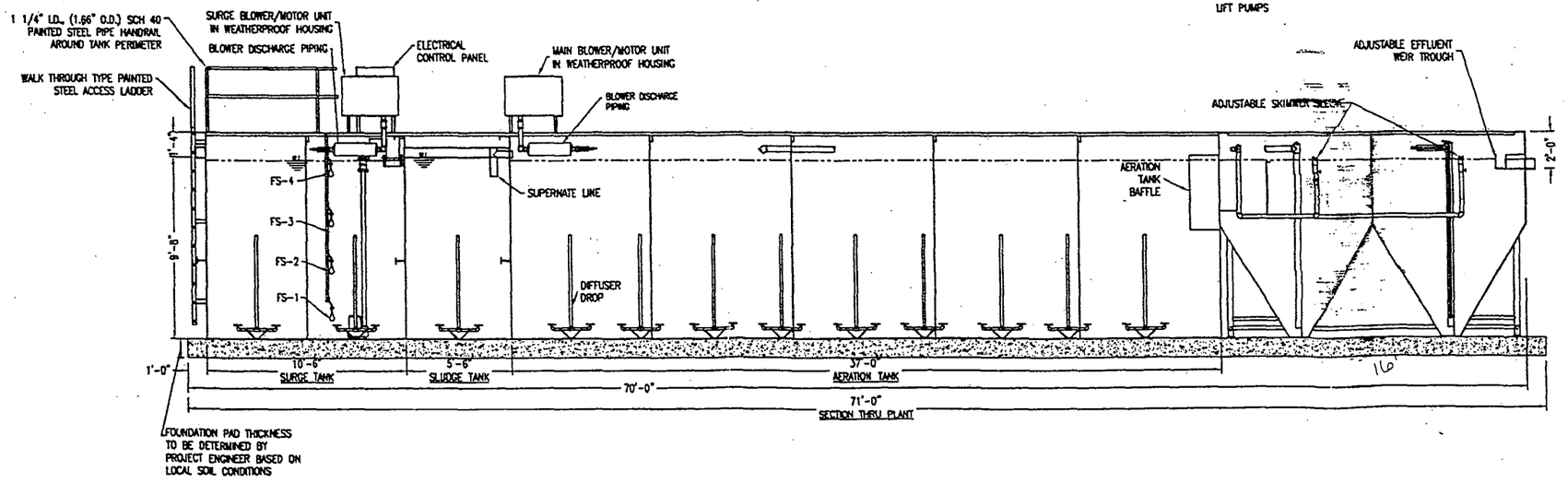




NOTES:
1. PLANT TO BE SHIPPED WITH BLOWER/MOTOR UNIT(S) AND CONTROL PANEL, SHIPPED FOR FIELD INSTALLATION BE OTHERS.
2. FLOAT SWITCH ELEVATION SHALL BE DETERMINED BY OTHERS.

NOTE:
THIS TANK STRUCTURE IS REINFORCED TO WITHSTAND NORMAL PRESSURES FROM THE SOIL AND FROM THE INTERIOR HYDROSTATIC LOAD ON ABOVE GRADE INSTALLATIONS. IF THERE IS A GROUND WATER PROBLEM, NOTIFY YOUR ENGINEER AND PURESTREAM IMMEDIATELY. PURESTREAM WILL NOT BE RESPONSIBLE FOR DAMAGE TO THE TANK STRUCTURE OR EQUIPMENT DUE TO GROUND WATER.





Plant = 69' long
Concrete = 71' long

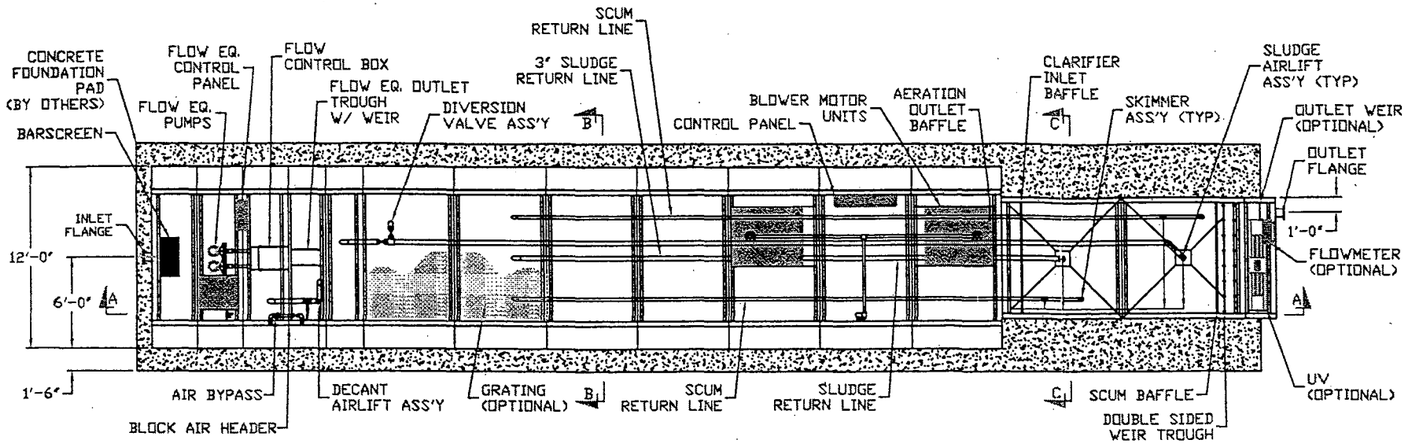
FS-1	PUMPS OFF
FS-2	PUMP #1 ON
FS-3	DUPLEX PUMPS ON
FS-4	HIGH WATER ALARM

MODEL NUMBER	DESIGN FLOW G.P.D.	AERATION TANK VOLUME GALLON	CLARIFIER VOLUME GALLON	SLUDGE TANK VOLUME GALLON	SURGE TANK VOLUME GALLON	MAIN BLOWER CFM	MAIN BLOWER H.P.	SURGE BLOWER CFM	SURGE BLOWER H.P.
PT-30	30,000	30,000	5,000	4,500	7,500	150	7.5	40	3

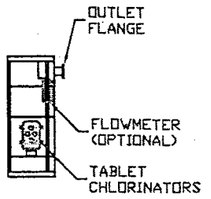
REVISIONS

JOB NO: 0894
JOB NAME: MEMORIAL PARK
LOCATION: SAN MATEO, CA.
DRAWN BY: RJG
DATE: 7/31/02

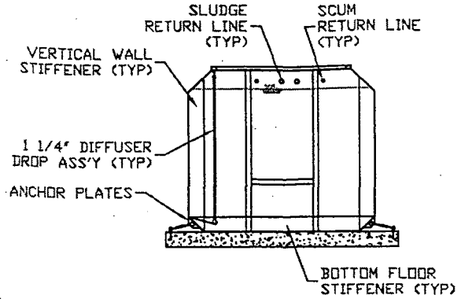
PURESTREAM INC.
DESCRIPTION: SEWAGE TREATMENT PLANT PT-30
SCALE: (SEE #)
DWG. SIZE: D
PART# DWG.NO.: 0894S1



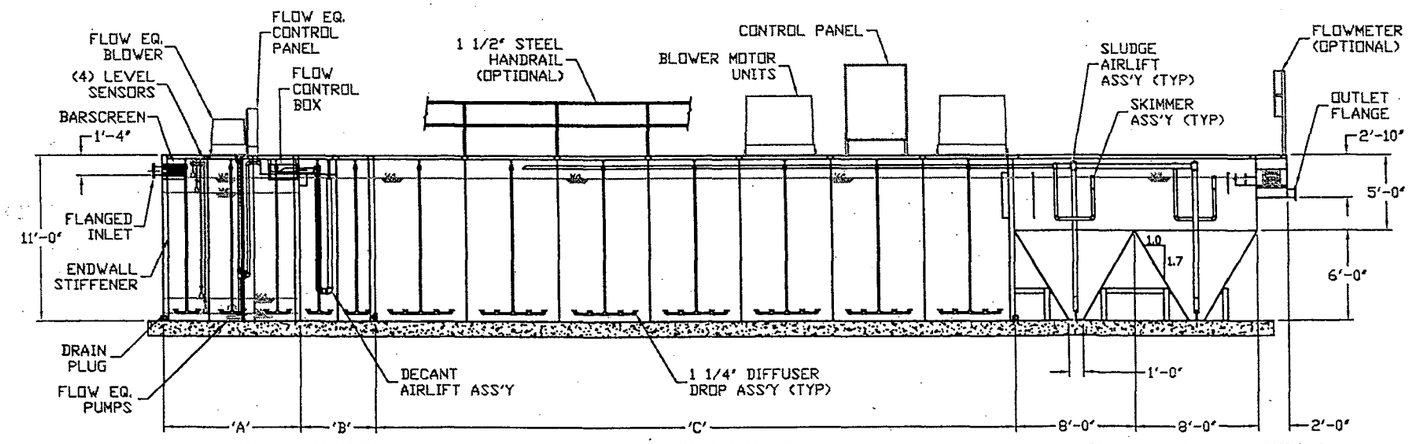
PLAN



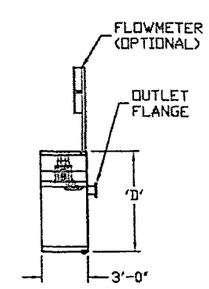
OPTION B
CHLORINATION
CHAMBER



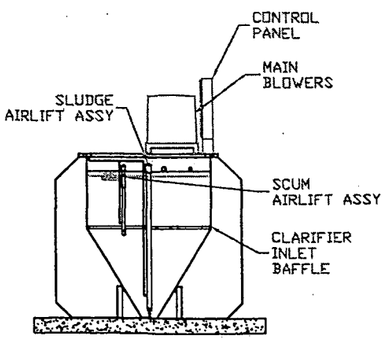
SECTION 'B-B'
AERATION CHAMBER



ELEVATION
SECTION 'A-A'



OPTION B
CHLORINATION
CHAMBER



SECTION 'C-C'
CLARIFIER CHAMBER

MODEL NUMBER	E/A DESIGN FLOW	FLOW EQUILAZITION VOLUME = 20%	SLUDGE HOLDING VOLUME = 7.5%	AERATION VOLUME	CLARIFIER VOLUME	CHLORINATION VOLUME	-A-	-B-	-C-	-D-
H-26-SUSHC	26,000 GPD	5,200 GAL	1,950 GAL	26,000 GAL	5,416 GAL	677 GAL	6'-2"	2'-4"	31'-0"	4'-4"
H-27-SUSHC	27,000 GPD	5,400 GAL	2,025 GAL	27,000 GAL	5,833 GAL	729 GAL	6'-5"	2'-5"	32'-3"	4'-5"
H-28-SUSHC	28,000 GPD	5,600 GAL	2,100 GAL	28,000 GAL	6,249 GAL	781 GAL	6'-8"	2'-6"	33'-5"	4'-6"
H-29-SUSHC	29,000 GPD	5,800 GAL	2,175 GAL	29,000 GAL	6,667 GAL	833 GAL	6'-11"	2'-8"	34'-7"	4'-7"
H-30-SUSHC	30,000 GPD	6,000 GAL	2,250 GAL	30,000 GAL	7,089 GAL	885 GAL	7'-2"	2'-9"	35'-10"	4'-8"

TOLERANCE UNLESS NOTED:
ALL DIMENSIONS IN INCHES.
BREAK ALL SHARP EDGES
FRACTIONAL = ± 1/32"
ANGLES = ± 1/2°
DECIMAL .XX = ± .03
.X = ± .1 .XXX = ± .015
MACH. SURFACE 125√ MAX.

DRAWN WOLF	DATE 2/1/00
CHECKED MC	DATE
APPROVED MC	DATE
NEXT ASS'Y	WEIGHT

ASHBROOK
OPTIMIZED PROCESS RESULTS

Ashbrook Corporation
11600 East Hardy Road
Houston, Texas 77093
Phone: 281-449-0322
FAX: 281-449-1324

TITLE
PREFABRICATED STEEL
SECONDARY TREATMENT
SYSTEM

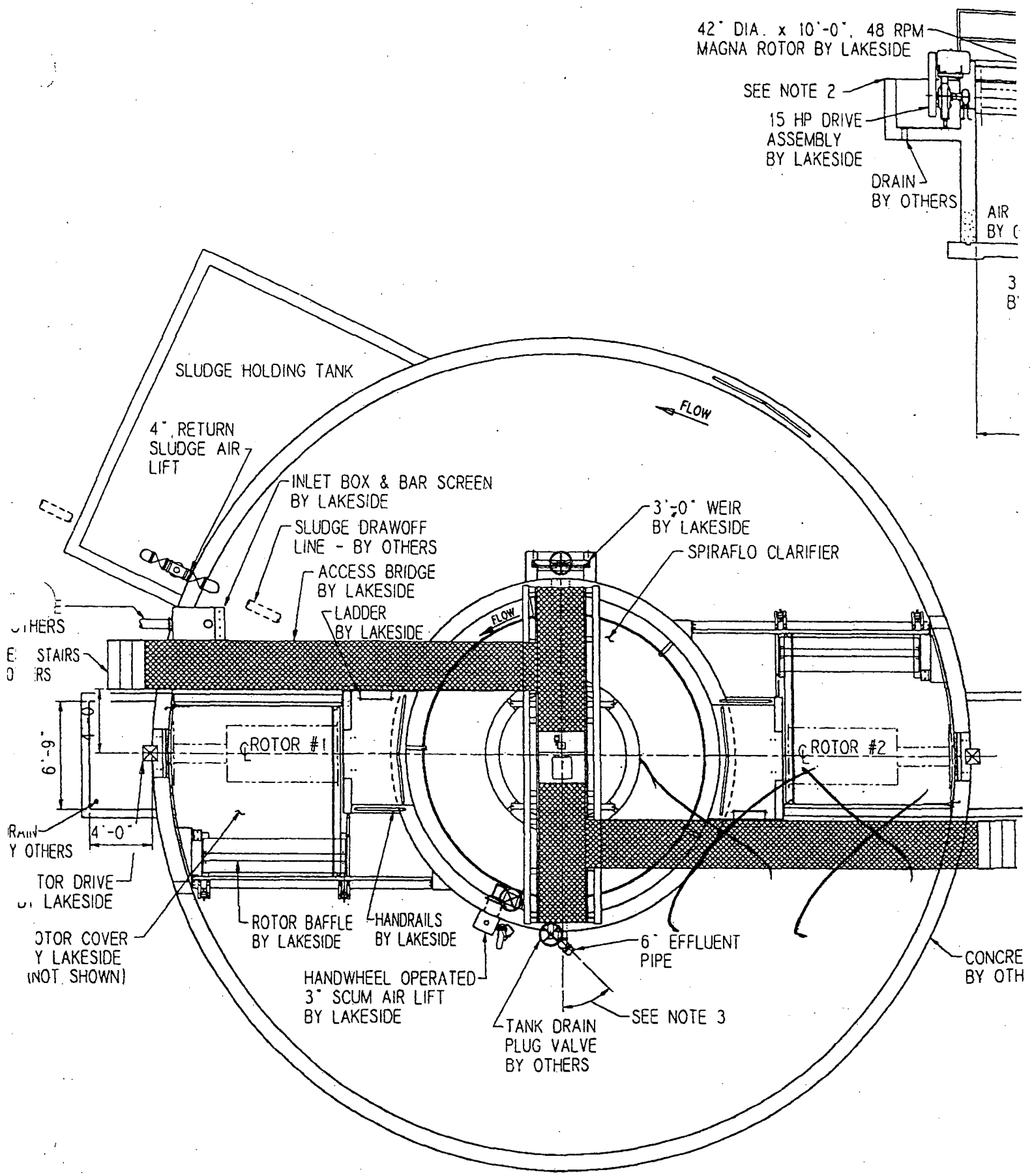
SCALE	DWG. NO.	REV
1/120	01-035	0

CUSTOMER

Appendix C

Typical Drawings – Closed Loop Reactor

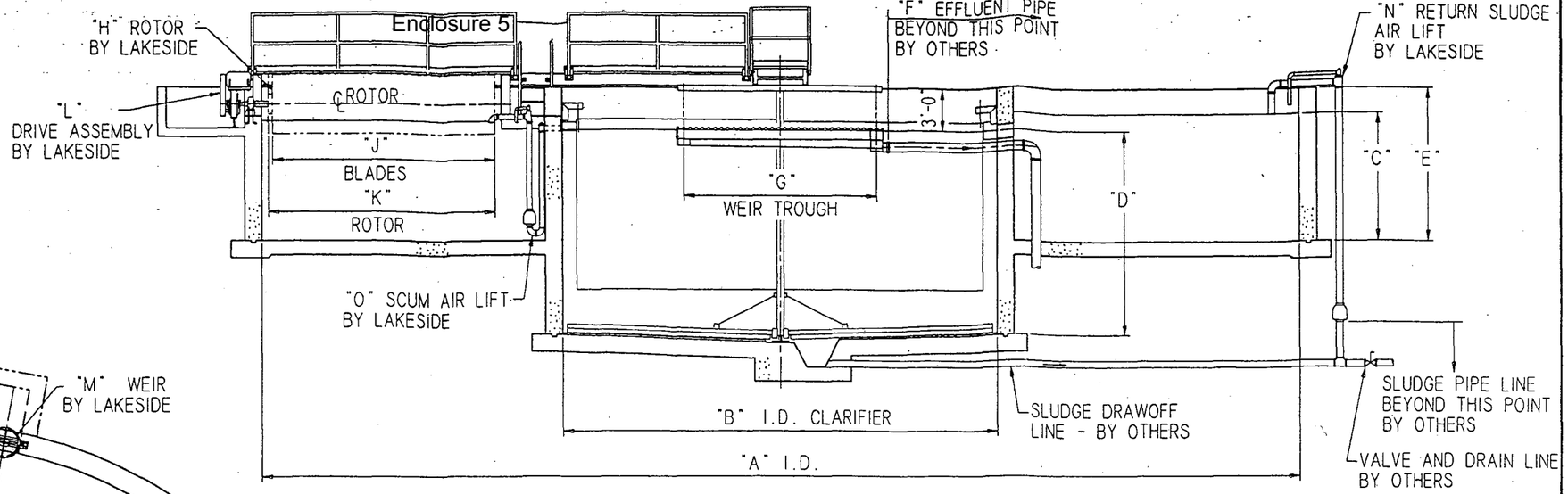
Enclosure 5



PLAN

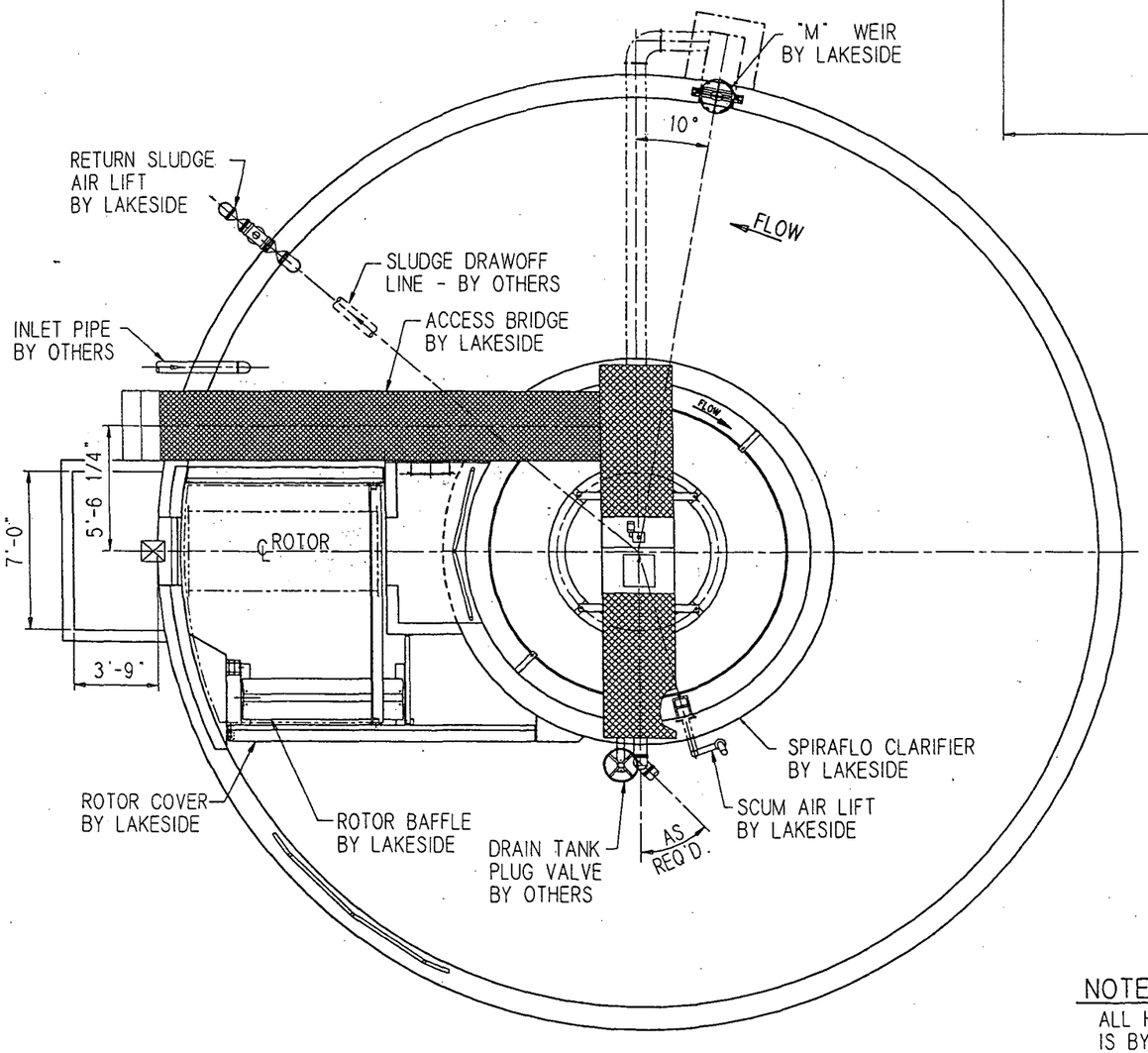
REVISIONS	DATE	DR. CHKD	REVISIONS	DATE	DR. CHKD	REVISIONS	DATE	DR. CHKD	REVISIONS	DATE

Enclosure 5



SECTIONAL ELEVATION

ROTATED TO SHOW CROSS SECTION
SEE PLAN FOR PROPER LAYOUT



PLAN

A)	AERATION TANK DIAMETER	30'-0"
B)	CLARIFIER TANK DIAMETER	10'-0"
C)	AERATION TANK DEPTH	~~7'-6"~~ 5'-0"
D)	CLARIFIER TANK DEPTH	12'-0"
E)	AERATION TANK SIDEWALL HGT.	9'-6"
F)	EFFLUENT PIPE DIAMETER	6"
G)	CLARIFIER WEIR TROUGH DIA.	4'-0"
H)	ROTOR TYPE/DIA./SPEED	MAGNA/42"/44 RPM
J)	ROTOR BLADE LENGTH	5'-0"
K)	ROTOR LENGTH	5'-0"
L)	MOTOR HORSEPOWER	5 hp
M)	WEIR LENGTH	2'-0"
N)	RETURN SLUDGE AIR LIFT	3"
O)	SCUM AIR LIFT	3"

NOTE:
ALL HANDRAIL MOUNTED ON CONCRETE IS BY OTHERS.

PROJECT: SAN MATEO COUNTY, CA
MEMORIAL PARK WWTP
1 ROTOR/OUTER WEIR

ENGINEER: KENNEDY/JENKS
BY: GS DATE: 07-25-02
SANMAT/SD1315

REVISIONS	DATE	DR.	CHKD
GENERAL FOR SALES IMROUTWR 4/25/02	9/3/96	GS	

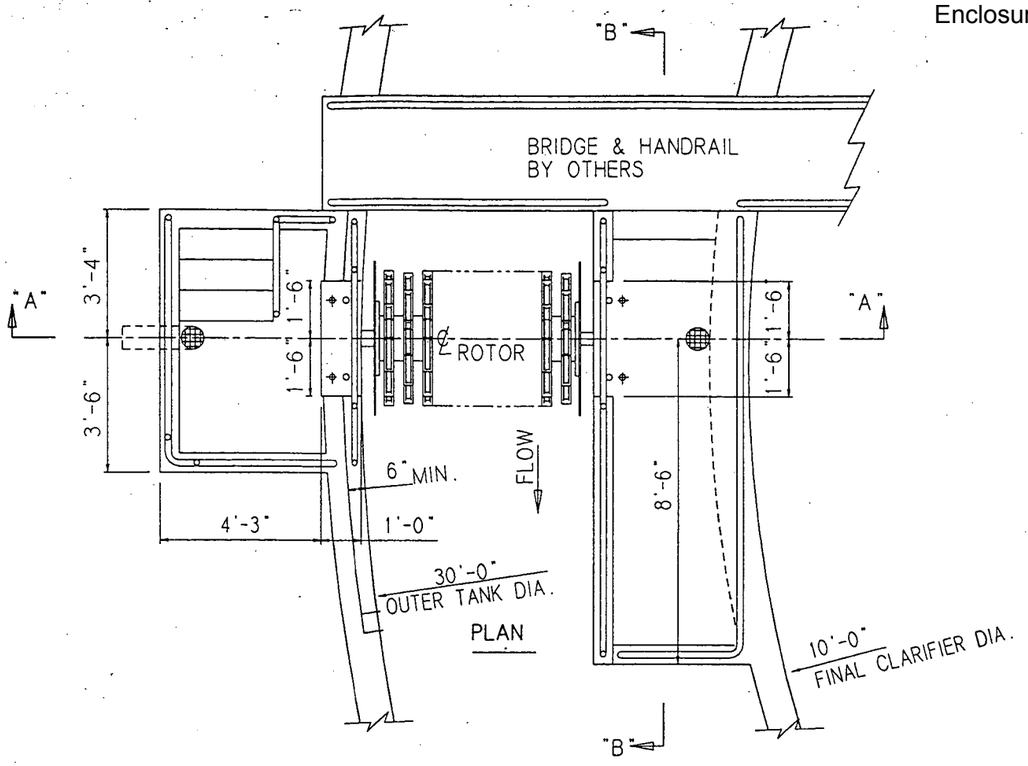
LAKESIDE EQUIPMENT CORPORATION
DR. E.R.T. DATE 7-3-96
CHKD. FILE NO. 251

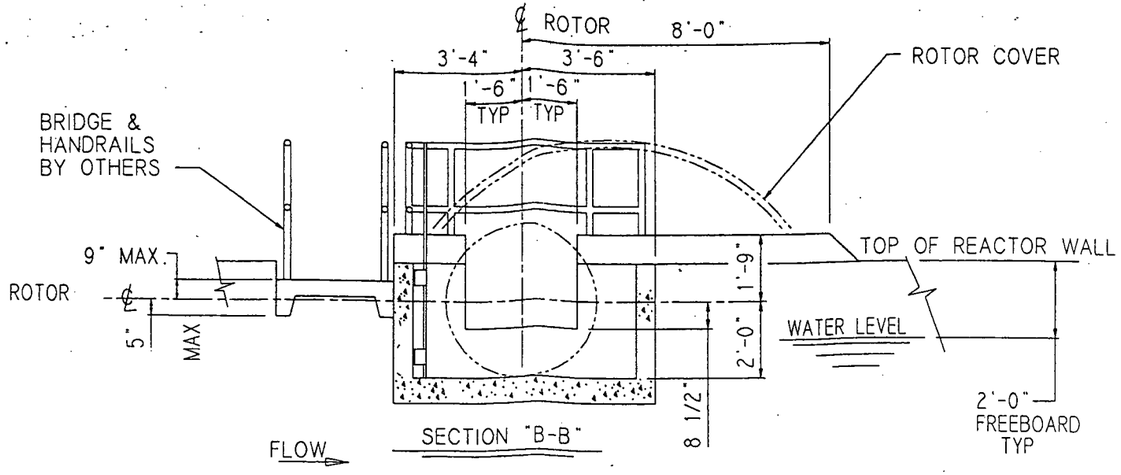
E.A. AEROTOR PLANT
GENERAL ARRANGEMENT

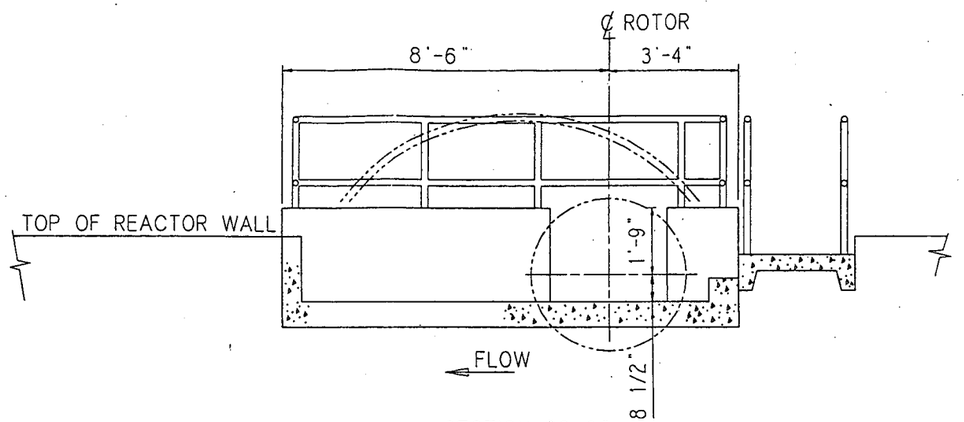
SAN MATEO COUNTY, CA

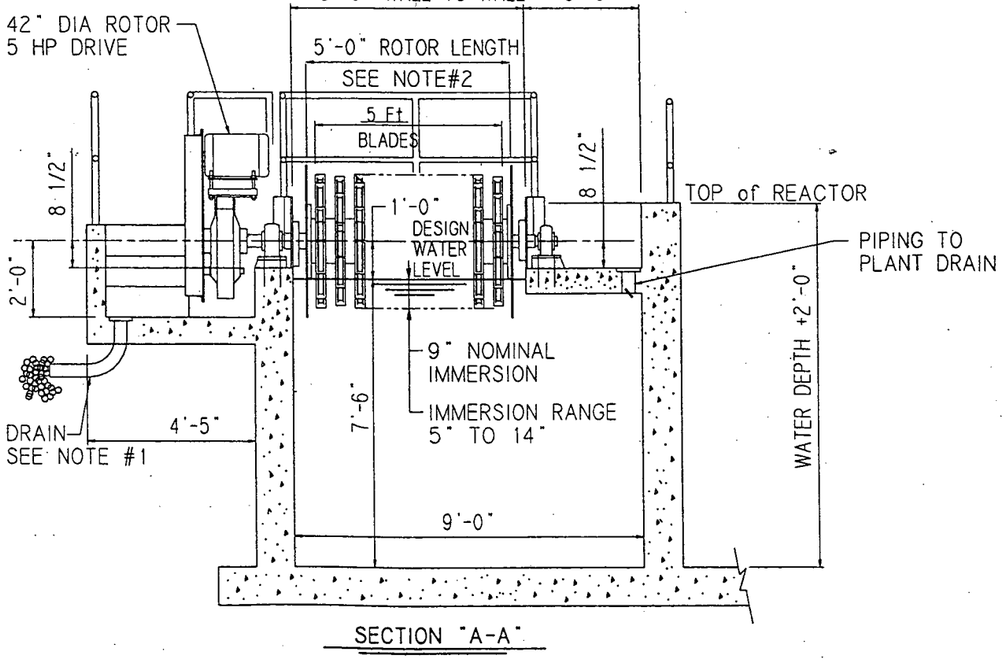
DWG. NO. D-53593-S REV. B

Enclosure 5









NOTES:

1) IF GROUND ELEVATION IS ABOVE DRAIN OUTLET, DRAIN PIT SHOULD BE PROVIDED.
2) 2 RINGS OF BLADES PER FOOT OF ROTOR.
3) ROTOR COVER AND BAFFLE NOT SHOWN IN PLAN OR SECTION A-A.
4) MIRROR IMAGE OF EQUIPMENT MAY BE REQUIRED DEPENDING ON DIRECTION OF FLOW IN BASIN.

REVISIONS	DATE	DR.	CHKD
REV.C CORRECTED SECT.B-B	11-03-98	GS	
REV.A CURRENT DESIGN DIMENSIONS + B-B COVER SECTION	11-07-97	GS	
REV.B UPDATED CURRENT DESIGN DIMENSIONS/SECTION B-B + C-C	08-12-98	GS	

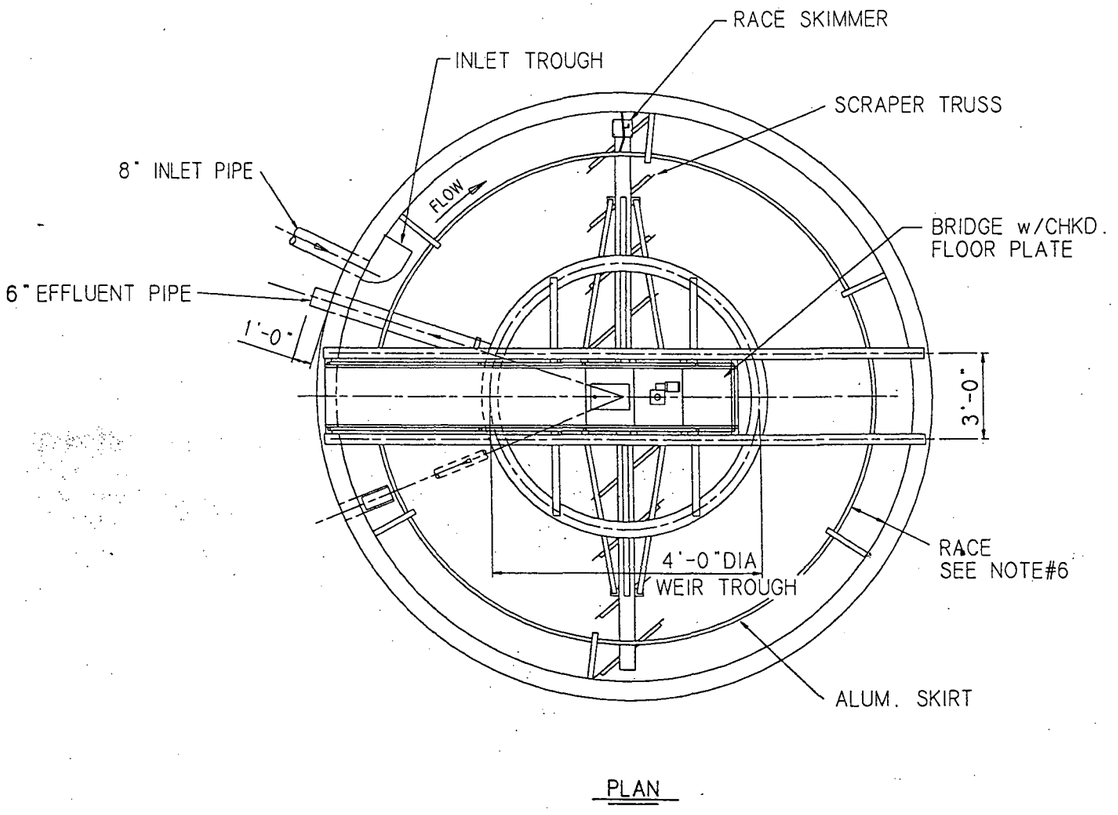
LAKESIDE EQUIPMENT CORPORATION

DR. SNYDER/GS | DATE 07-25-02
CHKD SANMATI | FILE NO. SD1315

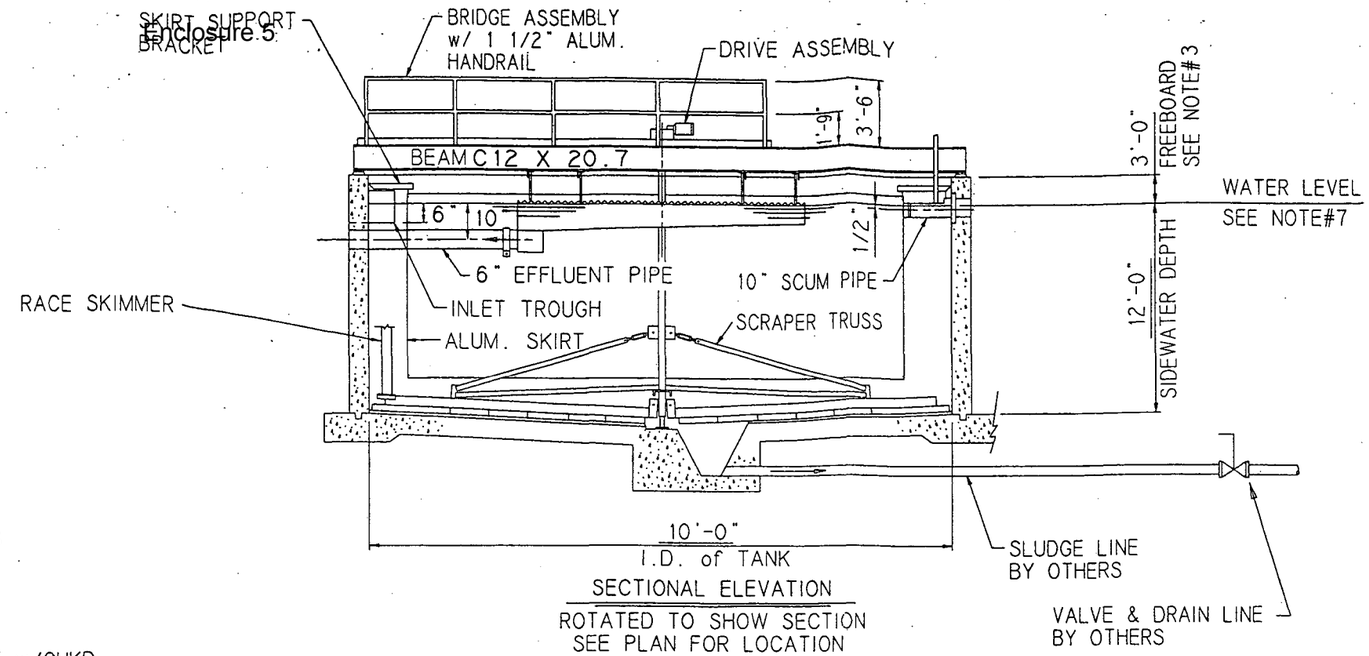
TYPE "D" ROTOR SUPPORT w/Type "E" Rotor Cover FOR E.A. AEROTOR PLANT

SAN MATEO COUNTY, CA
MEMORIAL PARK WWTP

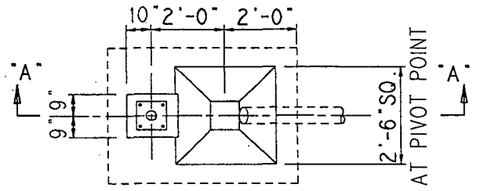
DWG. NO. D-47950-S | REV. C



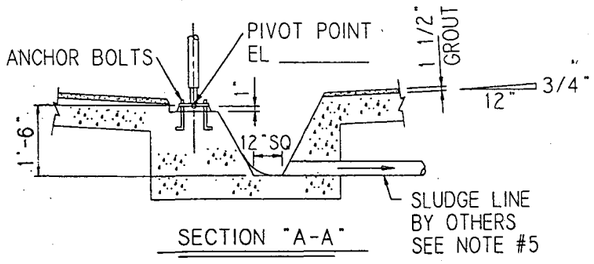
PLAN



SECTIONAL ELEVATION
ROTATED TO SHOW SECTION
SEE PLAN FOR LOCATION



PLAN OF CENTER PIER



SECTION "A-A"

NOTES:

1) ALL EQUIPMENT SHOWN IS BY LAKESIDE UNLESS OTHERWISE SPECIFIED.
2) ALL CONCRETE & GROUT BY OTHERS.
3) ALL BOX DEPTHS BASED ON 1-6" FREEBOARD ANY VARIATION IN FREEBOARD AFFECTS DIMENSIONS ACCORDINGLY.
4) CLOCKWISE FLOW IS SHOWN DIRECTION OF FLOW IS OPTIONAL, BOXES WOULD BE MIRROR IMAGE OF BOXES IN PLAN VIEW.
5) SLUDGE LINE SIZES ARE APPROXIMATE ACTUAL SIZES TO BE BASED ON FLOW AND AVAILABLE HEADLOSS.
6) RACE DESIGN AND QUANTITY OF SUPPORTS BY LAKESIDE.
7) WATER LEVEL SHOWN IS BOTTOM OF V-NOTCH IN WEIR TROUGH.

REVISIONS	DATE	DR.	CHKD

LAKESIDE EQUIPMENT CORPORATION

DR. SNYDER/GS | CHKD. SANMAT4 | DATE 07-25-02 | FILE NO. GENPROJ

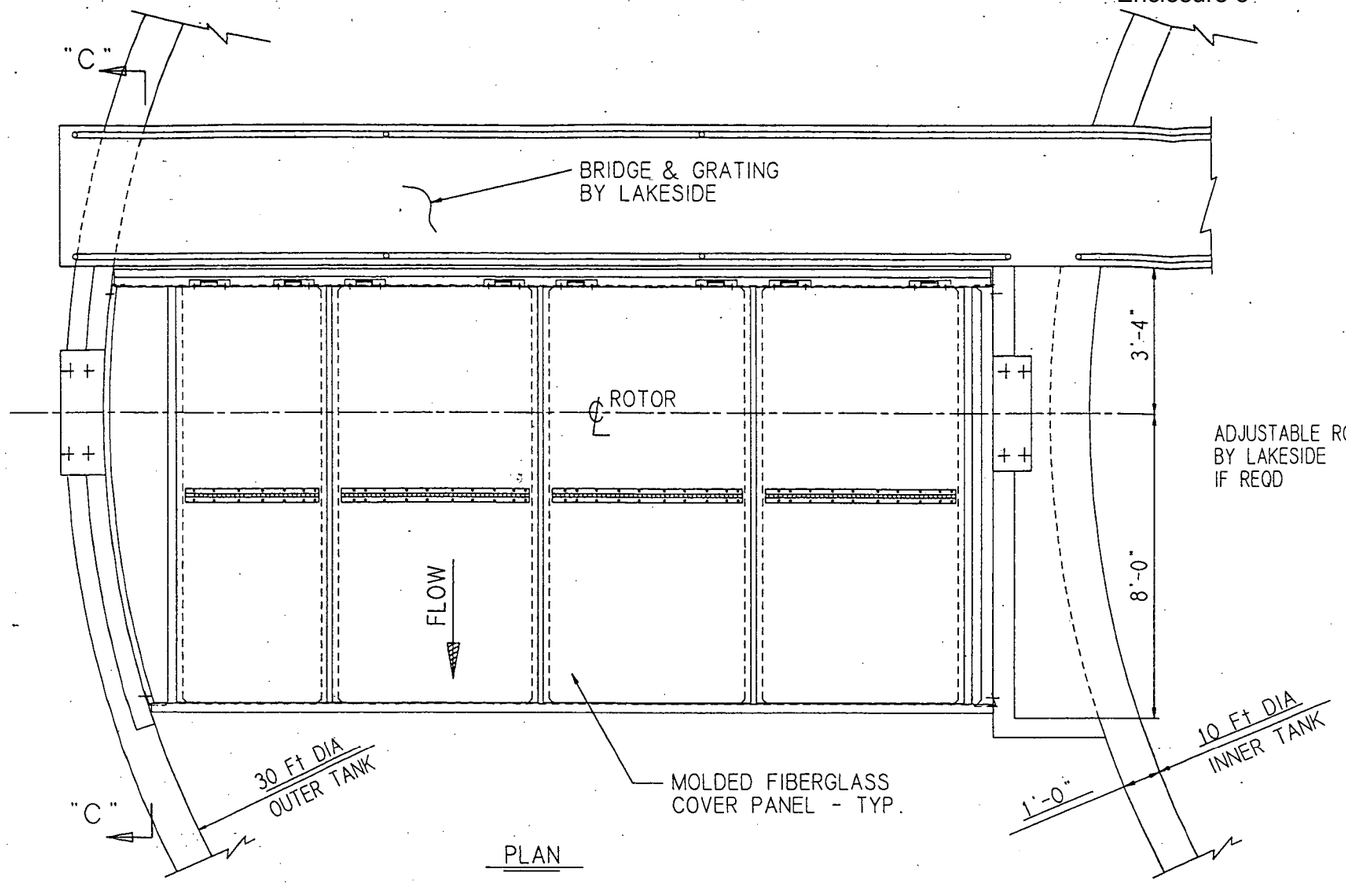
10'-0" DIA. SPIRAFLO CLARIFIER
FOR E.A. AEROTOR PLANT

SAN MATEO COUNTY, CA
MEMORIAL PARK WWTP

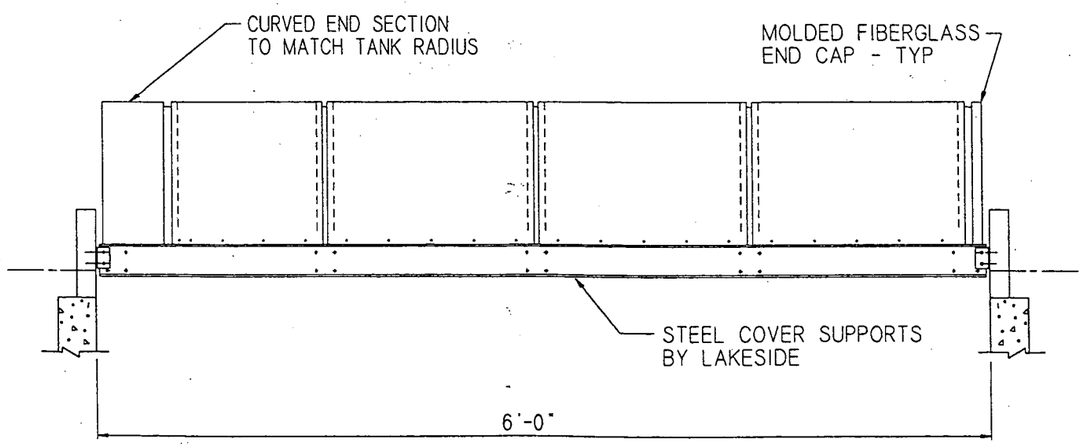
DWG. NO. D-47953-S

REV.

