CEQA Notice of Exemption Memorandum North Coast County Water District Headquarters Upgrade Project

CITY OF PACIFICA, SAN MATEO COUNTY

Prepared For:
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1.1 Project Title

North Coast County Water District Headquarters Upgrade Project (project)

1.2 Lead Agency Name and Address

North Coast County Water District (NCCWD)
2400 Francisco Boulevard
Pacifica, California 94044

1.3 Contact Person and Email and Phone Number

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1.4 Project Location

The project site is located on a 0.81-acre parcel at 2400 Francisco Boulevard, in the City of Pacifica, San Mateo County, California (refer to **Figure 1**). The project site is located along the western side of Francisco Boulevard, south of Brighton Avenue and north of Clarendon Road (refer to **Figure 2**).

1.5 Surrounding Land Use and Setting

The project site is relatively flat and is surrounded by residential development to the north and west, and commercial development to the south. State Route 1 (SR 1) runs parallel to the eastern side of Francisco Boulevard.

1.6 General Plan Designation and Zoning

General Plan Designation – *Public and Semi-Public*
Zoning – *Public Facility*

Path: L:\Acad 2000 Files\31000\31243\GIS\ArcMap\Fig 1 Location.mxd

Sources: National Geographic, WRA | Prepared By: czumwalt, 9/15/2021

Figure 1. Regional Location Map

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Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: czumwalt, 9/15/2021

Figure 2. Project Aerial Site Map

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2.0 PROJECT DESCRIPTION

2.1 Project Background

The NCCWD headquarters was constructed in the early 1960s and the NCCWD is seeking to upgrade the facility to better fulfill its current needs and to provide future generations of service to the NCCWD service area. The NCCWD headquarters was constructed 28 years prior to the adoption of Americans with Disabilities Act (ADA) in 1990 and as a result, the facility does not comply with the current federal law and fails to address primary access issues. These concerns include, but are not limited to, properly sized accessible vehicle parking, an accessible path of travel throughout the NCCWD site/buildings, and universal access for compliant public restroom facilities. The project site is also located in the County of San Mateo tsunami inundation zone.[1] The tsunami event occurrence interval is two (2) percent chance in 500 years; therefore, the possibility of such an event is very low.[2] If a tsunami event were to occur on-site, the maximum anticipated depth of tsunami included flooding (inundation depth) would be 0.3 feet.[3] Structural design for tsunamis for Risk Category III buildings are required by building codes if the inundation depth is three (3) feet or more. Based on the maximum inundation depth (0.3 feet) estimated for the project site, no structural design for tsunamis would be required at this site.[4]

2.2 Existing Site Characteristics

Existing Facilities

The project site contains an existing one-story Administration Building, two maintenance buildings (Maintenance Building No. 1 and Maintenance Building No. 2), warehouse, fuel tank, and various storage buildings and bins for NCCWD maintenance materials. The Administration Building has a wood-framed structure with plywood shear walls. Maintenance No. 1 was constructed in 1961 and is a tall one-story and partial two-story plus mezzanine tilt-up concrete building. Maintenance Building No. 1 is currently the District's shop building. Maintenance No. 2 was constructed in 1972 and is a tall one-story plus mezzanine tilt-up concrete building.

Access and Parking

Vehicle access to the project site is provided through the two gates located along Clarendon Road. Pedestrian access is provided through Francisco Boulevard. The existing site contains a total of 15 on-site parking spaces. Additional on-street parking is located along Brighton Road, Francisco Boulevard, and Clarendon Road.

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[1] *California Geological Survey. March 23, 2021. Tsunami Hazard Area Map, County of San Mateo.*

[2] *Email communication between Adrianne Carr (NCCWD) and Tali Ashurov (WRA). October 20, 2021.*

[3] *Email communication between Stephen DeJesse (IDA Structural Engineers, Inc.) and Amy B. Watson (Noll & Tam Architects). October 28, 2021.*

[4] *Ibid.*

Landscaping and Drainage

The project site is entirely covered with impervious surface, primarily buildings and parking. Vegetation around the project site consists of drought tolerant plants and trees as part of a demonstration garden. Stormwater runoff is currently directed to the City of Pacifica's storm drain system (storm drains/catch basins) located in roads that surround the project site.

Utilities

Electricity is currently supplied by Pacific Gas and Electric (PG&E) Company. Potable water is supplied by NCCWD. Wastewater generated on the project site is treated at the municipal wastewater treatment facility in Pacifica. Telecommunication service is provided by AT&T and Comcast. Solid waste disposal service is provided by Recology of the Coast.

2.3 Project Characteristics

Proposed Facilities

The project would involve replacing the existing Administrative and Maintenance No. 1 Buildings with a new office building and retrofitting the Maintenance No. 2 Building to meet current safety and structural standards. The existing Administrative Building and Maintenance Building No. 1 structures, totaling footprint of approximately 5,517 square feet, would be demolished and a new approximately 9,500 square-foot office building would be constructed in the same location. A new shop to replace Maintenance Building No. 1 would also be constructed in the Corporation Yard. Maintenance Building No. 2 would remain and would be retrofitted. Generally, new roof-to-wall connections and a moment frame or shear wall (to replace the tie to Maintenance Building No. 1) would be installed. The proposed upgrades would incorporate accessibility compliant components to serve the staff and public spaces of the Administration Building and provide code-compliant public site access. In addition, a new shop, wash racks and photovoltaics canopy would be constructed (refer to **Figure 3**). **Table 1** presents the proposed square footage for project activities, including demolition, new construction, and renovation.

Table 1: Proposed Square Footage for Project Activities

Facility	Existing Facility Demolition (square feet)	New Construction (square feet)	Renovation of Existing Facility (square feet)
Administrative Building	5,377	9,500[a]	N/A
Maintenance Building No. 1/ Existing Shop	1,980	1,375	N/A
Maintenance Building No. 2	N/A	N/A	4,600

Facility	Existing Facility Demolition (square feet)	New Construction (square feet)	Renovation of Existing Facility (square feet)
Wash Rack	N/A	450	N/A
Photovoltaics Canopy	N/A	4,700[b]	N/A
Total	**7,357**	**16,225**	**4,600**

Notes:

N/A = Not Applicable

a. This includes 4,930 square feet for Floor 1 and 4,770 square feet for Floor 2.
b. This includes the solar panel system at the Administration Building roof (3,000 square feet) and at the parking structure roof (1,700 square feet).

Access and Parking

The access to the project site would remain the same through Clarendon Road for vehicles and through the building entrance on Brighton Road for pedestrians. The project would provide 11 standard parking spaces and one (1) accessible parking space on-site. On-street parking along Brighton Road and Francisco Boulevard would include 16 standard parking spaces and one (1) accessible parking space. The project would include infrastructure for electric vehicle charging as required by applicable local and State codes.

Landscaping and Drainage

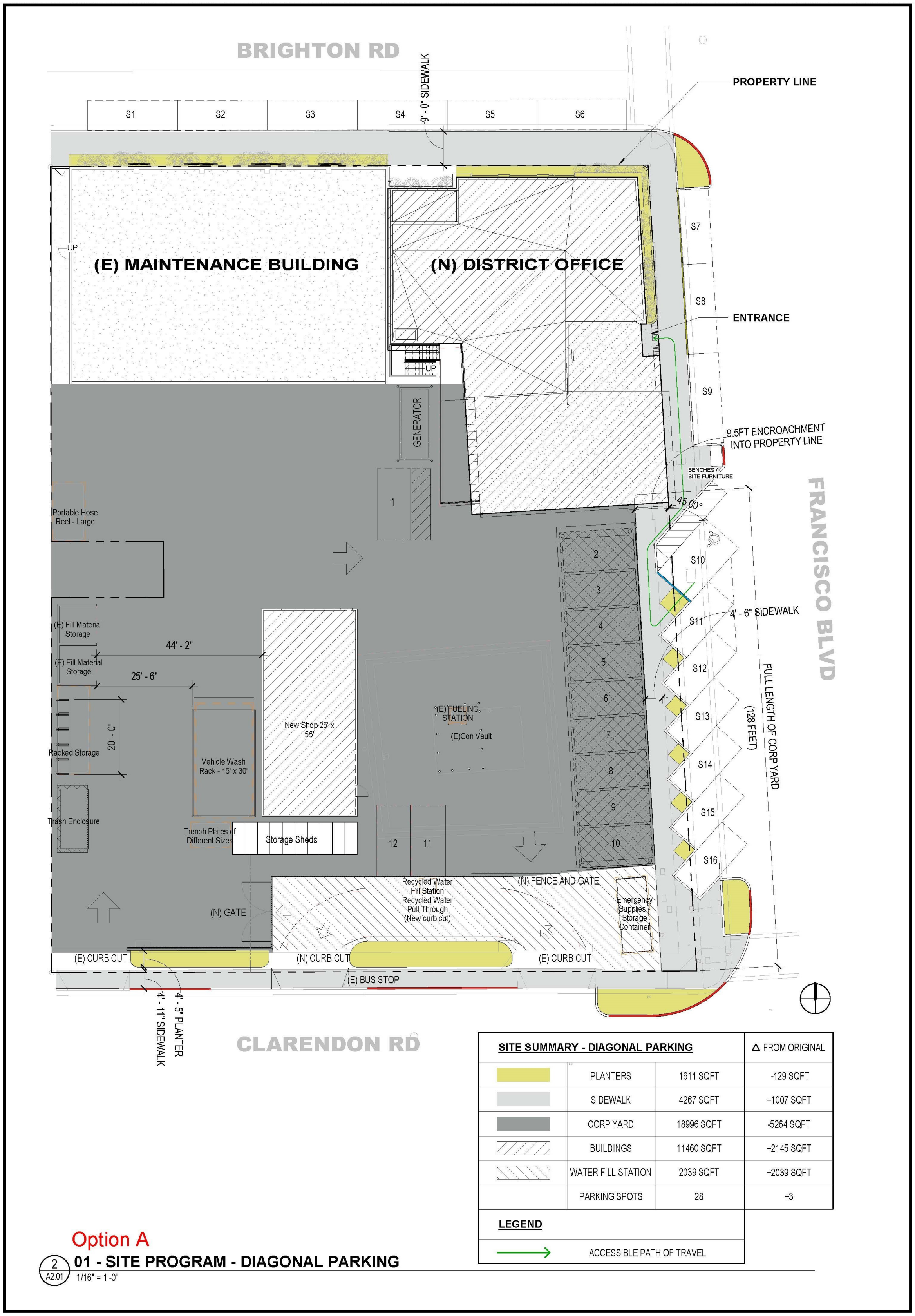
Landscaping and drainage conditions after project construction would be similar to existing conditions. The project site would be covered with impervious surface, primarily buildings and parking. Stormwater runoff would be directed to the City of Pacifica's storm drain system (storm drains/catch basins) located in surrounding roadways. The project would include landscape features such as street trees, bio-swales, and areas for educational water sensible plantings.

Sustainability and Utilities

The project would involve construction of a photovoltaic canopy on top of the parking spaces along Francisco Boulevard and south of the new office building. The photovoltaic canopy would provide power for project operations.

2.4 Project Construction

The construction schedule assumes that the project would be built out over a period of approximately 13 months, anticipated to begin in November 2022. Minimal grading would be anticipated for this project. Foundation excavation and utility trenching would occur after demolition of the existing Administrative Building and Maintenance Building No. 1. The proposed facilities would then be constructed, and Maintenance Building No. 2 would be retrofitted. Construction vehicle access to the site would be provided through the two (2) gates located along Clarendon Road. The equipment staging area would be located within the project site.



SITE SUMMARY - DIAGONAL PARKING			△ FROM ORIGINAL
	PLANTERS	1611 SQFT	-129 SQFT
	SIDEWALK	4267 SQFT	+1007 SQFT
	CORP YARD	18996 SQFT	-5264 SQFT
	BUILDINGS	11460 SQFT	+2145 SQFT
	WATER FILL STATION	2039 SQFT	+2039 SQFT
	PARKING SPOTS	28	+3

Sources: Noll & Tam Architects | Prepared By: Reida Khan 2/23/2022

Figure 3. Site Plan

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2.5 Required Permits and Approvals

The potential permits needed for implementing the Project include the following:

- State Water Resources Control Board National Pollutant Discharge Elimination System Construction General Permit
- City of Pacifica Building Permit
- City of Pacifica Encroachment Permit

2.6 Avoidance and Minimization Measures and Best Management Practices

Basic Construction Measures

For all proposed projects, the Bay Area Air Quality Management District (BAAQMD) recommends implementing the following measures listed below to meet the best management practices threshold for fugitive dust:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times daily.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the NCCWD regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Unanticipated Discovery of Archaeological Resources

If archaeological resources are encountered during ground-disturbing activities, work in the immediate area shall be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology shall be contacted immediately to evaluate the find (National Park Service, 1983). If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for California Register of Historic Resources (CRHR) eligibility. If the discovery proves to be CRHR-eligible and cannot be avoided by the project, additional work, such as data recovery excavation, may be warranted to mitigate any significant impacts.

Unanticipated Discovery of Paleontological Resources

In the unlikely event that previously unidentified paleontological resources are discovered during ground-disturbing activities, work in the immediate area shall be halted. A NCCWD-approved paleontologist shall evaluate and treat the discovery. All documents associated with the evaluation and treatment of any resources shall be prepared following professional best practice standards and shall comply with guidelines set forth by the California Office of Historic Preservation.

Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground-disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the San Mateo County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site and provide recommendations for treatment to the landowner within 48 hours of being granted access.

Geotechnical Requirements

Geotechnical requirements regarding foundations, site preparation and grading, retaining walls, seismic design, and other geotechnical aspects of the project are presented in Section 9.1 of the Geotechnical Investigation prepared by Langan Engineering and Environmental Services, Inc. The Geotechnical Investigation is attached as Appendix A.

3.0 RATIONALE FOR THE SECTION 15301 AND 15302 CATEGORICAL EXEMPTIONS

The project would be exempt from CEQA per Section 21000-21177, Public Resources Code; Title 14, Division 6, Chapter 3, Section 15000-15387, California Code of Regulations in accordance with the following exemption: §15301 (Class 1 - Existing Facilities) and §15302 (Class 2 – Replacement or Reconstruction). The complete description of the Class 1 and Class 2 exemptions as stated in the CEQA Guidelines is attached to this memorandum as Appendix B.

3.1 Section 15301. Existing Facilities

Two subsections of the Class 1 exemption apply to the project.

> *Subsection (d). Restoration or rehabilitation of deteriorated or damaged structures, facilities, or mechanical equipment to meet current standards of public health and safety, unless it is determined that the damage was substantial and resulted from an environmental hazard such as earthquake, landslide, or flood.*

The project would enhance the existing NCCWD headquarters facility which does not comply with current federal laws and fails to address primary access issues. The buildings would be upgraded to meet current structural codes and would have an enhanced safety factor to keep the buildings operational after a seismic event. The project would upgrade to properly sized accessible vehicle parking, construct an accessible path of travel throughout the NCCWD site/buildings, and provide universal access for compliant public restroom facilities. These upgrades would help the site achieve current public health and safety regulations and therefore would be deemed appropriate to meet the Class 1 exemption criteria.

> *Subsection (l). Demolition and removal of individual small structures listed in this subdivision: (3) a store, motel office restaurant, and similar small commercial structure if designed for an occupant load of 30 persons or less. In urbanized areas, the exemption also applies to the demolition of up to three such commercial buildings on sites zoned for such use.*

The project would demolish the existing Administrative Building and Maintenance Building No. 1 structures, totaling approximately 4,200 square feet. A new two-story office building (approximately 9,700 square feet) would be constructed at the locations of the existing Administrative Building and Maintenance Building No. 1. The new office building would have a larger square footage than the existing Administrative Building, but the facility’s total capacity would not be expanded. The new office building would have a larger board room to accommodate people that attend board meetings but are not able to fit inside the existing board room. The new office building would also provide barrier free access to all public spaces and a dedicated restroom, clear security designs for reception to control visitors entering NCCWD staff areas, and a secondary exit to the boardroom in the event of a security issue. The existing use of the facility would not change or be expanded as a result of the project. The demolition of the existing Administrative Building and Maintenance Building No. 1 would thus meet the criteria for this exemption.

3.2 15302. Replacement or Reconstruction

The Class 2 exemption applies to the replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity. The project would demolish the existing Administrative Building and Maintenance Building No. 1 and construct a new two-story office building in the same location. The new office building would have a larger board room to accommodate people that attend board meetings but are not able to fit inside the existing board room. The facility's total capacity would not be expanded. The demolition of the existing Administrative Building and Maintenance Building No. 1 would thus meet the criteria for this exemption. Therefore, the project would qualify for the Class 2 CEQA exemption as the replacement and reconstruction of the existing building would result in no expansion of capacity for the facility and would have the same purpose as the existing structure.

3.3 15300.2. Exceptions

Even if a project is ordinarily exempt under the potential categorical exemptions, CEQA Guidelines Section 15300.2 and Public Resources Code Section 21084 provides specific instances where exceptions to the otherwise applicable exemptions apply. The exceptions are:

1. Cumulative Impact: This exemption is inapplicable when the cumulative impact of successive programs of the same type and in the same place over time is significant.
2. Significant Effect: A categorical exemption shall not be used for an activity when there is reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.
3. Scenic Highways: A categorical exemption shall not be used for a project that may result in damage to scenic resources, including, but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway that has been officially designated as a state scenic highway.
4. Hazardous Waste Sites: A categorical exemption shall not be used for a project located on a site that is included on any list compiled pursuant to Section 65962.5 of the Government Code.
5. Historical Resources: A categorical exemption shall not be used for a project that may cause a substantial adverse change in the significant of a historical resource.

3.4 Project Analysis

The following section analyzes the applicable exceptions per CEQA Guidelines Section 15300.2 that could disqualify the project from being found categorically exempt. As described below, the project would not meet any of the exception criteria that would otherwise preclude the project from being exempt under Section 15301.

(a) Cumulative Impact: All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type and in the same place over time is significant.

Not Applicable. The project would involve upgrading the existing NCCWD headquarters to meet current safety and structural standards. The upgrades would include replacing the existing Administrative and Maintenance No. 1 Buildings with a new office building, retrofitting the Maintenance No. 2 Building to meet current safety and structural standards, and constructing a new shop, wash racks, and a photovoltaic canopy. The upgrades would occur within the existing headquarters location and would require minimal ground disturbance. NCCWD does not plan to implement additional projects of the same type on this property other than the proposed upgrades. The project site is entirely developed and devoid of vegetation and does not include any sensitive habitat. Since all project work would occur on developed, previously disturbed land, the project would not impact biological or archaeological resources. According to the Historical Resource Evaluation Report prepared by Yarbrough Architectural Resources (YAR) (Appendix C), the project would have no impacts to historical resources under CEQA (refer to criteria (e) below for more information). Given that there would be no expansion of capacity for the facility or change in purpose, the project is not anticipated to generate new vehicle trips and would not result in any significant transportation impacts. Because no increase in project-related vehicle trips would occur, project-related operational noise, air quality, and transportation impacts would be similar to those resulting from the existing operation. Therefore, the project would not contribute to cumulative traffic, air quality, or noise. The project would meet local requirements for noise and traffic controls during construction. Energy consumption during operation of the project, including energy used to operate the building system, lighting, and mechanics, would be met by on-site generation from the proposed photovoltaic canopy that is intended to serve the facility. Therefore, the project would enhance energy efficiency at the headquarters, thereby resulting in a marginal reduction of energy consumption and greenhouse gas emissions during operation. As a result, the project would not result in significant cumulative impacts.

(b) Significant Effect. A categorical exemption shall not be used for an activity when there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.

Not Applicable. There are no unusual circumstances associated with the project that would result in a significant effect on the environment. The project is located on a developed site surrounded by residential and commercial developments. There are no sensitive habitats in the project vicinity that would be impacted by the project. The project site does not contain unusual geologic characteristics that might create a hazard to users of the facilities.[5] Standard avoidance and minimization measures that are required by local, State, and federal laws would be implemented as part of the project to minimize and avoid construction-related impacts, such as those related to fugitive dust control or potential disturbance of unknown archaeological resources or human remains. The project would not result in a significant effect on the environment due to unusual circumstances.

> *(c) Scenic Highways. A categorical exemption shall not be used for a project that may result in damage to scenic resources, including, but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway that has been officially designated as a state scenic highway. This does not apply to improvements that are required as mitigation by an adopted negative declaration or certified environmental impact report.*

Not Applicable. There are three officially designated State scenic highways in San Mateo County: SR 1, SR 35, and Interstate 280 (I-280).[6] The nearest officially designated scenic highway is SR 1 which is located approximately 80 feet east of the project site. SR 35 is located approximately 1.5 miles northeast of the project site, and I-280 is located approximately 2.5 miles northeast of the project site. The project is located west of SR 1, which is elevated on a raised berm and is separated from the project site by Francisco Boulevard. Due to these two factors, views of the project site from SR 1 are obstructed. Therefore, the new two-story office building, which would be replacing the existing two-story maintenance structure, would not significantly affect the scenic views from the highway. The project site is currently developed with a shop building, an administration building, maintenance buildings, and a variety of storage bins. None of the existing buildings are considered historic and the project site does not contain trees or outcroppings. The project would not result in significant effects on scenic highways.

> *(d) Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site that is included on any list compiled pursuant to Section 65962.5 of the Government Code.*

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[5] *Langan Engineering and Environmental Services, Inc. 2021 Geotechnical Investigation*

[6] *California Department of Transportation. California Scenic Highway Map. Website: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed October 1, 2021.*

Not Applicable. The project site is not listed on the Cortese List as an active and open hazardous waste site, pursuant to Section 65962.5 of the Government Code.[7,8] The project site was previously identified as a Leaking Underground Storage Tank cleanup site in March 1992. However, the cleanup status has been updated to completed and case closed in March 1993. [9] Furthermore, the Geotechnical Investigation prepared for the project contains a review of the subsurface conditions that were presented in a previously performed geotechnical investigation at the site, as well as lab results from exploratory borings, cone penetration tests (CPTs), and soil corrosivity analysis (Appendix A). Three (3) test borings were drilled to a depth of approximately 51.5 feet below the existing ground surface. The borings and CPTs performed indicated that soil at the site consists of clays, sands and gravel. No contaminated soils were found or referenced. Therefore, the project would not be precluded from being categorically exempt per this exception.

(e) *Historical Resources. A categorical exemption shall not be used for a project that may cause a substantial adverse change in the significance of a historical resource.*

Not Applicable. YAR prepared a Historical Resource Evaluation Report (HRER, Appendix C) for the project. YAR conducted a recordation and evaluation of the NCCWD Headquarters Complex and CEQA study area, and also conducted a site visit with photographs and notes on September 15, 2021. YAR recorded the buildings with attached industrial garage, laydown yard, and parking. According to the HRER, the NCCWD headquarters and property as a whole are not eligible for the California Register of Historical Resources (CRHR) under any of the CRHR's four criteria at any level of significance. YAR included a tandem evaluation against the National Register of Historic Places (NRHP) criteria that reached the same conclusion. As a result, the NCCWD Headquarters complex is not concluded to be a historical resource pursuant to CEQA. The project would not have any significant impacts on historic and/or historical archaeological resources. [10]

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[7] *Department of Toxic Substances Control. Geotracker. Website: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=Sacramento. Accessed October 1, 2021.*

[8] *California Environmental Protection Agency. Cortese List Data Resources. Website: https://calepa.ca.gov/SiteCleanup/CorteseList/. Accessed October 1, 2021.*

[9] *Department of Toxic Substances Control. North Coast County Water District (T0608100358). Website: https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0608100358. Accessed October 1, 2021.*

[10] *Yarbrough Architectural Resources. 2021. Historical Resource Evaluation Report (HRER).*

Appendix A – Geotechnical Investigation

GEOTECHNICAL INVESTIGATION
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Senior Associate/Vice President

8 October 2021
730370601

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GEOTECHNICAL INVESTIGATION
NORTH COAST COUNTY WATER DISTRICT
Pacifica, California

1.0 INTRODUCTION

This report presents the geotechnical investigation for the proposed North Coast County Water District (NCCWD) office replacement in Pacifica, California. The site is located at the southwest corner of Francisco Boulevard and Brighton Road, as shown on Figure 1.

The site is occupied by three buildings and a paved lot, as shown on Figure 2. The administration building is a single story, wood framed building, and the maintenance buildings are two-story precast, concrete tilt-up construction. The existing ground surface elevation ranges from approximately 14.5 feet to 21 feet[1]. A grading plan is currently not available.

Previously, Treadwell & Rollo performed a geotechnical investigation for the site for a development that was not constructed (Treadwell & Rollo, 2003). The previous development plans included seismically rehabilitating the existing buildings and/or replacing some or all of the existing buildings. We understand the current proposed development plans include the replacement of the administration building and eastern-most maintenance building located in the northeastern section of the site with a two-story structure; the maintenance building to the west will remain and will abut the new building. The proposed development also includes the construction of a new shop building with an automobile lift, new soil material storage area, and new trash enclosure located in the southwest section of the site. New photovoltaic (PV) array panel structures are also proposed in the vehicle parking areas located along the east border of the site.

2.0 SCOPE OF SERVICES

Our services were performed in general conformance with our proposal dated 19 May 2021. We used the results of previous subsurface explorations at the site, including borings, cone penetration tests (CPTs), and laboratory testing, to perform our engineering analysis and develop conclusions and recommendations for the following geotechnical aspects of the planned development:

- soil and groundwater conditions;

[1] All elevations reference North American Datum (NAD 83).

- site seismicity and potential for seismic hazards including liquefaction, lateral spreading, and fault rupture;
- appropriate foundation type(s) for the proposed building;
- design parameters for the recommended foundation type(s);
- estimates of total and differential settlement of new foundations under design loads;
- subgrade preparation for exterior slabs and flatwork, including sidewalks;
- site preparation, grading, and excavation, including criteria for fill quality and compaction;
- 2019 California Building Code (CBC) site classification), mapped values S_S and S_1, modification factors F_a and F_v and S_{MS} and S_{M1} provided the exceptions of Section 11.4.8 of ASCE 7-16 are met;
- flexible pavements;
- soil corrosivity with brief evaluation; and
- construction considerations.

No additional field investigation was performed.

3.0 FIELD INVESTIGATION

We reviewed subsurface conditions presented in a geotechnical investigation previously performed at the site (Treadwell & Rollo, 2003). Details of the previous investigation are summarized below.

3.1 Exploratory Borings

On 27 and 28 June 2003, Treadwell & Rollo drilled three test borings, designated as B-1 through B-3, at the approximate location shown on Figure 2. The borings were drilled using a truck-mounted, rotary-wash drill rig provided by Pitcher Drilling Company. The test borings were all drilled to a depth of approximately 51½ feet below the existing ground surface (bgs). The boring logs from the previous investigation are presented on Figures A-1 through A-3 in Appendix A. The soil is classified in accordance with the chart shown on Figure A-4.

Soil samples were obtained using two split-barrel samplers. The sampler types are as follows:

- Sprague and Henwood (S&H) sampler with a 3.0-inch outside diameter and 2.5-inch-inside diameter, lined with steel or brass tubes with an inside diameter of 2.43 inches, and

- Standard Penetration Test (SPT) sampler with a 2.0-inch-outside and 1.5-inch-inside diameter, without liners.

The sampler types were chosen on the basis of soil type and desired sample quality for laboratory testing. In general, the S&H sampler was used to obtain samples in medium stiff to very stiff cohesive soil and the SPT sampler was used to evaluate the relative density of sandy soil.

The S&H and SPT samplers were driven with a 140-pound safety hammer falling about 30 inches. Where the S&H sampler was used, the blow counts required to drive the sampler the final 12 inches of an 18-inch drive were corrected to approximate SPT blow counts and are shown on the boring logs. Where the SPT sampler was used, the actual blow counts are shown on the boring logs.

The borings were backfilled with grout consisting of cement, bentonite and water, as required by the County of San Mateo.

3.2 Cone Penetration Tests

Three cone penetration tests (CPTs), designated as CPT-1 through CPT-3, were performed to depths ranging from 39½ to 49½ feet bgs. The CPTs were performed on 27 and 28 June 2003 at the approximate locations shown on Figure 2. The CPT logs from the previous investigation, showing tip resistance and friction ratio versus depth, as well as interpreted SPT N-values, are presented in Appendix B on Figures B-1 through B-3. The material encountered was classified according to the soil classification system described on Figure B-4.

The CPTs were performed by hydraulically pushing a 1.4-inch diameter, cone-tipped probe into the ground. The cone on the end of the probe measured tip resistance, and a sleeve behind the cone tip measured frictional resistance. These parameters were continuously measured by electrical gauges within the cone during the entire depth advanced. The data were transferred to a computer while conducting each test. Accumulated data were then processed by computer to provide engineering information, such as the types and approximate strength characteristics of the soil encountered.

After completion, the CPTs were backfilled with cement-bentonite grout, as required by the County of San Mateo.

4.0 LABORATORY TESTING

Samples were tested to measure moisture content, dry density, percent fines, Atterberg limits, strength, consolidation parameters and R-value. The test results are presented on the boring logs and in Appendix C.

Additional laboratory testing was performed to evaluate the corrosivity of the various soil types, as corrosive soil can adversely affect underground utilities and foundation elements. The results of the corrosivity analyses are presented in Appendix D.

5.0 SITE CONDITIONS

Our understanding of the site history is based on a review of available data, including publication maps and aerial photographs.

5.1 Site History

Fourteen sets of black and white aerial photographs taken between the years of 1938 and 2000 were reviewed for this project. All but the earliest 1938 photographs were stereo pairs.

A March 1938 aerial photograph shows the portion of Pacifica where the site is located was relatively flat and undissected with only a gentle westward slope toward the coastline. A golf course (Sharp Park Golf Course) was present south of the site in 1938. Surface runoff from a small valley east of the site (Brighton Road area) was along a small natural drainage channel that appeared to flow in a southwest direction into a low area of the golf course. A two-lane road was observed where the present day Highway 1 is located. There were no overpasses or underpasses present at this time. Most of the present day streets in the site vicinity existed on the west side of this two-lane road, but on the east side there were only a few streets. Only about half of the lots in the site vicinity were developed. A rectangular structure, possibly a home, was present in the middle of the NCCWD site.

A May 1955 photograph indicates most of the lots around the site were developed. About half of the lots on the east side of Highway 1 are developed. Highway 1 appeared to be wider than in 1938 and had northbound and southbound shoulder lanes. By April of 1958, more of the lots east of Highway 1 were developed.

In October 1969, the Highway 1 right of way was widened eastward. There were two northbound lanes and two southbound lanes, both with shoulders. Overcrossings were constructed at Sharp Park Road and Paloma Avenue. Two large fill embankments were constructed on either side of an undercrossing at Clarendon Road to flatten the Highway 1 approach to the hill at Sharp Park Road. The previous rectangular structure on the project site had been removed, and the current administration building and the east maintenance building were constructed. One or two lots west of the corner lot at Francisco and Clarendon were incorporated into one large single property.

By April 1975, the west maintenance building was added. Another lot to the south was incorporated into the project site and was used for parking and/or for storage. From photographs taken from May 1979 through August 2000, no significant changes were observed at the site.

5.2 Site Conditions

The site is approximately 173 by 215 feet in plan. Currently, the site is relatively flat, ranging from approximately Elevation 14.5 to Elevation 21 feet and is occupied by three buildings and a paved lot. The existing administration building and maintenance buildings were constructed in 1961. The administration building is a single story wood framed building and the east maintenance building is a two-story precast, concrete tilt-up construction. According to foundation plans by Charles S. McCandless and Company, dated December 1961, the administration building and east maintenance building are both supported on continuous spread footings. The foundation details show that the continuous spread footings are a minimum of 1.5 to 4 feet below finished grade and bear in "engineered fill." However, the engineering characteristics of the "engineered fill" are unknown. Based on our discussions with the structural engineers, we understand the dead plus live bearing pressures of the existing footings are on the order of 1,000 psf to 2,000 psf. The finished floor elevation of the administration building and east maintenance building is 20.8 feet and 20.3 feet, respectively.

In 1972, a second maintenance building was added. The west maintenance building is a two-story precast, concrete tilt-up structure. According to foundation plans by Charles S. McCandless and Company, dated March 1972, the west maintenance building is supported on three-foot diameter drilled caissons and individual spread footings. The foundation plan shows the caissons located at the northwest corner of the building are approximately 10 feet deep. There is no information regarding the remainder of the caissons. The structural engineer has estimated the existing caissons are supporting dead plus live loads on the order of 25 to 50 kips.

5.3 Subsurface Conditions

An idealized subsurface profile (Figure 3) illustrates the general subsurface conditions at the site, consisting of fill and native alluvial deposits. The location of the idealized subsurface profile is shown on Figure 2.

Borings and CPTs performed on the site indicate it is blanketed by 2.5 to 5.5 feet of fill consisting of medium dense to dense sands and medium stiff to stiff clays. In Borings B-2 and B-3, a stiff black clay was encountered beneath the fill. The black clay contains trace organics and laboratory test results indicate that the layer has high expansion potential. Where tested, the undrained shear strength of the black clay is approximately 1,350 pounds per square foot (psf).

The native alluvial deposits encountered beneath the fill consist of interbedded sand, clay and silt to the maximum depth explored. The sand encountered generally ranges from medium dense to very dense and contains significant clay. The clays and silts are medium stiff to very stiff and, based on laboratory test, are overconsolidated.

A summary of the geotechnical engineering parameters for the various soil layers are presented on Figure 2 and Table 1 below.

TABLE 1
Geotechnical Engineering Parameters of Subsurface Soil

Soil	Total Unit Weight, γ_T (pcf)	Shear Strength (psf)	Friction Angle, ϕ	Compression Ratio, $C_{\varepsilon c}$	Initial Shear Modulus, G_o (psf)	Poisson's Ratio
Fill	125	800	NA[1]	0.22	7.2×10^5	0.25
Black Clay	125	1,300	NA	0.11	1.1×10^6	0.25
Alluvial Deposits	130	2,000	NA	0.11	2.6×10^6	0.4
Sand	130	NA	40°	NA	3.5×10^6	0.4

Notes:
1. NA = Not Applicable
2. Compression Ratio, C□c = Cc / 1+eo

Groundwater was encountered during drilling and was measured in Borings B-1 and B-2 prior to switching from auger drilling to rotary wash method. The depth to groundwater ranged from 8 feet in Borings B-2 to 8.7 feet below ground surface in Boring B-1 (approximately Elevation 10 feet). The depths were measured during drilling and may not represent stabilized groundwater levels. Seasonal fluctuations in rainfall influence groundwater levels and may cause several feet of variation.

6.0 SEISMIC AND GEOLOGIC HAZARDS

Our evaluation of the geology and seismicity of the area is based on our review of published reports and information in our files from other sites in the vicinity.

6.1 Regional Geology

The site lies within the Coast Ranges geomorphic province of California. This province is characterized by northwest-trending mountain ranges and intervening valleys that are generally parallel to predominantly right-lateral strike-slip faults of the San Andreas Fault system.

Regional geology has been mapped by Bonilla (1971), Brabb and Pampeyan (1983), and Wagner et al. (1990). The authors are in general agreement that the site lies on unconsolidated Quaternary age (less than 1.6 million years old) sedimentary deposits. Bonilla maps the site as Quaternary slope debris and ravine fill: stony, silty to sandy clay, locally silty to clayey sand or gravel. The low hill to the north of the site is mapped as Franciscan sandstone and shale. Brabb and Pampeyan (1983) show the site on younger (inner) alluvial fan deposits of unconsolidated fine to coarse-grained sand, silt, and gravel but near geologic contacts with younger (outer) alluvial fan deposits and dune sand. Wagner et al. (1990) map the site on a contact separating Holocene age dune sand from terrace deposits of sand silt, clay, and gravel deposited on a wave-cut terrace. No landslides have been mapped on the site or in the area surrounding the site (Bonilla, 1960), and in more recent publications the site is mapped within the area considered to be least susceptible to landsliding (Brabb et al., 1978) and debris flows (Mark, 1992).

6.2 Regional Seismicity and Faulting

The project site is in a seismically active region. Numerous earthquakes have been recorded in the region in the past, and moderate to large earthquakes should be anticipated during the service life of the proposed development. The San Andreas, Hayward, and San Gregorio faults are the major faults closest to the site. These and other faults of the region are shown on Figure 4. For each of these faults, as well as other active faults within about 50 kilometers (km) of the site, the distance from the site and estimated mean Moment magnitude[2] [2014 Working Group on California Earthquake Probabilities (WGCEP) (2015) and Uniform California Earthquake Rupture

[2] Moment magnitude is an energy-based scale and provides a physically meaningful measure of the size of a faulting event. Moment magnitude is directly related to average slip and fault rupture area.

Forecast Version 3 (UCERF3) as detailed in the United States Geological Survey Open File Report 2013-1165] are summarized in Table 2. The mean moment magnitude presented on Table 2 was computed assuming full rupture of the segment using Hanks and Bakun (2008) relationship.

TABLE 2
Regional Faults and Seismicity

Fault Segment	Approx. Distance from Fault (km)	Direction from Site	Mean Moment Magnitude
San Andreas 1906 event	2.5	Northeast	8.1
Pilarcitos	3.6	Southwest	6.7
Total San Gregorio	5.7	West	7.6
Monte Vista - Shannon	23	Southeast	7.0
Total Hayward-Rodgers Creek Healdsburg	32	East	7.6
Butano	37	Southeast	6.7
Mission (connected)	39	East	6.1
Contra Costa (Lafayette)	43	Northeast	6.1
Total Calavaras	456	East	7.5
Contra Costa Shear Zone (connector)	46	Northeast	6.6
Franklin	46	East	6.7
Contra Costa (Larkey)	46	Northeast	6.0
Mount Diablo Thrust	48	Northeast	6.6
Contra Costa (Dillon Point)	50	Northeast	6.1

Note:
1. The table above is a summary and does not include all the fault segmentation, alternate traces and low activity faults included in the UCERF3 model.

Figure 4 also shows the earthquake epicenters for events with magnitude greater than 5.0 from January 1800 through August 2014. Since 1800, four major earthquakes have been recorded on the San Andreas fault. In 1836 an earthquake with an estimated maximum intensity of VII on the Modified Mercalli (MM) scale (Figure 5) occurred east of Monterey Bay on the San Andreas fault (Toppozada and Borchardt 1998). The estimated Moment magnitude, $M_{w,}$ for this earthquake is about 6.25. In 1838, an earthquake occurred with an estimated intensity of about VIII-IX (MM), corresponding to an M_w of about 7.5. The San Francisco Earthquake of 1906 caused the most significant damage in the history of the Bay Area in terms of loss of lives and property damage. This earthquake created a surface rupture along the San Andreas fault from Shelter Cove to San Juan Bautista approximately 470 kilometers in length. It had a maximum intensity of XI (MM), an M_w of about 7.9, and was felt 560 kilometers away in Oregon, Nevada, and Los Angeles. The Loma Prieta Earthquake occurred on 17 October 1989 in the Santa Cruz Mountains with an M_w of 6.9, the epicenter of which is approximately 85 km from the site.

In 1868 an earthquake with an estimated maximum intensity of X on the MM scale occurred on the southern segment (between San Leandro and Fremont) of the Hayward fault. The estimated M_w for the earthquake is 7.0. In 1861, an earthquake of unknown magnitude (probably an M_w of about 6.5) was reported on the Calaveras fault. The most recent significant earthquake on this fault was the 1984 Morgan Hill earthquake ($M_w = 6.2$).

The most recent earthquake to affect the Bay Area occurred on 24 August 2014 and was located on the West Napa fault, approximately 67 km northeast of the site, with an M_W of 6.0.

The 2016 U.S. Geologic Survey (USGS) predicted a 72 percent chance of a magnitude 6.7 or greater earthquake occurring in the San Francisco Bay Area in 30 years (Aagaard et al. 2016). More specific estimates of the probabilities for different faults in the Bay Area are presented in Table 3.

TABLE 3
Estimates of 30-Year Probability (2014 to 2043) of a Magnitude 6.7 or Greater Earthquake

Fault	Probability (percent)
Hayward-Rodgers Creek	33
Calaveras	26
N. San Andreas	22
San Gregorio	16
Mount Diablo Thrust	16

7.0 SEISMIC AND GEOLOGIC HAZARDS

During a major earthquake, strong to violent ground shaking is expected to occur at the project site. Very strong ground shaking during an earthquake can result in ground failure such as that associated with soil liquefaction,[3] lateral spreading,[4] cyclic densification,[5] landsliding. Each of these conditions has been evaluated based on our literature review, field investigation and analysis, and is discussed in this section.

7.1 Liquefaction and Associated Hazards

The project site is located at the border of a liquefaction zone as defined by the United States Geological Survey (USGS, Knudsen et al. 2000). When saturated soil with little to no cohesion liquefies during a major earthquake, it experiences a temporary loss of shear strength as a result of a transient rise in excess pore water pressure generated by strong ground motion. Flow failure, lateral spreading, differential settlement, loss of bearing, ground fissures, and sand boils are evidence of excess pore pressure generation and liquefaction.

To evaluate the liquefaction potential at this site, we performed liquefaction analysis in accordance with the State of California Special Publication 117A, Guidelines for Evaluation and Mitigation of Seismic Hazards in California (2008). We used the procedures presented in Boulanger and Idriss (2014) to evaluate the liquefaction potential at the site. The Boulanger and Idriss (2014) procedures are updates of the Idriss and Boulanger (2008) procedures and the simplified procedures developed by Seed et al. (1971) and later by the 1996 NCEER and the 1998 NCEER/NSF workshops on the Evaluation of Liquefaction Resistance of Soils (Youd and Idriss 2001). To estimate volumetric strain and associated liquefaction-induced settlement, we used the procedure developed by Tokimatsu and Seed (1987).

The primary design parameters used in our liquefaction triggering calculations are summarized in Table 4.

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[3] Liquefaction is a transformation of soil from a solid to a liquefied state during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, especially during earthquake-induced cyclic loading. Soil susceptible to liquefaction includes loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits.

[4] Lateral spreading is a phenomenon in which surficial soil displaces along a shear zone that has formed within an underlying liquefied layer. Upon reaching mobilization, the surficial blocks are transported downslope or in the direction of a free face by earthquake and gravitational forces.

[5] Cyclic densification is a phenomenon in which non-saturated, cohesionless soil is densified by earthquake vibrations, causing ground-surface settlement.

TABLE 4
Primary Input Parameters Used in Liquefaction Evaluation

Parameter	Value
Depth to groundwater	Approximately 8 feet below ground surface
Peak Ground Acceleration (PGA_M)*	0.885
Predominant Earthquake Moment Magnitude (M_w)	8.0
Factor of Safety for Liquefaction Triggering	1.3
CPT conversion factor for tip resistance to SPT N-value	4 to 5

* Values from site-specific response spectra.

Layers of medium dense sand with varying amounts of clay and silt, varying in thickness from about several inches to four feet, were encountered below the groundwater level that could be potentially liquefiable. In our assessment, we considered the approach for soil classification and behavior presented in Robertson (2016). In this approach, CPT data is used to determine dilative and contractive behavior using the normalized CPT tip resistance and friction ratio. On the basis of the results of our analyses, we conclude that although liquefaction may occur in these layers most of the layers are not susceptible to liquefaction-induced settlement because of their dilative behavior.

We conclude areas of the site may experience liquefaction-induced settlements of up to ¾ inches and differential settlements of up to ¼ inch in 50 horizontal feet. We conclude the sand encountered beneath the groundwater table has sufficient cohesion and density to resist liquefaction; therefore, we conclude the potential for liquefaction to occur at the site during a major earthquake is low.

7.2 Lateral Spreading

Lateral spreading is a phenomenon in which a surficial soil displaces along a shear zone that has formed within a continuous underlying liquefied layer. The surficial blocks are transported downslope or in the direction of a free face, such as a channel, by earthquake and gravitational forces. Lateral spreading is generally the most pervasive and damaging type of liquefaction-induced ground failure generated by earthquakes.

Because the site is relatively flat and the potentially liquefiable layers are thin and isolated, the risk of lateral spreading is low. Furthermore the project should not be subject to landslides or erosion. No springs or seepages were observed on site.

7.3 Cyclic Densification

Cyclic densification (also referred to as seismic densification and differential compaction) can occur during strong ground shaking in loose, granular deposits above the water table, resulting in ground surface settlement. The degree of susceptibility to cyclic densification is directly related to the relative density of the existing granular soils.

The soil encountered above the groundwater table at the site generally consists of clay with sufficient cohesion to resist cyclic densification. We therefore conclude that the risk of cyclic densification settlement associated with a major earthquake event is low.

7.4 Fault Rupture

Historically, ground surface displacements closely follow the trace of geologically young faults. The site is not within an Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act, and no active or potentially active faults exist on the site. In a seismically active area, the remote possibility exists for future faulting in areas where no active faults previously existed; however, based on the available fault studies, we conclude the risk of surface faulting and consequent secondary ground failure from previously unknown faults is low.

7.5 Tsunami

Recent published tsunami hazard area maps (California Geological Survey, 2021) indicate the site is within the tsunami inundation zone. The project civil engineer should evaluate the impact of sea level rise on the potential risk of inundation from a tsunami.

8.0 DISCUSSION AND CONCLUSIONS

From a geotechnical standpoint, we conclude the proposed new buildings may be constructed provided the design and construction incorporates the recommendations presented in this report. Our conclusions regarding foundations and other geotechnical issues are discussed in this section.

8.1 Settlements and Foundations

According to our review of the available subsurface information, we conclude the proposed structures can be supported on shallow foundations.

The existing administration building and east maintenance building are supported on spread footings bearing in fill or native alluvial deposits. Laboratory consolidation test results indicate that the native alluvial deposits below the fill are overconsolidated. Primary settlement resulting from the consolidation of the clay under the weight of the existing fill and buildings is complete.

The current proposed development plans include the replacement of the administration building and eastern-most maintenance building. If shallow foundations are used for the proposed structures, we estimate they will settle approximately one inch. This would result in a differential settlement of one inch between the existing and new footing systems. If this differential settlement is not tolerable, then deep foundations such as drilled piers should be used. Settlements of properly installed drilled piers should be less than ½ inch.

Furthermore, new spread footings may be designed to bear on engineered fill similar to the existing foundation or be designed using higher bearing pressures by deepening them to extend through the potentially expansive clay layer and any fill. However, because these layers extended to depths of four to five feet below existing ground surface in our borings, it may not be economically viable to use deep footings. A cost analysis should be performed to evaluate shallow and deep spread footings and drilled piers.

8.2 Corrosion Potential

Environmental Technical Services (ETS) previously performed tests on one soil sample to evaluate corrosion potential to buried metals and concrete. The results of the tests are presented in Appendix D and summarized in Table 5.

TABLE 5
Summary of Corrosivity Test Results

Test Boring	Sample Depth (feet)	pH	Sulfate (ppm)	Resistivity (ohms-cm)	Chloride (ppm)
B-2	0.5 to 2	7.4	645	1,490	29

According to resistivity measurements, the soil samples tested are classified as moderately corrosive to buried steel. A corrosion consultant should be retained during utility design.

The chemical analysis indicates mortar and standard concrete, including steel reinforcement, should not be affected by the corrosivity of the soil. To protect reinforcing steel from corrosion, adequate coverage should be provided as required by the building code.

8.3 Construction Considerations

The soil at the site consists of clays, sands and gravels that can be excavated with conventional earth-moving equipment such as loaders and backhoes, except where old foundations are encountered. Removal of these may require the use of jackhammers or hoe-rams.

If new footings extend deeper than the existing footing foundation, underpinning of the existing footings may be required.

During our investigation, groundwater was encountered at depths of 8 to 8.7 feet (Elevation 10 feet). Any excavation below these depths (such as for elevator pits or utility lines) will most likely need to be dewatered. Casing or drilling mud may be required to keep pier shafts open until concrete is tremied into place. Drilled piers may be difficult to install within the existing buildings because of low headroom for drilling equipment and handling of casing.

9.0 RECOMMENDATIONS

Our recommendations regarding foundations, site preparation and grading, retaining walls, seismic design and other geotechnical aspects of this project are presented in the following section.

9.1 Site Preparation and Grading

All pavements and other existing improvements within the areas of new development should be removed during site demolition. Excavations resulting from the removal of foundations, slabs and underground utilities that extend below the bottom of the proposed foundation/floor level should be cleaned of any loose soil/debris and backfilled with lean concrete or suitable fill material compacted as recommended in this section.

Any existing asphalt concrete pavement may be ground up and used in the fill. The asphalt fragments should be broken into fragments smaller than four inches in maximum dimension and mixed with soil to comprise less than 20 percent by weight of the fill; a higher percentage may be difficult to compact. Mixed with proper material to meet specifications, it can be used as part of the aggregate subbase material for flexible pavement sections. All topsoil and organics should be removed from the footprint of structural fill or improvements; it may be stockpiled for use in landscaped areas, if approved by the architect and/or owner.

For areas where new flatwork will be constructed, we recommend these areas be stripped and cleared of organic material, abandoned utilities, and construction rubble. The exposed subgrade should be scarified to a depth of six inches, moisture-conditioned to near optimum moisture content, and compacted to at least 95 percent relative compaction[6]. We recommend new concrete walkways be underlain by at least four inches of Class 2 aggregate base material that has been compacted to at least 95 percent relative compaction.

Any required fill should be placed in eight-inch-thick loose lifts, moisture conditioned to above optimum moisture content, and compacted to at least 90 percent relative compaction. From a geotechnical standpoint, on-site soil free of contamination, organic matter, debris and rocks or lumps larger than four inches in greatest dimension is suitable for use as fill or backfill provided it is properly moisture-conditioned. The black highly plastic clay layer at depths of 4 to 5 feet is not suitable for use as fill, except in landscape areas, if approved by the architect. Any imported material should be similar to the on-site sandy soil, free of organic material, contain no rocks or lumps larger than four inches in greatest dimension, and have a low expansion potential, defined by a liquid limit of less than 40 and a plasticity index of 12 or less. During construction, we should check that the on-site and/or import materials are suitable for use as fill. All engineered fill should be placed under the observation of the geotechnical engineer to determine that adequate compaction is obtained. Samples of all imported fill should be submitted to the geotechnical engineer for testing at least 72 hours before delivery to the site.

9.2 Spread Footings

The existing continuous spread footings may be used as part of the foundation of new buildings. If the existing footings are to be incorporated in the new design, we recommend the structural and geotechnical engineer visually inspect the footings to determine their soundness prior to their re-use. If additional loads are proposed for the existing foundations, we recommend the increase not exceed 10 percent of the existing load; otherwise, new footings should be used.

We recommend new shallow, spread footings gain support on engineered fill or native alluvial deposits. The bottom of the new footings should be embedded at least two feet in fill (to approximately Elevation 17 feet) or four to five feet below the ground surface (below the black

6 Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material, as determined by the ASTM D1557-00 laboratory compaction procedure.

clay layer) into the native alluvial deposits (to approximately Elevation 13 feet). All continuous footings should also have a minimum width of 24 inches; isolated spread footings should be at least 24 inches square. Footings adjacent to utility trenches (or other footings) should bear below an imaginary 1:1 (horizontal to vertical) plane projected upward from the bottom edge of the utility trench (or adjacent footings).

Depending on the bearing layer and embedment, new continuous or individual spread footings may be designed with the following allowable bearing pressures:

TABLE 6
Allowable Bearing Pressures of New Footings

Bearing Layer	Minimum Embedment Depth (feet)	Allowable Dead plus Live Load Bearing Pressure (psf)	Total Load Design Bearing Pressure (psf)	Ultimate Bearing Pressure (psf)
Engineered Fill	2	2,000	2,600	4,000
Native Alluvial Deposits	4 to 5	4,000	5,300	8,000

The allowable bearing pressures for the footings include a factor of safety of 2 and 1.5 for dead plus live loads and total loads, respectively.

Lateral loads on footings can be resisted by a combination of passive resistance acting against the vertical faces of the footings and friction along the bases of the footings. Passive resistance should be calculated using lateral pressures corresponding to a uniform pressure of 1,500 psf; the upper foot of soil should be ignored unless confined by a concrete slab or pavement. Frictional resistance should be computed using a base friction coefficient of 0.30. The passive resistance and base friction values include a factor of safety of about 1.5 and may be used in combination without reduction.

Uplift loads may be resisted by the weight of the footing and any overlying soil. If footings are inadequate to provide the necessary uplift resistance, drilled piers or soil anchors may be used. If drilled piers or anchors are required, we should review the particular situation where they are needed, and provide design recommendations.

Soft or disturbed soil or non-engineered fill encountered in the bottom of footing excavations should be excavated and replaced with engineered fill or lean concrete.

We should check footing excavations prior to placement of reinforcing steel. Footing excavations should be free of standing water, debris, and disturbed materials prior to placing concrete.

9.3 Drilled Piers

If shallow foundations are not cost-effective, we recommend drilled piers be used to support new buildings. If the existing piers are incorporated in the new design, we recommend the structural and geotechnical engineer visually inspect the piers to check their condition. The following subsections present our recommendations for new drilled piers.

9.3.1 Axial Capacity

New drilled piers should be designed to derive their axial capacity from the skin friction in the soil layers. In local practice, the contribution of end bearing in supporting the load is ignored for drilled piers installed below the groundwater level.

Piers installed in a group should be spaced at least three diameters on center. To compute the axial capacity of drilled piers, we recommend using an allowable skin friction of 750 psf for dead and live loads, which includes a factor of safety of 2. For temporary, compressive, total loads, including wind and/or seismic load, we recommend a skin friction value of 1,000 psf. For temporary uplift loads, we recommend an allowable skin friction of 750 psf. The skin friction values for temporary loading conditions include a safety factor of 1.5.

9.3.2 Lateral Resistance

Piers will provide lateral resistance from passive pressure acting on the upper portion of the piers and from their structural rigidity. The lateral resistance of the new piers will depend on the pier diameter, pier head condition (restrained or unrestrained), allowable deflection of the pier top, and the bending moment resistance of the piers. We have performed lateral load analyses for isolated, 18-inch, 24-inch and 36-diameter piers with free head conditions, for a deflection of 0.5 inch at the pier head. The results of our analyses are presented in Table 7.

TABLE 7
Results of Lateral Load Analyses for 0.5-inch deflection at pier top

Pier Diameter (feet)	Pier Top Condition	Computed Lateral Load at 0.5-inch Deflection (kips)	Computed Maximum Bending Moment (kip-feet)	Depth to Maximum Bending Moment (feet)
1.5	Free	23	52	4.0
2	Free	28	62	4.0
3	Free	35	76	4.0

The lateral resistances tabulated in Table 6 are for 10 feet long piers spaced at least six pier diameters. If piers are installed in a group of two with a spacing of three pier diameters, we recommend reducing the lateral capacities by 15 percent. However, the design bending moments should not be reduced; they should be the same as those for single piers. If larger pier groups are needed to support the building, we should provide the reduction factors for these groups.

The lateral resistances tabulated in Table 7 are based on a deflection of 0.5 inch at the top of the pier. If required, we can evaluate the lateral resistance of piers for other conditions, such as, a different deflection criterion, a predetermined moment resistance, and partial restrained condition at the pier top.

9.3.3 Construction Consideration

Drilled piers should be installed by a qualified contractor with demonstrated experience with this type of foundation. If caving soil is encountered, casing and/or drilling fluid may be required. If drilling fluid is used, concrete should be tremied. Concrete placement should start upon completion of the drilling and clean out. Concrete should be placed from the bottom up in a single operation using a tremie and/or a pumper pipe. The tremie pipe should be maintained at least 5 feet below the upper surface of the concrete during casting of the piers. The concrete should have a slump between 7 and 9 inches. As the concrete is placed, casing used to stabilize the hole can be withdrawn. The bottom of the casing should be maintained at least 3 feet below the surface of the concrete.

9.4 Floor Slabs

New floor slabs may be supported on a subgrade compacted in accordance with the requirements in Section 9.1. If the compacted subgrade is disturbed during utility trench or footing excavations, the subgrade should be re-rolled to provide a smooth, firm surface for slab support.

Moisture is likely to condense on the underside of the slab, even though it will be above the groundwater table. Consequently, a moisture barrier should be installed beneath the slab if movement of water vapor through the slab would be detrimental to its intended use. A typical moisture barrier consists of a capillary moisture break and a water vapor retarder.

The capillary moisture break should consist of at least four inches of clean, free-draining gravel or crushed rock. The vapor retarder should meet the requirements for Class C vapor retarders stated in ASTM E1745. The vapor retarder should be placed in accordance with the requirements of ASTM E1643. These requirements include overlapping seams by six inches, taping seams, and sealing penetrations in the vapor retarder. The particle size of the gravel/crushed rock should meet the gradation requirements presented in Table 8

TABLE 8
Gradation Requirements for Capillary Moisture Break

Sieve Size	Percentage Passing Sieve
Gravel or Crushed Rock	
1 inch	100
3/4 inch	30-75
1/2 inch	5–10
3/8 inch	0-2

Concrete mixes with high water/cement (w/c) ratios result in excess water in the concrete, which increases the cure time and results in excessive vapor transmission through the slab. Therefore, concrete for the floor slab should have a low w/c ratio - less than 0.45. The slab should be properly cured. Before the floor covering is placed, the contractor should check that the concrete surface and the moisture emission levels (if emission testing is required) meet the manufacturer's requirements.

9.5 Seismic Design

Based on our correspondences with Noll & Tam Architects, the proposed project will be designed under 2019 CBC/ASCE 7-16. The following subsections present the code based mapped values per 2019 CBC (Section 9.5.1) and the recommended site-specific response spectra (Section 9.5.2).

9.5.1 Code Based Seismic Design Values

For seismic design in accordance with the provisions of 2019 CBC, assuming the structure meets the exceptions presented in Section 11.4.8 of ASCE 7-16, we recommend the following:

- Risk-Targeted Maximum Considered Earthquake (MCE_R) S_s and S_1 of 2.236g and 0.933g, respectively.
- Site Class D
- Site Coefficient F_a and F_v of 1.0 and 2.5, respectively
- MCER spectral response acceleration parameters at short periods, S_{MS}, and at one-second period, S_{M1}, of 2.236g and 2.333g, respectively
- Design Earthquake (DE) spectral response acceleration parameters at short period, S_{DS}, and at one-second period, S_{D1}, of 1.491g and 1.555g, respectively.
- PGA_M of 1.053g

9.5.2 Site-Specific Response Spectra

We performed probabilistic seismic hazard analysis (PSHA), deterministic analysis and ground response analysis to develop recommended horizontal spectra at the ground surface for the Risk-Targeted Maximum Considered Earthquake (MCE_R) and Design Earthquake (DE) consistent with ASCE 7-16 and 2019 CBC. Details of our analysis are presented in Appendix E.

The recommended spectra are presented on Figure 6 for 5 percent damping; digitized values of the MCE_R and DE spectra, respectively, for damping ratio of 5 percent are presented in Table 9.

TABLE 9
Recommended MCE_R and DE Spectra
Sa (g) for 5 percent damping

Period (seconds)	Recommended MCE_R (5% damping)	Recommended DE (5% damping)
0.01	1.055	0.703
0.10	1.550	1.033
0.20	2.128	1.419
0.30	2.574	1.716
0.40	2.779	1.853
0.50	2.775	1.850
0.75	2.445	1.630
1.00	2.370	1.580
1.50	1.762	1.175
2.00	1.324	0.883
3.00	0.891	0.594
4.00	0.643	0.429
5.00	0.491	0.327

Because site-specific procedure was used to determine the recommended response spectra, the corresponding values of S_{MS}, S_{M1}, S_{DS} and S_{D1} per Section 21.4 of ASCE 7-16 should be used as shown in Table 10.

TABLE 10
Design Spectral Acceleration Value

Parameter	Spectral Acceleration Value (g's)
S_{MS}	2.501[7]
S_{M1}	2.673[8]
S_{DS}	1.667[11]
S_{D1}	1.782[12]

7 S_{DS} is based on the site-specific response spectra and is based on 90 percent of the maximum spectral acceleration within the period range of 0.2 to 0.5 seconds; it is governed by 90 percent of the spectral acceleration at a period of 0.4 seconds.

8 S_{D1} is based on the site-specific response spectra and is the maximum of the product of period, T, and spectral acceleration, Sa, for periods from 1.0 to 5.0 seconds; it is governed by the product of the period and spectral acceleration at a period of 4 seconds.

9.6 Utilities

Utility trenches should be excavated a minimum of four inches below the bottom of pipes or conduits and have clearances of at least four inches on both sides. Where necessary, trench excavations should be shored and braced, in accordance with all safety regulations, to prevent cave-ins. Where sheet piling is used as shoring, and is to be removed after backfilling, it should be placed a minimum of two feet away from the pipes or conduits to prevent disturbance to them as the sheet piles are extracted. Where trenches extend below the groundwater level, it will be necessary to dewater them to keep the trench base from softening and to allow for placement of the pipe utilities and backfill.

To provide uniform support, pipes or conduits should be bedded on a minimum of four inches of sand or fine gravel. After pipes and conduits are tested, inspected (if required), and approved, they should be covered to a depth of six inches with sand or fine gravel, which should then be mechanically tamped. Backfill should be placed in lifts of eight inches or less, moisture-conditioned, and compacted to at least 90 percent relative compaction.

Jetting of trench backfill is not permitted. Special care should be taken in controlling utility backfilling in pavement areas. Poor compaction may cause excessive settlements, resulting in damage to exterior improvements.

Samples of on-site and proposed import fill materials should be submitted to Langan for approval at least three business days prior to use at the site.

9.7 Asphalt Pavements

The State of California flexible pavement design method was used to develop the recommended asphalt concrete pavement sections. We expect the final soil subgrade in asphalt-paved areas will generally consist of sandy clays and clayey sands. On the basis of the laboratory test results on this soil, we selected an R-value of 15 for design. If the existing subgrade will be raised beneath the paved areas, the fill material should have the same or higher R-value than the native soil. Therefore, additional tests should be performed on the proposed fill to measure its R-value. Depending on the results of the tests, the pavement design may need to be revised, or the fill material rejected.

For our calculations, we assumed a Traffic Index (TI) of 4.5 for automobile parking areas with occasional trucks, and 6.0 for driveways and truck-use areas; these TIs should be confirmed by the project civil engineer. Table 10 presents our recommendations for asphalt pavement sections.

TABLE 10
Pavement Section Design

TI	Asphaltic Concrete (inches)	Class 2 Aggregate Base R = 78 (inches)
4.5	2.5	8
6.0	3.5	12

Pavement components should conform to the current Caltrans Standard Specifications. The upper six inches of the soil subgrade in pavement areas should be moisture-conditioned to above optimum and compacted to at least 95 percent relative compaction and rolled to provide a smooth non-yielding surface. Aggregate base should be compacted to at least 95 percent relative compaction.

9.8 Site Drainage

Drainage control design should include provisions for positive surface gradients so that surface runoff is not permitted to pond, particularly adjacent to structures, or on roadways or pavements. Surface runoff should be directed away from foundations to properly designed and installed drop inlets.

10.0 ADDITIONAL SERVICES DURING DESIGN, CONSTRUCTION DOCUMENTS, AND CONSTRUCTION QUALITY ASSURANCE

Langan should be retained to consult with the design team as geotechnical questions arise during final design. Technical specifications and design drawings should incorporate Langan's recommendations. Langan should assist the design team in preparing specification sections related to geotechnical issues such as earthwork, foundation design, and backfill. Langan should also review the project plans, as well as Contractor submittals relating to materials and construction procedures for geotechnical work, to check that the designs incorporate the intent of our recommendations.

Langan has interpreted the site subsurface conditions and developed the foundation design recommendations contained herein, and is therefore best suited to perform quality assurance observation and testing of geotechnical-related work during construction. The work requiring quality assurance confirmation and/or special inspections per the Building Code includes, but is not limited to, earthwork, backfill, and installation of foundations. We should observe any fill placement and perform field density tests to check that adequate fill compaction has been achieved.

Recognizing that construction observation is the final stage of geotechnical design, quality assurance observation during construction by Langan is necessary to confirm the design assumptions and design elements, to maintain our continuity of responsibility on this project, and allow us to make changes to our recommendations, as necessary. The foundation system and general geotechnical construction methods recommended herein are predicated upon Langan reviewing the final design and providing construction observation services for the owner. Should Langan not be retained for construction observation services, we cannot assume the role of geotechnical engineer of record during construction operations, and the entity providing the construction observation services must serve as the engineer of record instead.

11.0 LIMITATIONS

The conclusions and recommendations provided in this report result from our interpretation of the geotechnical conditions existing at the site inferred from a limited number of borings as well as information provided by the project design team. Actual subsurface conditions may vary. Recommendations provided are dependent upon one another and no recommendation should be followed independent of the others. Any proposed changes in structures or their locations should be brought to Langan's attention as soon as possible so that we can determine whether such changes affect our recommendations. Information on subsurface strata and groundwater levels shown on the logs represent conditions encountered only at the locations indicated and at the time of investigation. If different conditions are encountered during construction, they should immediately be brought to Langan's attention for evaluation, as they may affect our recommendations.

This report has been prepared to assist the Owner, architect, and structural engineer in the design process and is only applicable to the design of the specific project identified. The information in this report cannot be utilized or depended on by engineers or contractors who are involved in evaluations or designs of facilities on adjacent properties which are beyond the limits of that which is the specific subject of this report.

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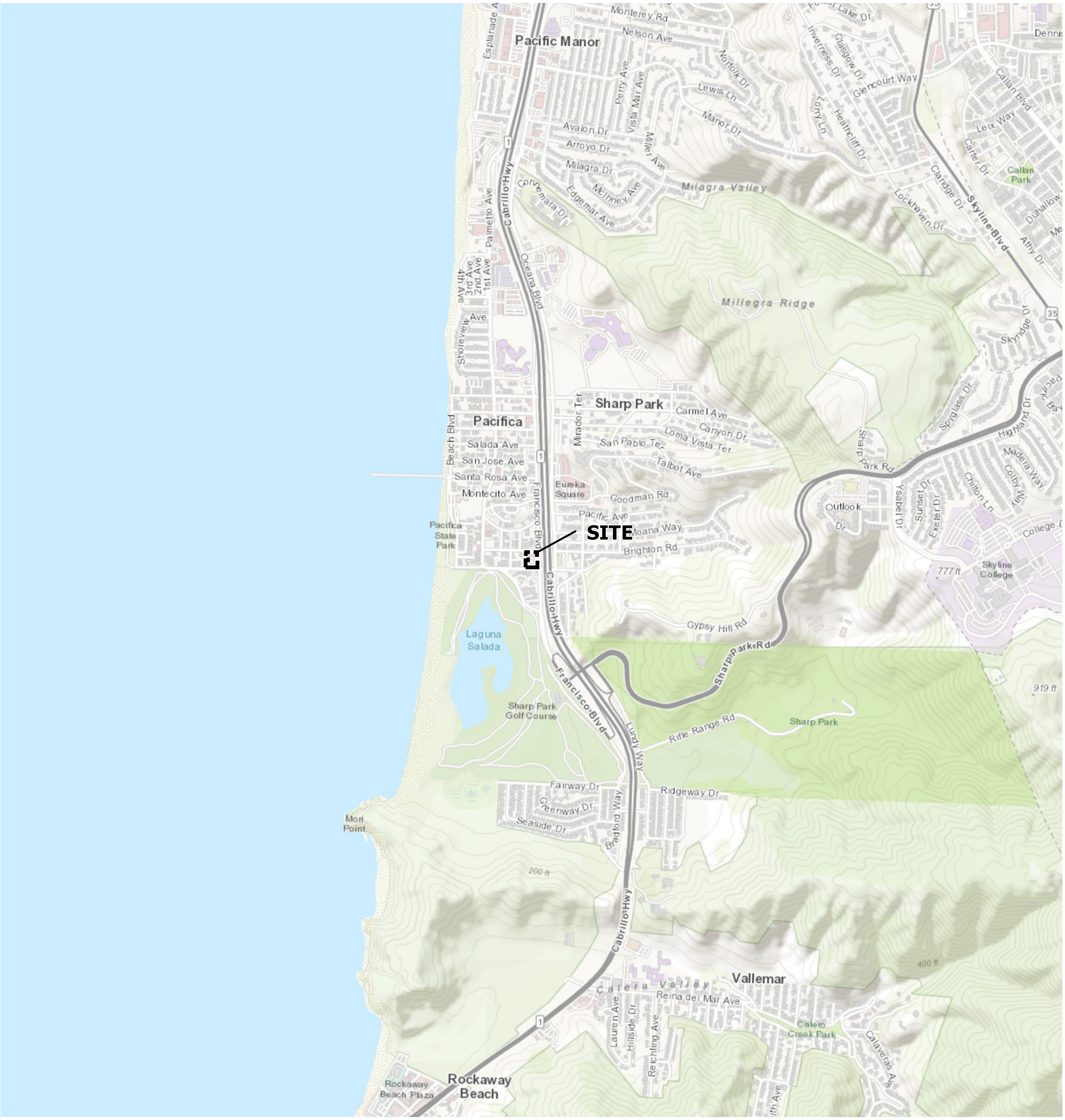
FIGURES



Legend

Approximate Site Boundary

N
W E
S

2,000 0 2,000
SCALE IN FEET

Notes:
1. Site located in the San Mateo USGS Quadrangle.
2. Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online, National Geographic Society, i-cubed.

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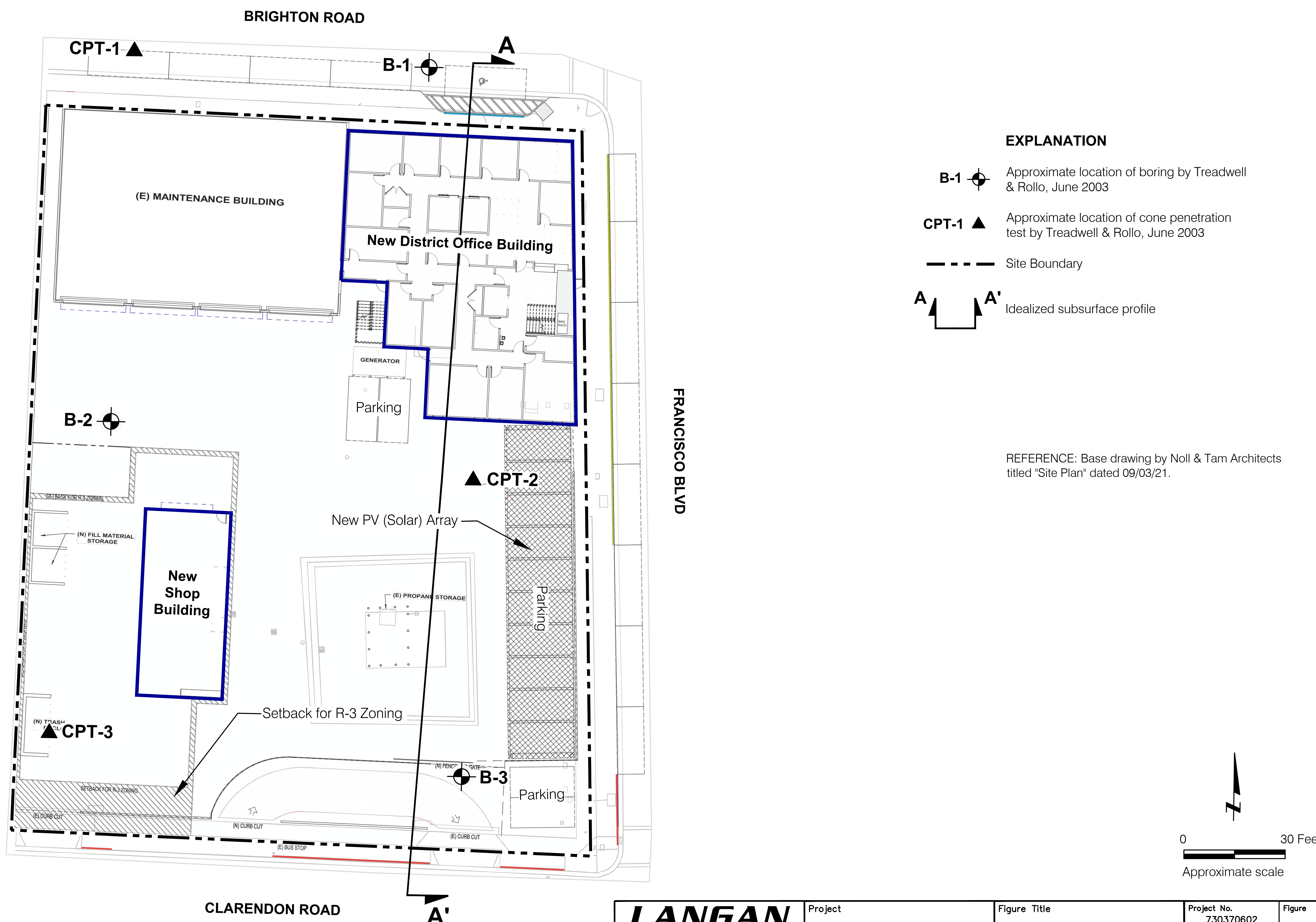
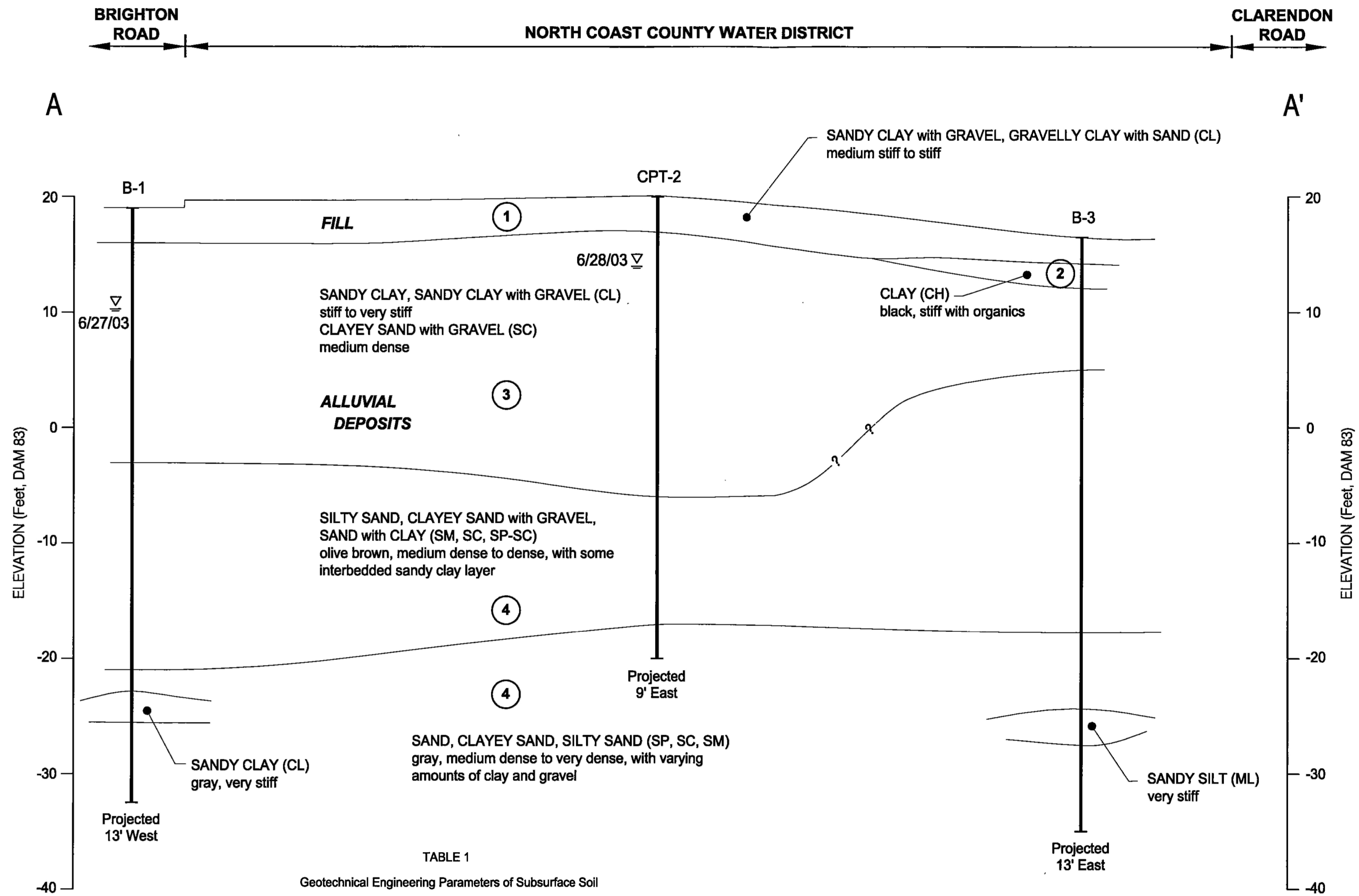
Project	Figure Title	Project No.	Figure
NORTH COAST COUNTY WATER DISTRICT PACIFICA SAN MATEO COUNTY CALIFORNIA	SITE LOCATION MAP	730370601 Date: 8/9/2021 Scale: 1 " = 2,000 ' Drawn By: NR	1



LANGAN Langan Engineering and Environmental Services, Inc. 135 Main Street, Suite 1500 San Francisco, CA 94105 T: 415.955.5200 F: 415.955.5201 www.langan.com	Project: NORTH COAST COUNTY WATER DISTRICT PACIFICA SAN MATEO COUNTY CALIFORNIA	Figure Title: SITE PLAN	Project No. 730370602 Date 9/7/2021 Drawn By AG Checked By HS	Figure 2

Filename: \\langan.com\data\SFO\data6\730370601\Project Data\CAD\01\2D-DesignFiles\Geotechnical\730370602-B-SP0101.dwg Date: 9/20/2021 Time: 11:00 User: agekas Style Table: Langan.stb Layout: Figure 2_Vertical



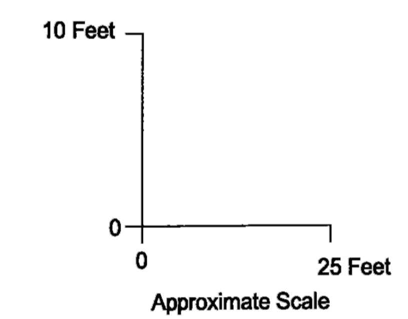


TABLE 1

Geotechnical Engineering Parameters of Subsurface Soil

Soil	Total Unit Weight, γ_T (pcf)	Shear Strength (psf)	Friction Angle, ϕ	Compression Ratio, $C_{\varepsilon c}$	Initial Shear Modulus, G_o (psf)	Poisson's Ratio
Fill (1)	125	800	NA	0.22	7.2×10^5	0.25
Black Clay (2)	125	1,300	NA	0.11	1.1×10^6	0.25
Alluvial Deposits (3)	130	2,000	NA	0.11	2.6×10^6	0.4
Sand (4)	130	NA	40°	NA	3.5×10^6	0.4

Notes: 1. The above profile represents a generalized soil cross section interpreted from widely spaced borings. Soil deposits may vary in type, strength, and other important properties between points of exploration.

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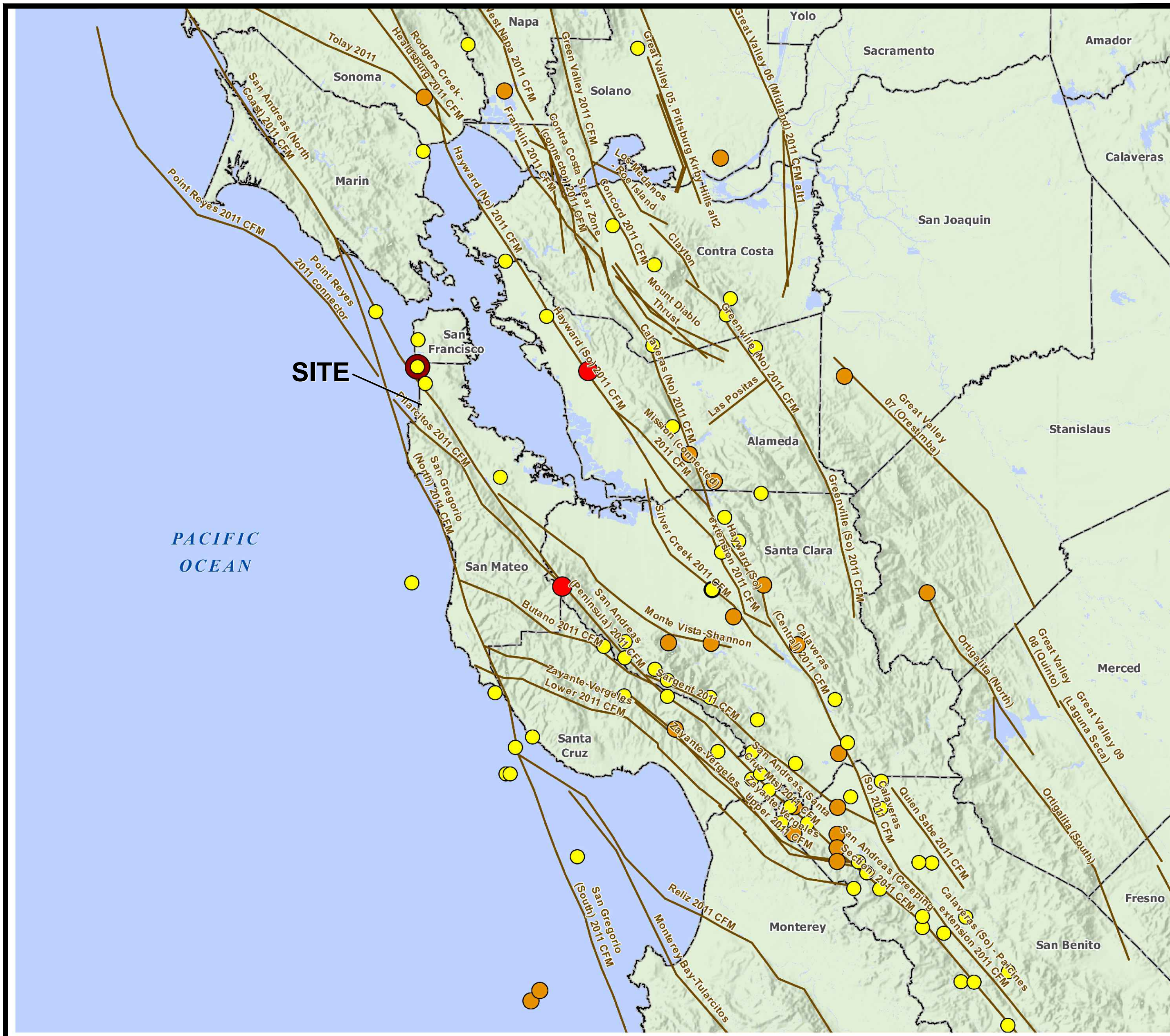
Project: NORTH COAST COUNTY WATER DISTRICT
PACIFICA
SAN MATEO COUNTY CALIFORNIA

Drawing Title: IDEALIZED SUBSURFACE PROFILE A-A'

Project No. 730370601
Date 08/10/2021
Drawn By JDF
Checked By HS

Drawing No. 3
Sheet of

Filename: \\langan.com\data\SFO\data6\730370601\Project Data\CAD\01\2D-DesignFiles\Geotechnical\730370601-B-XS0101.dwg Date: 8/10/2021 Time: 10:28 User: jfrank Style Table: Langan.stb Layout: ANSIB-BL



LEGEND

- County Boundary
- Fault

Earthquake Epicenter Magnitude

- Magnitude 5 to 5.9
- Magnitude 6 to 6.9
- Magnitude 7 to 7.4
- Magnitude 7.5 to 8

0 20 Miles

Approximate scale

Notes:

1. The fault line work data shows fault-based seismic sources used in the time-independent component of the Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3), which provides authoritative estimates of the magnitude, location, and time-averaged frequency of potentially damaging earthquakes in California. Fault model slip rates are given in millimeters per year. The data depicts the surface traces of modeled faults, which are simplified from the CGS - USGS Quaternary Fault and Fold database. For cartographic purposes only.

2. The Earthquake Epicenter (Magnitude) data is provided by the U.S Geological Survey (USGS) and is current through 2015.

3. Basemap hillshade and County boundaries provided by USGS and California Department of Transportation.

4. Map displayed in California State Coordinate System, California (Teale) Albers, North American Datum of 1983 (NAD83), Meters.

LANGAN Langan Engineering and Environmental Services, Inc. 135 Main Street, Suite 1500 San Francisco, CA 94105 T: 415.955.5200 F: 415.955.5201 www.langan.com	Project NORTH COAST COUNTY WATER DISTRICT PACIFICA SAN MATEO COUNTY CALIFORNIA	Figure Title MAP OF MAJOR FAULTS AND EARTHQUAKE EPICENTERS IN THE SAN FRANCISCO BAY AREA	Project No. 730370602 Date 10/08/2021 Drawn By AG Checked By HS	Figure 4

Filename: \\langan.com\data\SFO\data6\730370601\Project Data\CAD\01\2D-DesignFiles\Geotechnical\730370602-B-GI0101-SiteLocMap-FaultMap-MM Scale.dwg Date: 10/8/2021 Time: 11:53 User: agekas Style Table: Langan.stb Layout: Figure 4 FaultMap

I	**Not felt by people, except under especially favorable circumstances. However, dizziness or nausea may be experienced.** Sometimes birds and animals are uneasy or disturbed. Trees, structures, liquids, bodies of water may sway gently, and doors may swing very slowly.	
II	**Felt indoors by a few people, especially on upper floors of multi-story buildings, and by sensitive or nervous persons.** As in Grade I, birds and animals are disturbed, and trees, structures, liquids and bodies of water may sway. Hanging objects swing, especially if they are delicately suspended.	
III	**Felt indoors by several people, usually as a rapid vibration that may not be recognized as an earthquake at first. Vibration is similar to that of a light, or lightly loaded trucks, or heavy trucks some distance away. Duration may be estimated in some cases.** Movements may be appreciable on upper levels of tall structures. Standing motor cars may rock slightly.	
IV	**Felt indoors by many, outdoors by a few. Awakens a few individuals, particularly light sleepers, but frightens no one except those apprehensive from previous experience. Vibration like that due to passing of heavy, or heavily loaded trucks. Sensation like a heavy body striking building, or the falling of heavy objects inside.** Dishes, windows and doors rattle; glassware and crockery clink and clash. Walls and house frames creak, especially if intensity is in the upper range of this grade. Hanging objects often swing. Liquids in open vessels are disturbed slightly. Stationary automobiles rock noticeably.	
V	**Felt indoors by practically everyone, outdoors by most people. Direction can often be estimated by those outdoors. Awakens many, or most sleepers. Frightens a few people, with slight excitement; some persons run outdoors.** Buildings tremble throughout. Dishes and glassware break to some extent. Windows crack in some cases, but not generally. Vases and small or unstable objects overturn in many instances, and a few fall. Hanging objects and doors swing generally or considerably. Pictures knock against walls, or swing out of place. Doors and shutters open or close abruptly. Pendulum clocks stop, or run fast or slow. Small objects move, and furnishings may shift to a slight extent. Small amounts of liquids spill from well-filled open containers. Trees and bushes shake slightly.	
VI	**Felt by everyone, indoors and outdoors. Awakens all sleepers. Frightens many people; general excitement, and some persons run outdoors.** Persons move unsteadily. Trees and bushes shake slightly to moderately. Liquids are set in strong motion. Small bells in churches and schools ring. Poorly built buildings may be damaged. Plaster falls in small amounts. Other plaster cracks somewhat. Many dishes and glasses, and a few windows break. Knickknacks, books and pictures fall. Furniture overturns in many instances. Heavy furnishings move.	
VII	**Frightens everyone. General alarm, and everyone runs outdoors.** People find it difficult to stand. Persons driving cars notice shaking. Trees and bushes shake moderately to strongly. Waves form on ponds, lakes and streams. Water is muddied. Gravel or sand stream banks cave in. Large church bells ring. Suspended objects quiver. Damage is negligible in buildings of good design and construction; slight to moderate in well-built ordinary buildings; considerable in poorly built or badly designed buildings, adobe houses, old walls (especially where laid up without mortar), spires, etc. Plaster and some stucco fall. Many windows and some furniture break. Loosened brickwork and tiles shake down. Weak chimneys break at the roofline. Cornices fall from towers and high buildings. Bricks and stones are dislodged. Heavy furniture overturns. Concrete irrigation ditches are considerably damaged.	
VIII	**General fright, and alarm approaches panic.** Persons driving cars are disturbed. Trees shake strongly, and branches and trunks break off (especially palm trees). Sand and mud erupts in small amounts. Flow of springs and wells is temporarily and sometimes permanently changed. Dry wells renew flow. Temperatures of spring and well waters varies. Damage slight in brick structures built especially to withstand earthquakes; considerable in ordinary substantial buildings, with some partial collapse; heavy in some wooden houses, with some tumbling down. Panel walls break away in frame structures. Decayed pilings break off. Walls fall. Solid stone walls crack and break seriously. Wet grounds and steep slopes crack to some extent. Chimneys, columns, monuments and factory stacks and towers twist and fall. Very heavy furniture moves conspicuously or overturns.	
IX	**Panic is general.** Ground cracks conspicuously. Damage is considerable in masonry structures built especially to withstand earthquakes; great in other masonry buildings - some collapse in large part. Some wood frame houses built especially to withstand earthquakes are thrown out of plumb, others are shifted wholly off foundations. Reservoirs are seriously damaged and underground pipes sometimes break.	
X	**Panic is general.** Ground, especially when loose and wet, cracks up to widths of several inches; fissures up to a yard in width run parallel to canal and stream banks. Landsliding is considerable from river banks and steep coasts. Sand and mud shifts horizontally on beaches and flat land. Water level changes in wells. Water is thrown on banks of canals, lakes, rivers, etc. Dams, dikes, embankments are seriously damaged. Well-built wooden structures and bridges are severely damaged, and some collapse. Dangerous cracks develop in excellent brick walls. Most masonry and frame structures, and their foundations are destroyed. Railroad rails bend slightly. Pipe lines buried in earth tear apart or are crushed endwise. Open cracks and broad wavy folds open in cement pavements and asphalt road surfaces.	
XI	**Panic is general.** Disturbances in ground are many and widespread, varying with the ground material. Broad fissures, earth slumps, and land slips develop in soft, wet ground. Water charged with sand and mud is ejected in large amounts. Sea waves of significant magnitude may develop. Damage is severe to wood frame structures, especially near shock centers, great to dams, dikes and embankments, even at long distances. Few if any masonry structures remain standing. Supporting piers or pillars of large, well-built bridges are wrecked. Wooden bridges that "give" are less affected. Railroad rails bend greatly and some thrust endwise. Pipe lines buried in earth are put completely out of service.	
XII	**Panic is general.** Damage is total, and practically all works of construction are damaged greatly or destroyed. Disturbances in the ground are great and varied, and numerous shearing cracks develop. Landslides, rock falls, and slumps in river banks are numerous and extensive. Large rock masses are wrenched loose and torn off. Fault slips develop in firm rock, and horizontal and vertical offset displacements are notable. Water channels, both surface and underground, are disturbed and modified greatly. Lakes are dammed, new waterfalls are produced, rivers are deflected, etc. Surface waves are seen on ground surfaces. Lines of sight and level are distorted. Objects are thrown upward into the air.	

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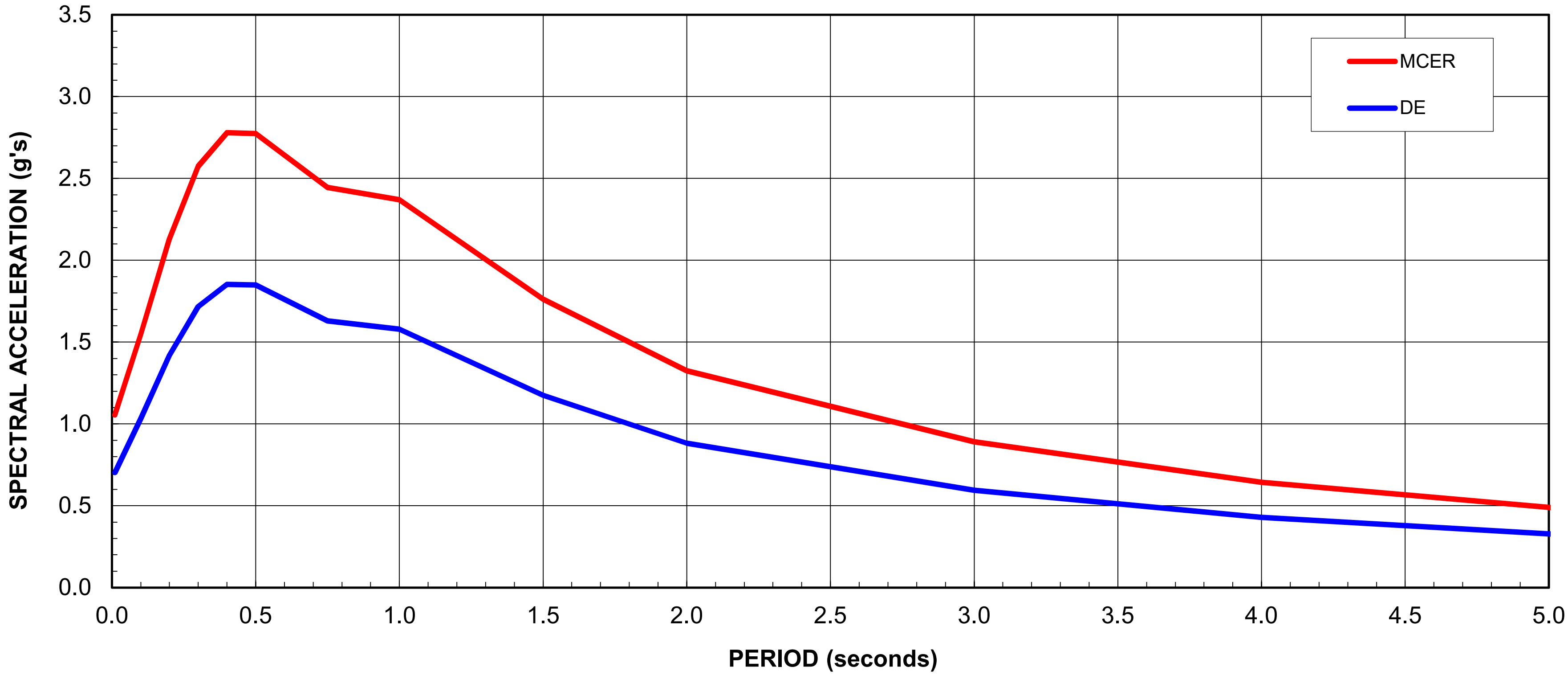
Project
NORTH COAST COUNTY WATER DISTRICT
PACIFICA
SAN MATEO COUNTY CALIFORNIA

Figure Title
MODIFIED MERCALLI INTENSITY SCALE

Project No. 730370601
Date 8/9/2021
Figure 5



Notes

1. Damping Ratio = 5%
2. Estimated V_{S30} = 287 m/s
3. Includes average directivity from Bayless and Sommerville (2013)

LANGAN	Project	Figure Title	Project No.	Figure No.
1 Almaden Boulevard, Suite 590 San Jose, California 95113 T: 408.283.3600 F: 408.283.3601 www.langan.com LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.	**NORTH COAST COUNTY WATER DISTRICT** PACIFICA SAN MATEO COUNTY CALIFORNIA	**RECOMMENDED HORIZONTAL SPECTRA**	730370801 Date 9/13/2021 Scale AS SHOWN Prepared By: HS	**6**

APPENDIX A

LOG OF TEST BORINGS

PROJECT: **NORTH COAST COUNTY WATER DISTRICT**
Pacifica, California

Log of Boring B-1

Boring location: See Site Plan, Figure 2	Logged by: M. Pinheiro
Date started: 6/27/03	Date finished: 6/27/03
Drilling method: Core Barrel from 0- 10.5 feet, Rotary Wash	
Hammer weight/drop: 140 lbs./30-inches	Hammer type: Safety
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)	

Ground Surface Elevation: 19 feet[2]

DEPTH (feet)	Sampler Type	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–0.5				6-inches Asphalt Concrete (AC)						
0.5–3 (FILL)	SPT	12	CL	GRAVELLY CLAY with SAND (CL) dark brown with red and yellow mottling, stiff, moist, with gravel up to 1.5 in diameter PI = 29, LL = 49, PL = 20 , see Figure C-4						
3–5.5 (FILL)	SPT	25	SC	CLAYEY SAND with GRAVEL (SC) olive brown with orange mottling, medium dense, moist, with brick fragments						
5.5–9	S&H	20	CL	SANDY CLAY with GRAVEL (CL) yellow brown, very stiff, moist to wet, with fine to medium grained gravel					12.8	122
8.5				▽ (06/27/03, 8:50 AM)						
9–12.5	S&H	13	CL	SANDY CLAY (CL) olive brown, stiff, wet, trace fine gravel and fine sand				67.9	19.0	112
11				begin rotary wash						
12	S&H	19		grades with increase sand content				57.1	18.2	
12.5–14.5			CL	SANDY CLAY (CL) olive brown with orange mottling, very stiff, wet, fine sand						
14.5–16	SPT	22	CL	SANDY CLAY (CL) olive brown with dark brown mottling, stiff, wet, with trace of gravel						
16–20			SC	CLAYEY SAND and GRAVEL (SC) olive brown, medium dense, wet, fine to medium grained sand, fine grained gravel						
20–22	S&H	12	CL	SANDY CLAY with GRAVEL (CL) olive brown and orange mottling, stiff, wet, fine gravel						
22–30	SPT	24	SC	CLAYEY SAND with GRAVEL (SC) olive brown with orange mottling, medium dense, wet, very fine sand with varying contents of clay, silt and fine gravel				30.4	16.7	

TEST GEOTECH LOG 370601.GPJ TR.GDT 8/19/03

Treadwell&Rollo

Project No.: 3706.01

Figure: A-1a

DEPTH (feet)	Sampler Type	Sample	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	SPT		19	SC	CLAYEY SAND (SC) (continued) grades with increase silt and clay						
33–36	SPT		18/6" 26	SP-SC	SAND with CLAY (SP-SC) olive brown, dense, wet, with trace of gravel						
36–40				SC	CLAYEY SAND (SC) olive brown, medium dense, wet						
40–42	S&H		30/6"	SP	SAND with GRAVEL (SP) brown with gray and red mottling, very dense, wet, coarse grained sand						
42–44.5	SPT		20	CL	SANDY CLAY (CL) gray, very stiff, wet, with fine sand and silt						
44.5–51.5	SPT		31	SM	SILTY SAND (SM) gray, medium dense to dense, wet, with varying clay and silt content						
51	SPT		40	SM							
52–60											

Boring terminated at 51.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 8.7 feet on 6/27/03 at 8:52 AM.

[1] S&H blow counts converted to SPT N-Values using a factor of 0.6.
[2] Elevations based on North Amercian Datum (NAD 83).