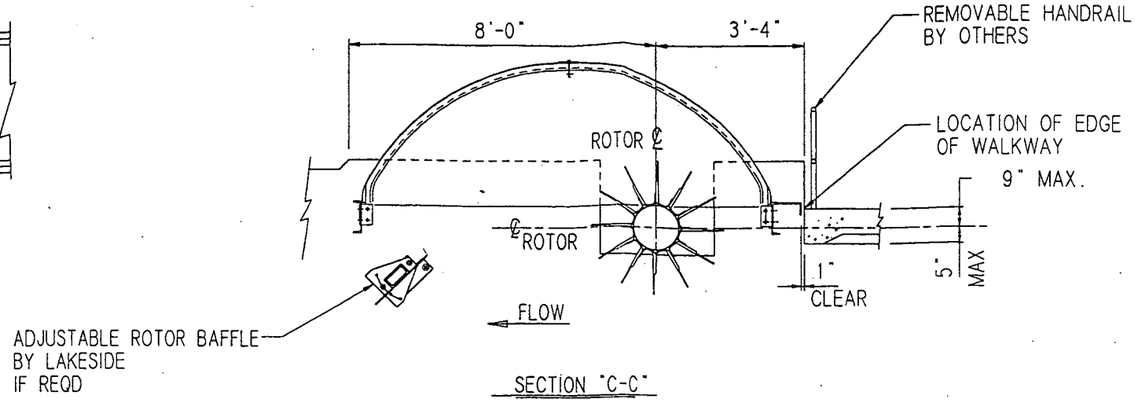
Enclosure 5



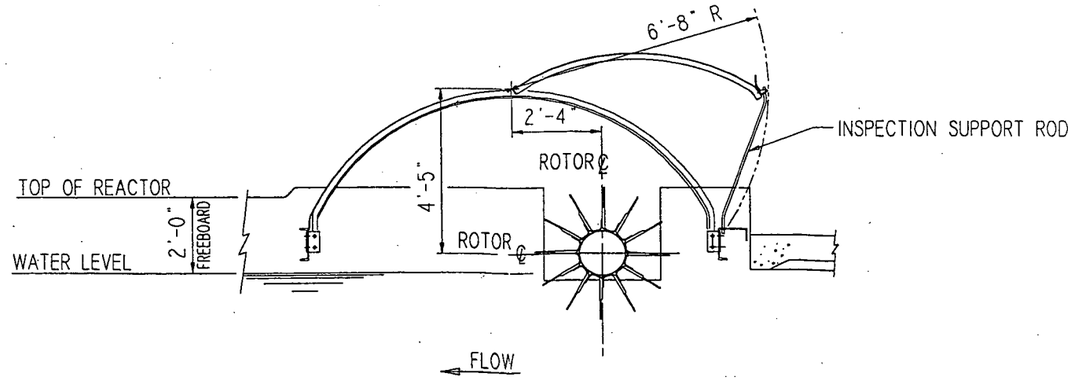
PLAN



ELEVATION



SECTION "C-C"



INSPECTION POSITION

REVISIONS	DATE	DR.	CHKD
REVISED	12-26-01	G.S.	B.P.
REVISED	11-14-97	J.H.	RcR

LAKESIDE EQUIPMENT CORPORATION

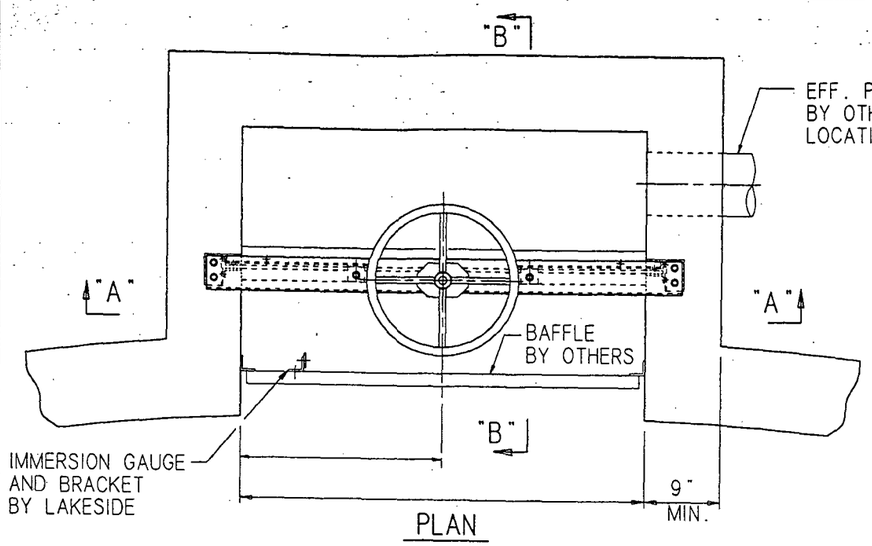
DR. SNYDER/GS | DATE 07-25-02 | CHKD. SANMAT2 | FILE NO. GENPROJ

ROTOR COVER "TYPE E"
FOR E.A. AEROTOR PLANT

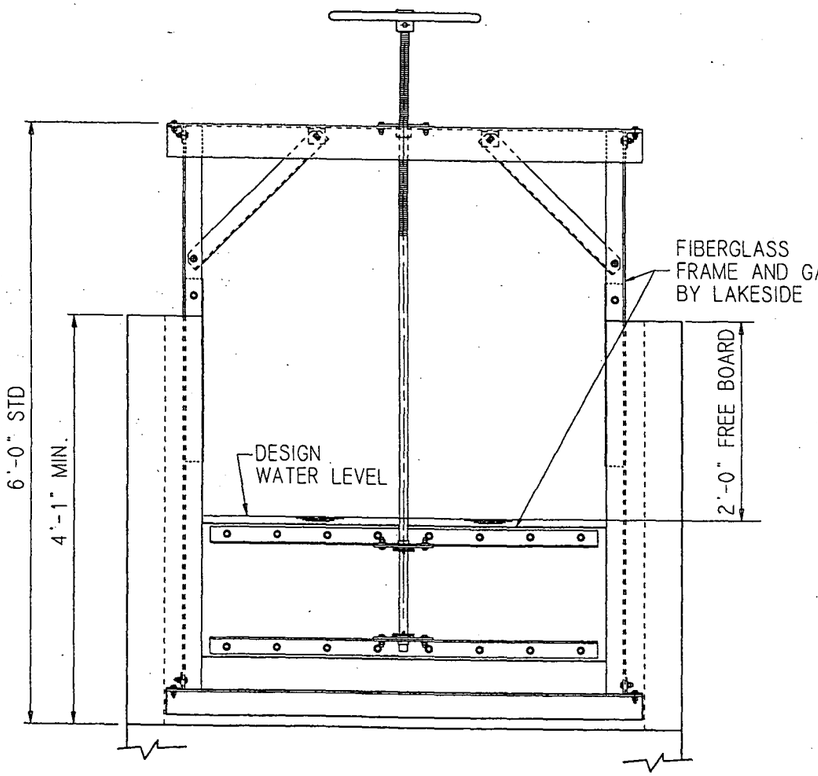
SAN MATEO COUNTY, CA
MEMORIAL PARK WWTP

DWG. NO. D-53425-S | REV. B

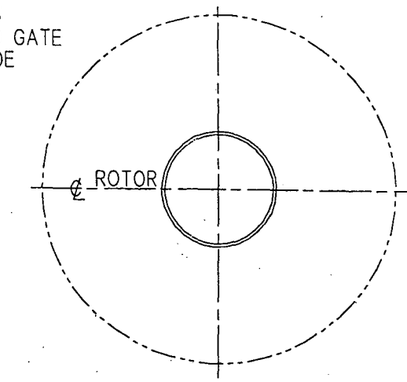
Enclosure 5

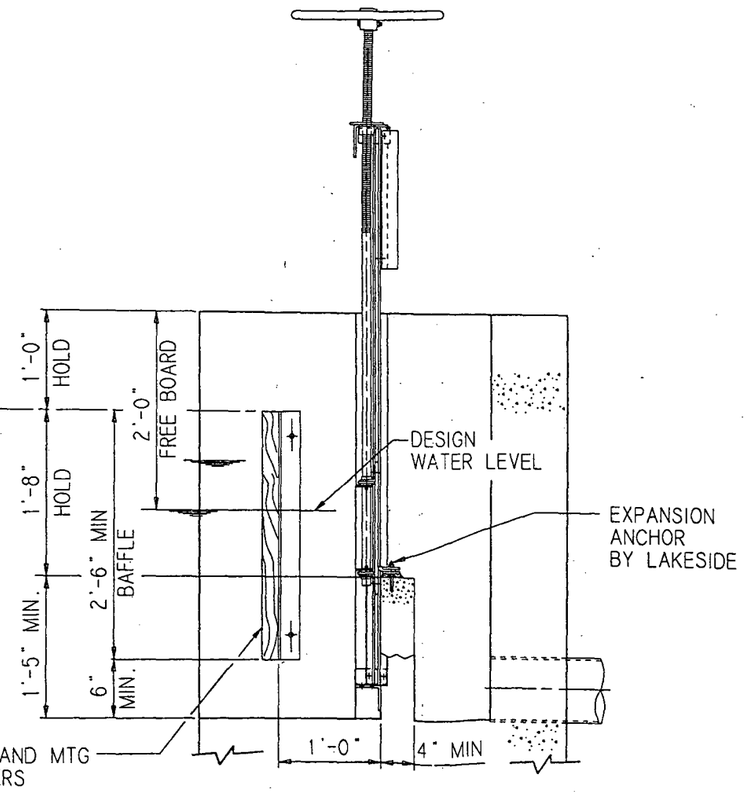


PLAN



SECTION "A-A"





SECTION "B-B"

C-53670S

REVISIONS	DATE	DR.	CHKD.

LAKESIDE EQUIPMENT CORPORATION

DR. Y.C./GS DATE 07-25-02
CHKD. JOHN J. 9-9-96
FILE NO. SANMAT3 GENPROJ

2'-0" WEIR GATE

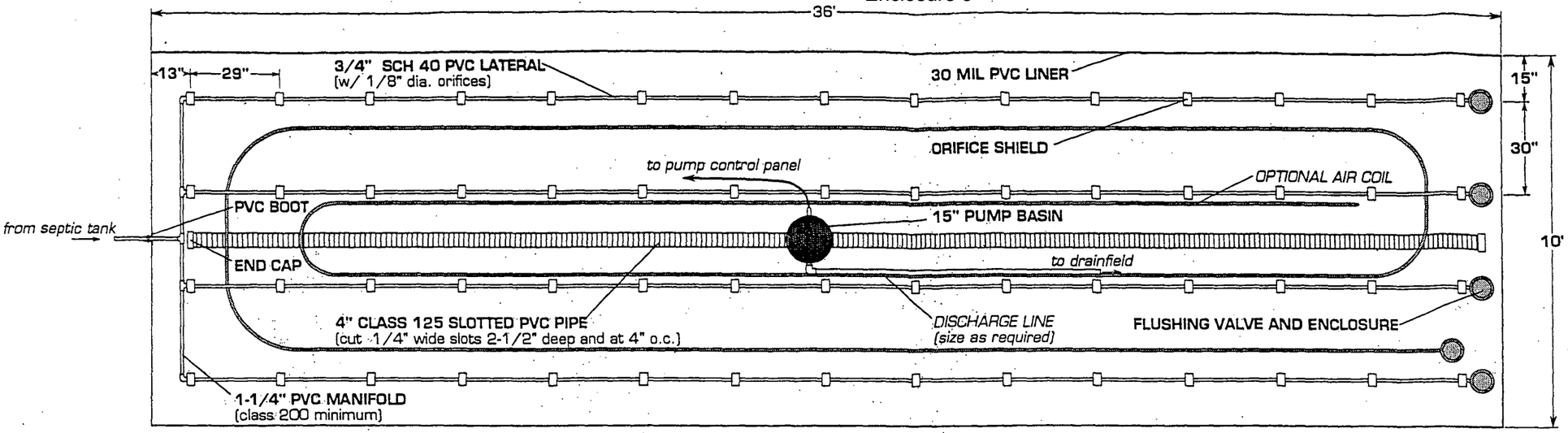
SAN MATEO COUNTY, CA
MEMORIAL PARK WWTP

DWG. NO. C-53670-S

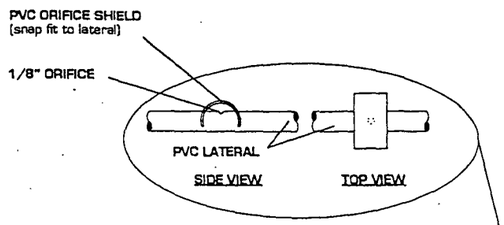
REV.

Appendix D

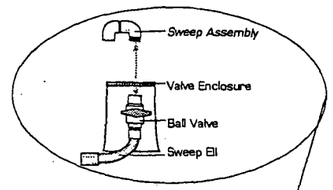
Typical Drawings – Recirculating Gravel Filter



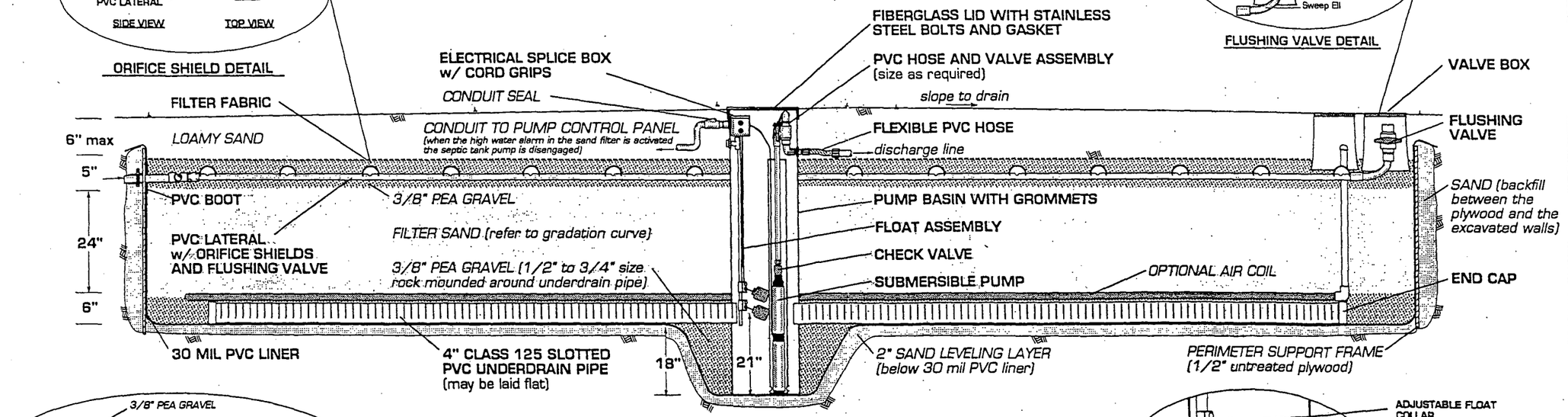
TOP VIEW

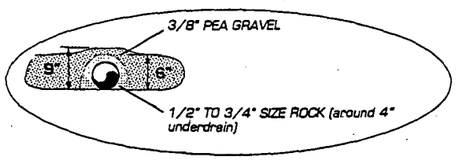


ORIFICE SHIELD DETAIL

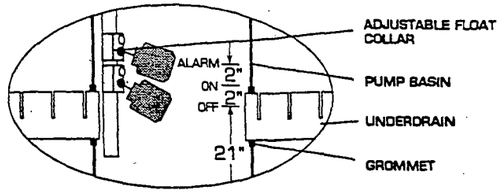


FLUSHING VALVE DETAIL





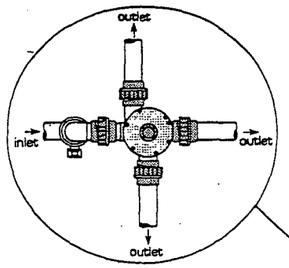
UNDERDRAIN DETAIL



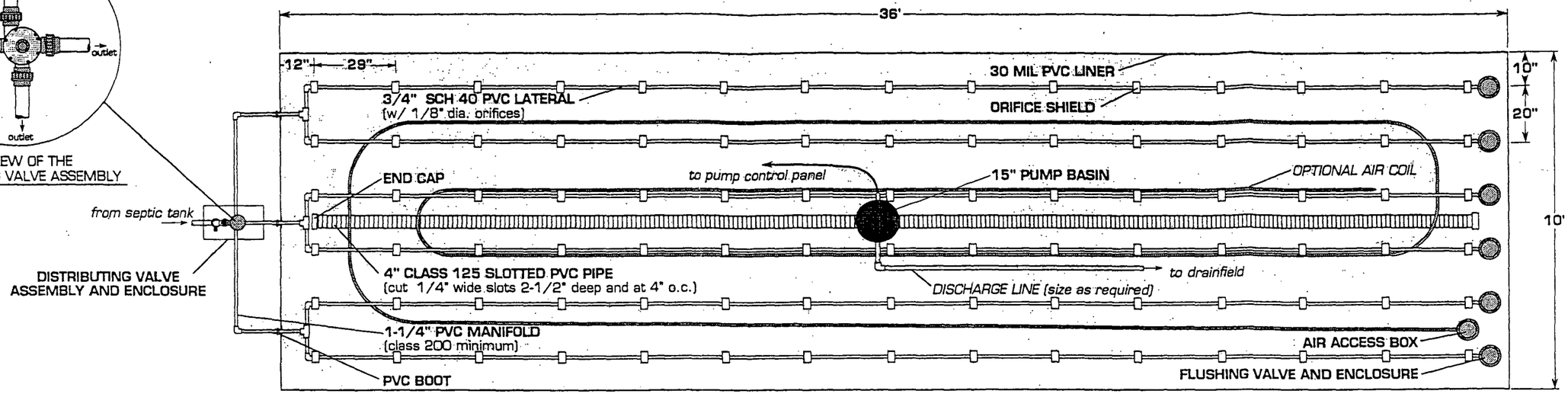
FLOAT ASSEMBLY DETAIL

SIDE VIEW (NTS)

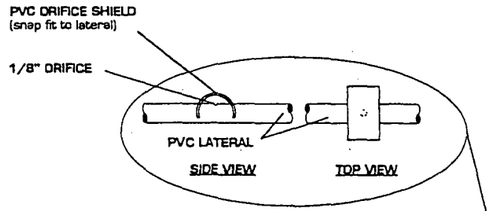
10' x 36' SAND FILTER w/ PUMP BASIN



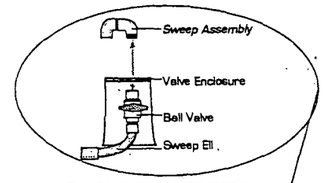
TOP VIEW OF THE
DISTRIBUTING VALVE ASSEMBLY



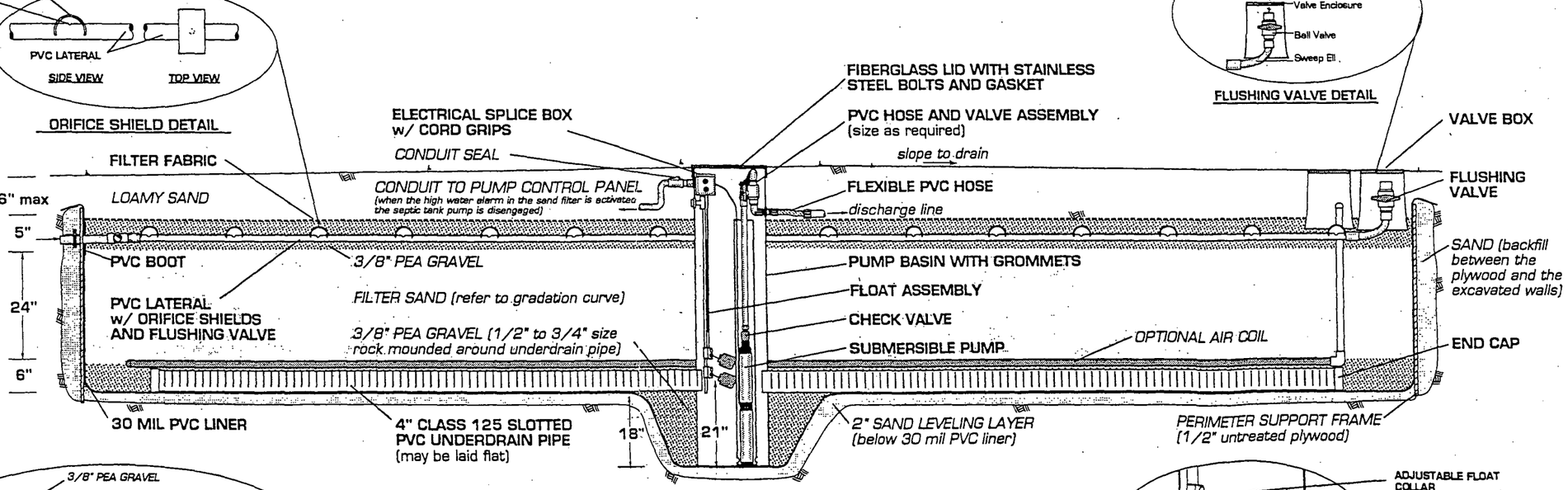
TOP VIEW

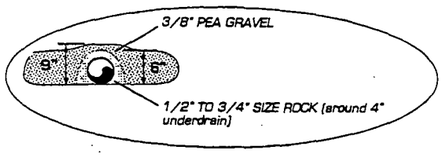


ORIFICE SHIELD DETAIL

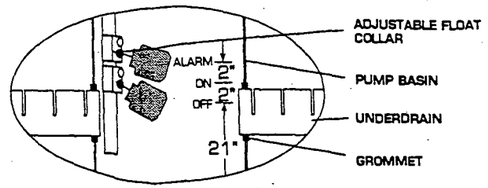


FLUSHING VALVE DETAIL





UNDERDRAIN DETAIL



FLOAT ASSEMBLY DETAIL

SIDE VIEW (NTS)

10' x 36' SAND FILTER w/ PUMP BASIN AND DISTRIBUTING VALVE

Appendix E

Detailed Estimates of the Probable Cost of Construction

Cost Estimate for Alternative 1 (new WWTP)

Enclosure 5

		Purestream				Ashbrook				Aeration Industries				Lakeside			
Item	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Cost**	**Quantity**	**Unit**	**Unit Cost**	**Cost**	**Quantity**	**Unit**	**Unit Cost**	**Cost**	**Quantity**	**Unit**	**Unit Cost**	**Cost**
1	**Removal and Demolition**																
	Demolition & Abandonment of exist WWTP	1	LS	$50,000	$50,000	1	LS	$50,000	$50,000	1	LS	$50,000	$50,000	1	LS	$50,000	$50,000
	Demo and abandon existing pump station	1	LS	$10,000	$10,000	1	LS	$10,000	$10,000	1	LS	$10,000	$10,000	1	LS	$10,000	$10,000
	Sand fill for tanks	215	CY	$25	$5,375	215	CY	$25	$5,375	215	CY	$25	$5,375	215	CY	$25	$5,375
2	**Yard Piping**																
	6" PVC gravity piping to new pump station	50	LF	$50	$2,500	50	LF	$50	$2,500	50	LF	$50	$2,500	50	LF	$50	$2,500
3	**Treatment System**																
	Excavation	133	CY	$50	$6,650	121	CY	$50	$6,050	105	CY	$50	$5,250	1265	CY	$50	$63,250
	Reinforced Concrete (walls)	0	CY	$650	$0	0	CY	$650	$0	75	CY	$650	$48,750	93	CY	$650	$60,450
	Reinforced Concrete (slab)	32	CY	$450	$14,400	34	CY	$450	$15,300	25	CY	$450	$11,250	42	CY	$450	$18,900
	Treatment Unit	1	EA	$129,000	$129,000	1	EA	$125,000	$125,000	1	EA	$75,000	$75,000	1	EA	$83,000	$83,000
	UV disinfection unit	1	EA	$3,000	$3,000	1	EA	$0	$0	1	EA	$0	$0	1	EA	$3,000	$3,000
	Treatment Unit install	1	LS	$64,500	$64,500	1	LS	$62,500	$62,500	1	LS	$37,500	$37,500	1	LS	$41,500	$41,500
	UV disinfection unit install	1	LS	$1,500	$1,500	1	LS	$0	$0	1	LS	$0	$0	1	LS	$1,500	$1,500
	Pre-fabricated fiberglass structure for UV	1	EA	$5,000	$5,000	1	EA	$0	$0	1	EA	$0	$0	1	EA	$5,000	$5,000
4	**Pump Station & Force Main**																
	Excavation	30	CY	$50	$1,500	30	CY	$50	$1,500	30	CY	$50	$1,500	30	CY	$50	$1,500
	Duplex pump station	1	EA	$75,000	$75,000	1	EA	$75,000	$75,000	1	EA	$75,000	$75,000	1	EA	$75,000	$75,000
	4-inch Schedule 80 PVC force main	2500	LF	$25	$62,500	2500	LF	$25	$62,500	2500	LF	$25	$62,500	2500	LF	$25	$62,500
5	**Electrical**																
	Alarm - WWTP & Pump Station	1	EA	$15,000	$15,000	1	EA	$15,000	$15,000	1	EA	$15,000	$15,000	1	EA	$15,000	$15,000
	Standby generator (PS)	1	EA	$50,000	$50,000	1	EA	$50,000	$50,000	1	EA	$50,000	$50,000	1	EA	$50,000	$50,000
	Standby generator (WWTP)	1	EA	$75,000	$75,000	1	EA	$75,000	$75,000	1	EA	$75,000	$75,000	1	EA	$75,000	$75,000
	Site Electrical	1	LS	$60,000	$60,000	1	LS	$60,000	$60,000	1	LS	$60,000	$60,000	1	LS	$60,000	$60,000
	Subtotal				**$630,925**				**$615,725**				**$584,625**				**$683,475**
	20% Contingency				**$126,185**				**$123,145**				**$116,925**				**$136,695**
	Total				**$758,000**				**$739,000**				**$702,000**				**$821,000**

Enclosure 5

Cost Estimate for Alternative 2 (decentralized treatment plants) printed 6/23/2003

Option 2

Item	Description	Quantity	Unit	Unit Cost	Cost
1	**Removal and Demolition**				
	Demolition & Abandonment of exist WWTP	1	LS	$50,000	$50,000
	Demo and abandon existing pump station	1	LS	$10,000	$10,000
	Sand fill for tanks	215	CY	$25	$5,375
2	**Sequoia Flat**				
	Excavation	896	CY	$25	$22,400
	6000 gal Pre-cast concrete septic tank	7	EA	$10,000	$70,000
	4" HDPE gravity sewer (installed)	2500	LF	$20	$50,000
	Recirculating Textile Filter Treatment Sys.	1	EA	$127,175	$127,175
	2" Schedule 80 PVC force main (installed)	150	LF	$15	$2,250
	Site Electrical	1	LS	$15,000	$15,000
3	**Azalea Flat, Bay Tree Flat, and Picnic Areas**				
	Excavation	1280	CY	$25	$32,000
	6000 gal Pre-cast concrete septic tank	10	EA	$10,000	$100,000
	4" HDPE gravity sewer (installed)	4500	LF	$20	$90,000
	Recirculating Textile Filter Treatment Sys.	1	EA	$93,000	$93,000
	2" Schedule 80 PVC force main (installed)	1650	LF	$15	$24,750
	Site Electrical	1	LS	$15,000	$15,000
4	**Homestead Flat, Corporation Yard and Huckleberry Flat**				
	Excavation	1408	CY	$25	$35,200
	6000 gal Pre-cast concrete septic tank	11	EA	$10,000	$110,000
	4" HDPE gravity sewer (installed)	2100	LF	$20	$42,000
	Recirculating Textile Filter Treatment Sys.	1	EA	$104,000	$104,000
	4" Schedule 80 PVC force main (installed)	1250	LF	$15	$18,750
	Site Electrical	1	LS	$15,000	$15,000
5	**Common Force Main to Storage Pond**				
	Excavation for PS	30	CY	$50	$1,500
	8-foot dia. Duplex PS	1	LS	$75,000	$75,000
	4-inch Schedule 80 PVC force main	2500	LF	$25	$62,500
	Standby Generator	1	LS	$50,000	$50,000
	Site Electrical	1	LS	$20,000	$20,000
	Subtotal				**$1,240,900**
	20% Contingency				**$248,180**
	Total				**$1,490,000**

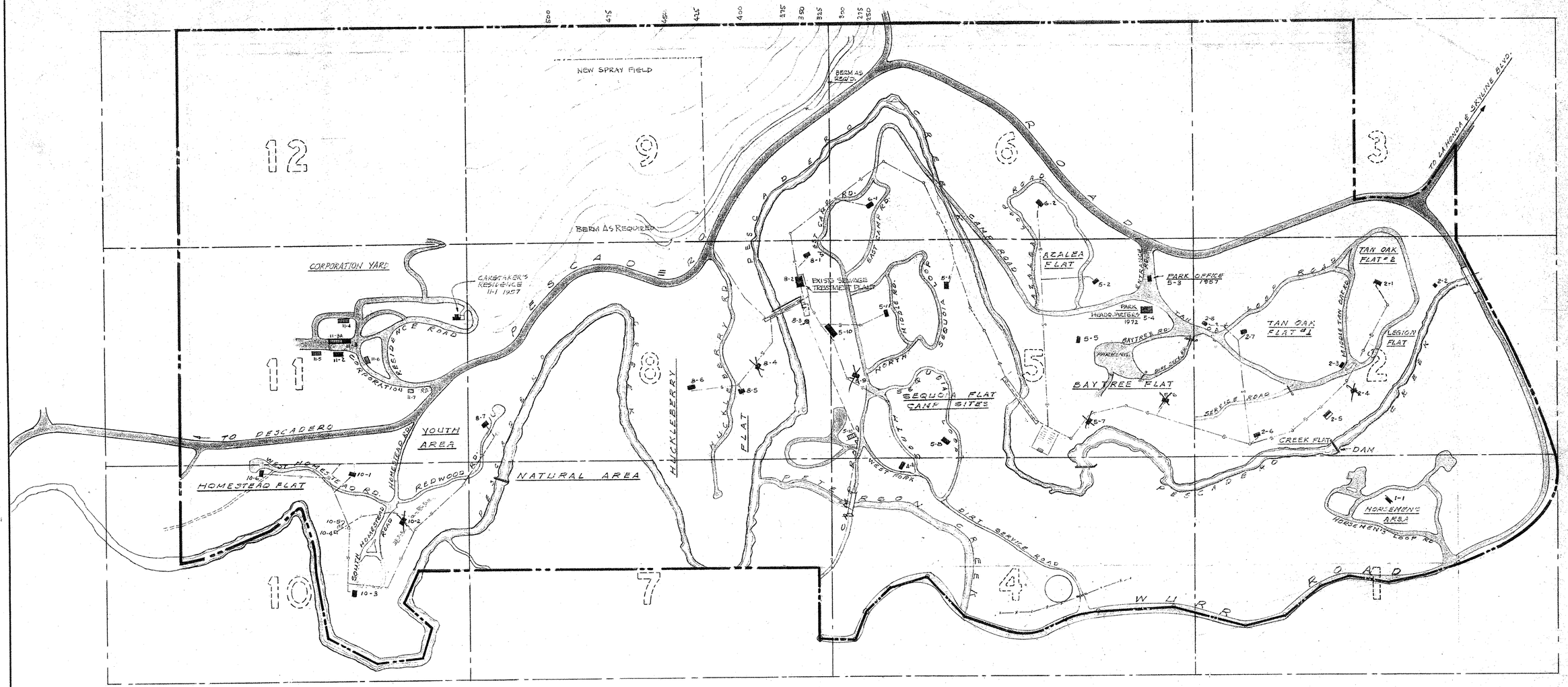
Revised 3/5/03

Enclosure 5

Cost Estimate for Alternative 3 (rehab WWTP) printed 6/23/2003

Item	Description	Quantity	Unit	Unit Cost	Cost
1	**Removal and Demolition**				
	Removal of existing WWTP equipment	1	LS	$15,000	$15,000
	Clean and abandon existing tanks	1	LS	$5,000	$5,000
	Sand fill for tanks	51	CY	$25	$1,275
	Clean and abandon existing pump station	1	LS	$10,000	$10,000
2	**Rehabilitate Existing Aeration Tanks**				
	Cleaning, prep and epoxy coat exist tanks	825	SF	$30	$24,750
	Rehabilitation of existing WWTP structure	1	LS	$50,000	$50,000
3	**Aeration Equipment**				
	Fine bubble diffusers and assoc. piping	1	LS	$12,000	$12,000
	Blower, motor, and controls	1	LS	$10,000	$10,000
	Installation of diffusers and piping	1	LS	$6,000	$6,000
	Installation of blower equipment	1	LS	$5,000	$5,000
4	**Secondary Clarifier**				
	Excavation	160	CY	$50	$8,000
	Reinforced Concrete (walls)	25	CY	$650	$16,250
	Reinforced Concrete (slab)	7	CY	$450	$3,150
	Clarifier mechanisms	1	LS	$40,000	$40,000
	Installation of clarifier mechanism	1	LS	$20,000	$20,000
5	**UV Disinfection System**				
	UV disinfection unit	1	EA	$3,000	$3,000
	UV disinfection unit install	1	LS	$1,500	$1,500
	Pre-fabricated fiberglass structure for UV	1	EA	$5,000	$5,000
6	**Sludge Storage Tank**				
	Sludge Storage Tank Aeration Equipment	1	LS	$5,500	$5,500
	Installation of storage tank and equip.	1	LS	$2,750	$2,750
	Blower, motor, and controls	1	LS	$10,000	$10,000
	Reinforced Concrete (walls)	26	CY	$650	$16,900
	Reinforced Concrete (slab)	8	CY	$450	$3,600
7	**Pump Station & Force Main**				
	Excavation	30	CY	$50	$1,500
	8-foot diameter duplex pump station	1	EA	$75,000	$75,000
	4-inch Schedule 80 PVC force main	2500	LF	$25	$62,500
8	**Miscellaneous Yard Piping and Valves**	1	LS	$50,000	$50,000
9	**Electrical**				
	Alarm - WWTP & Pump Station	1	EA	$15,000	$15,000
	Standyby generator (PS & WWTP)	1	EA	$100,000	$100,000
	Site Electrical	1	LS	$50,000	$50,000
	Subtotal				**$628,675**
	20% Contingency				**$125,735**
	Total				**$755,000**

Enclosure 6



SCALE 1" = 200'

LEGEND

E	ELECTRICAL LINES
W	WATER LINES
S	SEWER LINES
EFFLUENT E	EFFLUENT LINES
ABANDON W	ABANDON LINES
E — E	ELECTRICAL LIGHTS
	POWER POLE
	BUILDINGS
5-1	BUILDING NUMBERS
CIRCA 1956	AGE OF BUILDING
G	GAS LINE
DF	DRINKING FOUNTAIN
¾" S.P.	STAND PIPE
V.B.	VALVE BOX
S.O.	SEWER CLEAN OUT
C.T.G.	CLEAN OUT THRU GRADE
MH	MAN HOLE
V.	VALVE
	TEE
CAPPED	CAPPED PIPE

CHAIRMAN, BOARD OF SUPERVISORS	DEPARTMENT HEAD	DATE
		DRAWN
COUNTY MANAGER	ARCHITECT	CHECKED
		REVISED
DIRECTOR, BUILDING CONSTRUCTION		JOB NUMBER 2291

COUNTY OF SAN MATEO
DEPARTMENT OF BUILDING CONSTRUCTION AND GENERAL SERVICES
ARCHITECTURAL AND ENGINEERING DIVISION
COUNTY CENTER, REDWOOD CITY, TELEPHONE 369-1441, EXT. 444

MEMORIAL PARK
EXISTING IMPROVEMENTS

KEY PLAN
LATEST REVISION DATE: 6-1-66
REVISED: 11-1-72 JLC

SHEET 1A OF 13 SHEETS

H-2-43

Enclosure 6

MATCH LINE

MATCH LINE

P E S C A D E R O R O A D

T A N O A K F L A T N O. 2

T A N O A K F L A T N O. 1

L E G I O N F L A T

B A Y T R E E F L A T

C R E E K F L A T

D I R T S E R V I C E R O A D

T A N O A K C R E E K T R A I L

C r e e k

P e s c a d e r o

W E S T E R N R O A D

FENCE

4" AIR CHAMBER @ END

BLDG # 2-1 CIRCA 1930-36

BLDG # 2-2 PUMPING STA.

FILTER BLDG BLDG 2-9 1972

BLDG # 2-3

BLDG # 2-4 CIRCA 1933-36 Removed

BLDG # 2-5 1936

BLDG # 2-6 CIRCA 1930's

BLDG # 2-7 CIRCA 1930-36

CONCESSION BLDG # 2-8

ELECTRICAL DISTR. CTR. "A"

TEMPORARY LINE

UNDERGROUND

CONNECT TO 4" W. VALVE - RUN TO E.R. STAY ON THIS SIDE OF SUNKEN ROAD - CHK. VALVE IN 2" LINE

CONNECT 4-TO 2" W. VALVE

2" SHUT-OFF TAN OAK 2

V.B. 2" SHUT-OFF BEACH & REST ROOM

V.B. SHUT-OFF: LEGION

VALVE BOX 2-4" 1st SHUT-OFF TO: RESTROOM - O.R. & TAN OAK I 2" SHUT-OFF TO: BAY TREE CONCESSION OFFICE AZALEA

MAIN SHUT-OFF: CREEK TAN OAK LEGION AZALEA

12" VALVE BOX

4" VALVE & TEE REDUCER 4" TO 2"

CONC. STAIRS 1967

SWIMMING POOL

HORSE TROUGH

HORSEMEN'S AREA

SCALE 1" = 50'

CHAIRMAN, BOARD OF SUPERVISORS	DEPARTMENT HEAD	DATE	
COUNTY MANAGER	ARCHITECT	DRAWN	
DIRECTOR, BUILDING CONSTRUCTION		CHECKED	
		REVISED	
		JOB NUMBER	2291

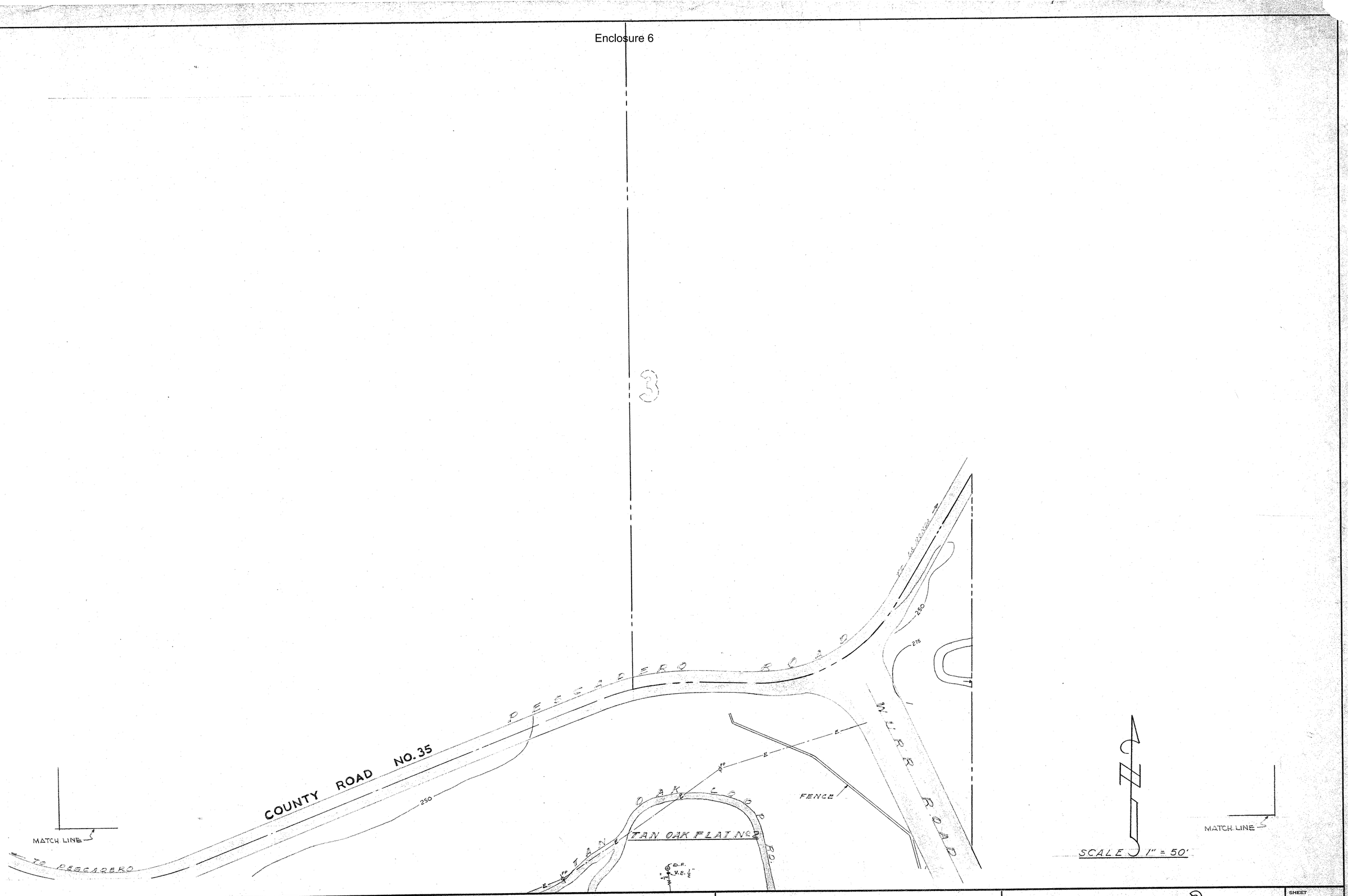
COUNTY OF SAN MATEO
DEPARTMENT OF BUILDING CONSTRUCTION AND GENERAL SERVICES
ARCHITECTURAL AND ENGINEERING DIVISION
COUNTY CENTER, REDWOOD CITY, TELEPHONE 369-1441, EXT. 444

MEMORIAL PARK
EXISTING IMPROVEMENTS

SECTION 2
LATEST REVISION DATE: 12-27-73

SHEET 2 OF 13 SHEETS

Enclosure 6



CHAIRMAN, BOARD OF SUPERVISORS	DEPARTMENT HEAD	DATE	COUNTY OF SAN MATEO DEPARTMENT OF BUILDING CONSTRUCTION AND GENERAL SERVICES ARCHITECTURAL AND ENGINEERING DIVISION COUNTY CENTER, REDWOOD CITY, TELEPHONE 369-1441, EXT. 444
COUNTY MANAGER	ARCHITECT	DRAWN	
DIRECTOR, BUILDING CONSTRUCTION		CHECKED	
		REVISED	
		JOB NUMBER 2291	

MEMORIAL PARK
EXISTING IMPROVEMENTS

SECTION 3
LATEST REVISION DATE: 6-1-66
REVISED: 11-1-72

SHEET 3 OF 13 SHEETS

H-2-40

Enclosure 6

SEQUOIA FLAT

MATCH LINE

DIVERD LINES

WEST FORK

BLDG # 5-B CIRCA 1930-34

BLDG # 4-1

V.B.

243' UNDERGROUND

V.B. 4"-2"-¾" 2" SHUT-OFF OF REST ROOM-D.F. ¾" SHUT-OFF D.F.

T&G & 2"PLUG

D.F.

GATE TO CLOSED AREA

E 325' UNDERGROUND

PETERSON CREEK

CULVERT

EFFLUENT LINE CUT AND REMOVED

SERVICE ROAD (DIRT)

EMERGENCY EXIT (DIRT ROAD)

BRIDGE

LINES (CROSSED) OVERHEAD ELECTRICAL

TO MUIR BEACH

CHAIN

PP

N 83° 49' W 140'±

S 21° 11' W 132.58'

S 22° 24' W 182.12'

S 23° 21' W 163.70'

N 74° 28' W 222.64'

W.P.R. ROAD

N 73° 29' W 194.40'

R = 200'
Δ = 41° 20'
L = 144.23'

S 65° 11' W 113.37'

R = 400'
Δ = 20° 01'
L = 139.63'

S 25° 12' W 372.92'

N 77° 03' W 222.08'

2" VALVE

V.B.

END OF LINE NOT IN USE

CLOSED GATE

4" TEE 4" VALVE SHUT-OFF SEQUOIA

4" VALVE

CHLORINATOR BLDG NOT IN USE

2" V.B.

16 2" FROM SPRING

CLOSED GATE

REDUCER 4"-2"

W 4" 380'

W 2" 205'

W 4" 220'

FOOT BRIDGE

PESCADERO CREEK

Gravel Beach

MATCH LINE

MATCH LINE

SCALE 1" = 50'

CHAIRMAN, BOARD OF SUPERVISORS	DEPARTMENT HEAD	DATE	
COUNTY MANAGER	ARCHITECT	DRAWN	
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		REVISED	
		JOB NUMBER	2291

COUNTY OF SAN MATEO
DEPARTMENT OF BUILDING CONSTRUCTION AND GENERAL SERVICES
ARCHITECTURAL AND ENGINEERING DIVISION
COUNTY CENTER, REDWOOD CITY, TELEPHONE 369-1441, EXT. 444

MEMORIAL PARK
EXISTING IMPROVEMENTS

SECTION 4
LATEST REVISION DATE: 6-1-66
REVISED: 11-1-72 MW

SHEET 4 OF 13 SHEETS

H-7-39

Enclosure 6

MATCH LINE

EAST PARKING AREA

NORTH SEQUOIA ROAD

BLDG # 5-1 CIRCA 1930-36

BLDG # 5-11

BLDG # 5-10

BLDG # 5-9 CIRCA 1930-36 Removed

BLDG # 5-12 4-26-68 BUILT

BLDG # 5-8

BLDG # 4-1

SOUTH SEQUOIA ROAD

WEST PARKING AREA

Sequoia Creek

CAMP #27

CAMP #30

CAMP #32

CAMPFIRE ROAD

AZALEA FLAT

BAY TREE FLAT

BLDG # 5-2 CIRCA 1960

BLDG # 5-3 PARK OFFICE CIRCA 1957

BLDG # 5-4 1972 HEADQUARTERS

BLDG # 5-5 CIRCA 1930-36

BLDG # 5-6 CIRCA 1930-36 Removed

BLDG # 5-7 CIRCA 1930-36 Removed

CONCESSION BLDG 12-5

EAST PARKING AREA

BAYTREE ROAD

PARKING AREA

DIRT SERV. ROAD

MAIN METER BAY TREE CONCESSION OFFICE AZALEA FLAT AMPHITHEATER

FOOT BRIDGE

AMPHITHEATER

STAGE

Sequoia Creek Trail

Escadero Creek

SCALE 1" = 50'

CHAIRMAN, BOARD OF SUPERVISORS	DEPARTMENT HEAD	DATE	
COUNTY MANAGER	ARCHITECT	DRAWN	
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		REVISED	
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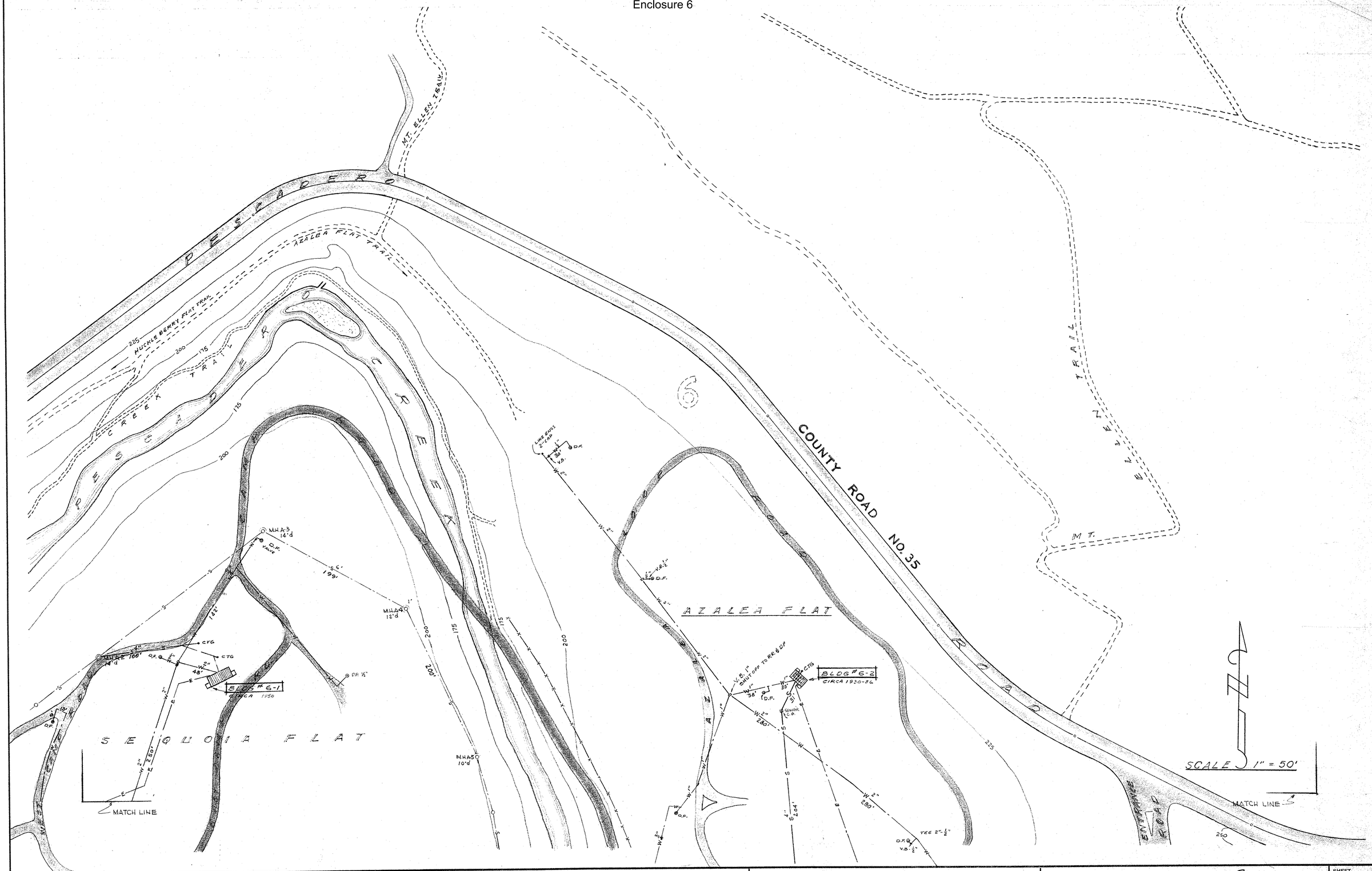
MEMORIAL PARK
EXISTING IMPROVEMENTS

SECTION 5
LATEST REVISION DATE: 12-27-73

SHEET 5 OF 13 SHEETS

H-2-58

Enclosure 6



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		JOB NUMBER	2291

COUNTY OF SAN MATEO
DEPARTMENT OF BUILDING CONSTRUCTION AND GENERAL SERVICES
ARCHITECTURAL AND ENGINEERING DIVISION
COUNTY CENTER, REDWOOD CITY, TELEPHONE 369-1441, EXT. 444

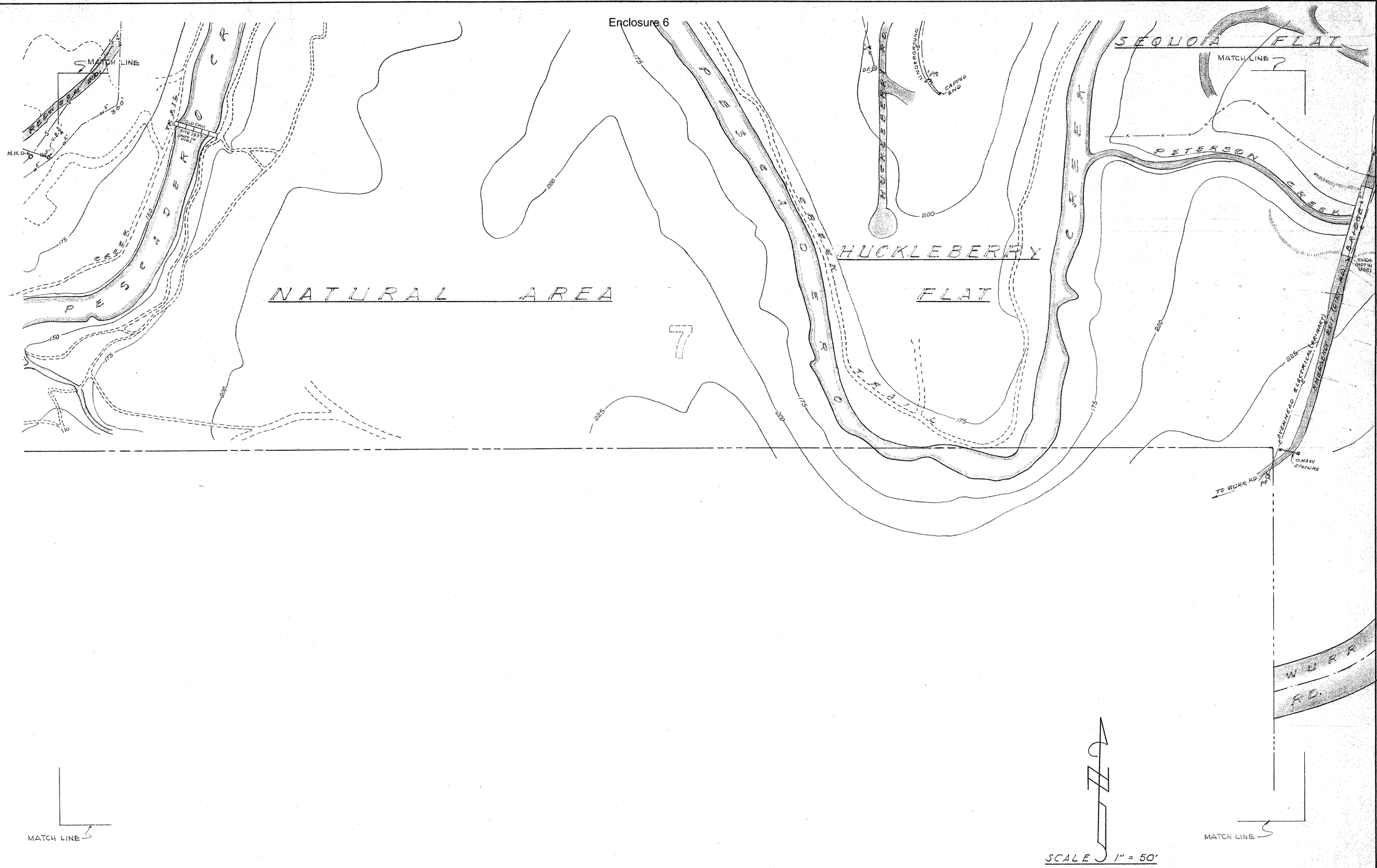
MEMORIAL PARK
EXISTING IMPROVEMENTS

SECTION 6
LATEST REVISION DATE: 6-1-66
REVISED: 11-1-72 llo

SHEET 6 OF 13 SHEETS

H-2-31

Enclosure 6



CHAIRMAN, BOARD OF SUPERVISORS	DEPARTMENT HEAD	DATE	
COUNTY MANAGER	ARCHITECT	DRAWN	
DIRECTOR, BUILDING CONSTRUCTION		CHECKED	
		REVISED	
		JOB NUMBER	2291

COUNTY OF SAN MATEO
DEPARTMENT OF BUILDING CONSTRUCTION AND GENERAL SERVICES
ARCHITECTURAL AND ENGINEERING DIVISION
COUNTY CENTER, REDWOOD CITY, TELEPHONE 369-1441, EXT. 444

MEMORIAL PARK
EXISTING IMPROVEMENTS

SECTION 7
LATEST REVISION DATE: 6-1-66
REVISED: 11-1-72 LL

SHEET 7 OF 13 SHEETS

4-2-3/

Enclosure 6

MATCH LINE

PESCADERO ROAD

PESCADERO CREEK

HORSTEAD TRAIL

HUCKLEBERRY TRAIL

200' - 2" W SUSPENDED ON ⅝" CABLE

TRAIL

EFFLUENT WATER STORAGE (TO SPRAY FIELDS)

PARKING AREA

SITE #2

SITE #1

SITE #3

SITE #4

HUCKLEBERRY FLAT

(PICNIC AREA GROUPS)

NATURAL AREA

YOUTH AREA

SEQUOIA FLAT (CAMPSITES)

MH A-1

WEST CAMP RD.