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Project No.: 3706.01 | Figure: A-1b

PROJECT:	NORTH COAST COUNTY WATER DISTRICT Pacifica, California	**Log of Boring B-2**

Boring location: See Site Plan, Figure 2		Logged by: M. Pinheiro
Date started: 6/28/03	Date finished: 6/28/03	
Drilling method: Core Barrel from 0- 8 feet, Rotary Wash		
Hammer weight/drop: 140 lbs./30-inches	Hammer type: Safety	
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)		

DEPTH (feet)	Sampler Type	Sample	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION Ground Surface Elevation: 18 feet[2]	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–3		Bulk		CL	4-inches Asphalt Concrete (AC) and Aggregate Base (AB) SANDY CLAY with GRAVEL (CL) olive gray to yellow brown, medium dense, moist, coarse gravel up to 1.5-inches grades with increase gravel content (FILL)						
3–5	S&H		14	CH	CLAY (CH) black, stiff, moist, trace gravel PI = 36, LL = 54, PL = 18 , see Figure C-4						
5–7	S&H		10	CL	SANDY CLAY (CL) olive mottled yellow brown, stiff, moist, trace gravel, with roots Consolidation Test, see Figure C-1					20.5	106
8					∇ (06/28/03, 10:16 AM)						
9–10	S&H		11		grades olive with yellow brown and black mottling, wet				76	19.3	113
11					begin rotary wash						
13	S&H		20		grades very stiff with fine gravel					20.1	110
15–16	SPT		18		increase gravel content						
19–26	S&H (21), SPT (26)		11, 20	CL	SANDY CLAY (CL) yellow brown with brown mottling, stiff, wet, trace gravel						
26–30				SC	CLAYEY SAND (SC) yellow brown, medium dense, wet, with gravel				32	18.2	

Treadwell&Rollo

Project No.: 3706.01 Figure: A-2a

PROJECT: **NORTH COAST COUNTY WATER DISTRICT**
Pacifica, California

Log of Boring B-2

DEPTH (feet)	Sampler Type	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
30.5–31	SPT	93/10"	SP	SAND (SP) brown and red, very dense, wet, fine sand and silt, trace gravel						
32.5			SP	gray sandy clay in cuttings						
34			GP	GRAVEL with SAND (GP) yellow brown, very dense, wet						
35–36	SPT	89/10"	GP							
39.8			GP	grades with less gravel						
40.5	SPT	63	SP	SAND (SP) brown, very dense, wet, fine to medium grained sand						
43.3			SP	varying clay and sand content in cuttings						
44			SP-SM	SAND with SILT (SP-SM) gray, dense to very dense, wet, very fine sand						
45–46	SPT	49	SP-SM							
48.3			SP-SM	trace fine to medium grained gravel in cuttings						
50.3			SP-SM	grades with fine gravel						
50–51	SPT	77	SP-SM							

Boring terminated at 51.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater encountered at a depth of 8 feet on 6/28/03 at 10:16 AM.

[1] S&H blow counts converted to SPT N-Values using a factor of 0.6.
[2] Elevations based on North Amercian Datum (NAD 83).

Treadwell&Rollo

Project No.: 3706.01 | Figure: A-2b

Log of Boring B-3

PROJECT: **NORTH COAST COUNTY WATER DISTRICT**
Pacifica, California

Boring location: See Site Plan, Figure 2
Logged by: M. Pinheiro
Date started: 6/28/03 | Date finished: 6/28/03
Drilling method: Rotary Wash
Hammer weight/drop: 140 lbs./30-inches | Hammer type: Safety
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

Ground Surface Elevation: 16.5 feet[2]

DEPTH (feet)	Sampler Type	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0–1				2-inches Asphalt Concrete (AC); 6-inches Aggregate Base (AB)						
2	S&H	8	CL	SANDY CLAY with GRAVEL (CL) brown to yellow brown, medium stiff to stiff, moist, with varying sand and fine gravel content, and trace organics (FILL)						
4	S&H	11	CH	CLAY (CH) black, stiff, moist, with some sand, fine gravel and rootlets	TxUU	500	1,350		21.1	104
5–6	S&H	14	CL	SANDY CLAY (CL) olive brown, stiff, moist, trace fine gravel	TxUU	700	1,200		16.1	114
7–8			CL	grades with increase stiffness, and color change to brown						
10	S&H	31	CL	grades to yellow-brown, very stiff to hard, with trace gravel						
11				begin rotary wash						
12–13	SPT	25	SC	CLAYEY SAND with GRAVEL (SC) yellow brown, medium dense, wet				26.2	16.2	
15–16	S&H	26/6"	SP-SC	SAND with CLAY and GRAVEL (SP-SC) yellow brown, very dense, wet, highly cemented						
20–21	SPT	15	CL	SANDY CLAY (CL) light brown mottled yellow and black, stiff to very stiff, wet, trace of fine gravel						
22–23			CL	gravel in cuttings						
24–30	SPT (26)	36	SM	SILTY SAND (SM) light brown mottled red, dense, wet, very fine sand, with varying silt and clay content						

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Project No.: 3706.01 | Figure: A-3a

PROJECT: **NORTH COAST COUNTY WATER DISTRICT**
Pacifica, California

Log of Boring B-3

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	S&H		19	CL	SANDY CLAY (CL) olive gray, very stiff, wet, with fine sand						
32											
33											
34											
35				SC	CLAYEY SAND with GRAVEL (SC) olive with brown and gray mottling, dense, wet, with varying sand and gravel content						
36	S&H		37								
37											
38											
39											
40					grades with less clay						
41	SPT		44	ML	SANDY SILT (ML) gray, very stiff, wet, with very fine grained sand						
42											
43											
44				SM	SILTY SAND (SM) gray, dense to very dense, wet, with some clay and very fine sand						
45											
46	SPT		55								
47											
48											
49											
50											
51	SPT		26		trace fine gravel						
52											
53											
54											
55											
56											
57											
58											
59											
60											

Boring terminated at 51.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater obscured by drilling method.

[1] S&H blow counts converted to SPT N-Values using a factor of 0.6.
[2] Elevations based on North Amercian Datum (NAD 83).

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Project No.: 3706.01
Figure: A-3b

TEST GEOTECH LOG 370601.GPJ TR.GDT 8/19/03

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil > no. 200 sieve size	**Gravels** (More than half of coarse fraction > no. 4 sieve size)	**GW**	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction < no. 4 sieve size)	**SW**	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine -Grained Soils (more than half of soil < no. 200 sieve size)	**Silts and Clays** LL = < 50	**ML**	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = > 50	**MH**	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		**PT**	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes	
	U.S. Standard Sieve Size	**Grain Size in Millimeters**
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.074
Silt and Clay	Below No. 200	Below 0.074

Unstabilized groundwater level

Stabilized groundwater level

SAMPLE DESIGNATIONS/SYMBOLS

Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered

Classification sample taken with Standard Penetration Test sampler

Undisturbed sample taken with thin-walled tube

Disturbed sample

Sampling attempted with no recovery

Core sample

Analytical laboratory sample

Sample taken with Direct Push sampler

SAMPLER TYPE

- C — Core barrel
- CA — California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter
- D&M — Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube
- O — Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube
- PT — Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube
- S&H — Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter
- SPT — Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter
- ST — Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure

NORTH COAST COUNTY WATER DISTRICT
Pacifica, California

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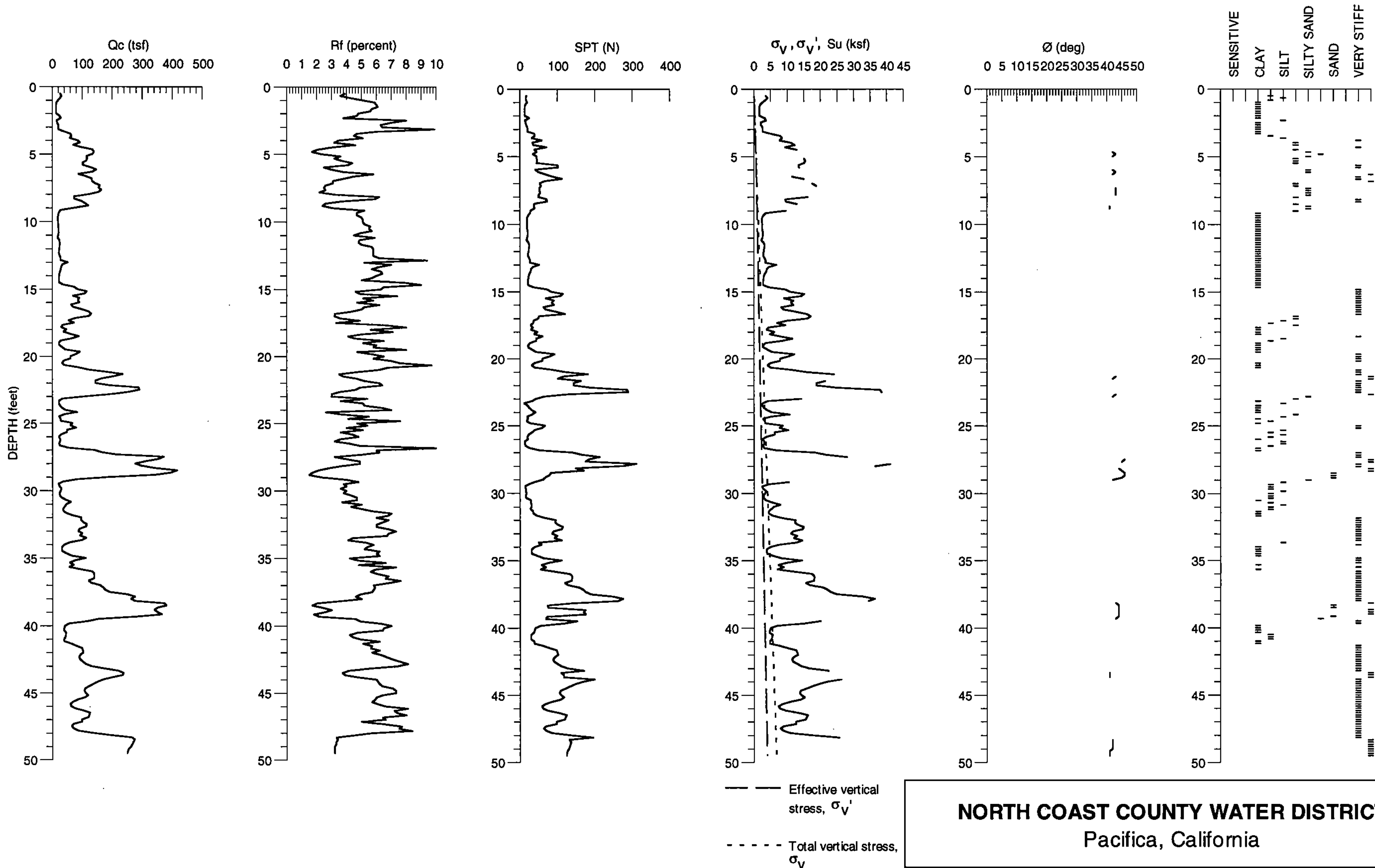
CLASSIFICATION CHART

Date 07/23/03 | Project No. 3706.01 | Figure A-4

APPENDIX B

CONE PENETRATION TEST RESULTS (CPTs)



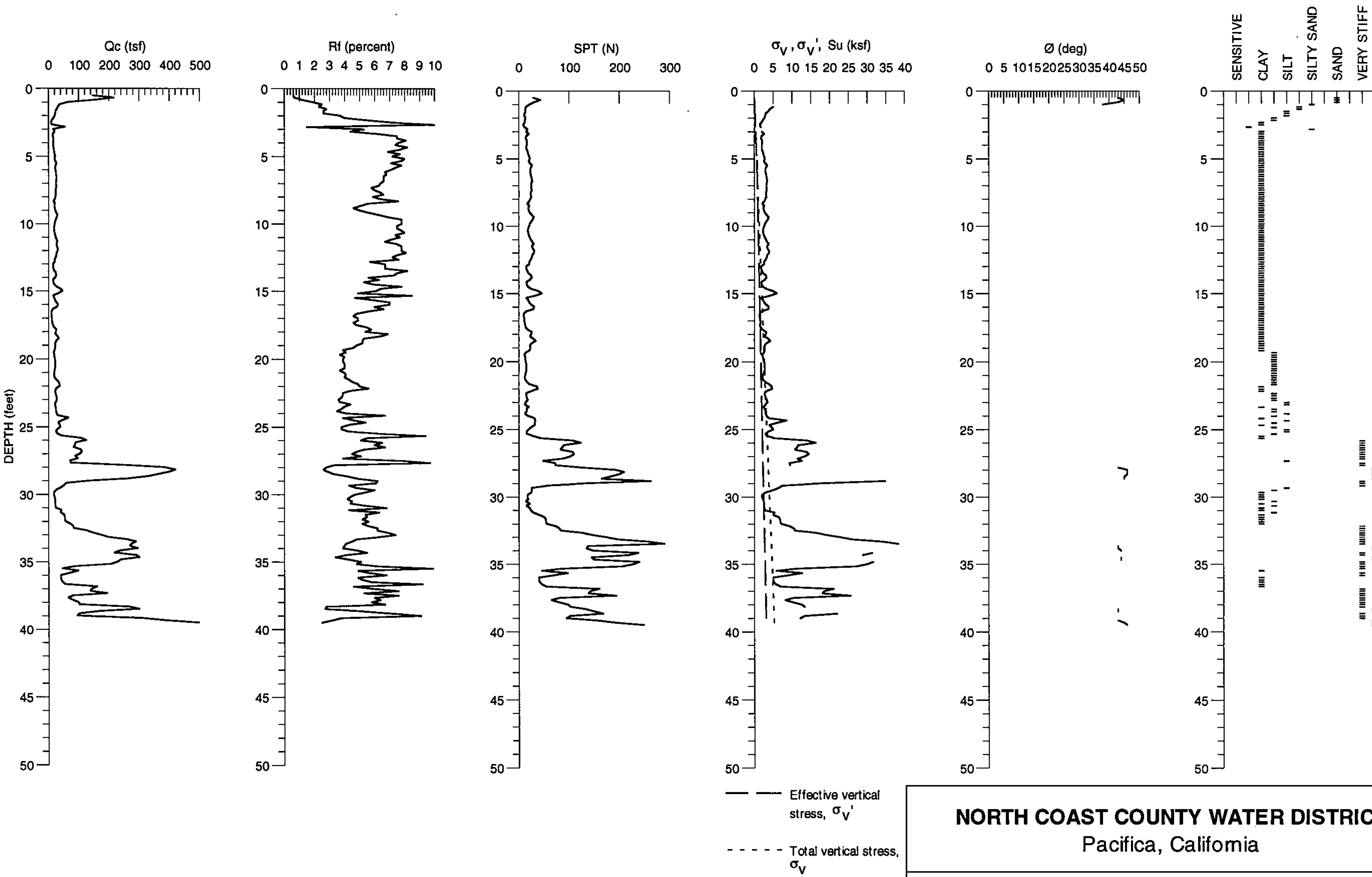
Terminated at 49.5 feet
Groundwater measured at 4.9 feet.
Date performed: 06/27/03.
Ground Surface Elevation: 19 feet (NAD 83).

NORTH COAST COUNTY WATER DISTRICT
Pacifica, California

CONE PENETRATION TEST RESULTS
CPT-1

Date 07/29/03	Project No. 3706.01	Figure B-1

Treadwell&Rollo



Terminated at 39.5 feet
Groundwater measured at 5.2 feet.
Date performed: 06/28/03.
Ground Surface Elevation: 20 feet (NAD 83).

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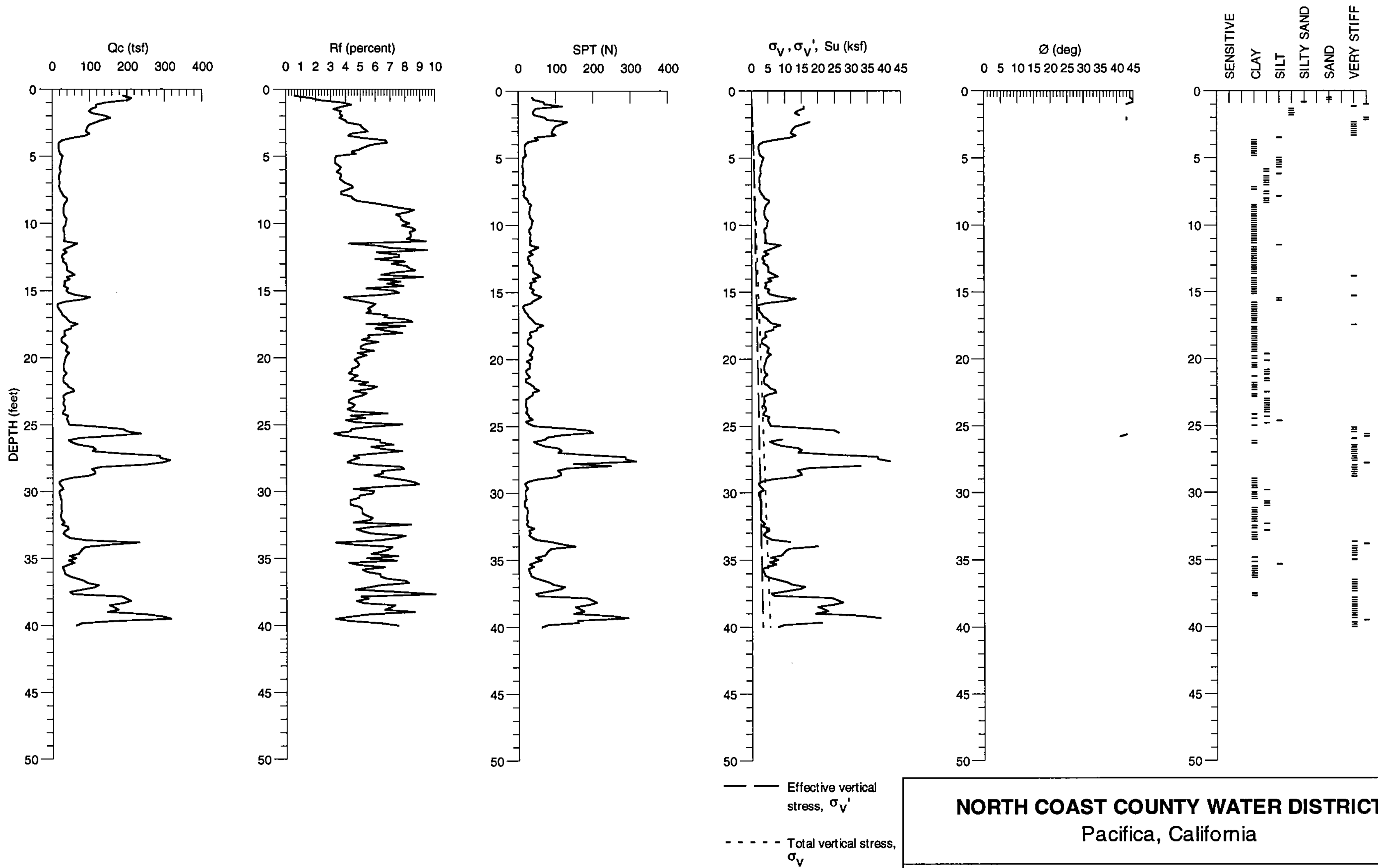
Pacifica, California

CONE PENETRATION TEST RESULTS
CPT-2

Date 07/29/03	Project No. 3706.01	Figure B-2

Treadwell&Rollo



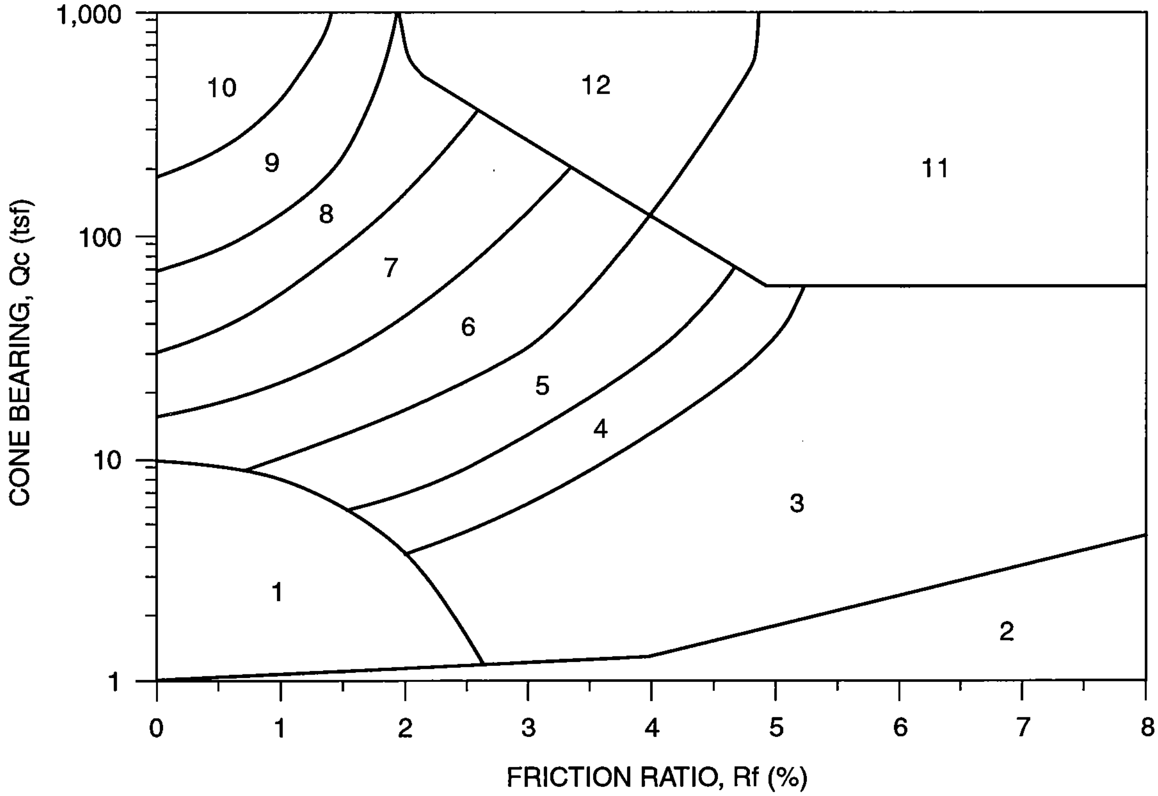
Terminated at 40 feet
Groundwater measured at 5.5 feet.
Date performed: 06/28/03.
Ground Surface Elevation: 15.5 feet (NAD 83)

NORTH COAST COUNTY WATER DISTRICT
Pacifica, California

CONE PENETRATION TEST RESULTS
CPT-3

Date 07/29/03	Project No. 3706.01	Figure B-3

Treadwell&Rollo



ZONE	Qc/N[1]	Su Factor (Nk)[2]	SOIL BEHAVIOR TYPE[1]
1	2	15 (10 for Qc 9 tsf)	Sensitive Fine-Grained
2	1	15 (10 for Qc 9 tsf)	Organic Material
3	1	15 (10 for Qc 9 tsf)	CLAY
4	1.5	15	SILTY CLAY to CLAY
5	2	15	CLAYEY SILT to SILTY CLAY
6	2.5	15	SANDY SILT to CLAYEY SILT
7	3	---	SILTY SAND to SANDY SILT
8	4	---	SAND to SILTY SAND
9	5	---	SAND
10	6	---	GRAVELLY SAND to SAND
11	1	15	Very Stiff Fine-Grained (*)
12	2	---	SAND to CLAYEY SAND (*)

(*) Overconsolidated or Cemented
Qc = Tip Bearing
Fs = Sleeve Friction
Rf = Fs/Qc x 100 = Friction Ratio

Note: Testing performed in accordance with ASTM D3441.

References: 1. Robertson, 1986, Olsen, 1988.
2. Bonaparte & Mitchell, 1979 (young Bay Mud Qc ≤9).
Estimated from local experience (fine-grained soils Qc > 9).

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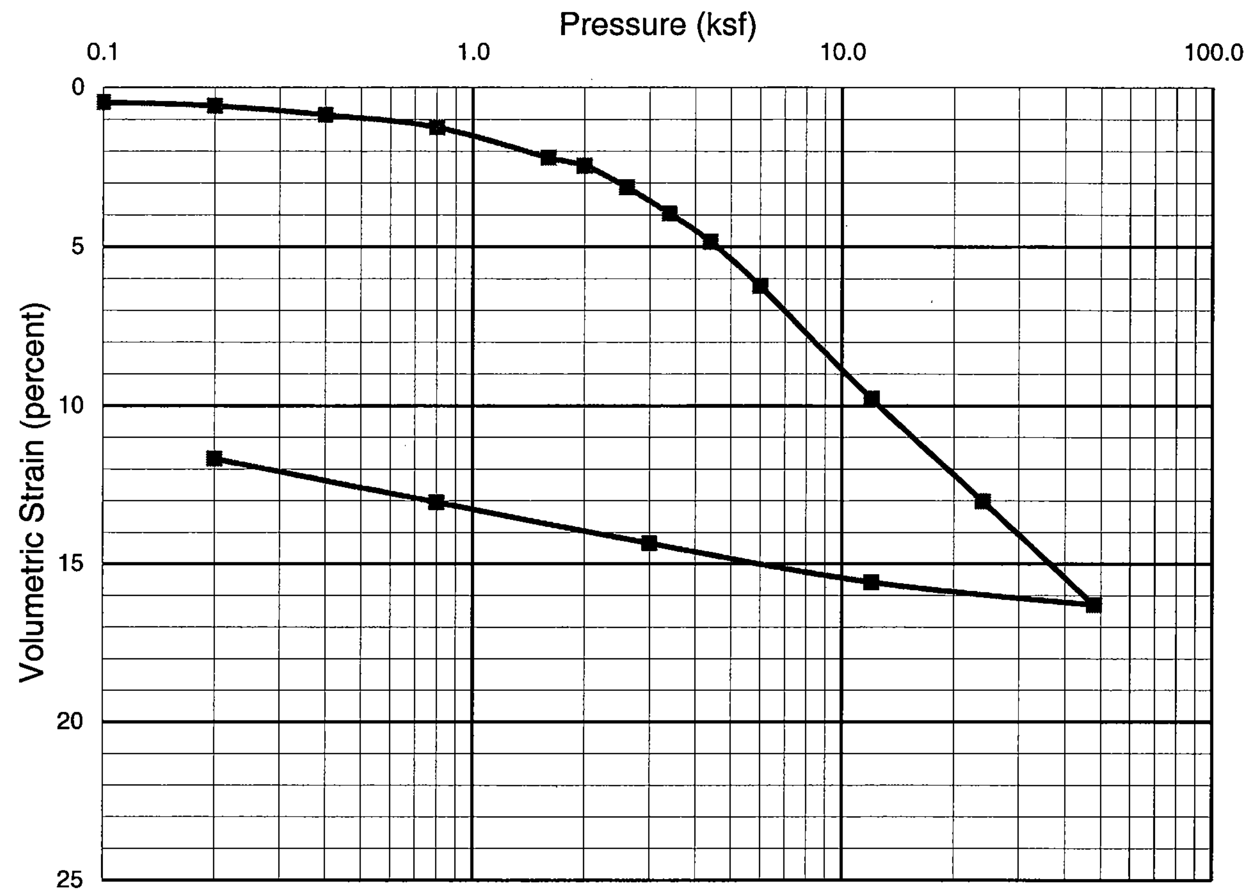
CLASSIFICATION CHART FOR CONE PENETRATION TESTS

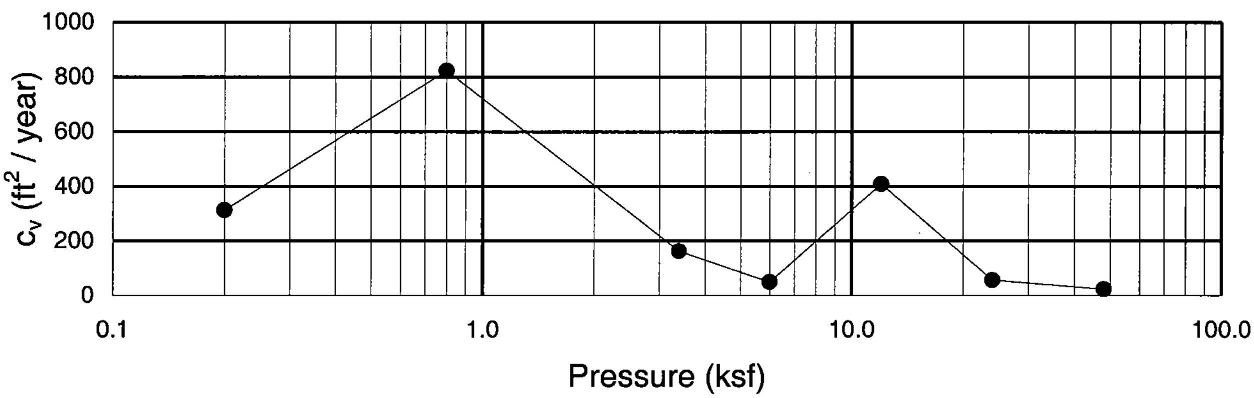
Date 07/23/03	Project No. 3706.01	Figure B-4

SARIMIENTO

APPENDIX C

LABORATORY TEST RESULTS





Sampler Type: Sprague & Henwood		Condition		Before Test		After Test	
Diameter (in) 2.42	Height (in) 1.00	Water Content	w_o	20.5 %	w_f	17.3 %	
Overburden Pressure, p_o 770 psf		Void Ratio	e_o	0.59	e_f	0.40	
Preconsol. Pressure, p_c 3,300 psf		Saturation	S_o	94 %	S_f	116 %	
Compression Ratio, $C_{\varepsilon c}$ 0.11		Dry Density	γ_d	106 pcf	γ_d	120 pcf	
LL --	PL --		PI --		G_s 2.70 (assumed)		
Classification SANDY CLAY (CL) - olive mottled yellow-brown				Source: B-2 at 6.5 feet			

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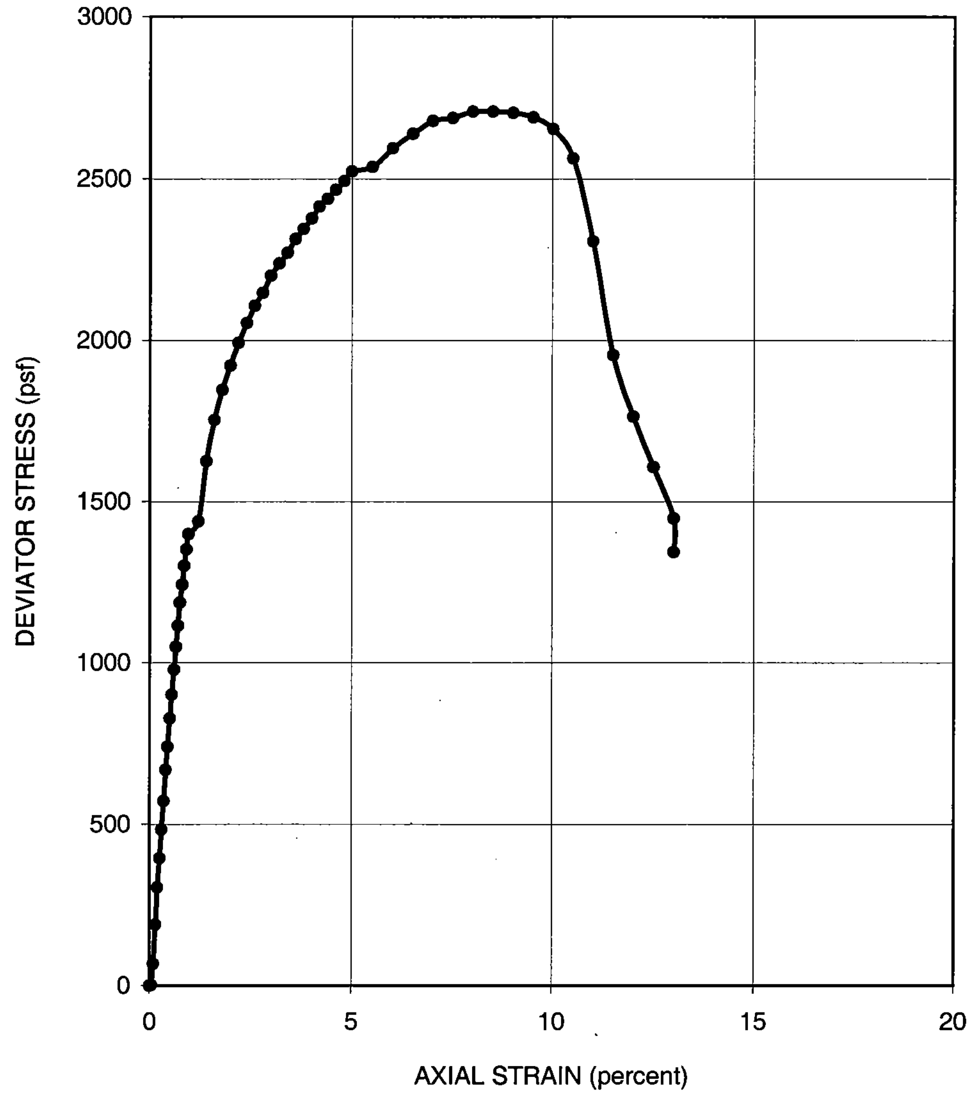
CONSOLIDATION TEST REPORT

Date 08/09/03 | Project No. 3706.01 | Figure C-1



SAMPLER TYPE Sprague & Henwood		SHEAR STRENGTH 1,350	psf
DIAMETER (in.) 2.407	HEIGHT (in.) 5.88	STRAIN AT FAILURE 8.0	%
MOISTURE CONTENT 21.1	%	CONFINING PRESSURE 500	psf
DRY DENSITY 104	pcf	STRAIN RATE 0.50	% / min
DESCRIPTION CLAY (CH) - black		SOURCE B-3 at 3.5 feet	

NORTH COAST COUNTY WATER DISTRICT
Pacifica, California

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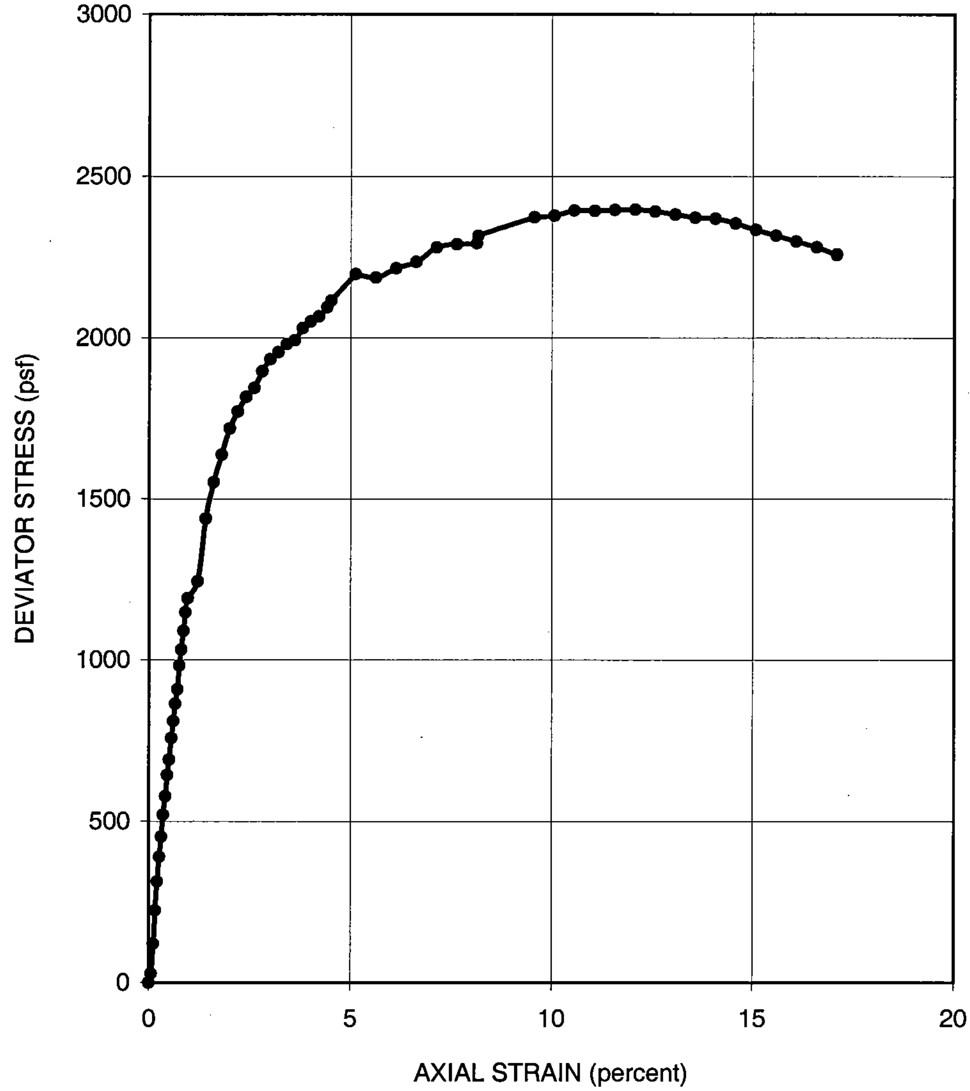
UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

Date 08/09/03 | Project No. 3706.01 | Figure C-2



SAMPLER TYPE	Sprague & Henwood		SHEAR STRENGTH	1,200	psf
DIAMETER (in.) 2.407	HEIGHT (in.) 5.28		STRAIN AT FAILURE	12.1	%
MOISTURE CONTENT	16.1	%	CONFINING PRESSURE	700	psf
DRY DENSITY	114	pcf	STRAIN RATE	0.25	% / min
DESCRIPTION	SANDY CLAY (CL) - olive brown		SOURCE	B-3 at 6 feet	

NORTH COAST COUNTY WATER DISTRICT
Pacifica, California

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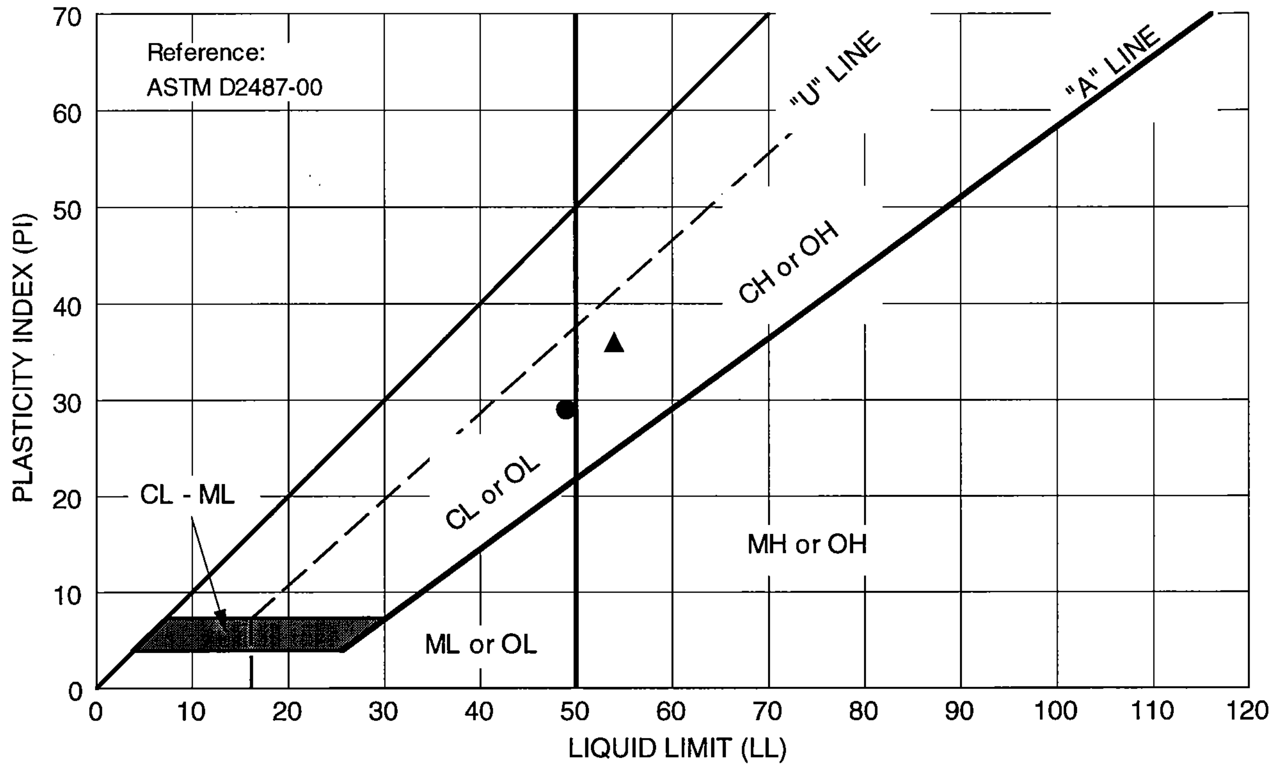
UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST

Date 08/09/03 | Project No. 3706.01 | Figure C-3



Symbol	Source	Description and Classification	Natural M.C. (%)	Liquid Limit (%)	Plasticity Index (%)	% Passing #200 Sieve
●	B-1 at 1 foot	GRAVELLY CLAY with SAND (CL), dark brown with red	20.4	49	29	--
▲	B-2 at 3.5 feet	CLAY (CH), black	18	54	36	--

NORTH COAST COUNTY WATER DISTRICT
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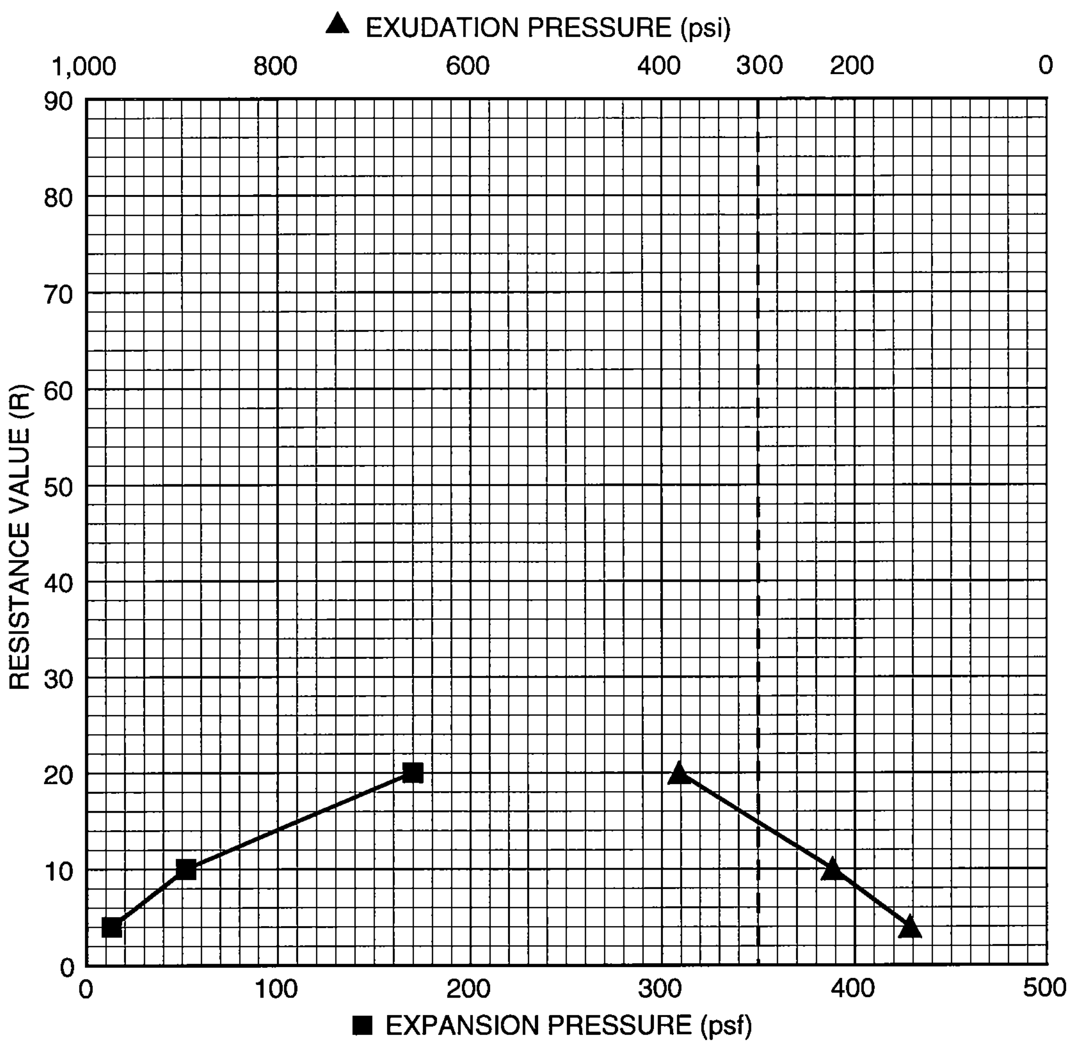
PLASTICITY CHART

Date 08/18/03 | Project No. 3706.01 | Figure C-4



Specimen ID:	A	B	C	D
Water Content (%)	15.2	14.4	12.7	--
Dry Density (pcf)	122	125	127	--
Exudation Pressure (psi)	143	223	382	--
Expansion Pressure (psf)	13	52	170	--
Resistance Value (R)	4	10	20	--

Sample Source	Sample Description	Sand Equivalent	Exudation Pressure	R value
B-2 at 0.5' - 2.0'	SANDY CLAY with GRAVEL (CL), olive gray to yellow brown	--	300	15

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Pacifica, California

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RESISTANCE VALUE TEST DATA

Date 8/19/03 | Project No. 3706.01 | Figure C-5

APPENDIX D

SOIL CORROSIVITY ANALYSIS AND RECOMMENDATIONS

E T S

1343 Redwood Way
Petaluma, CA 94954
(707) 795-9605/FAX 795-9384

Environmental Technical Services

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COMPANY:	Treadwell & Rollo, 555 Montgomery Street, Suite 1300, San Francisco, CA		ANALYST(S)	SUPERVISOR
ATTN:	Serena T. Dong	PROJ. NO.:	DATE RECEIVED	DATE of COMPLETION	W. Zuo	D. Jacobson
PROJ. NAME:	North Coast County Water Dist	3706.01			M. Banwait	LAB DIRECTOR
LOCATION:	northern Califonria		7/11/03	7/18/03		G.S. Conrad PhD

LAB SAMPLE NUMBER	SAMPLE ID	DESCRIPTION of SOIL and/or SEDIMENT	SOIL pH -log[H+]	MINIMUM RESISTIVITY ohm-cm	ELECTRICAL CONDUCTIVITY μmhos/cm	SULFATE SO4 ppm	CHLORIDE Cl ppm
00065-1	NCCWD1	B-1-1A @ 0.0'	7.43	1490	[670]	645	29
Method	Detection	Limits --->	---	1	0.1	1	1

LAB SAMPLE NUMBER	SAMPLE ID	DESCRIPTION of SOIL and/or SEDIMENT	SALINITY ECe mmhos/cm	SOLUBLE SULFIDES (S=) ppm	SOLUBLE CYANIDES (CN=) ppm	REDOX mV	PERCENT MOISTURE %
Method	Detection	Limits --->	---	0.1	0.1	1	0.1

****************************** COMMENTS ******************************

Resistivity is over 1,000 ohm-cm which is good, and soil reaction (i.e., pH) is alkaline which also is good; sulfate is elevated above typical, but chloride is very low. The CalTrans times to peforation are as follows: for 18 ga steel the time is a good 29.4 yrs, and for 12 ga it goes to 64.7 yrs. Note that sulfate is fairly high at nearly 650 ppm, however it still is safely below the broad 1,000-2,000 ppm threshold generally employed. Therefore, sulfate should not have a negative impact of any consequence on concrete & related materials based on the standard specification; and chloride would not have any impact on contained steel reinforcement. Lime treatment would be of no benefit at all in this case due to soil pH.

\\\\NOTES: Methods are from following sources: extractions by Cal Trans protocols as per Cal Test 417 (SO4), 422 (Cl), and 532/643 (pH & resistivity); &/or by ASTM Vol. 4.08 & ASTM Vol. 11.01 (=EPA Meth Chem Anal, or Standard Methods); pH - ASTM G 51; Spec. Cond. - ASTM D 1125; resistivity - ASTM G 57; redox - Pt probe/ISE; sulfate - extraction Title 22, detection ASTM D 516 (=EPA 375.4); chloride - extraction Title 22, detection ASTM D 512 (=EPA 325.3); sulfides - extrac. Title 22, detection EPA 376.2 (=SMEWW 4500-S D); cyanides - extraction Title 22, detection ASTM D 4374 (=EPA 335.2).

APPENDIX E

SITE-SPECIFIC RESPONSE SPECTRA

APPENDIX E
SITE-SPECIFIC RESPONSE SPECTRA

This appendix presents the details of our estimation of the level of ground shaking at the site during future earthquakes. To develop site-specific response spectra in accordance with 2019 California Building Code (CBC) criteria, and by reference ASCE 7-16, we performed probabilistic seismic hazard analysis (PSHA) and deterministic analysis to develop smooth, site-specific horizontal spectra for two levels of shaking, namely:

- Risk-Targeted Maximum Considered Earthquake (MCE_R), which corresponds to the lesser of two percent probability of exceedance in 50 years (2,475-year return period) or 84th percentile of the controlling deterministic event both considering the maximum direction as described in ASCE 7-16.

- Design Earthquake (DE) which corresponds to 2/3 of the MCE_R.

E1.0 PROBABILISTIC SEISMIC HAZARD ANALYSIS

Because the location, recurrence interval, and magnitude of future earthquakes are uncertain, we performed a PSHA, which systematically accounts for these uncertainties. The results of a PSHA define a uniform hazard for a site in terms of a probability that a particular level of shaking will be exceeded during the given life of the structure.

To perform a PSHA, information regarding the seismicity, location, and geometry of each source, along with empirical relationships that describe the rate of attenuation of strong ground motion with increasing distance from the source, are needed. The assumptions necessary to perform the PSHA are that:

- the geology and seismic tectonic history of the region are sufficiently known, such that the rate of occurrence of earthquakes can be modeled by historic or geologic data

- the level of ground motion at a particular site can be expressed by an attenuation relationship that is primarily dependent upon earthquake magnitude and distance from the source of the earthquake

- the earthquake occurrence can be modeled as a Poisson process with a constant mean occurrence rate.

As part of the development of the site-specific spectra, we performed a PSHA to develop a site-specific response spectrum for 2 percent probability of exceedance in 50 years. The ground surface spectrum was developed using the OpenSHA platform. The approach used in OpenSHA is based on the probabilistic seismic hazard model developed by Cornell (1968) and McGuire (1976). Our analysis modeled the faults in the Bay Area as linear sources, and earthquake activities were assigned to the faults based on historical and geologic data. The levels of shaking were estimated using ground motion prediction equations (attenuation relationships) that are primarily dependent upon the magnitude of the earthquake and the distance from the site to the fault, as well as the average shear wave velocity of the upper 30 meters, V_{S30}.

E1.1 Probabilistic Model

In probabilistic models, the occurrence of earthquake epicenters on a given fault is assumed to be uniformly distributed along the fault. This model considers ground motions arising from the portion of the fault rupture closest to the site rather than from the epicenter. Fault rupture lengths were modeled using fault rupture length-magnitude relationships given by Wells and Coppersmith (1994).

The probability of exceedance, $P_e(Z)$, at a given ground-motion, Z, at the site within a specified time period, T, is given as:

$$P_e(Z) = 1 - e^{-V(z)T}$$

where V(z) is the mean annual rate of exceedance of ground motion level Z. V(z) can be calculated using the total-probability theorem.

$$V(z) = \sum_i v_i \iint P[Z > z \mid m, r] f_{M_i}(m) f_{R_i|M_i}(r; m) dr\, dm$$

where:

v_i = the annual rate of earthquakes with magnitudes greater than a threshold M_{oi} in source i

P [Z > z | m,r] = probability that an earthquake of magnitude m at distance r produces ground motion amplitude Z higher than z

f_{Mi} (m) and $f_{Ri|Mi}$ (r;m) = probability density functions for magnitude and distance

Z represents peak ground acceleration, or spectral acceleration values for a given frequency of vibration. The peak accelerations are assumed to be log-normally distributed about the mean with a standard error that is dependent upon the magnitude and attenuation relationship used.

E1.2 Source Modeling and Characterization

The segmentation of faults, maximum magnitudes, and recurrence rates were modeled using the data presented in the Uniform California Earthquake Rupture Forecast Version 3 (UCERF3) as detailed in the United States Geological Survey Open File Report 2013-1165. Table E-1 presents the distance and direction from the site to the fault, mean moment magnitude, mean slip rate, and fault length for individual fault segments in the UCERF3 source model. The mean moment magnitude presented on Table E-1 was computed assuming full rupture of the segments using the Hank and Bakun (2008) relationship.

TABLE E-1
Source Zone Parameters

Fault Segment	Approx. Distance from fault (km)	Direction from Site	Mean Moment Magnitude[1]	Mean Slip Rate (mm/yr)	Fault Length (km)
San Andreas 1906 event	2.5	Northeast	8.1	17.2	464
Pilarcitos	3.6	Southwest	6.7	0.7	51
Total San Gregorio	5.7	West	7.6	3.6	219
Monte Vista - Shannon	23.1	Southeast	7.0	0.8	60
Total Hayward-Rodgers Creek Healdsburg	32.3	East	7.6	7.3	213
Butano	37.1	Southeast	6.7	0.7	46
Mission (connected)	39.4	East	6.1	0.8	28
Contra Costa (Lafayette)	42.7	Northeast	6.1	0.8	8
Total Calavares	45.7	East	7.5	8.0	186
Contra Costa Shear Zone (connector)	45.8	Northeast	6.6	0.9	30
Franklin	46.0	East	6.7	1.1	38
Contra Costa (Larkey)	46.0	Northeast	6.0	0.8	8
Mount Diablo Thrust	48.3	Northeast	6.6	1.6	25
Contra Costa (Dillon Point)	49.9	Northeast	6.1	0.7	11
Concord	53.3	Northeast	6.4	3.4	18
Green Valley	58.0	Northeast	6.8	3.8	43
Contra Costa (Vallejo)	58.7	Northeast	5.6	0.6	4
Contra Costa (Lake Chabot)	59.5	Northeast	5.6	0.7	4
Clayton	60.4	Northeast	6.4	0.7	16
Greenville	60.4	East	7.1	2.3	80
West Napa	63.2	Northeast	6.8	1.3	44
Bennett Valley	66.3	North	6.5	1.0	33
Great Valley 05 Pittsburg - Kirby Hills	68.5	Northeast	6.3	1.0	21
Sargent	72.6	Southeast	6.8	1.7	57
Monterey Bay-Tularcitos	85.4	Southeast	7.2	0.6	86
Great Valley 07 (Orestimba)	85.9	East	6.8	0.5	66
Great Valley 04b Gordon Valley	87.3	Northeast	6.6	0.9	28
Hunting Creek - Berryessa	90.5	Northeast	6.7	4.3	44
Maacama	97.8	North	7.4	7.9	175

E1.3 Attenuation Relationships

Based on the subsurface conditions, the site is classified as a stiff soil profile, site Class D. Using the subsurface information, we estimated the shear wave velocity of the upper 100 feet

[1] Mean Moment Magnitude based on entire fault length rupturing using Hank and Bakun (2008)

(30 meters), V_{S30}, of approximately 940 feet per second (287 meters per second). The NGA-2 database indicates that Z_1 and $Z_{2.5}$ are about 300 meters and 0.67 kilometers, respectively. These values were used in the development of site-specific spectra.

The Pacific Earthquake Engineering Research Center (PEER) embarked on the NGA-West 2 project to update the previously developed ground motion prediction equations (attenuation relationships), which were mostly published in 2014. We used the relationships by Abrahamson et al. (2014), Boore et al. (2014), Campbell and Bozorgnia (2014) and Chiou and Youngs (2014). These attenuation relationships include the average shear wave velocity in the upper 100 feet. Furthermore, these relationships were developed the same earthquake database, therefore, each one is equally credible and the average of the relationships (using equal weights for each attenuation relationship) is appropriate and was used to develop the recommended spectra.

The NGA relationships database includes the most up-to-date recorded and processed data. They were developed for the "average" (Rot_{D50}) horizontal components of spectral acceleration.

E1.4 Near-Source Effects

The site is in the near-field region (i.e. distances less than about 15 kilometers from a fault) and therefore may experience near-field directivity effects during an earthquake on a nearby fault. It has been recognized that ground motions recorded in the near-field regions show rupture directivity and near-source effects such as velocity and displacements pulses (sometimes referred to as "fling"). In general, such effects tend to increase the long period portion of the acceleration response spectrum when compared to the average spectrum. These effects have been demonstrated by Golesorkhi and Gouchon (2002), Somerville et al. (1995 and 1997), and Singh (1985). Somerville et al. (1997) and Abrahamson (2000) quantified near-source directivity effects and provided scaling factors for modifying the average spectra to capture these effects. Bayless and Somerville (2013) provides a more recent and updated methodology to incorporate these effects in the development of response spectra with consideration of near-source effects. Directivity effects were quantified by randomizing the hypocenter using a uniform distribution for each rupture location and magnitude using the Bayless and Somerville (2013) approach. The average directivity spectrum was developed using the Bayless and Somerville (2013) quantification.

E2.0 PSHA RESULTS

Figure E-1 presents the geometric mean results of the PSHA for soil for the 2 percent probability of exceedance in 50 years hazard level (2,475-year return period) using the four relationships discussed above as well as the average of these relationships. These results were developed using OpenSHA Hazard Spectrum Application 1.5.2 (UCERF3 model) and include average directivity.

ASCE 7-16 specifies the development of MCE_R site-specific response spectra in the maximum direction. Shahi and Baker (2014) provide scaling factors that modify the geometric mean spectra to provide spectral values for the maximum response (maximum direction). We used the scaling factors presented in Table 1 of Shahi and Baker (2014) for ratios of $Sa_{RotD100}$/ Sa_{RotI50} to modify the average of the PSHA results for two percent probability of exceedance in 50 years. The maximum direction spectrum is also shown on Figure E-1.

Figure E-2 presents the deaggregation plots of the PSHA results for the 2 percent probability of exceedance in 50 years hazard level. From the examination of these results, it can be seen that the San Andreas fault dominates the hazard at the project site at different periods of interest.

E3.0 DETERMINISTIC ANALYSIS

We performed a deterministic analysis to develop the MCE_R spectrum at the site. In a deterministic analysis, a given magnitude earthquake occurring at a certain distance from the source is considered as input into an appropriate ground motion attenuation relationship. On the basis of the deaggregation results we developed deterministic spectra for both scenario earthquakes:

- a Moment Magnitude of 8.05 on the San Andreas fault at a distance of about 2.5 kilometers from the site.

The deterministic MCE spectrum was defined as an envelope of both scenario earthquakes. This is consistent with the deaggregation results discussed in Section E2.0.

The same attenuation relationships and weighting factors as discussed in Section E1.3 were used in our deterministic analysis. Figures E-3 present the 84th percentile deterministic results for the San Andreas scenario and include average directivity. The average of the four attenuation relationships for the geometric mean are also presented on those figures. Similarly to the PSHA results, we developed the 84th percentile deterministic spectrum in the maximum direction using the Shahi and Baker (2014) ratios. Figure E-3 presents the average of the 84th percentile deterministic results in the maximum direction for the San Andreas scenario.

E4.0 RECOMMENDED SPECTRA

The MCE_R as defined in ASCE 7-16 is the lesser of the maximum direction PSHA spectrum having a two percent probability of exceedance in 50 years (2,475-year return period) or the maximum direction 84th percentile deterministic spectrum of the governing earthquake scenario and the DE spectrum is defined as 2/3 times the MCE_R spectrum. Furthermore, the MCE_R spectrum is defined as a risk targeted response spectrum, which corresponds to a targeted collapse probability of one percent in 50 years. The USGS Risk-Targeted Ground Motion calculator was used to determine the risk coefficients for each period of interest for the probabilistic spectrum. We used these risk coefficients to develop the risk targeted PSHA spectrum.

Furthermore, we followed the procedures outlined in Chapter 21 of ASCE 7-16 and Supplement No. 1 to develop the site-specific spectra for MCE_R and DE. Chapter 21 of ASCE 7-16 requires the following checks:

- the largest spectral response acceleration of the resulting 84th percentile deterministic ground motion response spectra shall not be less than 1.5Fa where F_a is equal to 1.0.

- the DE spectrum shall not fall below 80 percent of Sa determined in accordance with Section 11.4.6, where F_a is determined using Table 11.4-1 and F_v is taken as 2.5 for $S_1 \geq 0.2$ (Section 21.3 of Chapter 21 ASCE 7-16).
- The site-specific MCE_R spectral response acceleration at any period shall not be taken as less than 150 percent of the site-specific design response spectrum determined in accordance with Section 21.3.

Table 2 presents digitized values of the site-specific spectra for the PSHA 2,475 year return period (max. dir.) and the 84th percentile deterministic (max. dir.). The largest spectral response acceleration of the 84th percentile deterministic response spectrum is 2.779g and is greater than $1.5F_a$ (where F_a = 1.0 for Site Class D).

Figure E-5 and Table E-2 present a comparison of the site-specific spectra for the risk-targeted 2,475-year return period PSHA and the 84th percentile deterministic spectra, both in the maximum direction. In this case, the 84th percentile deterministic spectrum is less than the risk-targeted PSHA spectrum for a 2 percent probability of exceedance in 50 years (2,475 year return period) for periods less than 3 seconds and therefore, the deterministic spectrum should be used as the basis for the development of the MCE_R spectrum for periods less than 3 seconds. For periods greater than or equal to 3 seconds the results of the PSHA are less than the 84th percentile deterministic spectrum and therefore, the results of the PSHA should be used as the basis for development of the MCE_R spectrum. The DE spectrum is defined as 2/3 times the MCE_R; however the DE spectrum should not be less than 80 percent of the DE code spectrum as determined using F_a equal to 1.0 and F_v equal to 2.5 (per Section 21.3 of ASCE 7-16). As shown on Figure E-4 and Table E-2 the DE spectrum is greater than 80 percent of the of the DE code spectrum for all periods.

TABLE E-2

Comparison of Site-specific and Code Spectra for Development of MCE_R Spectrum per ASCE 7-16
Sa (g) for 5 percent damping

Period (sec.)	Risk Targeted PSHA – 2,475-Year Return Period Max. Dir.	Deter-ministic 84th Percentile (Max. Dir. scaled by 1.009)	Lesser of PSHA and Deter-ministic (Initial MCE_R)	2/3 of Initial MCE_R (Initial DE)	ASCE 7-16 - 80% DE per Section 21.3 Site Class D; F_v = 2.50	Recommended Spectra	
						DE	MCE_R
0.010	1.173	1.055	1.055	0.703	0.511	0.703	1.055
0.10	1.873	1.550	1.550	1.033	0.820	1.033	1.550
0.20	2.542	2.128	2.128	1.419	1.193	1.419	2.128
0.30	2.931	2.574	2.574	1.716	1.193	1.716	2.574
0.40	3.079	2.779	2.779	1.853	1.193	1.853	2.779
0.50	3.019	2.775	2.775	1.850	1.193	1.850	2.775

Period (sec.)	Risk Targeted PSHA – 2,475-Year Return Period Max. Dir.	Deter-ministic 84th Percentile (Max. Dir. scaled by 1.009)	Lesser of PSHA and Deter-ministic (Initial MCE_R)	2/3 of Initial MCE_R (Initial DE)	ASCE 7-16 - 80% DE per Section 21.3 Site Class D; F_v = 2.50	Recommended Spectra	
						DE	MCE_R
0.75	2.613	2.445	2.445	1.630	1.193	1.630	2.445
1.00	2.467	2.370	2.370	1.580	1.193	1.580	2.370
1.50	1.769	1.762	1.762	1.175	0.829	1.175	1.762
2.00	1.329	1.324	1.324	0.883	0.622	0.883	1.324
3.00	0.891	0.920	0.891	0.594	0.415	0.594	0.891
4.00	0.643	0.667	0.643	0.429	0.311	0.429	0.643
5.00	0.491	0.508	0.491	0.327	0.249	0.327	0.491

The recommended MCE_R and DE spectra are presented in Table E-3 and on Figure E-6.

TABLE E-3
Recommended MCE_R and DE Spectra
Sa (g) for 5 percent damping

Period (seconds)	Recommended MCE_R (5% damping)	Recommended DE (5% damping)
0.01	1.055	0.703
0.10	1.550	1.033
0.20	2.128	1.419
0.30	2.574	1.716
0.40	2.779	1.853
0.50	2.775	1.850
0.75	2.445	1.630
1.00	2.370	1.580
1.50	1.762	1.175
2.00	1.324	0.883
3.00	0.891	0.594
4.00	0.643	0.429
5.00	0.491	0.327

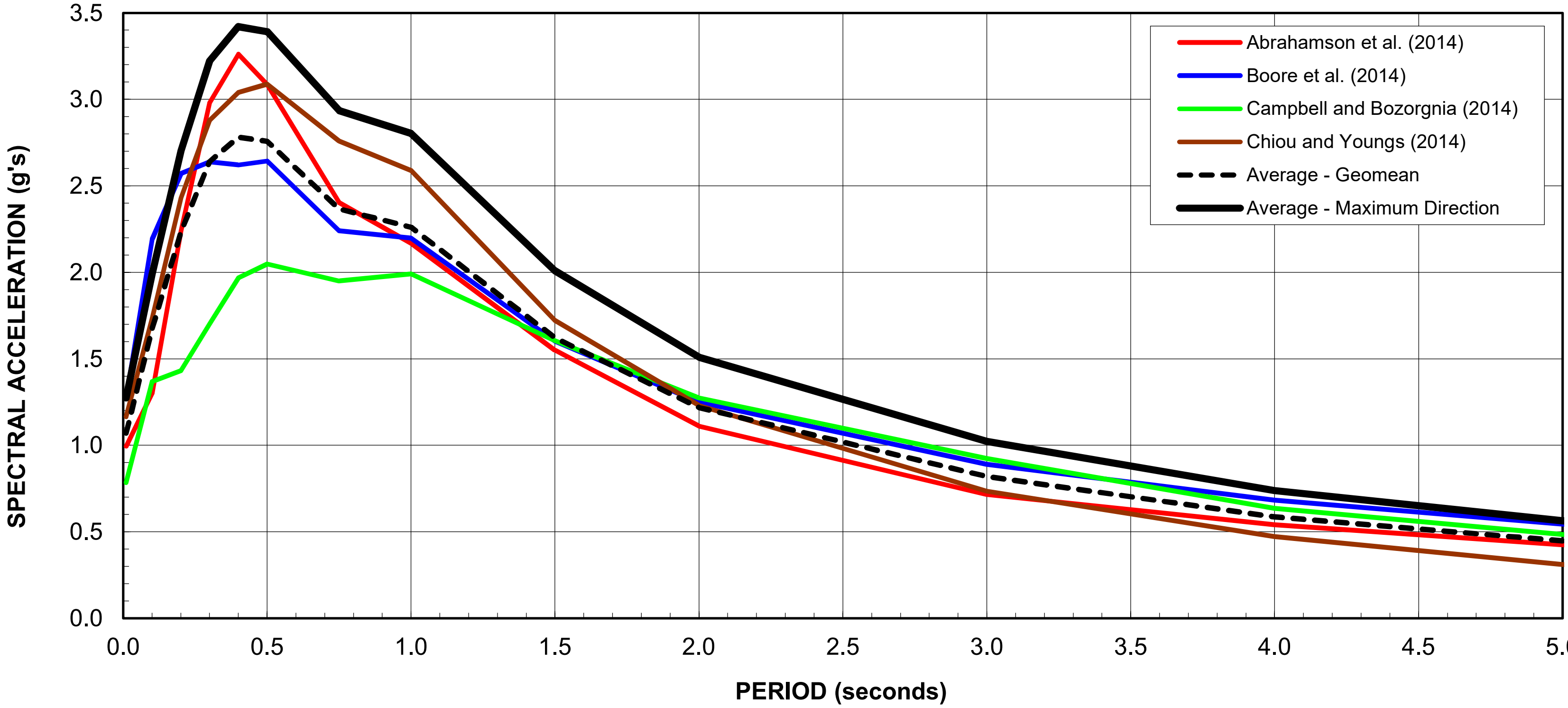
Because site-specific procedure was used to determine the recommended response spectra, the corresponding values of S_{MS}, S_{M1}, S_{DS} and S_{D1} per Section 21.4 of ASCE 7-16 should be used as shown in Table E-4.

TABLE E-4
Design Spectral Acceleration Value

Parameter	Spectral Acceleration Value (g's)
S_{MS}	2.501[1]
S_{M1}	2.673[2]
S_{DS}	1.667[2]
S_{D1}	1.782[3]

[2] S_{DS} is based on the site-specific response spectra and is based on 90 percent of the maximum spectral acceleration within the period range of 0.2 to 0.5 seconds; it is governed by 90 percent of the spectral acceleration at a period of 0.4 seconds.

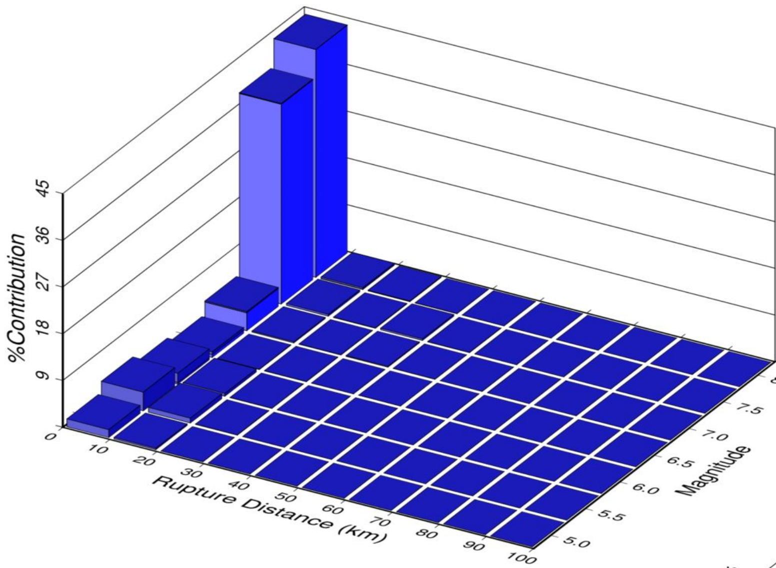
[3] S_{D1} is based on the site-specific response spectra and is the maximum of the product of period, T, and spectral acceleration, Sa, for periods from 1.0 to 5.0 seconds; it is governed by the product of the period and spectral acceleration at a period of 4 seconds.



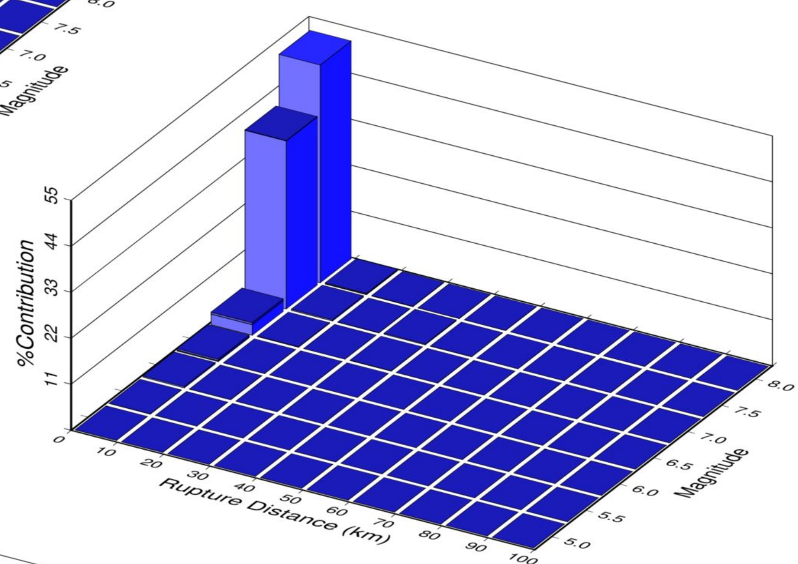
Notes

1. Damping Ratio = 5%
2. Estimated V_{S30} = 287 m/s
3. Maximum direction factors from Shahi and Baker (2014)
4. Z_1 = 300 m, $Z_{2.5}$ = 0.7 km
5. Includes average directivity from Bayless and Sommerville (2013)

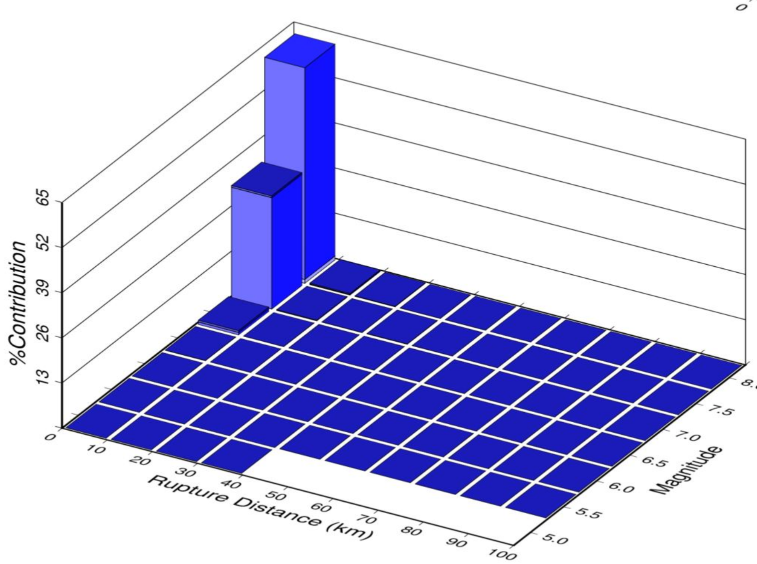
LANGAN	Project	Figure Title	Project No.	Figure No.
1 Almaden Boulevard, Suite 590 San Jose, California 95113 T: 408.283.3600 F: 408.283.3601 www.langan.com LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.	**NORTH COAST COUNTY WATER DISTRICT** PACIFICA SAN MATEO COUNTY CALIFORNIA	**RESULTS OF PSHA, 2 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS**	730370801 Date 9/13/2021 Scale AS SHOWN Prepared By: HS	**E-1**



(a) PGA

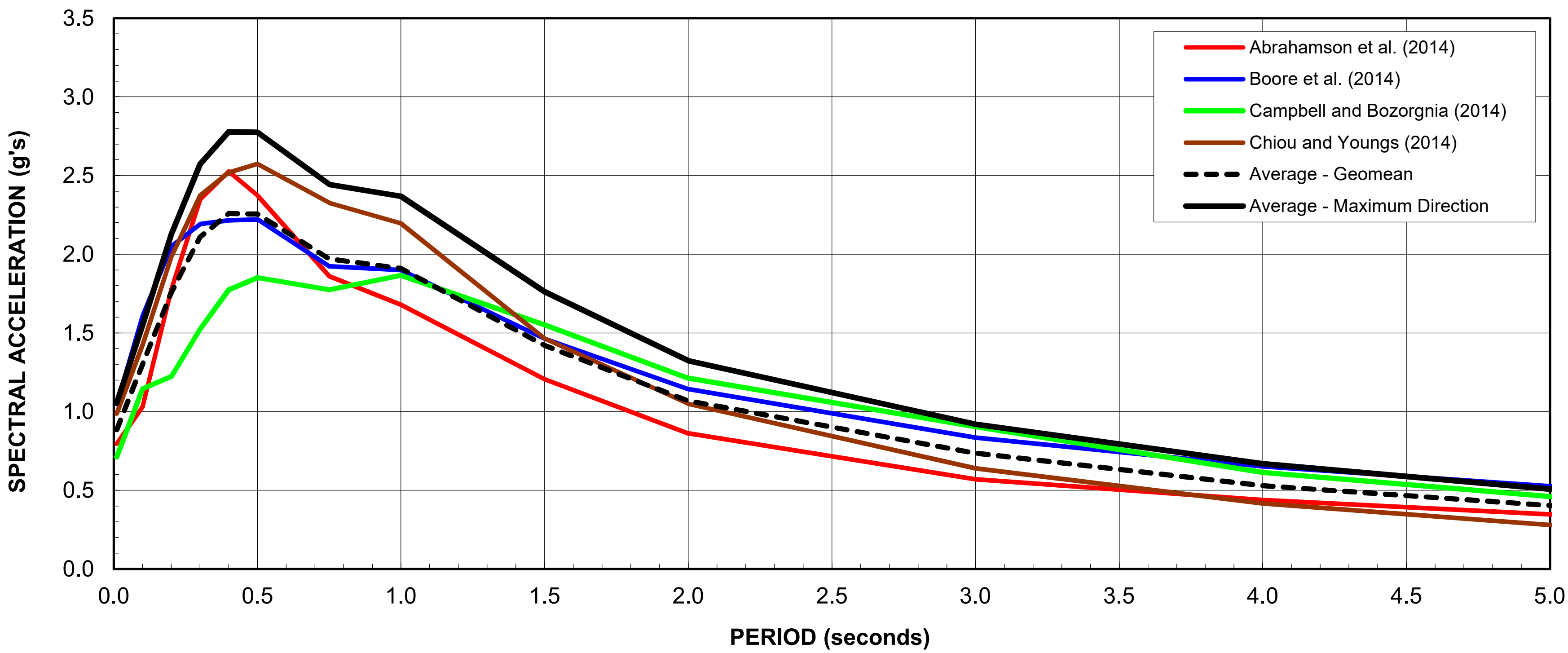


(b) S_a, T = 1.0 second



(c) S_a, T = 4.0 seconds

	Project	Figure Title	Project No.	Figure No.
LANGAN 1 Almaden Boulevard, Suite 590 San Jose, California 95113 T: 408.283.3600 F: 408.283.3601 www.langan.com LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.	**NORTH COAST COUNTY WATER DISTRICT** PACIFICA SAN MATEO COUNTY CALIFORNIA	**2% PROBABILITY OF EXCEEDANCE IN 50 YEARS - MAGNITUDE DISTANCE DEAGGREGATION PLOTS**	730370801 Date 9/13/2021 Scale AS SHOWN Prepared By: HS	**E-2**



Notes

1. Damping Ratio = 5%
2. Estimated V_{S30} = 287 m/s
3. Maximum direction factors from Shahi and Baker (2014)
4. Deterministic results are for a Moment Magnitude 8.05 occuring on the Northern San Andreas about 2.5 km from the site
5. Includes average directivity from Bayless and Sommerville (2013)

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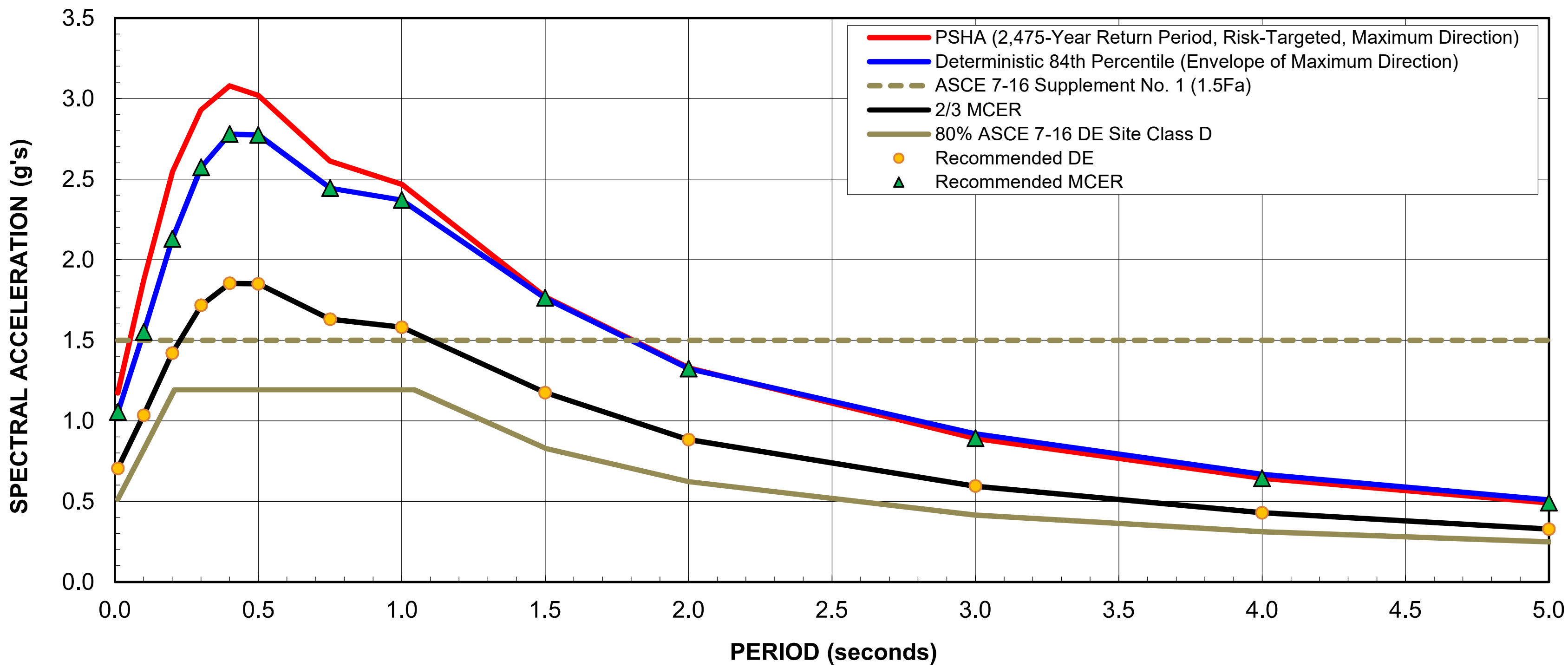
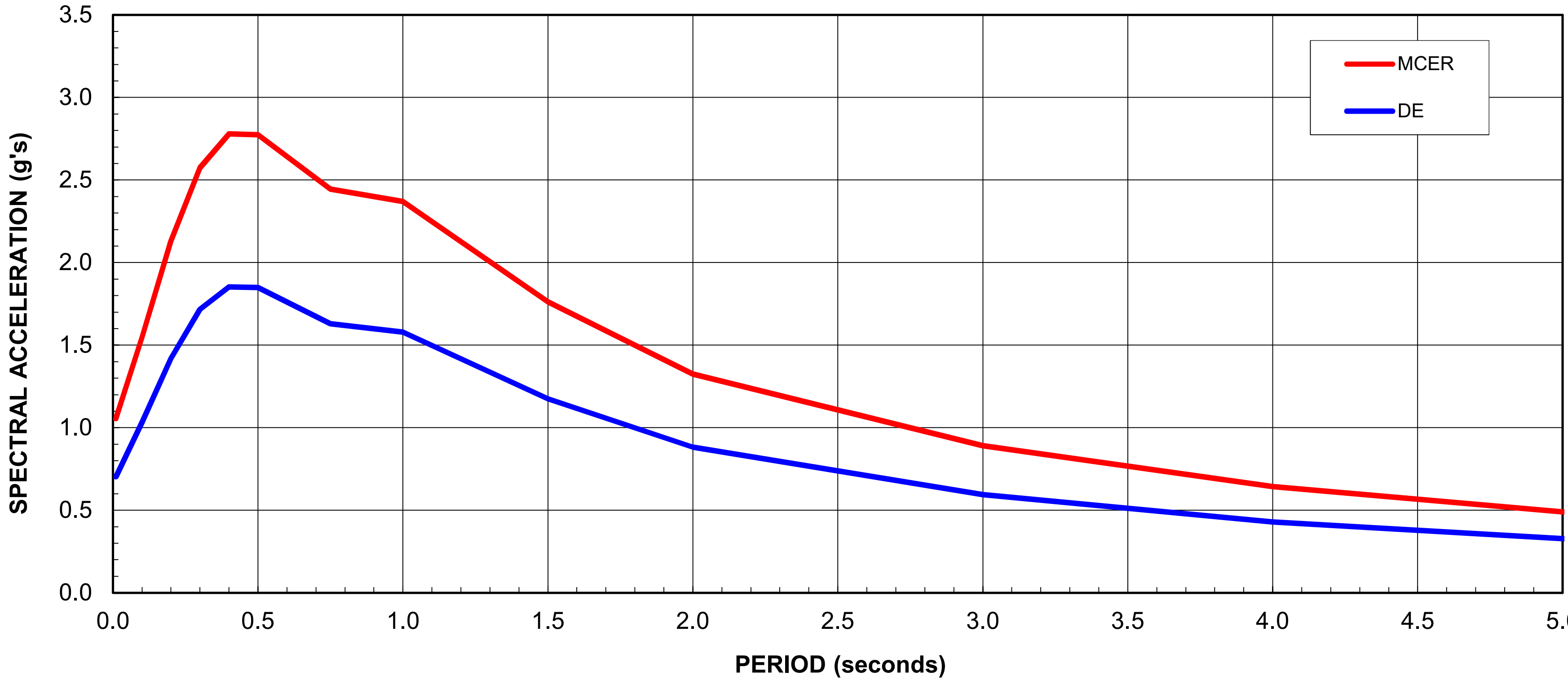
1 Almaden Boulevard, Suite 590 San Jose, California 95113 T: 408.283.3600 F: 408.283.3601 www.langan.com LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.	**NORTH COAST COUNTY WATER DISTRICT** PACIFICA SAN MATEO COUNTY CALIFORNIA	**RESULTS OF DETERMINISTIC ANALYSIS - 84th PERCENTILE SPECTRA - MAXIMUM DIRECTION - NORTHERN SAN ANDREAS**	730370801 Date: 9/13/2021 Scale: AS SHOWN Prepared By: HS	**E-3**



Notes

1. Damping Ratio = 5%
2. Estimated V_{S30} = 287 m/s
3. Maximum direction factors from Shahi and Baker (2014)
4. Deterministic results are for the envelope of the Northern San Andreas fault
5. Includes average directivity from Bayless and Sommerville (2013)

LANGAN 1 Almaden Boulevard, Suite 590 San Jose, California 95113 T: 408.283.3600 F: 408.283.3601 www.langan.com LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.	Project **NORTH COAST COUNTY WATER DISTRICT** PACIFICA SAN MATEO COUNTY CALIFORNIA	Figure Title **COMPARISON OF PROBABILISTIC, DETERMINISTIC, AND DETERMINISTIC LOWER LIMIT SPECTRA**	Project No. 730370801 Date 9/13/2021 Scale AS SHOWN Prepared By: HS	Figure No. **E-4**



Notes

1. Damping Ratio = 5%
2. Estimated V_{S30} = 287 m/s
3. Includes average directivity from Bayless and Sommerville (2013)

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Project	Figure Title	Project No.	Figure No.
NORTH COAST COUNTY WATER DISTRICT PACIFICA SAN MATEO COUNTY CALIFORNIA	RECOMMENDED HORIZONTAL SPECTRA	730370801 Date: 9/13/2021 Scale: AS SHOWN Prepared By: HS	E-5

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QUALITY CONTROL REVIEWER

John Gouchon, GE #2282
Principal/Vice President

Appendix B – Exemption Language

Exemption Language

Section 21000-21177, Public Resources Code; Title 14, Division 6, Chapter 3, Section 15000-15387, California Code of Regulations

15301. EXISTING FACILITIES

Class 1 consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use. The types of "existing facilities" itemized below are not intended to be all-inclusive of the types of projects which might fall within Class 1. The key consideration is whether the project involves negligible or no expansion of use.

Examples include but are not limited to:

- (a) Interior or exterior alterations involving such things as interior partitions, plumbing, and electrical conveyances;
- (b) Existing facilities of both investor and publicly owned utilities used to provide electric power, natural gas, sewerage, or other public utility services;
- (c) Existing highways and streets, sidewalks, gutters, bicycle and pedestrian trails, and similar facilities (this includes road grading for the purpose of public safety), and other alterations such as the addition of bicycle facilities, including but not limited to bicycle parking, bicycle-share facilities and bicycle lanes, transit improvements such as bus lanes, pedestrian crossings, street trees, and other similar alterations that do not create additional automobile lanes);
- (d) Restoration or rehabilitation of deteriorated or damaged structures, facilities, or mechanical equipment to meet current standards of public health and safety, unless it is determined that the damage was substantial and resulted from an environmental hazard such as earthquake, landslide, or flood;
- (e) Additions to existing structures provided that the addition will not result in an increase of more than:
  - (1) 50 percent of the floor area of the structures before the addition, or 2,500 square feet, whichever is less; or
  - (2) 10,000 square feet if:
    - (A) The project is in an area where all public services and facilities are available to allow for maximum development permissible in the General Plan and
    - (B) The area in which the project is located is not environmentally sensitive.
- (f) Addition of safety or health protection devices for use during construction of or in conjunction with existing structures, facilities, or mechanical equipment, or topographical features including navigational devices;
- (g) New copy on existing on and off-premise signs;

(h) Maintenance of existing landscaping, native growth, and water supply reservoirs (excluding the use of pesticides, as defined in Section 12753, Division 7, Chapter 2, Food and Agricultural Code);
(i) Maintenance of fish screens, fish ladders, wildlife habitat areas, artificial wildlife waterway devices, stream flows, springs and waterholes, and stream channels (clearing of debris) to protect fish and wildlife resources;
(j) Fish stocking by the California Department of Fish and Game;
(k) Division of existing multiple family or single-family residences into common-interest ownership and subdivision of existing commercial or industrial buildings, where no physical changes occur which are not otherwise exempt;
(l) Demolition and removal of individual small structures listed in this subdivision:
    (1) One single-family residence. In urbanized areas, up to three single-family residences may be demolished under this exemption.
    (2) A duplex or similar multifamily residential structure. In urbanized areas, this exemption applies to duplexes and similar structures where not more than six dwelling units will be demolished.
    (3) A store, motel, office, restaurant, or similar small commercial structure if designed for an occupant load of 30 persons or less. In urbanized areas, the exemption also applies to the demolition of up to three such commercial buildings on sites zoned for such use.
    (4) Accessory (appurtenant) structures including garages, carports, patios, swimming pools, and fences.
(m) Minor repairs and alterations to existing dams and appurtenant structures under the supervision of the Department of Water Resources.
(n) Conversion of a single-family residence to office use.
(o) Installation, in an existing facility occupied by a medical waste generator, of a steam sterilization unit for the treatment of medical waste generated by that facility provided that the unit is installed and operated in accordance with the Medical Waste Management Act (Section 117600, et seq., of the Health and Safety Code) and accepts no offsite waste.
(p) Use of a single-family residence as a small family day care home, as defined in Section 1596.78 of the Health and Safety Code.

15302. REPLACEMENT OR RECONSTRUCTION

Class 2 consists of replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced, including but not limited to:

(a) Replacement or reconstruction of existing schools and hospitals to provide earthquake resistant structures which do not increase capacity by more than 50 percent.
(b) Replacement of a commercial structure with a new structure of substantially the same size, purpose, and capacity.

(c) Replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity.
(d) Conversion of overhead electric utility distribution system facilities to underground including connection to existing overhead electric utility distribution lines where the surface is restored to the condition existing prior to the undergrounding.

Appendix C – Historic Resource Evaluation Report

NORTH COAST COUNTY WATER DISTRICT HEADQUARTERS UPGRADE PROJECT

HISTORICAL RESOURCE EVALUATION REPORT

2400 Francisco Boulevard, Pacifica, San Mateo County, California

Edward B. Yarbrough
Architectural Historian

Yarbrough Architectural Resources

October 2021
Prepared for WRA, Inc. | On behalf of the North Coast County Water District

NORTH COAST COUNTY WATER DISTRICT HEADQUARTERS UPGRADE PROJECT
HISTORICAL RESOURCE EVALUATION REPORT

Prepared for **October 2021**
WRA, Inc.

Prepared by
Edward Yarbrough, MSHP
Yarbrough Architectural Resources

Yarbrough Architectural Resources

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Local Agency:	North Coast County Water District
Address:	2400 Francisco Boulevard, Pacifica, California

SUMMARY OF FINDINGS

Yarbrough Architectural Resources (YAR) prepared this Historical Resource Evaluation Report for the North Coast County Water District (NCCWD) Headquarters Upgrade Project (project). The project is located 2400 Francisco Blvd, Pacifica, San Mateo County, California. This study has been completed to comply with the California Environmental Quality Act (CEQA), as amended.

YAR conducted a recordation and evaluation of the NCCWD Headquarters Complex, CEQA study area, and conducted a site visit with photographs and notes on September 15, 2021. YAR recorded the buildings with attached industrial garage, laydown yard, and parking. YAR recommends that the headquarters and property as a whole are not eligible to the California Register of Historical Resources (CRHR) under any of the CRHR's four criteria at any level of significance. YAR included a tandem evaluation against the National Register of Historic Places (NRHP) criteria with the same conclusion. As a result, the NCCWD Headquarters Complex is not recommended to be a historical resource pursuant to CEQA. Further, YAR recommends a finding of No Impact to a historical resource under CEQA for the project.

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NORTH COAST COUNTY WATER DISTRICT HEADQUARTERS UPGRADE PROJECT

Historical Resource Evaluation Report

Introduction

Yarbrough Architectural Resources (YAR) prepared this Historical Resource Evaluation Report for the North Coast County Water District Headquarters Upgrade Project (project). The project is located at 2400 Francisco Boulevard which occupies the east end of the block fronting Francisco Boulevard between Brighton and Clarendon roads in the City of Pacifica (**Figures 1** and **2**).

The project is required to comply with the California Environmental Quality Act (CEQA), as amended. The NCCWD is the lead agency for CEQA. The purpose of this report, in accordance with CEQA, is to:

- Identify historical resources, including buildings, structures, and objects of historical significance within the project study area;
- Evaluate cultural resources according to the criteria set forth by the California Register of Historical Resources (CRHR or California Register), and, if recommended CRHR-eligible, to apply the aspects of historical integrity;
- Determine whether the project would have an impact on California Register-listed or eligible historical resources), if applicable based on evaluation; and
- Recommend procedures for avoidance or mitigation of adverse effects to California Register-listed or eligible historical resources, if applicable.

Edward Yarbrough, M.S. Historic Preservation, acted as the lead for this study, conducted the field survey, and acted as primary author of this report. He meets the U.S. Secretary of the Interior's Professional Qualification Standards (SOI PQS) for Architectural History. Edward Yarbrough is sole proprietor of Yarbrough Architectural Resources, Saint Helena, California.

The historic context developed for this historical resource evaluation report focuses on the mid-to-late 20th-Century period of Pacifica and the NCCWD in order to evaluate the extant building and property as a whole. This document does not address known or potential archaeological features and resources, including those that may be historical resources under CEQA.

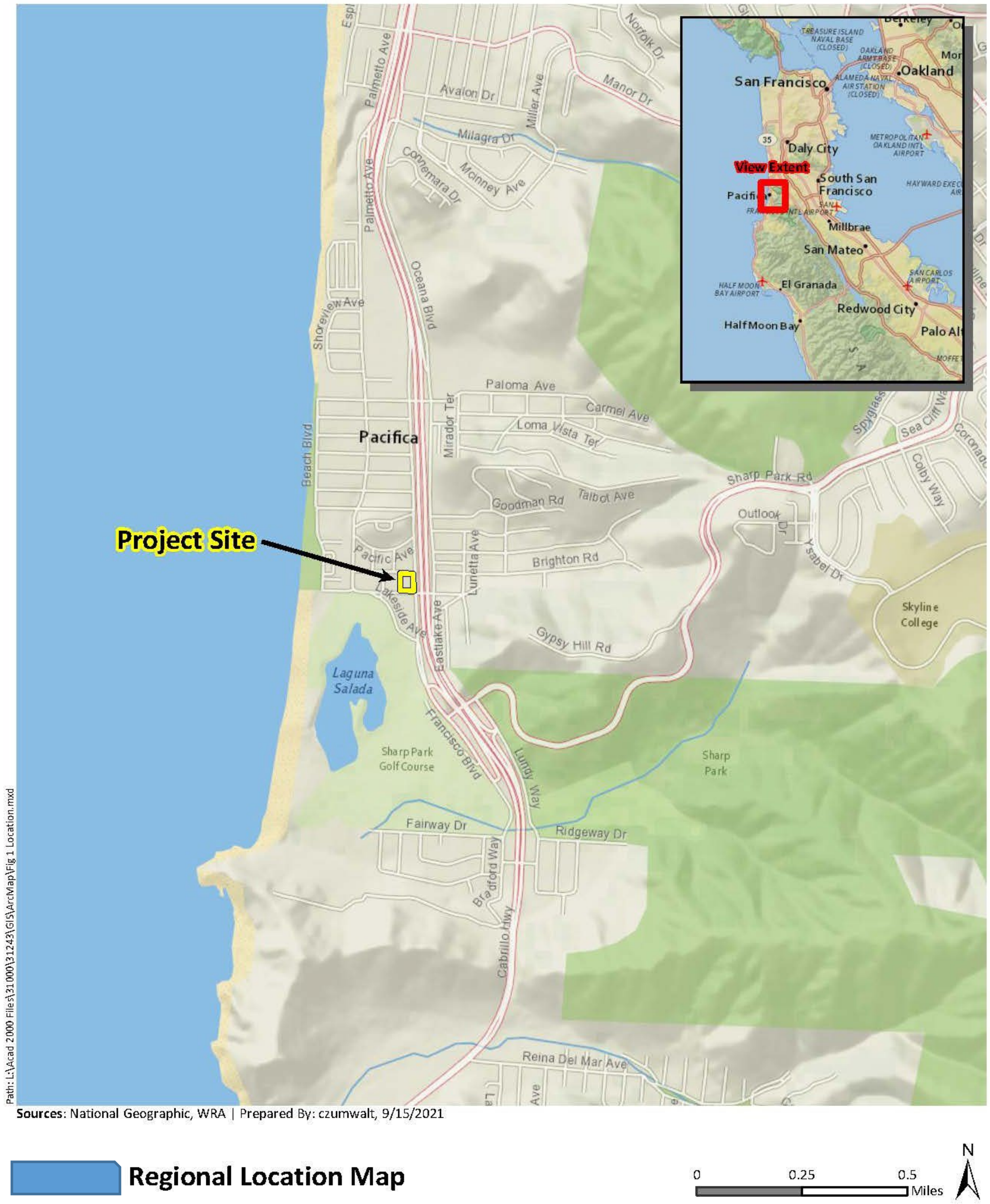


Figure 1 Location of the NCCWD Headquarters Upgrade Project

Figure 2 The NCCWD headquarters complex occupies the eastern portion of the block bound by Brighton Road, Francisco Boulevard, and Clarendon Road and to the west and below the raised berm which elevates Highway 1.

Project Background

The NCCWD Headquarters' Building No. 1 was constructed in 1961 with a major addition, also called Building No. 2, in 1972, and a small addition in 1979. The building was seismically upgraded in 1998. The proposed project upgrades are designed to fulfill the NCCWD's current needs and to provide future generations of service to the NCCWD service area. The NCCWD headquarters was constructed 28 years prior to the adoption of Americans with Disabilities Act (ADA) in 1990 and as a result, the facility does not comply with the current federal law and fails to address primary access issues. These concerns include but are not limited to properly sized accessible vehicle parking, an accessible path of travel throughout the NCCWD site/buildings and universal access for compliant public restroom facilities. The project site is also located in the County of San Mateo tsunami inundation zone.