BLDG #8-1 CIRCA 1930-36

BLDG #8-2

MH B-1

SERVICE RD

STANDBY EFFLUENT PUMPS

BLDG #8-3

500 GAL BUTANE TANK

CL₂ & EFFL. PUMP BLDG

BLDG #8-10 SHOWER

OLD STORAGE TANK

MH B-3

MH B-4

MH C-2

MH C-3

MH D-1

BLDG #8-4

BLDG #8-5

BLDG #8-6

BLDG #8-7 CIRCA 1929-36

3" EFFLUENT WATER STORAGE

3" UNDERGROUND

3" TRANSITE MAINT. YD.

TRAIL LEADS AT ROAD

MATCH LINE

SCALE 1" = 50'

CHAIRMAN, BOARD OF SUPERVISORS	DEPARTMENT HEAD	DATE	
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		REVISED	
		JOB NUMBER	2291

COUNTY OF SAN MATEO
DEPARTMENT OF BUILDING CONSTRUCTION AND GENERAL SERVICES
ARCHITECTURAL AND ENGINEERING DIVISION
COUNTY CENTER, REDWOOD CITY, TELEPHONE 369-1441, EXT. 444

MEMORIAL PARK
EXISTING IMPROVEMENTS

SECTION 8
LATEST REVISION DATE: 6-1-66
REVISED: 11-1-72

SHEET 8 OF 13 SHEETS

H-2-35

Enclosure 6

CHAIRMAN, BOARD OF SUPERVISORS	DEPARTMENT HEAD	DATE	**COUNTY OF SAN MATEO**
COUNTY MANAGER	ARCHITECT	DRAWN / CHECKED / REVISED	DEPARTMENT OF BUILDING CONSTRUCTION AND GENERAL SERVICES
DIRECTOR, BUILDING CONSTRUCTION		JOB NUMBER 2291	**ARCHITECTURAL AND ENGINEERING DIVISION**

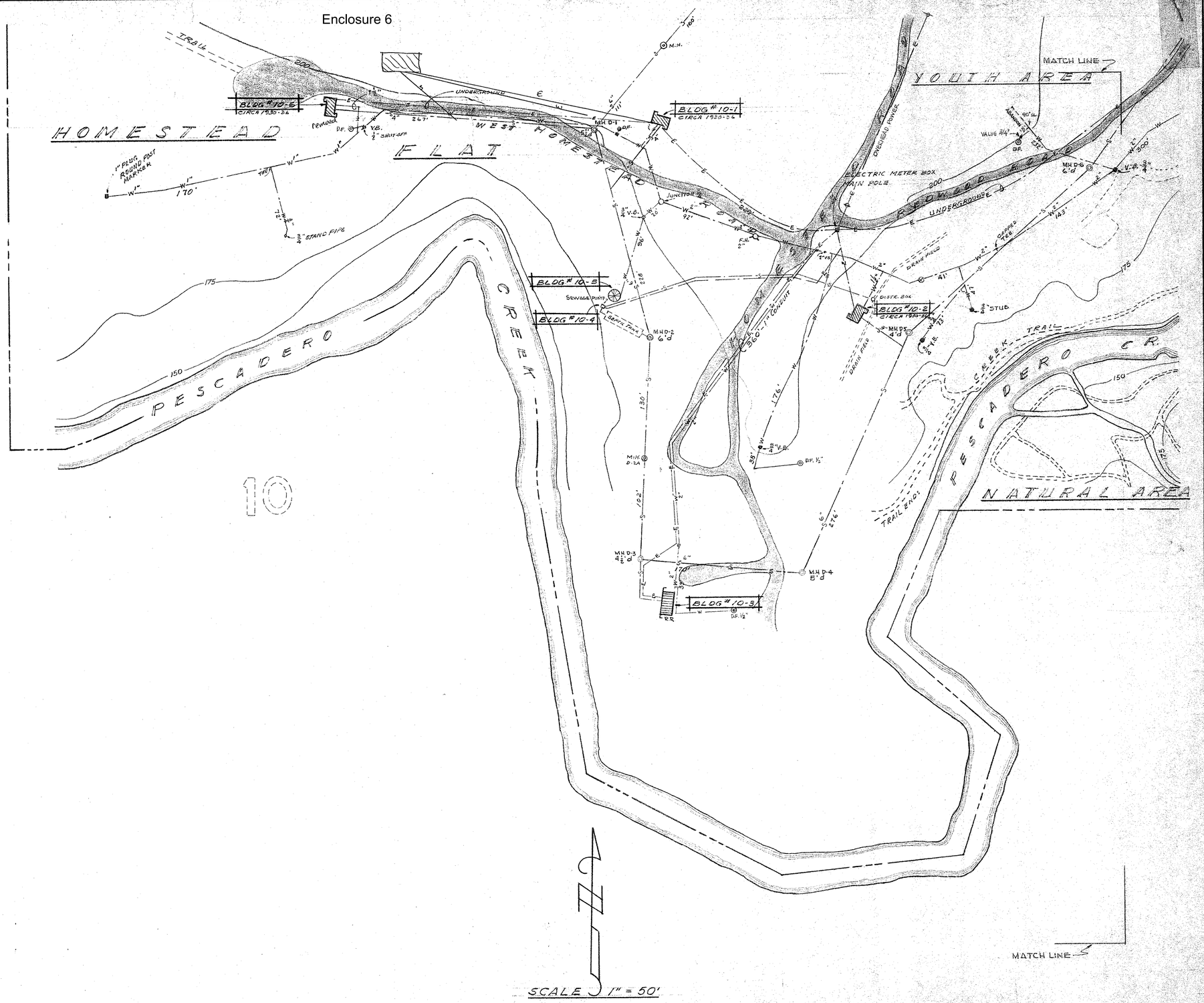
COUNTY CENTER, REDWOOD CITY, TELEPHONE 369-1441, EXT. 444

MEMORIAL PARK
EXISTING IMPROVEMENTS

SECTION 9
LATEST REVISION DATE: 6-1-66
REVISED: 11-1-72 JK

SHEET 9 OF 13 SHEETS

Enclosure 6



CHAIRMAN, BOARD OF SUPERVISORS	DEPARTMENT HEAD	DATE	COUNTY OF SAN MATEO
COUNTY MANAGER	ARCHITECT	DRAWN	DEPARTMENT OF BUILDING CONSTRUCTION AND GENERAL SERVICES
DIRECTOR, BUILDING CONSTRUCTION		CHECKED	ARCHITECTURAL AND ENGINEERING DIVISION
		REVISED	COUNTY CENTER, REDWOOD CITY, TELEPHONE 369-1441, EXT. 444
		JOB NUMBER 2291	

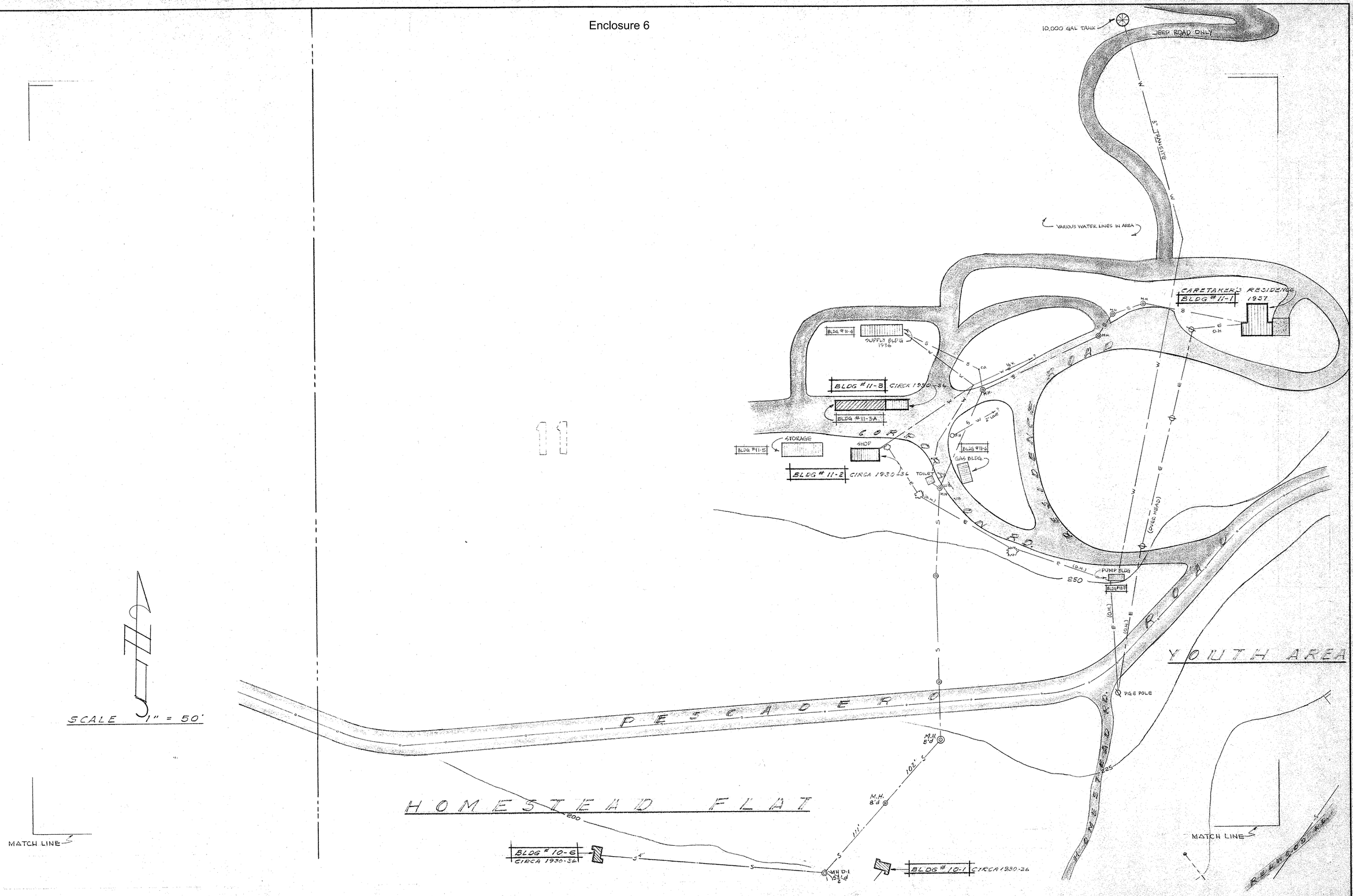
MEMORIAL PARK
EXISTING IMPROVEMENTS

SECTION 10
LATEST REVISION DATE: 6-1-66
REVISED: 11-1-72 JM

SHEET 10 OF 13 SHEETS

4-7-33

Enclosure 6



CHAIRMAN, BOARD OF SUPERVISORS	DEPARTMENT HEAD	DATE	
COUNTY MANAGER	ARCHITECT	DRAWN	
DIRECTOR, BUILDING CONSTRUCTION		CHECKED	
		REVISED	
		JOB NUMBER	2291

COUNTY OF SAN MATEO
DEPARTMENT OF BUILDING CONSTRUCTION AND GENERAL SERVICES
ARCHITECTURAL AND ENGINEERING DIVISION
COUNTY CENTER, REDWOOD CITY, TELEPHONE 369-1441, EXT. 444

MEMORIAL PARK
EXISTING IMPROVEMENTS

SECTION 11
LATEST REVISION DATE: 6-1-66
REVISED: 11-1-72 JK

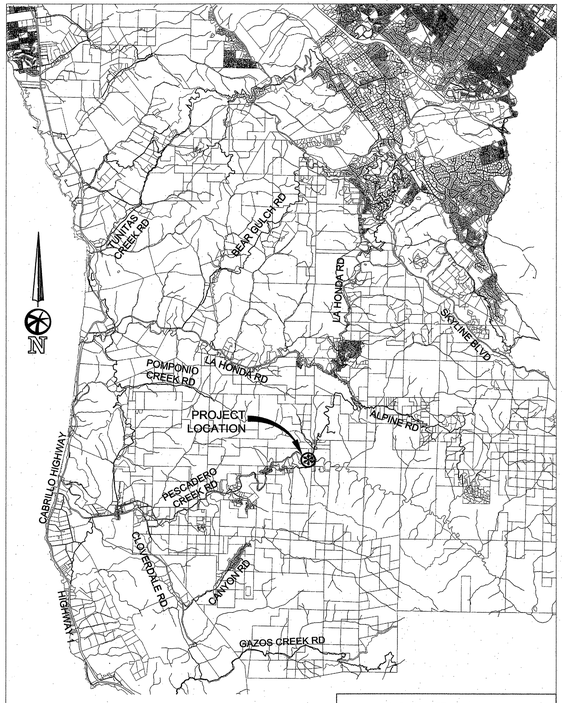
SHEET 11 OF 13 SHEETS

H-7-32

SAN MATEO COUNTY CALIFORNIA

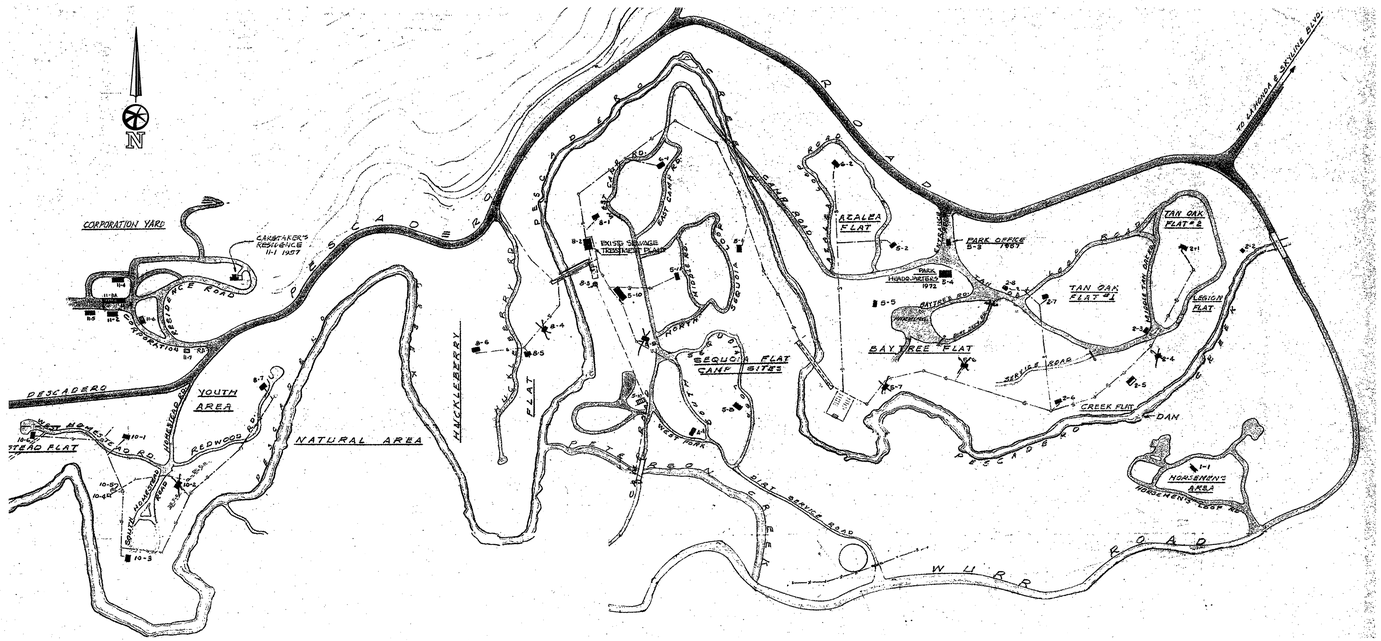
MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT

TO BE SUPPLEMENTED BY STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED MAY 2006 AND ADOPTED BY SAN MATEO COUNTY ON NOVEMBER 14, 2006 BY RESOLUTION NO. 068389



PROJECT LOCATION
MEMORIAL COUNTY PARK, SAN MATEO COUNTY

VICINITY MAP
NO SCALE



AREA LOCATIONS MAP
NO SCALE

DESIGN TEAM

CLIENT
SAN MATEO COUNTY
555 COUNTY CENTER, 5TH FLOOR
REDWOOD CITY, CA 94063
CONTACT: JAMES C. PORTER
TEL: (650) 363-4100

CIVIL ENGINEER
BELLECCI & ASSOCIATES
7041 KOLL CENTER PARKWAY, SUITE # 132
PLEASANTON, CA 94566
CONTACT: DANIEL C. LEARY, P.E.
TEL: (925) 681-4885

WATER TREATMENT ENGINEER
FALL CREEK ENGINEERING
227 FERN ST
SANTA CRUZ, CA 95060
CONTACT: CARINA CHEN
TEL: (831) 426-9054

SHEET INDEX

ABBREVIATIONS

ABD	ABANDON
AC	ASPHALT CONCRETE
ARV	AIR RELEASE VALVE
AWWA	AMERICAN WATER WORK ASSOCIATIONS
BLDG	BUILDING
BGN	BEGIN
BMP	BEST MANAGEMENT PRACTICE
BNCH	BENCH
C.I.	CAST IRON
CNC	CONCRETE
DF	DRINKING FOUNTAIN
ELEC	ELECTRICAL
ETW	EDGE OF TRAVEL WAY
EP	EDGE OF PAVEMENT
EX.	EXISTING
FL	FLOWLINE
FLG	FLANGE
FNC	FENCE
GB	GRADE BREAK
G	GROUND
INV	INVERT
LF	LINEAR FEET
MJ	MECHANICAL JOINT
P.I.P	PROTECT IN PLACE
POS	POINT ON SLOPE
QSD	QUALIFIED SWPP DEVELOPER
QSP	QUALIFIED SWPP PRACTITONER
RDWD	REDWOOD TREE
SSMH	SANITARY SEWER MANHOLE
SGN	SIGN
SS	SANITARY SEWER
SD	STORM DRAIN
SWPP	STORM WATER POLLUTION PREVENTION
TBL	TABLE
W	WATER
WV	WATER VALVE

LEGEND:

W	NEW WATER LINE
SS	EX. SANITARY SEWER
W W	EX. WATER
	CREEK FLOW LINE
	FLOW DIRECTION
	EX. DRINKING FOUNTAIN
	EX. TREE
WV	EX. WATER VALVE
S	EX. SANITARY SEWER MANHOLE
∅	DIAMETER
	ELECTRICAL (ELEC) CONDUIT

APPROVED:

DATE: 10/17/14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

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COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: HN	MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
		CHECKED BY: DL	COVER SHEET
		DRAWN BY: HN	
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS, SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR, REDWOOD CITY, CALIFORNIA 94063

SCALE: N.T.S
DATE: 10-17-2014
FILE NO. : 1/4915

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C1.0
SHEET 1 OF 30

FILENAME: P:\PROJECTS\2014\14028\DWG\4TH SUBMITTAL - BIDSET\14028CV.DWG (C1.0- COVER SHEET)

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: 10/17/14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

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LICENSED LAND SURVEYOR
CHARLES N. GARY
No. 6925
EXP. 12-31-14
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

REVISION	DATE	DESIGNED BY: HN	CHECKED BY: DL	DRAWN BY: HN
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY		555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

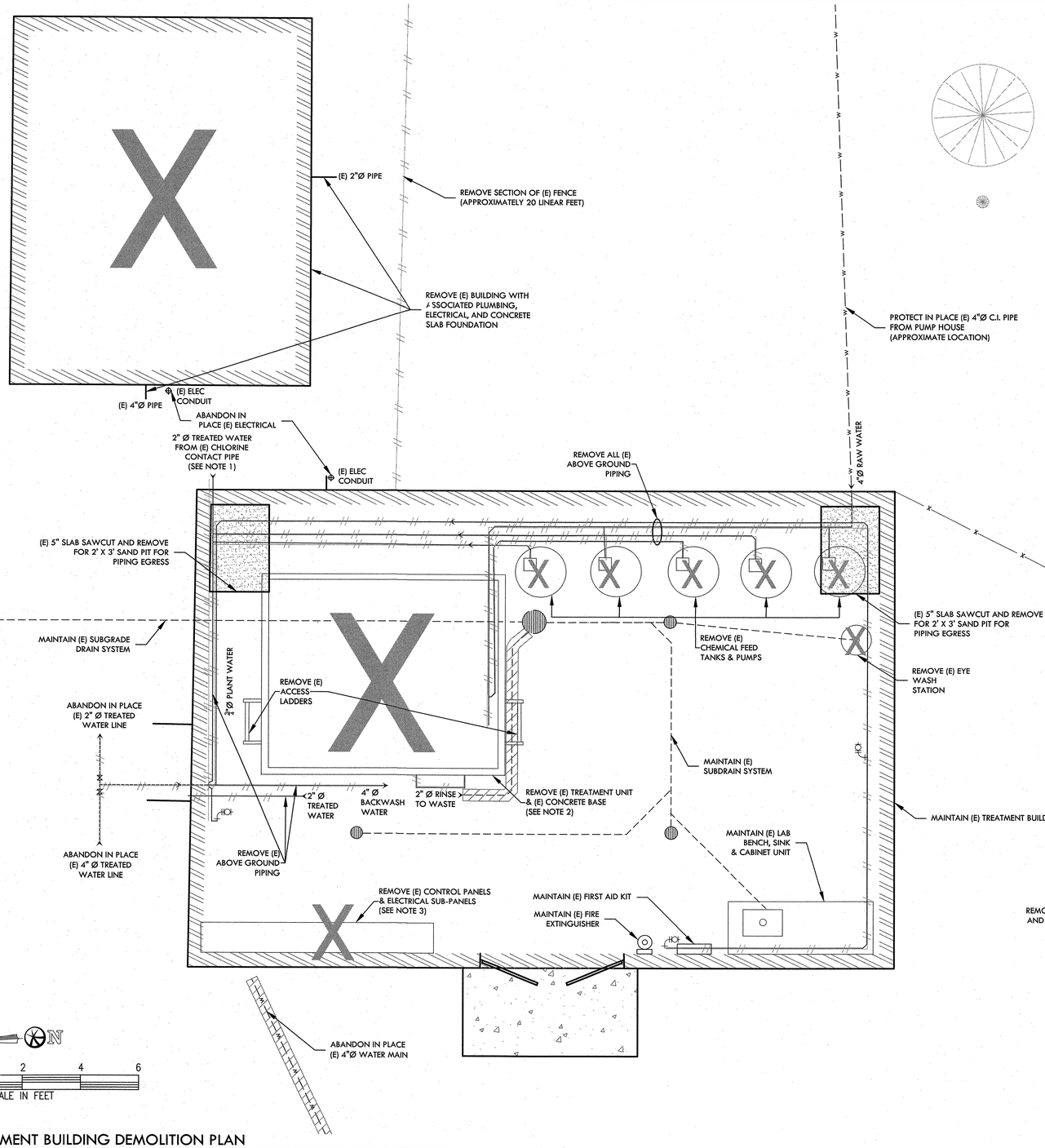
MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
SITE TOPOGRAPHIC SURVEY

SCALE: 1" = 40'
DATE: 10-17-2014
FILE NO. : 1/4915

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

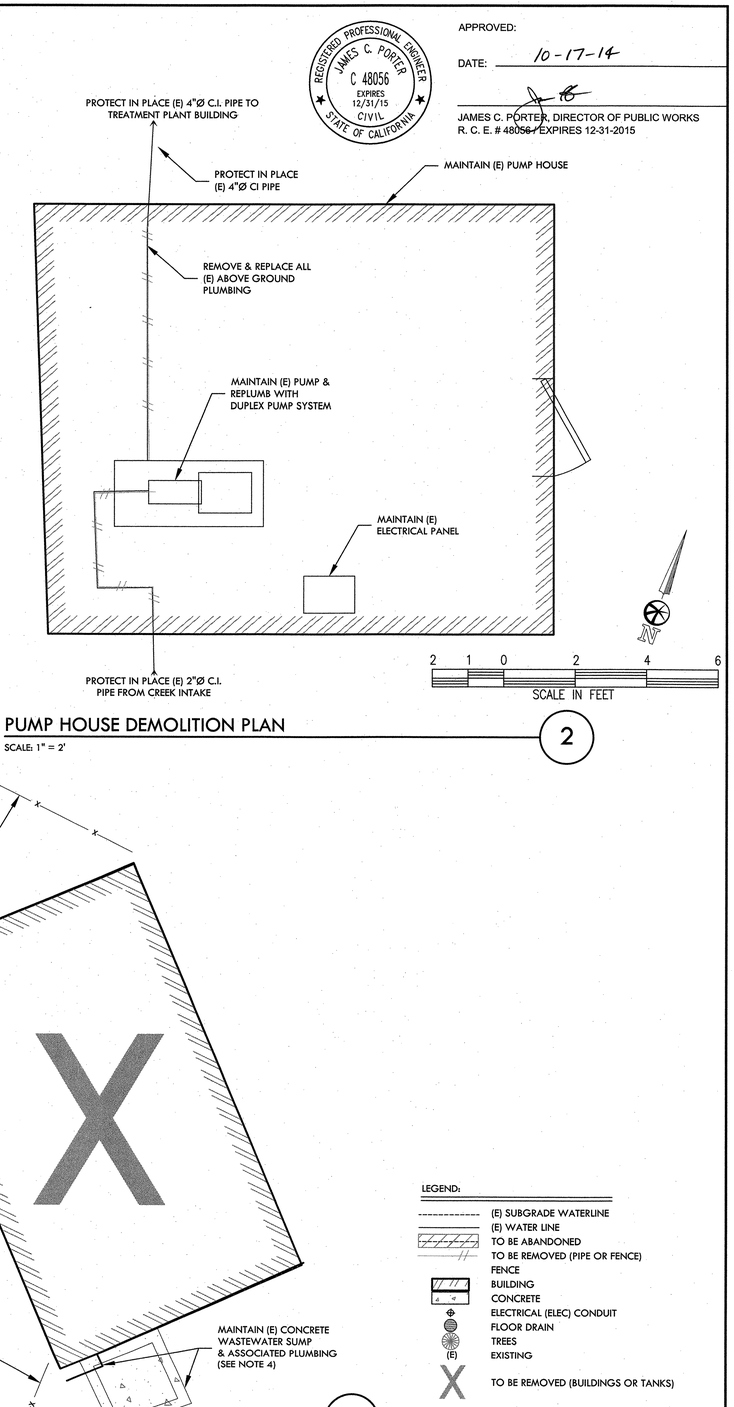
C1.1
SHEET 2 OF 30

FILENAME: P:\PROJECTS\2014\1402\8\DWG\4TH SUBMITTAL - BIDSET\1402STOPO.DWG (C1.1)



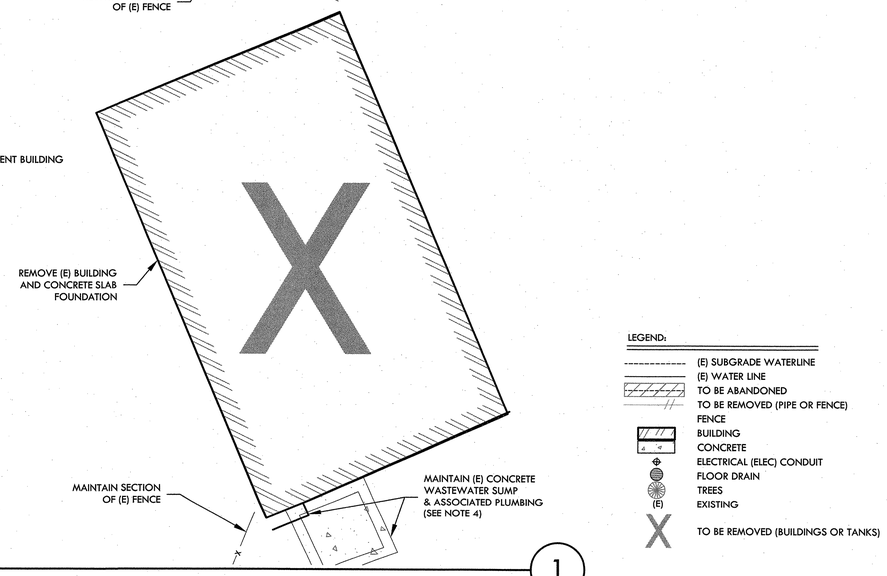
WATER TREATMENT BUILDING DEMOLITION PLAN

SCALE: 1" = 2'



PUMP HOUSE DEMOLITION PLAN

SCALE: 1" = 2'



NOTES:

1. THE EXACT LOCATION OF THE (E) CHLORINE CONTACT PIPE IS UNKNOWN, HOWEVER IT LIKELY RUNS ALONG THE NORTH SIDE OF THE BUILDING. THE CONTRACTOR SHALL REMOVE THE PIPE IF ENCOUNTERED DURING THE INSTALLATION OF NEW PIPING, OTHERWISE, THE PIPE SHALL BE ABANDONED IN PLACE.
2. THE TREATMENT UNIT CONCRETE BASE IS APPROXIMATELY 3" ABOVE THE GROUND SURFACE. THE CONTRACTOR SHALL REMOVE THE BASE AND REPAIR THE CONCRETE FLOOR WITH CONCRETE TO CREATE A DURABLE SURFACE COMPARABLE AND FLUSH TO THE EXISTING FLOORING.
3. THE ELECTRICAL CONDUIT FROM THE WASHWATER HOLDING TANK SHALL REMAIN IN PLACE TO BE RECONNECTED TO THE NEW TREATMENT SYSTEM CONTROL PANEL.
4. THE (E) WASTEWATER SUMP SHALL BE MAINTAINED FOR THE THE NEW TREATMENT SYSTEM. BACKWASH WATER AND OTHER TREATMENT PLANT WASTEWATER WILL BE PUMPED FROM THE (E) WASHWATER HOLDING TANK TO THE SUMP AND TO THE (E) SANITARY SEWER TO THE (E) ONSITE WASTEWATER TREATMENT PLANT.
5. SEE SHEETS E3 AND E4 FOR ELECTRICAL DEMOLITION PLAN.

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 EXPIRES 12-31-2015

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Consulting Engineers
Civil • Environmental • Water Resources
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REGISTERED PROFESSIONAL ENGINEER PETER H. FAUSE NO. 055605 EXP. 12/31/14 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

BID SET

REVISION	DATE

DESIGNED BY: CJC
CHECKED BY: PHH
DRAWN BY: CJC

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
DEMOLITION PLAN

SCALE: 1" = 2'
DATE: 10-17-2014
FILE NO.: 1/4915

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C1.2
SHEET 3 OF 30

FILENAME: S:\PROJECTS\21420 SM CNTY MEMORIAL PARK WTI PROJECT\CAD\FCE_MEMORIAL_DEMO.DWG (C1.2 DEMO)

INSTALL ADVISORY SIGN AT PARK ENTRANCE PER PARK STAFF APPROVAL

THIS ROAD TO REMAIN OPEN

INSTALL ADVISORY SIGN PER PARK STAFF APPROVAL

INSTALL ROAD CLOSED BARRICADES & SIGNAGE

STAGE 1

TAN OAK ROAD

STAGE 1

TAN OAK FLAT NO.1

STAGE 1

RESTROOM BLDG

STAGE 1

RESTROOM BLDG

BLDG

BLDG

INSTALL ADVISORY SIGN PER PARK STAFF APPROVAL

EX. BARRICADES

INSTALL ROAD CLOSED BARRICADES & SIGNAGE

STAGE 2

TAN OAK ROAD

TAN OAK FLAT NO.2

EX. BARRICADES

STAGE 1

STAGE 2

INSTALL ROAD CLOSED BARRICADES & SIGNAGE

PARK LOOP ROAD

CONSTRUCTION WORK ZONE

CONTRACTOR PARKING

INSTALL ADVISORY SIGN AT WURR ROAD PER PARK STAFF APPROVAL

EX. TRAIL TO BE CLOSED DURING CONSTRUCTION PERIOD

EX. TRAIL

STORAGE BLDG

TREATMENT BLDG

STORAGE BLDG

PUMP HOUSE

WURR ROAD

WURR ROAD BRIDGE

WURR WAY

PESCADERO CREEK

PESCADERO CREEK

N

40 20 0 40 80 120

SCALE IN FEET

LEGEND

- ROADWAYS TO REMAIN OPEN
- STAGE 1- ROADWAYS TO BE CLOSED TO PUBLIC DURING CONSTRUCTION (WATER LINE INSTALLATION)
- STAGE 2- ROADWAYS TO BE CLOSED TO PUBLIC DURING CONSTRUCTION (WATER TREATMENT PLANT/WATER LINE INSTALLATION)
- EX. CLOSED ROAD

NOTE:
ALLOW FOR 10' WIDE EMERGENCY VEHICLES AND PARK STAFF ACCESS AT ALL TIMES

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 EXPIRES 12-31-2015

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REGISTERED PROFESSIONAL ENGINEER DANIEL C. LEARY No. 46534 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: HN
CHECKED BY: DL
DRAWN BY: HN

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
SITE ACCESS PLAN

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: 1" = 40'
DATE: 10-17-2014
FILE NO. : 1/4915

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C1.3
SHEET 4 OF 30

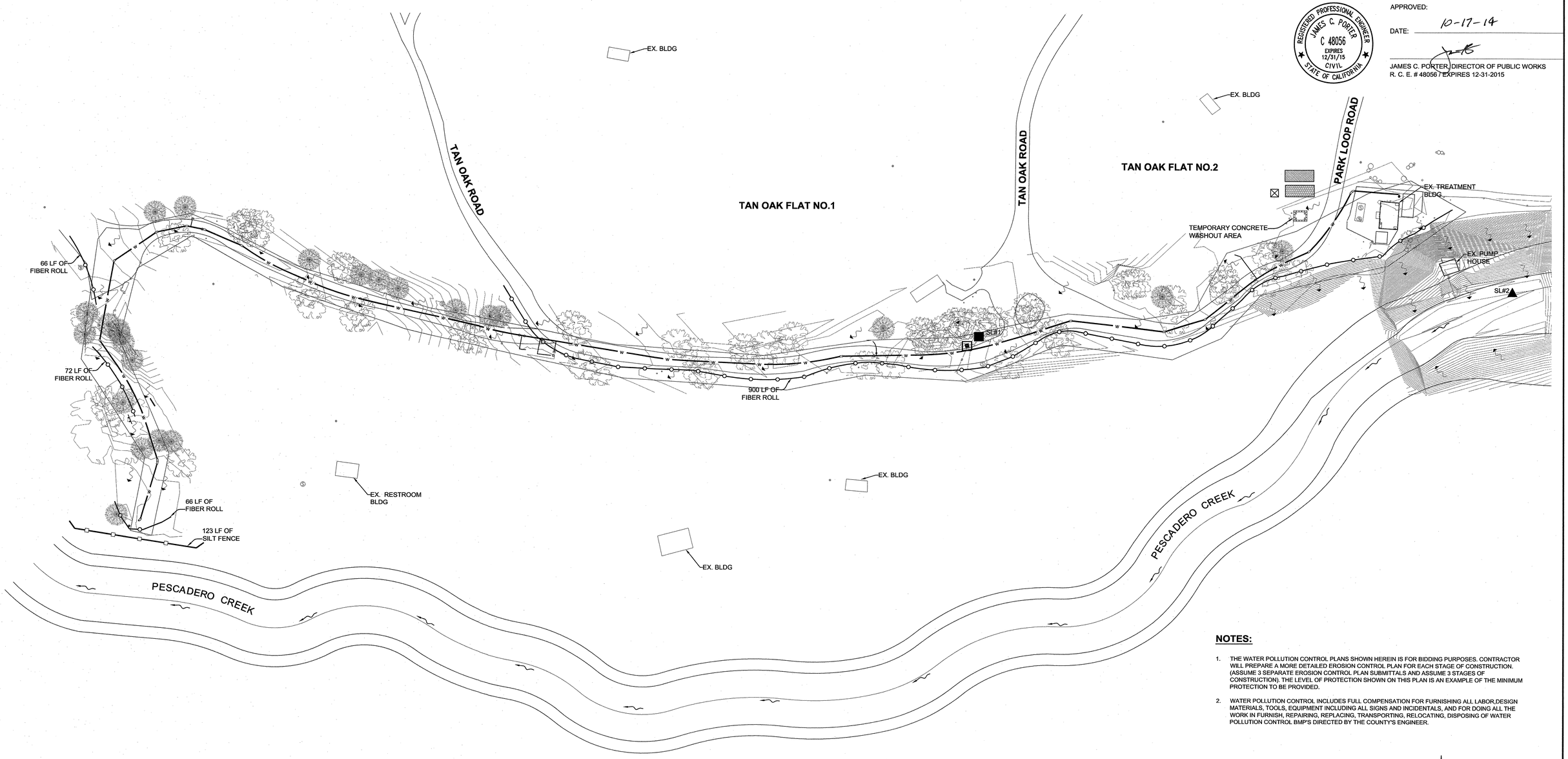
FILENAME P:\PROJECTS\2014\1402B\DWG\4TH SUBMITTAL - BIDSET\1402BSITE ACCESS.DWG (C1.3- SITE ACCESS PLAN)

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015



NOTES:

1. THE WATER POLLUTION CONTROL PLANS SHOWN HEREIN IS FOR BIDDING PURPOSES. CONTRACTOR WILL PREPARE A MORE DETAILED EROSION CONTROL PLAN FOR EACH STAGE OF CONSTRUCTION. (ASSUME 3 SEPARATE EROSION CONTROL PLAN SUBMITTALS AND ASSUME 3 STAGES OF CONSTRUCTION). THE LEVEL OF PROTECTION SHOWN ON THIS PLAN IS AN EXAMPLE OF THE MINIMUM PROTECTION TO BE PROVIDED.
2. WATER POLLUTION CONTROL INCLUDES FULL COMPENSATION FOR FURNISHING ALL LABOR,DESIGN MATERIALS, TOOLS, EQUIPMENT INCLUDING ALL SIGNS AND INCIDENTALS, AND FOR DOING ALL THE WORK IN FURNISH, REPAIRING, REPLACING, TRANSPORTING, RELOCATING, DISPOSING OF WATER POLLUTION CONTROL BMP'S DIRECTED BY THE COUNTY'S ENGINEER.

GENERAL NOTES:

1. BMP(S) APPLICABLE THROUGHOUT THE PROJECT LIMITS DURING CONSTRUCTION. EXACT LOCATION AND ORIENTATION OF BMP'S CAN BE ADJUSTED UPON DIRECTION OF THE INSPECTOR (QUALIFIED SWPPP PRACTITIONER) OR ENGINEER BY THE CONTRACTOR TO FIT FIELD CONDITION UPON APPROVAL BY THE ENGINEER.
2. ALL TEMPORARY BMP'S WILL BE IMPLEMENTED AS PER THE QSP/QSD'S DIRECTION, THE PLANS, THE SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.
3. THE INFORMATION ON THIS PLAN IS INTENDED TO BE USED AS A GUIDELINE FOR THE CONTRACTOR AND SUBCONTRACTORS TO INSTALL WATER POLLUTION CONTROL DEVICES AT GENERAL LOCATIONS THROUGHOUT THE SITE. THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE NARRATIVE SECTION OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
4. QSP OR ENGINEER MAY NECESSITATE MODIFICATIONS TO THESE DRAWINGS.
5. EROSION AND SEDIMENTATION CONTROL BMP FEATURES SHALL BE INSPECTED PRIOR TO FORECAST RAIN, DURING EXTENDED RAIN EVENTS, AFTER RAIN EVENTS, WEEKLY DURING THE RAINY SEASON, AND AT TWO-WEEK INTERVALS DURING THE NON-RAINY SEASON PER SWPPP.
6. THE CONTRACTOR SHALL CONFORM TO SECTION 11-1 " WATER POLLUTION CONTROL", OF THE SPECIAL PROVISIONS OF THE PROJECT SPECIFICATIONS.
7. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY SILT FENCES SHALL BE BACKFILLED AND REPAIRED.
8. REMOVE STORM DRAIN INLET PROTECTION ONCE THE DRAINAGE AREA IS STABILIZED OR AFTER THE EXISTING STORM DRAIN INLET IS REMOVED. CLEAN AND RE-GRADE AREA AROUND THE INLET AND CLEAN THE INSIDE OF THE STORM DRAIN INLET AS IT MUST BE FREE OF SEDIMENT AND DEBRIS AT THE TIME OF FINAL INSPECTION
9. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM FREEBOARD OF 4 INCH FOR ABOVE GRADE FACILITIES AND 12 INCH FOR BELOW GRADE FACILITIES. MAINTAINING TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD INCLUDE REMOVING AND DISPOSING OF HARDENED CONCRETE AND RETURNING THE FACILITIES TO A FUNCTIONAL CONDITION.
10. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.
11. REMOVE ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS AT THE END OF EACH CONSTRUCTION DAY OR AS DIRECTED BY THE QSP INSPECTOR OR ENGINEER.

LEGEND:

- SILT FENCING PER DETAIL 5 SHEET C1.6
- TEMPORARY DRAINAGE INLET PROTECTION PER DETAIL 2 SHEET C1.5
- TEMPORARY CONCRETE WASHOUT PER DETAIL 1 SHEET C1.5
- TEMPORARY FIBER ROLLS PER DETAIL 4 SHEET C1.6
- CONSTRUCTION STAGING, MATERIALS STORAGE, AND VEHICLE/EQUIPEMT STORAGE, CLEANING, MAINTENANCE & FUELING AREA.
- RECYCLABLE MATERIALS STOCKPILE AREA
- SL - SAMPLING LOCATION OF RUNOFF ADJACENT TO MATERIAL AND WASTE STORAGE AREAS IN COMPLIANCE WITH CONSTRUCTION GENERAL PERMIT
- SL - SAMPLING LOCATION OF RUNOFF IN AN UNCONTAMINATED AREA TO BE USED AS A BASE SAMPLE FOR COMPARISON IN COMPLIANCE WITH CONSTRUCTION GENERAL PERMIT
- BMP# WM(WASTE MANAGEMENT)-9, PORTABLE TOILETS WITH SECONDARY CONTAINMENT
- EXISTING DRAINAGE FLOW PATH

N

GRAPHIC SCALE
40 0 20 40
(IN FEET)
1 inch = 40 ft.

BID SET

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REGISTERED PROFESSIONAL ENGINEER
DANIEL C. LEARY
No. 46334
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

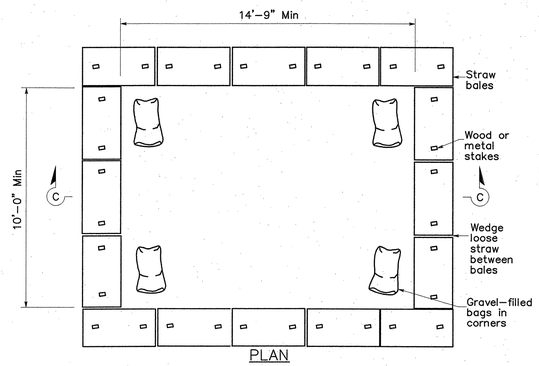
		DESIGNED BY: HN	MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
		CHECKED BY: DL	SEDIMENT CONTROL PLAN
		DRAWN BY: HN	
REVISION	DATE	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

SCALE: 1" = 40'
DATE: 10-17-2014
FILE NO. : 1/4915

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C1.4
SHEET 5 OF 30

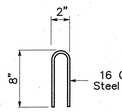
FILENAME: P:\PROJECTS\2014\14028\DWG\4TH SUBMITTAL - BIDSET\14028EC.DWG (C1.4- SEDIMENT CONTROL PLAN)



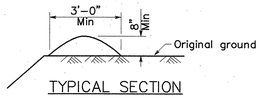
PLAN

TEMPORARY CONCRETE WASHOUT FACILITY

(On Grade)

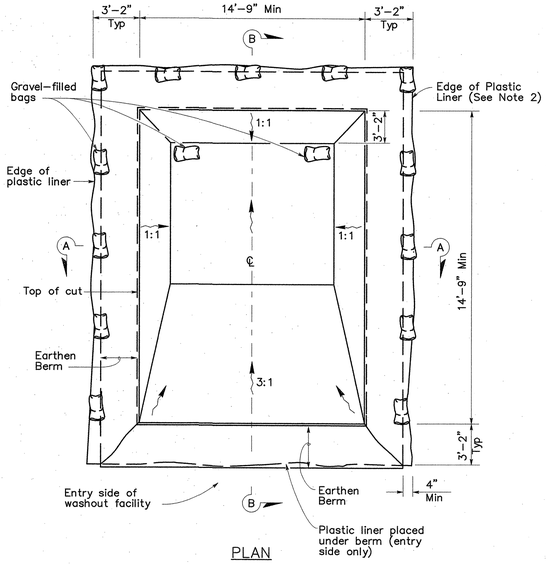


STAPLE DETAIL



TYPICAL SECTION

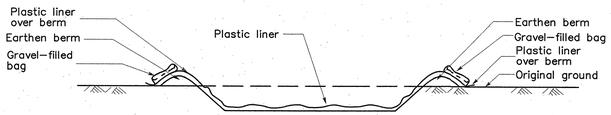
EARTHEN BERM



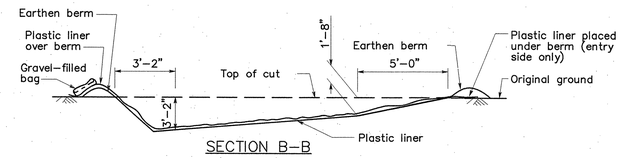
PLAN

TEMPORARY CONCRETE WASHOUT FACILITY

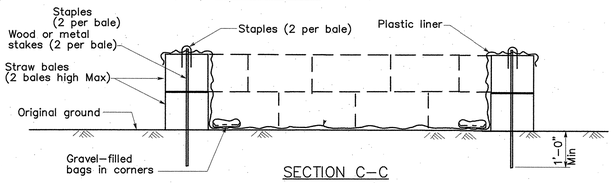
(Below Grade)



SECTION A–A



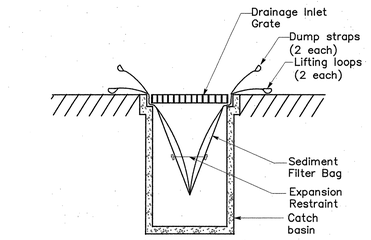
SECTION B–B



SECTION C–C

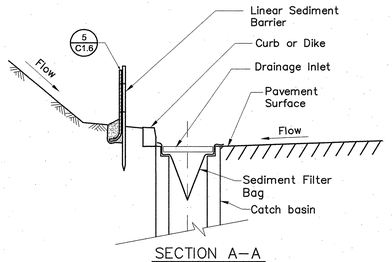
CONCRETE WASHOUT (1)

N.T.S

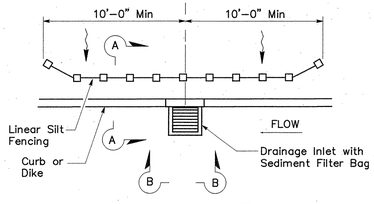


SECTION B–B

SEDIMENT FILTER BAG DETAIL



SECTION A–A



PLAN

TEMPORARY DRAINAGE INLET PROTECTION (2)

N.T.S

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

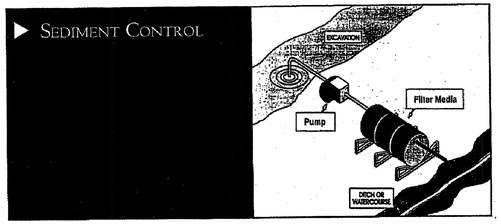
APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

D E W A T E R I N G

▶ Sediment Control



Purpose: A temporary method to filter sediment-laden water from excavated areas on construction sites prior to discharge to the stormdrain or surface waters.

Application:
- ▶ Wherever sediment-laden water must be removed from the construction site using a dewatering pump.
- ▶ Sediment traps or basins on construction sites.

Applicable Methods:
- ▶ Filter Box (figure 1)
- ▶ Portable Sediment Tank (figure 2)
- ▶ Sump Pit and Perforated Standpipe wrapped in Filter Pack and surrounded by stones (figure 3)

A dewatering structure should be sized to allow water to flow through the filtering media without overflowing the structure. **Discharging sediment-laden water from a dewatering site into the waters of the State without filtration is prohibited.**

Limitations:
- ▶ Must be considered as a last resort - adequate erosion and sediment control measures are to be considered first.
- ▶ Construction site conditions will dictate design and use.