Project Location and Site Characteristics

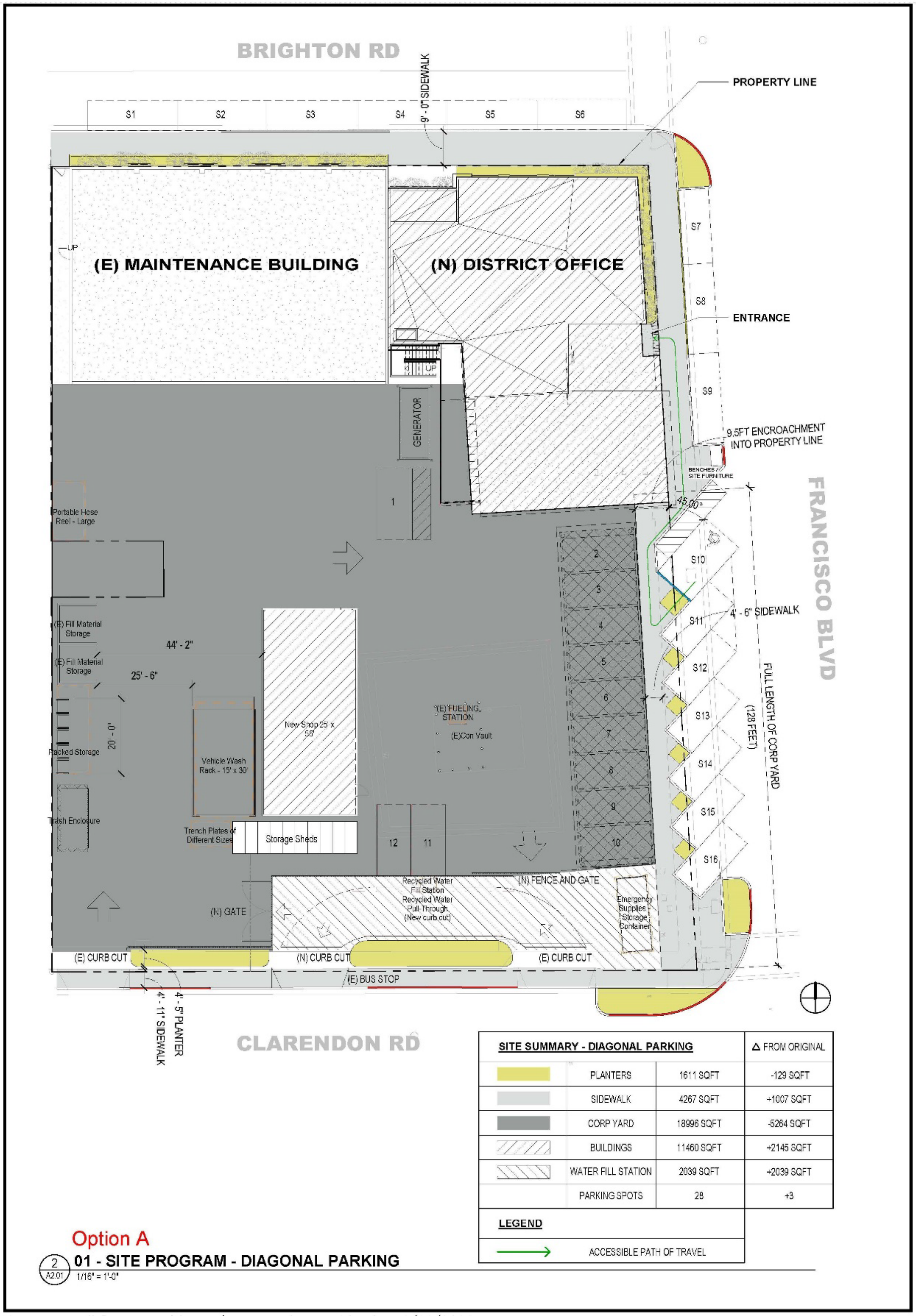
The project site is a 0.81-acre parcel located at 2400 Francisco Boulevard in Pacifica along the western side of Francisco Boulevard, south of Brighton Road and north of Clarendon Road. The project site is relatively flat and is surrounded by residential development to the north and west, and commercial development to the south (**Figure 1**. Regional Location Map and **Figure 2**. Project Site Aerial Map). State Route 1 (SR 1) runs parallel to the eastern side of Francisco Boulevard.

Existing Facilities

The project site contains an existing one-story Administration Building, two maintenance buildings (Maintenance No. 1 and Maintenance No. 2), a shop building, warehouse, fuel tank, and various storage buildings and bins for NCCWD maintenance materials. The Administration Building has a wood-framed structure with plywood shear walls. Maintenance No.1 was constructed in 1961 and is a tall one-story and partial two-story plus mezzanine tilt-up concrete building. Maintenance No. 2 was constructed in 1972 and is a tall one-story plus mezzanine tilt-up concrete building.

Proposed Facilities

The project would involve construction of a new two-story District office building at the location of the existing Administrative Building and Maintenance Building No. 1. Maintenance Building No. 2 would remain and would require retrofits. Generally, new roof-to-wall connections and a moment frame or shear wall (to replace the tie to Maintenance Building No. 1) would occur. The proposed upgrades would incorporate accessibility compliant components to serve the staff and public spaces of the Administration Building and provide code-compliant public site access. The new District office building and Maintenance Building No. 2 would have a footprint of approximately 9,940 square feet. In addition, a new shop, wash racks and photovoltaics canopy would be constructed (**Figure 3.** Site Plan).



Sources: Noll & Tam Architects | Prepared By: Reida Khan 2/23/2022

Figure 3 The project's site plan, as proposed by Noll & Tam Architects, February 2022.

CEQA Study Area

The architectural CEQA Study Area (study area) is defined as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historical resources, if any such properties exist. For this project, the Study Area accounts for demolition, construction, and other site modifications proposed for the entire property parcel at 2400 Francisco Boulevard. **Figure 2**. represents the study area and the boundaries of the parcel.

In the architectural historian's professional opinion, the area surrounding the subject property does not have characteristics of a potential historic district. Also, the scale and massing of the project does not greatly vary from existing conditions. Therefore, the CEQA Study Area is confined to the parcel boundaries.

Regulatory Context

State

The State of California implements the National Historic Preservation Act as amended (NHPA) through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation, as an office of the California Department of Parks and Recreation (DPR), implements the policies of the NHPA on a statewide level. The Office of Historic Preservation also maintains the California Historical Resources Inventory. The SHPO is an appointed official who implements historic preservation programs within the state's jurisdictions.

California Environmental Quality Act

CEQA, as codified in PRC Sections 21000 *et seq*., is the principal statute governing the environmental review of projects in the state. CEQA requires lead agencies to determine if a proposed project would have a significant effect on historical resources, including archaeological resources. The CEQA Guidelines define a historical resource as: (1) a resource in or eligible for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083 regarding unique archaeological resources. A unique archaeological resource is "an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria.

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

- Has a special and particular quality such as being the oldest of its type or the best available example of its type.

- Is directly associated with a scientifically recognized important prehistoric or historic event or person" (PRC Section 21083.2 [g]).

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064[c][4]).

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility (PRC Section 5024.1[b]) are based on National Register criteria. Certain resources are determined by the statute to be automatically included in the California Register, including California resources formally determined eligible for or listed in the National Register.

To be eligible for the California Register, a historical resource must be significant at the local, state, and/or federal level under one or more of the following criteria.

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

2. Is associated with the lives of persons important in our past.

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

4. Has yielded, or may be likely to yield, information important in prehistory or history (PRC Section 5024.1[c]).

For a resource to be eligible for the California Register, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. A resource that does not retain sufficient integrity to meet the National Register criteria may still be eligible for listing in the California Register.

Integrity

Integrity is the authenticity of a historical resource's physical identity and integrity standards are only applied if the subject property is recommended as eligible following evaluation. Integrity or historical integrity is evidenced by the survival of characteristic features that existed during the resource's period of significance. Historical resources pursuant to CEQA must meet at least one of the CRHR criteria of significance described above and retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Historical integrity is considered based on the retention of location, design, setting, materials, workmanship, feeling, and association. The particular features associated with the eligibility of the resource for listing or eligibility to the CRHR are the resource's most important or character-defining features. Depending on the period of significance, alterations over time to a resource or historic changes in its use may themselves have historical, cultural, or architectural significance. Conversely, a resource that has lost its historic character or appearance may no longer be able to convey its historical significance and would not be recommended as CRHR-eligible nor considered for historic preservation protections under CEQA.

Local

City of Pacifica Guidelines for Historic Resources

The City of Pacifica established guidelines for considering local historic resources. The *Pacifica General Plan Draft Environmental Impact Report* (EIR) part 3.8-8 Historic Resources states:

> "Historic resources are standing structures of historic or aesthetic significance. Architectural sites dating from the Spanish Period (1529-1822) through the early years of the Depression (1929-1930) are generally considered for protection if they are determined to be historically or architecturally significant. These may include missions, historic ranch lands, and structures from the Gold Rush and the region's early industrial era. Post-Depression sites may also be considered for protection if they could gain historic significance in the future. Historic resources are often associated with archaeological deposits of the same age." (Dyett & Bhatia 2014)

The EIR identifies the City's listed landmarks. The local landmarks closest to the NCCWD headquarters are the Little Brown Church at 1850 Francisco Boulevard located 0.3-mile north and the Sharp Park Golf Course Clubhouse located 0.5-mile south.

In 1985, the City adopted its Historic Preservation ordinance to recognize historic structures, sites, and natural features, and to encourage their preservation and continued use. The ordinance established criteria for designation. A site may be designated because it reflects a significant element of the City's history; has special aesthetic or architectural interest; is identified with significant persons or events; is representative of a type of building which was once common but is now rare; is a notable work of a master builder or architect; or contributes to a distinctive area of the City. Designation requires a formal public process.

Repairs and maintenance to locally designated landmarks require no special permission. Permits are required for demolition, alteration, or relocation that affects the exterior appearance of the landmark. In evaluating applications for demolition, the Planning Commission and City Council shall consider the economic feasibility of alternatives to demolition, and the interests of the public in preserving the landmark (Dyett & Bhatia 2014).

Criterion 1. of the EIR states that a significant impact to a historical resource is defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired (Guidelines Section 15064.5) (Dyett & Bhatia 2014).

Historic Context

The histories and evolution of the landscape that is now the City of Pacifica and the Sharp Park Neighborhood sets the historic context for the Mid- to Late-20th Century NCCWD headquarters' property. The moderate climate, combined with the abundant natural resources found throughout the nine-county Bay Area has supported human habitation for several thousand years to the present. The evolution of the "Coastside" and Pacifica landscape is divided into several phases in this chapter: Ohlone Land for Millenia; Historic Period; Spanish Conquest; Mexican Period; American Period; Early Suburban Development; Pre-War Automobile Suburb; North Coast County Water District; NCCWD and the Incorporation of Pacifica; and Sharp Park.

This historic context relies on the research and histories written by John Culp, Shell Mounds to Cul-de-Sacs: the Cultural Landscape of San Pedro Valley, Pacifica, California, Master of Arts in Geography, San Francisco State University, November 2002 (Culp 2002) by Dyett & Bhatia for the City of Pacifica, Pacifica General Plan: Draft Environmental Impact Report, March 2014 (Dyett & Bhatia 2014), and Lewis Kawahara's entry in the online Densho Encyclopedia (https://encyclopedia.densho.org/Sharp_Park_(detention_facility)/, accessed October 5, 2021), a thoroughly cited history, "Sharp Park (detention center)" regarding the neighborhood and uses of the current Sharp Park Golf Course property, particularly as a temporary detention center for "enemy aliens" during World War II (Kawahara website 2017).

Physical Geography

The cultural landscape is built upon and inseparable from local topography, geology, and soils. Pacifica's close proximity to the west of the San Andreas Fault profoundly affects the geologically young and erosion-prone formations. From landslides on steep sedimentary slopes to coastal erosion, the physical geography can be generalized as fractured, porous, and susceptible to penetration by water:

> "**Geology**. coastal areas as well as part of the Santa Cruz Mountains, one of the northwest trending ridges typical of the Coast Ranges. The Santa Cruz Mountains form the mountainous spine of the San Francisco Peninsula. Much of the upland areas are underlain by granitic bedrock associated with the Salinian Block creating rugged steep terrain in areas. The Salinian Block consists of highly fractured and weathered granite, granodiorite and quartz diorite much of which has been subject to a lot of tectonic forces. More competent granitic rocks can be found in areas such as Montara and San Pedro Mountains located to the south. Other geologic units in the area include sandstones associated with the Franciscan Formation, greenstones, and alluvial materials from drainages that head towards the Pacific Ocean.
>
> **Soils**. The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (formerly known as the Soil Conservation Service) has mapped soils in the Planning Area in a soil survey for San Mateo County. Soils are characterized according to various properties and grouped into soil associations. The soils within the Planning Area include the Barnabe-Candlestick complex, the Candlestick-Kron-Buriburi complex, Orthents Cut and Fill–Urban Land complex, and Candlestick-Barnabe Complex. The soils of these complexes typically include sand loams, clay loams, and sandy clay loams. In the upland regions these soils are generally shallow and found on slopes ranging from 30 to 75 percent. The Orthents and Urban Land complex soils are often located

in the gentler slopes of 0 to 30 percent. Soils found in developed areas have generally been reworked to the point that most of the native soils are only found at depth, if at all" (Dyett & Bhatia 2014).

Ohlone Land for Millenia

The Native Americans who occupied the geography now within the boundaries of the City of Pacifica as members of a group that early Spanish explorers named the "Costenos" or "Coast People." Margolin states that the name preferred by the surviving members of these people is 'Ohlone' and this term is used herein. The Ohlone occupied the southern San Francisco Bay Area and Monterey Bay Area on lands bounded by the Golden Gate and Carquinez Strait to the north, Mount Diablo and Mount Hamilton to the east, and Big Sur to the south. The Ohlone arrived some 4,500 years before the Spanish, Russians, and British claimed parts of California for themselves. Some 40 individual tribelets or groups each with their own chief, connected by similar customs and a language that evolved from the same root comprise the Ohlone people prior to European imperial expansion in the region (Margolin 1978).

Separated over time by the Bay Area's topographic obstacles and the abundance of resources in the region's valleys and coastal regions, the Ohlone tribelets languages evolved over millennia into differences in language from the same root. Eight to twelve different languages were spoken with no more than a thousand or so speakers per language. The diversity in language may be attributed to the Ohlone having been a highly settled people with few outside contacts due to the abundance of local resources. Although they were "hunter-gatherers," or rather people who tended and harvested native flora and even fauna, and traveled between local meadows, coast, and hillsides for food, treks of greater distances were not necessary and groups were able to meet most of their dietary needs within small territories, which usually did not exceed 100 square miles. Groups were self-sufficient and stayed within their own territories except for the occasional trading foray for resources like obsidian for points (Margolin 1978).

The Ohlone of San Mateo County may have numbered 1,500 when the Spanish arrived in the late eighteenth century, but the Coastside population was only a small portion of this. Possibly 275-350 people lived along the coast between Montara Mountain and the Half Moon Bay area. The Spanish encountered few Ohlone north of Montara Mountain, but they did report at least one village within San Pedro Valley, immediately south of Sharp Park (Hynding 1982; Miller 1971; Stanger and Brown 1969).

Ohlone villages were located near good water supplies and consisted of a cluster of dome shaped huts built of frames from willow branches covered with tule mats. Each village had its own refuse pile or shell mound, which grew to considerable size over centuries or even millenia of settlement. Ohlone groups moved settlements to seasonal foodstuffs following established footpaths, creating networks of packed and even incised paths. Ohlone shelters are impermanent, lightweight, and built from readily available resources, reflecting the semi-nomadic, seasonal mobility integral to cultural sustainability over millenia of settlement (Margolin 1978).

The Ohlone diet consisted of meat from deer, elk, and other terrestrial mammals; marine organisms from tidal pools; whale meat from beached whales; salmon and steelhead from the streams; insects, such as grasshoppers; and roots, berries, acorns, and grass seeds. For tribes who lived along the bay and farther east, acorns were a crucial part of the diet; along the coast, where the cool, foggy climate limited the growth of oak trees, grass seeds played a larger dietary role (Miller 1971).

The Ohlone reliance on grass seed had a profound impact on the coastal landscape. Every few years, fire was set to the meadows, according to records from the Spanish expeditions of Portolá of 1769 and of Rivera in 1774. Both reported frequent grass fires. Fire was used to prevent the growth of coastal scrub and to maintain and rejuvenate the grasslands, increasing grass seed production. Fire also maintained the rangeland for deer and elk and stimulated germination of the digger or gray pine, a source of pine nuts. Frequent fire would have created a valley and hillside landscape of tall grasses with few of the coastal scrub and trees visible today (Miller 1971; Margolin 1978).

In succession, Spanish, Mexican, and American imperialism deliberately undermined Ohlone cultural traditions and sustainable resource practices and applied European practices of economic and religious exploitation. By the Late-19th Century the most abundant game animal, elk, were hunted to extinction in the Bay Area. Elk had been found throughout the California coast north of the Salinas Valley. Grizzly bear, also now extinct in California, were found in abundance in what is now Pacifica. By 1859, one grizzly remained in the San Pedro Valley with the last record of the subspecies of California Grizzly recorded in San Mateo County in 1880. Grizzlies and wolves are now extinct in California. Other wildlife persists in greatly reduced habitats, including mountain lions, deer, coyote, bobcat, otter, bald eagles, ducks, geese, quail, and many types of birds (Burcham 1957; Stanger 1963; Hynding 1982; Culp 2002; Margolin 1978).

Historic Period

Spanish Conquest

Imperial Spanish warriors and religious zealots formed the first recorded invasion of Ohlone land. In the name of the King of Spain and the Roman Catholic Pope, the first Spanish invaders arrived in 1769 to what is now Pacifica. Gaspar de Portolá's 1769 expedition included Father Juan Crespi, who wrote of mostly grass-covered hillsides with willow and alder trees along the creeks with few trees to be found. Crespi wrote in his diary, "there are no trees here, other than a few low willows on the stream beds - a very small matter. There are no trees to be seen upon any of the ranges of knolls that are in view from the height, other than a few trees upon the summit of a mountain range encircling this harbor." Crespi noted that the grasses were not as lush here as in areas farther south, "I have noted a change in the grasses, which are not so lush as previously, beginning at the last point which we passed; everything, however, is very grass-brown." The diary written by Miguel Costanso, also on Portolá's 1769 expedition, described the valley as "plentiful in grass and all surrounded by very large high hills making a deep hollow open only toward the bay on the north west" (Miller 1971; Brown 2001; Dietz et al 1979).

Crespi made numerous diary entries about fire; burning would have helped explain the lack of trees on the hillsides. About the areas to the south of the valley, Crespi wrote, "...tableland and rolling knolls, burnt off, with very good soils" and "...level land of rolling tablelands, close to the shore, of very good soil, all the grass burnt off." As Portolá's expedition left their camp and headed east up the hills on the north side of the valley, Crespi wrote "...went up quite high knolls, all of them burnt off." Prior to the introduction of invasive grasses, these grasses would have been mostly bunched perennial species, dominated by needle grasses including wild ryes, junegrass, pine bluegrass, and deergrass (Brown 2001; Burcham 1957).

Crespi described a lake and the creeks that fed it in Pacifica's San Pedro Valley as follows:

> "Here at the little flat, which may measure some six hundred or more yards out to the sea, with its width a bit more that a hundred yards, run two streams having very pure delicious waters: one of

> them has its course by the northwestward, along where we came down [Culp notes that this creek is most likely the small creek that runs through present day Shamrock Ranch], while the other stream flows from the east; each one carries a good *zanja's* worth of water, and the two meet here at the little flat and run together to the shore, where before entering the sea they make a good-sized inlet of fresh water which must reach over a hundred yards inland" (Culp 2002; Brown 2001).

Costanso referred to the lake as "a marsh of considerable extent [covered with cane-grass] and reaching near to the sea." A few years later, Father Palou, who accompanied Rivera's 1774 expedition to the San Francisco Bay area, described the lake during the expedition's return south. He stated "[we] came to a large lake between high hills, which are in the plain ending in a small bay on the beach." Palou wrote, "we made a detour around the lake and topped about one in the afternoon in a canyon of the valley near an arroyo of running water, one of two in the valley from which the lake is formed. It is well covered with tule, and on its banks there are some willows and blackberry brambles." Palou wrote in his diary in December of 1774, "If the place had timber it would be suitable for a mission, on account of its proximity to the mouth of the port, for it does not lack land, water, or pasture for cattle" (Dietz et al 1979).

Crespi wrote "A village of very fine, well-behaved heathens was hereabouts, and they came over at once to the camp, bringing a good many black pies made of their seeds. As a great many smokes are visible, there must be many villages about this harbor." A small village was located on the main creek approximately one mile from the coast with evidence of a second village or group of dwellings located near the mouth of the stream from the San Pedro Valley. Although Palou traveled through the valley, he made no mention of encountering any Ohlone or Ohlone villages. The Ohlone may have been at a seasonal village east of the mountains to gather acorns, according to Dietz (Brown 2001; Chavez et al 1974; Drake 1994a).

Fear of Russian and British imperial threats to Spain's coastal Alta California province grew as Russian fur traders established outposts north of the Golden Gate strait and British privateers and pirates actively threatened Spanish trade in the Mid-18th Century. Spanish settlement was secured by coordinated military and religious forces and built as presidios (military bases) and missions (Catholic conversion and slave-labor complexes) from San Diego to the northern San Francisco Bay Area. Gaspar de Portolá was looking for an overland route to Monterey Bay. Increased Spanish economic and military control of the province is reflected in more detailed written accounts and the naming in Spanish to the predominant landscape features. Thus, the large point of land on the south side of the valley that jutted out into the Pacific Ocean became *rincón* (or *la punta*) *de las Almejas*, which translates to Mussel Point, for Portolá's men found an abundance of mussels along the beach here. This point is now known as Pedro Point and there is point of land just north of Pacifica that is now called Mussel Point. The valley itself became known as *cañada de las Almajas* or just *las Almajas* (Brown, A. 1976).

Culp states,

> "Portolá's men set up camp along the valley's main creek on October 31, staying in the valley through November 3. The expedition rested while a hunting party, searching for food in the surrounding hillsides, sighted a large estuary (later to be named San Francisco Bay) from the heights of a ridge to the northeast of the valley (Sweeney Ridge). Finally realizing they had gone past Monterey Bay, Portolá's expedition turned around and went back to San Diego. Upon receiving news of the large estuary, the colonial Spanish government immediately sent other expeditions to learn the extent of San Francisco Bay. Captain Fernando Rivera's 1774 expedition with Father Palou was one of these.

The first Spanish settlement occurred in the Bay Area a couple of years later. The Presidio of San Francisco and Mission Dolores, founded by Father Palou, were established in 1776 at the north end of the San Francisco Peninsula. In order to sustain a thriving community, Spanish missions controlled immense land holdings for cattle grazing and depended on a large native work force, a good supply of wood and water, and good soil and climate for growing crops. Although Mission Dolores controlled lands from what is now all of San Francisco County south to San Francisquito Creek, containing most of present-day San Mateo County, the site of Mission Dolores and the Presidio was in response to the need for a military garrison at the Golden Gate to defend the entrance to San Francisco Bay. Thus, the mission itself was built in an area that would not prove suitable for growing food crops.

By the 1780's, Father Palou needed to find other areas to grow crops because of the mission site's poor soils and climate and its inability to provide food for the growing Ohlone population at the mission. He looked south to *cañada de las Almajas* to build a mission outpost. He had passed through the valley back in December of 1774 while accompanying Rivera's expedition and some of the Ohlone living at the mission were from there, their chief having been baptized in 1783. A second reason for establishing a mission outpost was that most of the native population that had not yet converted to Catholicism lived more than a day's journey from the mission. A mission outpost at *cañada de las Almajas* would make it easier to convert more Ohlone. Palou returned to Spain before he could build the outpost, and his successors, Father Cambon and Father Biribet, established the mission outpost in 1785 along the valley's main creek. They named the outpost after the Saints Peter and Paul, calling it the *Asistencia of San Pedro y San Pablo* (from which the name San Pedro Valley is derived) near the valley's larger village, which the Ohlone called *Pruristac*. (Dietz et all 1979; Brown 1975; Hynding 1982; Stanger 1963).

By 1786, the padres from the mission, using Ohlone labor, had built a granary, a chapel with a presbytery and altar, two living quarters, and a tool room. The buildings formed two sides of a square surrounding a plaza that contained a twenty-foot-tall wooden cross. The early outpost structures were built using the wattle technique of wooden poles and sticks set upright in the ground, plastered with mud and white washed with lime from a quarry located in Calera Valley just to the north (the current Rockaway Beach neighborhood of Pacifica). The roof was covered with thatch. Later structures were built with adobe brick, the standard Spanish building material (Dietz et all 1979).

Yearly records about the mission outpost activities were kept at Mission Dolores. Reports for 1786 indicate that extensive planting was done during the first year the outpost was established. The report noted that, "Land was open, and the virgin ground was ploughed after being cleared." Four *fanegas* and five *almuds* of small corn and eight to nine *almuds* of beans were planted. Land was cleared for 7 *fanegas* of wheat and 2 ditches were dug to irrigate the fields and another ditch to supply drainage (Dietz et all 1979).

Mission reports from 1787 note that three new rooms had been built, making up the third side of the quadrangle. Also, a live willow fence was planted, along with a ditch to supply water, along the north edge of the fields. This fence and ditch would extend 8280 feet from the North Fork of San Pedro Creek all the way to the small lake just inland from the beach. The fence was built to protect the fields from cattle owned by the mission. Cattle were allowed to graze in the hillsides above the valley, taking advantage of the abundant rangeland created by the Ohlone burning practices. The lake on the west end of the valley and the steeper mountains on the east and south sides of the valley helped protect the fields from intrusion. Near the lake, a small orchard of peach and quince trees was planted and a vineyard was started. Land was cleared and plowed for an additional 5.5 *fanegas* of corn and 23 *fanegas* of wheat, which was planted on the hillsides where the drainage was better. Several more drainage ditches were also dug in the valley. The end of the year report indicates that part of the corn harvest was lost to grizzly bears and the wheat suffered frost damage. Despite these setbacks, San Pedro Valley fully supplied Mission Dolores and yielded an excess of harvested crops. Father Cambon acknowledged the importance of the outpost when he wrote in 1787, "Experience has shown us that without this establishment, the individuals of the Mission could not be sustained" (Dietz et al 1979; Chavez et al 1974).

Two more buildings were added to the compound in 1788 and rosemary was planted in the valley. Crops that were grown included wheat, barely, peas, kidney beans, and corn with a total of 51 *fanegas* and 34 *almuds* of seeds planted, which would be at least 64 acres using the *fanegas* conversion. 1789 saw the construction of a new, larger granary, measuring 16 x 110, feet and two other buildings. These building were constructed with adobe brick and were built along the south side of the quadrangle. Except for a gap along the west side, the plaza was now enclosed (figure 4). 1790 was the last year any construction in the valley was reported, and this consisted of an additional 1375 feet of drainage ditches dug somewhere on the outpost land holdings. There may have been up to 300 people living in San Pedro Valley by this time, most of them having come from Ohlone villages south of the valley and persuaded to come to live at the mission outpost. The Ohlone would have worked as farm laborers and ranch hands for the Spanish (Dietz et al 1979; Chavez et al 1974).

Mission records for *Asistencia of San Pedro y San Pablo* all but ceased during the 1790's. Records of Ohlone deaths went from a dozen or so a year to 47 in 1791, while baptisms dropped to almost zero. In 1792, 50 deaths were reported. It is most likely that an epidemic, inadvertently brought by the Spanish, killed a large part of the Ohlone population of San Pedro Valley. Those who did not die from disease probably fled the area in fear of the epidemic. Other contributing factors to the demise of the outpost may have been hostilities with other Ohlone farther down the coast and the establishment of a new mission at Santa Cruz in 1791. The new mission may have taken over the missionary duties of converting the Ohlone that was formally done by the outpost in San Pedro Valley. After 1794, little is noted in the Mission Dolores records about San Pedro Valley, for the Mission had moved its farming operations east toward San Francisco Bay (Stanger 1963; Dietz et al 1979).

Although Mission Dolores no longer officially grew crops or kept records of events in San Pedro Valley, there was still some small-scale farming being done. However, there was a major shift in land-use as the area now became part of the large grazing lands for mission cattle. Friar Jóse Espi a Arguello noted in a June, 1797 report that barley was still being grown in the valley (Dietz et all 1979:10). A report on mission grazing lands compiled by the commander of the Presidio that same year lists San Pedro Valley as one of a half-dozen good grazing areas of Mission Dolores controlled lands (Pacifica History File 1999b). A letter written by a Father Martin de Landaeta in 1800 makes reference to 6,000 head of cattle at San Pedro, as well as to "much beans and corn" ripening (Dietz et all 1979:11). In 1801, Landaeta reported 8,000 head of cattle at San Pedro Valley, with the major herd extending from "the hills in front of San Pedro Valley to the border of the mountain range and the coast" (Dietz et all 1979:11). An 1828 document by Vallejo refers to cattle and planted fields at San Pedro Valley, with 26 Indians living at the outpost (Dietz et al 1979).

By 1835, it appears that the valley was unoccupied and two people were petitioning the recently formed Mexican government for land grants that included San Pedro Valley. Guadalupe Barcena, as part of his petition, drew up a *diseño* that may be the first map of San Pedro Valley. This crudely drawn map shows the location of the mission outpost and the lake at the mouth of the valley, as well as a large *sausal* or marsh area just east of the lake and surrounding part of it. Francisco de Haro, the other petitioner, noted that the "tract of San Pedro is vacant and unoccupied." De Haro also drew up a *diseño* that included San Pedro Valley. The map makes reference to ruins at the site of the mission outpost and also a large *sausal* just east of the lake (Dietz et all 1979).

Also shown on de Haro's map is *cañada montosa* or 'wooded valley' heading from the South Fork of San Pedro Creek. The labeling of this valley may be where the name for Montara Mountain originated. Surveyors in 1854, misinterpreting the meaning of *cañada montosa*, labeled the mountain at the head of the valley "Montora Mountain" and an 1866 Coast Survey map further changed the spelling to "Montara Mountain." Although the outpost may have no longer been occupied, an 1835 inventory of mission properties in the Pacifica region listed 4,109 head of cattle, 87 horses, and 5 burros in the area. Cattle were firmly established in the valley and were to play a dominant role in the next of San Pedro Valley's landscapes" (Brown 1975; *La Peninsula* 1961; Culp 2002).

Mexican Period

Mexico gained independence from Spain in 1821 and the territory of California, along with the missions, came under Mexican rule. The Missions, an integral part of Spanish imperialism, were targeted by the new Mexican government for reform and San Francisco's Mission Dolores outpost, the San Pedro Rancho, was no exception. Tracts of mission lands were granted to settlers for agricultural development. Francisco Sanchez, a captain in charge of the Presidio of San Francisco and later *Alcalde*, a title similar to mayor, of San Francisco, was granted the 8,926-acre Rancho San Pedro in 1839, the same area that Barcena and de Haro had been petitioning for. The rancho occupied most of what is now the city of Pacifica. Sanchez built his home on the site of the old *Asistencia of San Pedro y San Pablo* ruins along San Pedro Creek, possibly built with some of the adobe bricks and on the foundation of the abandoned mission outpost (Drye 1985; Dietz et al 1979; Stanger 1963).

In San Mateo County the major rancho industries were the production of cowhides, tallow, and wool. Hides were considered the most valuable part of the cow and along with tallow were second only to gold and silver in terms of economic importance. Hides were used to make shoes, saddles, bags, pack harnesses, and strapping, while tallow was used in soap, candles, cooking, and as a lubricant. Cattle grazed freely on the open hillsides, frequently falling prey to roaming grizzly bears. Once or twice a year, *rodeos* were held by each rancho. Cattle were rounded up, branded, and animals from neighboring ranchos returned. The *matanza*, held in spring-time, saw the slaughtering of cattle out in the fields with skinners going from carcass to carcass and removing the fat and hides. Meat was not a major product and, except for what was to be consumed on the rancho or sold to San Francisco. Mexican control of California brought an end to the Spanish trade restrictions with the United States and bundles of hides and tallow were loaded on U.S. ships at beaches along the coast in exchange for American goods, a barter rather than monetary trade (Miller 1971).

A surgeon aboard a British ship in 1826 likened the coast between San Francisco and Monterey to an English nobleman's park where herds of cattle, horse, and sheep grazed on rich pasture. An 1827 passenger traveling between Santa Cruz and San Francisco described the coast as one continuous pasture, again commenting on the immense size of grazing herds (Burcham 1957).

Rich in land but with little cash, American bankers and lawyers often took title of rancho lands in exchange for "helping" the Mexicans prove their property ownership. Despite these barriers, Francisco Sanchez managed to keep Rancho San Pedro intact until his death in 1862 (Stanger 1963).

American Period

In 1848, after a brief conflict, Mexico ceded California to the United States. With the discovery of gold that same year and the subsequent gold rush of the early 1850s, the population of California grew exponentially. With U.S. control of California came surveyors and for the first time reasonably accurate maps of the region were produced. The *Map of Part of the Coast of California from Point San Pedro Northward* done by the U.S. Coast Survey in 1853 is the first. The map also shows the road that led out of the valley to San Francisco as well as a trail that heads up and over San Pedro Mountain.

When Francisco Sanchez died in 1862, the rancho went to his wife, Theodora Higuera de Sanchez, who retained ownership of the rancho. She leased the rancho to Francis Sievers, who subleased small tracts of land to newly arriving immigrant farmers. In 1871, in order to settle Sanchez's debts, Theodora Higuera de Sanchez sold the rancho to James Regan, who had gone into a partnership with some San Francisco bankers and financiers, including Richard and Robert Tobin, founders of Hibernia Bank. Eventually the Tobin's acquired most of the western part of what is now Pacifica.

Agricultural activities in the area during the Late-19th Century were similar throughout coastal San Mateo County. In the 1850's, the Irish comprised the largest immigrant group to settle in San Mateo County, although Chinese, Italians, and Portuguese came as well. When Irish farmers came to Pacifica, they grew potatoes, cabbage, and grains. Potatoes were grown in abundance in the Half Moon Bay area and may have been the largest vegetable crop in what became Pacifica. Of the grains, oats and barley were preferred to wheat in the moist marine climate. Grains were planted after the first soaking rains in the late Fall and harvested in June. Straw left from harvesting grains dried over the summer and was burned in the early fall, the ash tilled back into the ground (Culp 2002; Hynding 1982; Savage 1983; Miller 1971).

High demand for milk, butter, and cheese in San Francisco. The climate promoted grasses to stay greener and regenerate from grazing for more of the year, ideal for dairy cow feed. Hynding found in the censuses of 1880 and 1890 that Italian and Portuguese immigrants became the largest groups to settle in San Mateo County. Italians worked as field laborers, replacing Chinese farm workers as new laws restricted their immigration and employment. Some immigrant laborers were able to save enough to buy or lease property and start their own farms and by 1910, foreign-born immigrants rented or owned 60% of the county's farms (Hynding 1982).

Italian truck farmers introduced new crops on the coast to replace the failing potato, which suffered a blight in 1870 June Morrall, in reprinting portions of an unpublished *National Geographic* article from 1927, stated that around the turn of the century:

> "Experiments (with artichokes) first took place in Pedro Valley, a score of miles from San Francisco, where equitable temperature, a certain humidity produced by the visitation of sea fogs, and a rich, moist soil all contributed to make the venture a success. Thus encouraged, the growing of artichokes began in earnest in Pedro Valley and soon extended a few miles south in Half Moon Bay." (Morrall 1989).

According to Culp, Paul Azevedo, a *Pacifica Tribune* columnist and member of the Pacifica Historical Society, wrote:

> "In one of the little valleys poking its way back into the coastal hills, it may have been Guiseppe Silicani who experimented with a cutting of a plant brought from Italy. The gray-green *Carciofo* thrived in the rich San Pedro Valley and the plant (in English translation) would give its name to the whole region of 'Artichoke Gulch'" (Azevedo 1982).

Artichokes proved to be an ideal coastal crop, growing in the area's cool, moist marine climate. By 1912, there were 500 acres planted in San Pedro, Salada, and Brighton Beach valleys, all part of Pacifica today (Coastside Comet 1912).

Truck farming changed the grass covered hillsides with imported trees and the valley bottom and hillsides were soon lined with rows of blue-gum eucalyptus, Monterey cypress, and Monterey pine. Eucalyptus trees were first brought to the Bay Area in 1853. It was thought the wood could be used for furniture building and firewood and that the dense groves of the fragrant trees would help repel disease. By 1870, eucalyptus could be found throughout the Bay Area. See **Figure 4**. Monterey pine and cypress were brought up from Monterey and were planted through Pacifica during the mid-to-late 1800's. The trees were used as wind blocks, to slow erosion, and to delineate property lines. It is also probable that some of the coastal scrub and chaparral vegetation that we see today started growing in the hillsides, once there were no more frequent grass fires set by the Ohlone and no more large numbers of grazing cattle (VanderWerf 1994).

Figure 4 An undated photo of an artichoke field in Pacifica's San Pedro Valley with eucalyptus windbreaks. Source: San Mateo County Historical Museum.

San Mateo County government-initiated road development along the coast in response to truck farming and real estate development. During the 1870's, the San Mateo County Board of Supervisors voted in favor of building the Half Moon Bay/Colma Road that extended from Half Moon Bay along ocean bluffs south of current Pacifica through a series of switchbacks, to make its way over the top of Devils Slide and San Pedro Mountain. The new dirt road officially opened in 1879, but because of its steep grades, some as much 24 percent, poor construction, and bad maintenance, locals were unhappy with it. The 1896 USGS map shows the addition of multiple smaller roads up secondary valleys. During World War II, many ranchers made bigger profits because of the higher demand for foodstuffs and some rebuilt larger homes, often using stucco (VanderWerf 1994).

Early Suburban Development

Early suburban overlapped with the truck farming, as farmlands were gradually bought and developed for housing and multiuse purposes. Not until the latter half of the 20th Century was the modern suburb dominant. In the 19th and early 20th centuries, land speculators and financiers subdivided, rented or sold off portions of the former Rancho San Pedro, primarily to truck farmers and dairy operators. However, the long-term trend of real estate value for residential and commercial development outpaced agricultural land values, speculators increasingly shaped the landscape of what would become Pacifica. These changes would also shape the incorporation of City of Pacifica and of the NCCWD.

San Francisco bankers and other speculators planned a 70-mile coastside railroad from San Francisco to Santa Cruz, already Californian's most popular seaside destination. The railroad could generate income by bringing settlement and tourism to the coast and by haul fees from farms to San Francisco's markets. In 1905, the Ocean Shore Railroad was incorporated by a group of wealthy San Francisco financiers and businessmen and construction started on a double-track railroad along the beaches and coastal bluffs. Track was laid from both Santa Cruz and San Francisco with the intent of joining in the middle. The 1906 Earthquake, however, severely damaged graded beds and construction equipment and sent the region into a recession. The investors scaled back plans to a single-track railroad. At San Pedro Point and Devils Slide, on the southern side of the future City of Pacifica, the Ocean Shore Railroad bed crossed some of the steepest grades and unstable landforms. At Devil's Slide, the tracks were tunneled through the lower ridge. The Ocean Shore Railroad saw falling investment and ended construction from Santa Cruz, leaving a 26-mile gap between northern and southern tracks. Nevertheless, the railroad operated to regain some of their losses by transporting freight and passengers along both stretches. Culp notes that, "passengers trying to reach Santa Cruz from San Francisco were shuttled by steam car (known as a Stanley Steamer) across the 26-mile gap in the tracks. At the mouth of San Pedro Valley, an elevated rail bed ran along the beach, acting as a dike to keep ocean waters from flooding the mouth of the valley. A stone station house built on a small bluff above the ocean on the south side of the mouth of San Pedro Creek was named Tobin Station; the small bluff that the station was built on also became known by this name, although it would later be changed to Pedro Terrace. The course of the railroad is mapped on the 1915 USGS map where it can be clearly seen running along the coast. In an old photograph taken at the mouth of the valley, remnants of the elevated rail bed can be seen running just inland from the beach" (Culp 2002).

The railroad investors hoped to profit from the sale of land along the route and incorporated the Ocean Shore Land Company. Graft of public and private land through railroad easements had been well established as the most profitable aspect of railroad building, evidenced by the Stanford, Huntington, Hopkins, and Crocker hoards. Gridworks of future settlements were drawing up at every railroad station and registered with the San Mateo County Recorder's Office. From Tobin Station, just south of Sharp Park, streets were laid out and house construction started in Pedro Terrace, creating the first subdivision. (Drake 1994a; Fritz interview 2002; Pacifica Planning Department 1999; Wagner 1974; Culp 2002).

Weekend service on the Ocean Shore Railroad down the "Coastside" was an attempt to lure San Franciscans to buy second homes or even move to these development tracks. Investors hoped the trauma of the 1906 Earthquake would promote urban flight. However, land sales were slow; only six houses had been built at Pedro Terrace by 1920. Hotels, restaurants, and beaches proved to be more popular than land purchases to passengers. Freight on the Ocean Shore Railroad consisted mostly of transporting artichokes, other vegetables, and flowers to San Francisco and fertilizer from the city's stockyards, liveries, and stables to coastal farm fields. However, passenger and freight service were not profitable enough to offset the construction and maintenance costs of the railroad and closing the 26-mile gap between Santa Cruz and San Francisco lines was no longer part of the company's plans. The Ocean Shore Railroad terminated service in 1920. Despite or because of the Ocean Shore Railroad's demise, San Francisco theaters gave away San Pedro residential lots, notably from Tobin's Hibernia Bank, during "bank night" as a premium during the 1920's (Gervais 1984; Larsen 1989a).

Pre-War Automobile Suburb

By 1920, the automobile was driving U.S. transportation investment. Former passengers chose to drive themselves on scenic routes and to the beaches and trucks became the less expensive method to bring produce to market from Coastside. Rather than being limited by railroad stop locations, the automobile drivers strayed down improved networks of roads, a process that would profoundly accelerate under the full employment and governmental emphasis on construction of infrastructure during the New Deal beginning in the mid-1930s. As early as 1915, San Mateo County sold bonds that enriched the rich with interest and built the gravel and oil paved Coastside Boulevard, replacing the treacherous Half Moon Bay/Colma Road. Coastside Boulevard used the saddle crossing between San Pedro and Montara Mountains instead of going over Devils Slide, allowing autos to travel from San Francisco down the coast, to the mouth of San Pedro Valley. The road then turned into the valley, towards Sanchez's old adobe and the Sanchez Fork, where it then went up and over the saddle and back out to the coast and on into Half Moon Bay. Culp notes, “one 1916 afternoon saw 4,000 cars crawling up the twisting dirt grade through the saddle, following an old path first used by the Ohlone. Trucks, hauling heavy loads of artichokes, created ruts in the road and heavy rains generated landslides causing temporary road closures during the winters. Coastside residents soon demanded an even better road with a gentler grade” (Miller 1971; Culp 2002).

In 1937, Highway 1 was built along portions of the old Ocean Shore Railroad right of way. Highway 1 followed an alternative route that turned inland at Pedro Terrace, crossed the saddle between San Pedro Point and San Pedro Mountain, returned to the old Ocean Shore Railroad route at Devil’s Slide and then followed the ocean bluffs southward. The older Coastside Boulevard was pretty much abandoned shortly after World War II, although its remnants are still used as a hiking trail which starts at the end of Higgins Way. Highway 1 is the road on the 1939 USGS map that follows the beach and is the more western route south out of the valley (VanderWerf 1994).

In 1939 Truman "Doc" Denman, a furrier from San Francisco, established the 300-acre Shamrock Ranch on the south side of San Pedro Creek, not far from Sanchez's old adobe. The property included a couple of small valleys on the north flank of San Pedro Mountain, one with a small perennial stream. Since the 1920's, the property (part of the Tobin's land holdings) had been known as Happy Hollow Ranch. The site of the Tobin's summer home and whatever remained of the shell mound were ploughed over to raise vegetables. The oldest buildings at the ranch, including the main house and the barn, date back to the 1830's and are of historic significance as defined by the National Park Service. Eventually Denman sold his milk to the Sun Valley Dairy, which leased his store in 1953. The Sun Valley Dairy store was the first market in San Pedro Valley and provided a place for local residents to purchase milk and other staples and for children to buy ice cream in the summer (Drake 1994a, 1994b, 1994c; Azevedo interview 1999).

Much of Pacifica maintained a rural agricultural landscape with rows of artichokes and Brussels sprouts lining valley fields. Culp notes that,

> “the rural feel of the valley [San Pedro Valley specifically] was promoted as an asset during the 1940's. *Do You Know Your Coastside*, a regular column in the *Sharp Park Breakers* (a local weekly paper concerned with North Coastside life) featured San Pedro Valley in a number of columns. San Pedro Terrace was described as a ‘picturesque fishing village nestling along the beach’ with shops to buy fish, crabs, and abalone and boats to rent for fishing. One could fish for seatrout, ling cod, and red tail perch right from the shore and boats could be rented to catch salmon, but reservations were suggested during the salmon season, when ‘many fish are brought in.’ (Halling 1944a; Culp 2002).
>
> The valley itself was described as ‘one of the most beautiful valleys in Northern California’ by C. Halling. He further wrote: ‘You may roam for miles through shady lanes and glens along the banks of Pedro Creek, where trout and steelhead may be taken in season.’ and that ‘Picturesque farms and

> homes may be seen that cannot be equaled anywhere.' Game in the valley included wild pigeons, doves, cottontail, rabbit, and deer. A highly recommended place to stay was Rees Dude Ranch, where horses could be rented to ride the valley trails and the barbecue was not to be missed. The dining room was planked on the floors, walls and ceiling in redwood and wagon wheels and game heads adorned the walls. An Italian chef from San Francisco's North Beach neighborhood presided over the kitchen. In another piece, Halling wrote: 'The North Coastside and Montara Mountains constitute one of the most picturesque regions to be found anywhere on the Pacific Coast.' Halling implored: 'With Hetch Hetchy water near at hand, the North Coastside is going to go ahead with leaps and bounds, so save your gas and rubber and see the North Coastside first.'" (Halling 1944b, 1944c; Culp 2002).

Halling's last quote anticipates the growing will of North Coastside, as the future community of Pacifica was increasingly described, to form the North Coast County Water District.

North Coast County Water District

North Coastside developed slowly but families moved into the valleys. Residential and commercial development required potable water in larger quantities. Farmers' wells and creeks diverted to irrigate their crops had greatly diminished what fresh water reserves the watershed might otherwise provide. By the early 1940's demand drove two approaches to creating a central water agency to supply homes as they were built. Formed as a public agency of San Mateo County, the Salada Beach Public Utility was established to supply water to North Coastside customers from several private wells. However, some North Coastside residents sought to buy water impounded in the Crystal Springs Reservoir, just east of North Coastside but owned by the City of San Francisco. Sourced from the Hetch Hetchy Reservoir on the southern boundary of Yosemite National Park in the Sierra Nevada Mountains, the San Francisco Public Utility Commission (SFPUC) piped water across the Central Valley and up to San Mateo County for local impounding before supply to the bayside of the Santa Cruz Mountains and to the City of San Francisco.

In the end, the majority of North Coastside residents chose to connect to San Francisco's system and pump water over the Santa Cruz Mountains, a much less formidable range where it is parallel to North Coastside. In 1944, an independent engineering feasibility study paid for with local funds mapped out constraints and showed how the infrastructure would be laid out. Residents voted to incorporate the North Coast County Water District (NCCWD) following a contentious local campaign. The NCCWD's mission was to build a pipeline and purchase Hetch Hetchy water from the SFPUC. The measure dissolved the Salada Beach Public Utility, while forming the NCCWD. Pipes were laid during the winter of 1944- '45 from South San Francisco and followed the approximate course of present-day Sharp Park Boulevard before heading south to Pedro Point. War shortages near the end of World War II diverted metal for fabricating the pipes and the diminished pipe quality was given a short life expectancy (*Sharp Park Breakers* 1944a, 1944b; *Pacifica Tribune* 1960a).

NCCWD looked to augment Hetch Hetchy water based in part on Salada Beach Public Utility's approach. In 1950, NCCWD looked to San Pedro Creek. With population growth of North Coastside rising following the end of World War II, the transformation from agricultural to residential and commercial freed San Pedro Creek's waters from being entirely consumed by agriculture. As farmers or their landlords sold to developers, the NCCWD was given limited but greater rights to San Pedro Creek water. The quantity of water from the creek did not justify the construction costs for a filtration plant. However, the NCCWD and its customers did benefit from the rationing of irrigation water by farmers, a necessity with NCCWD sharing the creek's meagre supply. 'Doc' Denmans dairy operation at Shamrock Ranch soon closed and other farmers found the region's scarcest resource, water, to be too great a liability compared to the profit that could be had through the sale of their property for development (Drake 1994b, Hill u.d.).

In 1961, NCCWD built an Administration Building with attached, raised Maintenance Building (see **Figure 5**). The building was designed by McCandless, Boone & Cook, Consulting Engineers, rather than by an architect. The building was built for function, employing the latest building technology to minimize cost and lend durability.

As discussed in the next chapter, NCCWD becomes a leader in watershed protections, that benefit not just water quality but encourage the return of native plant and animal populations and improve the scenic natural beauty of this truly coastside City (Culp 2002).

Figure 5 Near the entrance to the lobby with public window inside, to the left of photograph. An office window and the glazed aluminum-frame doorway to the public meeting room, at right of photograph. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

NCCWD and the Incorporation of Pacifica

Development in southwest San Francisco and of Daly City further connected North Coastside to urban population through improved roads and further economic interdependence. At the cusp of the "baby boom" following World War II, Henry Doelger, who specialized in developing housing that middle class workers could afford, started the Westlake development on the outskirts of Daly City just south of San Francisco's Lake Merced. The development suited the economic demographic predominating along the North Coastside (Hynding 1982).

Culp summarizes development in the latter half of the 20th-Century:

> In 1953 Andy Oddstad came to San Pedro Valley and with the help of Ray Higgins, a prominent San Francisco real-estate man, bought seven of the largest ranches in the valley in one weekend. Ray Higgins was already familiar with the valley, having bought parcels of old Ocean Shore Land Company land back in 1927 in anticipation of the construction of Highway 1. Ray Higgins had also bought Sanchez's old adobe from Baroness Marguerite Kirkpatrick in 1946. He later sold the adobe and its immediate surrounding land to San Mateo County in 1947 and preservation of the by then deteriorated Sanchez Adobe started in 1953 (Azevedo interview 1999; Hynding 1982; Svaneviki and Burgett 2001).
>
> Oddstad, whose uncles had built the Stonestown development in San Francisco, had written his engineering thesis on low-cost housing and had always aspired to be a builder. He built his first house in 1946 in San Francisco and in less than twenty years, had the third largest building firm in the Bay Area with over 11,000 houses and apartment buildings bearing his name. Oddstad's building philosophy was to "reduce building to its lowest denominator, to provide good homes within reach of many." While doing his military training as a navy scuba diver, Oddstad became familiar with the North Coastside beaches and realized that after the war, people who could not find affordable housing in San Francisco because of the housing crunch would need someplace else to go. His first development plan for San Pedro Valley took shape in the western half of the valley and was given the name Linda Mar11. Oddstad recognized that San Pedro Valley was the "largest and best residential area within commuter range (of San Francisco)." Word of Oddstad's purchasing San Pedro Valley land was big news and Dick Harris, a reporter for *The San Francisco News*, sat on the story until Oddstad was able to complete his initial valley acquisitions. The Linda Mar development was the first big post-war development outside of San Francisco and was to be the "creation of a new community out of the beautiful but raw coastal hills and plains." (*Pacifica Tribune* 1961).
>
> To introduce longtime Coastside residents to the new development of Linda Mar, Pedro Valley Day was held in June of 1953. The purpose of the event was to "acquaint our citizens with the tremendous possibilities of the area - recreational, residential, and commercial - and with the impact it will have on our present mode of living" and to raise funds for a new committee that hoped to incorporate the North Coastside into a new city and no longer be wards of the county (*Sharp Park Breakers* 1953b). Events included tours of six model homes, tours of Sanchez's Adobe, and fishing at the Gay's Trout Farm. Promoters of development maintained that the rural feel of the landscape would be preserved; "the rapid growth and development of the North Coastside appears most promising, but nevertheless this North Coastal area will always present a rural atmosphere with the hills always in view to the east and south and on the west the broad expanse of ocean, stretching out to meet the horizon" (*Sharp Park Breakers* 1953a).
>
> San Pedro Valley, nostalgically described as a "serene, spectacularly beautiful spot where a few ranches were the only indication of 'progress' so far" during its artichoke growing days, was transformed with the construction of 3,000 inexpensive homes by Oddstad's Sterling Homes. Houses

outpaced the infrastructure, however, and when the first Linda Mar residents arrived on December 16, 1953, they had to dig their own wells or buy brackish water from nearby pumps until the NCCWD started laying pipes in the valley and delivering water (Drake 1982a, 1982b, 1982c).

For Linda Mar's first two years the only food market was the Sun Valley Dairy at Shamrock Ranch and the region grew so fast that the phone company could not keep pace with connecting phone lines. There were many North Coastside residents who did not like what Oddstad was doing in Linda Mar and there were a number of angry planning board meetings as Oddstad, in his words, "struggled to start a community - with no sewage, water, schools, streets, or anything." Capitalizing on the need for a supermarket, Henry Doelger, who Oddstad once worked for, came to the valley in 1955 and started construction of the Linda Mar shopping center on the east side of Highway 1. The Purity Supermarket was the main attraction, along with a pharmacy, ice cream store, donut shop, shoe repair, Wells Fargo Bank, and camera store. In 1961, the Purity Market was remodeled, almost doubling its size and making it the largest Purity in Northern California (Drake 1967, 1980; Evans 1999, Hynding 1982; Gervais 1984; *Pacifica Tribune* 1961, 1961b).

San Pedro Valley changed rapidly after 1953, as did the rest of the North Coastside, as developers bought up land and started construction of housing developments. In 1955, 1,200 new families moved into the North Coastside with 700 of those moving into Linda Mar alone. In August of 1955, family number one thousand had moved into Linda Mar and, as a special bonus, was given $4,000 in gifts by Andy Oddstad (*Sharp Park Breakers* 1953a).

Talk soon began of incorporating the various North Coastside hamlets into one city. The North Coastside up to this point had always been unincorporated county land and was not fully represented on the county board of supervisors. It did not have its own library, recreation facilities, or police force. Residents had to rely on the county sheriff's office with the nearest substation over the coastal mountains in Burlingame (*Pacifica Tribune* 1977, 1980).

Some residents believed that a better community could be had by incorporation and self-government. However, it was water and garbage dumps that finally stirred the North Coastside residents into action.

In 1955, Oddstad, growing weary over battles with the NCCWD to supply water to Linda Mar, asked the city of San Bruno to annex Linda Mar. A furious campaign ensued in San Bruno as the matter was put to the voters. North Coastside residents sent pamphlets against annexing Linda Mar to the San Bruno voters, who rejected Oddstad's proposal. North Coastside residents then recalled the publicly appointed NCCWD board and set in motion new policies that would ensure an adequate water supply to Linda Mar. This victory was the first step towards incorporation (*Pacifica Tribune* 1977).

Garbage became the next hot topic for North Coastside residents. In 1956, Daly City wanted to annex part of the Bernardi Ranch deep in San Pedro Valley for the Coastside Scavenger Company to use as a dump. The Bernardis owned some 600 acres in the back of the valley, having formed a syndicate back in the 1920's in order to purchase land. The Pittos, founders of the Coastside Scavenger Company, had purchased land along the Sanchez Fork in 1942 and wanted an inexpensive supply of garbage to feed their hogs; they also raised cattle and horses, farmed, and had a productive fruit orchard. The county rejected the plan (Plunkett 1960; Azevedo interview 1999; Davenport 1977).

As suburbs in the county grew so too did the garbage problem. In 1957, Daly City annexed Mussel Rock at the northern most end of the North Coastside for a dump and San Bruno attempted to annex land along Sharp Park Road and Skyline Boulevard for another dump, land in plain sight of the Westview housing development. The Coastside Scavenger Company finally got county approval to convert part of the Bernardi Ranch into a dump, so angering valley residents that they hung an effigy of county supervisor Tom Callan at the entrance to Linda Mar. North Coastside residents in favor of incorporation used the garbage issue to push their cause.

Papers were filed petitioning the county supervisors for incorporation to delay the annexation attempt by San Bruno and North Coastside residents were given a chance to vote on the issue. Many of the area's young, new families were in favor of incorporation arguing that they were "people motivated by the spirit of growth . . . a healthy growth for ourselves, family and community." and that they were "pioneers" in a region that until recently was "largely artichoke patches.” In the election on October 28, 1957, the move to incorporate won by a narrow margin. The new city was christened Pacifica (Drake 1982c, *Pacifica Tribune* 1977).

The ensuing two and a half decades saw the truck farming and early suburban landscapes of San Pedro Valley give way to the modern suburban landscape of today...

…Pedro Point also saw a boom in house building. Compared to the 1939 USGS map, the 1956 map shows a number of new streets dotted with houses climbing up the north slope of Pedro Point. Land was still cheap and fifty square foot lots could be had for $1,500 in the late 1950's. A 1957 photo taken from the hills above Sanchez's Adobe, possibly from around the water tank shown on the USGS maps, shows Linda Mar in its infancy. The photograph looks toward the ocean, showing row after row of new single-story homes. There are no trees in the valley, at least nothing of any height, helping create a stark sense of newness to the scene (Larsen 1989a; *San Francisco Examiner* 1957).

By 1968, most of the valley and the hills to its north had been developed. The largest area of post-1956 development is in the hills just north of Linda Mar Boulevard, with some infilling in the valley as more of the artichoke ranches were bought out. Three major floods from 1962 to a deadly debris flow in 1982 elicited some residents to wonder if houses belonged in San Pedro Valley and Pacifica. Bill Drake, a *Pacifica Tribune* reporter, wrote a month after the 1982 storm:

> "It's a new kind of shadow for Pacifica as residents there protect their homes from a frightening menace hidden somewhere in the skies and the hills. They are the very same soft and scenic hills that helped attract us all here in the first place, and which now, as one Pacifican put it last week, 'have seemed to turn upon us.' Should Pacifica collectively have a guilty conscience? Did this city, just moving into its 25th year as a corporate entity, do something wrong, or fail to do something, that could have prevented the deaths of three children in a crushed home? Why did Anza Drive suffer for the third time in two decades a damaging flood?" (Drake 1982a)

The photograph accompanying Drake's article shows a Park Pacifica resident sweeping sand on Grand Teton Drive. Sand had been dumped on the street and used to fill sandbags, which now line the curb three bags high. The sandbags were an attempt to protect the homes from a potential slide area farther uphill.

Other residents, years later, were able to smile about having to evacuate their homes and about the marina-like ambiance that overcame their neighborhoods. However, the floods forced a number of others to move away. Longtime residents of the Anza-Arguello neighborhood, who despite the floods still felt that Linda Mar was a great place to live and bring up children, regretted that so many people left after the 1982 floods. The Godso's, who bought their house on Balboa Way in 1954, acknowledged that most of the homes on their street were still owner occupied. On Anza Way, one block west and a little lower in elevation, however, it is mostly all newcomers and renters. Some of the Anza Way homes were submerged up to their ceilings when the 1982 floodwaters came (Curry 1992).

In response to the floods, the San Pedro Flood Control Committee, working with the Army Corps of Engineers, released its Feasibility and Recommendation Report in 1985. The report acknowledged that the pumps were not adequate to handle floodwaters from San Pedro Creek and identified a series of potential mitigation measures. The measure finally recommended involved creating a low levee on the north bank, a sacrificial flood plain on the south bank along the lower reaches of San Pedro Creek, and replacement of the Highway 1 Bridge. The pilings built when the road was constructed obstructed high-water flows from the creek. A photograph in the *Pacifica Tribune* taken during the 1962 flood shows creek waters just below the bridge's roadbed and a large crane reaching over the bridge lifting buckets of water and debris. The caption reads, "Opening Up Pedro Creek . . . this equipment helped save the day." Excavation for the flood plain was planned for west of the new Peralta Road Bridge and a diversion channel within this flood plain would be added starting west of the Linda Mar Care Center convalescent hospital. The mouth of the creek would be widened west of Highway 1 as it emptied out into the ocean. The additional flood plain and channel widening would give floodwaters a place to go and slow flood velocities down, decreasing the erosion force of the waters. The levee on the north bank was recommended to help protect the shopping center and homes on the north bank of the creek. The major obstacle in the way of implementing the project was money and several years later the project was still not funded (*Pacifica Tribune* 1962; San Pedro Flood Control Committee 1985, Curtis 1991).

To counterbalance the spread of homes across the valley during the 1960's and 70's, a new type of development was proposed: a regional county park. San Mateo County had started purchasing land for the park back in the 1970's. Although the park preserved part of the valley's more rugged landscape, its establishment also reflected a desire to secure a local water supply. Back in the early 1950's the NCCWD had been interested in using water from San Pedro Creek and wanted to build a filtration plant to, as the *Pacifica Tribune* stated in 1967, "make practical use of the millions of gallons of Pedro creek water now splashing into the ocean." It was awarded limited water rights on the South Fork, but had to divert water downstream from the Gay's trout farm where it was too contaminated for domestic use. The NCCWD calculated that in order to make using water from the South Fork feasible, it needed to control about 410 acres of watershed land. During the 1960's federal programs were instituted that made it financially possible for the NCCWD to apply for grants and loans. The Gays, whose trout farm had been wiped out in the 1962 flood, still owned 21 acres of land and were leasing some of it for growing watercress for San Francisco markets. They were resistant to selling and were opposed to the NCCWD's plans, but the NCCWD purchased the Gay's

> land by eminent domain and by the end of 1967 had more than 410 acres along the South Fork. The NCCWD built its filtration plant near the confluence of the Middle and South Forks where the Gays had their first trout farm.
>
> The NCCWD was also talking to the county about purchasing 478 acres of watershed land along the Middle Fork to be used as a wilderness park. If the county agreed to do this, the NCCWD would lease its lands along the South Fork to the county to be incorporated into a larger park. Using the watershed lands as a park would protect the water quality and prohibit development. The NCCWD was also considering building two dams on the Middle Fork in 1968, but the projects proved not to be cost effective. The county started purchasing land from a variety of property owners in the 1970s and a ninety-nine-year lease with the NCCWD was signed, creating San Pedro Valley County Park. The Weiler Ranch, which was some of the last land in the valley still being farmed, growing artichokes and a small fruit orchard, was converted over to park use. The old ranch house and outbuildings were torn down and the home site was used for the Walnut Grove group picnic grounds. The ranch's agricultural fields that spread along the Middle Fork were allowed to become grassy meadows, although the grasses are mostly non-native annual species. The county built the park's visitor center and parking lot on parts of the old trout farm and the Gay's house was converted into a ranger's quarters" (Hill, u.d.; *Pacifica Tribune* 1967; Culp 2002).

The evolution of the agricultural and small settlements of the North Coast had truly given over to suburban development between preserved and ranch lands and the Pacific Ocean. Culp says, "by the 1980's all of the major Modern Suburban Landscape elements were in place." Over 40-years later, the largely developed City of Pacifica's landscape changes less dramatically than during the 40-years previous (Culp 2002).

Sharp Park

Sharp Park is an older neighborhood with many ties to Ocean Shore Railway development. The neighborhood includes "The Castle," built in 1906, a turreted residence overlooking the beach, a mixture of residences, some former summer cottages from the first half of the 20th Century but most dating from end of the Century in an amalgam of styles. Pacifica's only mobile home park is perched above the erosive coastal cliffside. Small commercial enterprises occupy some corners or primary roads in the neighborhood, such as along Palmetto Avenue, but most parcels are residential. The neighborhood includes several narrow, one-way streets. The neighborhood's beach promenade and fishing pier are local and regional destinations.

As Lewis Kawahara concisely documents in his well-cited history for *Densho Encyclopedia*, "Sharp Park (detention center)," the property that now hosts the Fairway Park, including Sharp Park Golf Course and the San Francisco Archery Club, has had many incarnations. Its darkest, the Sharp Park Internment Camp, established to be a temporary holding station where "enemy aliens" were temporarily held, both U.S. citizens and foreign nationals. People of Japanese, German, and Italian background and/or citizenship from the western continental U.S., Hawaii, and Latin America were confined here. In the San Francisco Bay Area where Japanese immigrants had settled in large numbers, "alien" Japanese were arrested hours after the bombing of Pearl Harbor and remained at Sharp Park or at Angel Island for only a limited time before being sent to more permanent government prison-like facilities, like Manzanar (Kawahara 2017).

Dividing Sharp Park from the next community to the south is an 18-hole public golf course, often referred to as "the poor man's Pebble Beach." The course was designed by noted golf architect Alexander McKenzie and landscaped by Golden Gate Park's John McLaren.

Sharp Park is named after George F. Sharp who established the over 400-arce estate in 1849. Mr. Sharp died in October 1882 and when his wife, Honora Sharp, passed away on February 8, 1905, the estate was left to the City of San Francisco with specific instructions that the property be used for recreational functions.

Sharp Park is located in a canyon off Highway 1 in Pacifica, California, which is located about ten miles south of the San Francisco along the Pacific Ocean. Sharp Park came into existence in 1917, a golf course opened in 1931, and a boy's club/state relief camp was set up in the 1930s before the establishment of the internment camp in 1941. The state relief camp provided shelter, food, medical services, and employment for San Francisco's indigents. The *Sharp Park Breakers* reported that the San Francisco Board of Directors rejected the closing of Sharp Park, and it remained open as a camp for San Francisco's poor. It is not clear when Sharp Park was transformed from an "older boys" camp to a state relief camp to an Immigration and Naturalization Service (INS) center. It does appear from an article in the *Sharp Park Breakers* that Sharp Park was an INS center in 1939 and controlled by the United States Army and INS.

On March 22, 1942, nine permanent alien enemy internment camps were built with an additional fourteen more camps erected that would be reserved for enemy alien internees and their families. [3] Camp Sharp Park, as it was then named, was an INS camp that held Japanese, German and Italian enemy alien men and a few alien women inmates. During the early months of 1942, the Sharp Park Internment Center became a processing center and was a minimum-security center. Additional barracks were built to increase capacity from 450 to 1,200, and at various times over 2,500 German, Italian, and Japanese internees would be imprisoned at Sharp Park Internment Center. Some Mexican and Canadian enemy aliens were housed there as well (Krammer 1997).

The *San Francisco News* reported that 193 enemy aliens, mostly Japanese, were detained at Sharp Park to ease the overcrowding at the federal Immigration Station, in San Francisco. The overcrowding condition occurred when Angel Island's Immigration Station Building burnt down in 1940 and when war was declared on the Axis Powers. The Sharp Park Internment Center was strongly guarded and the potentially dangerous group could be moved inland as soon as camps are opened up in the near future. Another article from the *Sharp Park Breakers* reported that Sharp Park was surrounded by "[10 foot high] cyclone fences of fine mesh" and "topped with barbed wire and floodlights to prevent escape attempts" (Krammer 1997)

Stanford instructor and leader Yamato Ichihashi spent six weeks in Sharp Park. He wrote about the camp in his diary:

> It [Sharp Park] is situated not far from Salada Beach in a beautiful valley which is surrounded by hills covered with green trees and shrubs; on the western side between low hills the Pacific Ocean is visible. The ground is limited by tall iron net-fences and small in area; barracks 20' x 120' are well-built and painted outside and inside and are regularly arranged; there are 10 of these for [?] inmates, each accommodating about 40, divided into 5 rooms for 8 persons each; if double-decked (beds), 80 can be put in (Chang 1997).

Ichihashi also reported:

> [T]he number of detainees never exceeded 500; there are alien enemies – Japanese, German, and Italians, and 'Internationals,' mostly immigration cases. When I arrived there, the number was about 280, and when I left there on Oct. 26, there were only 145 men and 22 women or 167 in all, due to

release or internment. However, the increase and diminution are not indicated by the number because new arrivals came during the period (Chang 1997).

Kawahara records that the Issei were the first group of persons of Japanese ancestry to be imprisoned at various "temporary" locations such as Sharp Park prior to being sent to more permanent facilities. The Issei were “community leaders like businesspersons, clergy, language school teachers, and martial arts instructors.” But in addition to these Japanese Americans, German and Italians were also sent to the United States for internment. Like Japanese Americans, this was done without regard to their citizenship or to their legal status in their countries. On July 15, 1943, 119 Peruvian Japanese were sent to Sharp Park and would later be sent to Fort Missoula, Montana. Over fifteen Latin American countries capitulated to the U.S. demands and eventually deported a total of over 6,600 individuals of Japanese, German, and Italian ancestry, along with some of their families, to U.S. internment camps (Kawahara 2017).

Kawahara states:

> “Hours after the attack on Pearl Harbor, December 7, 1941, U.S. government agencies immediately implemented their clandestine plans for the incarceration of enemy aliens. The "enemy alien" label was placed on non-United States citizens of Japanese, German, and Italian ancestry. A number of predetermined internment sites were established in places such as Terminal Island, Tuna Canyon, and in Southern California; and Sharp Park in Northern California” (Kawahara 2017).

Figure 6 1942 view of the barracks with prison fencing at Sharp Park Internment Camp, also called Sharp Park Internment Station, Pacifica, California. Source: Courtesy of The Bancroft Library, from collection, “Voices in Confinement: A Digital Archive of Japanese-American Internees,” University of California, Berkeley, Berkeley, California.

In 1946, Sharp Park Internment Center was closed and a small number of German or Italian American prisoners were given the option to renounce their U.S. citizenship. Although Kawahara states, “a few did renounce their citizenship but later many of the renunciants regretted their decisions and fought to reverse them so they could remain in their homeland, the United States” (Kawahara 2017).

Local proposals for the use of the Sharp Park property were floated towards the end of World War II. As reported from a local newspaper, the State of California Correction Department had made comments about opening a $1.2 million construction for "... old boys [which would] hold up to 500 boys." Locally, public opposition to the juvenile center was recorded in the *Sharp Park Breakers* to such plans and the state decided not to locate a correctional faculty there (*Sharp Park Breakers* 1941; Kawahara 2017).

Today there does not appear to be any evidence of an internment campsite. But according to email correspondence between Kawahara and Jerry Crow of the Pacifica Historical Society, there are "remnants of the stonework between the old rifle range and the archery [club] range." Kawahara also notes there may be slabs of concrete foundations remain and a small building remaining as remnants of the detention center. Archery Club members reported to Kawahara that an undisturbed garbage site remains that is covered with poison oak (Kawahara 2017).

Kawahara found the only extant structure that is known to have been part of the detention center was a Quonset hut. The community daycare, the Pacifica Co-op Nursery School, uses that structure as its primary class room. Another Quonset hut from Sharp Park was moved to Sonoma to be part of their Boys Club but the date and location were not determined by Kawahara (Kawahara 2017).

Sources Consulted

Literature Review

The following Resource Inventories were consulted in September 2021 to identify potential historical resources and consider adjacent properties that may be indirectly or visually impacted by the project:

- *California Inventory of Historical Resources*
- *California Historical Landmarks*
- *Built Environment Resource Directory for San Mateo County*
- *Densho Encyclopedia*: "Sharp Park (detention center)" (Kawahara 2017)

Further research was conducted online using City of Pacifica public records, San Francisco State University's master theses, and Google Scholar ™ of physical and cultural geography of the region.

Previously identified historical resources in the City of Pacifica are located beyond any visual connection to the NCCWD Headquarters Complex property. The closest historical resources are The Little Brown Church at 1850 Francisco Boulevard which is 0.3-mile distant and the Sharp Park Golf Course Clubhouse which is 0.4-mile distant from the NCCWD Headquarters Complex. See **Figure 4** for the location of known CEQA historical resources within the City of Pacifica relative to the NCCWD Headquarters Complex property.

Field Survey

Methods

On September 15, 2021, Yarbrough Architectural Resources' Edward Yarbrough inspected, photographed, and made notes regarding the NCCWD headquarters complex property. Access to the property was provided by NCCWD General Manager Adrianne Carr. General Manager Carr provided Yarbrough with access to all public areas of the building complex's interior and to maintenance and parking areas beyond public access. Besides planting strips fronting the sidewalks on Francisco Boulevard and Brighton Road, the property is devoid of vegetation and ground surfaces are overlaid with asphalt or concrete surfaces. Photographs from the site visit are included in Department of Parks and Recreation (DPR) 523 forms in **Appendix B** of this study.

General Manager Carr also provided 1979 construction drawings of the existing facility to Yarbrough Architectural Resources. Those drawings are included as **Appendix D** of this study.

Results

One architectural resource was identified by YAR within the CEQA study area, namely the NCCWD headquarters complex. The single building was built in stages, providing NCCWD management and staff offices, a conference room for public meetings, mechanical and utility spaces, and garages for large trucks. The property also includes parking, landscaping laydown bins with concrete wall dividers, and a fuelling structure. The property is mostly paved and located in a suburban, mixed-use neighborhood adjacent and west of Highway 1 (SR 1), which is elevated on a berm to the east across Francisco Boulevard from the complex; see **Figure 2**.

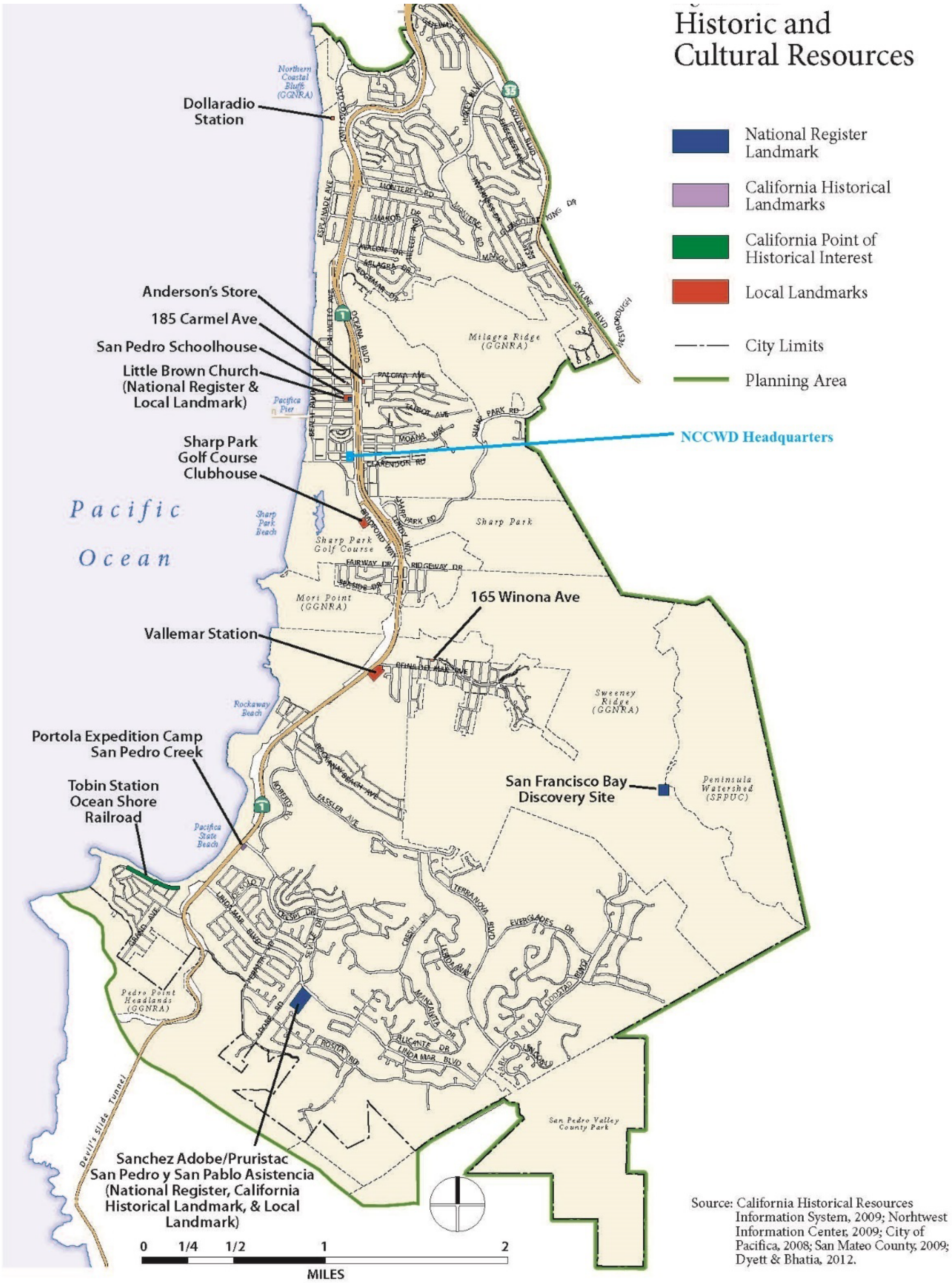


Figure 7 The NCCWD headquarters complex and previously identified historical resources within the City of Pacifica (Dyett & Bhatia 2014)

Identification: Physical Description of Resource

NCCWD Headquarters Complex

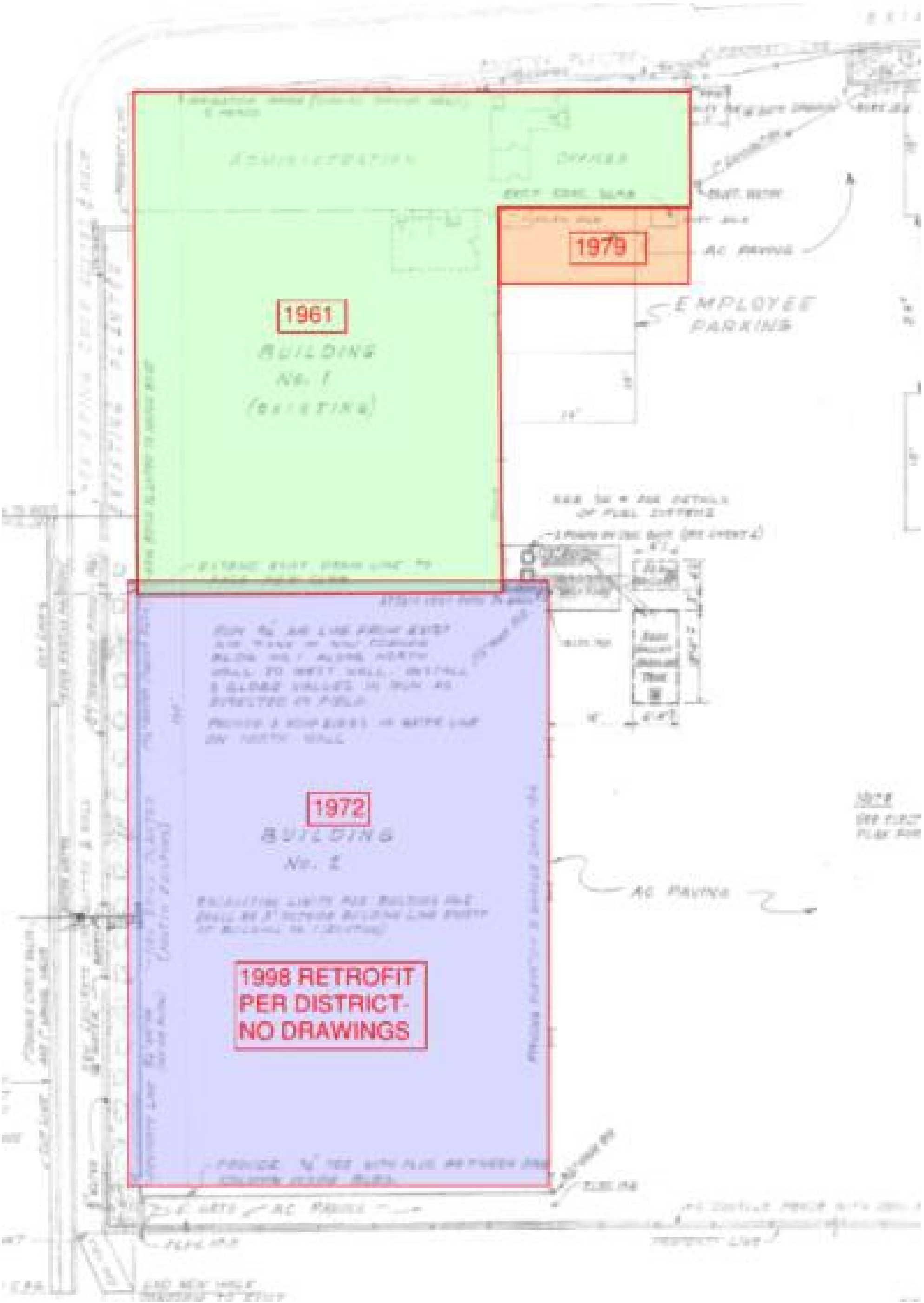


Figure 8 NCCWD Headquarters Site Plan with build and seismic retrofit dates. Note, this map is oriented with the East at the top. Source: IDA Structural Engineers memorandum to Noll & Tam Architects, April 13, 2021

The project site is located at 2400 Francisco Boulevard in Pacifica, California. The property contains two attached buildings, Building No. 1 from 1961 and Building No. 2 constructed in 1972. An addition, 12-x-24-feet in plan, was added to Building No. 1 in 1979 (see **Attachment D**). **Figure 8** shows Building No. 1 in green, which includes the Administration Building and Maintenance No. 1, with the 1979-addition in yellow and in lavender Building No. 2, also referred to as Maintenance No. 2. Note that the site plan in **Figure 8** is oriented with cardinal direction East at the top. Each of the three periods of construction were designed by McCandless, Boone & Cook Consulting Engineers.

In addition to the single-story Administration Building and Maintenance No. 1 and Maintenance No. 2 buildings, which are attached to one another, there is a fuel tank, fueling station, temporary storage structures, and bins for NCCWD maintenance and landscaping materials. The Administration Building is a wood-framed structure with plywood shear walls; see **Figures 9** and **11**. Maintenance No.1 was also constructed in 1961 and is a tall one-story and partial two-story plus mezzanine tilt-up concrete portion of Building No. 1. Maintenance No. 2 was constructed in 1972 and is a tall one-story plus mezzanine tilt-up concrete building.

The maintenance buildings appear to be one structure, particularly when viewed from Brighton Road, the north elevation wall; see **Figure 10**. The structure appears as 8 tilt-up concrete bays surfaced on the lower half of each bay with variegated, smooth aggregate averaging 1-inch diameter. The upper portion of each bay has a smooth concrete finish. Each bay is set between bevel-edged posts of smooth concrete finish. The bays and posts rise in vertical lines to a parapet wall without a defined cornice. The south elevation wall has a varied surface with Building No. 2's Maintenance No. 2 portion projecting beyond the south elevation of Maintenance No. 1 (see **Figures 13** and **14**), creating deeper garage bays in Maintenance No. 2. Maintenance No. 2 has four deep garage bays with one-and-one-half story overhead, steel garage doors; see **Figure 15**. Maintenance No. 1 has one garage bay, shallower in plan but with a garage door type and heights the same as on Maintenance No. 2. All five garage bays open to the south into the operation yard. The operations yard is surrounded by chain-link fence with interlink inserts to lend greater visual privacy to the operation yard from neighborhood streets and automatic gates made of the same fencing materials entering onto Francisco Boulevard to the east and Clarendon Road to the south.

The single-story, wood-frame Administrative Building portion of Building No. 1 protrudes further south and abuts the security gate entry to the property's grounds off Francisco Boulevard When the 1979 addition was added to the southwest corner of the Administrative Building, exterior finishes and fenestration on the north and east elevations were updated, as shown in construction drawings in **Attachment D**.

Nine years after the 1989 Loma Prieta Earthquake, seismic retrofits were added to Maintenance No. 1 and to Maintenance No. 2. Retrofits included parapet and upper wall tension bolts; one visible in the upper right portion of **Figure 9**. The retrofit included truss braces added to Maintenance No. 2; see **Figure 15** with explanatory caption.

Figure 9 NCCWD Headquarters' Administrative Building public entrance on Brighton Road at Francisco Boulevard View to the southwest. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

Figure 10 View of northwest corner of Building No. 2. Note the eight bays between nine posts on the north elevation built using tilt-up concrete construction. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

Figure 11 Administrative Building viewed to the north-northwest showing wood or composite wood horizontal clapboards on walls and vertical boards on thick, projecting cornice from 1979 remodel. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

Figure 12 Panoramic-style photograph of public lobby and glassed-in service counter with interior door in the Administrative Building. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

Figure 13 The south elevation walls of Building No. 1 & No. 2 in the background, the foreground includes employee parking and a view of the perimeter fence, viewed to the north-northwest. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

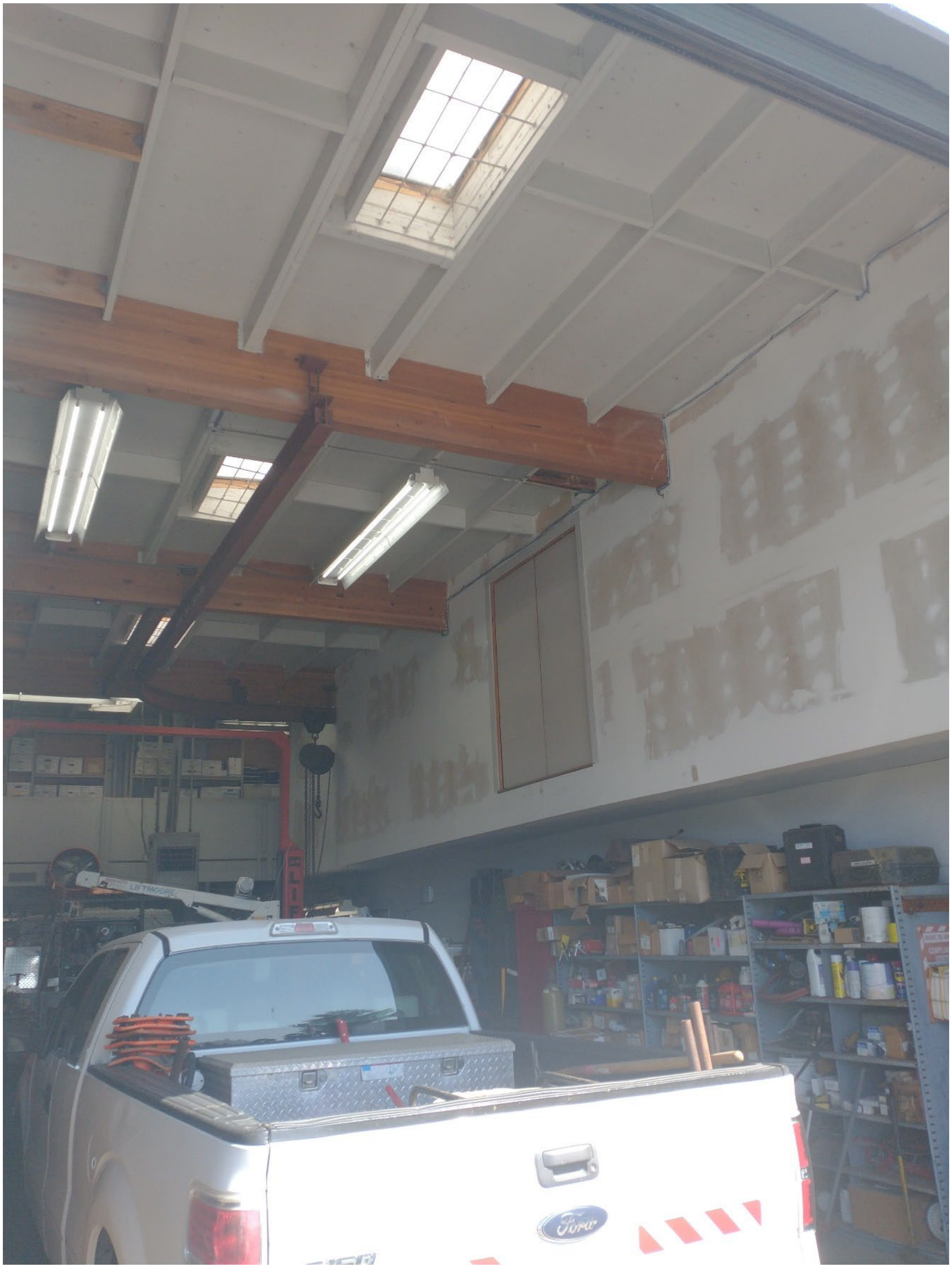


Figure 14 View north inside Maintenance No. 1. Note wood truss members, I-beam overhead-crane, and newer drywall, upper right, where office space was added to the eastern portion of the building. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

Figure 15 The four garage bays of Building No. 2/Maintenance No. 2, as viewed to the northeast. Note the skylights and unpainted bracing joist blocks from the 1998 seismic retrofit, visible just above the interior of the garage-door lintels. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

Significance Evaluation

During the 2021 field visit, YAR identified one cultural resource, the NCCWD Headquarters Complex identified above, within the CEQA study area, a single parcel in the City of Pacifica. The property, dating from primary building periods in 1961 and 1972, and subject to significant alteration in 1979 and seismic retrofit in 1998, had not been previously evaluated for historical significance. This historical significance evaluation follows CEQA compliance guidelines and, therefore, evaluates for eligibility for nomination to the CRHR. No other architectural or built-environment resources were identified in the study.

The primary goal of this investigation is to identify architectural/built-environment resources within the CEQA study area and to evaluate their eligibility for nomination to the CRHR. Historical resources as determined by NCCWD, the lead CEQA agency, must be considered and protected when feasible from significant impacts. Subsequent to identification and evaluation, if the resource is recommended as a historical resource, then potential adverse impacts must be considered for mitigation to a less-than-significant level pursuant to the CEQA.

This section examines the historical significance and, if eligible, the retention of integrity of one documented cultural resource within the study area. Therefore, this section provides a CRHR eligibility recommendation. The cultural resource, a utility complex, under consideration is examined within the historic context developed in the **Historic Context** chapter of this study. Detailed descriptions of CRHR criteria of significance can be found in the **Regulatory Context** section.

Application of the Significance Criteria

Historic properties listed in or determined eligible for listing in the NRHP are automatically considered eligible to the CRHR. Therefore, all historic properties under federal preservation law are automatically considered historical resources under CEQA. Also, note that the four CRHR significance criteria closely mirror those of the NRHP and are routinely applied in tandem to evaluate resources subject to both CEQA and Section 106 compliance (USDOI-NPS 1997) or, in this case, because consideration under both historical registers' criteria may be useful for federal grants or permitting in the near future. The NRHP, criteria A through D, and CRHR, criteria 1 through 4, recommendations in this study follow the tandem evaluation approach as follows:

Criterion A/1

To qualify for listing under Criterion A/1, a resource must be identified with an important event in history. Although an essential utility providing potable water to the City of Pacifica, the NCCWD Headquarters Complex itself only represents a ubiquitous administrative and operations center for an expansive structural conveyance of water piping throughout the service area. The importance of clean water conveyance is not significantly embodied by the utilitarian complex and its association does not rise to the level of importance in history, as emblematic of the broad patterns of community development necessary for listing on the NRHP nor CRHR. Therefore, this resource is recommended as not eligible to either the NRHP under Criterion A nor the CRHR under Criterion 1.

Criterion B/2

To qualify for listing under Criterion B/2, a resource must be identified with a person important in history. The NCCWD Headquarters Complex is not associated with a significant person in history whose most significant contributions are embodied by the property. Although community leaders have served on the

NCCWD Board of Directors, no individual stands out to the level of historical significance nor do the headquarters reflect an individual's contribution to the community best. Therefore, this resource is not recommended as eligible under NRHP Criterion B nor to CRHR Criterion 2.

Criterion C/3

To qualify for listing under Criteria C/3, a resource must be identified with important movements in, or masters of, design and construction. This resource is representative of tilt-up concrete construction and of McCandless, Boone & Cook Consulting Engineers. The building technology, referred to as tilt-up concrete, was used in simple, utilitarian buildings throughout the country in the 1960s up to the present day. The complex is not an exceptional engineering innovation but a very common type. McCandless, Boone & Cook Consulting Engineers' work is not in itself exceptional or innovative but employs a common structural engineering technology in the buildings' construction. Its Corporate Modern Style conveys a common form and building technology from its period of construction. Therefore, the NCCWD Headquarters Complex is not recommended as eligible under NRHP Criterion C nor CRHR Criterion 3.

Criterion D/4

To qualify for listing under Criteria D/4, a resource must have yielded or be likely to yield information important to prehistory or history. This historic-era resource is not likely to yield further information about the development of NCCWD's history nor of its common building type in San Mateo County nor beyond. Therefore, this resource is recommended as ineligible under NRHP Criterion D and CRHR Criterion 4.

Integrity

The NCCWD Headquarters Complex is not recommended as an historical resource because it is not eligible to the NRHP nor the CRHR. Only historical resources have character-defining features that can be retained or lost. Therefore, historical integrity is not applicable to the NCCWD Headquarters Complex.

Summary

The NCCWD Headquarters Complex is not recommended as eligible for the NRHP nor the CRHR as an individual resource nor as a potential contributor to an eligible historic district under any criteria. A resource that has no historical significance cannot retain or lose historical integrity.

Assessment of Effects and Impacts

Application of CEQA Impacts Analysis

Under CEQA, if a project may cause a substantial adverse change in the characteristics of a resource that convey its significance or justify its eligibility for inclusion in the CRHR or a local register, either through demolition, destruction, relocation, alteration, or other means, then the project is judged to have a significant impact on the environment (CEQA Guidelines, Section 15064.5(b). Direct impacts may occur by:

- Physically damaging, destroying, or altering all or part of the resource;
- Altering characteristics of the surrounding environment that contribute to the resource's significance;
- Neglecting the resource to the extent that it deteriorates or is destroyed. Indirect impacts primarily result from the effects of project-induced population growth. Such growth can result in increased construction as well as increased recreational activities that can disturb or destroy cultural resources; or

- The incidental discovery of cultural resources without proper notification.

CEQA provides guidelines for mitigating impacts on significant architectural and archaeological resources in Section 15126.4. For historical architectural resources, maintenance, repair, stabilization, restoration, preservation, conservation, or reconstruction in a manner consistent with the Secretary of the Interior's (SOI) Standards for the Treatment of Historic Properties generally will constitute mitigation of impacts to a less-than-significant level (USDOI-NPS 2017).

As shown in the **Significance Evaluation** section, the project study area does not encompass a historical resource. The project presents No Impact to a historical resource.

Recommendations

The NCCWD Headquarters Complex is not recommended as a historical resource nor as a potential contributor to an eligible historic district under any criteria. Only a property of previously unknown significance that is found to be California Register-eligible is considered a CEQA historical resource. Only then would project proponents be bound to apply historic integrity considerations and conduct an impacts analysis. The NCCWD Headquarters Complex is not recommended as a "historical resources," as defined by CEQA or CEQA guidelines.

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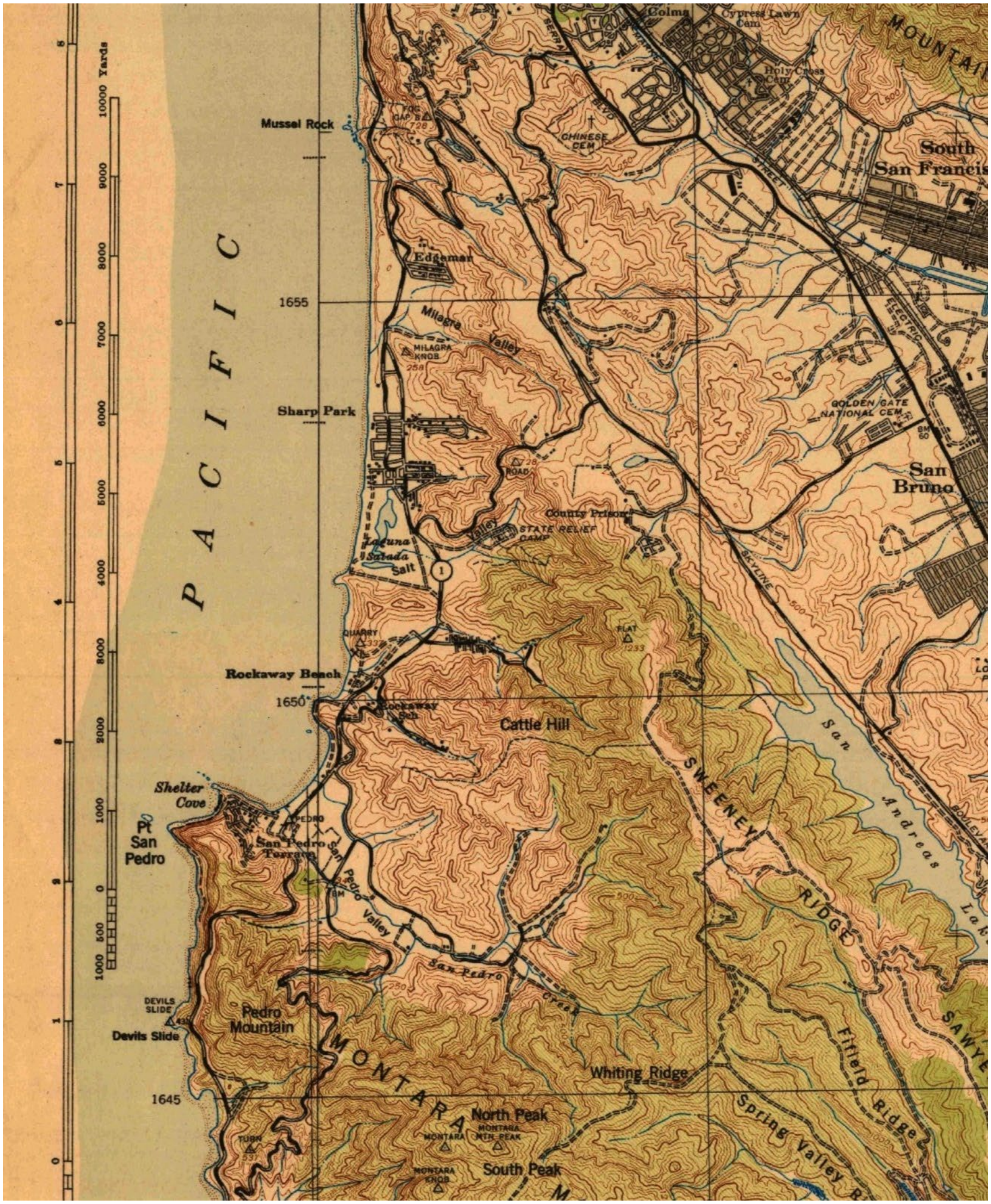
APPENDIX A

Maps

United States Geographical Survey (USGS) map 1892, Sharp Park is located to the west of map label SAN PEDRO. Source: USGS topographic map viewing website: https://ngmdb.usgs.gov/topoview/viewer/#13/37.6165/-122.4794, accessed Oct. 9, 2021.

United States Geographical Survey (USGS) map 1915, Sharp Park is located to the west of map label SAN PEDRO. Note the Ocean Shore Railroad line passing through "North Coastside." Source: USGS topographic map viewing website: https://ngmdb.usgs.gov/topoview/viewer/#13/37.6165/-122.4794, accessed Oct. 9, 2021.



United States Geographical Survey (USGS) map 1943 detail, Sharp Park is labeled with small road grid and Laguna Salada by future Sharp Park Golf Course. Note the “STATE RELIEF CAMP” label at the site of the Sharp Park Internment Camp/Detention Center, now the San Francisco Archery Club site. Source: USGS topographic map viewing website: https://ngmdb.usgs.gov/topoview/viewer/#13/37.6165/-122.4794, accessed Oct. 9, 2021.