SEDIMENT CONTROL (3)

N.T.S

FILENAME: P:\PROJECTS\2014\1402BID\DWG\4TH SUBMITTAL - BIDSET\1402BEC.DWG (C1.5- SEDIMENT CONTROL DETAILS)

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www.bellecci.com

REGISTERED PROFESSIONAL ENGINEER DANIEL C. LEARY No. 46539 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

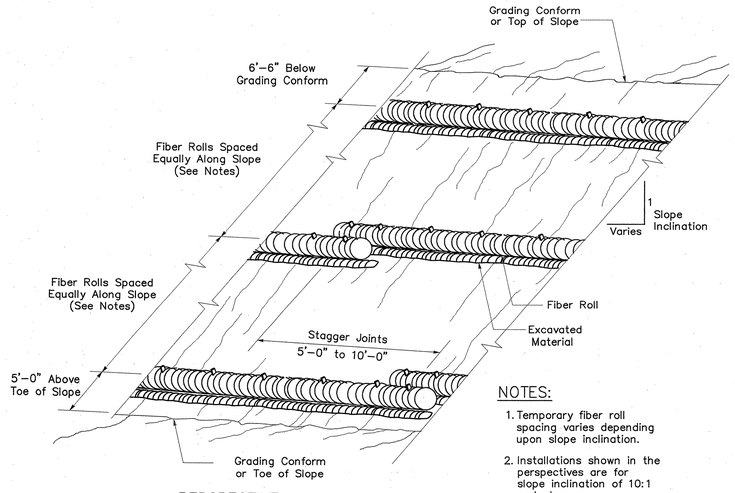
BID SET

REVISION	DATE		
		DESIGNED BY: HN	MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
		CHECKED BY: DL	SEDIMENT CONTROL DETAILS
		DRAWN BY: HN	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS, SAN MATEO COUNTY
			555 COUNTY CENTER, 5th FLOOR, REDWOOD CITY, CALIFORNIA 94063

SCALE: N.T.S
DATE: 10-17-2014
FILE NO. : 1/4915

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

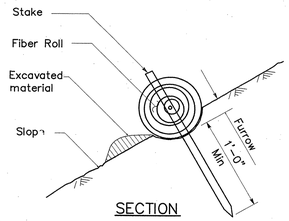
C1.5
SHEET 6 OF 30



PERSPECTIVE

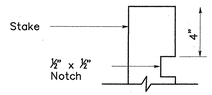
NOTES:

1. Temporary fiber roll spacing varies depending upon slope inclination.
2. Installations shown in the perspectives are for slope inclination of 10:1 and steeper.



SECTION

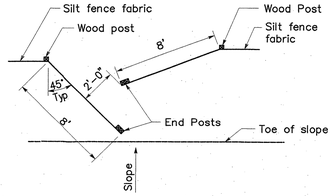
TEMPORARY FIBER ROLL (TYPE 1)



ELEVATION

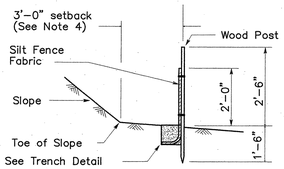
STAKE NOTCH DETAIL

FIBER ROLL 4
N.T.S



PLAN

OPTIONAL MAINTENANCE OPENING DETAIL

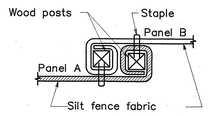


SECTION A–A

TEMPORARY SILT FENCE

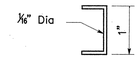
NOTES:

1. Install Temporary Silt Fence by first digging trench, driving posts, placing and securing fabric. Then backfill and tamp.
2. Reach length not to exceed 500 feet.
3. The down stream end of the Temporary Silt Fence shall have the last 8' angled up slope.
4. Setback dimensions may vary to fit field conditions.
5. Posts to overlap and fence fabric to fold around each post one full turn. Secure fabric with 4 staples for each post.
6. Posts shall be driven tightly together to prevent potential flow–through of sediment at the joint. The tops of the posts shall be secured to each other with wire.
7. For each end post, fence fabric shall be folded around two posts one full turn and secured with 4 staples.
8. Minimum of 4 staples shall be installed per post. Dimensions shown are typical.
9. Maintenance openings shall be constructed in a manner to ensure that sediment is retained by the temporary silt fence.
10. Joint sections shall not be placed at sump locations.
11. Steal/Metal post are allowed in lieu of wood post.

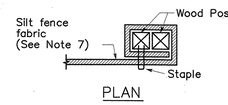


PLAN

POST AT JOINTS

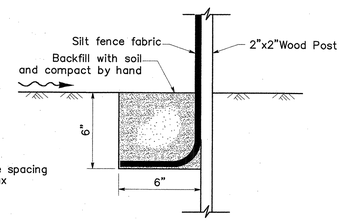


STAPLE DETAIL
(See Note 8)



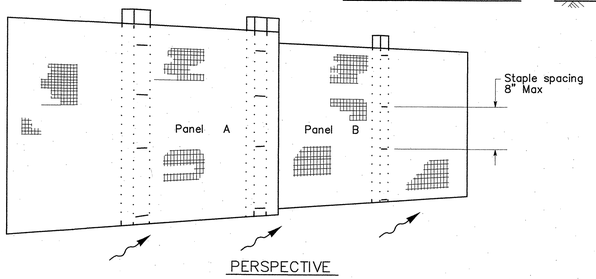
PLAN

END POST DETAIL



SECTION

TRENCH DETAIL

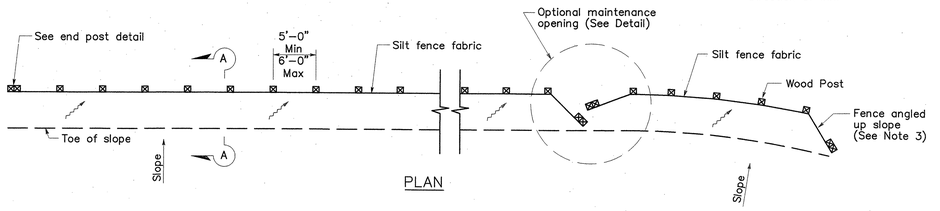


PERSPECTIVE

SILT FENCE PANELS AT JOINTS

LEGEND

- Tamped backfill
- Slope direction
- Direction of flow



PLAN

SILT FENCE 5
N.T.S

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48956 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

BID SET

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REGISTERED PROFESSIONAL ENGINEER DANIEL C. LEARY No. 45534 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: HN
CHECKED BY: DL
DRAWN BY: HN

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
SEDIMENT CONTROL DETAILS

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: N.T.S
DATE: 10-17-2014
FILE NO. : 1/4915

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C1.6
SHEET 7 OF 30

FILENAME: P:\PROJECTS\2014\14028\DWG\4TH SUBMITTAL - BIDSET\14028EC.DWG (C1.6- SEDIMENT CONTROL DETAILS)

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

Point Table				
Point #	Raw Description	Elevation	Northing	Easting
1	SET CUT X	500.00	10000.00	5000.00
2	FND MON	541.88	10000.00	5363.27
78	SET 60D	467.66	9861.43	4970.96
81	SET 60D	521.95	9778.29	5033.93
179	SET 60D	521.45	9795.54	5110.33
288	CP SET MAG	518.61	9456.15	5003.37
395	CP SET MAG	516.63	9187.90	4936.69
492	CP SET 60D	497.81	8706.19	5068.54
643	CP SET 60D	482.74	8712.97	4820.56

DRAWING AND PROJECT DATA ARE BASED ON ASSUMED DATUM
BENCHMARK EL=500.00

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LICENSED LAND SURVEYOR
CHARLES N. GARY
No. 6925
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: HN	MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
		CHECKED BY: DL	SURVEY CONTROL PLAN
		DRAWN BY: HN	

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: 1" = 50'
DATE: 10-17-2014
FILE NO. : 1/4915

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C1.7
SHEET 8 OF 30

FILENAME: P:\PROJECTS\2014\1402\8\DWG\4TH SUBMITTAL - BIDSET\1402SURVEY CONTROL DWG (C1.7)

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

TAN OAK FLAT NO.1

TAN OAK ROAD

MATCHLINE SEE SHEET C2.1

PESCADERO CREEK

EX. RESTROOM BLDG

RIM 495.32
INV 490.42 (4" OUT)
INV 490.42 (2-4" IN)

RIM 496.07
INV 489.7 (4" THRU)

RIM 508.14
INV 502.0 (4" THRU)

BEGIN 12+18.07

END 12+18.07

END 10+13.07

EX. SS VS NEW W CROSSING
12+30.19, 0.00 R
EX. AC 495.0±
TOP 491.6± (4" W)
BTM 491.2± (4" W)
TOP 490.2± (4" SS)
INV 489.8± (4" SS)
CLEARANCE 12"±

EX. SS VS NEW W CROSSING
15+61.09, 0.00 L
EX. AC 505.9±
TOP 503.0± (4" W)
BTM 502.6± (4" W)
TOP 501.6± (4" SS)
INV 501.2± (4" SS)
CLEARANCE 12"±

ABANDONED IN PLACE
EX. 4" WATER MAIN

ENLARGEMENT 1
SEE SHEET C2.6

ENLARGEMENT 3
SEE SHEET C2.6

ENLARGEMENT 5
SEE SHEET C2.6

ENLARGEMENT 6
SEE SHEET C2.6

INSTALL 4" WATER VALVE

EX. WATER VALVE

INSTALL 4" WATER VALVE

INSTALL ARV

9 LF OF 2" COPPER TYPE K

26 LF OF 2" COPPER TYPE K

15 LF OF 2" COPPER TYPE K

7 LF OF 2" COPPER TYPE K

4"-22.5° ELBOW WITH THRUST BLOCK

4"-11.25° ELBOW WITH THRUST BLOCK

4" 45° ELBOW WITH THRUST BLOCK

45° ELBOW WITH THRUST BLOCK

4"-45° ELBOW WITH THRUST BLOCK

4"-11.25° & 22.5° ELBOW WITH THRUST BLOCK

HAND EXCAVATE 30LF BETWEEN TREES

26 LF OF 4"

33 LF OF 4"

252 LF OF 4"

253 LF OF 4"

44 LF OF 4"

72 LF OF 4"

114 LF OF 4"

50 LF OF 4"

ABD 4" W

EX. 4" SS

EX. 1" W

EX. 2" W

R250.0

R200.0

13+00

14+00

15+00

16+00

17+00

18+00

10+00

11+00

LEGEND

* MAINTAIN 12" VERTICAL CLEARANCE WITH SANITARY SEWER PIPE IN ACCORDANCE WITH TITLE 17 CODE OF REGULATION, CALIFORNIA REGULATIONS RELATED TO DRINKING WATER (JULY 1, 2013) AND §64572 - WATER MAIN SEPERATION

CREEK FLOW LINE

MAINTAIN EX. WATER LINE DURING NEW WATER MAIN INSTALLATIONS

NEW WATER LINE. REFER TO PLAN FOR PIPE SIZE

GRAPHIC SCALE
20 0 10 20
(IN FEET)
1 inch = 20 ft.

N

CONSTRUCTION NOTES:

- ALL NEW WATER LINE PIPE SHALL BE PVC C900 DR18 (PC 150) UNLESS SPECIFICALLY CALLED OUT OTHERWISE.
- INSTALL TRACER WIRE PARALLEL TO ALL NEW PVC PIPE
- SEE COUNTY STD PLAN C3.0 FOR TRENCH DETAIL
- ALL OPEN TRENCHES SHALL HAVE TRENCH PLATE AND "CAUTION" TAPE INSTALLED AFTER EVERY EVENING IF NOT BACKFILLED
- WATER LINES SHALL BE LAID UPHILL ON GRADE EXCEEDING 10%

1. INSTALL 216 LF OF 4" WATER LINE IN LANDSCAPE AREA
2. INSTALL 645 LF OF 4" WATER LINE IN PAVED AREA
3. REMOVE AND REPLACE CHAIN LINK FENCE TO THE NEAREST POST

BID SET

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REGISTERED PROFESSIONAL ENGINEER
DANIEL C. LEARY
No. 45594
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

REVISION	DATE

DESIGNED BY: HN
CHECKED BY: DL
DRAWN BY: HN

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
WATER SYSTEM IMPROVEMENT

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

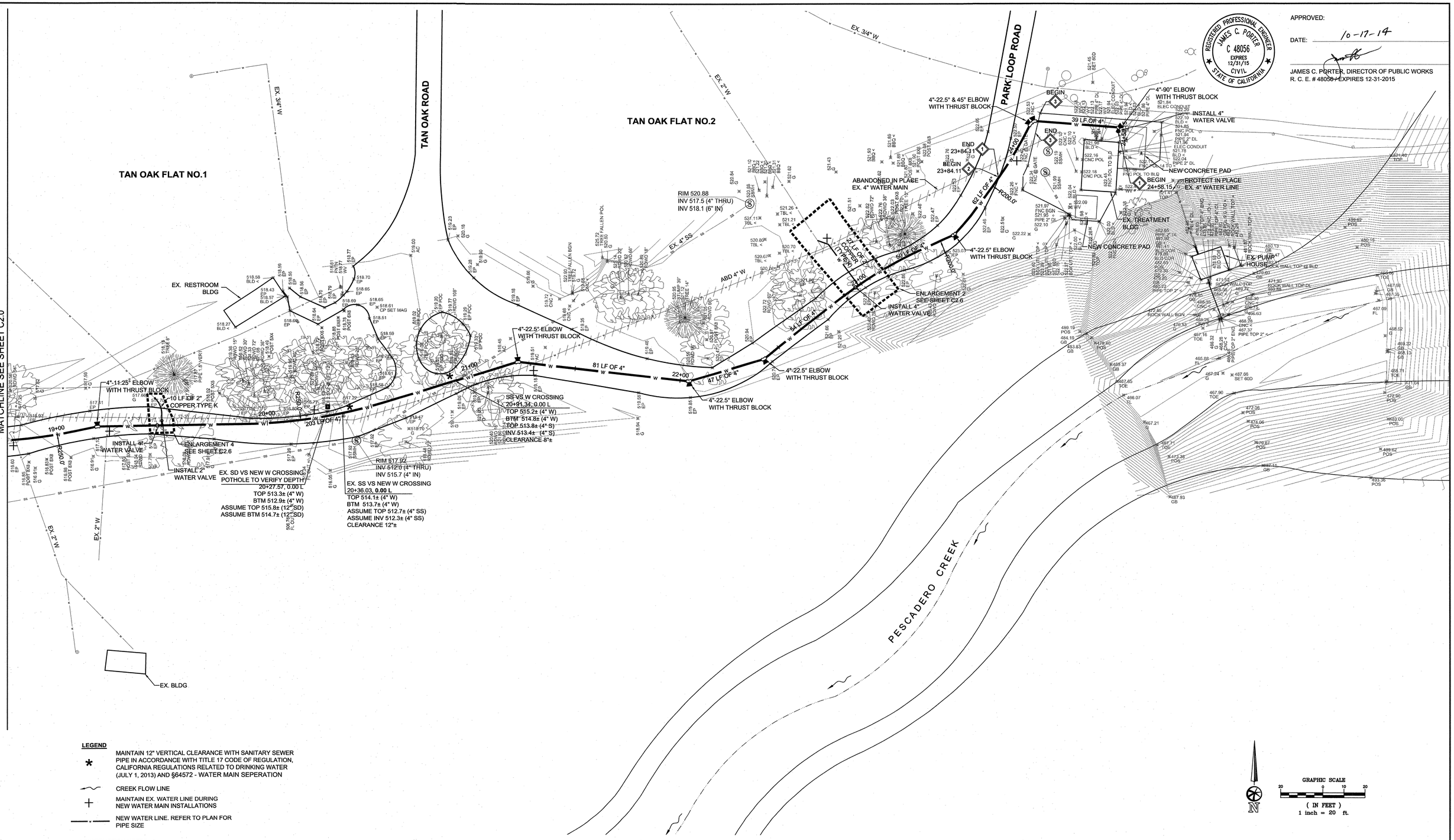
555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: 1" = 20'
DATE: 10-17-2014
FILE NO. : 1/4915

FOR REDUCED PLANS.
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C2.0
SHEET 9 OF 30

FILENAME: P:\PROJECTS\2014\14028\DWG\4TH SUBMITTAL - BIDSET\14028MP.DWG (C2.0- IMP)



LEGEND

*	MAINTAIN 12" VERTICAL CLEARANCE WITH SANITARY SEWER PIPE IN ACCORDANCE WITH TITLE 17 CODE OF REGULATION, CALIFORNIA REGULATIONS RELATED TO DRINKING WATER (JULY 1, 2013) AND §64572 - WATER MAIN SEPERATION
~	CREEK FLOW LINE
+	MAINTAIN EX. WATER LINE DURING NEW WATER MAIN INSTALLATIONS
—·—	NEW WATER LINE. REFER TO PLAN FOR PIPE SIZE

CONSTRUCTION NOTES:

- ALL NEW WATER LINE PIPE SHALL BE PVC C900 DR18 (PC 150) UNLESS SPECIFICALLY CALLED OUT OTHERWISE.
- INSTALL TRACER WIRE PARALLEL TO ALL NEW PVC PIPE
- SEE COUNTY STD PLAN C3.0 FOR TRENCH DETAIL
- ALL OPEN TRENCHES SHALL HAVE TRENCH PLATE AND "CAUTION" TAPE INSTALLED AFTER EVERY EVENING IF NOT BACKFILLED
- WATER LINES SHALL BE LAID UPHILL ON GRADE EXCEEDING 10%

1. INSTALL 74 LF OF 4" WATER LINE IN LANDSCAPE AREA
2. INSTALL 507 LF OF 4" WATER LINE IN PAVED AREA
3. REMOVE AND REPLACE CHAIN LINK FENCE TO THE NEAREST POST

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

N

GRAPHIC SCALE
20 0 10 20
(IN FEET)
1 inch = 20 ft.

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REGISTERED PROFESSIONAL ENGINEER DANIEL C. LEARY No. 46334 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: HN	MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
		CHECKED BY: DL	WATER SYSTEM IMPROVEMENT
		DRAWN BY: HN	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS, SAN MATEO COUNTY
			555 COUNTY CENTER, 5th FLOOR, REDWOOD CITY, CALIFORNIA 94063

SCALE: 1" = 20'
DATE: 10-17-2014
FILE NO. : 1/4915

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C2.1
SHEET 10 OF 30

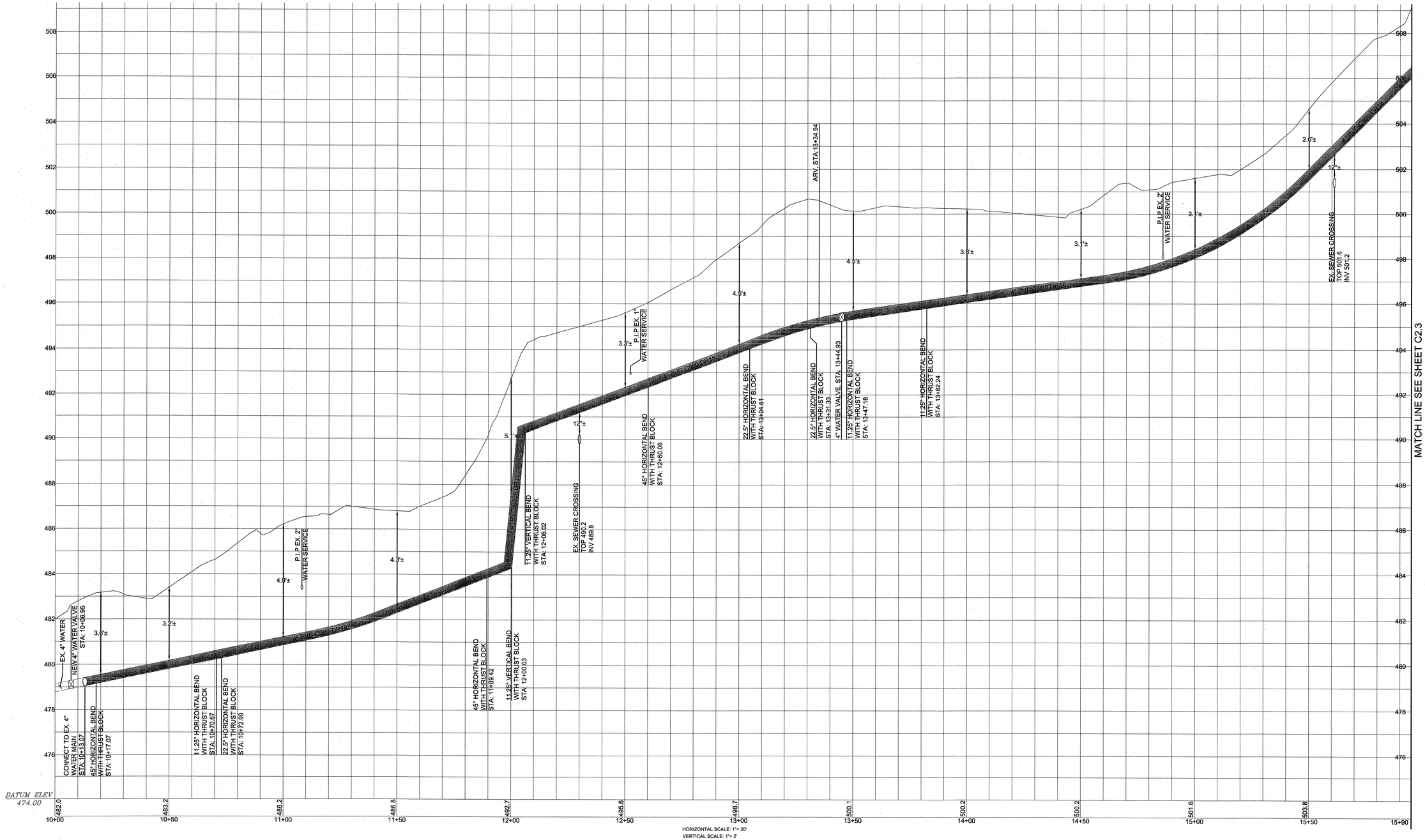
FILENAME: P:\PROJECTS\2014\4028\DWG\4TH SUBMITTAL - BIDSET\14028IMP.DWG (C2.1- IMP)

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015



HORIZONTAL SCALE: 1"= 20'
VERTICAL SCALE: 1"= 2'

BID SET

NOTE:
"NO PIPE JOINTS WITHIN 8' OF THE EXISTING STORM AND SANITARY SEWER CROSSING. WITHIN 8' OF THE EXISTING STORM DRAIN AND SANITARY SEWER, THE WATER PIPE MATERIAL SHALL BE CLASS 200 PRESSURE RATE PVC WATER PIPE(DR 14 PER AWWA C900-97 & C905-97)."

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REGISTERED PROFESSIONAL ENGINEER
DANIEL C. LEARY
No. 49394
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: HN
CHECKED BY: DL
DRAWN BY: HN

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
WATER LINE PROFILE

SCALE: AS SHOWN
DATE: 10-17-2014
FILE NO. : 1/4915

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C2.2
SHEET 11 OF 30

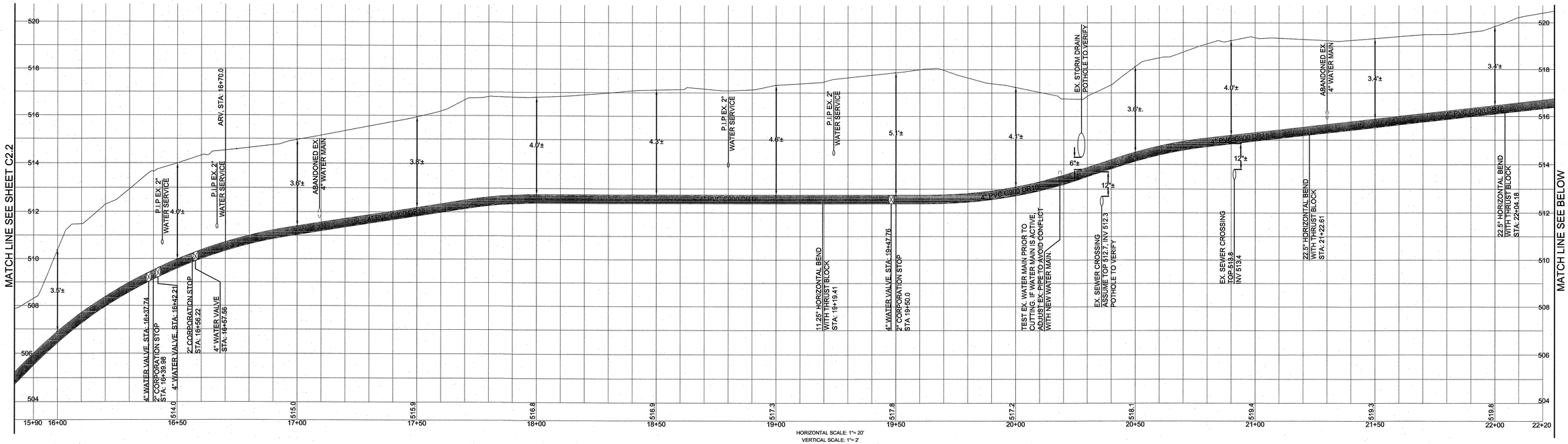
FILENAME: P:\PROJECTS\2014\14028\DWG\4TH SUBMITTAL - BOSETI\4028WP.DWG (C2.2 - PROFILE)

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

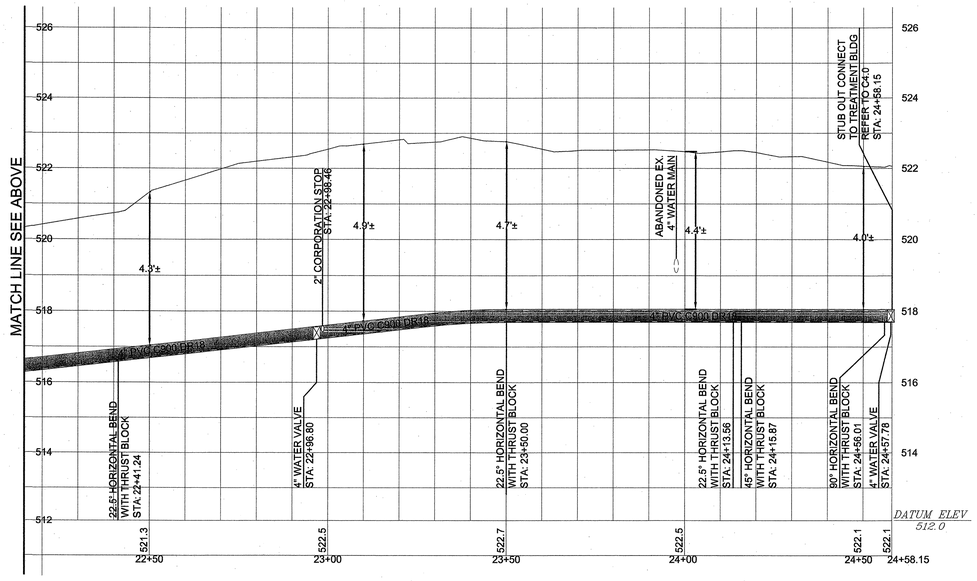
APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015



HORIZONTAL SCALE: 1"= 20'
VERTICAL SCALE: 1"= 2'



HORIZONTAL SCALE: 1"= 20'
VERTICAL SCALE: 1"= 2'

NOTE:
"NO PIPE JOINTS WITHIN 8' OF THE EXISTING STORM AND SANITARY SEWER CROSSING. WITHIN 8' OF THE EXISTING STORM DRAIN AND SANITARY SEWER, THE WATER PIPE MATERIAL SHALL BE CLASS 200 PRESSURE RATE PVC WATER PIPE(DR 14 PER AWWA C900-97 & C905-97)."

FILENAME: P:\PROJECTS\2014\14028\DWG\4TH SUBMITTAL - BDSET\14028WP.DWG (C2.3 - PROFILE)

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REGISTERED PROFESSIONAL ENGINEER
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No. 26334
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

BID SET

REVISION	DATE	DESIGNED BY: HN	DRAWN BY: HN	CHECKED BY: DL

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT

WATER LINE PROFILE

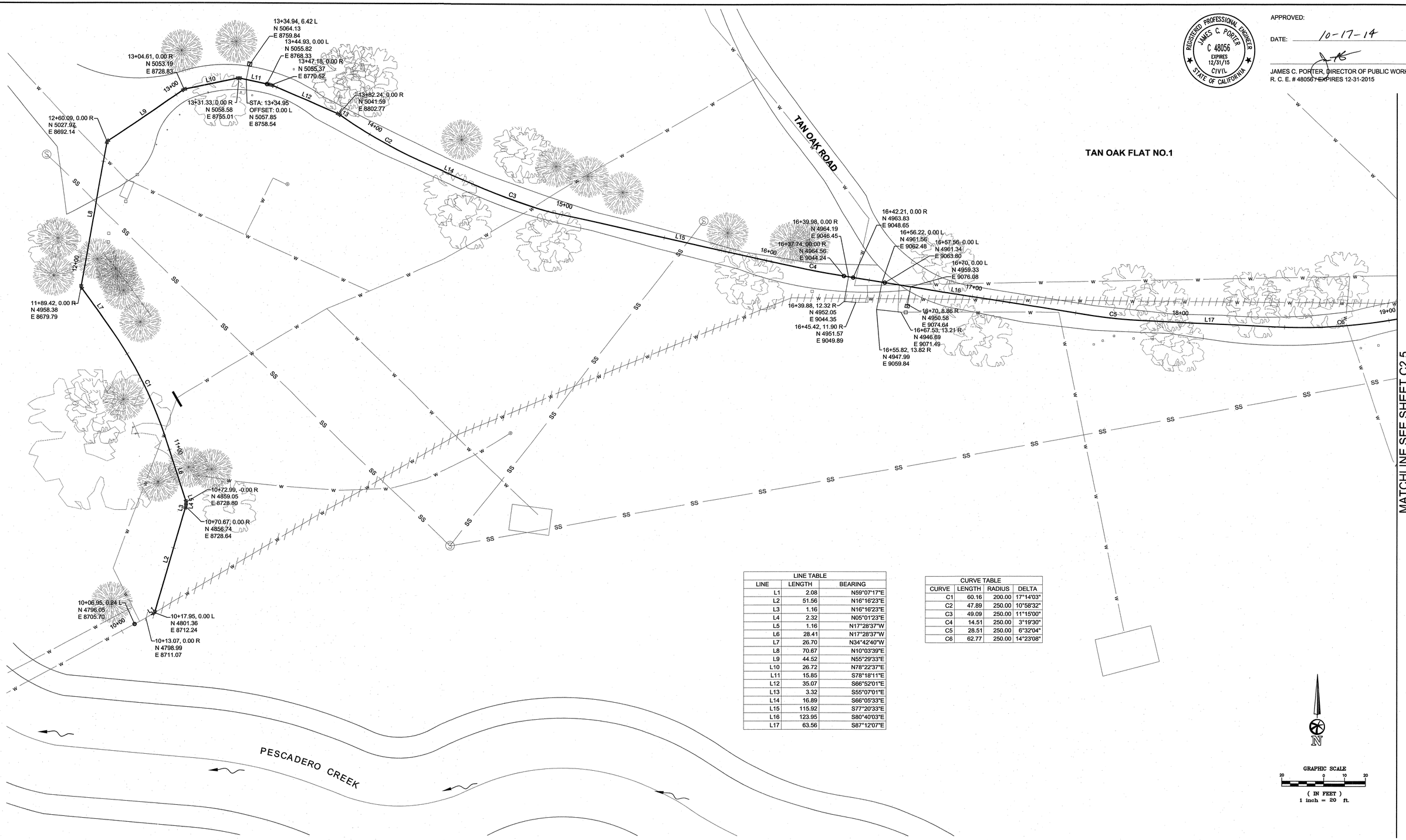
SCALE: AS SHOWN
DATE: 10-17-2014
FILE NO. : 1/4915

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C2.3
SHEET 12 OF 30



LINE TABLE		
LINE	LENGTH	BEARING
L1	2.08	N59°07'17"E
L2	51.56	N16°16'23"E
L3	1.16	N16°16'23"E
L4	2.32	N05°01'23"E
L5	1.16	N17°28'37"W
L6	28.41	N17°28'37"W
L7	26.70	N34°42'40"W
L8	70.67	N10°03'39"E
L9	44.52	N55°29'33"E
L10	26.72	N78°22'37"E
L11	15.85	S78°18'11"E
L12	35.07	S66°52'01"E
L13	3.32	S55°07'01"E
L14	16.89	S66°05'33"E
L15	115.92	S77°20'33"E
L16	123.95	S80°40'03"E
L17	63.56	S87°12'07"E

CURVE TABLE			
CURVE	LENGTH	RADIUS	DELTA
C1	60.16	200.00	17°14'03"
C2	47.89	250.00	10°58'32"
C3	49.09	250.00	11°15'00"
C4	14.51	250.00	3°19'30"
C5	28.51	250.00	6°32'04"
C6	62.77	250.00	14°23'08"

GRAPHIC SCALE
20 0 10 20
(IN FEET)
1 inch = 20 ft.

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

BID SET

Bellecci & Associates, inc.
Civil Engineering • Land Surveying
7041 Koll Center Pkwy, Suite 132 Pleasanton, CA 94566
Phone (925) 681-4885
www.bellecci.com

REGISTERED PROFESSIONAL ENGINEER
DANIEL C. LEARY
No. 76539
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

REVISION	DATE

DESIGNED BY: HN
CHECKED BY: DL
DRAWN BY: HN

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
HORIZONTAL CONTROL PLAN

SCALE: 1" = 20'
DATE: 10-17-2014
FILE NO. : 1/4915

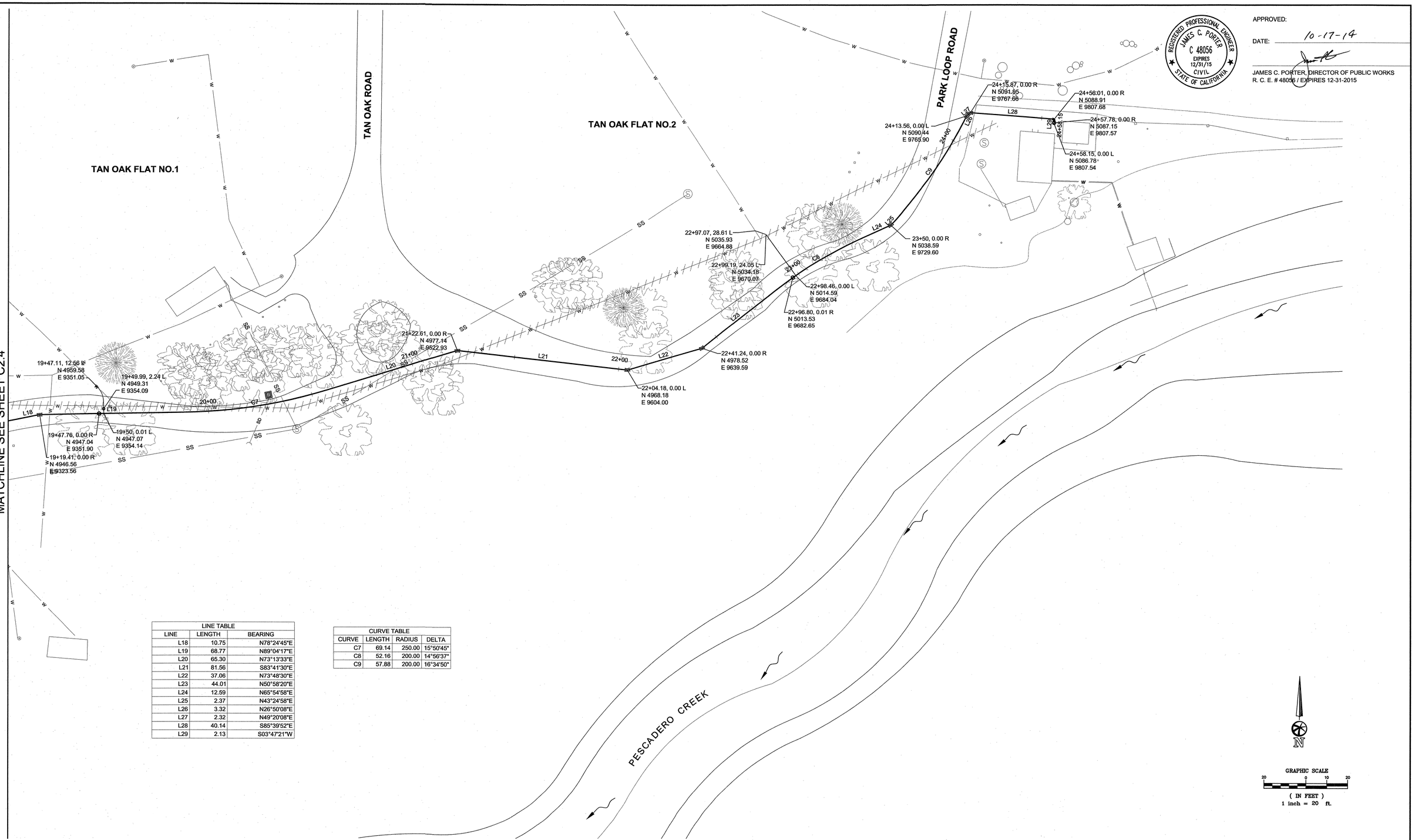
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

C2.4
SHEET 13 OF 30

FILENAME: P:\PROJECTS\2014\14028\DWG\4TH SUBMITTAL - BIDSET\14028HC.DWG (C2.4)



LINE TABLE		
LINE	LENGTH	BEARING
L18	10.75	N78°24'45"E
L19	68.77	N89°04'17"E
L20	65.30	N73°13'33"E
L21	81.56	S83°41'30"E
L22	37.06	N73°48'30"E
L23	44.01	N50°58'20"E
L24	12.59	N65°54'58"E
L25	2.37	N43°24'58"E
L26	3.32	N26°50'08"E
L27	2.32	N49°20'08"E
L28	40.14	S85°39'52"E
L29	2.13	S03°47'21"W

CURVE TABLE			
CURVE	LENGTH	RADIUS	DELTA
C7	69.14	250.00	15°50'45"
C8	52.16	200.00	14°56'37"
C9	57.88	200.00	16°34'50"

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

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REGISTERED PROFESSIONAL ENGINEER
DANIEL C. LEARY
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CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: HN	MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
		CHECKED BY: DL	HORIZONTAL CONTROL PLAN
		DRAWN BY: HN	

SCALE: 1" = 20'
DATE: 10-17-2014
FILE NO. : 1/4915

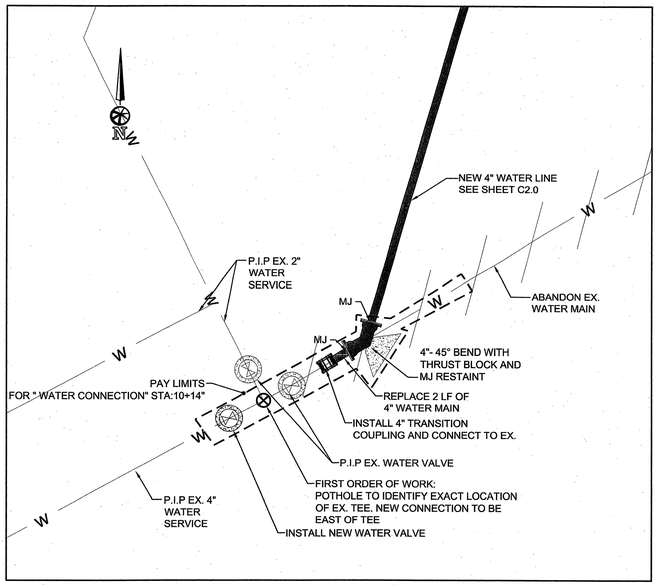
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

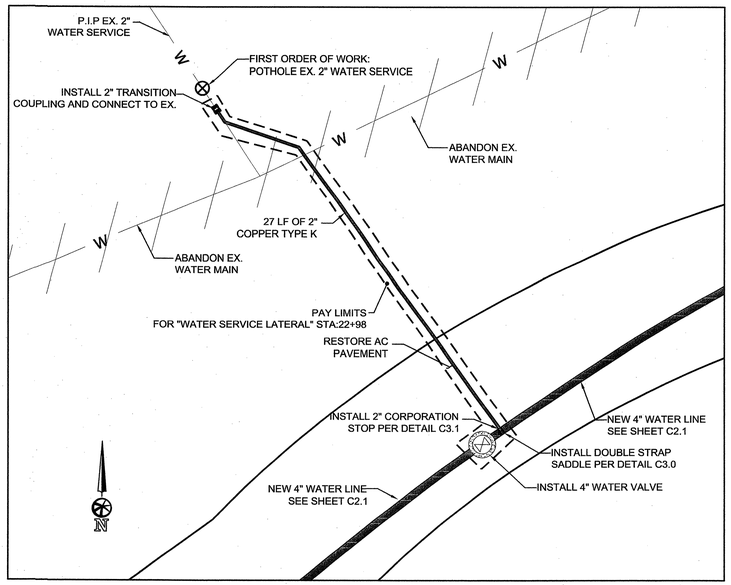
FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C2.5
SHEET 14 OF 30

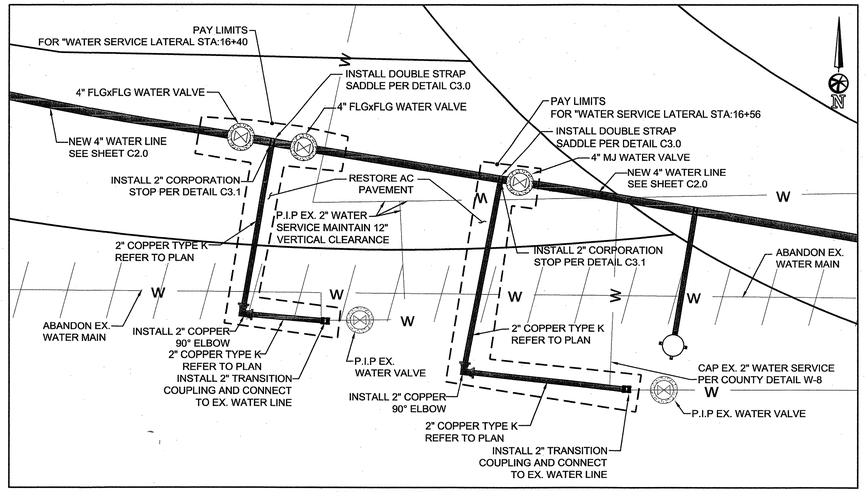
FILENAME: P:\PROJECTS\2014\14028\DWG\4TH SUBMITTAL - BIDSET\14028HC.DWG (C2.5)



WATER CONNECTION
ENLARGEMENT (STA:10+14) ①
N.T.S



WATER SERVICE LATERAL
ENLARGEMENT (STA:22+98) ②
N.T.S

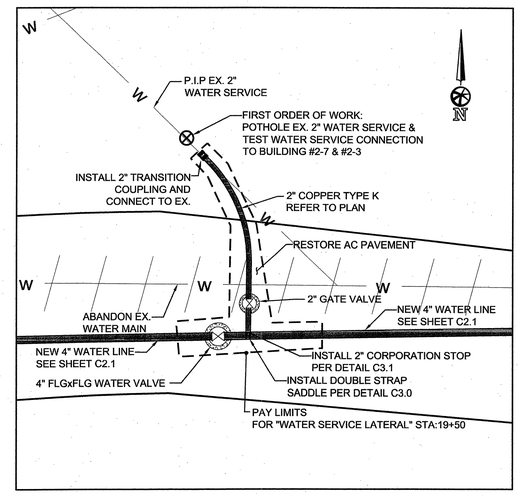


WATER SERVICE LATERAL
ENLARGEMENT (STA:16+40 & STA:16+56) ③
N.T.S

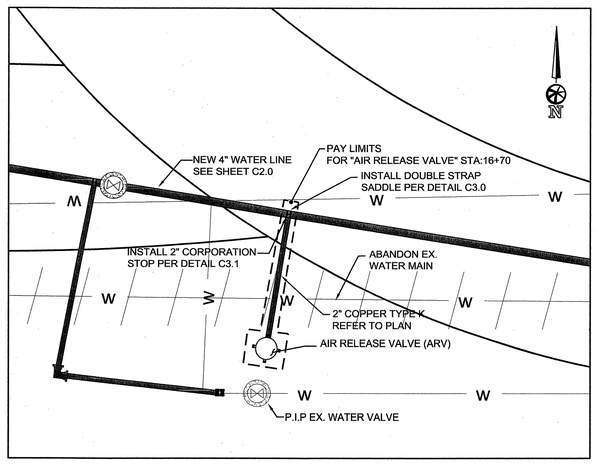
APPROVED:

DATE: 10-17-14

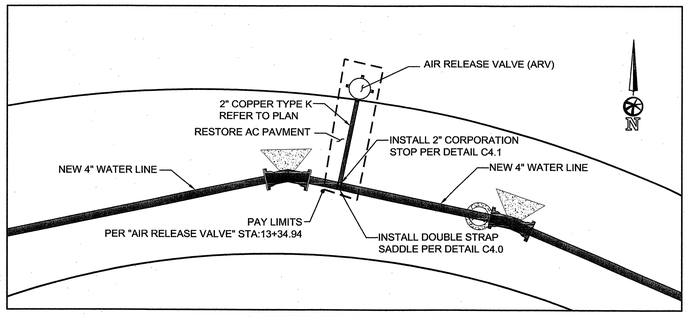
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015



WATER SERVICE LATERAL
ENLARGEMENT (STA:19+50) ④
N.T.S



AIR RELEASE VALVE
ENLARGEMENT (STA:16+70) ⑤
N.T.S



AIR RELEASE VALVE
ENLARGEMENT (STA:13+34.94) ⑥
N.T.S

BID SET

Bellecci & Associates, inc.
Civil Engineering • Land Surveying
7041 Koll Center Pkwy, Suite 132 Pleasanton, CA 94566
Phone (925) 681-4885
www.bellecci.com

REGISTERED PROFESSIONAL ENGINEER DANIEL C. LEARY No. 49354 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE	DESIGNED BY: HN	MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT	SCALE: AS SHOWN
		CHECKED BY: DL	ENLARGEMENT	DATE: 10-17-2014
		DRAWN BY: HN		FILE NO. : 1/4915
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063	

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C2.6
SHEET 15 OF 30

FILENAME: P:\PROJECTS\2014\1402\8\DWG\TH SUBMITTAL - BIDSET\1402BENLARGEMENT.DWG (C2.6- ENLARGEMENT)

APPROVED:

DATE: 10-17-14

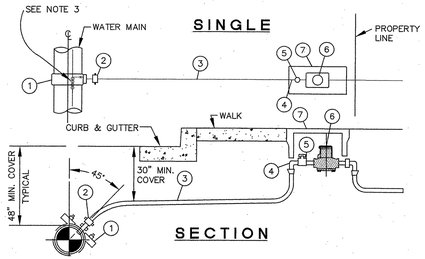
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48956 / EXPIRES 12-31-2015

REGISTERED PROFESSIONAL ENGINEER — JAMES C. PORTER — C 48056 — EXPIRES 12/31/15 — CIVIL — STATE OF CALIFORNIA

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: A.G.M.
CHECK BY: D.W.W.
APPROVED BY: N.R.C.

SCALE: NONE
DATE: 6/95
REVISED:



NO.	ITEM	MANUFACTURER & No. AND / OR DESCRIPTION	3/4" SERVICE	SERVICES OVER 3/4"
1	SADDLE	DOUBLE STRAP SADDLE	SEE STANDARD SADDLE REQUIREMENTS	
2	CORP STOP	MUELLER H – 15000	3/4"	
3	SERVICE PIPE	TYPE K SOFT COPPER	3/4"	AS DETERMINED BY DISTRICT
4	1/4 BEND	MUELLER H – 15530	3/4"	
5	CURB STOP	MUELLER H – 10257	3/4"	
6	METER	BY DISTRICT	3/4"X5/8"	
7	BOX	CHRISTY (BOX : LID)	B –9:B–9D	

FOR DOUBLE STRAP SADDLE, USE MUELLER MODEL #BR2S0474 OR APPROVED EQUAL

FOR CORPORATION STOP, USE MUELLER MODEL #B-25008 OR APPROVED EQUAL

NOTE:
1. ITEMS SHADED INSTALLED BY WATER DISTRICT.
2. FACE OF METER TO BE NO MORE THAN 12 INCHES BELOW LID.
3. CONNECT TO MAIN LOCATION WIRE, WHERE EXISTING.

STANDARD SERVICE CONNECTION

W–1

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: N.M.A.
CHECK BY: D.W.W.
APPROVED BY: N.R.C.

SCALE: NONE
DATE: 6/95
REVISED:

MAIN TYPE	SIZE	TAP SIZE 3/4"	1"	1–1/2"	2"	3"	4"
A. C. PIPE	4"	D	D	D	D	X	X
	6"	D	D	D	D	D	X
	8"	D	D	D	D	D	D
	10"	D	D	D	D	D	D
	12"	D	D	D	D	D	D
D. I. PIPE	4"	D	D	D	D	X	X
	6"	D	D	D	D	D	X
	8"	D	D	D	D	D	D
	10"	D	D	D	D	D	D
	12"	D	D	D	D	D	D
P. V. C. PIPE	4"	D	D	D	D	X	X
	6"	D	D	D	D	D	X
	8"	D	D	D	D	D	D
	10"	D	D	D	D	D	D
	12"	D	D	D	D	D	D

X – TAP NOT PERMITTED WITHOUT SPECIAL PERMISSION FROM THE DISTRICT ENGINEER – USE NECESSARY FITTINGS.

D – DOUBLE STRAP SADDLE REQUIRED

ALL SERVICE SADDLES TO BE OF BRONZE WITH BRONZE STRAPS AND NEOPRENE GASKETS: SMITH BLAIR INC., MUELLER CO., OR APPROVED EQUAL. STAINLESS STEEL MAY BE USED WHEN BRONZE IS UNAVAILABLE.

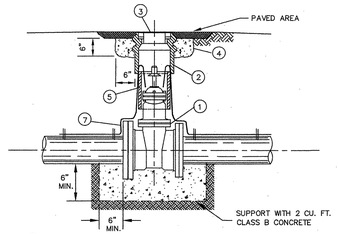
SADDLES SHALL BE PROPERLY SIZED FOR KIND AND SIZE OF PIPE ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS

W–2

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: N.M.A.
CHECK BY: D.W.W.
APPROVED BY: N.R.C.

SCALE: NONE
DATE: 6/95
REVISED: 4/97



1. RESILIENT SEAT GATE VALVE: MUELLER A2370 WITH "O"–RING SEALS AND NON–RISING STEM (CCW TO OPEN), OR EQUAL.
2. VALVE BOX: CHRISTY G5, SET 2" ABOVE GRADE IN NON–TRAFFIC AREAS.
3. C.I. COVER, INSCRIBED "WATER"
4. CONCRETE SETTING COLLAR IN PAVED AREAS (CLASS B)
5. 6" PVC, C900, CL 200 (UNLESS SPECIFIED OTHERWISE BY THE DISTRICT ENGINEER) (LENGTH AS NECESSARY).
6. ALL BOLTS AND NUTS USED SHALL BE STAINLESS STEEL.
7. BLUE #10 LOCATION WIRE (WIRE TO EXTEND 1 FOOT ABOVE TOP OF VALVE BOX).

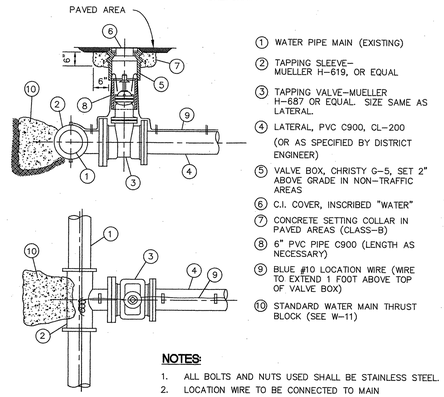
STANDARD GATE VALVE ASSEMBLY

W–3

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: N.M.A.
CHECK BY: D.W.W.
APPROVED BY: N.R.C.

SCALE: NONE
DATE: 6/95
REVISED: 4/97



1. WATER PIPE MAIN (EXISTING)
2. TAPPING SLEEVE– MUELLER H–619, OR EQUAL
3. TAPPING VALVE–MUELLER H–667 OR EQUAL. SIZE SAME AS LATERAL.
4. LATERAL, PVC C900, CL–200 (OR AS SPECIFIED BY DISTRICT ENGINEER)
5. VALVE BOX, CHRISTY G–5, SET 2" ABOVE GRADE IN NON–TRAFFIC AREAS
6. C.I. COVER, INSCRIBED "WATER"
7. CONCRETE SETTING COLLAR IN PAVED AREAS (CLASS–B)
8. 6" PVC PIPE C900 (LENGTH AS NECESSARY)
9. BLUE #10 LOCATION WIRE (WIRE TO EXTEND 1 FOOT ABOVE TOP OF VALVE BOX)
10. STANDARD WATER MAIN THRUST BLOCK (SEE W–11)

NOTES:
1. ALL BOLTS AND NUTS USED SHALL BE STAINLESS STEEL.
2. LOCATION WIRE TO BE CONNECTED TO MAIN LINE WIRE, WHERE EXISTING.

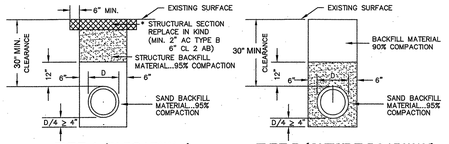
STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY

W–4

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: M.L.
CHECK BY: D.W.W.
APPROVED BY: N.R.C.

SCALE: NONE
DATE: 6/95
REVISED: 7/97



TYPE A (IN ROADWAY) TYPE B (OUTSIDE ROADWAY)

NOTES

1. SAND.... MATERIAL FREE FROM ORGANIC MATTER AND CLAY WITH A SIEVE GRADATION BY WEIGHT AS FOLLOWS:

SIEVE SIZE	% PASSING SIEVE
No. 4	100
No. 200	0–5

2. STRUCTURE BACKFILL MATERIAL.... MATERIAL WITH SAND EQUIVALENT NOT LESS THAN 20 AND SIEVE GRADATION BY WEIGHT AS FOLLOWS:

SIEVE SIZE	% PASSING SIEVE
3"	100
No. 4	35–100
No. 30	20–100

3. BACKFILL MATERIAL.... MATERIAL FROM EXCAVATION, FREE FROM STONES OR LUMPS EXCEEDING 3 INCHES GREATEST DIMENSION, ORGANIC MATTER, OR OTHER UNSATISFACTORY MATERIAL.

4.* ON TRENCHES THAT PARALLEL THE ROAD AND ARE WITHIN EXISTING BICYCLE LANES, THE WIDTH OF THE STRUCTURAL SECTION SHALL BE GREATER THAN OR EQUAL TO THE WIDTH OF THE EXISTING BICYCLE LANE, WHICHEVER IS WIDER.

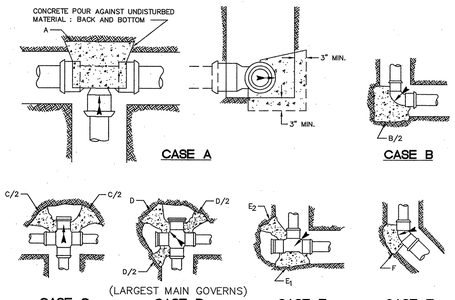
STANDARD TRENCH BACKFILL AND BEDDING DETAIL FOR WATER LINE INSTALLATIONS

W–10

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: M.L.
CHECK BY: D.W.W.
APPROVED BY: N.R.C.

SCALE: NONE
DATE: 6/95
REVISED: 7/97



(LARGEST MAIN GOVERNS)

NOTES:
1. CASE "A" IS TYPICAL FOR ALL.
2. ALL BLOCKS TO BE KEPT CLEAR OF LUGS.
3. UNSUPPORTED SURFACES TO BE FORMED.
4. ARROWS ON CASE "A", "C" & "E" INDICATE MAINS WHICH DETERMINE BEARING AREA.
5. BASED ON 150 P.S.I. PRESSURE, 1,000 P.S.F. SOIL BEARING.
6. CONCRETE SHALL BE CLASS B PER STANDARD SPECIFICATIONS.

REQUIRED BEARING AREAS–SQ.FT.	A	B	C	D	E_1	E_2	F
4"	2	3	3	3	2	3	2
6"	5	6	7	7	5	7	4
8"	8	12	11	11	8	11	6
10"	12	18	17	17	12	17	8
12"	17	24	24	24	17	24	12

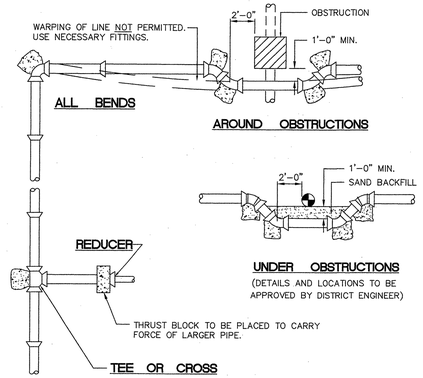
STANDARD WATER MAIN THRUST BLOCK

W–11

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: M.L.
CHECK BY: D.W.W.
APPROVED BY: N.R.C.

SCALE: NONE
DATE: 6/95
REVISED: 7/97



NOTE: IF FLANGED FITTINGS ARE SPECIFIED, USE STAINLESS STEEL BOLTS AND NUTS.

STANDARD PIPE INSTALLATION DETAILS

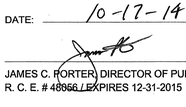
W–12

MUELLER® BR2S & BR2W SERIES BRONZE SERVICE SADDLES - DOUBLE STRAP

Mueller Co. 4.9 Rev. 9-09

MUELLER® Service Saddles for use on A-C, cast iron, ductile iron, and AWWA C900 PVC plastic pipe

- Outlet tapped with either AWWA taper (C.C.) or AWWA I.P. thread (F.I.P.T.)
- For use on A-C pipe, cast iron or ductile iron pipe and cast iron O.D. PVC pipe
- 200 psig (1379 kPa) maximum working pressure
- Available in double strap designs
- Brass body
- Flattened silicon bronze straps (standard)
- Optional 304L stainless steel straps
- Rolled strap threads
- O-ring sealed outlet
- 3/4" thru 2" tap sizes (5/8" some styles)
- Meets all applicable parts of ANSI/AWWA C800
- NSF 61 Certified



BR 2 S Series
BR 2 W Series

MUELLER® Service Saddles with Stainless Steel Double Straps

Pipe O.D. Range* inch	mm	Kind and Size of Pipe A-C	Cast or Ductile Iron, C900 PVC	Tap** Thread	Bronze Double Straps Base Catalog Number	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"
4.74-5.32	121.0-135.0		4"	CC or IP	BR2S0474	062†	075	100	-	-	-
4.74-5.10	121.0-129.4		4"	CC or IP	BR2S0474	-	-	-	125	150	200
5.10-5.60	129.4-142.2		4"	CC or IP	BR2S0510	-	-	-	125	150	200
6.84-7.45	174.0-189.0		6"	CC or IP	BR2S0684	062†	075	100	125	150	200
8.90-9.67	229.0-245.0		8"	CC or IP	BR2S0899	062†	075	100	125	150	200
11.04-12.12	281.0-307.0	**	10"	CC or IP	BR2S1104	062†	075	100	125	150	200
13.14-14.38	334.0-370.0		12"	CC or IP	BR2S1314	062†	075	100	125	150	200
15.23-16.88	386.6-428.7		14"	CC or IP	BR2S1522	-	075	100	-	150	200
17.32-19.19	439.9-487.4		16"	CC or IP	BR2S1732	-	075	100	-	150	200
18.03-19.90	457.2-505.3		18"	CC or IP	BR2W1800	-	075	100	125	150	200
20.00-24.30	508.0-614.8		20"	CC or IP	BR2W2000	-	075	100	125	150	200
24.00-25.80	609.6-655.3		24"	CC or IP	BR2W2400	-	075	100	125	150	200

*A-C pipes, classes 150-300 per ASTM C295 and AWWA C400 – actual O.D. of pipe being used must fall within the pipe O.D. range listed in the preceding chart. Centrifugally cast pipe, classes 50-250 per ANSI/AWWA C150/A21.2; ANSI/AWWA C151/A21.51, Cast iron O.D. PVC plastic pipe per AWWA C900.

**The outside diameter of A-C pipe varies from manufacturer to manufacturer, so make certain you select the proper clamp: 1) Determine the O.D. of the pipe at the point of saddle installation: 2) From the pipe O.D. range column of the above chart, choose a saddle that has a pipe O.D. range that includes the determined pipe diameter.

***CC=AWWA Taper; IP=AWWA I.P. thread (F.I.P.T).

(The 5/8" tap is available in CC thread only for a Stainless Steel strap saddle.

These machines may be used with the service saddles illustrated on this page

Machine	Service Saddle Tap Size 5/8"	3/4"	1"	1-1/4"	1-1/2"	2"
B-3™	X	X	X	X	X	X
B-3™	-	X	X	X	X	X
TMU-CUT™	-	X	X	-	-	-
MEGA-CUT™	X	X	X	-	-	X
PL-2™	-	X	X	-	-	-

TO ORDER SPECIFY QUANTITY, OUTLET TAPPING SIZE AND CATALOG NUMBER

⚠ WARNING: Use on A-C pipe, which contains a known carcinogen, requires appropriate protective equipment and procedures be employed.

MUELLER BR2S0474 WITH STAINLESS STEEL STRAP OR APPROVED EQUAL

BID SET

Bellecci & Associates, inc.
Civil Engineering • Land Surveying
7041 Koll Center Pkwy, Suite 132 Pleasanton, CA 94566
Phone (925) 681-4885
www.bellecci.com

REGISTERED PROFESSIONAL ENGINEER — DANIEL C. LEARY — No. 43334 — CIVIL — STATE OF CALIFORNIA

COUNTY OF SAN MATEO — PUBLIC WORKS

REVISION	DATE		
		DESIGNED BY: HN	MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
		CHECKED BY: DL	WATER IMPROVEMENT DETAILS
		DRAWN BY: HN	
		JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS / SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063

SCALE: NONE
DATE: 10-17-2014
FILE NO. : 1/4915

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C3.0
SHEET 16 OF 30

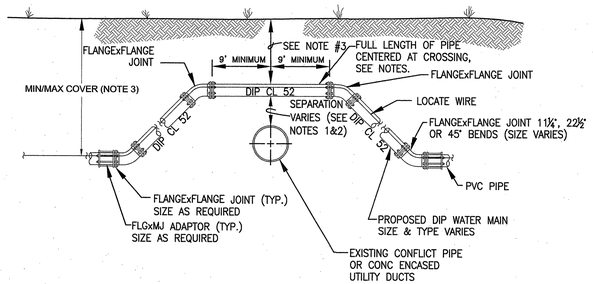
FILENAME: P:\PROJECTS\2014\14028\DWG\4TH SUBMITTAL - BIDSET\14028CD.DWG (C3.0 - WATER IMPROVEMENT DETAILS)

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015



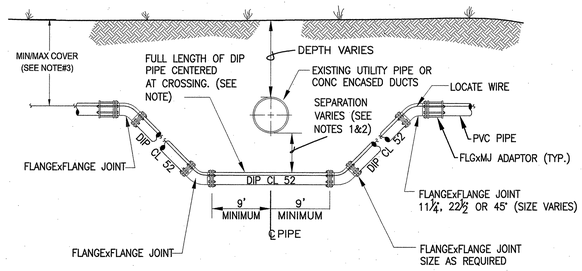
CASE "A" CROSSING

NOTES:

1. IF EXISTING CONFLICT PIPE IS A WATER MAIN, 6–INCHES OF SEPARATION IS REQUIRED. THE SOILS BETWEEN THE NEW MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST, ASTM D 1557
2. MAINATIN A MINIMUM OF 12" VERTICAL CLEARANCE FROM THE EXISTING UTILITY PIPE. FOR CONFLICT WITH EXISTING WATERLINE, MAINTAIN 12" VERTICAL CLEARANCE.
3. THE COVER FOR PIPING LESS THAN 12" SIZE SHALL BE 30" (MIN) IN PAVED AREAS AND A MAXIMUM COVER OF 84".

ADJUSTMENT OVER EXISTING UTILITY (IF NEEDED)

N.T.S



CASE "B" CROSSING

NOTES:

1. IF EXISTING UTILITY PIPE IS A WATER MAIN, 6–INCHES OF SEPARATION IS REQUIRED. THE SOILS BETWEEN THE NEW MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST, ASTM D 1557
2. MAINATIN MINIMUM 12" VERTICAL CLEARANCE FROM THE EXISTING UTILITY PIPE. FOR CONFLICT WITH EXISTING WATERLINE, MAINTAIN A MINIMUM OF 12" VERTICAL CLEARANCE.
3. THE COVER FOR PIPING LESS THAN 12" SIZE SHALL BE 30" (MIN) IN PAVED AREAS AND A MAXIMUM COVER OF 84".

ADJUSTMENT UNDER EXISTING UTILITY (IF NEEDED)

N.T.S

5.4 Mueller Co. Rev. 4-01

3/4" - 2" MUELLER® 300™ BALL CORPORATION VALVES

B-25008

MUELLER® 300™ Ball Corporation Valve
Inlet: AWWA taper (MUELLER "CC") thread
Outlet: MUELLER® 110® Conductive Compression Connection for CTS O.D® tubing

3/4"	3/4" x 1"	1"	1-1/2"	1-1/2" x 2"	2"

B-25028

MUELLER® 300™ Ball Corporation Valve
Inlet: AWWA LP. thread
Outlet: MUELLER® 110® Conductive Compression Connection for CTS O.D. tubing

3/4"	3/4" x 1"	1"	1-1/2"	1-1/2" x 2"	2"

B-25009

MUELLER 300 Ball Corporation Valve
Inlet: AWWA taper (MUELLER "CC") thread
Outlet: MUELLER ® 110 ® Compression Connection for IPS PE® pipe

3/4"	3/4" x 1"	1"

B-25029

MUELLER 300 Ball Corporation Valve
Inlet: AWWA LP. thread
Outlet: MUELLER 110® Compression Connection for IPS PE® pipe

3/4"	3/4" x 1"	1"

E-25009

MUELLER 300 Ball Corporation Valve
Inlet: AWWA taper (MUELLER "CC") thread
Outlet: MUELLER Pack Joint for IPS PE** pipe
**Note: 3/4" size only may also be used on PVC

3/4"**	1"	1-1/2"	2"

E-25029

MUELLER 300 Ball Corporation Valve
Inlet: AWWA LP thread
Outlet: MUELLER Pack Joint for IPS PE** pipe
**Note: 3/4" size only may also be used on PVC

3/4"**	1"	1-1/2"	2"

V-25056

MUELLER 300 Ball Corporation Valve
Inlet: AWWA taper (MUELLER "CC") thread
Outlet: MUELLER Pack Joint for IPS PVC pipe

1"	1-1/2"	2"

V-25058

MUELLER 300 Ball Corporation Valve
Inlet: AWWA LP thread
Outlet: MUELLER Pack Joint for IPS PVC pipe

1"	1-1/2"	2"

P-25008

MUELLER 300 Ball Corporation Valve
Inlet: AWWA taper (MUELLER "CC") thread
Outlet: MUELLER Pack Joint Connection for CTS O.D. * tubing

3/4"	3/4"x1"	1"	1-1/2"	1-1/2"x2"	2"

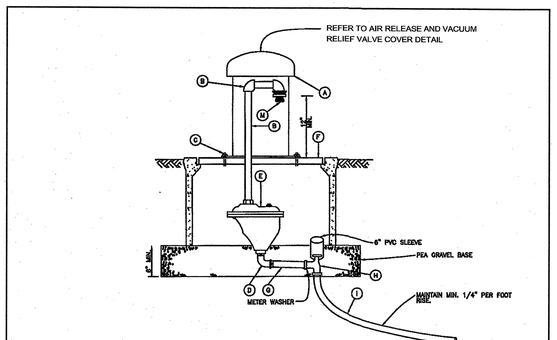
P-25028

MUELLER 300 Ball Corporation Valve
Inlet: AWWA LP. thread
Outlet: MUELLER Pack Joint Connection for CTS O.D.* tubing

3/4"	3/4"x1"	1"	1-1/2"	1-1/2"x2"	2"

*See charts on pages 5.13-5.16 for tubing and pipe that may be used with these connections.
NOTE: Sizes shown above represent nominal size of inlet and outlet connections. When two sizes are given, the first is size of inlet and the second is size of outlet.
MUELLER Corporation Valves are manufactured and tested in accordance with ANSI/AWWA C800.

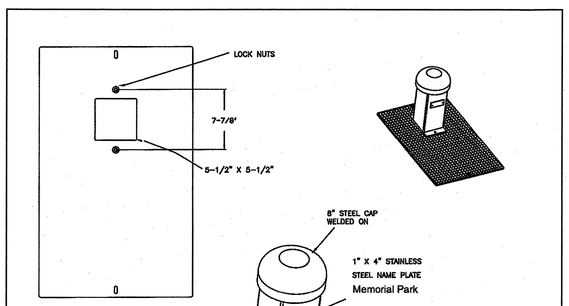
MUELLER B-25008 OR APPROVED EQUAL



ITEM	DESCRIPTION
A	PLACER WATERWORKS PW/AV 18–S OR EQUAL
B	1" DIAMETER PVC PIPE & UNION
C	ANCHOR BOLT
D	1" BRONZE STREET ELL
E	1" AIR RELEASE AND VACUUM RELIEF VALVE
F	2' METER BOX – B–36 CHRISTY OR EQUAL
G	1" BRONZE NIPPLE
H	ANGLE METER STOP FLARE OR COMPRESSION MUELLER 300 SERIES, MCDONALD 4602BT, OR EQUAL
I	1" TYPE K COPPER TUBING
J	1" BRONZE COMPRESSION JOINT
K	1" CORP. STOP (MUELLER 300 SERIES, MCDONALD 4701BQ, OR EQUAL)
L	ALL BRONZE SADDLE WITH DOUBLE STRAP
M	SCREW ON BUG SCREEN

AIR RELEASE VALVE

N.T.S



* NO WELDED LETTERING REQUIRED FOR POTABLE WATER.

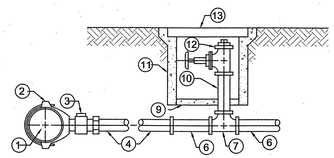
CAT# PWAE118M	18–3/8" X 27" X 1/4"
CAT# PWAE218M	20–1/4" X 33–1/4" X 3/8"

POTABLE WATER DETAIL

NOTES:
1. VALVE COVER TO BE PLACER WATERWORKS NO. PWAE118M/PWAE218M, OR APPROVED EQUAL.
2. CLEAN INTERIOR AND EXTERIOR OF STEEL WITH DEVPREP 88 METAL CLEANER, OR APPROVED EQUAL WATER–BASED CLEANER.
3. APPLY PRIMER 2–3 MILS THICK WITH TWO PART EPOXY PRIMER 224HS CATALYZED POLYAMID EPOXY PRIMER (HUNTER GREEN), OR APPROVED EQUAL PRIMER.
4. APPLY ALIPHATIC URETHANE FINISH TOP COAT OF DEVTANE 379, OR APPROVED EQUAL FINISH.
5. VALVE COVER TO BE PAINTED HUNTER GREEN.

AIR RELEASE VALVE COVER

N.T.S



1. NEW 4" PVC WATER LINE
2. DOUBLE STRAP BRONZE SADDLE (WHERE REQUIRED) WITH STAINLESS STEEL NUTS & BOLTS.
3. CORPORATION STOP WITH AWWA (CC) INLET THREAD & COMPRESSION TYPE OUTLET CONNECTION.
4. 2" TYPE K COPPER TUBING WITH COMPRESSION TYPE FITTINGS; OR BRASS PIPE WITH SCREWED FITTINGS (NOTE: DIAMETER EQUAL TO SERVICE CONNECTION SIZE).
5. NOT USED
6. BRASS NIPPLE, LENGTH AS REQUIRED (NOTE: DIAMETER EQUAL TO SERVICE CONNECTION SIZE).
7. 2" BRASS TEE
8. NOT USED
9. CONCRETE, MIN. 1½" THICK, PLACED AFTER SATISFACTORY COMPLETION OF LEAKAGE TESTING AND INSPECTION BY COUNTY'S ENGINEER
10. 2" DIAMETER BRASS NIPPLE, LENGTH AS REQUIRED.
11. METER BOX, SIZE AS REQUIRED. SET 2" ABOVE GRADE IN NON-TRAFFIC AREA
12. 2" GATE VALVE WITH PLUG
13. METER BOX COVER. METER BOX COVER WILL REQUIREMENT WILL BE DETERMINE BY COUNTY'S ENGINEER

2" GATE VALVE

N.T.S

FILENAME: P:\PROJECTS\2014\1402BID\DWG\4TH SUBMITTAL- BIDSET\1402BCD.DWG (C3.1 - WATER IMPROVEMENT DETAILS)

Bellecci & Associates, inc.
Civil Engineering • Land Surveying
7041 Koll Center Pkwy, Suite 132 Pleasanton, CA 94566
Phone (925) 681-4885
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REGISTERED PROFESSIONAL ENGINEER
DANIEL C. LEARY
No. 46334
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: HN
CHECKED BY: DL
DRAWN BY: HN

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
WATER IMPROVEMENT DETAILS

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

BID SET

SCALE: NONE
DATE: 10-17-2014
FILE NO. : 1/4915

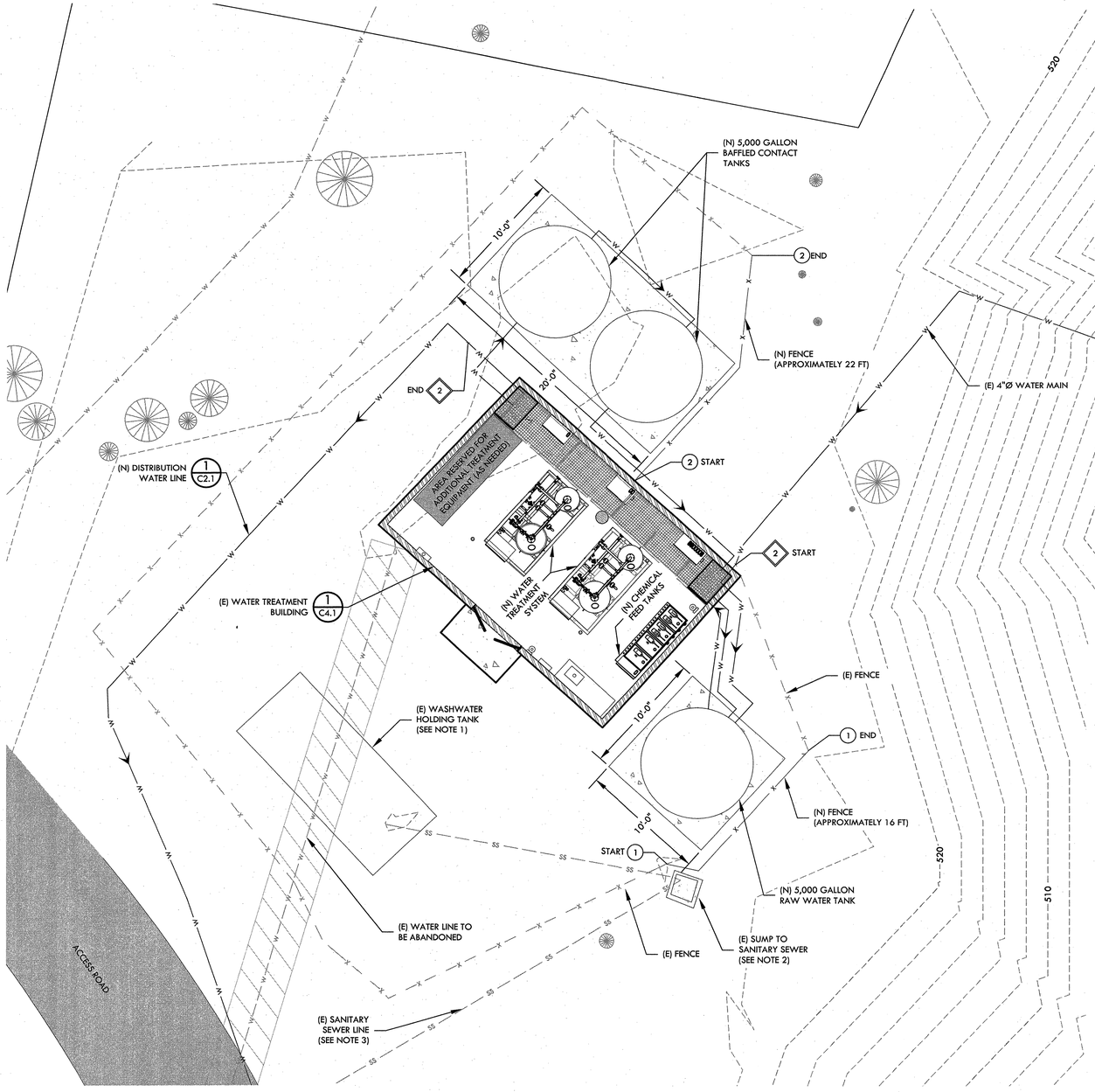
C3.1
SHEET 17 OF 30

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015



WATER TREATMENT SYSTEM SITE IMPROVEMENT PLAN

SCALE: 1" = 5'

1

5 2.5 0 5 10 15
SCALE IN FEET

LEGEND:

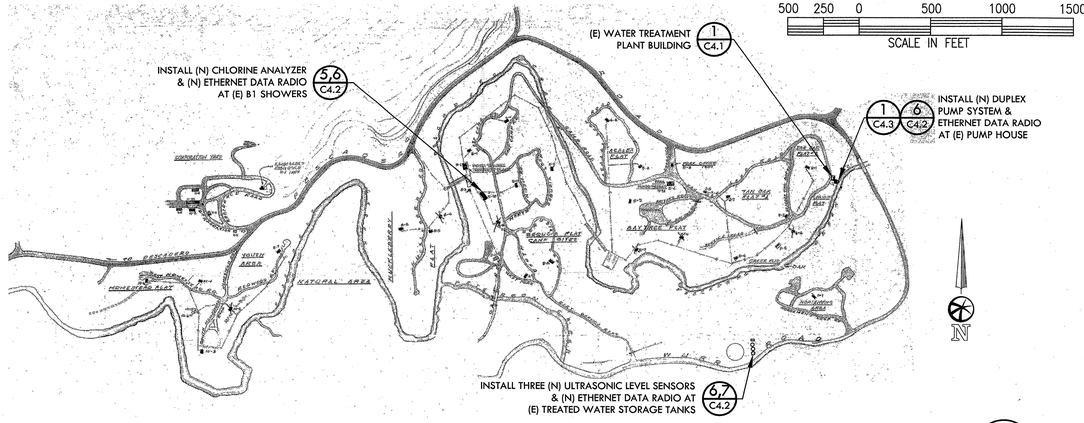
- (E) CONTOUR
- W (E) WATER LINE
- ABANDONED WATER LINE
- SS (E) SEWER LINE
- X (E) FENCE
- W WATER LINE
- X FENCE
- BUILDING
- CONCRETE
- PUMP
- FLOW ARROW
- TREE
- (E) EXISTING
- (N) NEW

PIPE SCHEDULE

1. INSTALL (N) PUMP HOUSE INTERIOR PIPES (SEE DETAIL 1 ON SHEET C4.3)
2. INSTALL (N) WATER TREATMENT SYSTEM PIPES (SEE DETAIL 1 ON SHEET C4.1)

FENCE SCHEDULE

1. INSTALL 6' H GREEN VINYL CHAIN LINK AROUND (N) RAW WATER TANK
2. INSTALL 6' H GREEN VINYL CHAIN LINK AROUND (N) CHLORINE CONTACT TANKS



OVERALL WATER TREATMENT SYSTEM SITE IMPROVEMENT PLAN

SCALE: 1" = 500'

2

NOTES:

1. THE EXACT LOCATION OF THE (E) WASHWATER HOLDING TANK IS APPROXIMATED BASED ON THE LOCATION OF THE RISERS AND THE SIZE OF THE TANK IS BASED ON THE COUNTY OF SAN MATEO, CALIFORNIA, WATER FILTRATION SYSTEMS-LA HONDA REGION, MEMORIAL PARK FACILITIES PLANS BY HARRIS CONSULTANTS, INC., DATED JULY 1992.
2. BACKWASH WATER AND OTHER TREATMENT PLANT WASTEWATER WILL BE PUMPED FROM THE (E) WASHWATER HOLDING TANK TO THE SUMP AND TO THE (E) ONSITE WASTEWATER TREATMENT PLANT.
3. THE EXACT LOCATION OF THE SEWER LINE IS APPROXIMATE AND SHALL BE FIELD VERIFIED.
4. THE TREATMENT SYSTEM IS A PACKAGE SYSTEM INCLUDING FILTER STATIONS, CHEMICAL FEED STATIONS, PUMPS SYSTEMS IN THE WATER TREATMENT BUILDING, RAW WATER AND BAFFLED CONTACT TANKS, CONTROLLERS, ETHERNET RADIOS, WATER QUALITY MONITORING SYSTEMS, AND LEVEL SENSORS. THE CONTRACTOR IS TO INSTALL THE COMPONENTS OF THE TREATMENT SYSTEM, ALL ASSOCIATED INTERIOR AND EXTERIOR PIPING, ELECTRICAL WIRING, CONCRETE PADS FOR TANKS, RAW WATER DUPLEX SYSTEM AND WALK ON GRATING.
5. SEE SHEETS E1 TO E5 FOR ELECTRICAL IMPROVEMENTS FOR THE WATER TREATMENT SYSTEM.

FALL CREEK ENGINEERING, INC.
Consulting Engineers
Civil • Environmental • Water Resources
P.O. BOX 7894, SANTA CRUZ, CA 95061
TEL. (831) 426-9054 FAX (831) 426-4932

REGISTERED PROFESSIONAL ENGINEER
PETER H. HALE
NO. 055605
EXP. 12/31/14
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

BID SET

REVISION	DATE	DESIGNED BY: CJC	DRAWN BY: CJC	CHECKED BY: PHH

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
WATER TREATMENT PLANT SITE IMPROVEMENT PLAN

SCALE: AS SHOWN
DATE: 10-17-2014
FILE NO.: 1/4915

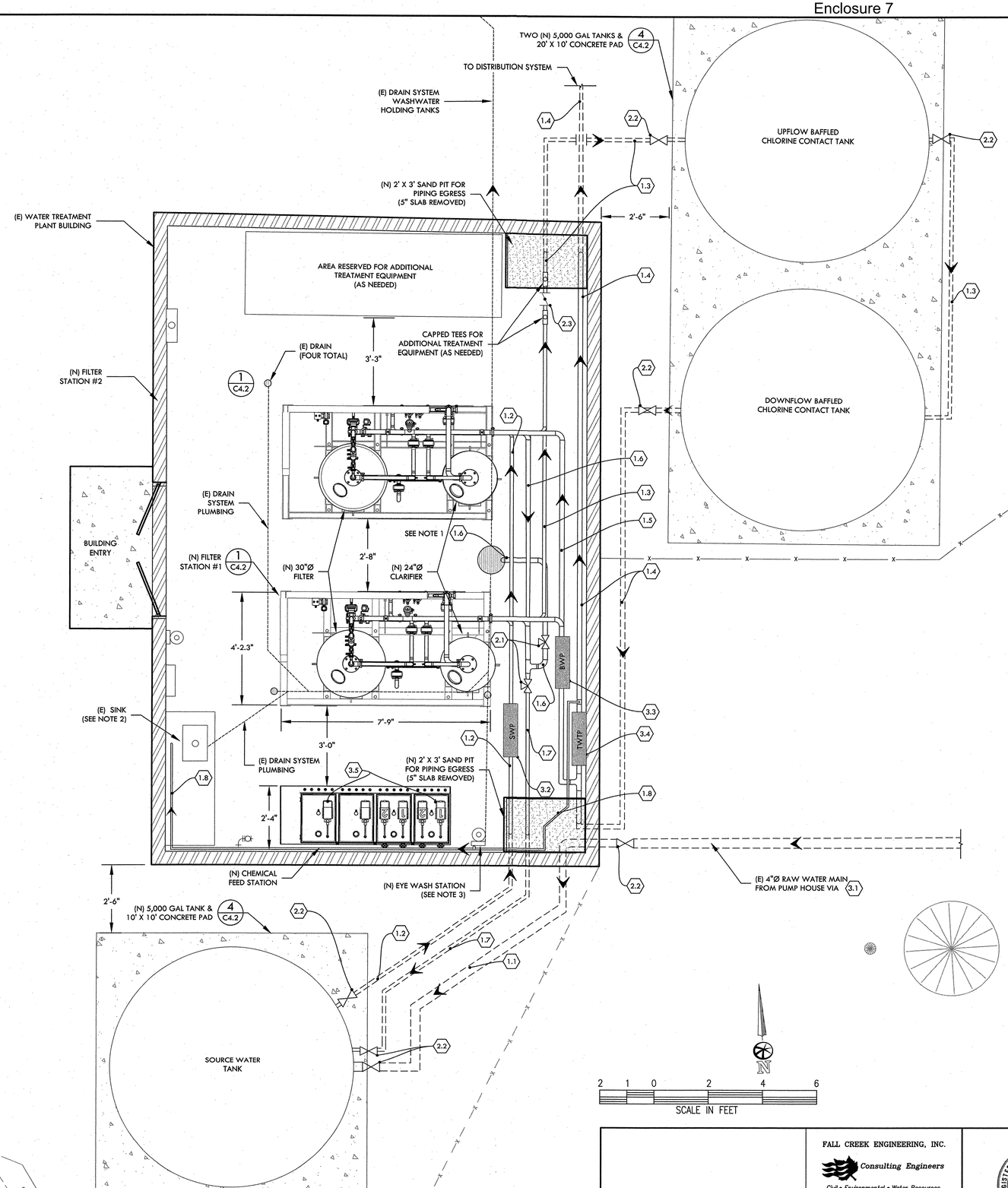
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C4.0
SHEET 18 OF 30

FILENAME: S:\PROJECTS\21420 SM CNTY MEMORIAL PARK WTI PROJECT\CAD\FCE_MEMORIAL_WTP_SHEETS.DWG (C4.0_ WATER IMPROVEMENTS)



TREATMENT BUILDING LAYOUT - PLUMBING

SCALE:1" = 2'

1

	PIPE SCHEDULE (SEE NOTE 5 FOR PIPE MATERIAL)	DIA
1.1	RAW WATER	4"Ø
1.2	SOURCE WATER	1.5"Ø
1.3	TREATED WATER	1.5"Ø
1.4	CHLORINATED DISTRIBUTION WATER	2"Ø
1.5	BACKWASH WATER IN	2"Ø
1.6	BACKWASH WATER OUT	2"Ø
1.7	RINSE WATER	1.5"Ø
1.8	TREATED WATER RETURN LINE	1"Ø

2	VALVE SCHEDULE
2.1	ACTUATED VALVE
2.2	BALL VALVE
2.3	BUTTERFLY VALVE

3	PUMP SCHEDULE	DETAIL
3.1	RAW WATER PUMP (RWP)	2/C4.3
3.2	SOURCE WATER PUMP (SWP)	3/C4.3
3.3	BACKWASH WATER PUMP (BWP)	4/C4.3
3.4	TREATED WATER TRANSFER PUMP (TWTP)	5/C4.3
3.5	CHEMICAL FEED PUMP	6/C4.3

LEGEND:

- (E) SUBGRADE WATERLINE
- SUBGRADE WATERLINE
- WATER LINE
- FENCE
- BUILDING
- CONCRETE
- WALK ON GRATING
- FLOOR DRAIN
- ACTUATED VALVE
- BALL VALVE
- BUTTERFLY VALVE
- PUMP — INLINE PUMP
- (E) EXISTING
- (N) NEW

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

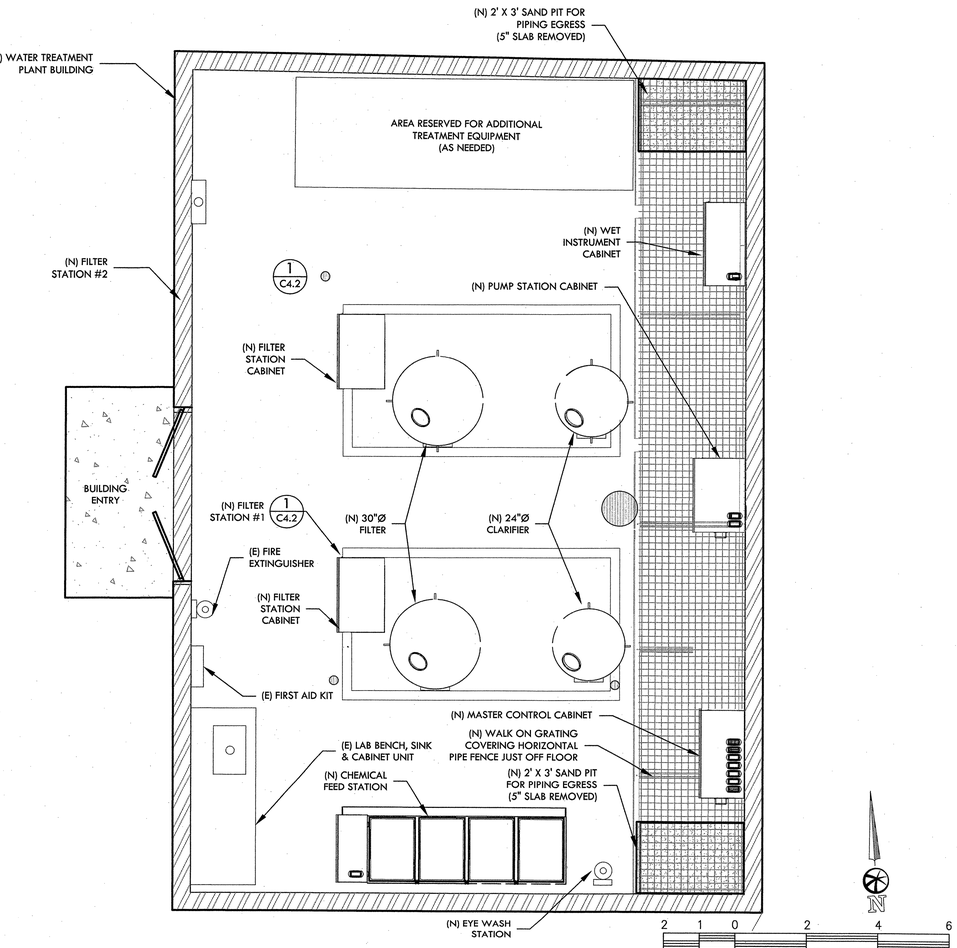
APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

NOTES:

1. THE BACKWASH WATER OUT SHALL BE PLUMBED INTO (E) DRAIN AND IN A SECTION FROM FILTER STATION #1, THE TREATED WATER LINE RUNS IN PARALLEL TO THE BACKWASH WATER OUT LINE. THE EXACT LOCATION OF THE (E) SUBSURFACE DRAIN LINES ARE UNKNOWN AND THE CONTRACTOR SHALL MAINTAIN THESE LINES FOR FUTURE USE.
2. CONTRACTOR TO RE-PLUMB EXISTING POTABLE WATER CONNECTION TO THE (E) SINK.
3. CONTRACTOR TO CONNECT (N) EYE WASH STATION TO THE (E) DRAIN SYSTEM.
4. FILTER STATIONS TO COME PRE-ASSEMBLED BY THE MANUFACTURER, THEREFORE NO VALVES OR PIPES ARE CALLED OUT FOR THE FILTER STATIONS.
5. ALL TREATMENT BUILDING INTERIOR PLUMBING SHALL BE STAINLESS STEEL, EXCEPT THE CHLORINATED INTERNAL PLUMBING (1.8). ALL EXTERNAL PLUMBING AND THE CHLORINATED INTERNAL PLUMBING SHALL BE SCHEDULE 80 PVC. THE INTERIOR PLUMBING AT THE PUMP HOUSE SHALL BE GALVANIZED STEEL (SEE DETAIL 1 ON SHEET C4.3).
6. ALL PIPES AND ASSOCIATED MATERIALS SHALL CONFORM TO AWWA AND CALIFORNIA BUILDING CODE STANDARDS.



TREATMENT BUILDING LAYOUT - COMPONENTS

SCALE: 1" = 2'

2

BID SET

FALL CREEK ENGINEERING, INC.
Consulting Engineers
Civil • Environmental • Water Resources
P.O. BOX 7894, SANTA CRUZ, CA 95061
TEL. (831) 426-9054 FAX (831) 426-4932

REGISTERED PROFESSIONAL ENGINEER PAUL H. HOUSE NO. 055605 EXP. 12/31/14 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE	DESIGNED BY: CJC	CHECKED BY: PHH	DRAWN BY: CJC

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
WATER TREATMENT PLANT IMPROVEMENT

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

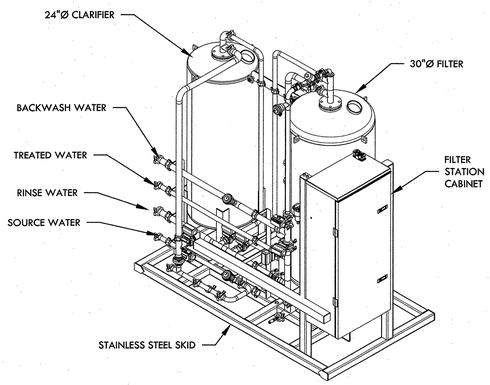
555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

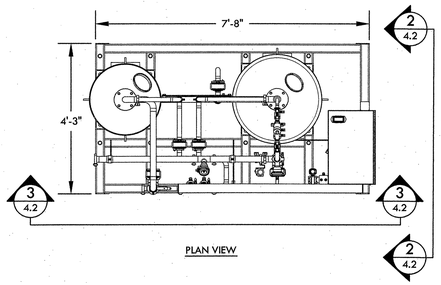
SCALE: 1" = 2'
DATE: 10-17-2014
FILE NO.: 1/4915

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C4.1
SHEET 19 OF 30

FILENAME: S:\PROJECTS\21420 SM CNTY MEMORIAL PARK WTI PROJECT\CAD\FCE_MEMORIAL_WTP_SHEETS.DWG (C4.1_ WTP)

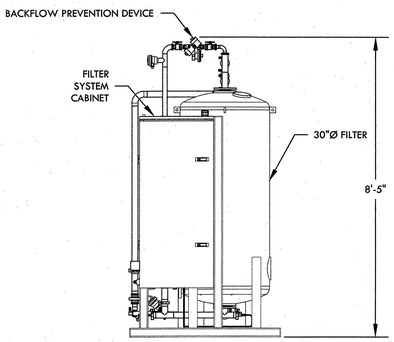




TYPICAL FILTER STATION

SCALE: NTS (TWO (2) BWS TWIN 24/30 MB/WF FILTER STATIONS, OR APPROVED EQUAL)

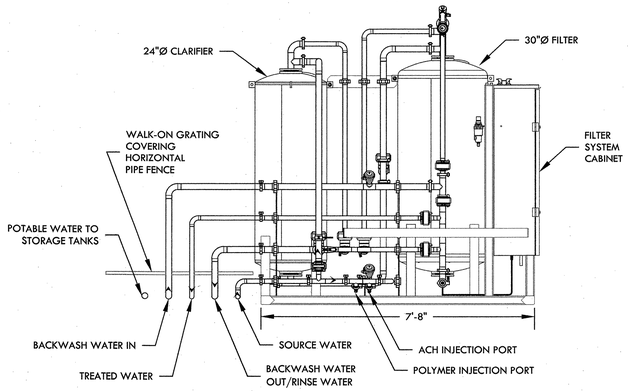
1



TREATMENT STATION - SECTION VIEW

SCALE: NTS

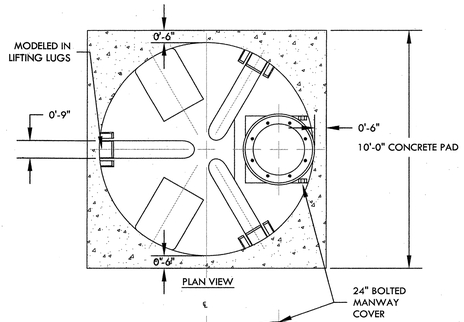
2

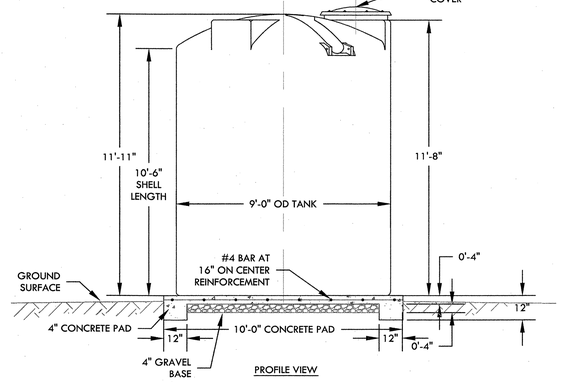


FILTER STATION - SECTION VIEW

SCALE: NTS

3





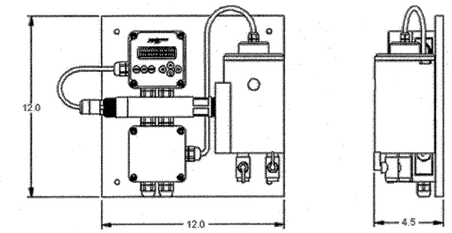
NOTES:

1. THE CONTRACTOR SHALL JOIN THE TWO CONCRETE PADS FOR THE CHLORINE CONTACT TANKS TO MAKE ONE 10' BY 20' CONCRETE PAD.
2. ONE CHLORINE CONTACT TANK SHALL BE CONFIGURED FOR UPFLOW BAFFLING AND ONE CHLORINE CONTACT TANK CONFIGURED FOR DOWNFLOW BAFFLING TO INCREASE THE OVERALL CONTACT TIME.
3. THE SOURCE WATER TANK SHALL BE SWT-5K-SMCMP.
4. THE UPFLOW CHLORINE CONTACT TANK SHALL BE UCT-5K-SMCMP.
5. THE DOWNFLOW CHLORINE CONTACT TANK SHALL BE DCT-5K-SMCMP.

TYPICAL 5,000 GALLON POLYETHYLENE TANK & CONCRETE PAD

SCALE: 1" = 5' (TANK DIMENSIONS MAY VARY)

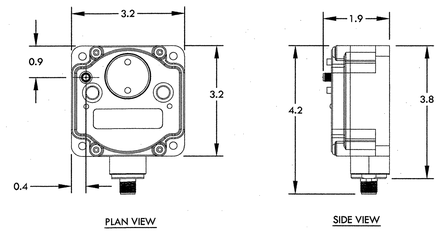
4



CHLORINE ANALYZER

SCALE: DIMENSIONED IN INCHES (THERMO SCIENTIFIC AQUASENSORS AQUACHLOR FREE CHLORINE SENSOR, OR APPROVED EQUAL)

5



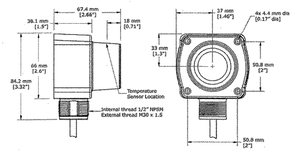
NOTES:

1. THE CONTRACTOR SHALL DETERMINE THE ANTENNA TOWER OR MOUNTING SOLUTION (INCLUDING ANTENNA GROUND ROD SIZING LOCATION AND INSTALL) FOR EACH ETHERNET RADIO SITE (PUMP HOUSE, WATER TREATMENT BUILDING, TREATED WATER STORAGE TANK FARM, AND B1 SHOWERS.
2. A RADIO SIGNAL SURVEY SHALL BE COMPLETED BY THE CONTRACTOR TO ENSURE THAT THE ETHERNET RADIO SYSTEM CAN PROVIDE ADEQUATE SIGNAL TO COMMUNICATE BETWEEN CONTROLLERS.

ETHERNET DATA RADIO

SCALE: DIMENSIONED IN INCHES (BANNER ETHERNET RADIO MODEL DX80ER9M-H, OR APPROVED EQUAL)

6



NOTES:

1. THE CONTRACTOR TO INSTALL THREE ULTRASONIC LEVEL SENSORS (ONE IN EACH OF THE 10,000 GALLON TREATED WATER STORAGE TANKS AT TANK FARM) AND ONE ULTRASONIC LEVEL SENSOR IN THE WASHWATER TANK.