APPENDIX B

Site Records (DPR 523 Forms)

State of California ♘ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code ________ Reviewer ________ Date ________

Page 1 **of** 3 ***Resource Name or #:** (Assigned by recorder) NCCWD Headquarters Complex
P1. Other Identifier: North Coast County Water District, 2400 Francisco Blvd, Pacifica, CA

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**
***a. County** San Mateo **and** Location Map DPR-523j attached.
***b. USGS 7.5' Quad** ________ **Date** ________ **T** ___; **R** ___; ___ ☐ **of** ___ ☐ **of Sec** ___; ______ **B.M.**
c. Address 2400 Francisco Blvd City Pacifica, CA Zip 94044
d. UTM: (Give more than one for large and/or linear resources) Zone ___, ______ mE/ ______ mN
e. Other Locational Data: APN 016-442-030

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The property contains two attached buildings, Building No. 1 from 1961 and Building No. 2 constructed in 1972. An addition, 12-x-24-feet in plan, was added to Building No. 1 in 1979. Each of the three periods of construction were designed by McCandless, Boone & Cook Consulting Engineers.
In addition to the single-story Administration Building and Maintenance No. 1 and Maintenance No. 2 buildings, which are attached to one another, there is a fuel tank, fueling station, temporary storage structures, and bins for NCCWD maintenance and landscaping materials. The Administration Building is a wood-framed structure with plywood shear walls. Maintenance No.1 was also constructed in 1961 and is a tall one-story and partial two-story plus mezzanine tilt-up concrete portion of Building No. 1. (CONTINUED)

***P3b. Resource Attributes:** HP9. Public Utility Building:

P5a. Photograph

***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo: View to SSW, Sept 15, 2021 YAR photograph.

***P6. Date Constructed/Age and Source:** ☒ Historic ☐ Prehistoric ☐ Both
1961/1972/1979 McCandless Boone & Cook Engineers

***P7. Owner and Address:**
NCCWD, 2400 Francisco Blvd
Pacifica, CA 94044

***P8. Recorded by:**
Edward Yarbrough, Yarbrough Architectural Resources (YAR), 2150 Silverado Trl N, St. Helena, CA 94574

***P9. Date Recorded:** 10/9/2021

***P10. Survey Type:** (Describe)
Sulphur Creek Fish Passage Improve. Proj., Sect 106 - USFWS, for WRA Inc. with ESA Inc.

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")
North Coast County Water District Headquarters Upgrade Project, Historical Resource Evaluation Report, Pacifica, San Mateo Co., CA. YAR, 10/11/2021

***Attachments:** ☐NONE ☒Location Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List): ________

CONTINUATION SHEET

Property Name: NCCWD Headquarters Complex

 *Resource Name or # (Assigned by recorder)
***Recorded by:** Edward Yarbrough, MSHP ***Date** October 9, 2021

(CONTINUED) P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Maintenance No. 2 was constructed in 1972 and is a tall one story plus mezzanine tilt-up concrete building.

The maintenance buildings appear to be one structure, particularly when viewed from Brighton Rd.; the north elevation is 8 tilt-up concrete bays surfaced on the lower half of each bay with variegated, smooth aggregate averaging 1-inch diameter. The upper portion of each bay has a smooth concrete finish. Each bay is set between bevel-edged posts of smooth concrete finish. The bays and posts rise in vertical lines to a parapet wall without a defined cornice. The south elevation wall has a varied surface with Building No. 2's Maintenance No. 2 portion projecting beyond the south elevation of Maintenance No. 1. Maintenance No. 2 has four garage bays with one-and-one-half story overhead, steel garage doors. Maintenance No. 1 has one garage bay with similar garage door. The operations yard is surrounded by chain-link fence with interlink Francisco Blvd. and Clarendon Rd. sides.

When the 1979 addition was added to the southwest corner of the Administrative Building, exterior finishes and fenestration on the north and east elevations were updated.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Primary #
HRI#
Trinomial

LOCATION MAP

Figure 2. Project Aerial Site Map

APPENDIX C

Photographs (September 15, 2021)


C-1. Concrete masonry unit planting boxes fronting Francisco Boulevard with security fence and Building No. 1 in the background, view to the northwest. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

C-2. Concrete masonry unit landscape box fronting Francisco Boulevard Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

C-3. Planter box and north elevation wall on Brighton Road, detail of the variegated, smooth aggregate set into tilt-up concrete bays and a concrete post, view to the south. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

C-4. Building No. 1, Francisco Boulevard and the Administrative Building in the foreground with the taller Maintenance No. 1 portion behind. Communication antennae are secured to the building roof. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

C-5. Public counter inside the small lobby of the Administrative Building, located within the northeast corner of the NCCWD Headquarters Complex. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

C-6. Water Board Meeting Room, the only interior space open to the public besides the lobby with counter. The room is within the Maintenance No. 2 portion of Building No. 1. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

C-7. Public meeting room with desk for sitting Water Commissioners in Building No. 1. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

C-8. Laydown yard and employee parking at the south end of the NCCWD Headquarters Complex property. Note the iron pipes in the foreground, five temporary equipment sheds to the right, and elevated Highway-1 with underpass for Clarendon Road Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

C-9. Left four oversized bays of Building No. 2/Maintenance No. 2 with one garage bay at right for Maintenance No. 1, south elevation, viewed to the north. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

C-10. Inside garage bays of Building No. 2/Maintenance No. 2 looking east-southeast. Note retrofit rafter joist bracing (unpainted lumber) in the truss. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

C-11. Building No. 1 showing Maintenance No. 1’s south elevation at left and the 1979 addition to the Administrative Building on the right. A generator and an employee picnic bench are in the foreground. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

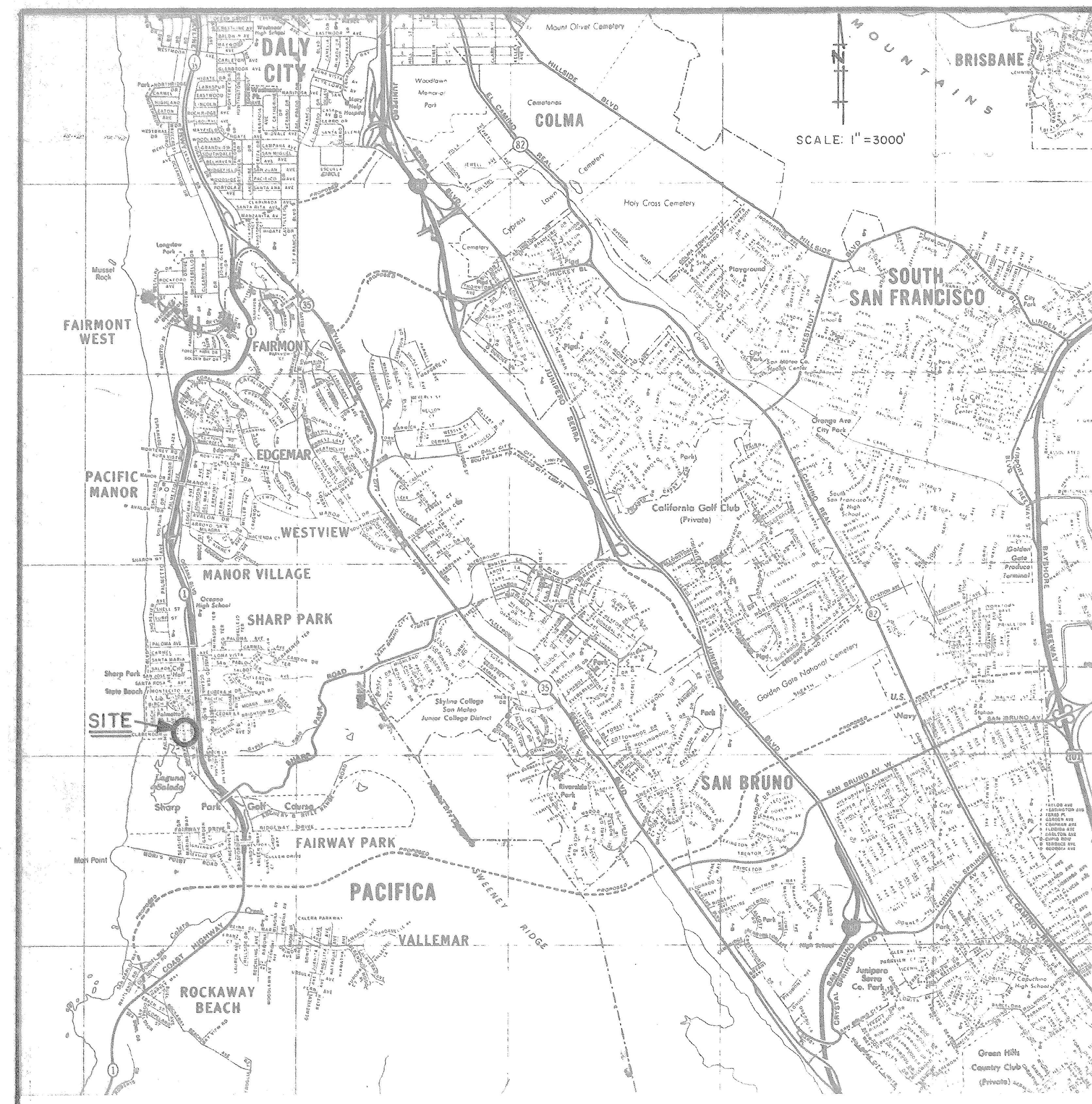
C-11. Southwest corner of the Administrative Building showing 1979 siding and windows with security expanded-metal screens, view to the northeast. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

C-12. Fueling station in the middle of the laydown yard, at a distance of approximately 100-feet from the NCCWD Headquarters Complex's buildings, view to the west-southwest. Photograph by Yarbrough Architectural Resources, Sept. 15, 2021.

APPENDIX D

NCCWD Headquarters Architectural Drawings (July 1979)

McCandless, Boone & Cook: Consulting Engineers



SITE PLAN

NORTH COAST COUNTY WATER DISTRICT

SAN MATEO COUNTY, CALIFORNIA

CONSTRUCTION PLANS

CORPORATION YARD BUILDING No. 2

FEBRUARY 1972

BOARD OF DIRECTORS

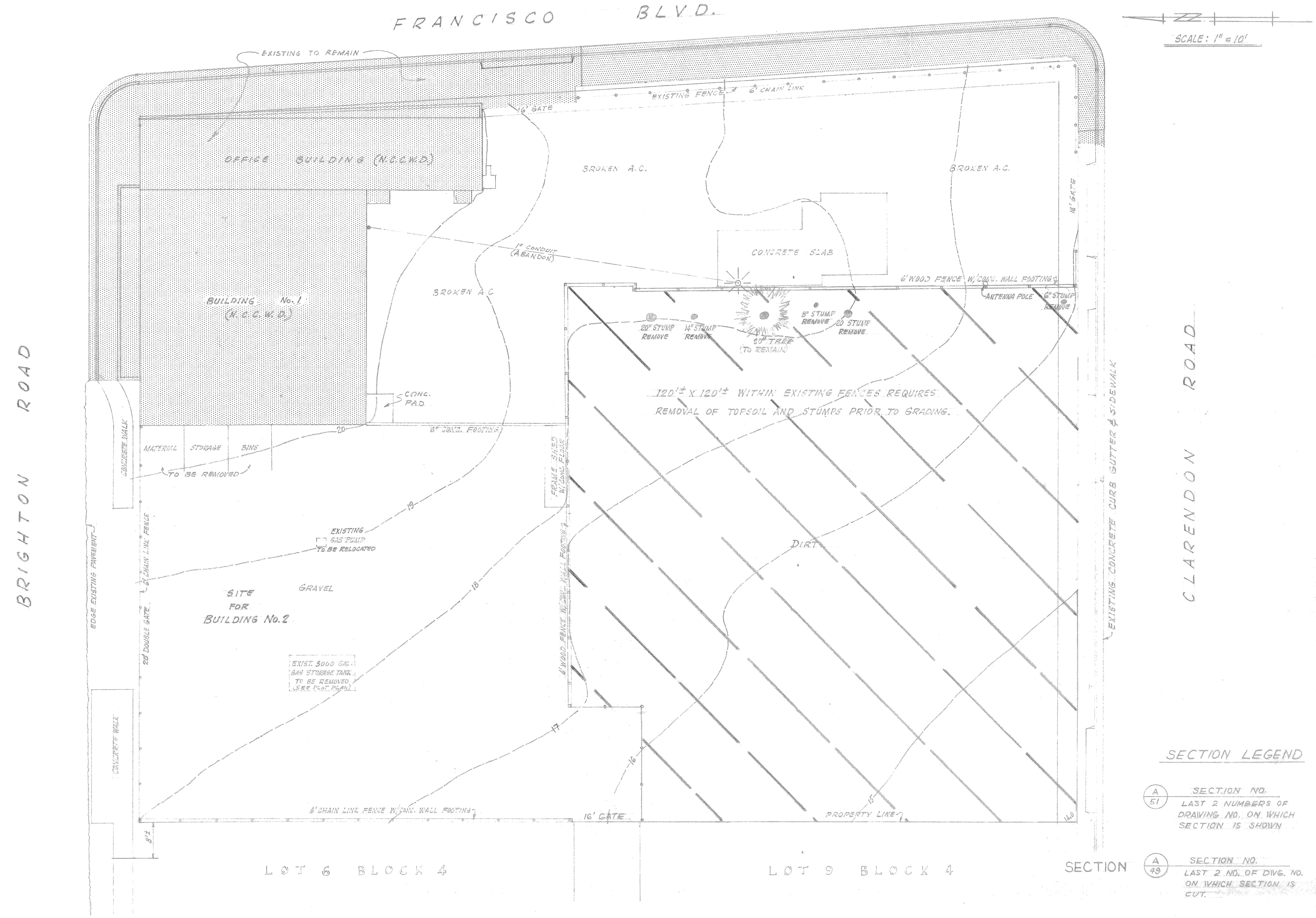
RUSSELL F. CONROY	PRESIDENT
FLOYD A. MINSHEW	
RALPH BARKEY	
EDWARD M. HOUG	
EDWARD G. TALBOT	

ALICE FILIOS	SECRETARY
HARLAN F. HILL	GENERAL MANAGER
JOHN R. REGAN	SUPERINTENDENT
THOMAS M. JENKINS	ATTORNEY

CHARLES S. McCANDLESS & CO., ENGINEERS

INDEX TO DRAWINGS

DWG. NO. N.C.15
JOB NO. 2-1-



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DWN. H.M.W.		SAN MATEO COUNTY CALIFORNIA	CONSULTING ENGINEERS	EXISTING PLOT PLAN	2 OF 18
CHK. R.E.B.	DATE		1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303		JOB. NO. 2-1-06

DES. H. M. W.	APP.	
DWN. H. M. W.	DATE	
CHK. R. S. B.		

NORTH COAST COUNTY WATER DISTRICT
SAN MATEO COUNTY CALIFORNIA

CHARLES S. McCANDLESS & COMPANY
CONSULTING ENGINEERS
1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303

CORPORATION YARD
IMPROVEMENT PLAN

DWG. NO. NC 1544 G
3 OF 18
JOB. NO. 2-1-06

DES. H. M. W.	APP.	NORTH COAST COUNTY WATER DISTRICT	CHARLES S. McCANDLESS & COMPANY	CORPORATION YARD	DWG. NO. NC 1545 G
DWN. H. M. W.	DATE 3-1-72	SAN MATEO COUNTY CALIFORNIA	CONSULTING ENGINEERS	DETAILS	4 OF 18
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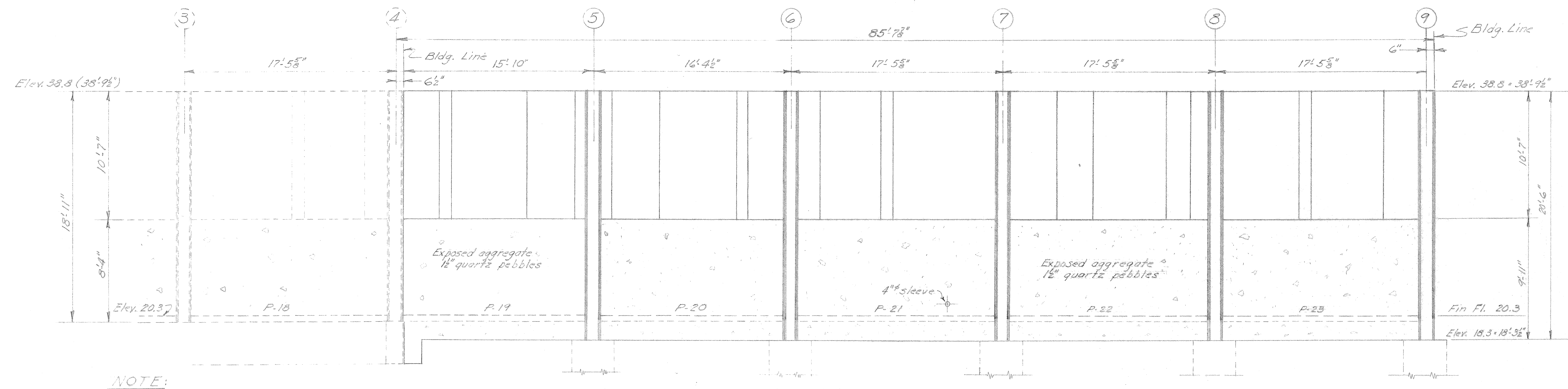
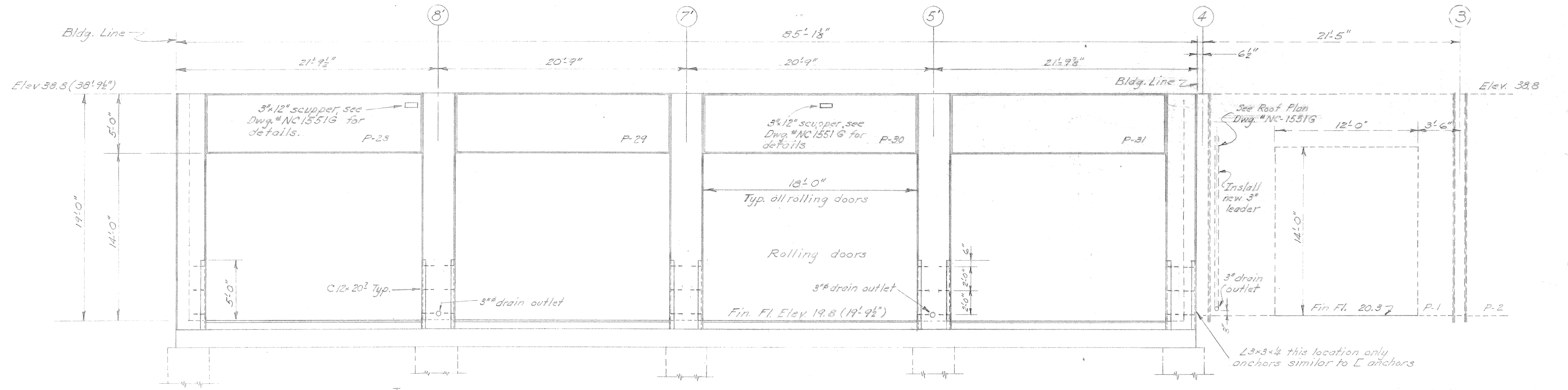


NOTE:
Dashed lines represent existing structure except for floor in new bldg.

NORTH ELEVATION

1/4" = 1'-0"



SOUTH ELEVATION

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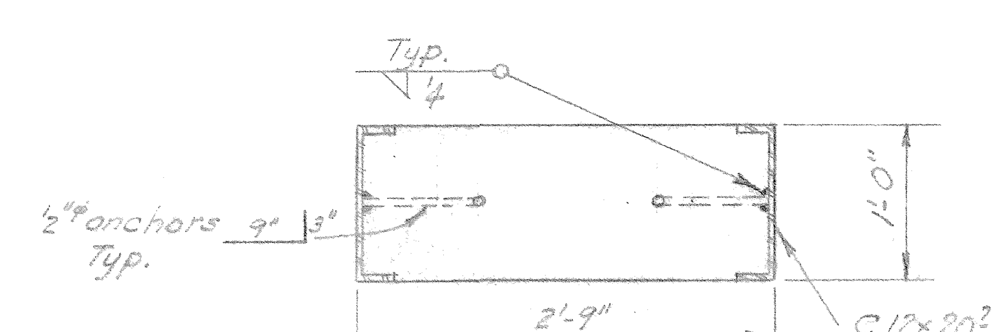


TYPICAL GUARD DETAIL

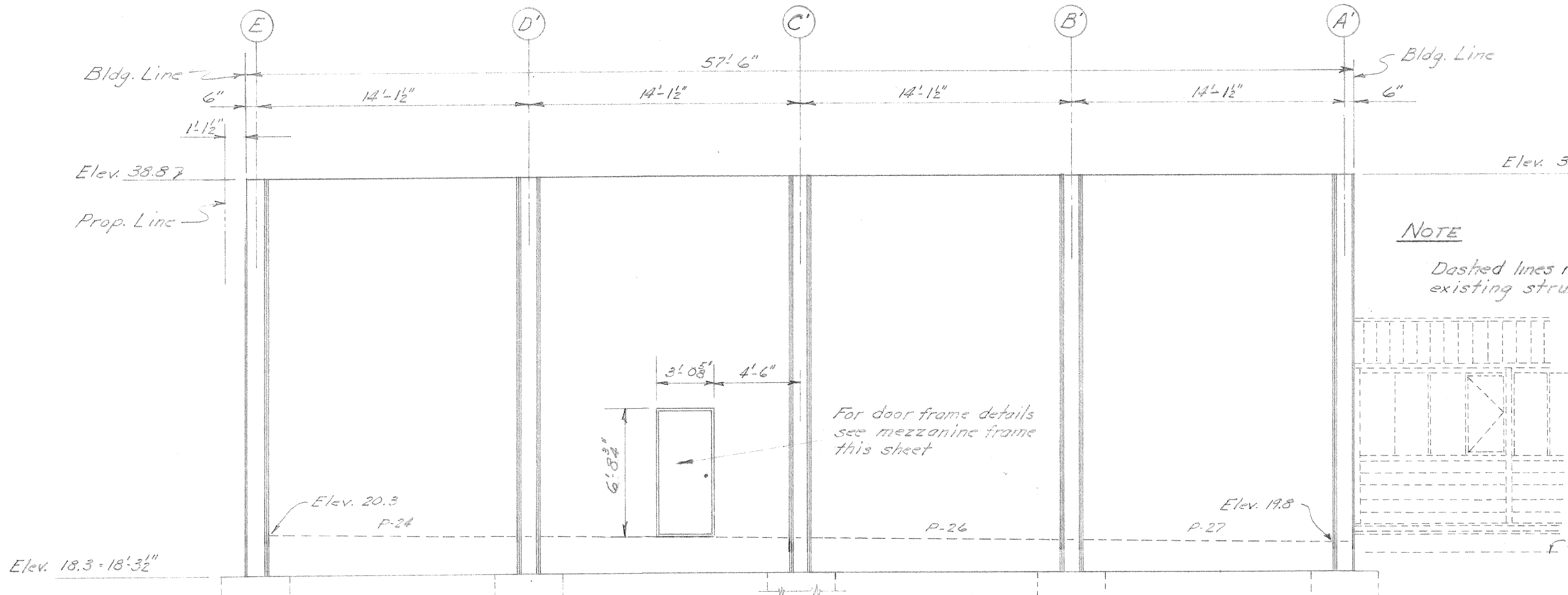
1" = 1'-0"

NOTE:
All corners shall be chamfered 1"

NOTE
Dashed lines represent existing structure (Bldg. No 1)

DES. A. D. R. DWN. A. D. R. CHK. R. E. B.	APP. DATE 3-1-72	NORTH COAST COUNTY WATER DISTRICT SAN MATEO COUNTY CALIFORNIA	CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS 1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303	CORPORATION YARD BUILDING No. 2 ELEVATIONS

DWG. NO. N.C. 1546 G
5 OF 18
JOB. NO. 2-1-06



WEST ELEVATION

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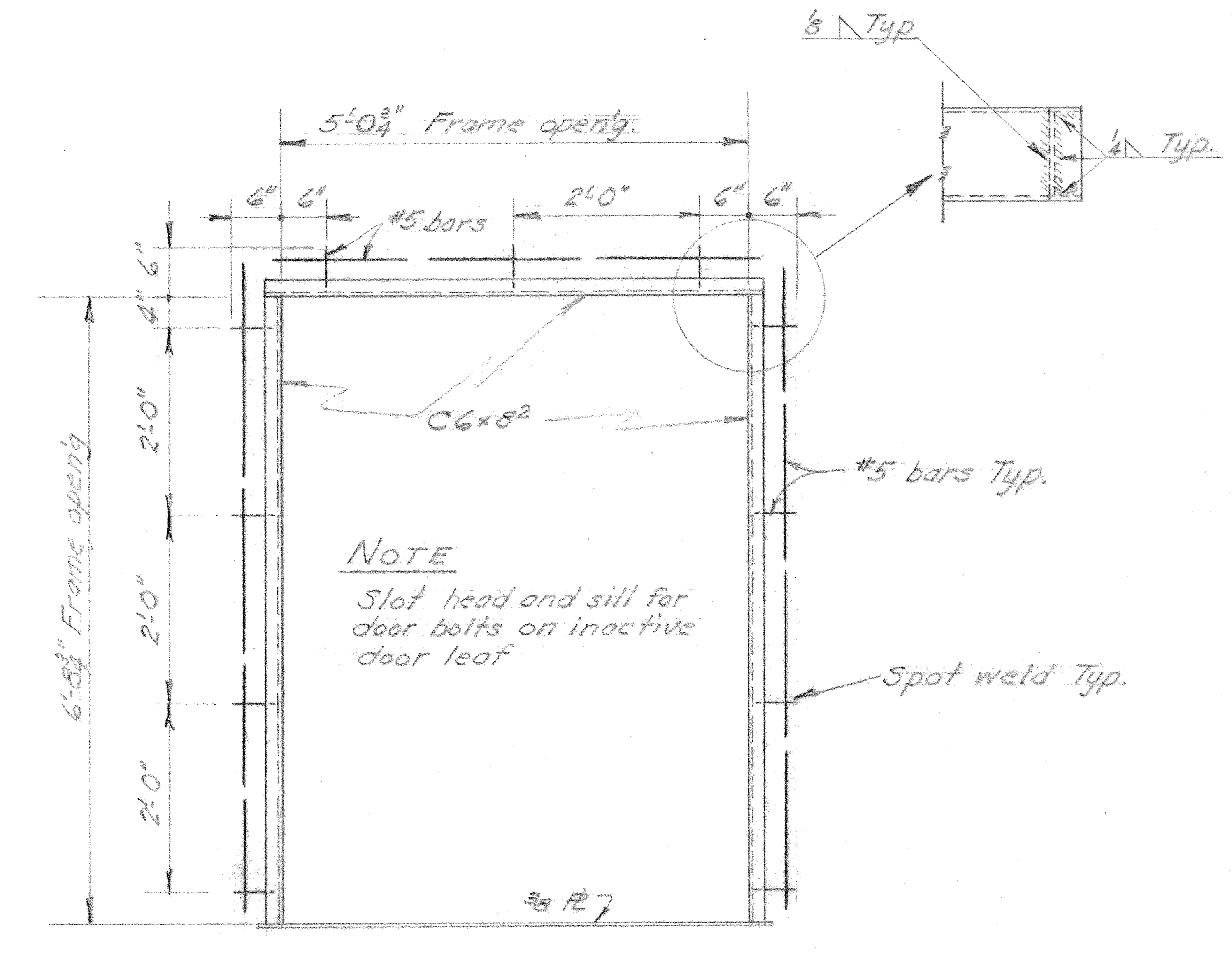
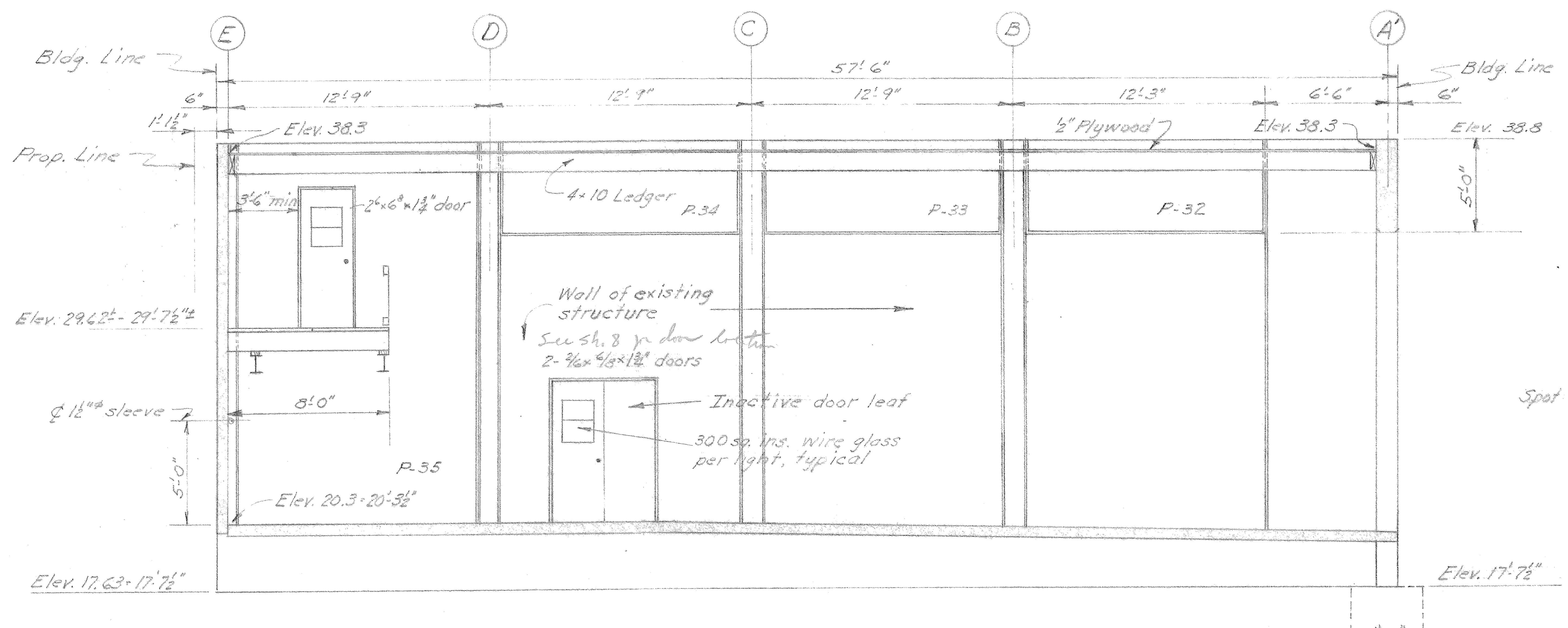


FIRST FLOOR DOOR FRAME

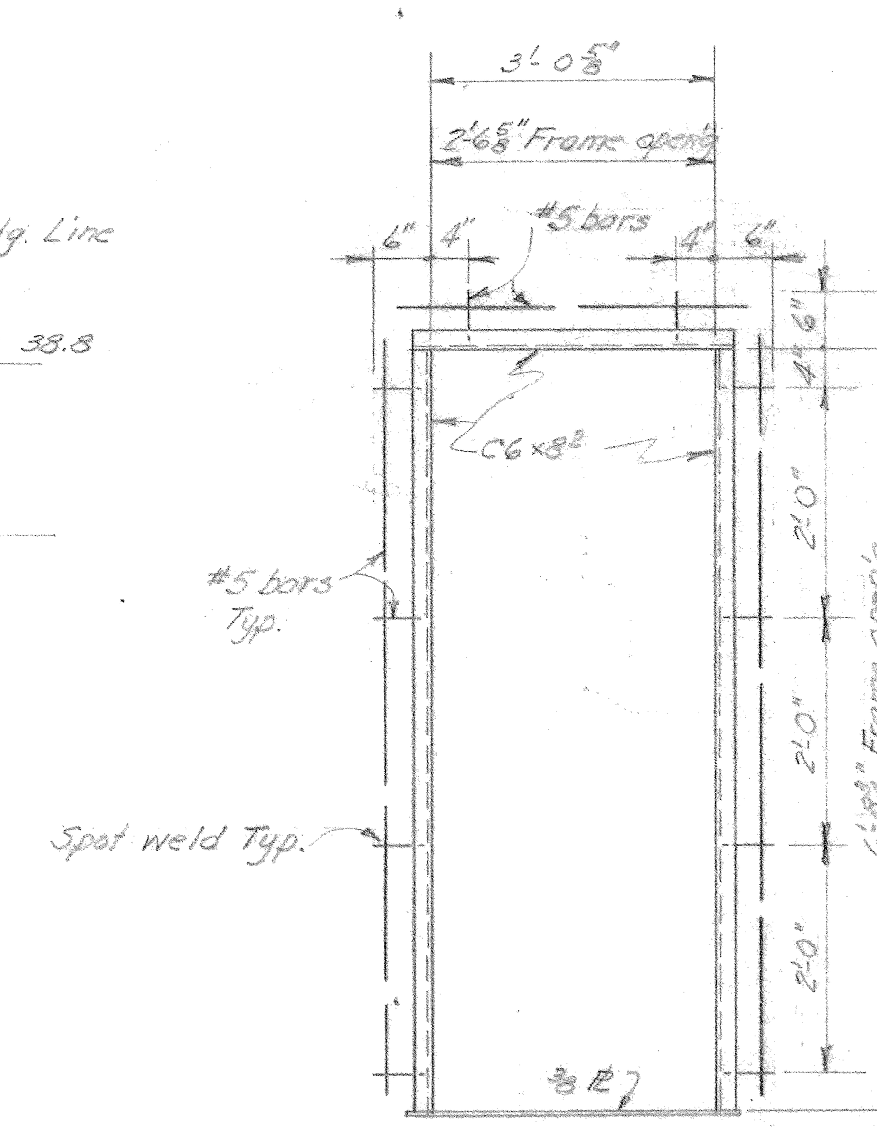
3/4" = 1'-0"



EAST ELEVATION

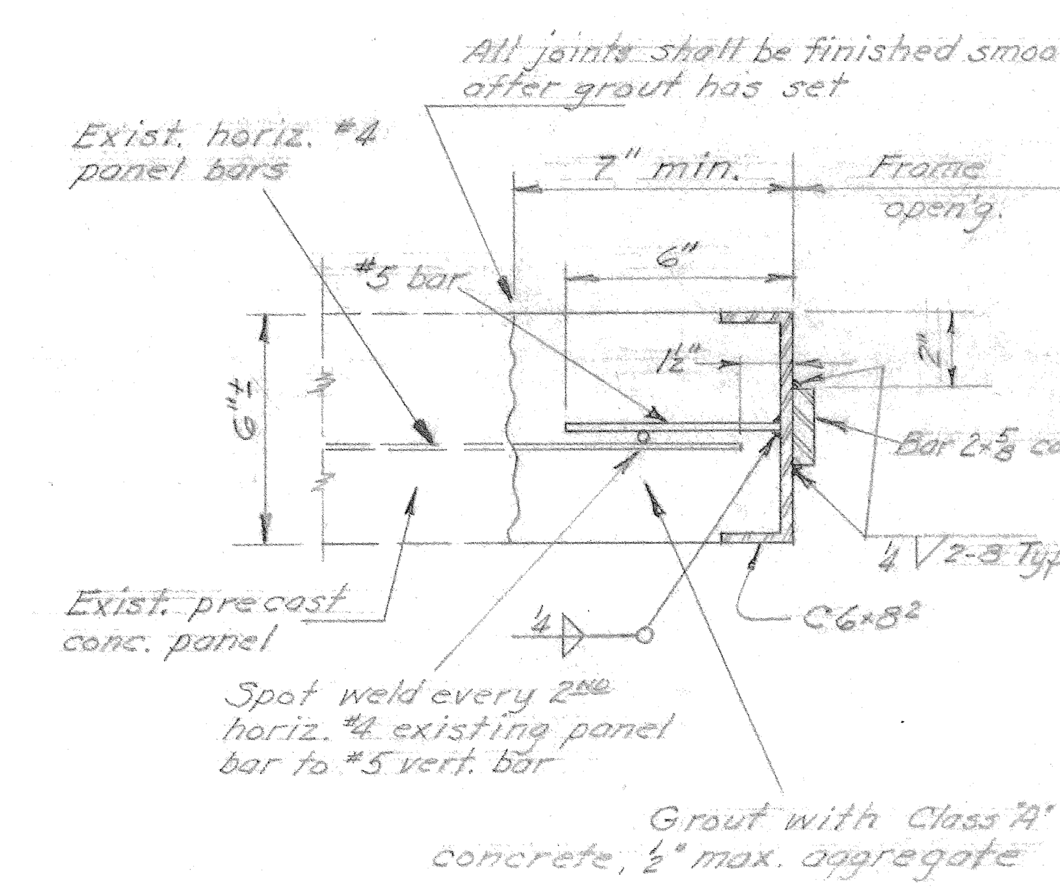
(LOOKING FROM INSIDE NEW BUILDING)

1/4" = 1'-0"



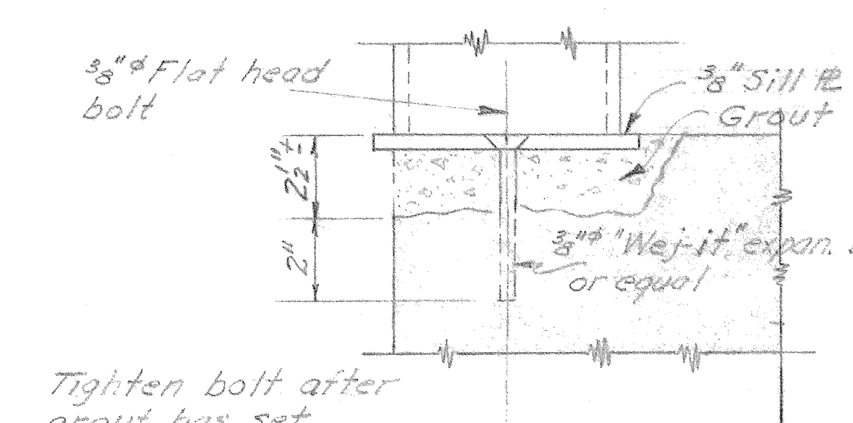
MEZZANINE DOOR FRAME

3/4" = 1'-0"



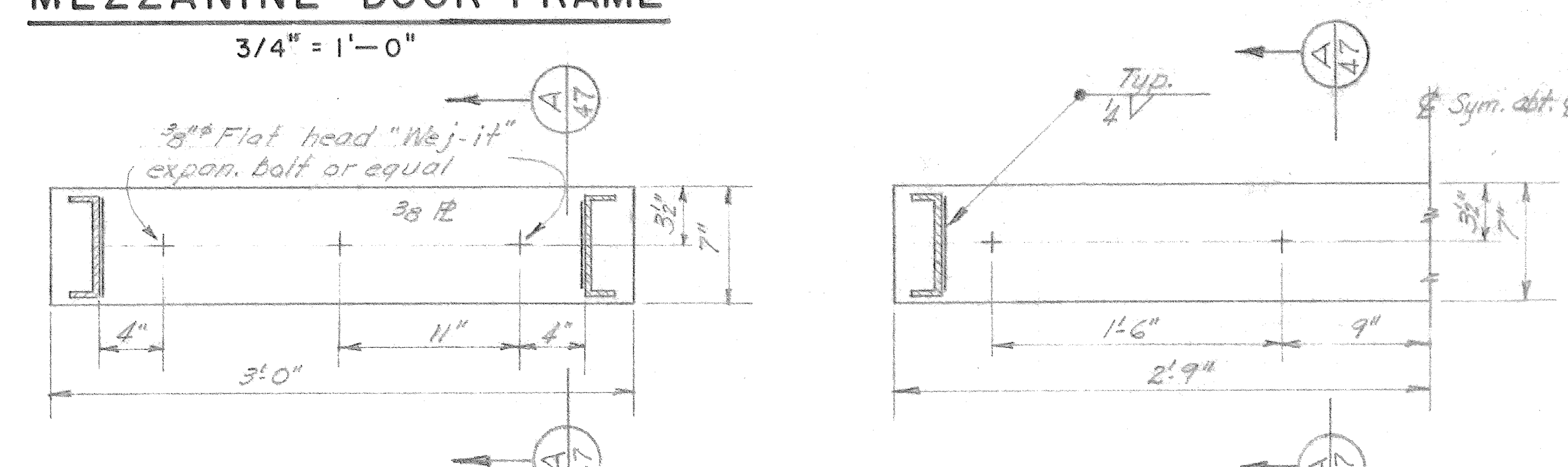
HEAD & JAMB DETAIL

3" = 1'-0"



SECTION

3" = 1'-0"



SILL DETAIL

1 1/2" = 1'-0"

DES. A. D. R.	APP.	
DWN. A. D. R.		
CHK. R. E. B.	DATE	

NORTH COAST COUNTY WATER DISTRICT

SAN MATEO COUNTY CALIFORNIA

CHARLES S. McCANDLESS & COMPANY

CONSULTING ENGINEERS

1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303

CORPORATION YARD BUILDING No. 2

ELEVATIONS

DWG. NO. N.C.1547 G

6 OF 18

JOB. NO. 2-1-06

NOTE:

1. Caissons shall not be drilled untill the excavation and fill under the bldg. have been completed
2. ~~Tremie shall be used to place conc. below water table~~
3. Casings shall be placed in hole and withdrawn as concrete is placed.

DES. A. D. R. / DWN. A. D. R. / CHK. R. E. B.	APP. / DATE 3-1-72	NORTH COAST COUNTY WATER DISTRICT SAN MATEO COUNTY CALIFORNIA	CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS 1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303	CORPORATION YARD BUILDING No. 2 FOUNDATION PLAN & DETAILS
				DWG. NO. N.C. 1548 G 7 OF 18 JOB. NO. 2-1-06

DES. A. D. R. / DWN. A. D. R. / CHK. R. E. B.	APP. / DATE 3-1-72	NORTH COAST COUNTY WATER DISTRICT SAN MATEO COUNTY CALIFORNIA	CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS 1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303	CORPORATION YARD BUILDING No. 2 FLOOR PLAN

DWG. NO. N.C. 1549 G
8 OF 18
JOB. NO. 2-1-06

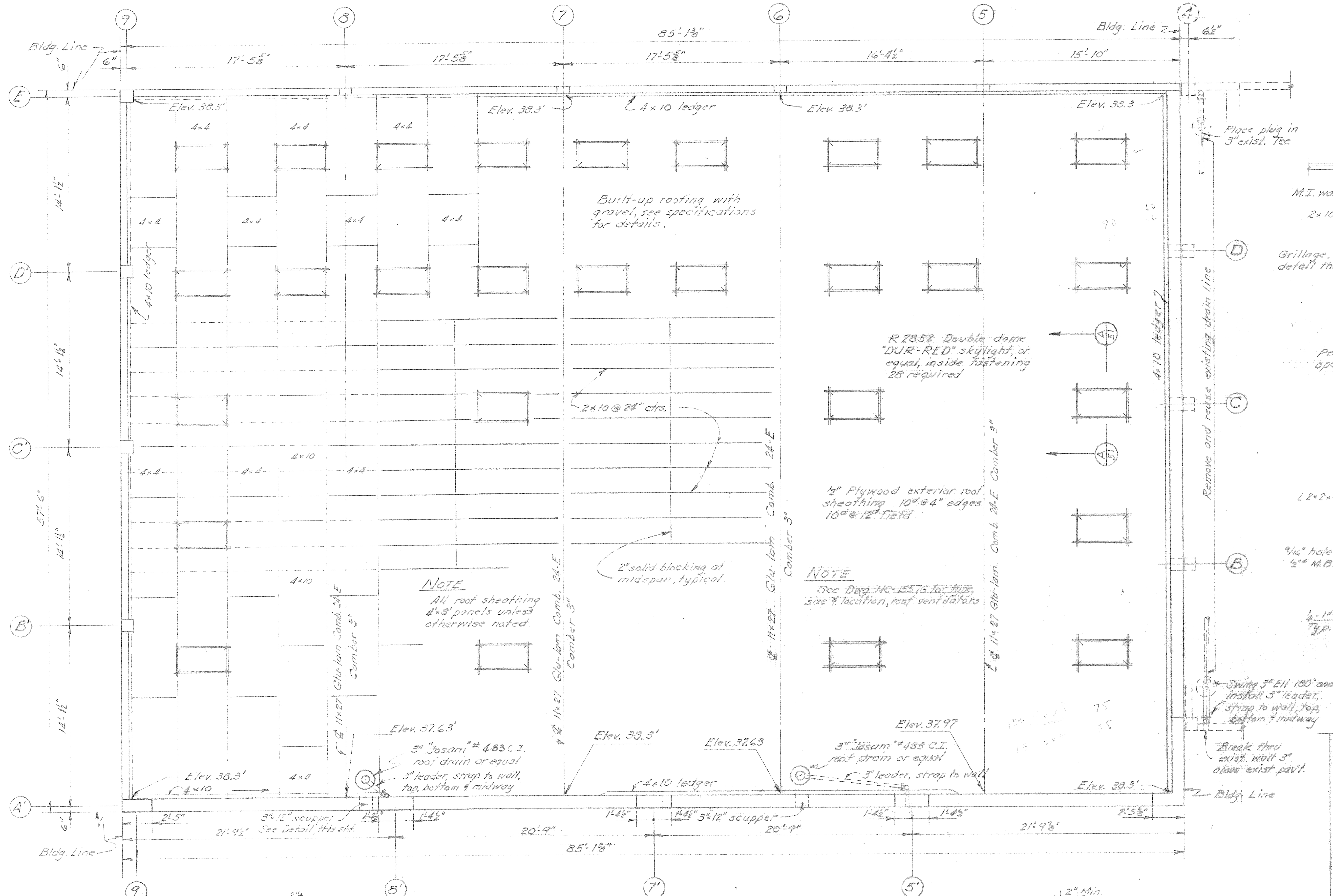
DES. A. D. R.	APP.
DWN. A. D. R.	
CHK. R. E. B.	DATE

NORTH COAST COUNTY WATER DISTRICT
SAN MATEO COUNTY CALIFORNIA

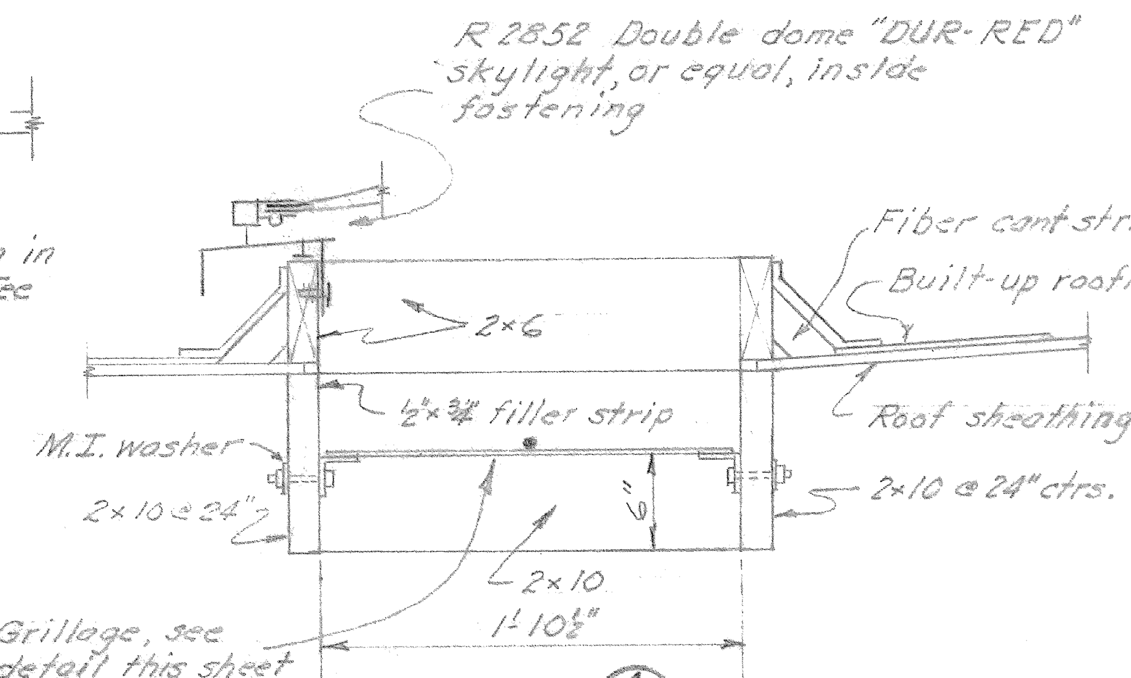
CHARLES S. McCANDLESS & COMPANY
CONSULTING ENGINEERS
1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303

CORPORATION YARD BUILDING No. 2
MEZZANINE PLAN & ELEVATION

DWG. NO. N.C. 1550 G
9 OF 18
JOB. NO. 2-1-06

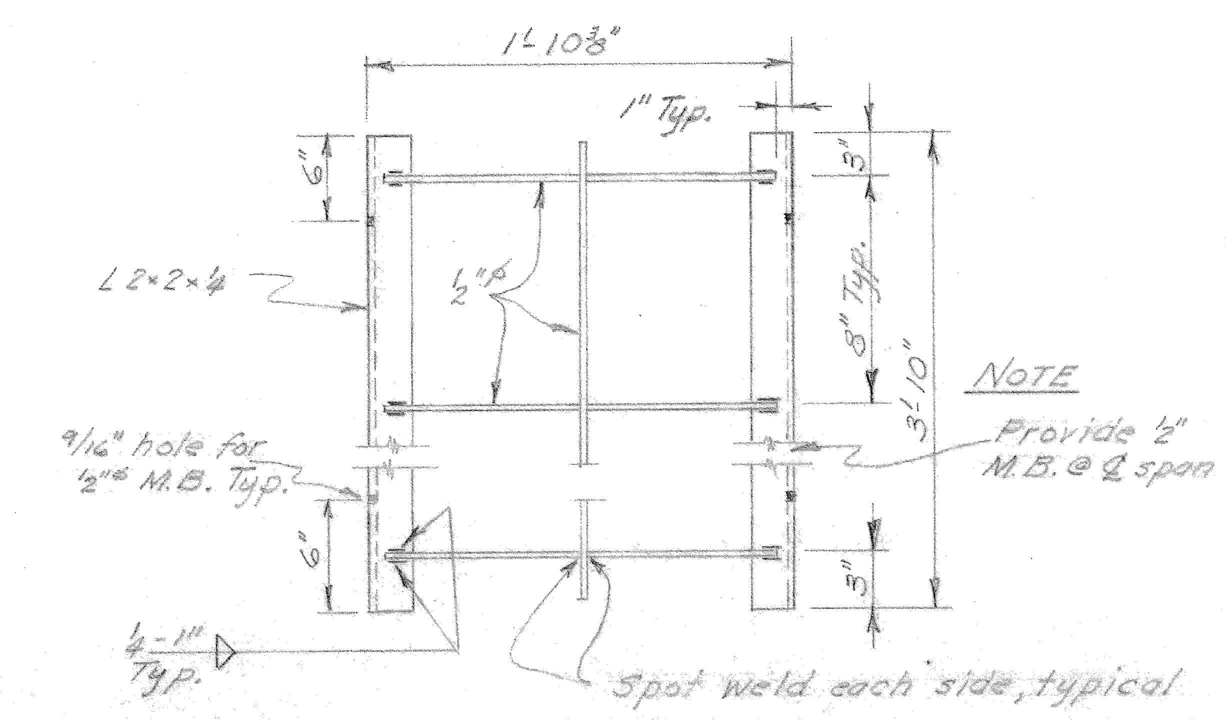


ROOF PLAN
1/4" = 1'-0"

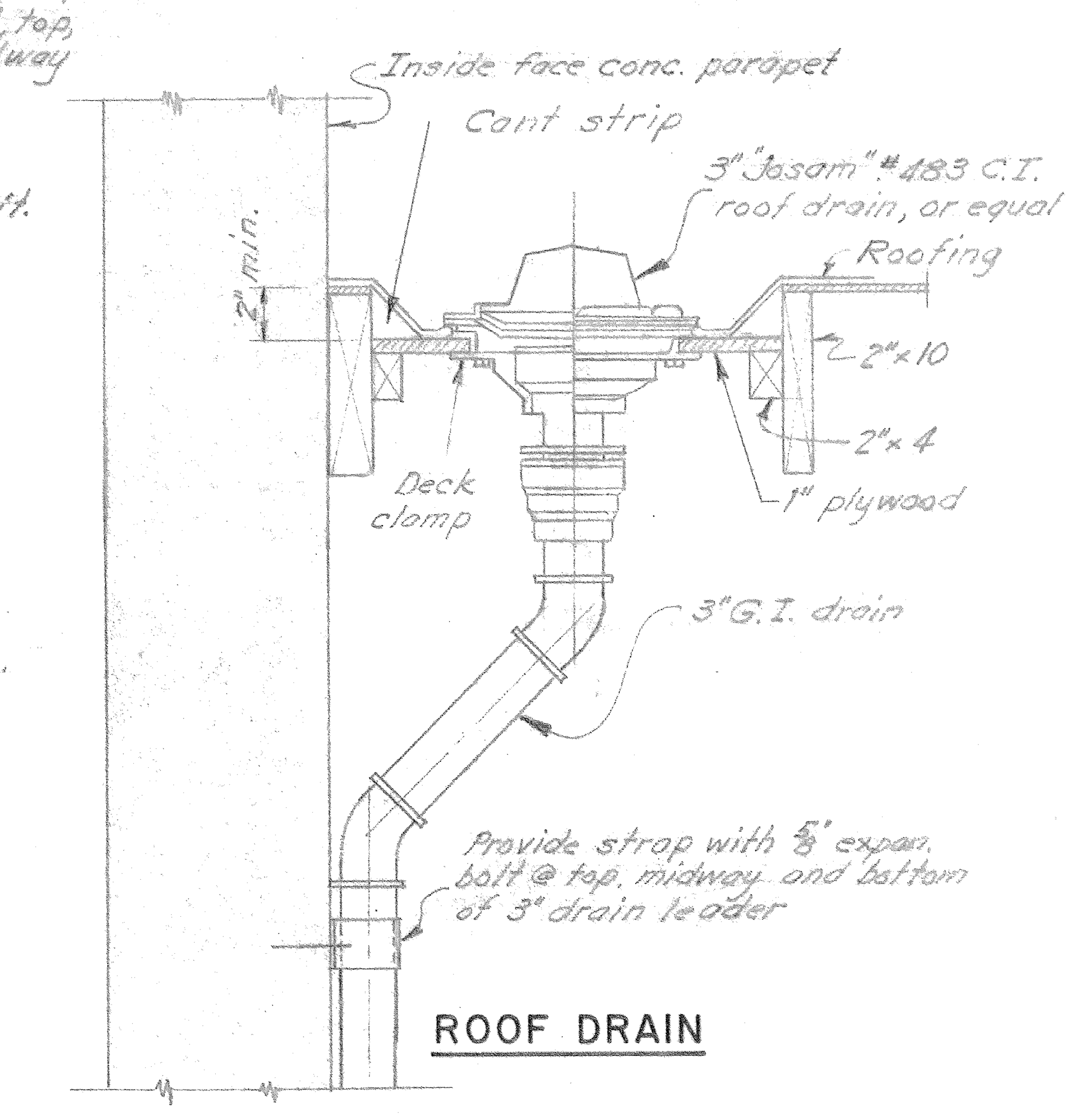


SECTION (A/51)
1 1/2" = 1'-0"

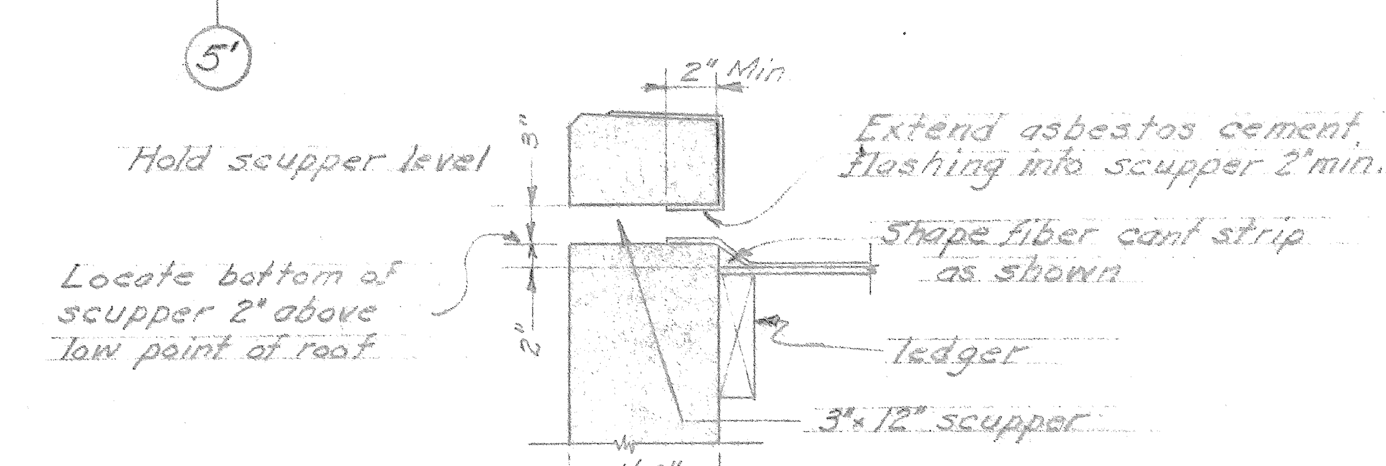
Provide 2×10 solid blocking at skylight openings.