ULTRASONIC LEVEL SENSOR

SCALE: AS DIMENSIONED (BANNER U-GAGE QT50ULB SERIES SENSORS, OR APPROVED EQUAL)

7

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

BID SET

FALL CREEK ENGINEERING, INC.
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REGISTERED PROFESSIONAL ENGINEER PETER H. HAUSE NO. 055605 EXP. 12/31/14 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: CJC
CHECKED BY: PHH
DRAWN BY: CJC

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT

WATER TREATMENT SYSTEM DETAILS

SCALE: AS SHOWN
DATE: 10-17-2014
FILE NO.: 1/4915

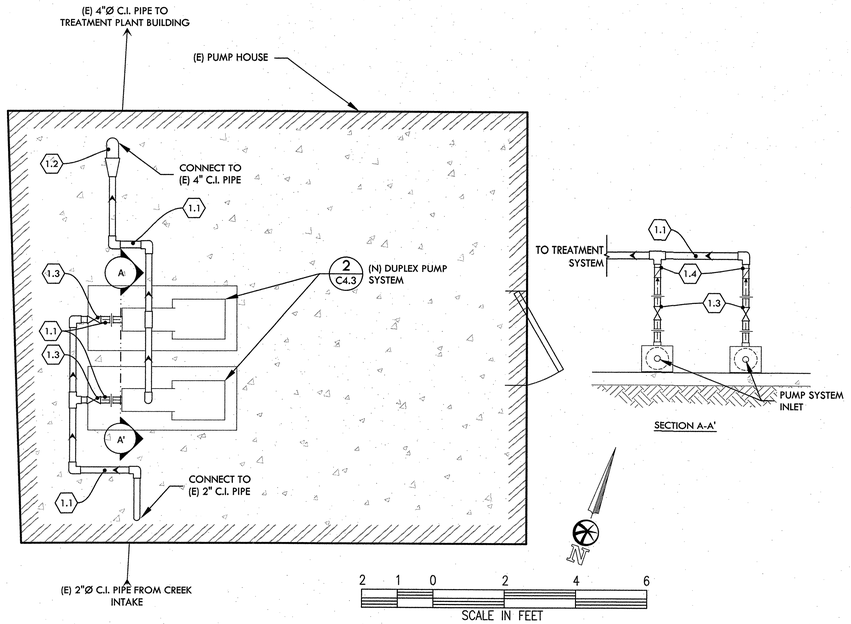
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C4.2
SHEET 20 OF 30

FILENAME: S:\PROJECTS\21420 SM CNTY MEMORIAL PARK WTI PROJECT\CAD\FCE_MEMORIAL_DETAILS.DWG (C4.2 WTP DETAILS)



PLUMBING SCHEDULE		DIA.
1.1	GALVANIZED STEEL PIPE	2"Ø
1.2	GALVANIZED STEEL PIPE	4"Ø
1.3	BALL VALVE	
1.4	CHECK VALVE	

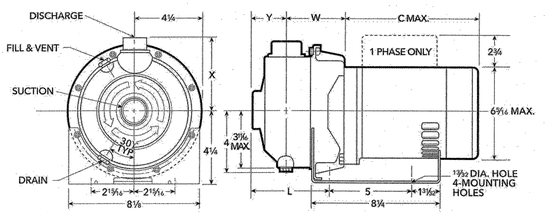
LEGEND:

	WATER LINE
	BUILDING
	CONCRETE
	BALL VALVE
	CHECK VALVE
	UNION
(E)	EXISTING
(N)	NEW

PUMP HOUSE LAYOUT - PLUMBING

SCALE: 1" = 2'

1



Pump	Suction	Discharge	HP	W	X	Y	L
15T	1¼	1	½ - 2	3⅜	4⅛	2	4⅞

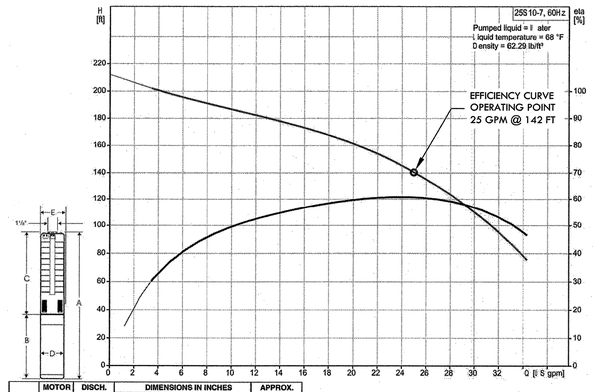
NOTES:

1. SAN MATEO COUNTY PARKS HAS TWO PUMPS ONSITE, THE EXISTING PUMP AND A NEW PUMP (IN THE BOX). THE CONTRACTOR SHALL UPGRADE THE PUMPS TO THREE PHASE AND PLUMB THEM TOGETHER FOR A DUPLEX PUMP SYSTEM. THE CONTRACTOR SHALL ALSO PROVIDE THIRD PUMP (THREE PHASE) FOR BACKUP.
2. THE EXISTING PUMPS ARE A 1.5 HP, 3450 RPM, 115/208-230V, SINGLE PHASE AND THE MOTOR SHALL BE UPGRADED TO A GOULDS THREE PHASE MOTOR #E07C32E1EB4G OR APPROVED EQUAL WITH A VARIABLE FREQUENCY DRIVE TO CONTROL THE PUMPS.

RAW WATER PUMPS (MODIFIED AS DUPLEX SYSTEM)

SCALE: NTS (GOULDS NPE SERIES 316L CENTRIFUGAL PUMP, MODIFIED WITH THREE PHASE MOTOR))

2

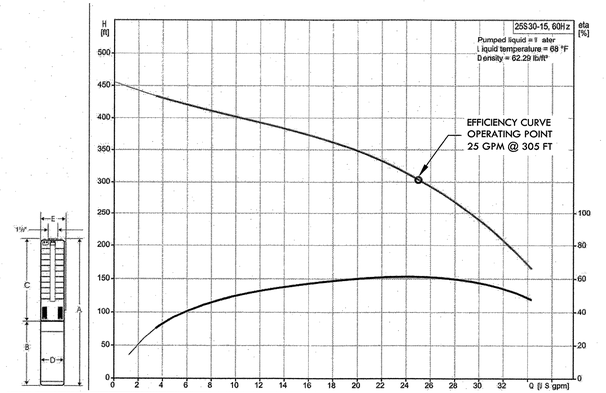


HP	MOTOR SIZE	DISCH. SIZE	DIMENSIONS IN INCHES A	B	C	D	E	APPROX. SHIP WT.
1	4"	1 1/2" NPT	23.7	11.8	11.9	3.8	3.9	29

SOURCE WATER PUMP (TREATMENT SYSTEM)

SCALE: NTS (BWS-BM-25S10-7 SUBMERSIBLE PUMP, 1 HP, 240 V, 1-PHASE, OR APPROVED EQUAL)

3

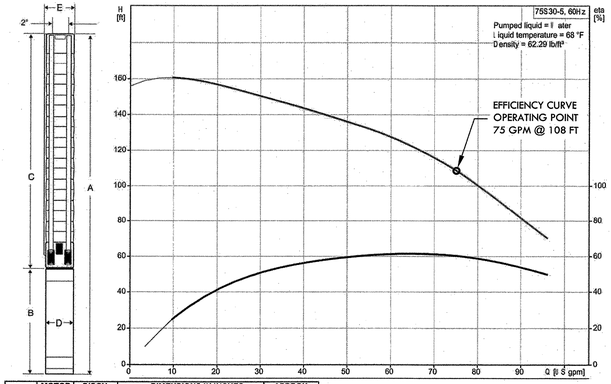


HP	MOTOR SIZE	DISCH. SIZE	DIMENSIONS IN INCHES A	B	C	D	E	APPROX. SHIP WT.
3	4"	1 1/2" NPT	39.1	20.6	18.5	3.8	3.9	59

TREATED WATER TRANSFER PUMP (TREATMENT SYSTEM)

SCALE: NTS (BWS-BM-25S30-15 SUBMERSIBLE PUMP, 3 HP, 240 V, 1-PHASE, OR APPROVED EQUAL)

5

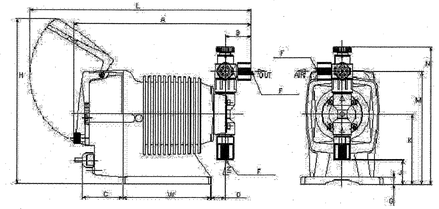


HP	MOTOR SIZE	DISCH. SIZE	DIMENSIONS IN INCHES A	B	C	D	E	APPROX. SHIP WT.
3	4"	2" NPT	40.7	20.6	20.1	3.8	3.9	64

BACKWASH WATER PUMP (TREATMENT SYSTEM)

SCALE: NTS (BWS-BM-75S30-5 SUBMERSIBLE PUMP, 3 HP, 240 V, 1-PHASE, OR APPROVED EQUAL)

4



Mounting Dimensions:

EW Model	R	S	T	U	V	X	Y	Z
11, 16, 21	4.57"	3.94"	0.24"	3.15"	4.17"	1.57"	0.59"	0.79"
31, 36								

EW Model	A	B	C	D	F	G	H	J	K	L	M	N	W
11, 16, 21	9.92"	1.46"	2.24"	0.77"	ø1¼ x ø⅝	0.39"	9.17"	1.42"	3.94"	12.99"	6.30"	7.64"	4.92"

NOTES:

1. THE ELECTRONIC METERING PUMP SHALL HAVE EXTERNAL PULSE CONTROL OR MANUAL SPEED CONTROL (ADJUSTABLE TO 360 STROKES PER MINUTE AND MANUALLY ADJUSTABLE STROKE LENGTH. (TURNDOWN RATIO 1800:1.)
2. THE PUMP SHALL HAVE A MAXIMUM OUTPUT CAPACITY OF 0.6 GAL PER HOUR AND A MAXIMUM PRESSURE OF 150 PSI.
3. THE PUMP VOLTAGE SHALL BE 115 VAC, 50/60 HERTZ.

TYPICAL CHEMICAL FEED PUMP

SCALE: NTS (WALCHEM EWNB11VCUR, OR APPROVED EQUAL)

6

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

FILENAME: S:\PROJECTS\21420 SM CNTY MEMORIAL PARK WTI PROJECT\CAD\FOE_MEMORIAL_DETAILS.DWG (C4.3 WTP DETAILS)

FALL CREEK ENGINEERING, INC.
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REGISTERED PROFESSIONAL ENGINEER JEFFREY W. HOUK NO. 055605 EXP. 12/31/14 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

BID SET

REVISION	DATE

DESIGNED BY: CJC
CHECKED BY: PHH
DRAWN BY: CJC

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT

WATER TREATMENT SYSTEM DETAILS

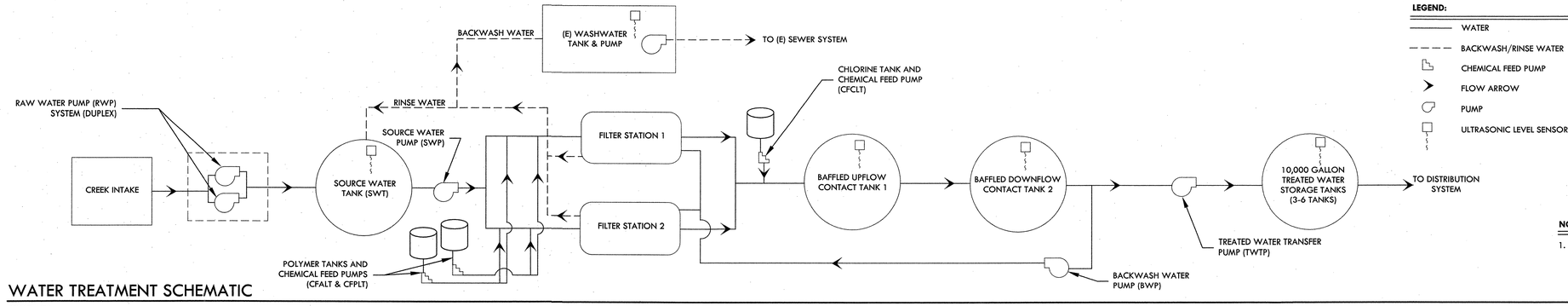
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS SHOWN
DATE: 10-17-2014
FILE NO.: 1/4915

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

C4.3
SHEET 21 OF 30



REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

NOTE:

1. SEE SHEET C5.1 FOR ADDITIONAL INFORMATION.

WATER TREATMENT SCHEMATIC

SCALE: NTS

1

CONTROL SYSTEM NARRATIVE

1. BASIC DESCRIPTION OF THE SYSTEM:

1.1. THE WATER TREATMENT SYSTEM (WTS) OPERATES AT 30 GPM. RAW WATER IS DRAWN FROM THE INTAKE IN PESCADERO CREEK AND PUMPED VIA THE RAW WATER PUMP (RWP) TO THE SURFACE WATER TREATMENT PLANT. THE SURFACE WATER TREATMENT PLANT CONSISTS OF A SOURCE WATER TANK (SWT), A DUAL-PHASED MEDIA FILTRATION SYSTEM WITH COAGULATION (OR FILTER STATION, FS), TWO BAFFLED CONTACT TANKS (CT) AND A WASHWATER TANK THAT PUMPS THE BACKWASH RINSE WATER TO THE SANITARY SEWER. TREATED WATER FROM THE TREATMENT SYSTEM IS PUMPED FROM THE CONTACT TANK TO THE TREATED WATER STORAGE TANKS (TWST), WHERE WATER IS GRAVITY FED INTO THE DISTRIBUTION SYSTEM. THE TREATMENT SYSTEM INCLUDES REMOTE CHLORINE SAMPLING LOCATIONS OF THE DISTRIBUTION SYSTEM AT THE WATER TREATMENT PLANT AND THE B2 SHOWERS, CONTROL SYSTEMS, CHEMICAL FEED PUMPS, AND WATER QUALITY MONITORING EQUIPMENT.

2. MAIN CONTROLLER (MASTER UTILITY/CONTROL STATION - MUCS)

2.1. THE SYSTEM INCLUDES A MAIN CONTROLLER THAT SHALL MONITOR AND CONTROL THE TREATMENT SYSTEM. THE MAIN CONTROLLER SHALL MONITOR THE POSITION OF EACH LEVEL SENSOR IN THE SYSTEM, THE OUTPUT OF EACH FLOW METER IN THE SYSTEM, THE PRESSURE IN THE SYSTEM AS DETERMINED BY EACH ELECTRONIC PRESSURE TRANSDUCER, THE CHLORINE RESIDUAL AND TURBIDITY LEVEL AS DETECTED BY EACH ANALYZER, AND THE PRESSURE IN THE SYSTEM. THE MAIN CONTROLLER WILL ALSO TURN EACH CHLORINE AND COAGULANT DOSING PUMPS ON OR OFF, EACH PUMP ON, OFF, OR THROTTLE AND CONTROL THE ACTUATION OF EACH ACTUATED VALVE IN THE SYSTEM. THE MAIN CONTROLLER WILL ALSO COMMUNICATE WITH THE CONTROLLERS AT THE PUMP HOUSE, THE TREATED WATER STORAGE TANKS, AND THE B1 RESTROOMS.

2.2. THE CREEK INTAKE PUMPS WILL BE CONTROLLED BY THE MAIN CONTROLLER.

2.3. THE REMOTER SAMPLING UNIT WILL TRANSMIT DATA LOGGED TO THE MAIN CONTROLLER VIA ETHERNET RADIO.

2.4. THE MASTER UTILITY CONTROL SYSTEM SHALL CONTINUOUSLY AND AUTOMATICALLY MONITOR AND MANAGE ALL ACTIVITIES OF THE WTS. THE BASIC FEATURES SHALL BE AS FOLLOWS:

a. MONITOR AND RECORD INFLUENT AND EFFLUENT WATER TURBIDITY
b. MONITOR AND RECORD EFFLUENT CHLORINE RESIDUAL
c. MONITOR AND RECORD EFFLUENT AND BACKWASH WATER FLOWS
d. MONITOR CHEMICAL TANK LEVELS
e. MONITOR TREATED WATER TANK LEVELS
f. INITIATION OF BACKWASH SEQUENCE
g. INITIATE ALARMS AND EMERGENCY SHUTDOWNS
h. OPERATE CONTROL VALVES IN AUTOMATIC AND MANUAL MODES
i. OPERATE ALL PUMPS IN AUTOMATIC AND MANUAL MODES
j. ADJUST CHEMICAL FEED PUMPS IN AUTOMATIC AND MANUAL MODES

3. RAW WATER PUMP (RWP) SYSTEM AND SOURCE WATER TANK (SWT)

3.1. THE RAW WATER DUPLEX PUMP SYSTEM AT THE PUMP HOUSE SHALL CONSIST OF TWO PUMPS OPERATED IN LEAD/LAG SEQUENCE. PUMP ALTERNATION IS PROVIDED BY THE CONTROL SYSTEM. EACH PUMP SHALL BE UPGRADED FROM A SINGLE-PHASE MOTOR TO A THREE-PHASE MOTOR IN ORDER TO BE OPERATIONAL WITH A VARIABLE FREQUENCY DRIVE (VFD). THE RWP IS OPERATED ON WITH A VFD TO THROTTLE THE FLOW RATE, OPTIMIZING THE SYSTEM. EACH PUMP SHALL BE CONTROLLED BY THE MAIN CONTROLLER. THE CONTROL PANEL SHALL AUTOMATICALLY ALTERNATE THE OPERATION OF EACH PUMP CYCLE. IF A PUMP IS OFFLINE THE PUMP IS AUTOMATICALLY SKIPPED IN THE ALTERNATION SEQUENCE.

3.2. THE RWP SYSTEM IS TURNED ON WHEN THE LEVEL IN THE SOURCE WATER TANK NEAR THE WATER TREATMENT BUILDING DROPS BELOW A LOW LEVEL SET-POINT AS DETECTED BY THE ULTRASONIC LEVEL SENSOR IN THE SWT. THE RAW WATER PUMP TURNS OFF WHEN THE LEVEL IN THE SOURCE WATER TANK REACHES A HIGH LEVEL SET-POINT.

3.3. THE RWP CONTROLLER SHALL BE HOUSED IN A LOCAL CABINET IN THE PUMP HOUSE BUILDING WITH AN ETHERNET RADIO LINK, ETHERNET SWITCH (RADIO TO ILC TO VFD) AND GENERATED 24 VDC (WITH UPS/BATTERY BACKUP). THE ILC SHALL BE ANALOG IN MODULE (DI/DO TO VFD). THE CONTROLLER SHALL HAVE ANALOG CONTROL FOR THE PUMP PRESSURE AND FLOW.

3.4. THE MAIN CONTROL SYSTEM MONITORS THE VFD AND ULTRASONIC LEVEL SENSOR. IF THE WATER LEVEL DOES NOT INCREASE WHILE THE PUMP SYSTEM IS OPERATING FOR MORE THAN A USER ADJUSTABLE TIME PERIOD THE MAIN CONTROL SYSTEM ISSUES A "RAW WATER PUMP FAIL" SIGNAL.

3.5. THE RWP COMMUNICATES WITH THE WTS VIA AN OVERHEAD CONDUIT CONNECTING THE PUMP HOUSE AND THE WATER TREATMENT BUILDING.

4. TREATMENT SYSTEM

4.1. THE TREATMENT SYSTEM CONSISTS OF TWO FILTER STATIONS IN PARALLEL. EACH FILTER STATION IS IDENTICAL WITH THE FOLLOWING COMPONENTS:

a. INFLUENT FLOW TRANSMITTER (INFT)
b. TWO COAGULANT CHEMICAL FEED INJECTION PORTS FOR FOLLOWED BY A STATIC MIXER
c. INFLUENT PRESSURE TRANSDUCER (INPT)
d. CLARIFIER
e. FILTER
f. EFFLUENT PRESSURE TRANSDUCER (EFPT)
g. CHLORINE INJECTION PORT FOLLOWED BY A STATIC MIXER
h. BACKWASH COMPONENTS

4.2 THE SOURCE WATER PUMP (SWP) TURNS ON WHEN THE LEVEL IN THE CONTACT TANKS DROPS BELOW THE SET-POINT AS DETECTED BY AN ULTRASONIC LEVEL SENSOR IN THE CONTACT TANK. SWP IS OPERATED ON WITH A VFD TO THROTTLE THE FLOW RATE, OPTIMIZING THE SYSTEM. THE SYSTEM PERMISSIVES ARE THE FOLLOWING:

a. THE SWT IS NOT IN LOW LEVEL AS DETECTED BY SWPT.
b. THERE ARE NO TREATMENT SYSTEM ALARMS (SEE BELOW)
c. THE TREATMENT SYSTEM CONTINUES TO RUN UNTIL THE STORAGE TANKS ARE FULL AS DETECTED BY THE ULTRASONIC LEVEL SENSORS IN THE CONTACT TANKS (SIX TOTAL).

5. TREATMENT SYSTEM ALARMS (MONITORED ONLY WHEN THE BOOSTER PUMPS ARE ON AND THE PLANT IS NOT IN BACKWASH MODE)

5.1. THE TREATMENT SYSTEM ALARMS ARE THE FOLLOWING:

a. HIGH RAW WATER TURBIDITY (AS DETECTED BY INFLUENT TURBIDITY MONITOR (INTM)) (TIME DELAYED BY USER DETERMINED DELAY)
b. HIGH FINISH WATER TURBIDITY (AS DETECTED BY EFFLUENT TURBIDITY MONITOR (EFTM)) (TIME DELAYED BY USER DETERMINED DELAY)
c. PRESSURE DIFFERENTIAL (AS DETERMINED ACROSS COMBINED FILTER STATION (INPT TO EFPT) (TIME DELAYED BY USER DETERMINED DELAY))
d. LOW FLOW RATE (USER DETERMINED SETPOINT) (TIME DELAYED BY USER DETERMINED DELAY)
e. PUMP FAIL (AS DETECTED BY AMPERAGE DROP)

5.2 THE ALARM SET-POINTS ARE THE FOLLOWING:

a. INTM – USER DEFINED
b. EFTM – 0.1 NTU
c. PRESSURE ACROSS FILTER STATIONS: INPT TO EFPT - USER DEFINED

5.3 THE SYSTEM OPERATOR SHALL HAVE THE ABILITY TO ACKNOWLEDGE ANY OF THE ABOVE ALARMS, WHICH WILL ALLOW THE SYSTEM TO RUN DESPITE THE ALARM CONDITION EXISTING.

6. CHLORINE MONITORING AND ALARMS (MONITORED CONTINUOUSLY)

6.1. CHLORINE ALARMS SHALL RESULT IN ALARM NOTIFICATION AND PLANT SHUTDOWN. THE OPERATOR SHALL HAVE THE ABILITY TO ACKNOWLEDGE THE ALARM AND ALLOW THE SYSTEM TO RUN DESPITE THE ALARM CONDITIONS.

a. HIGH CHLORINE RESIDUAL (CL HIGH - 2.0 mg/L)
b. LOW CHLORINE RESIDUAL (CL LOW - 0.2 mg/L)

7. COAGULANT FEED PUMPS

7.1. THE SYSTEM HAS TWO COAGULANT FEED DOSING SYSTEMS (CFPA & CFPP) FOR TWO DIFFERENT POLYMERS USED IN THE TREATMENT SYSTEM. EACH COAGULANT FEED SYSTEM CONSISTS OF TWO CHEMICAL FEED PUMPS, ONE FOR EACH FILTER SYSTEM. THE CHEMICALS USED TO ACHIEVE COAGULATION ARE:

a. POLY DIALLYLDIMETHYLAMMONIUM CHLORIDE (pDADMAC), OR APPROVED EQUAL
b. ALUMINUM CHLOROHYDRATE (ACH), OR APPROVED EQUAL

7.2 THE CONTROL SYSTEM WILL MONITOR AND CONTROL THE AMOUNT OF COAGULANT ADDED TO THE TREATMENT SYSTEM.

7.3 THE CHEMICAL STORAGE TANKS WILL HAVE LEVEL SENSORS TO DETERMINE WHEN THE CHEMICALS IN THE TANK NEED TO BE REPLACED.

8. CHLORINE PUMP

8.1. THE SYSTEM HAS ONE CHLORINE DOSING PUMP.

8.2. THE CHLORINE CHEMICAL FEED PUMP (CFPC) WILL BE TURNED ON WHEN FLOW, AS DETECTED BY INFT (ON BOTH FS1 AND FS2), IS ABOVE THE SET-POINT. WHEN FLOW DROPS BELOW USER DEFINED SET-POINT, AS DETECTED BY INFT, THE CHLORINE PUMP WILL BE TURNED OFF.

8.3. THE CONTROL SYSTEM WILL MONITOR AND CONTROL THE AMOUNT OF CHLORINE ADDED TO THE TREATED WATER.

8.4. THE CHEMICAL STORAGE TANKS WILL HAVE LEVEL SENSORS TO DETERMINE WHEN THE CHEMICALS IN THE TANK NEED TO BE REPLACED.

9. TREATED WATER TRANSFER PUMP (TWTP) SYSTEM

9.1. THE TWTP CONSISTS OF A SUBMERSIBLE PUMP IN THE PUMP STATION (PS). TWTP IS OPERATED ON WITH A VFD TO THROTTLE THE FLOW RATE, OPTIMIZING THE SYSTEM.

9.2. PUMP FAIL MONITORING SHALL BE BASED ON FLOW METER READING. A PUMP FAIL SHALL BE ISSUED IF THERE IS NO FLOW AS MEASURED BY EFFLUENT FLOW TRANSMITTER (EFFT) AFTER A USER DEFINABLE DELAY PERIOD.

10. TREATED WATER STORAGE TANKS (TWST)

10.1. THERE ARE CURRENTLY THREE (3) TANKS AT THE TWST FARM WITH PROVISIONS FOR THREE (3) ADDITIONAL TANKS. THIS PROJECT COVERS THE EXISTING TANKS, HOWEVER PROVIDES PROVISIONS FOR A TOTAL OF SIX (6) TANKS TOTAL FOR FUTURE WORK.

10.2. THE TWST CONTROLLER WILL BE SUPPLIED WITH 120VAC AND GENERATE 24 VDC (WITH UPS/BATTERY BACKUP).

10.3. STORAGE TANKS WILL HAVE AN ULTRASONIC LEVEL SENSOR THAT WILL INDICATE THE WATER LEVEL IN THE STORAGE TANKS TO THE CONTROLLER. EACH TANK WILL HAVE A SENSOR SO THAT TANKS CAN BE ISOLATED TO PROVIDE RESERVE WATER TO THE PARK.

10.4. A FLOW METER WILL BE LOCATED ON THE OUTLET BACK TO THE DISTRIBUTION SYSTEM TO MEASURE THE TOTAL WATER FLOW REGARDLESS OF WHICH TANKS(S) ARE IN USE.

10.5. THE ILC WILL HAVE A MINIMUM OF 7 ANALOG INPUTS AND 6-12 DIGITAL OUT SIGNALS FOR THE LEVEL SENSORS. THE DIGITAL OUT SIGNALS ARE FOR THE POTENTIAL TO ADD ACTUATED VALVES FOR EACH TANK.

11. BACKWASH AND FILTER CONTROL

11.1. THE BACKWASH OF THE FILTER STATION SHALL BE INITIATED WHEN THE PERFORMANCE OF THE SYSTEM DROPS BELOW A USER DEFINABLE WATER QUALITY SET POINT.

11.2. THE BACKWASH DURATION AND CORRESPONDING FILTER TO WASTE SEQUENCE DURATION SHALL BE USER DEFINED ON ACTIVATION OF BACKWASHING OF THE SYSTEM

11.3. THE BACKWASH PUMP (BWP) CONSISTS OF A SUBMERSIBLE PUMP IN A THE PUMP STATION (PS). BWP IS OPERATED ON WITH A VFD TO THROTTLE THE FLOW RATE, OPTIMIZING THE SYSTEM.

12. WASHWATER TANK AND PUMP SYSTEM

12.1. BACKWASH RINSE WATER WILL BE WASTED TO THE WASHWATER TANK DURING BACKWASH CYCLES. WHEN THE BACKWASH WATER IS LESS TURBID THAN THE SOURCE WATER, THE LIQUID PORTION WILL RETURN TO THE SOURCE WATER TANK. WATER IN THE WASHWATER TANK IS DIRECTED WITH A SUBMERSIBLE PUMP TO THE SANITARY SEWER CONNECTED TO AN ONSITE WASTEWATER TREATMENT SYSTEM.

12.2. THE ULTRASONIC LEVEL SENSOR MONITORS THE WATER LEVEL IN THE WASHWATER TANK. FROM 10 PM TO 6 AM (OFF PEAK HOURS), WHEN THE TANK REACHES A USER DEFINED SET-POINT, THE PUMP WILL TURN ON. FROM 6 AM TO 10 PM (PEAK HOURS), IF A HIGH LEVEL IS REACHED (SET-POINT ABOVE THE OFF PEAK HOURS), THE PUMP WILL TURN ON. THE PUMP WILL TURN OFF AT A LOW LEVEL PEAK

13. B2 RESTROOMS (CHLORINE RESIDUAL SAMPLING LOCATION)

13.1. THE B2 RESTROOMS WILL PROVIDE A CONTINUOUS CHLORINE RESIDUAL POINT IN THE DISTRIBUTION SYSTEM.

13.2. THE TWST CONTROLLER WILL BE SUPPLIED WITH 120VAC AND GENERATE 24 VDC (WITH UPS/BATTERY BACKUP).

13.3. THIS LOCATION WILL HAVE AN ILC WITH A THERMO AQUACHLOR FREE CHLORINE SENSOR AND AND ETHERNET RADIO AND ANTENNA.

14. GENERAL NOTES

14.1. AUTOMATIC SHUTOFF IS BY PUMP DEACTIVATION.

14.2. SYSTEM CONTAINS TWO PRESSURE RELIEF VALVES, ONE BETWEEN EACH SET OF TWO FILTER VESSELS

14.3. THE CONTROL PANEL MONITORS AND RECORDS ALL COMPONENTS OF THE SYSTEM, AND THE OPERATOR CAN ACCESS THIS INFORMATION FOR ANY DESIGNATED TIME FRAME FOR MONTHLY, QUARTERLY OR ANNUAL REPORTS OR FOR GENERAL DIAGNOSTICS.

14.4. THE CONTROL PANEL SHALL LOG ALL SYSTEM CONTROL POINTS CONTINUOUSLY. USER CAN LOOK UP PARAMETERS USING THE CONTROL SCREEN.

14.5. THE DISTRIBUTION SYSTEM IS CONNECTED TO THE TRANSFER MAIN AND FLOWS BY GRAVITY WHILE THE TREATMENT SYSTEM IS NOT OPERATIONAL.

14.6. THE CONTROL PANEL SHALL PROVIDE ONSCREEN TREND CHARTS AND WILL PROVIDED THE OPERATOR TO VISUAL DISPLAYS OF EACH COMPONENT OF THE SYSTEM.

14.7. THERE IS A DISCONNECT SWITCH ON THE HIGH VOLTAGE SERVICE FOR THE ENTIRE SYSTEM.

14.8. THE CONTRACTOR SHALL DETERMINE THE ANTENNA TOWER OR MOUNTING SOLUTION (INCLUDING ANTENNA GROUND ROD SIZING LOCATION AND INSTALL) FOR EACH ETHERNET RADIO SITE (PUMP HOUSE, WATER TREATMENT BUILDING, TREATED WATER STORAGE TANK FARM, AND B2 RESTROOMS.

14.9. A RADIO SIGNAL SURVEY SHALL BE COMPLETED BY THE CONTRACTOR TO ENSURE THAT THE ETHERNET RADIO SYSTEM CAN PROVIDE ADEQUATE SIGNAL TO COMMUNICATE BETWEEN CONTROLLERS.

15. ELECTRICAL NOTES

15.1. AVAILABLE SERVICE WILL BE VERIFIED BY ELECTRICAL ENGINEER.

15.2. PUMP OVERLOAD PROTECTION DISCONNECTS, CONTACTORS AND MOTOR STARTERS TO BE SUPPLIED WITH TREATMENT SYSTEM.

15.3. ALL ELECTRICAL WORK SHALL COMPLY WITH NEC CODE AND SAN MATEO COUNTY REQUIREMENTS.

15.4. ALL EQUIPMENT SHALL BE PROVIDED WITH SURGE PROTECTION.

16. TREATMENT SYSTEM ALARMS:

ALL PARAMETERS WITH ALARMS HAVE SET POINTS AT LOW-LOW, LOW, HIGH AND HIGH HIGH. CRITICAL ALARMS WITH PLANT SHUTDOWN CAPABILITIES WILL BE PROVIDED FOR LOW-LOW OR HIGH-HIGH STATES, DEPENDING ON THE PARAMETER. THE FOLLOWING PARAMETERS HAVE ALARMS THAT WILL SEND MESSAGES TO THE OPERATOR AND/OR SHUTDOWN THE PLANT:

16.1. CHEMICAL FEED STATION (CFS)
a. CHEMICAL TANK LEVEL FOR ACH (CFALT)
b. CHEMICAL TANK LEVEL FOR CHLORINE (CFCLT)
c. CHEMICAL TANK LEVEL FOR POLYMER (CFPLT)

15.2 CONTACT TANK STATION (CTS)
a. TANK LEVEL (CTPT)

15.3 FILTER STATIONS (FS1 & FS2)
a. BACKWASH FLOW RATE (BWFT)
b. CLARIFIER EFFLUENT PRESSURE (CEPT)
c. FILTER EFFLUENT PRESSURE (EFPT)
d. FILTER EFFLUENT TURBIDITY (EFTM)
e. INFLUENT FLOW RATE (INFT)
f. INFLUENT PRESSURE (INPT)
g. RINSE TIME OUT (RQ)
h. SCOUR FLOW RATE (SCFT)

15.4 MASTER UTILITY AND CONTROL STATION (MUCS)
a. RESERVOIR AIR PRESSURE (APT)

15.5 PUMP STATION (PS)
a. DISTRIBUTION FLOW RATE (DFT)
b. TRANSFER FLOW RATE (EFFT)

15.6 SOURCE WATER STATION (SWS)
a. TANK LEVEL (SWPT)
b. RAW WATER FLOW RATE (RWFT) - IF FLOW METER EXISTS
c. RAW WATER PRESSURE (RWPT) - IF PRESSURE TRANSMITTER EXISTS

15.7 TREATED WATER STATION (TWS)
a. TANK LEVEL (TWLT)

15.8 WET INSTRUMENT STATION (WIS)
a. CHLORINE RESIDUAL (DCLA)
b. pH (DCLA)
c. INFLUENT TURBIDITY (INTM)

15.9 WASHWATER STATION (WS)
a. WASHWATER TANK LEVEL (WLT)

15.10 RINSE RECOVERY (WWS)
a. WASTE STORAGE LEVEL (WSLT)

CONTROL SYSTEM NARRATIVE

SCALE: NTS

2

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COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: CJC
CHECKED BY: PHH
DRAWN BY: CJC

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
CONTROL SYSTEM IMPROVEMENTS SCHEMATIC & NARRATIVE

SCALE: AS SHOWN
DATE: 10-17-2014
FILE NO.: 1/4915

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
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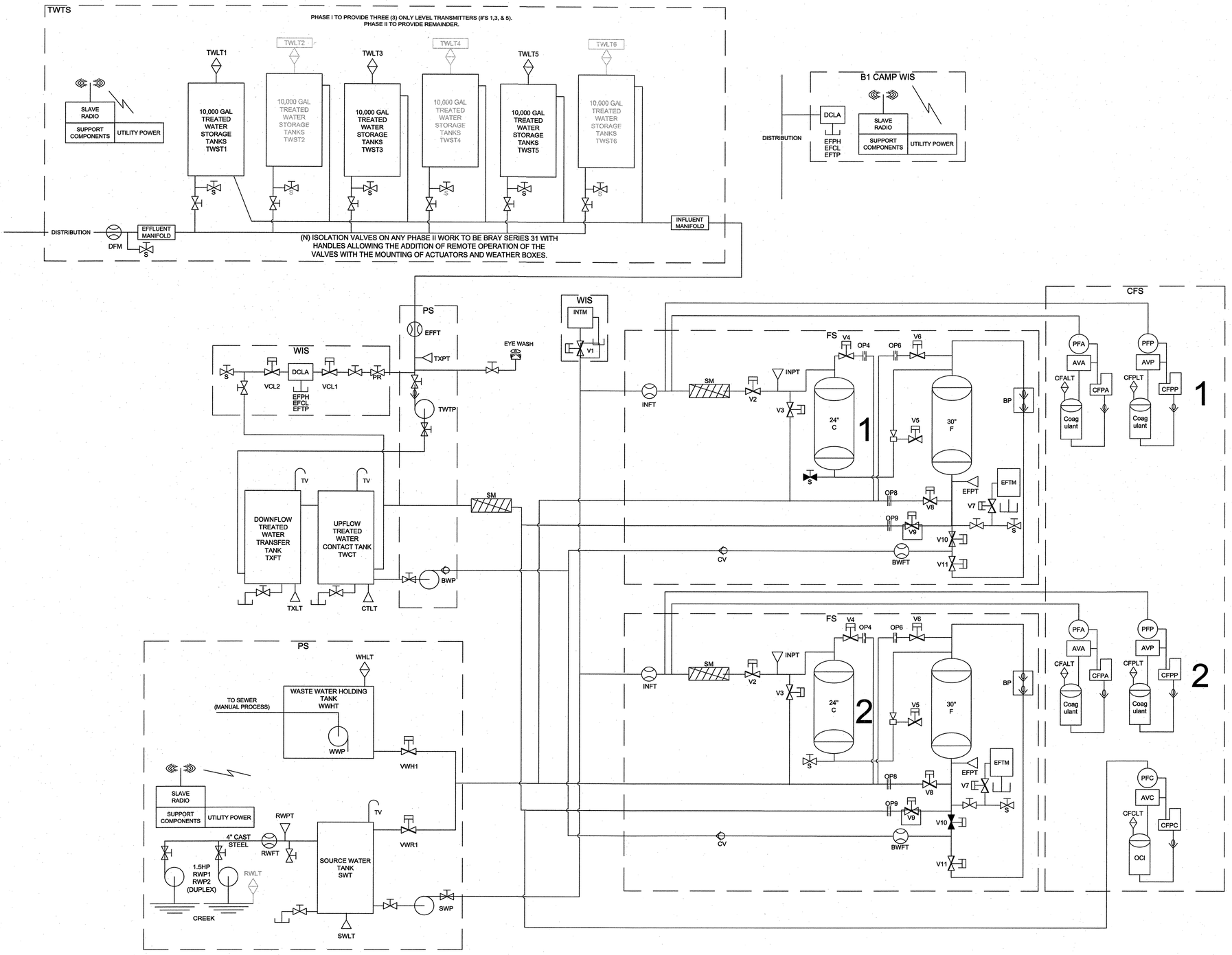

PROCESS & INSTRUMENTATION DIAGRAM (PID)

SCALE: NTS

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2. TEXT IN GREY ARE PLACEHOLDER FOR POSSIBLE FUTURE IMPROVEMENTS TO ADD TO THE CONTROL SYSTEM. DESIGN OF ADDITIONAL TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND ARE NOT INCLUDED IN THE PID.

REGISTERED PROFESSIONAL ENGINEER — JAMES C. PORTER — C 48056 — EXPIRES 12/31/15 — CIVIL — STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

COMPONENT LEGEND

ID	DESC
APT	PRESS TRANSMITTER, AIR RECEIVER
AVA	AUTOVENT, COAGULANT 1
AVC	AUTOVENT, CHLORINE
AVP	AUTOVENT, COAGULANT 2
BP	BACKFLOW PREVENTER
BWFT	FLOW TRANSMITTER, BACKWASH
BWP	PUMP, BACKWASH
C	TANK, CLARIFIER
CFPA	PUMP, CHEMICAL FEED, POLYMER, INORGANIC
CFPC	PUMP, CHEMICAL FEED, CHLORINE
CFPP	PUMP, CHEMICAL FEED, POLYMER
CFS	CHEMICAL FEED STATION
CFALT	LEVEL SENSOR, POLYMER, INORGANIC
CFCLT	LEVEL SENSOR, CHLORINE
CFPLT	LEVEL SENSOR, POLYMER
CTLT	LEVEL, CONTACT TANK
CV	VALVE, CHECK
DCLA	ANALYZER, CHLORINE, DISTRIBUTION
DFM	FLOW METER, DISTRIBUTION
EFCL	CL PPM, EFFLUENT
EFPH	PH TRANSMITTER, EFFLUENT
EFPT	PRESS TRANSMITTER, FILTER OUTLET
EFTM	TURBIDIMETER, EFFLUENT
EFTP	TEMPERATURE, EFFLUENT
F	TANK, FILTER
FS	FILTER STATION
INFT	FLOW TRANSMITTER, INFLUENT
INPT	PRESS TRANSMITTER, FILTER INLET
INTM	TURBIDIMETER, INFLUENT
MUCS	MASTER UTILITY/CONTROL STATION
OP4/6/8	ORIFICE PLATE, DRAIN
OP9	ORIFICE PLATE, PRODUCT
RES	RESERVOIR, AIR
PFN	POSI-FLOW, FLOW INDICATION DEVICE
PR	VALVE, PRESSURE REGULATOR
PS	PUMP STATION
RWFT	FLOW TRANSMITTER, RAW
RWLT	LEVEL, RAW WATER

COMPONENT LEGEND

ID	DESC
RWPN	PUMP, RAW WATER
RWPT	PRESS TRANSMITTER, RAW PUMP
S	VALVE, SAMPLE, MANUAL
SM	STATIC MIXER
SVS	SOLENOID VALVE STACK
SWP	PUMP, SOURCE WATER
SWLT	LEVEL, SOURCE WATER
SWPT	PRESS TRANSMITTER, RAW WATER PUMP
SWT	TANK, SOURCE WATER
TV	VENT, TANK
TWCT	TANK, TREATED WATER CONTACT
TWLTN	LEVEL, TREATED WATER STORAGE, #1-6
TWSTN	TANK, TREATED WATER STORAGE, #1-6
TWTP	PUMP, TREATED WATER TRANSFER
TXFT	TANK, TREATED WATER TRANSFER
TXLT	LEVEL, TREATED WATER TRANSFER
TXPT	PRESS TRANSMITTER, TRANSFER PUMP
V1	VALVE, TURBIDIMETER, INFLUENT
V2	VALVE, INLET WATER
V3	VALVE, BACKWASH DRAIN
V4	VALVE, CLARIFIER TANK AIR VENT
V5	VALVE, BACKWASH AIR EDUCTOR VENT
V6	VALVE, FILTER TANK AIR VENT
V7	VALVE, TURBIDIMETER, EFFLUENT
V8	VALVE, RINSE DRAIN
V9	VALVE, TREATED WATER OUTLET
V10	VALVE, BACKWASH INLET
V11	VALVE, SCOUR INLET
VCL1	VALVE, CHLORINE RESIDUAL #1
VCL2	VALVE, CHLORINE RESIDUAL #2
VWH1	VALVE, WASTE WATER BACKWASH
VWR1	VALVE, WASTE WATER RINSE RECOVERY
WHLT	LEVEL, WASTE WATER HOLDING TANK
WIS	WET INSTRUMENT STATION
WRPT	LEVEL, WASTE HOLDING
WWHT	TANK, WASTE WATER HOLDING
WWP	PUMP, WASTE WATER

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COUNTY OF SAN MATEO — PUBLIC WORKS

REVISION	DATE

DESIGNED BY: CJC
CHECKED BY: PHH
DRAWN BY: CJC

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
CONTROL SYSTEM IMPROVEMENTS
PROCESS & INSTRUMENTATION DIAGRAM

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
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SCALE: AS SHOWN
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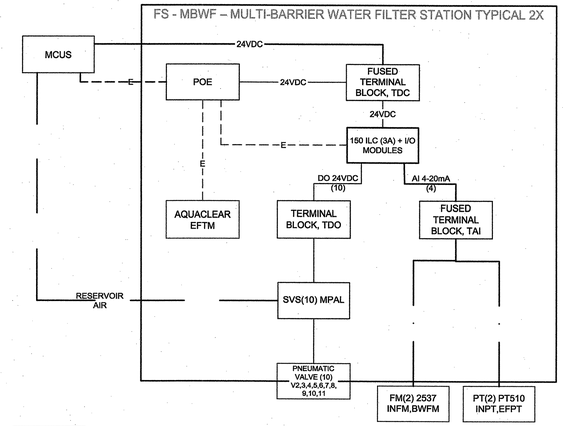

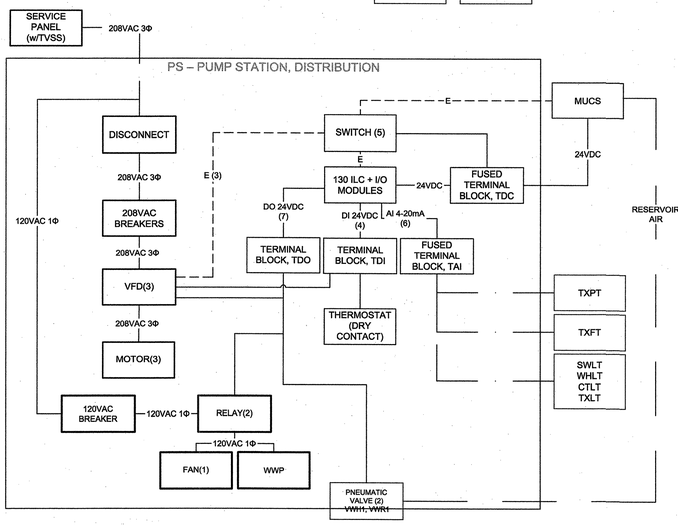

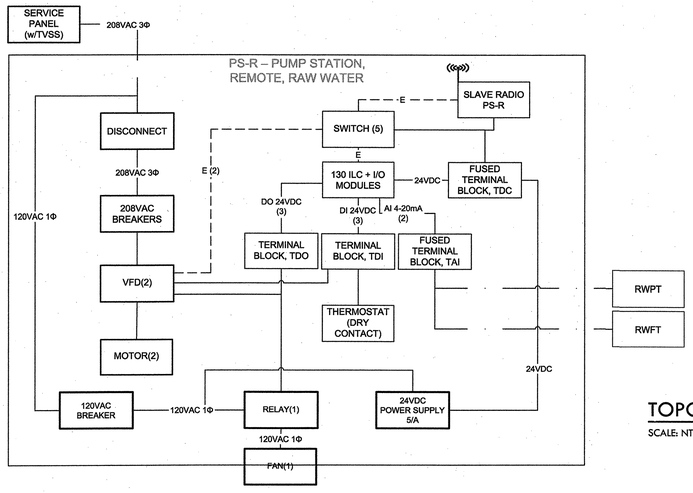

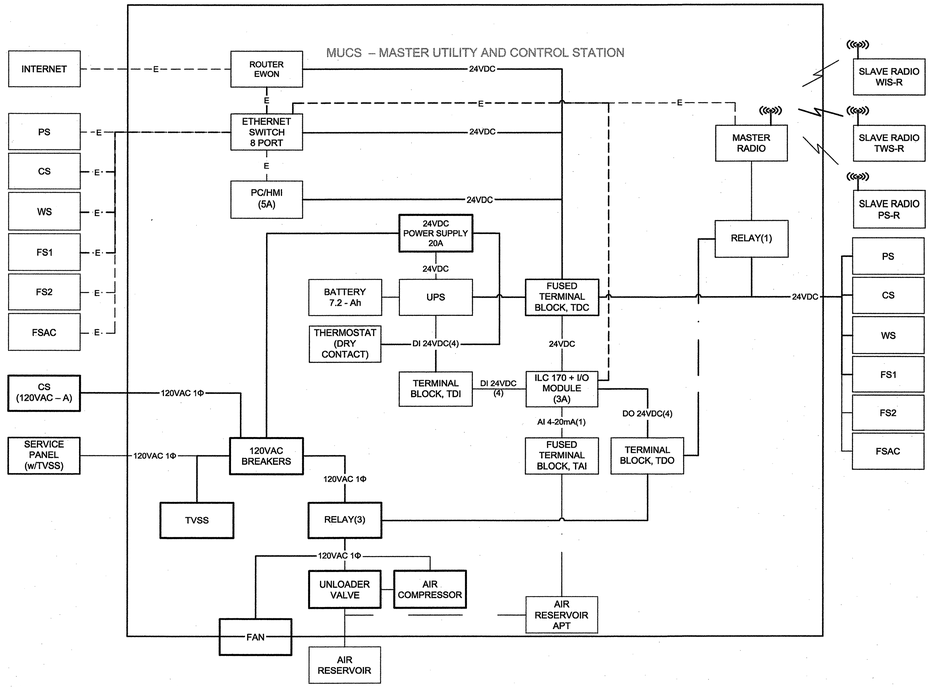

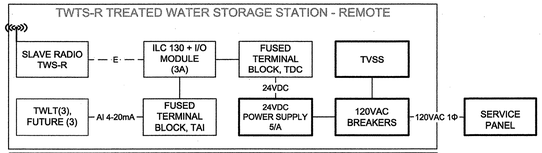

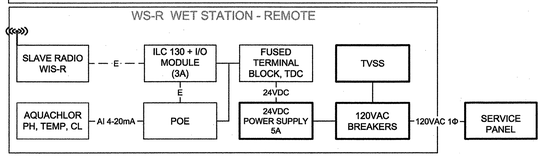

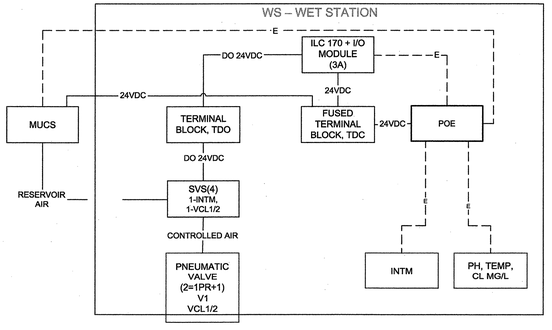

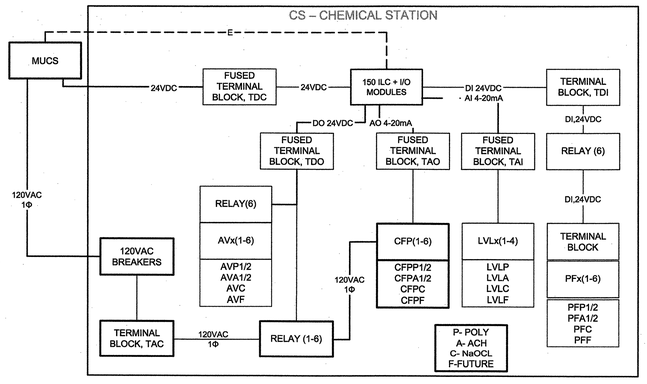

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LINE TYPE (NON-PRINTING)
LINE# - LINE SIZE

LINE LEGEND

6-1	DI 24VDC	DIGITAL IN
8-1	DO 24VDC	DIGITAL OUT
8-1	DOR 24VDC	DIGITAL OUT RELAY
4-1	AI 4-20mA	ANALOG IN
5-1	AO 4-20mA	ANALOG OUT
23-1	E	ETHERNET
1-1	24VDC	24 VDC
1-5	120VAC 1Φ	120 VAC SINGLE PHASE
2-5	240VAC 3Φ	240 VAC THREE PHASE
10-1	RS485	RS485 COMMUNICATION
16-1	AIR	AIR FLOW
22-1	WATER	WATER FLOW

ABBREVIATION LEGEND

CFP	CHEMICAL FEED PUMP
CLVL	CHEMICAL TANK LEVEL
ILC	INDUSTRIAL LOGIC CONTROLLER
I/O	ANALOG IN/OUT, DIGITAL IN/OUT
AI	ANALOG IN
AO	ANALOG OUT
DI	DIGITAL IN
DO	DIGITAL OUT
DOR	DIGITAL OUT RELAY
MCC	MASTER CONTROL CABINET
PS	PUMP SKID
SVS	SOLENOID VALVE STACK

COLOR LEGEND

HIGH VOLTAGE 208VAC 3P	LOW VOLTAGE <24VDC
HIGH VOLTAGE 120VAC 1P	AIR
LOW VOLTAGE 24VDC	DATA

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COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

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MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
CONTROL SYSTEM TOPOLOGY

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

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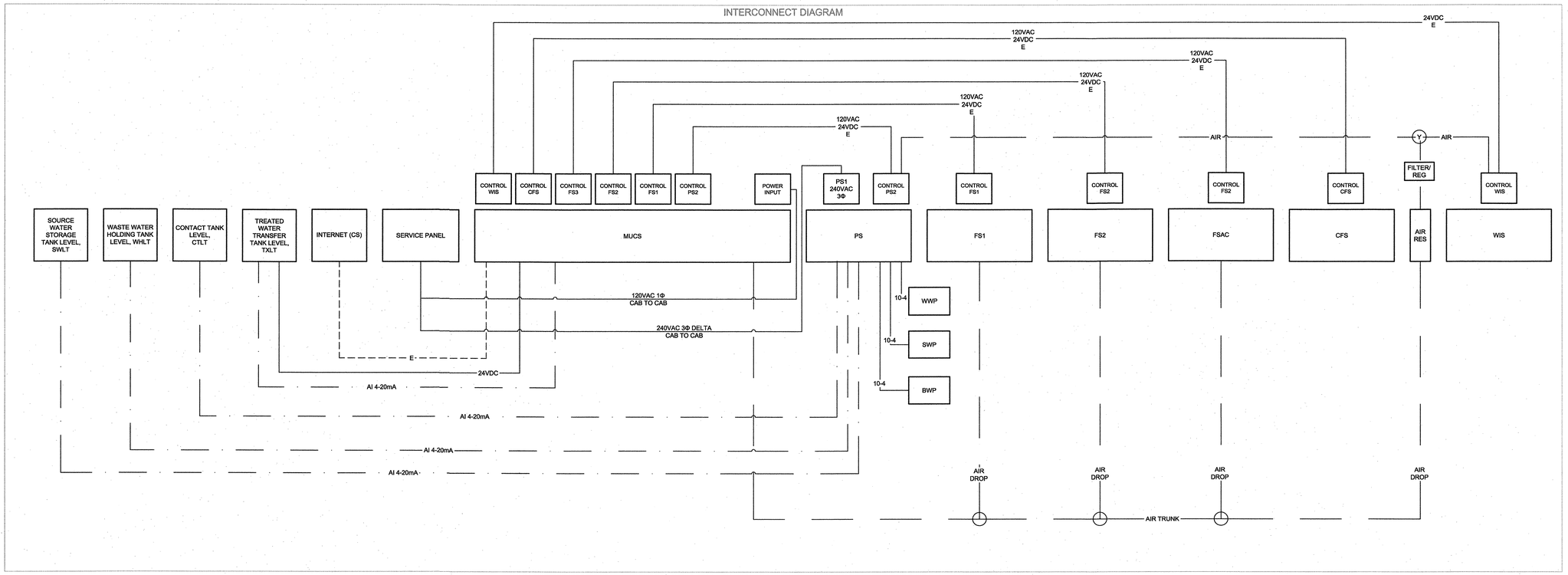

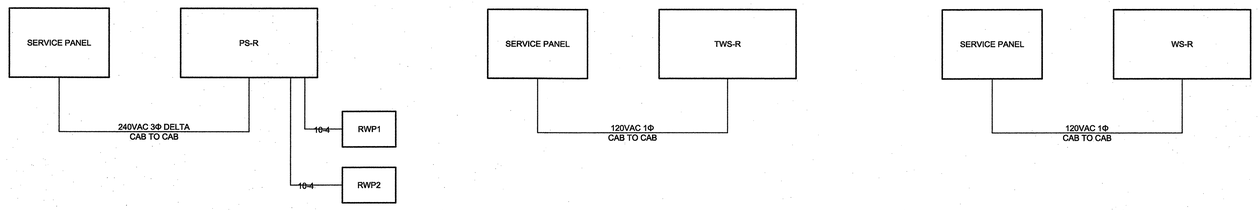

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MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
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GENERAL CONSTRUCTION NOTES

1. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS. MATERIALS AND EQUIPMENT SHALL BE U.L. LISTED AND LABELED FOR THE APPLICATION.
2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTION FEES REQUIRED BY THIS CONTRACT WORK.
3. CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO BIDDING AND ALLOW FOR ALL FIELD CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL WORK NOTED AND CALLED OUT ON ALL CONTRACT DOCUMENTS. THE CONTRACTOR SHALL OBTAIN INFORMATION AND BE FAMILIAR WITH ALL OTHER TRADES WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN OTHER TRADES ON PROJECT.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY AND SHALL PROVIDE INSURANCE COVERAGE AS NECESSARY FOR LIABILITY AND PERSONAL PROPERTY DAMAGE, TO FULLY PROTECT THE OWNER, ARCHITECT AND ENGINEER FROM ANY AND ALL CLAIMS RESULTING FROM THIS WORK.
5. CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS AT THE PROJECT SITE INDICATING ALL MODIFICATIONS TO ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL AT THE CONCLUSION OF THE PROJECT PROVIDE ACCURATE "AS-BUILT" DRAWINGS ACCEPTABLE TO THE ARCHITECT.
6. ALL MATERIALS PROVIDED TO THE PROJECT SHALL BE NEW. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL INCIDENTAL MATERIALS REQUIRED FOR A COMPLETE INSTALLATION.
7. CONTRACTOR SHALL PROVIDE TO THE ARCHITECT A CONSTRUCTION SCHEDULE OF ELECTRICAL WORK. THE CONSTRUCTION SCHEDULE SHALL IDENTIFY ALL SIGNIFICANT MILESTONES WITH COMPLETION DATES.
8. CONTRACTOR SHALL PROVIDE ALL REQUIRED "CUTTING, PATCHING, EXCAVATION, BACKFILL AND REPAIRS" NECESSARY TO RESTORE DAMAGED SURFACES TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS EXISTING AT START OF WORK.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR PAINTING ALL EXPOSED CONDUITS AND ELECTRICAL EQUIPMENT. REFER TO ARCHITECTS PAINTING SECTION FOR REQUIREMENTS.
10. ALL ELECTRICAL EQUIPMENT INSTALLED OUTDOORS SHALL BE WEATHERPROOF. EXTERIOR CONDUITS RUN INTO BUILDINGS SHALL BE INSTALLED WITH FLASHING, CAULKED AND SEALED. CONDUITS FOR EXTERIOR ELECTRICAL DEVICES SHALL BE RUN INSIDE BUILDING UNLESS OTHERWISE NOTED ON DRAWINGS.
11. ALL CONDUITS UNLESS OTHERWISE NOTED ON DRAWINGS SHALL HAVE AS A MINIMUM: TWO (2) #12s WITH ONE (1) #12 GROUND. "TICK" MARKS SHOWN ON CIRCUITRY ARE FOR ROUGH ESTIMATING ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRES AND WIRE SIZES REQUIRED BY LATEST CODE.
12. ALL BRANCH CIRCUITS SHALL HAVE INDIVIDUAL NEUTRALS. SHARED NEUTRALS ON MULTIWIRE CIRCUITS IS NOT ALLOWED.
13. ALL 120/277V LIGHT SWITCHES AND WALL OCCUPANT SENSORS SHALL HAVE A NEUTRAL INSTALLED TO THE DEVICE BOX EXCEPT WHERE A CONDUIT OR SURFACE RACEWAY SYSTEM IS INSTALLED.
14. COORDINATE ALL CONDUIT RUNS, ELECTRICAL EQUIPMENT AND PANELS WITH ALL OTHER WORK TO AVOID CONFLICTS.
15. CONTRACTOR SHALL PROVIDE IN EVERY EMPTY CONDUIT A DRAW STRING FOR USE IN FUTURE CONSTRUCTION.
16. WHERE IT IS NOT POSSIBLE TO REUSE (E) CONDUIT OR RUN (N) CONCEALED CONDUIT USE NON-METALLIC SURFACE RACEWAY AND BOXES. ROUTING OF ALL NON-METALLIC RACEWAYS SHALL BE APPROVED BY THE ARCHITECT OR OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO (E) UNDERGROUND SYSTEMS (GAS, WATER, TELEPHONE, ELECTRICAL, SEWER, ETC.). THE CONTRACTOR SHALL REPAIR & PAY ALL EXPENSES FOR DAMAGE TO (E) UNDERGROUND SYSTEMS AS A RESULT OF (N) WORK. REPAIR TO DAMAGED UNDERGROUND SYSTEMS SHALL BE TO THE OWNERS SATISFACTION WITHOUT EXTRA EXPENSE TO THE OWNER.
18. EXISTING WIRING SHOWN HAS BEEN TAKEN FROM OLD PLANS AND IS ASSUMED TO BE CORRECT. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ACTUAL CONDITIONS AND MAKE ADJUSTMENTS TO SUIT ACTUAL CONDITIONS AND TO MEET THE INTENT OF THE CONTRACT DOCUMENTS.

ELECTRICAL SYMBOLS & ABBREVIATIONS

SYMBOLS & ABBREVIATIONS SHOWN ARE FOR GENERAL USE. DISREGARD THOSE WHICH DO NOT APPEAR ON THE PLANS.

- FLUORESCENT LUMINAIRE - SEE SCHEDULE.
- EMERGENCY OR NIGHT LIGHT
- STRIP FLUORESCENT LUMINAIRE - SEE SCHEDULE.
- LUMINAIRE - RECESSED - SEE SCHEDULE
- RECESSED WALL WASHER
- LUMINAIRE - SURFACE MOUNTED - SEE SCHEDULE.
- LUMINAIRE - POLE OR POST MOUNTED - SEE SCHEDULE.
- LUMINAIRE - WALL MOUNTED SEE SCHEDULE.
- BOLLARD OR PATH LIGHT - SEE SCHEDULE
- EXIT LIGHT - DIRECTIONAL ARROWS AS INDICATED - SEE SCHEDULE.
- TRACK LIGHTING - SEE SCHEDULE
- EMERGENCY EXIT LIGHT.
- SINGLE POLE SWITCH ★★
- SINGLE POLE SWITCH, ★★ a = CIRCUIT CONTROLLED.
- THREE WAY SWITCH★★
- FOUR WAY SWITCH★★
- MANUAL MOTOR STARTER
- KEY OPERATED SWITCH ★★
- LIGHTING DIMMER★★
- DIGITAL ON/OFF SWITCH ★★
- DIGITAL DIMMER SWITCH
- DIGITAL MULTI SCENE LIGHTING SWITCH
- DIGITAL DUAL TECHNOLOGY WALL OCC. SENSOR ★★
- WALL OCCUPANCY SENSOR ★★
- DOUBLE SWITCHED WALL OCCUPANCY SENSOR ★★
- DRC DIMMER ROOM CONTROLLER
- PC PLUG LOAD CONTROLLER
- RC ROOM LIGHTING CONTROLLER
- LCP LIGHTING CONTROL PANEL
- DL DIGITAL DAYLIGHT SENSOR
- DIGITAL DUAL TECHNOLOGY OCC. SENSOR
- LIGHTING CONTROL OCCUPANCY SENSOR CEILING MOUNTED U.O.N.
- LIGHTING CONTROL OCCUPANCY SENSOR CORNER MOUNTED
- SECURITY DOOR CONTACTS.
- MD SECURITY MOTION DETECTOR
- SC CCTV CAMERA
- KP SECURITY SYSTEM KEYPAD
- CONVENIENCE RECEPTACLE - DUPLEX ★
- DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER - FIELD VERIFY HEIGHT
- GFCI CONVENIENCE RECEPTACLE - DUPLEX★
- GFCI CONVENIENCE DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER - FIELD VERIFY HEIGHT
- D DEDICATED RECEPTACLE WITH DEDICATED NEUTRAL★
- RECEPTACLE DOUBLE DUPLEX★
- HALF SWITCHED RECEPTACLE - DUPLEX ★
- SINGLE RECEPTACLE★
- CONVENIENCE RECEPTACLE - DUPLEX CEILING MOUNTED
- HC LETTER INDICATES DUPLEX HALF CONTROLLED RECEPTACLE ★
- C LETTER INDICATES DUPLEX FULLY CONTROLLED RECEPTACLE ★
- FLOOR MOUNTED DUPLEX RECEPTACLE
- FLOOR MOUNTED BOX
- POWER OUTLET, SEE PLANS FOR NEMA TYPE ★
- POWER POLE
- VOICE/DATA WALL OUTLET - INSTALL ABOVE COUNTER - FIELD VERIFY HEIGHT
- VOICE/DATA WALL OUTLET ★
- DATA WALL OUTLET NEAR CEILING - 12" BELOW FINISHED CEILING
- FLOOR MOUNTED VOICE/DATA OUTLET
- TV OUTLET★
- INTERIOR SPEAKERS CEILING MOUNTED.
- INTERIOR SPEAKERS WALL MOUNTED.
- CLOCK +8'-0" AFF U.O.N. VERIFY BEFORE INSTALLATION.
- THERMOSTAT - SEE MECHANICAL DRAWINGS DRAWINGS★★
- PANELBOARD - FLUSH MOUNTED.
- EQUIPMENT PANEL - FLUSH MOUNTED
- PANELBOARD - SURFACE MOUNTED.
- EQUIPMENT PANEL - SURFACE MOUNTED
- METER W/ CURRENT TRANSFORMER.
- J/J JUNCTION BOX - CEILING OR WALL MOUNTED, SIZE PER CODE, TAPE AND TAG WIRES.
- MOTOR CONNECTION
- NON-FUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH. FUSED WITH DUAL-ELEMENT FUSES SIZED PER EQUIPMENT MFGR'S NAMEPLATE DATA.
- COMBINATION STARTER/FUSED DISCONNECT SWITCH; FUSED DISCONNECT SWITCH ELEMENT FUSES SIZED PER EQUIPMENT MFGRS NAMEPLATE DATA.
- MAGNETIC STARTER - NEMA SIZE INDICATED. NEMA 3R ENCLOSURE UNLESS OTHERWISE SPECIFIED.
- CIRCUIT BREAKER.
- GROUND ROD WITH GROUNDWELL BOX
- GROUND ELECTRODE
- NORMALLY OPEN CONTACT.
- NORMALLY CLOSED CONTACT.
- TRANSFORMER - SEE SINGLE LINE FOR SIZE.
- PULLBOX
- FLEX CONDUIT WITH CONNECTION.
- CONDUIT - UP.
- CONDUIT - DOWN.
- E CONDUIT EMERGENCY SYSTEM.
- T CONDUIT - TELEPHONE
- TV CONDUIT - TELEVISION
- LV LOW VOLTAGE WIRING
- SURFACE METAL OR NON-METALLIC RACEWAY
- CONDUIT - CONCEALED IN WALLS OR CEILING.
- CONDUIT - EXISTING
- CONDUIT - BELOW SLAB OR UNDERGROUND: 3/4"MIN.
- CAPPED CONDUIT. STUB-OUT
- CONDUIT CONTINUATION.
- #10 CONDUIT - HOME RUN TO PANEL, TERMINAL CABINET, ETC. RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF #12 AWG WIRES WHEN MORE THAN TWO. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE. CROSS HATCHES WITH NUMBER ADJACENT INDICATES WIRE SIZE OTHER THAN #12AWG.
- 2 SHEET NOTE REFERENCE SYMBOL; SEE ASSOCIATED NOTE ON SAME SHEET.
- 3 SCHEDULE SYMBOL; SEE ASSOCIATED NOTE ON SAME SHEET.

★ +15" A.F.F. TO BOTTOM OF BOX, U.O.N.
★★ +48" A.F.F. TO TOP OF BOX, U.O.N.

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

- 2 DETAIL NOTE REFERENCE SYMBOL SEE ASSOCIATED NOTE ON SAME DETAIL
- F301 FEEDER DESIGNATION; SEE ASSOCIATED NOTE ON SAME DETAIL
- 1 / E3.0 DETAIL NUMBER; DETAIL OR SECTION REFERENCE; SHEET NUMBER
- 1 / 2 INDICATES QUANTITY OF TELEPHONE OUTLETS; INDICATES QUANTITY OF DATA OUTLETS

ABBREVIATIONS

A	AMPERE	GFCI	GROUND FAULT	OAH	OVERALL HEIGHT
AFF	ABOVE FINISHED FLOOR	GFI	INTERRUPTING	OC	ON CENTER
ALUM./AL	ALUMINUM	GND, G	GROUND	OH	OVERHEAD
ARCH.	ARCHITECT	GRS	GALVANIZED RIGID STEEL	PA	PUBLIC ADDRESS
AWG	AMERICAN WIRE GAUGE	HT.	HEIGHT	PB	PULL BOX
BKR	BREAKER	IC	INTERCOM	PF	POWER FACTOR
C	CONDUIT	IDF	INTERMEDIATE DISTRIBUTION FRAME	PH	PHASE
CATV	CABLE TV	INCAND.	INCANDESCENT	PIR	PASSIVE INFRARED
CB	CIRCUIT BREAKER	JB	JUNCTION BOX	PNL	PANEL
CCTV	CLOSED CIRCUIT TV	KV	KILOVOLT	PV	PHOTOVOLTAIC
CKT	CIRCUIT	KVA	KILOVOLT AMPERES	PVC	POLYVINYL CHLORIDE
CL	CENTER LINE	KW	KILOWATT	PWR	POWER
CLG	CEILING	LCP	LIGHTING CONTROL PANEL	(R)	EXISTING TO BE REMOVED
CO	CONDUIT ONLY	LTG	LIGHTING	(RP)	REMOVABLE POLE
CTR	CENTER	LV	LOW VOLTAGE	RECPT'S	RECEPTACLES
D	DIGITAL	KCM	THOUSAND CIRCULAR MILS	REQD	REQUIRED
DIM	DIMENSION	MDF	MAIN DISTRIBUTION FRAME	REQMT'S	REQUIREMENT(S)
DIST	DISTRIBUTION	MECH.	MECHANICAL	SHT	SHEET
(E)	EXISTING	MH	METAL HALIDE	S.L.D.	SINGLE LINE DIAGRAM
EC	ELECTRICAL CONTRACTOR	MLO	MAIN LUGS ONLY	STC	SYSTEMS TERMINATION CABINET
(EL)	EVENING LIGHT	MPOE	MAIN POINT OF ENTRANCE	SW	SWITCH
EM	EMERGENCY	MTD	MOUNTED	SWBD	SWITCHBOARD
EMT	ELECTRICAL METALLIC TUBING	MTG	MOUNTING	TTB	TELEPHONE TERMINAL BACKBOARD
EQUIP	EQUIPMENT	(N)	NEW	TYP	TYPICAL
FA	FIRE ALARM	NIC	NOT IN CONTRACT	UON	UNLESS OTHERWISE NOTED
FACP	FIRE ALARM CONTROL PANEL	NIEC	NOT IN ELECTRICAL CONTRACT	UG	UNDERGROUND
FIN	FINISH	(NL)	NIGHT LIGHT	V	VOLT
FL	FLOOR	NO.	NUMBER	W	WATT
FLUOR.	FLUORESCENT	NOM	NOMINAL	W/	WITH
(F)	FUTURE	NTS	NOT TO SCALE	WP	WEATHERPROOF
GC	GENERAL CONTRACTOR			XFMR	TRANSFORMER

GENERAL DEMOLITION NOTES

A. CONTRACTOR SHALL FIELD VERIFY EXTENT OF ELECTRICAL DEMOLITION AND QUANTITIES OF ELECTRICAL TO BE REMOVED AS DICTATED BY THE REQUIREMENTS OF THE PROJECT

B. REMOVAL SHALL INCLUDE WIRING, RACEWAY, BOXES, SWITCHES, LIGHT FIXTURES, ETC. AS INDICATED ON THE PLANS AND AS REQUIRED BY THESE DEMOLITION NOTES.

C. RACEWAYS ASSOCIATED WITH ELECTRICAL BEING DEMOLISHED WHICH ARE CONCEALED IN EXISTING REMAINING WALLS MAY BE ABANDONED IN PLACE. REMOVE WIRING FROM CONDUIT.

D. RACEWAYS ASSOCIATED WITH ELECTRICAL BEING DEMOLISHED WHICH ARE EXPOSED SHALL BE REMOVED.

E. WHERE REMOVAL OF EQUIPMENT OR WIRING IS INDICATED, IT SHALL INCLUDE ALL ASSOCIATED WIRING BACK TO LAST ACTIVE REMAINING OUTLET, DEVICE, FIXTURE OR PANEL.

F. ELECTRICAL CONTRACTOR SHALL INSURE THAT ALL REMAINING ACTIVE CIRCUITS, DEVICES, OUTLETS, LIGHT FIXTURES, ETC. HAVE NOT BEEN DISCONNECTED OR MADE INOPERATIVE DURING DEMOLITION. ELECTRICAL CONTRACTOR SHALL RESTORE ALL INTERRUPTED OR DISCONNECTED CIRCUITS TO OPERATION.

G. ELECTRICAL CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL REMOVED ELECTRICAL EQUIPMENT AND MATERIAL.

H. NO REMOVED EQUIPMENT OR MATERIAL SHALL BE REUSED AS PART OF NEW WORK, U.O.N.

I. EXISTING WIRING SHOWN HAS BEEN TAKEN FROM OLD PLANS AND IS ASSUMED TO BE CORRECT. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ACTUAL CONDITIONS AND MAKE ADJUSTMENTS TO SUIT ACTUAL CONDITIONS AND TO MEET THE INTENT OF THE CONTRACT DOCUMENTS.

J. WHERE TELEPHONE, COMPUTER DATA, FIBER OPTICS, FIRE ALARM OR OTHER COMMUNICATIONS OUTLETS OR WIRING IS TO BE DEMOLISHED IT SHALL BE REMOVED BACK TO THE NEXT TERMINAL POINT. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OWNER OR HIS REPRESENTATIVE TO HAVE EQUIPMENT AND WIRING DESIGNATED FOR REMOVAL OR PRESERVATION PRIOR TO REMOVAL OF OUTLET BOXES, CONDUIT OR WIRING BY ELECTRICAL CONTRACTOR.

K. COORDINATE WITH OWNER PRIOR TO START OF DEMOLITION TO MINIMIZE POWER INTERRUPTIONS, WORK MAY HAVE TO OCCUR DURING NON-REGULAR BUSINESS HOURS. COORDINATE IN WRITING WITH OWNER ONE WEEK PRIOR TO PLANNED POWER INTERRUPTIONS.

APPLICABLE CODES & STANDARDS

CODES:

1. 2013 CALIFORNIA ADMINISTRATIVE CODE C.C.R., TITLE 24, PART 1.
2. 2013 CALIFORNIA BUILDING CODE (CBC) C.C.R., TITLE 24, VOL. 1 & 2 BASED ON THE 2012 INTERNATIONAL BUILDING CODE (IBC) WITH CALIFORNIA AMENDMENTS.
3. 2013 CALIFORNIA RESIDENTIAL CODE C.C.R., TITLE 24, PART 2.5 BASED ON THE 2012 INTERNATIONAL RESIDENTIAL CODE WITH CALIFORNIA AMENDMENTS.
4. 2013 CALIFORNIA ELECTRICAL CODE (CEC) C.C.R., TITLE 24, PART 3 BASED ON THE 2011 NATIONAL ELECTRICAL CODE (NEC) WITH CALIFORNIA AMENDMENTS.
5. 2013 CALIFORNIA MECHANICAL CODE (CMC) C.C.R., TITLE 24, PART 4 BASED ON THE 2012 UNIFORM MECHANICAL CODE (UMC) WITH CALIFORNIA AMENDMENTS.
6. 2013 CALIFORNIA PLUMBING CODE (CPC) C.C.R., TITLE 24, PART 5 BASED ON THE 2012 UNIFORM PLUMBING CODE (UPC) WITH CALIFORNIA AMENDMENTS.
7. 2013 CALIFORNIA ENERGY CODE C.C.R., TITLE 24, PART 6.
8. 2013 CALIFORNIA FIRE CODE (CFC) C.C.R., TITLE 24, PART 9 BASED ON THE 2012 INTERNATIONAL FIRE CODE (IFC) WITH CALIFORNIA AMENDMENTS.
9. 2013 CALIFORNIA GREEN BUILDING STANDARDS CODE C.C.R., TITLE 24, PART 11.
10. 2013 CALIFORNIA REFERENCED STANDARDS CODE C.C.R., TITLE 24, PART 12.
11. TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.
12. NATIONAL FIRE ALARM CODE (NFPA 72) 2010.
13. COUNTY OF SAN MATEO ORDINANCES, CODES, AND REGULATIONS.

STANDARDS:

1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
2. ELECTRONICS INDUSTRIES ASSOCIATION (EIA)
3. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
4. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
5. NATIONAL ELECTRICAL TESTING ASSOCIATION (NETA)
6. UNDERWRITER LABORATORIES (UL)
7. CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ACT STANDARDS (CAL/OSHA)

SHEET INDEX

BID SET

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REGISTERED PROFESSIONAL ENGINEER CLIFFORD O. BALL No. 22172 ELECTRICAL STATE OF CALIFORNIA

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REGISTERED PROFESSIONAL ENGINEER PETER N. WARE No. 055608 EXP. 12/31/14 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: N.A.
CHECKED BY: E.O.B.
DRAWN BY: CADD

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
SYMBOLS, ABBREVIATIONS, CODES, STANDARDS, NOTES & SHEET INDEX

SCALE: AS NOTED
DATE: 10-17-2014
FILE NO.: 1/4915

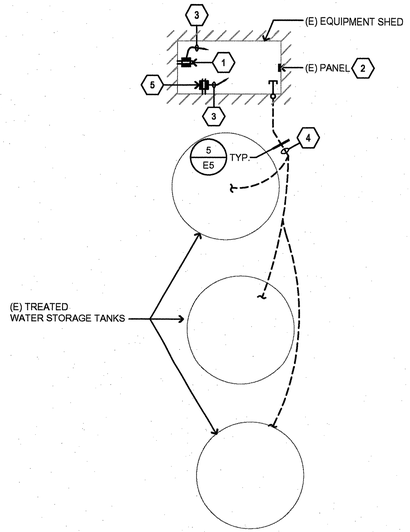
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

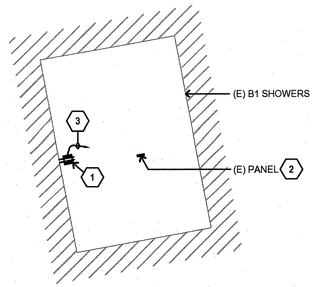
E1
SHEET 26 OF 30

FILENAME: G:\PROJECTS\14 JOBS\14129.00 MEMORIAL PARK WATER TREATMENT IMPROVEMENTS\DWGS01\14129E1.DWG (PAPER SPACE)



3 (E) TREATED WATER STORAGE TANKS PLAN

NOT TO SCALE



2 (E) B1 SHOWERS PLAN

NOT TO SCALE

SHEET NOTES

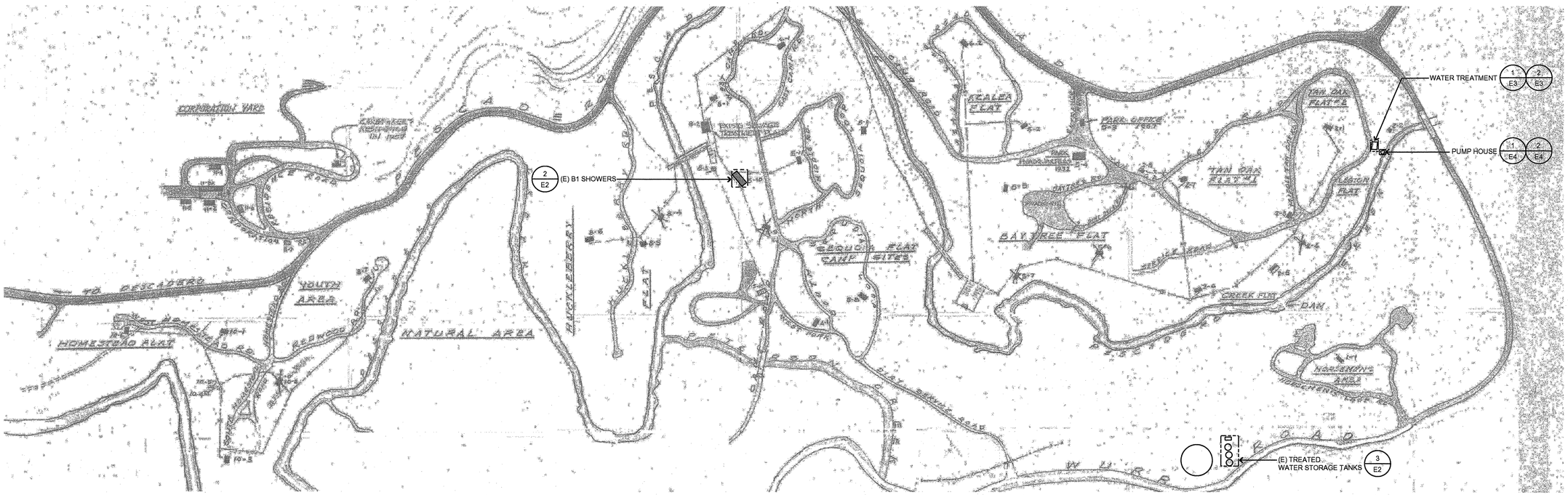
1. LOCATE FOR RADIO ANTENNA POWER; 120V. PROVIDE & INSTALL CORD & PLUG. VERIFY EXACT LOCATION WITH OWNER'S REPRESENTATIVE.
2. (E) PANEL; PROVIDE & INSTALL (2) NEW 20 AMP, 1-POLE BREAKERS. NEW BREAKER SHALL MATCH EXISTING IN RATING & TYPE.
3. ¾"C., 2 #12 & 1 #12 GND.
4. PROVIDE & INSTALL (3) ¾"C.O. FOR SENSOR CONTROL WIRES. ROUTE (1) ¾"C.O. TO EACH TANK. CONTRACTOR SHALL COORDINATE WITH CIVIL ENGINEER & CONTROLS CONTRACTOR FOR EXACT REQUIREMENTS.
5. LOCATE FOR CONTROL PANEL, 120V. VERIFY EXACT LOCATION WITH OWNER'S REPRESENTATIVE.

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015



1 OVERALL SITE PLAN

SCALE: 1"=50'-0"

50 0 25 50
SCALE IN FEET

BID SET

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REGISTERED PROFESSIONAL ENGINEER PETER N. KISSEL No. 055605 EXP. 12/31/14 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY: N.A.
CHECKED BY: E.O.B.
DRAWN BY: CADD

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
OVERALL SITE, (E) B1 SHOWERS & (E) TREATED WATER STORAGE TANKS PLANS

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS NOTED
DATE: 10-17-2014
FILE NO.: 1/4915

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

E2
SHEET 27 OF 30

FILENAME: G:\PROJECTS\14 JOBS\14129.00 MEMORIAL PARK WATER TREATMENT IMPROVEMENTS\DWG\01\14129E2.DWG (PAPER SPACE)

PANELBOARD SCHEDULE

Voltage:	120/240V, 1ø
Wire:	3W
Type:	NEMA 1
Mains:	100/2

[1] [3] PANEL WT

TV5S 1G5KA SQ. D or SIEMENS

Bussing:	225A
Feed:	TOP
Mounting:	SURFACE
A.I.C.	10,000

Load	A	B	Bkr	Ck	ab	Ck	Bkr	A	B	Load
PUMP STATION CONTROL PANEL	6473		70/2	1		2	20/1	200		EXISTING LIGHTS
PUMP STATION CONTROL PANEL		6473		3		4	20/1		1000	RECEPTS - STRIP HEATERS
MAIN CONTROL PANEL	1600		20/1	5		6	20/1	360		RECEPTS - WATER TREATMENT BLDG.
SPARE			20/1	7		8	20/1		1000	RECEPTS - WATER TREATMENT BLDG.
SPARE			20/1	9		10	20/1	360		RECEPTS - WATER TREATMENT BLDG.
SPARE			20/1	11		12	20/1		360	RECEPTS - WATER TREATMENT BLDG.
SPARE			20/1	13		14	20/1	360		RECEPTS - WATER TREATMENT BLDG.
SPARE			20/1	15		16	60/2			GENERATOR ATS
SPACE ONLY			-	17		18				GENERATOR ATS
SPACE ONLY			-	19		20	-			SPACE ONLY
SPACE ONLY			-	21		22	-			SPACE ONLY
SPACE ONLY			-	23		24	-			SPACE ONLY
SPACE ONLY			-	25		26	-			SPACE ONLY
SPACE ONLY			-	27		28	-			SPACE ONLY
SPACE ONLY			-	29		30	-			SPACE ONLY
	8073	6473						1280	2360	

[1] SUBMITTAL SHALL MATCH EXACT BREAKER LOCATIONS SHOWN.
[2] PROVIDE & INSTALL LOCK-ON DEVICE.
[3] LABEL PANEL FOR SHORT CIRCUIT AMPS AVAILABLE PER CEC 110-22.

KVA Phase A	9.4
KVA Phase B	8.8

Total Load KVA	18.2
Total Load Amperes	76

SHEET NOTES

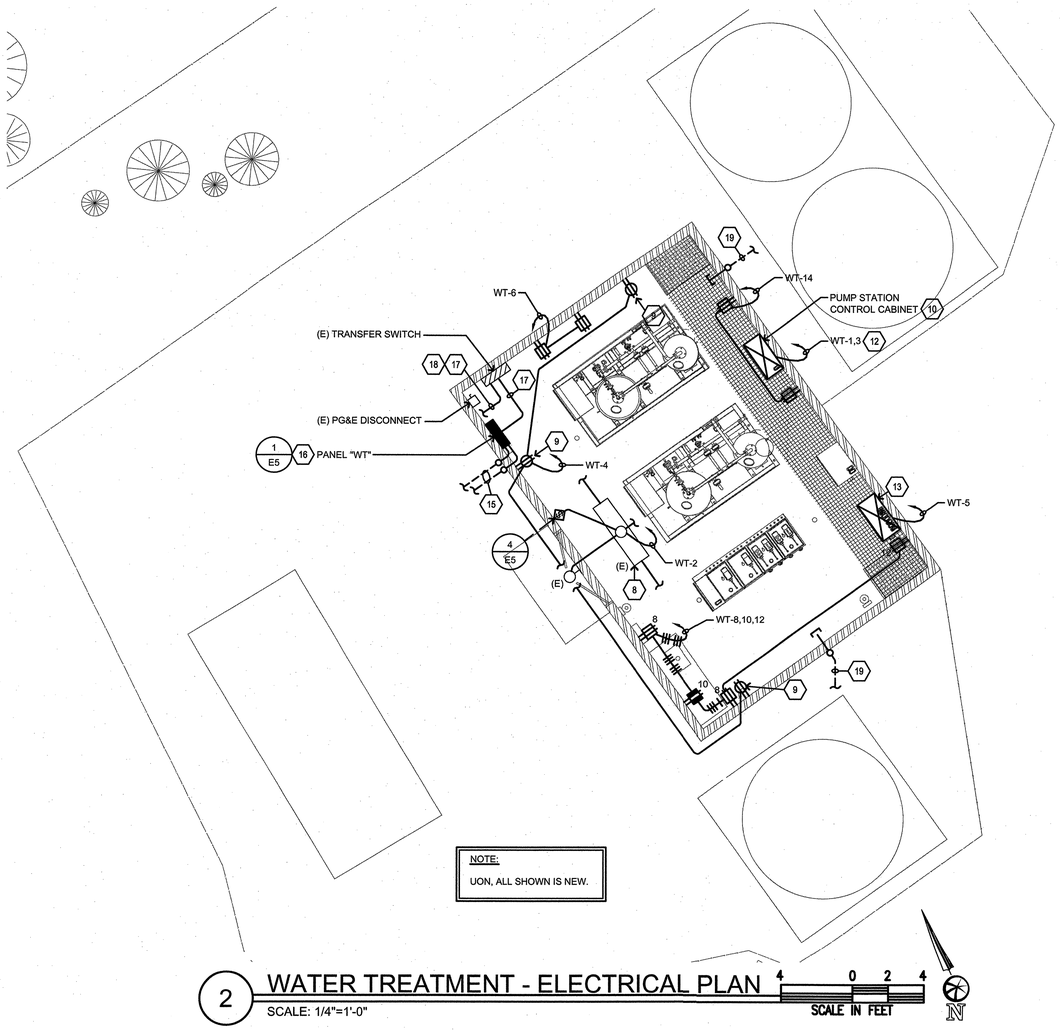
1. (E) TO REMAIN, SEE 2/E3 FOR NEW CIRCUIT CONNECTION FROM NEW PANEL.
2. (E) (2) 1"C. FOR SUMP PUMPS TO REMAIN, SEE 2/E3 FOR NEW CIRCUIT CONNECTION. PRESERVE (E) WIRE & CONDUITS.
3. ALL (E) LIGHT FIXTURES, ASSOCIATED CIRCUIT WIRING & CONTROL WIRING TO REMAIN; SEE 2/E3 FOR NEW CIRCUIT & NEW LIGHT SWITCH.
4. CONTRACTOR SHALL PRESERVE EXISTING SUSPENDED STRIP HEATER & ASSOCIATED CONTROLS; FIELD VERIFY EXACT QUANTITY. SEE 2/E3 FOR NEW CIRCUIT CONNECTION.
5. UON PER GENERAL DEMOLITION NOTES ON SHEET E1, CONTRACTOR SHALL COORDINATE WITH OWNER & DEMOLISH (E) ELECTRICAL EQUIPMENT, DEVICES & CONNECTIONS WITHIN (E) BUILDING. FIELD VERIFY EXISTING DEVICES & EQUIPMENT TO BE DEMOLISHED.
6. (E) INCOMING OVERHEAD ELECTRICAL SERVICE TO REMAIN.
7. (E) GENERATOR QUICK-CONNECT TO REMAIN, RE-CONNECT VIA 1 ½"C. & CABLES TO NEW PANEL & (E) TRANSFER SWITCH.
8. HOMERUN 20 AMP CIRCUIT & CONNECT ALL (E) LIGHT FIXTURES VIA THIS NEW CIRCUIT & WALL OCCUPANCY SENSOR FOR CONTROL.
9. LOCATE WITHIN 12" OF CEILING FOR (E) SUSPENDED STRIP HEATER CORD & PLUG CONNECTION; FIELD VERIFY EXACT LOCATION.
10. CONNECT CONTROL CABINET PER MFR INSTALLATIONS INSTRUCTIONS; 240V, 1Ø.
11. REMOVE (E) LIGHTING CONTROL SWITCH. SEE 2/E3 FOR NEW CONDUIT, CIRCUIT & CONTROL WIRE FOR NEW OCCUPANCY SENSOR SWITCH.
12. 1 ½"C., 3 #2 & 1 #8 GND.
13. MAIN CONTROL PANEL.
14. REMOVE PER GENERAL DEMOLITION NOTES ON SHEET E1.
15. EXISTING (2) 1"C. PRESERVED FOR RE-CONNECTION OF EXISTING PUMPS. PROVIDE & INSTALL (1) J-BOX EACH, INTERCEPT EACH CONDUIT, SPLICE & EXTEND ½"C. TO NEW PANEL 'WT' & CONNECT EACH CIRCUIT TO NEW BREAKER.
16. AT NEW PANEL; PROVIDE & INSTALL (2) BREAKERS; (1) EACH FOR (E) SUMP PUMP CONNECTIONS (FOR REFERENCE SEE SHEET NOTES #2 & #15 ON THIS SHEET).
17. PROVIDE & INSTALL 1"C., 3 #2 & 1 #6 GND.
18. TO (E) GENERATOR QUICK CONNECT AT EXTERIOR OF BUILDING.
19. PROVIDE & INSTALL 1 ½"C.O. FOR SENSOR WIRING TO TANK(S) FROM WATER TREATMENT BUILDING. CONTRACTOR SHALL VERIFY WITH OWNER'S REPRESENTATIVE FOR EXACT LOCATION TO STUB CONDUIT(S) AT EACH END.

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

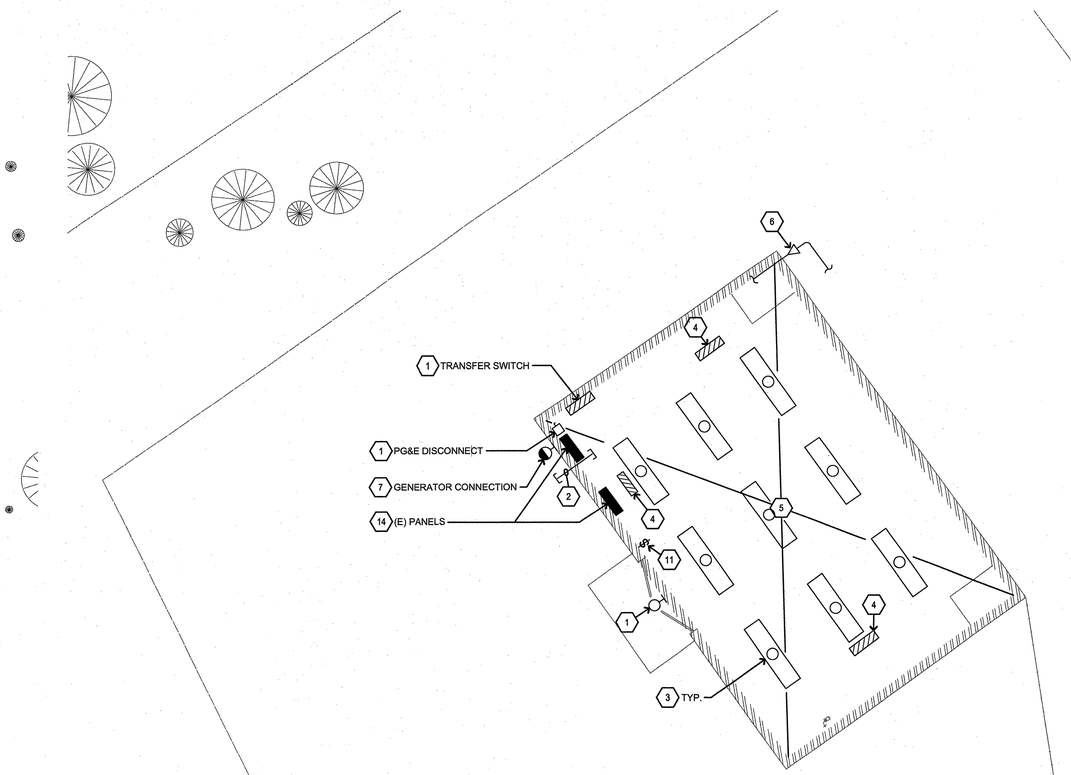
JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015



2 WATER TREATMENT - ELECTRICAL PLAN

SCALE: 1/4"=1'-0"

4 0 2 4
SCALE IN FEET
N



1 WATER TREATMENT - DEMOLITION PLAN

SCALE: 1/4"=1'-0"

4 0 2 4
SCALE IN FEET
N

BID SET

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REGISTERED PROFESSIONAL ENGINEER GEORGE O. BIRD C 27674 ELECTRICAL STATE OF CALIFORNIA

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REGISTERED PROFESSIONAL ENGINEER PETER H. BLAKE NO. 055608 EXP. 12/31/14 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY:	N.A.
CHECKED BY:	E.O.B.
DRAWN BY:	CADD

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
WATER TREATMENT - DEMOLITION & ELECTRICAL PLAN

SCALE:	AS NOTED
DATE:	10-17-2014
FILE NO.:	1/4915

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

E3
SHEET 28 OF 30

FILENAME: G:\PROJECTS\14 JOBS\14129.00 MEMORIAL PARK WATER TREATMENT IMPROVEMENTS\DWGS\D1\14129E3.DWG (PAPER SPACE)

PANELBOARD SCHEDULE

Voltage:	120/240V,3ø
Wire:	4W
Type:	NEMA 1
Mains:	M.L.O.

[1] [3] PANEL P

TVSS 165kA SQ. D or SIEMENS

Bussing:	100A
Feed:	SIDE
Mounting:	SURFACE
A.I.C.	10,000

Load	A	B	C	Bkr	Ck	abc	Ck	Bkr	A	B	C	Load
RWP-1	1333				1		2		1333			RWP-2
RWP-1		1333		15/3	3		4	15/3		1333		RWP-2
RWP-1			1333		5		6				1333	RWP-2
RECEPT	180			20/1	7		8	-				SPACE ONLY
EXISTING LIGHTS		62		20/1	9		10	-				SPACE ONLY
SPARE				20/1	11		12	-				SPACE ONLY
SPACE ONLY				-	13		14	-				SPACE ONLY
SPACE ONLY				-	15		16	-				SPACE ONLY
SPACE ONLY				-	17		18	-				SPACE ONLY
SPACE ONLY				-	19		20	-				SPACE ONLY
	1513	1395	1333						1333	1333	1333	

1. SUBMITTAL SHALL MATCH EXACT BREAKER LOCATIONS SHOWN.
2. PROVIDE & INSTALL LOCK-ON DEVICE.
3. LABEL PANEL FOR SHORT CIRCUIT AMPS AVAILABLE PER CEC 110-22.

KVA Phase A	2.6
KVA Phase B	2.7
KVA Phase C	2.7

Total Connected Load KVA	8.2
Total Load Amperes	20

SHEET NOTES

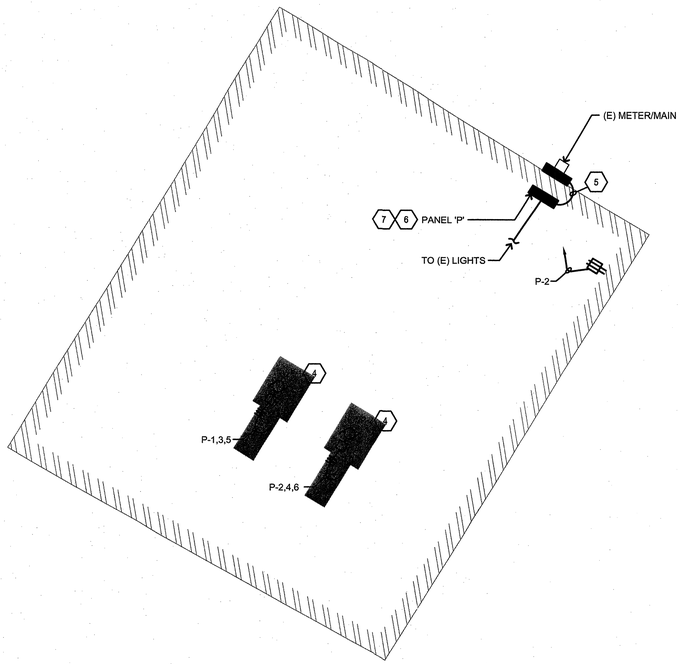
1. DEMOLISH PER GENERAL DEMOLITION NOTES ON SHEET E1.
2. REMOVE EXISTING LOAD CENTER PER GENERAL DEMOLITION NOTES ON SHEET E1.
3. PRESERVE (E) LIGHTING CONDUIT & WIRE FOR RE-CONNECTION TO NEW PANEL; SEE 2/E4.
4. 2 HP, 240V, 3Ø.
5. PROVIDE & INSTALL 1 ½"C., 4 #2 & 1 #8 GND TO FEED NEW PANEL 'P'.
6. PROVIDE & INSTALL NEW PANEL 'P' AT SAME WALL WHERE (E) LOAD CENTER WAS REMOVED. RE-CONNECT LIGHTING CIRCUIT TO NEW BREAKER.
7. SEE PANELBOARD SCHEDULE ON THIS SHEET FOR RATINGS OF PANEL & ASSOCIATED BREAKERS. SEE GROUNDING DETAIL 2/E5 FOR PANEL GROUNDING REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/15 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

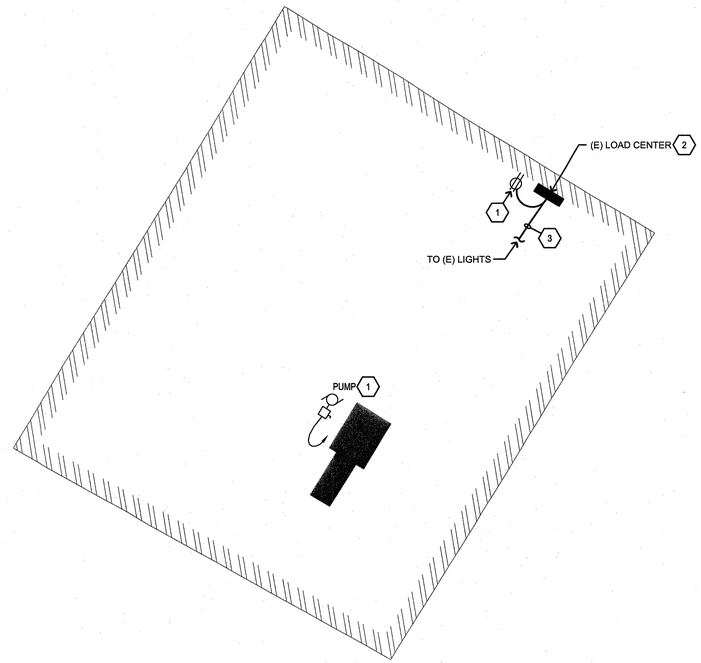


NOTE:
UON, ALL SHOWN IS NEW.

2 PUMP HOUSE - ELECTRICAL PLAN

SCALE: 1/2"=1'-0"

2 0 1 2 SCALE IN FEET N



1 PUMP HOUSE - DEMOLITION PLAN

SCALE: 1/2"=1'-0"

2 0 1 2 SCALE IN FEET N

BID SET

AURUM CONSULTING ENGINEERS
MONTEREY BAY, INC.
Project No. 14129.00
60 Garden Court • Suite 210 •Monterey, CA 93940
T.831.646.3330 • F.831.646.3336 www.aceinb.com

REGISTERED PROFESSIONAL ENGINEER GERALDINE C. STEED C.E.M. 2360 ELECTRICAL STATE OF CALIFORNIA

FALL CREEK ENGINEERING, INC.
Civil • Environmental • Water Resources
P.O. BOX 7894, SANTA CRUZ, CA 95061
TEL. (831) 426-9054 FAX (831) 426-4932

REGISTERED PROFESSIONAL ENGINEER PETER H. BARR NO. 055605 EXP. 12/31/14 CIVIL STATE OF CALIFORNIA

COUNTY OF SAN MATEO PUBLIC WORKS

REVISION	DATE

DESIGNED BY:	N.A.
CHECKED BY:	E.O.B.
DRAWN BY:	CADD

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
PUMP HOUSE -
DEMOLITION & ELECTRICAL PLAN

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

SCALE: AS NOTED
DATE: 10-17-2014
FILE NO.: 1/4915

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

E4
SHEET 29 OF 30

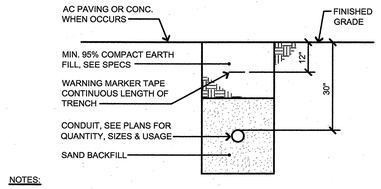
FILENAME: G:\PROJECTS\14 JOBS\14129.00 MEMORIAL PARK WATER TREATMENT IMPROVEMENTS\DWGS01\14129E4.DWG (PAPER SPACE)

REGISTERED PROFESSIONAL ENGINEER
JAMES C. PORTER
C 48056
EXPIRES 12/31/15
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: 10-17-14

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2015

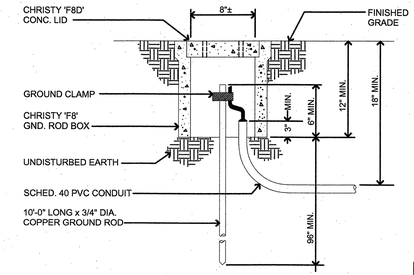


NOTES:

1. EXISTING A.C. SHALL BE CUT AND REMOVED IN SUCH A MANNER SO AS NOT TO TEAR, BULGE OR DISPLACE ADJACENT PAVEMENT. EDGES SHALL BE CLEAN AND VERTICAL. ALL CUTS SHALL BE PARALLEL OR PERPENDICULAR TO STREET CENTERLINE, WHEN PRACTICAL.
2. BASE MATERIAL TO BE REPLACED TO THE DEPTH OF EXISTING BASE AND COMPACTED TO A MIN. 95% RELATIVE COMPACTION.
3. A TACK COAT OF ASPHALTIC EMULSION OR PAVING ASPHALT SHALL BE APPLIED TO EXISTING A.C. AT ALL CONTACT SURFACES, PRIOR TO RESURFACING.
4. ASPHALTIC CONCRETE RESURFACING. A) MINIMUM TOTAL THICKNESS SHALL BE ONE INCH GREATER THAN EXISTING A.C. B) A.C. SHALL HOT PLANT MIX.
5. ALL A.C. RESURFACING SHALL BE SEAL COATED WITH AN EMULSIFIED ASPHALT AND COVERED WITH CLEAN SAND.

5 TYPICAL TRENCH SECTION

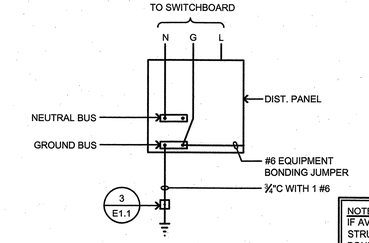
NO SCALE



NOTE:
WHERE METAL CONDUIT USED IN LIEU OF PVC, PROVIDE GROUND BUSHINGS & BONDS PER CODE.

3 GROUND ROD DETAIL

NO SCALE

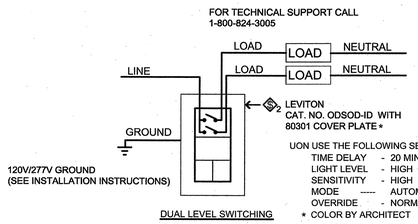


NOTE:
IF AVAILABLE ON THE PREMISES AT EACH BUILDING OR STRUCTURE SERVED EACH OF THE FOLLOWING SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM:
a. METAL UNDERGROUND WATER PIPE,
b. METAL FRAME OF BUILDING,
c. GROUND RING,
d. OTHER ELECTRODES PER CEC 250-50

2 BLDG. PANEL GROUNDING

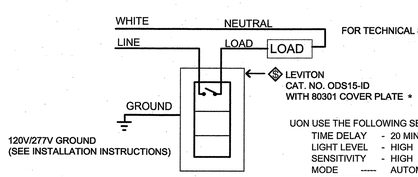
NO SCALE

FOR TECHNICAL SUPPORT CALL 1-800-824-3005



UON USE THE FOLLOWING SETTINGS
TIME DELAY - 20 MINUTES
LIGHT LEVEL - HIGH
SENSITIVITY - HIGH
MODE ----- AUTOMATIC ON
OVERRIDE - NORMAL
* COLOR BY ARCHITECT

DUAL LEVEL SWITCHING



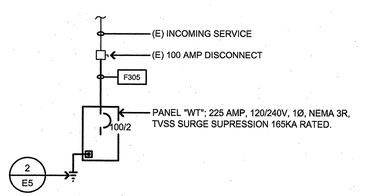
FOR TECHNICAL SUPPORT CALL 1-800-824-3005

UON USE THE FOLLOWING SETTINGS
TIME DELAY - 20 MINUTES
LIGHT LEVEL - HIGH
SENSITIVITY - HIGH
MODE ----- AUTOMATIC ON
OVERRIDE - NORMAL
* COLOR BY ARCHITECT

SINGLE LEVEL SWITCHING

4 WALL OCCUPANCY SENSOR WIRING

NO SCALE



NOTE:
UON, ALL SHOWN IS NEW.

FEEDER SCHEDULE

DESIGNATION	AMPACITY	CONDUIT & CONDUCTORS
F305	125	1 1/2" C., 3 #1 & 1 #6 GND.

1 SINGLE LINE DIAGRAM FOR WATER TREATMENT BLDG.

NO SCALE

BID SET

AURUM CONSULTING ENGINEERS
MONTEREY BAY, INC.
Project No. 14129.00
60 Garden Court • Suite 210 •Monterey, CA 93940
T.831.648.3330 •F.831.648.3336 •www.aurmb.com

REGISTERED PROFESSIONAL ENGINEER
GEORGE C. BRADY
No. E 13911
ELECTRICAL
STATE OF CALIFORNIA

FALL CREEK ENGINEERING, INC.
Consulting Engineers
Civil • Environmental • Water Resources
P.O. BOX 7894, SANTA CRUZ, CA 95061
TEL. (831) 426-9054 FAX (831) 426-4932

REGISTERED PROFESSIONAL ENGINEER
PETER H. KANE
No. 055805
EXP. 12/31/14
CIVIL
STATE OF CALIFORNIA

COUNTY OF SAN MATEO
PUBLIC WORKS

REVISION	DATE

DESIGNED BY: N.A.
CHECKED BY: E.O.B.
DRAWN BY: CADD

MEMORIAL PARK WATER TREATMENT IMPROVEMENT PROJECT
ELECTRICAL DETAILS

SCALE: AS NOTED
DATE: 10-17-2014
FILE NO.: 1/4915

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
SAN MATEO COUNTY

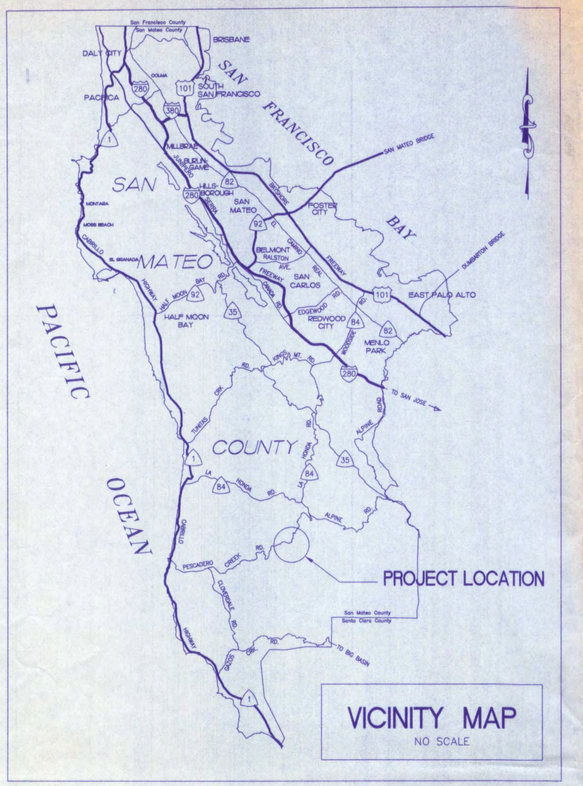
555 COUNTY CENTER, 5th FLOOR
REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES
0 1 2 3 4

E5
SHEET 30 OF 30

FILENAME: G:\PROJECTS\14 JOBS\14129.00 MEMORIAL PARK WATER TREATMENT IMPROVEMENTS\DWGS01\14129E5.DWG (PAPER SPACE)

SAN MATEO COUNTY
CALIFORNIA



VICINITY MAP
NO SCALE

MEMORIAL PARK
SANITARY SEWER REHABILITATION PROJECT
WITH APPURTENANT WORK THERETO

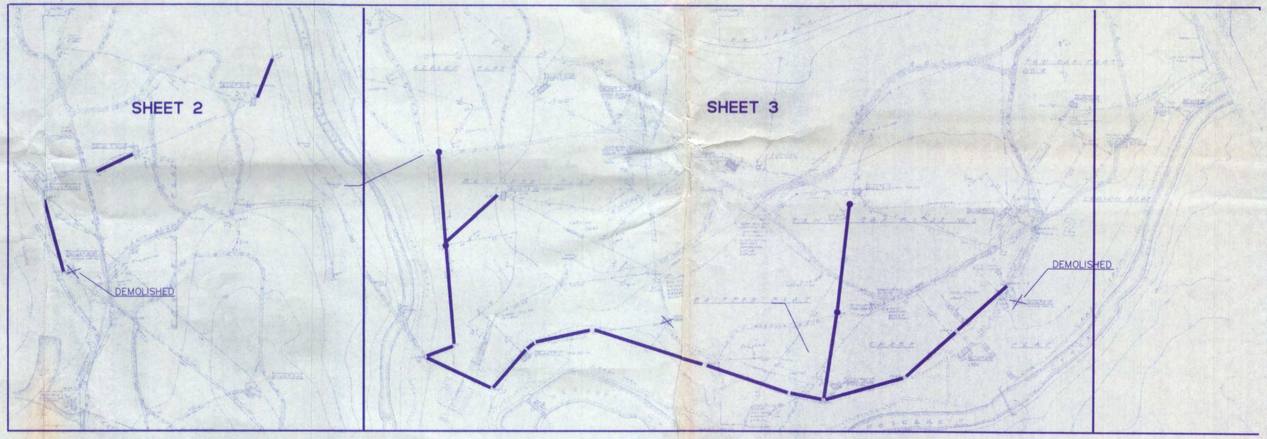
TO BE SUPPLEMENTED BY STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED JULY 1999 AND ADOPTED BY SAN MATEO COUNTY, FEBRUARY 15, 2000, BY RESOLUTION NO. 63418

REGISTERED PROFESSIONAL ENGINEER
NEIL R. CULLEN
C 19109
CIVIL
STATE OF CALIFORNIA

APPROVED:

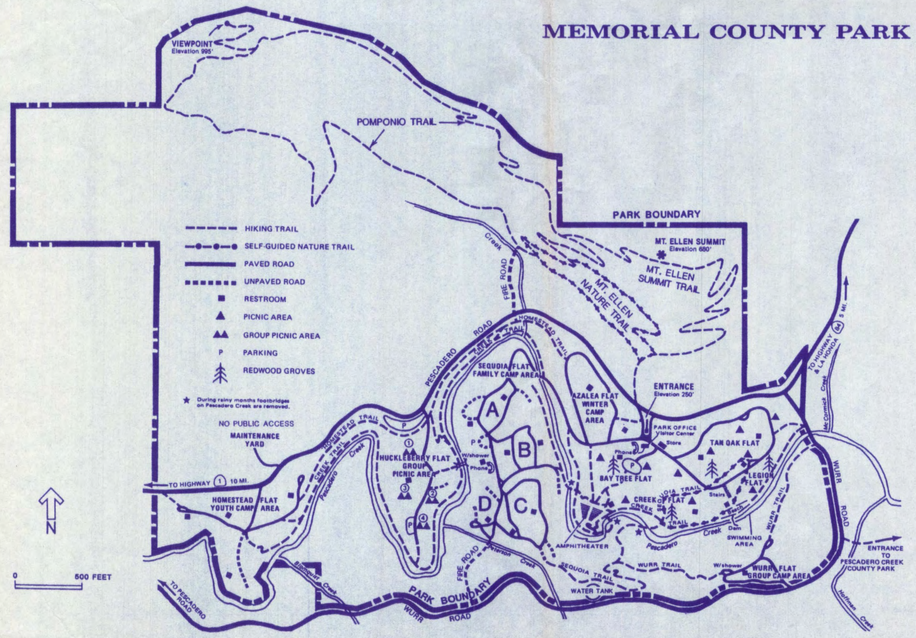
DATE: JULY 21, 2000

NEIL R. CULLEN, DIRECTOR OF PUBLIC WORKS
R.C.E. #19109 / EXPIRES 9-30-2001



SHEET INDEX
NO SCALE

MEMORIAL COUNTY PARK



LOCATION MAP
NO SCALE

GENERAL NOTES

1. CONTRACTOR SHALL CONFINE HIS OPERATIONS AND ACTIVITIES WITHIN THE PROJECT LIMITS, CONSISTING OF ROAD RIGHT-OF-WAY, RIGHTS OF ENTRY, AND AS DIRECTED BY THE ENGINEER.
2. CONTINUOUS DUST CONTROL SHALL BE PROVIDED AS REQUIRED BY SECTION 10 "DUST CONTROL," OF THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
3. VEGETATION AND IMPROVEMENTS SHALL BE REMOVED ONLY WHEN DIRECTED IN WRITING BY THE ENGINEER. NO TREES, VEGETATION OR IMPROVEMENTS SHALL BE REMOVED WITHOUT THE PRIOR WRITTEN CONSENT AND APPROVAL OF THE ENGINEER.
4. CONTRACTOR SHALL EXERCISE CARE WHEN EXCAVATING NEAR TREES AND ROOTS OF TREES TO REMAIN.
5. CONTRACTOR SHALL NOTIFY U.S.A. AT LEAST TWO (2) WORKING DAYS PRIOR TO PERFORMING ANY EXCAVATION NEAR UNDERGROUND UTILITIES BY CALLING TEL. NO. 1-800-642-2444.

SHEET INDEX:

REGISTERED PROFESSIONAL ENGINEER
YOUSEF MORADZADEH
C42632
3/31/04
CIVIL
STATE OF CALIFORNIA

DATE: JULY 21, 2000

YOUSEF MORADZADEH, PROJECT MANAGER
BRIAN KANGAS FOULK
R.C.E. #42632 / EXPIRES 3-31-2004

Brian Kangas Foulk
Engineers • Surveyors • Planners
540 PRICE AVENUE
REDWOOD CITY, CA 94063
650/482-6300
650/482-6399 (FAX)

		DESIGNED BY: MC	MEMORIAL PARK SANITARY SEWER REHABILITATION PROJECT TITLE SHEET	SCALE: AS INDICATED
		CHECKED BY: AMS		DATE: JULY 2000
		DRAWN BY: MC		FILE NO.: 1/4564
REVISION	DATE	NEIL R. CULLEN DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5TH FLOOR REDWOOD CITY, CALIFORNIA 94063	
FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4				SHEET 1 of 4

F:\USERS\DESIGN\SDSK\PROJ\E456-4000\DWG\E-456-4001.DWG

ABBREVIATIONS:

EXIST	EXISTING
MH	MANHOLE
W	WATER

LEGEND:

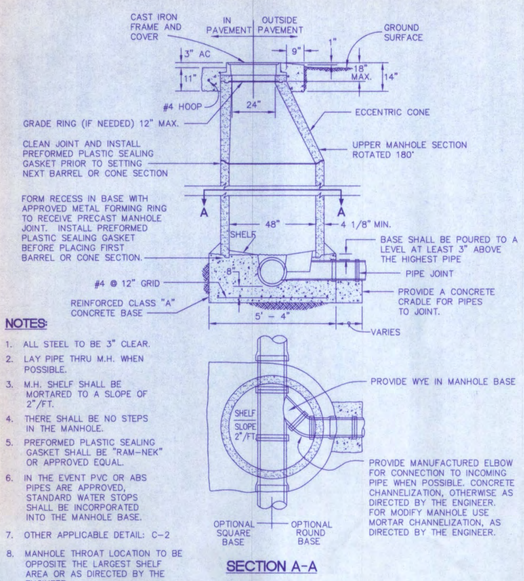
EXISTING SEWER MAIN SYSTEM

EXISTING SEWER MANHOLE

PROPOSED SEWER MANHOLE

PROPOSED SEWER MAIN PIPE BURSTING

SSMH No.1 — MANHOLE NUMBER AND FIELD PICTURE REFERENCE NO. (SEE SHEET 4 OF 4)



NOTES:

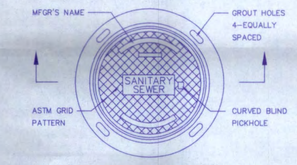
1. ALL STEEL TO BE 3" CLEAR.
2. LAY PIPE THRU M.H. WHEN POSSIBLE.
3. M.H. SHELF SHALL BE MORTARED TO A SLOPE OF 2"/FT.
4. THERE SHALL BE NO STEPS IN THE MANHOLE.
5. PREFORMED PLASTIC SEALING GASKET SHALL BE "RAM-NEK" OR APPROVED EQUAL.
6. IN THE EVENT PVC OR ABS PIPES ARE APPROVED, STANDARD WATER STOPS SHALL BE INCORPORATED INTO THE MANHOLE BASE.
7. OTHER APPLICABLE DETAIL: C-2
8. MANHOLE THROAT LOCATION TO BE OPPOSITE THE LARGEST SHELF AREA OR AS DIRECTED BY THE ENGINEER

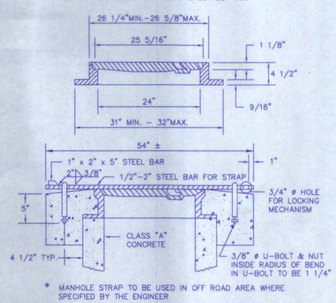
SECTION A-A

SANITARY SEWER MANHOLE DETAIL

GENERAL NOTE:

FRAME AND COVER SHALL MEET OR EXCEED THE REQUIREMENTS OF AASHTO H-20 LOADING.





* ALL MATERIALS USED SHALL CONFORM TO ASTM SPEC. A-159-70T-G3000 OR U.S. GOV'T SPEC. QQ1-653

* MANHOLE STRAP TO BE USED IN OFF ROAD AREA WHERE SPECIFIED BY THE ENGINEER

* U-BOLTS, NUT & STRAP SHALL BE HOT DIP GALVANIZED AFTER FABRICATION

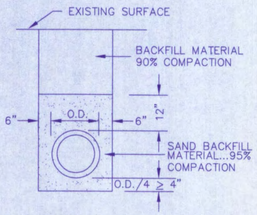
SECTION

SANITARY SEWER MANHOLE COVER, FRAME AND STRAP DETAIL

APPROVED:

DATE: JULY 21, 2000

NEIL R. CULLEN, DIRECTOR OF PUBLIC WORKS
R.C.E. #19109 / EXPIRES 9-30-2001



TYPE B (OUTSIDE ROADWAY)

NOTES:

1. SAND.... MATERIAL FREE FROM ORGANIC MATTER AND CLAY WITH A SIEVE GRADATION BY WEIGHT AS FOLLOWS:

SIEVE SIZE	% PASSING SIEVE
No. 4	100
No. 200	0-5

2. STRUCTURE BACKFILL MATERIAL.... MATERIAL WITH SAND EQUIVALENT NOT LESS THAN 20 AND SIEVE GRADATION BY WEIGHT AS FOLLOWS:

SIEVE SIZE	% PASSING SIEVE
3"	100
No. 4	35-100
No. 30	20-100

3. BACKFILL MATERIAL.... MATERIAL FROM EXCAVATION, FREE FROM STONES OR LUMPS EXCEEDING 3 INCHES GREATEST DIMENSION, ORGANIC MATTER, OR OTHER UNSATISFACTORY MATERIAL.

STANDARD TRENCH BACKFILL AND BEDDING DETAIL FOR PVC SEWER PIPE

NOTES

1. ALL SEWER MAIN AND LATERAL REPLACEMENT SHALL BE DONE WITH PIPE BURSTING METHODS.
2. EQUIPMENT USED FOR PIPE BURSTING SHALL BE SMALL ENOUGH AND LIGHT ENOUGH TO BE MOVED TO AND FROM THE ACCESS MANHOLES WITHOUT DAMAGING EXISTING TRAILS OR THE SURROUNDING VEGETATION. CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM PARK RANGER FOR DESIGNATED ACCESS ROUTES PRIOR TO COMMENCING ANY WORK.
3. CONTRACTOR IS STRONGLY ENCOURAGED TO ATTEND THE PROJECT PRE-BID MEETING TO DETERMINE SITE CONSTRUCTION CONSTRAINTS. IF IT IS NOT POSSIBLE TO ATTEND THE PRE-BID MEETING, CONTRACTOR MUST VISIT SITE PRIOR TO BIDDING TO OBSERVE SITE CONSTRAINTS. SHEET 4 OF THIS PLAN SET SHOWS PHOTOS OF SEVERAL MANHOLE LOCATIONS AND IS INTENDED TO PROVIDE AN INDICATION OF CONSTRUCTION CONDITIONS. WHEN SUBMITTING A BID THE CONTRACTOR MUST CERTIFY THAT HE HAS VISITED THE SITE AND HAS SATISFIED HIMSELF THAT HE CAN PERFORM THE REQUIRED WORK TAKING INTO ACCOUNT THE SITE CONSTRAINTS BY SIGNING THE APPROPRIATE PAGE IN THE PROPOSAL SECTION OF THE SPECIFICATIONS. SEE SECTION 100.03, PARAGRAPH 2 OF TECHNICAL SPECIFICATIONS.
4. EXISTING TOPOGRAPHY AND UTILITY LAYOUT SHOWN HAVE BEEN OBTAINED FROM COUNTY RECORD DRAWINGS, LATEST REVISION DATE 12/27/1973. THIS INFORMATION SHOWN IS INTENDED TO PROVIDE THE CONTRACTOR WITH AN INDICATION OF THE GENERAL LOCATION OF SEWER SYSTEM STRUCTURES WITH RESPECT TO PHYSICAL IMPROVEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATIONS, DEPTHS AND DISTANCES OF EXISTING SANITARY SEWER SYSTEM.

FILENAME:

Brian Kangas Foulk
Engineers • Surveyors • Planners
540 PRICE AVENUE
REDWOOD CITY, CA 94063
650/482-6300
650/482-6399 (FAX)

		DESIGNED BY: YM	MEMORIAL PARK SANITARY SEWER REHABILITATION PROJECT PLAN AND DETAIL	SCALE: AS INDICATED
		CHECKED BY:		DATE: JULY 2000
		DRAWN BY: PC		FILE NO.: 1/4564
		NEIL R. CULLEN DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY		555 COUNTY CENTER, 5TH FLOOR REDWOOD CITY, CALIFORNIA 94063
REVISION	DATE			
FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4				SHEET 2 of 4

REGISTERED PROFESSIONAL ENGINEER
NEIL R. CULLEN
C 19109
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: JULY 21, 2000

NEIL R. CULLEN, DIRECTOR OF PUBLIC WORKS
R.C.E. #19109 / EXPIRES 9-30-2001

MATCH LINE (SEE SHEET 2 OF 4)

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

N

AZALEA FLAT
BAY TREE FLAT
TREE FLAT
TAN OAK NO. 2
TAN OAK FLAT NO. 1
CAMP #33
ROAD
SERVICE ROAD
CREEK
Scadero Creek
RUBBER TRAIL
DIRT SERV. ROAD
PARKING AREA
AMPHITHEATER

BLDG #B-2 CIRCA 1940
BLDG #B-3 PARK OFFICE CIRCA 1987
BLDG #B-4 HEADQUARTERS 1972
BLDG #B-5 CIRCA 1930-36
BLDG #B-6 CIRCA 1931
DEMOLISHED
BLDG #B-7 CIRCA 1930-36
BLDG #2-3
BLDG #2-4 CIRCA 1930-32
DEMOLISHED
BLDG #2-5 1956
BLDG #2-6 CIRCA 1930
BLDG #2-7 CIRCA 1930-36

SSMH No.11
REMOVE EXIST MH AND INSTALL NEW MH 5.0'(1.5m) DEEP
PIPE BURST EXIST 224 LF(68m) OF 4"(100mm) VCP WITH 4"(100mm) HDPE

PIPE BURST EXIST 160 LF (49m) OF 4"(100mm) VCP WITH 4"(100mm) HDPE

SSMH No.10
REMOVE EXIST MH AND INSTALL NEW MH 7.0'(2.1m) DEEP

PIPE BURST EXIST 209 LF (64m) OF 4"(100mm) VCP WITH 4"(100mm) HDPE

SSMH No.9
7.0'(2.1m) DEEP

PIPE BURST EXIST 267 LF (81.4m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

SSMH No.6
4.7'(1.4m) DEEP

EXIST BEND

PIPE BURST EXIST 71 LF (22m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

SSMH No.8
6.0'(1.8m) DEEP

PIPE BURST EXIST 165 LF (50m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

SSMH No.7
6.3'(1.9m) DEEP

PIPE BURST EXIST 269 LF (82m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

SSMH No.5
5.8'(1.8m) DEEP

PIPE BURST EXIST 273 LF (83m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

EXIST BEND

PIPE BURST EXIST 200 LF (61m) OF 4"(100mm) VCP WITH 4"(100mm) HDPE

SSMH No.4
4.7' (1.4m) DEEP

PIPE BURST EXIST 190 LF (58m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

SSMH No.3
4.7' (1.4m) DEEP

PIPE BURST EXIST 158 LF (48m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

SSMH No.2
3.3' (1.0m) DEEP

APPROXIMATE LOCATION OF RECENTLY REPAIRED PIPE WITH PVC C900 AND STAINLESS STEEL CLAMPS

SSMH No.13
REMOVE EXIST MH AND INSTALL NEW MH 5.3' (1.6m) DEEP

PIPE BURST EXIST 154 LF (47m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

SSMH No.1
6.2' (1.9m) DEEP
DEMOLISHED

REMOVE EXIST MH AND INSTALL NEW MH 2.8' (0.8m) DEEP
SSMH No.12

PIPE BURST EXIST 240 LF (73m) OF 4"(100mm) VCP WITH 4"(100mm) HDPE

ABBREVIATIONS:

EXIST	EXISTING
MH	MANHOLE
W	WATER

LEGEND:

—S—	EXISTING SEWER MAIN SYSTEM
◎	EXINSTING SEWER MANHOLE
●	PROPOSED SEWER MANHOLE
▬	PROPOSED SEWER MAIN PIPE BURSTING
SSMH No.1	MANHOLE NUMBER AND FIELD PICTURE REFERENCE NO. (SEE SHEET 4 OF 4)

Brian Kangas Foulk
Engineers • Surveyors • Planners
540 PRICE AVENUE
REDWOOD CITY, CA 94063
650/482-6300
650/482-6399 (FAX)

REVISION	DATE		
		DESIGNED BY: YM	MEMORIAL PARK SANITARY SEWER REHABILITATION PROJECT PLAN
		CHECKED BY:	SCALE: AS INDICATED
		DRAWN BY:	DATE: JULY 2000
			FILE NO.: 1/4564
		NEIL R. CULLEN DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5TH FLOOR REDWOOD CITY, CALIFORNIA 94063

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

SHEET 3 of 4

FILENAME: MPPRSS02.DWG

Enclosure 8

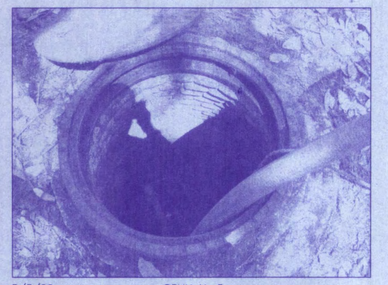
REGISTERED PROFESSIONAL ENGINEER
NEIL R. CULLEN
C 19109
CIVIL
STATE OF CALIFORNIA

APPROVED:

DATE: JULY 21, 2000

NEIL R. CULLEN, DIRECTOR OF PUBLIC WORKS
R.C.E. #19109 / EXPIRES 9-30-2001

5/3/00 SSMH No.1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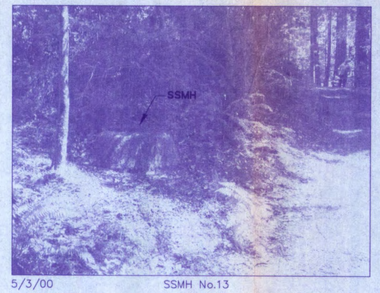

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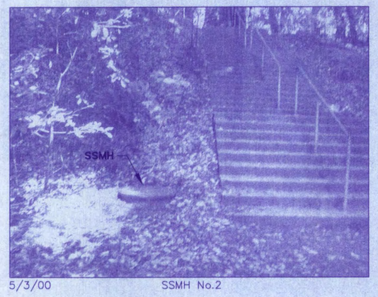

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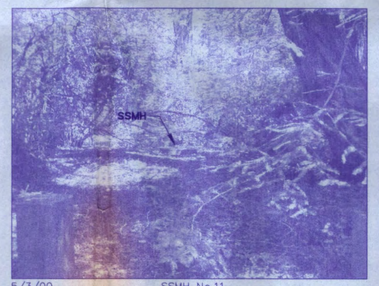

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5/3/00 SSMH No.12

5/3/00 SSMH No.16

FILENAME: MPPICTURES.DWG

Brian Kangas Foulk
Engineers • Surveyors • Planners
540 PRICE AVENUE
REDWOOD CITY, CA 94063
650/482-6300
650/482-6399 (FAX)

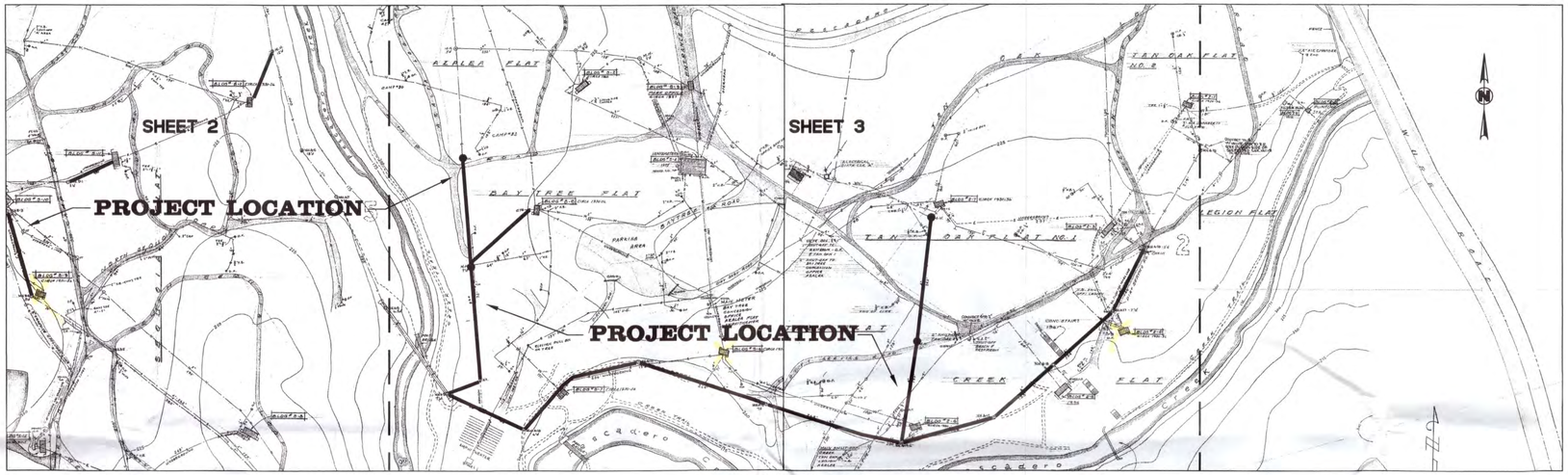
		DESIGNED BY: YM	MEMORIAL PARK	SCALE: NONE
		CHECKED BY:	SANITARY SEWER REHABILITATION PROJECT	DATE: JULY 2000
		DRAWN BY: KAW	REFERENCE PICTURE TABLE	FILE NO.: 1/4564
		NEIL R. CULLEN DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY		555 COUNTY CENTER, 5TH FLOOR REDWOOD CITY, CALIFORNIA 94063
REVISION	DATE			
FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES		0 1 2 3 4		SHEET 4 of 4

APPROVED:

DATE: _____

PAUL M. KOENIG, DIRECTOR
ENVIRONMENTAL SERVICES AGENCY

MEMORIAL PARK
SANITARY SEWER REHABILITATION PROJECT
SAN MATEO COUNTY



LOCATION MAP
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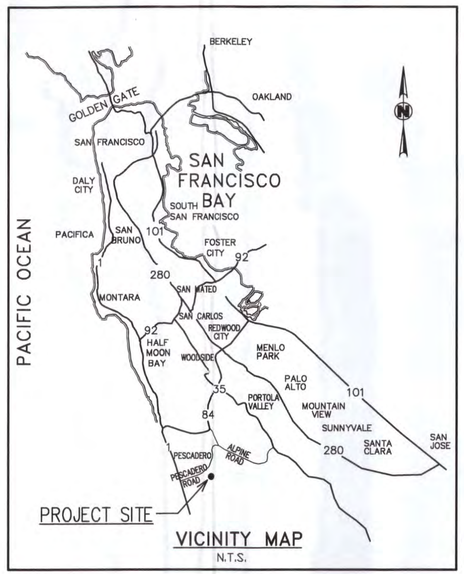

VICINITY MAP
N.T.S.

_____ date

DAVE EVANS, P.E.
PRINCIPAL IN CHARGE
BRIAN KANGAS FOULK

REGISTERED PROFESSIONAL ENGINEER
DAVID P. EVANS
No. 21539
Exp. 9/30/01
CIVIL
STATE OF CALIFORNIA

_____

YOUSEF MORADZADEH PROJECT MANAGER
BRIAN KANGAS FOULK

FILENAME:

JOHN KENNEY COMMENTS

Brian Kangas Foulk
Engineers • Surveyors • Planners
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650/482-6300
650/482-6399 (FAX)

		DESIGNED BY: YM	MEMORIAL PARK SANITARY SEWER REHABILITATION PROJECT	SCALE: AS INDICATED
		CHECKED BY: PC		DATE: JUNE 2000
		DRAWN BY:	COVER SHEET	FILE NO.: 1/4564
		PAUL M. KEONIG DIRECTOR OF ENVIRONMENTAL SERVICES SAN MATEO COUNTY		455 COUNTY CENTER REDWOOD CITY, CALIFORNIA
REVISION	DATE			
FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4				SHEET 1 of 4

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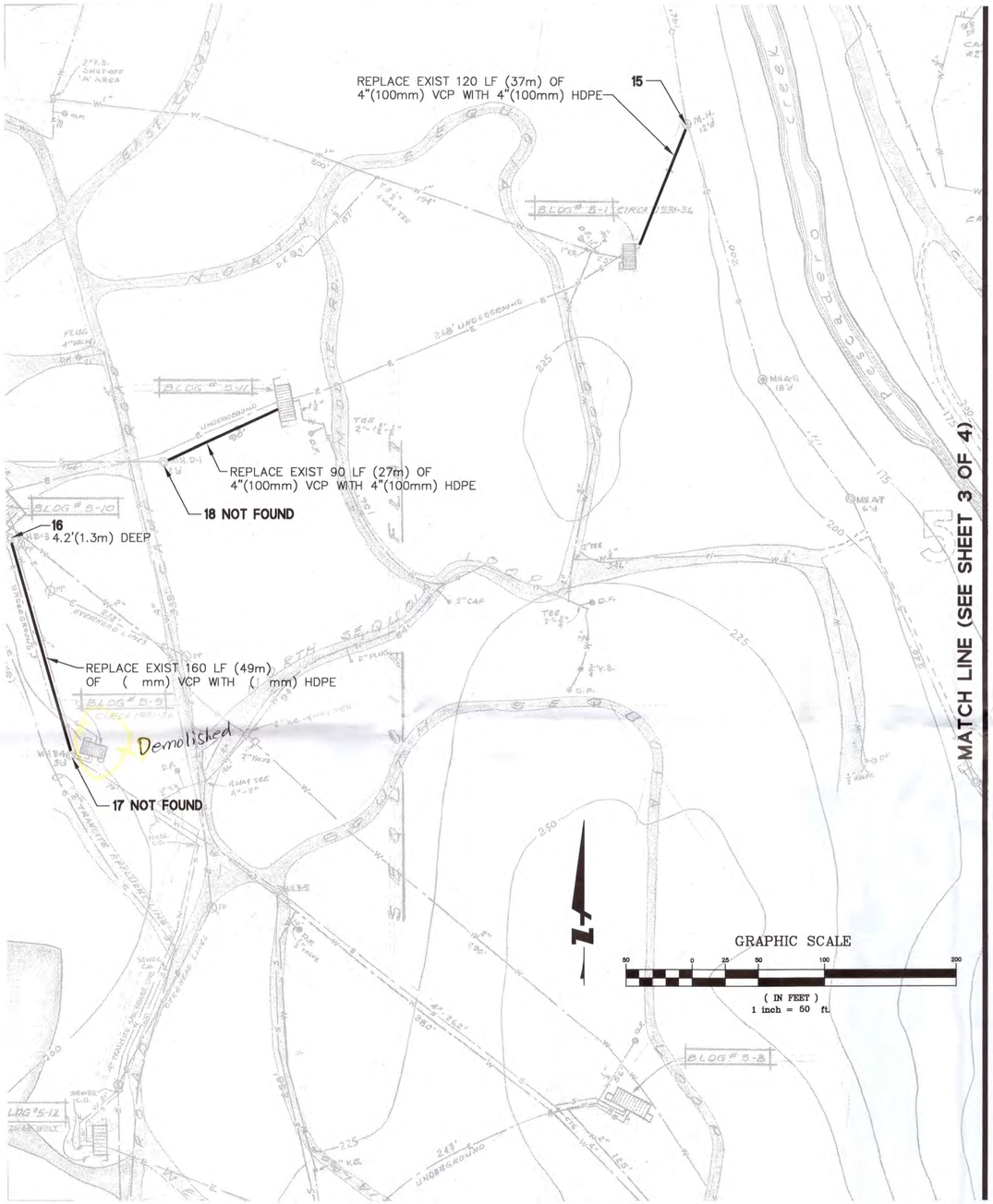
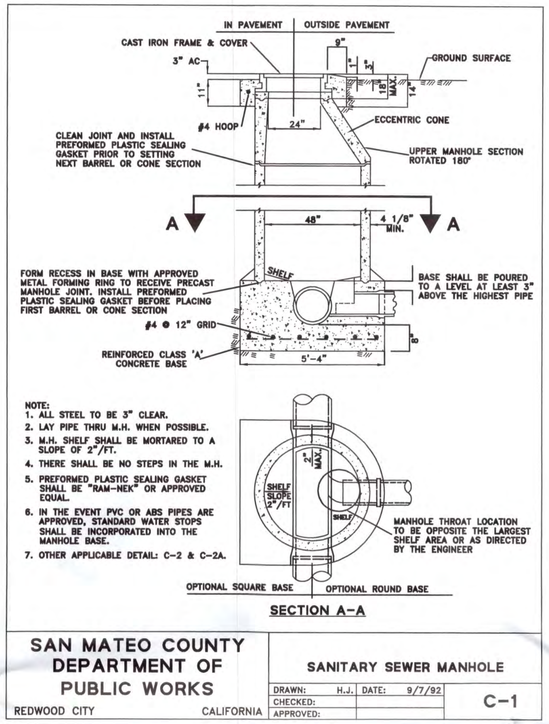




SECTION A-A

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

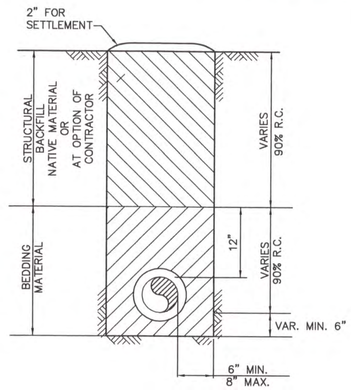
SANITARY SEWER MANHOLE

DRAWN: H.J.	DATE: 9/7/92	C-1
CHECKED:		
APPROVED:		

APPROVED:

DATE: _____

_____
PAUL M. KOENIG, DIRECTOR
ENVIRONMENTAL SERVICES AGENCY



TYPICAL TRENCH SECTION
NTS

BEDDING MATERIAL

GRANULAR BEDDING MATERIAL REQUIREMENTS (ASTM D448 SIZE #67)

SIEVE SIZES	PERCENTAGE PASSING
1"	100
3/4"	90–100
3/8"	20–55
#4	0–10
#8	0–5

STRUCTURAL BACKFILL

STRUCTURAL BACKFILL REQUIREMENTS (CALTANS CALIF. TEST 205) MIN. SAND EQUIVALENT OF 22.

SIEVE SIZES	PERCENTAGE PASSING
1–1/2"	100
3/4"	87–100
#4	30–60
#30	5–35
#200	0–12

NOTES

1. ALL SEWER MAIN AND LATERAL REPLACEMENT SHALL BE DONE WITH PIPE BURSTING METHODS.
2. EQUIPMENT USED FOR PIPE BURSTING SHALL BE SMALL ENOUGH LIGHT ENOUGH TO BE MOVED TO AND FROM THE ACCESS MANHOLES WITHOUT DAMAGING EXISTING TRAILS OR THE SURROUNDING VEGETATION. CONTRACTOR SHALL OBTAIN APPROVAL OF DESIGNATED PARK RANGER FOR ROUTES OF ACCESS.
3. CONTRACTOR IS STRONGLY ENCOURAGED TO ATTEND THE PROJECT PRE-BID MEETING TO DETERMINE SITE CONSTRUCTION CONSTRAINTS. IF IT IS NOT POSSIBLE TO ATTEND THE PRE-BID MEETING CONTRACTOR MUST VISIT SITE PRIOR TO BIDDING TO OBSERVE SITE CONSTRAINTS. PAGE 4 OF THIS PLAN SET SHOWS PHOTOS OF SEVERAL MANHOLE LOCATIONS AND IS INTENDED TO PROVIDE AN INDICATION OF CONSTRUCTION CONDITIONS. BY SUBMITTING A BID THE CONTRACTOR CERTIFIES THAT HE HAS VISITED THE SITE AND HAS SATISFIED HIMSELF THAT HE CAN PERFORM THE REQUIRED WORK TAKING INTO ACCOUNT THE SITE CONSTRAINTS.
4. EXISTING TOPOGRAPHY AND UTILITY LAYOUT SHOWN HAVE BEEN OBTAINED FROM COUNTY RECORD DRAWINGS, LATEST REVISION DATE 12/27/1973. THIS INFORMATION SHOWN IS INTENDED TO PROVIDE THE CONTRACTOR WITH AN INDICATION OF THE GENERAL LOCATION OF SEWER SYSTEM STRUCTURES WITH RESPECT TO PHYSICAL IMPROVEMENTS. BKF ASSUMES NO RESPONSIBLITY FOR THE ACCURACY OF THIS INFORMATION.

LEGEND:

EXISTING SEWER MAIN SYSTEM

EXISTING SEWER MANHOLE

PROPOSED SEWER MANHOLE

PROPOSED SEWER MAIN PIPE BURSTING

1 FIELD PICTURE REFERENCE NO. (SEE SHEET 3 OF 3)

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		DESIGNED BY: YM	MEMORIAL PARK SANITARY SEWER REHABILITATION PROJECT PLAN AND DETAIL	SCALE: AS INDICATED
		CHECKED BY:		DATE: JUNE 2000
		DRAWN BY:		FILE NO.: 1/4564
		PAUL M. KEONIG DIRECTOR OF ENVIRONMENTAL SERVICES SAN MATEO COUNTY		455 COUNTY CENTER REDWOOD CITY, CALIFORNIA
REVISION	DATE			

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4

SHEET 2 of 4

FILENAME:

DRAWING NAME: J:\YM\MP\DWG\11-PLOTTING.dwg
PLOTTED BY: Mark
PLOTTED ON: 6/6/00

APPROVED:

DATE: _____

PAUL M. KOENIG, DIRECTOR
ENVIRONMENTAL SERVICES AGENCY

MATCH LINE (SEE SHEET 2 OF 4)

AZALEA FLAT

BAY TREE FLAT

TAN OAK NO. 2

TAN OAK FLAT NO. 1

TREE FLAT

CREEK FLAT

ROAD

TRAIL

PARKING AREA

CAMP #32

BLDG #5-2 CIRCA 1940

BLDG #5-3 CIRCA 1938-39

BLDG #5-4 PARK OFFICE CIRCA 1957

HEADQUARTERS BLDG #5-4 1972

BLDG #5-5 CIRCA 1930-36

BLDG #5-7 CIRCA 1930-36

BLDG #2-7 CIRCA 1930-36

BLDG #2-3

BLDG #2-4 CIRCA 1940-50

BLDG #2-5 1986

BLDG #2-6 CIRCA 1940

Demolished

Demolished

REMOVE EXIST AND INSTALL NEW MH 5.0'(1.5m) DEEP

REPLACE EXIST 224 LF(68m) OF X"(mm) VCP WITH (mm) HDPE

REPLACE EXIST 160 LF (49m) OF 4"(100mm) VCP WITH 4"(100mm) HDPE

REMOVE EXIST AND INSTALL NEW MH 7.0'(2.1m) DEEP

REPLACE EXIST 209 LF (64m) OF X"(mm) VCP WITH (mm) HDPE

REPLACE EXIST 267 LF (81.4m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

EXIST BEND

REPLACE EXIST 71 LF (22m) OF X"(mm) VCP WITH (mm) HDPE

REPLACE EXIST 165 LF (50m) OF X"(mm) VCP WITH (mm) HDPE

REPLACE EXIST 265 LF (81m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

REPLACE EXIST 273 LF (83m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

REPLACE EXIST 200 LF (61m) OF 4"(100mm) VCP WITH 4"(100mm) HDPE

EXIST BEND

REMOVE EXIST AND INSTALL NEW MH 2.8' (0.8m) DEEP

REPLACE EXIST 240 LF (73m) OF 4"(100mm) VCP WITH 4"(100mm) HDPE

REMOVE EXIST AND INSTALL NEW MH 5.3' (1.6m) DEEP

REPLACE EXIST 185 LF (56m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

REPLACE EXIST 136 LF (41m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

REPLACE EXIST 154 LF (47m) OF 6"(150mm) VCP WITH 6"(150mm) HDPE

REPLACE EXIST 155 LF (47m) OF 6"(150mm) VCP WITH6"(150mm) HDPE

1 5.7' (1.7m) DEEP

2 6.2' (1.9m) DEEP

3 3.3' (1.0m) DEEP

4 4.7' (1.4m) DEEP

5 4.7' (1.4m) DEEP

6 5.8'(1.8m) DEEP

7 4.7'(1.4m) DEEP

8 6.3'(1.9m) DEEP

9 6.0'(1.8m) DEEP

10

11

12

13

14

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND:

—S—	EXISTING SEWER MAIN SYSTEM
◎	EXINSTING SEWER MANHOLE
●	PROPOSED SEWER MANHOLE
▬	PROPOSED SEWER MAIN PIPE BURSTING
1	FIELD PICTURE REFERENCE NO. (SEE SHEET 3 OF 3)

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		CHECKED BY:		DATE: JUNE 2000
		DRAWN BY:		FILE NO.: 1/4564
REVISION	DATE	PAUL M. KEONIG DIRECTOR OF ENVIRONMENTAL SERVICES SAN MATEO COUNTY	455 COUNTY CENTER REDWOOD CITY, CALIFORNIA	
FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4				SHEET 3 of 4

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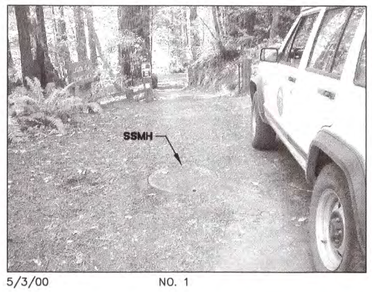

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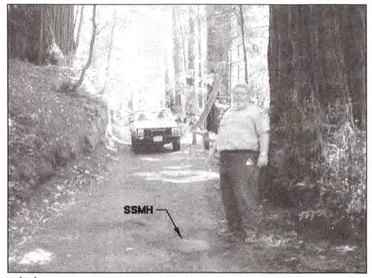

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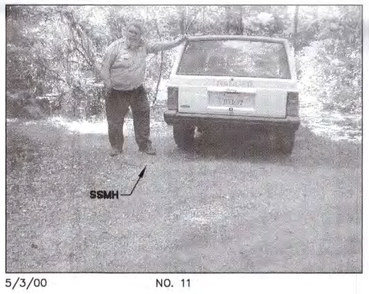

5/3/00 NO. 11

5/3/00 NO. 15

5/3/00 NO. 4

5/3/00 NO. 8

5/3/00 NO. 12


5/3/00 NO. 16

APPROVED:

DATE: _____

_____
PAUL M. KOENIG, DIRECTOR
ENVIRONMENTAL SERVICES AGENCY

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650/482-6399 (FAX)

		DESIGNED BY: YM	MEMORIAL PARK SANITARY SEWER REHABILITATION PROJECT	SCALE: NONE
		CHECKED BY:	REFERENCE PICTURE TABLE	DATE: JUNE 2000
		DRAWN BY: KAW		FILE NO.: 1/4564
		PAUL M. KEONIG DIRECTOR OF ENVIRONMENTAL SERVICES SAN MATEO COUNTY		455 COUNTY CENTER REDWOOD CITY, CALIFORNIA
REVISION	DATE			
		FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4		SHEET 4 of 4

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PLOTTED BY: Kevin Wong
PLOT DATE: 05/17/00
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