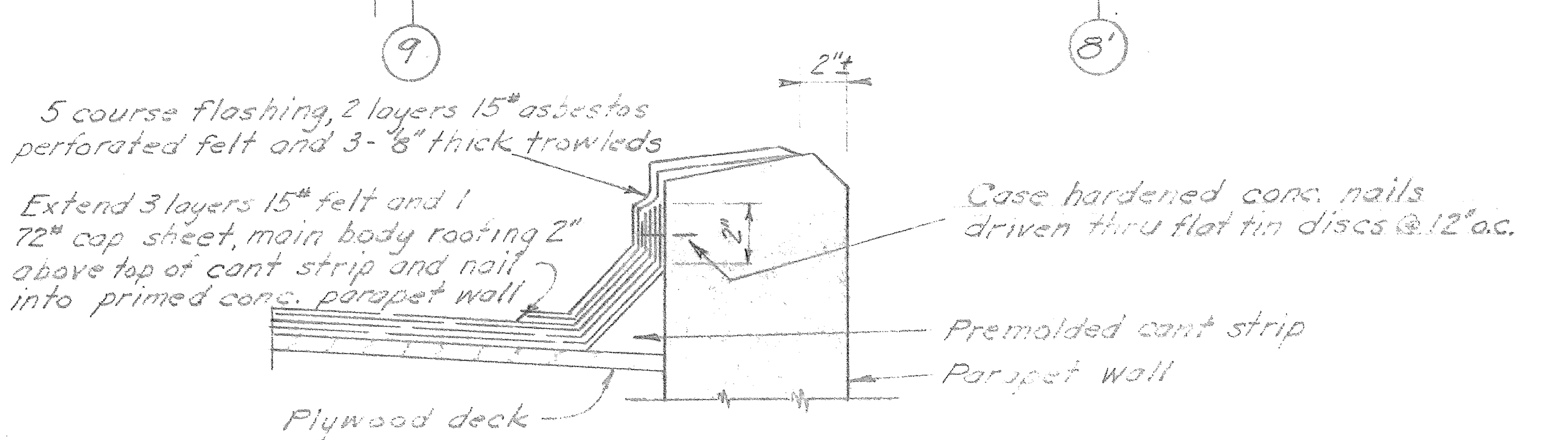
SKYLIGHT GRILLAGE
1 1/2" = 1'-0"



ROOF DRAIN



SCUPPER DETAIL
1" = 1'-0"



TYPICAL PARAPET FLASHING
3" = 1'-0"

DES. A. D. R.	APP.
DWN. A. D. R.	DATE
CHK. R. E. S.	

NORTH COAST COUNTY WATER DISTRICT
SAN MATEO COUNTY CALIFORNIA

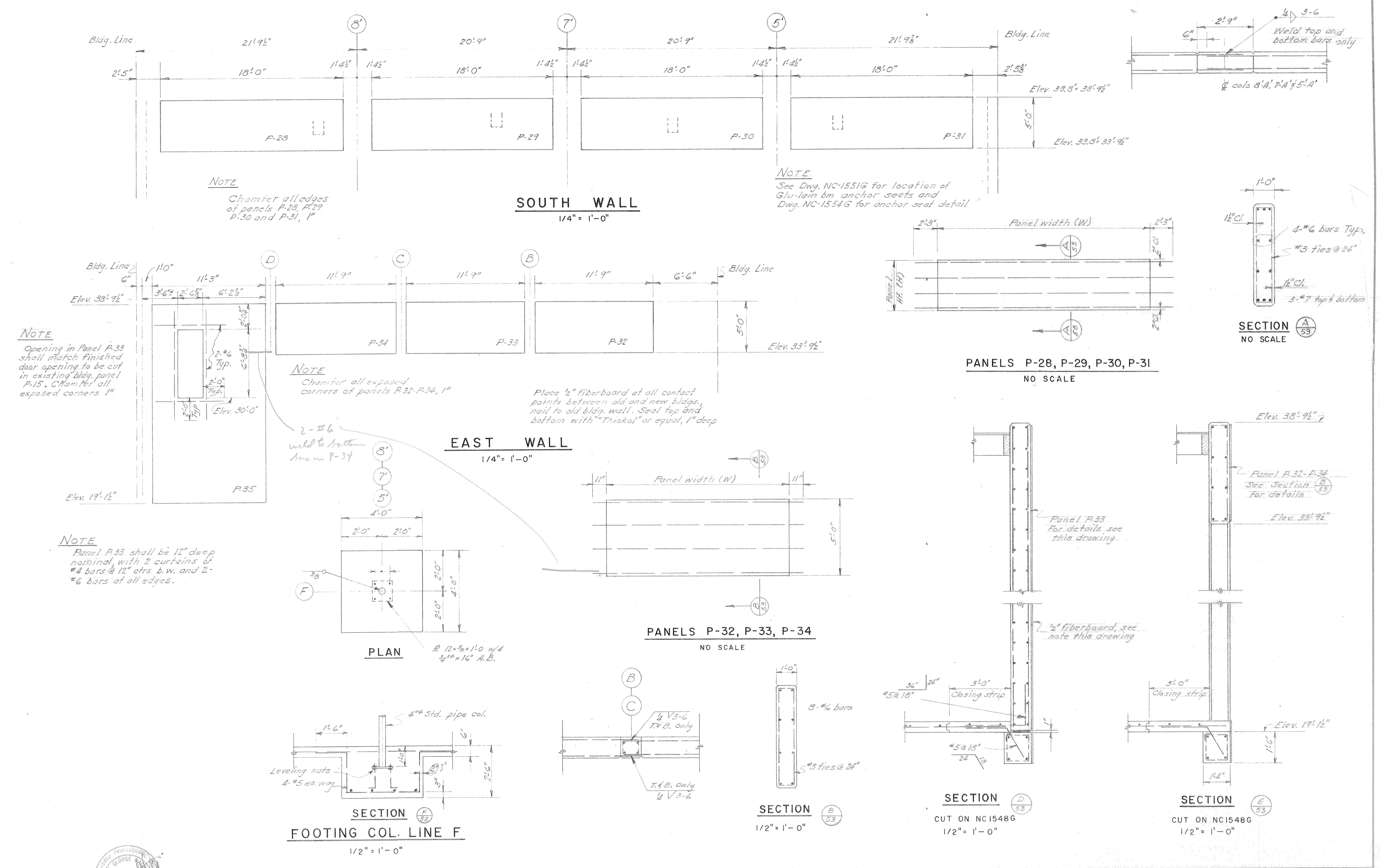
CHARLES S. McCANDLESS & COMPANY
CONSULTING ENGINEERS
1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303

CORPORATION YARD BUILDING No. 2
ROOF PLAN AND DETAILS

DWG. NO. N.C. 1551 G
10 OF 18
JOB. NO. 2-1-06

DES. A.D.R. / DWN. A.D.R. / CHK. R.E.B.	APP. / DATE 3-1-72	NORTH COAST COUNTY WATER DISTRICT SAN MATEO COUNTY CALIFORNIA	CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS 1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303	CORPORATION YARD BUILDING No. 2 PANEL DETAILS

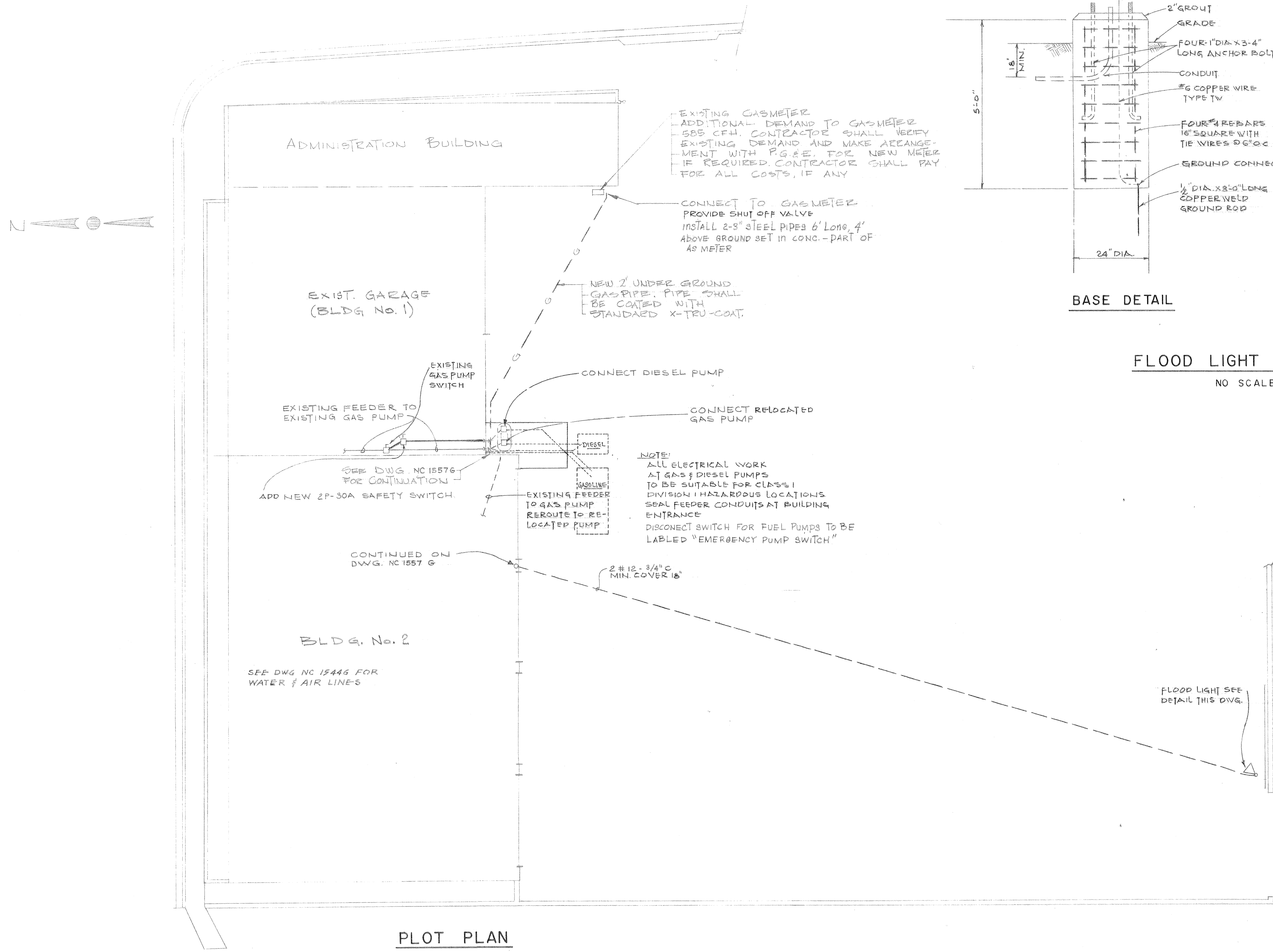
DWG. NO. N.C. 1552 G
11 OF 18
JOB. NO. 2-1-06



DES. A. D. R.	APP.	NORTH COAST COUNTY WATER DISTRICT	CHARLES S. McCANDLESS & COMPANY	CORPORATION YARD BUILDING No. 2	DWG. NO. N.C. 1553 G
DWN. A. D. R.	DATE 3-1-72	SAN MATEO COUNTY CALIFORNIA	CONSULTING ENGINEERS 1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303	PANEL DETAILS	12 OF 18
CHK. R. E. B.					JOB. NO. 2-1-06

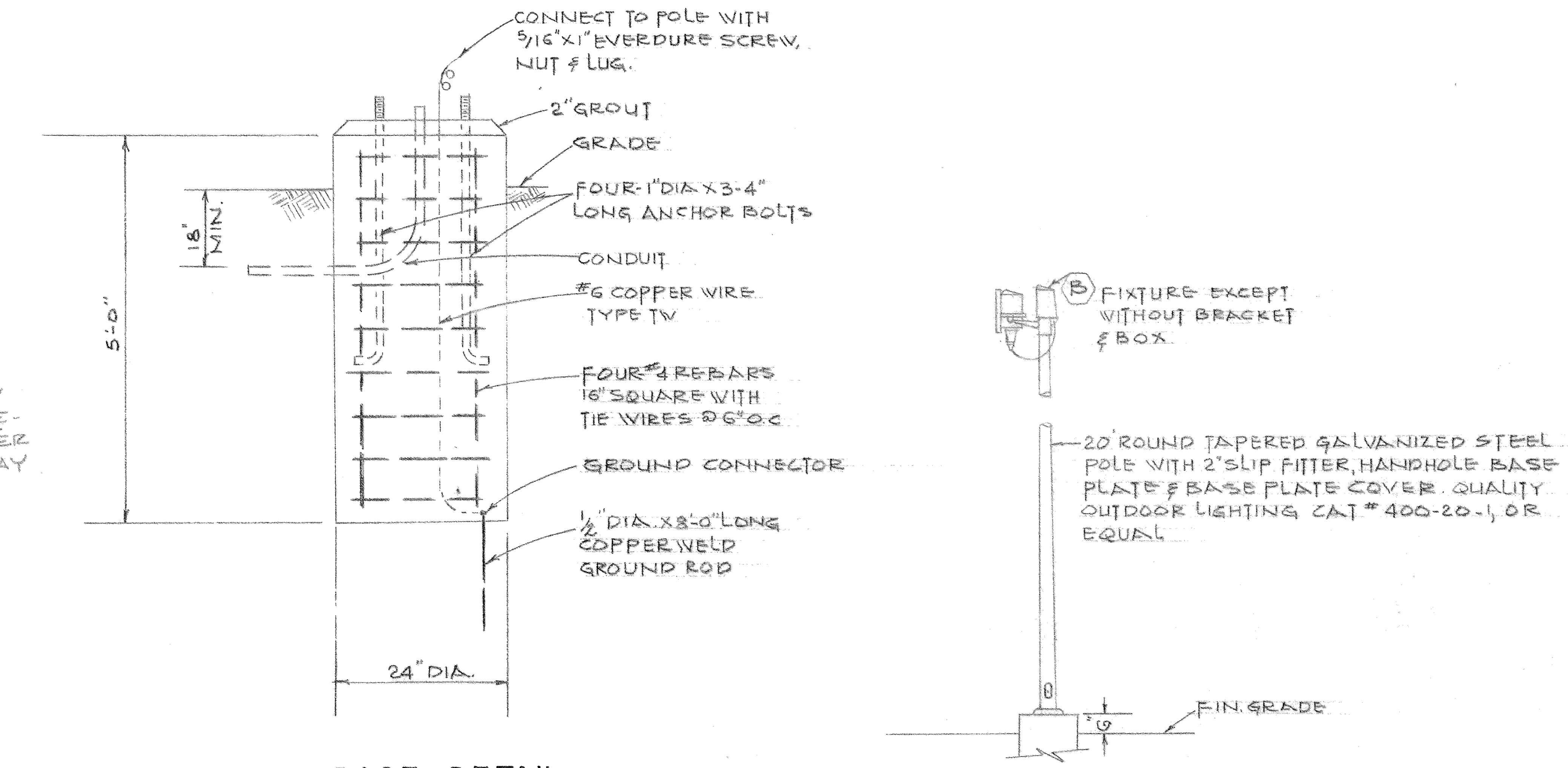
DES. A. D. R. / DWN. A. D. R. / CHK. R. E. B. / APP. / DATE 3-1-92	NORTH COAST COUNTY WATER DISTRICT SAN MATEO COUNTY CALIFORNIA	CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS 1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303	CORPORATION YARD BUILDING No. 2 WALL, STAIR, AND LEDGER DETAILS

DWG. NO. N.C. 1554G
13 OF 18
JOB. NO. 2-1-06



PLOT PLAN

1" = 10' - 0"



BASE DETAIL

POLE DETAIL

FLOOD LIGHT POLE DETAIL

NO SCALE

RICHARD M. TRAINER
ELECTRICAL & MECHANICAL ENGINEERS
624 SAN ANTONIO RD. PALO ALTO, CALIFORNIA

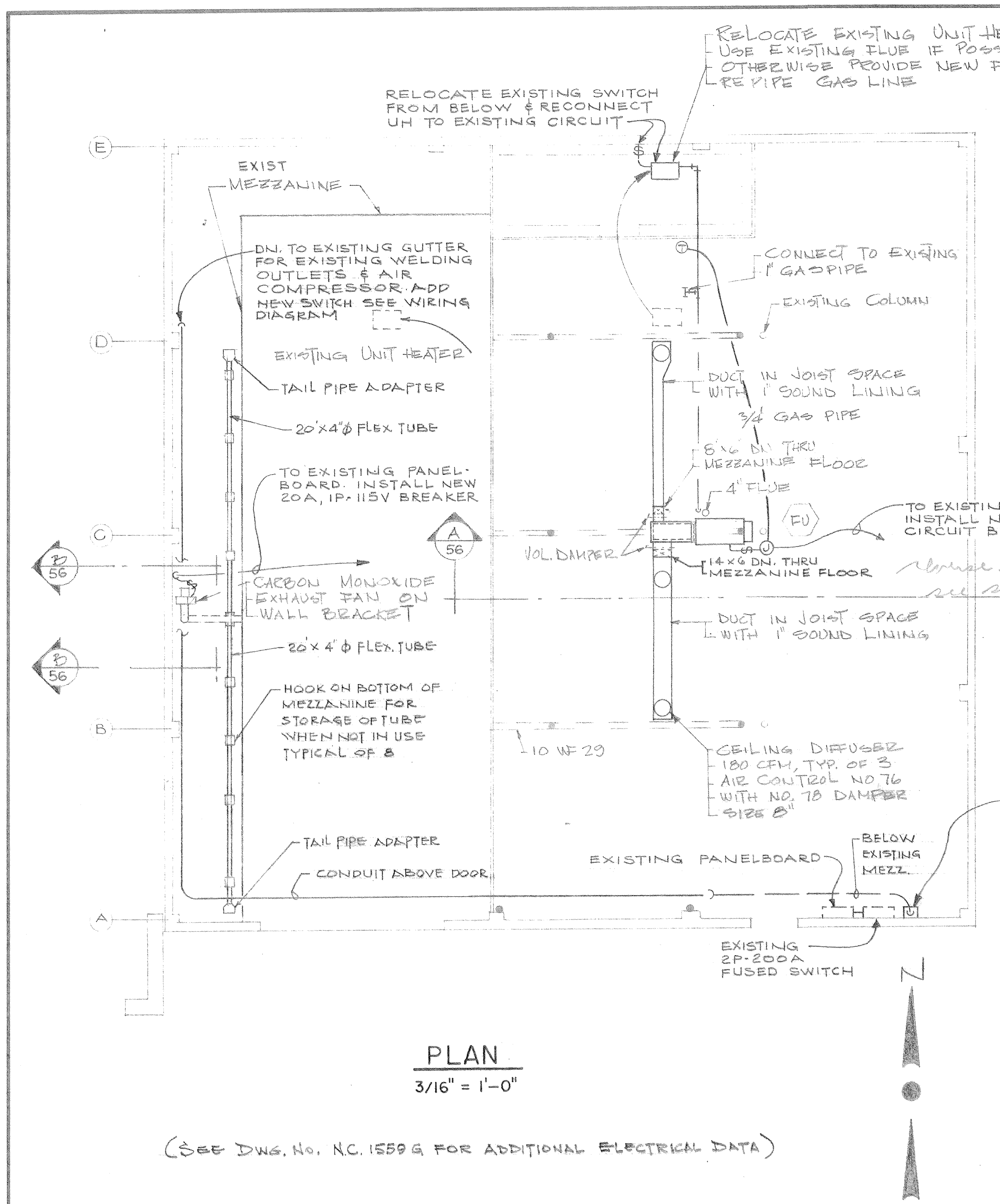
DES. ESJ & G.J.	APP.	
DWN. G.T.	DATE 3-1-72	
CHK. RMT		

NORTH COAST COUNTY WATER DISTRICT
SAN MATEO COUNTY CALIFORNIA

CHARLES S. McCANDLESS & COMPANY
CONSULTING ENGINEERS
1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303

CORPORATION YARD BUILDING No. 2
ELECTRICAL & PLUMBING - PLOT PLAN

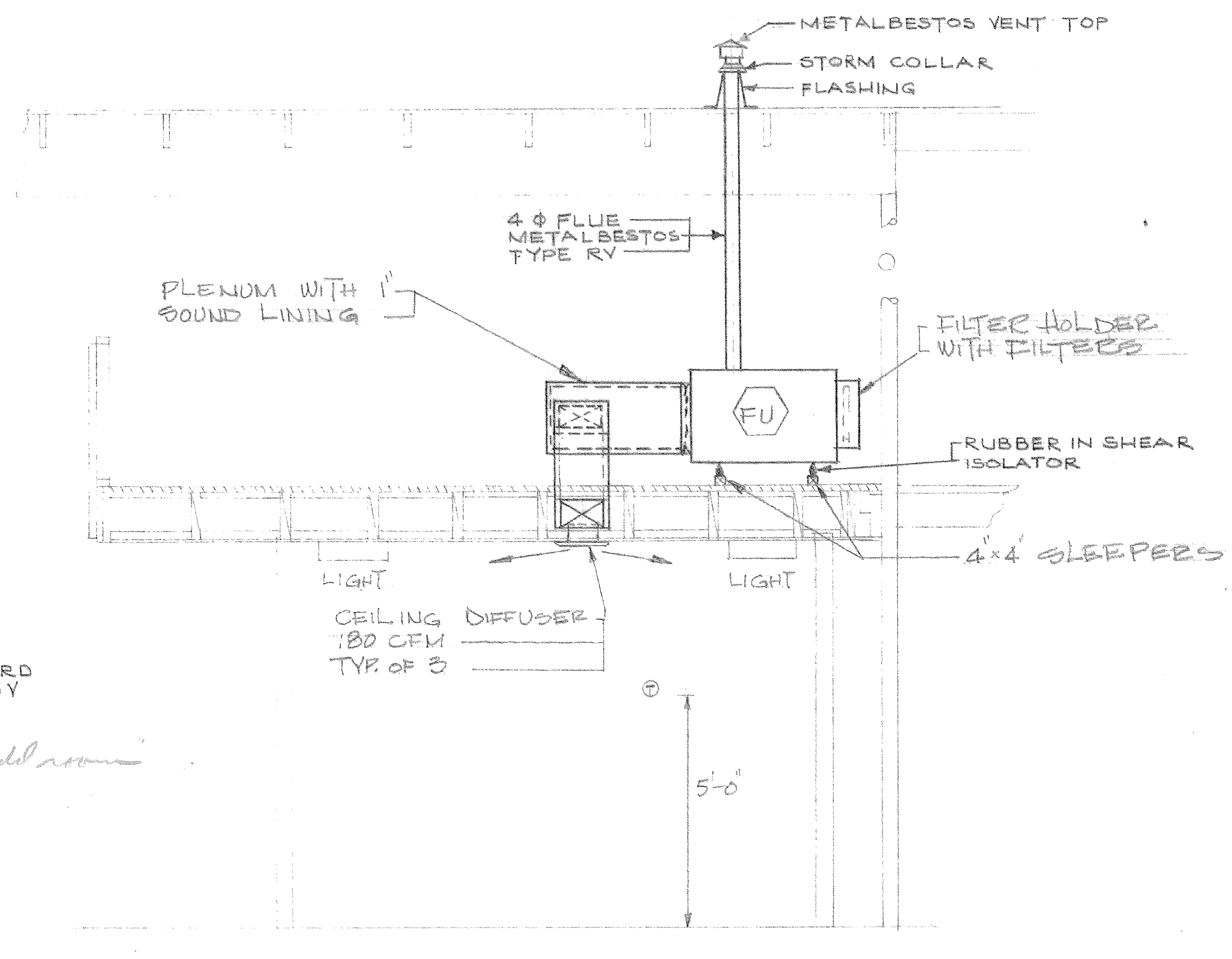
DWG. NO. N.C. 1555 G
14 OF 18
JOB. NO. 2-1-06



PLAN

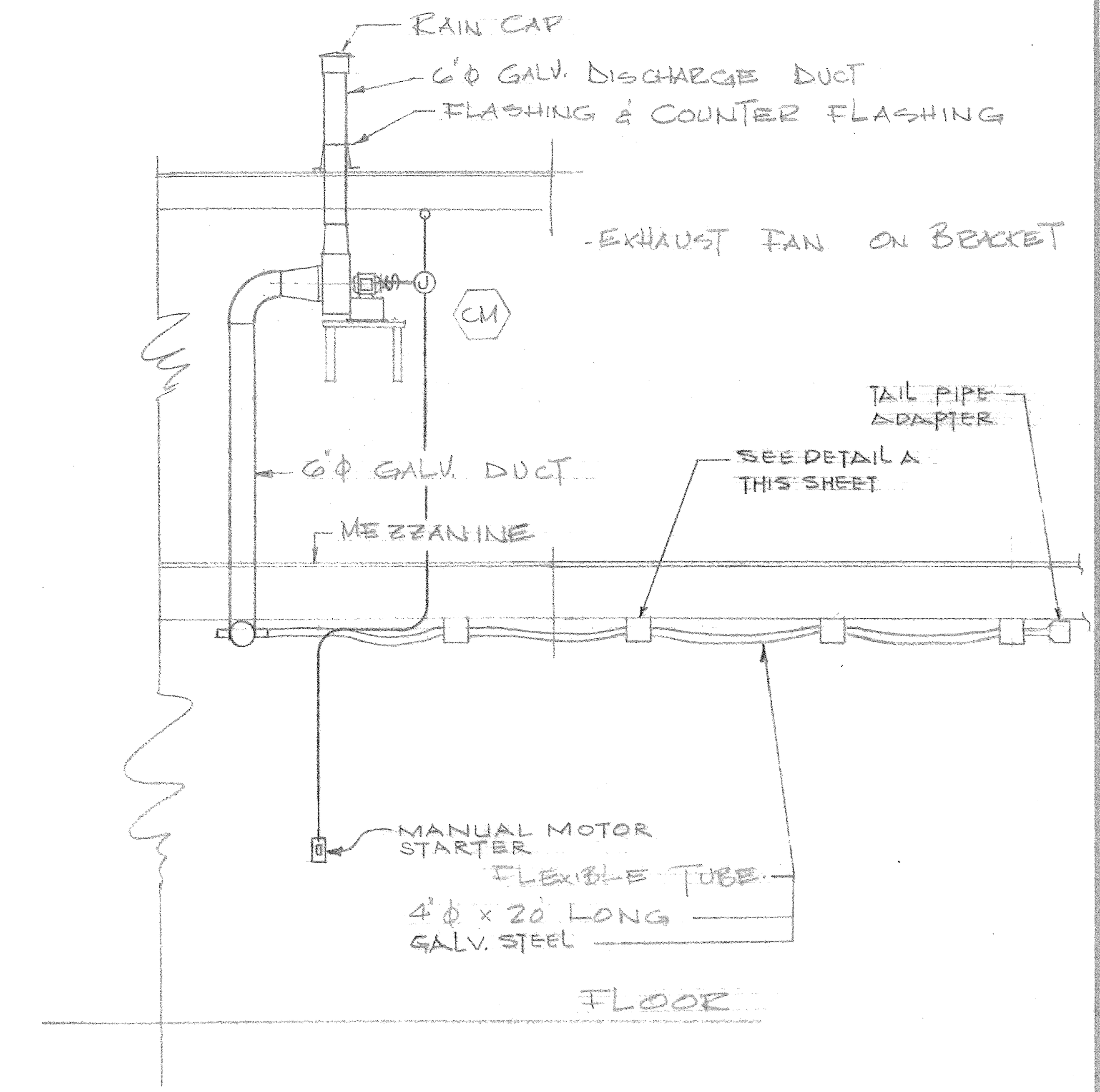
3/16" = 1'-0"

(SEE DWG. NO. N.C. 1559 G FOR ADDITIONAL ELECTRICAL DATA)



SECTION (A/56)

3/8" = 1'-0"



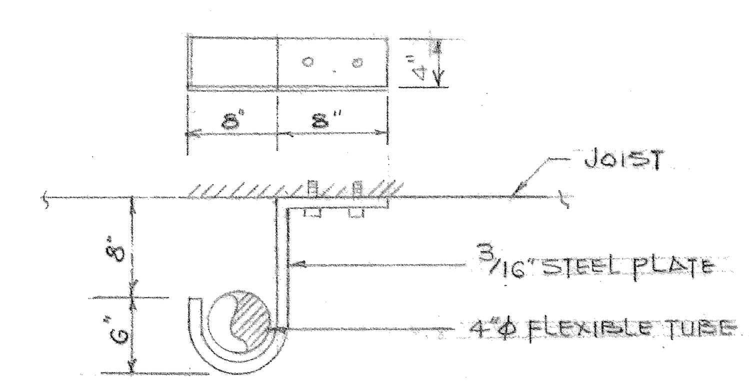
SECTION (B/56)

3/8" = 1'-0"

EQUIPMENT

(FU) HORIZONTAL FURNACE. JANITROL SERIES 37-065-A, 65,000 BTU/H INPUT AND 52,000 BTU/H OUTPUT WHEN FIRED WITH NATURAL GAS. 545 CFM @ 0.5" S.P. MOTOR: 1/4 HP, 115V, UNIT SHALL BE COMPLETE WITH FILTER HOLDER, FILTER AND THERMOSTAT.

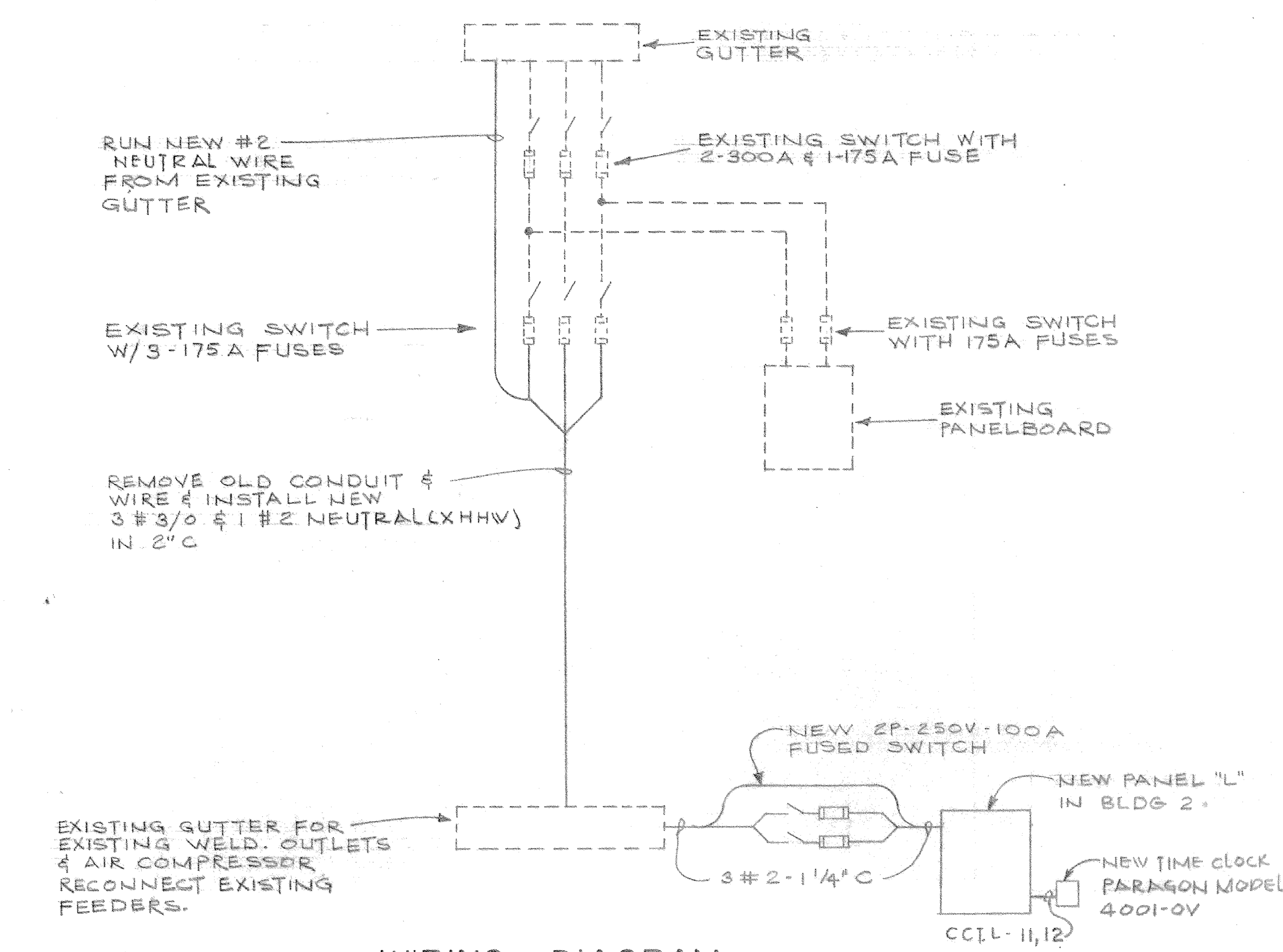
(CM) CARBON MONOXIDE EXHAUST FAN, CAR-MON MODEL NO. 7, 600 CFM @ 2.0" S.P. MOTOR: 1/2 HP, 115V, 1ϕ. FLEXIBLE TUBING & TAIL PIPE ADAPTER SHALL BE AS MANUFACTURED BY CAR-MON



DETAIL "A"

STORAGE HOOK FOR FLEX-TUBE

NO SCALE



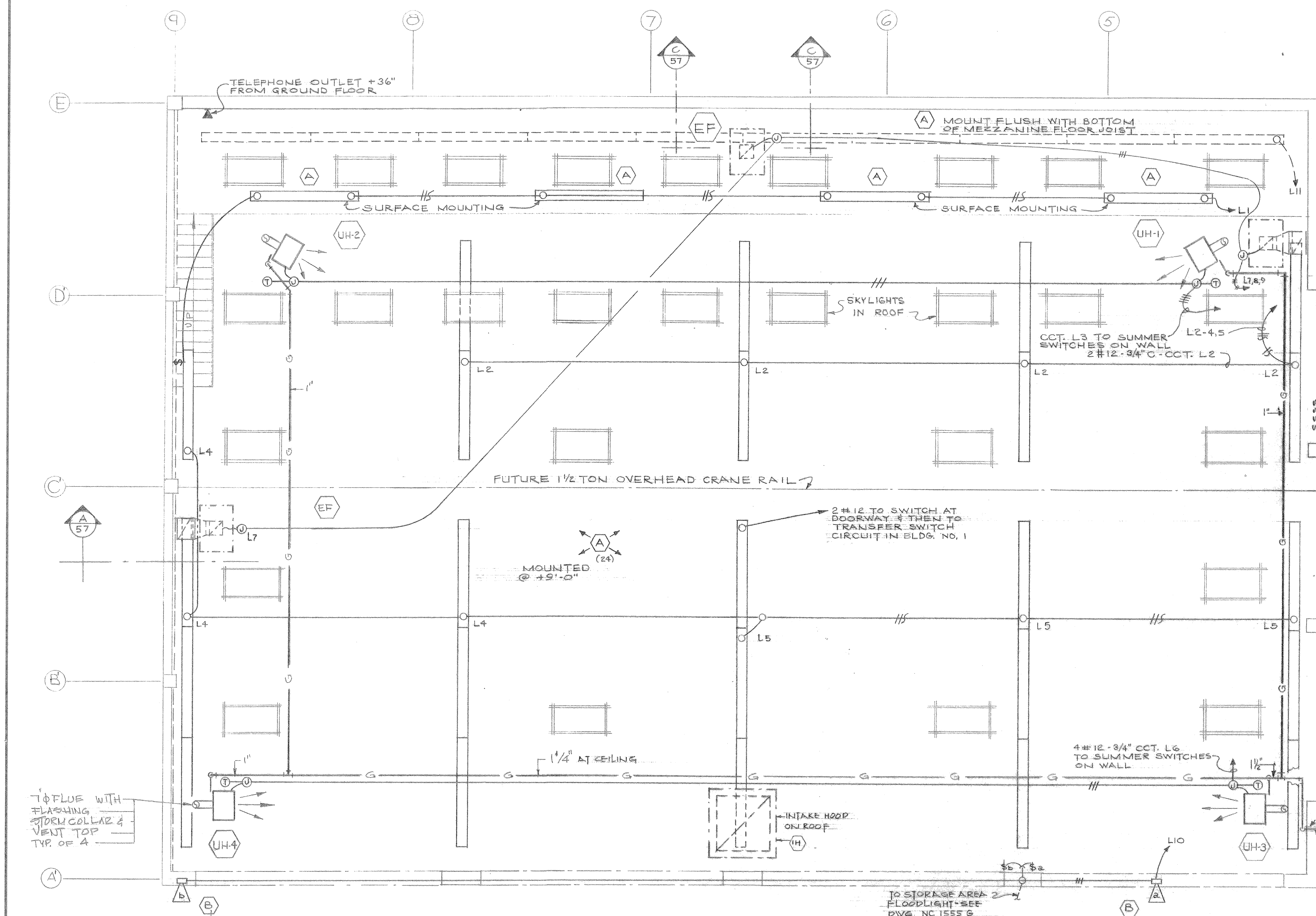
WIRING – DIAGRAM

SERVICE & DISTRIBUTION EQUIPMENT

NO SCALE

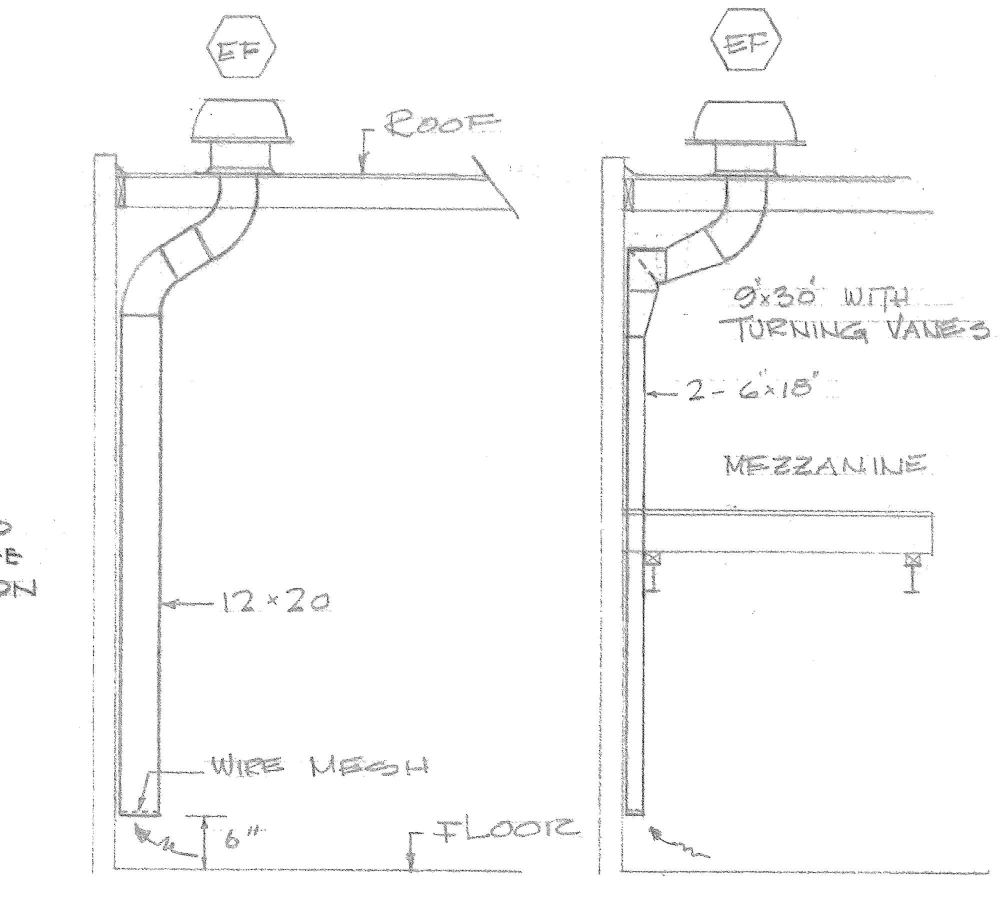
RICHARD M. TRAINER
ELECTRICAL & MECHANICAL ENGINEERS
824 SAN ANTONIO RD. PALO ALTO CALIFORNIA

DES. E.S.J.	APP.	NORTH COAST COUNTY WATER DISTRICT	CHARLES S. McCANDLESS & COMPANY	CORPORATION YARD BUILDING No. 1	DWG. NO. N.C. 1556 G
DWN. G.T.	DATE 3-1-72	SAN MATEO COUNTY CALIFORNIA	CONSULTING ENGINEERS 1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303	HEATING VENTILATING & ELECTRICAL	15 OF 18
CHK. RMT					JOB. NO. 2-1-06



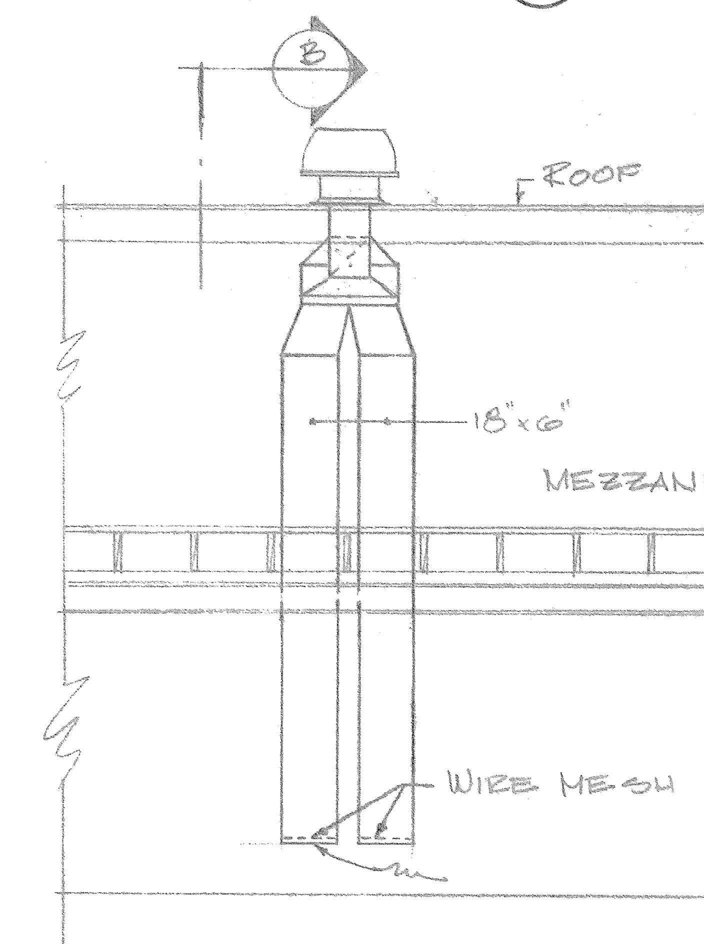
PLAN

1/4" = 1'-0"

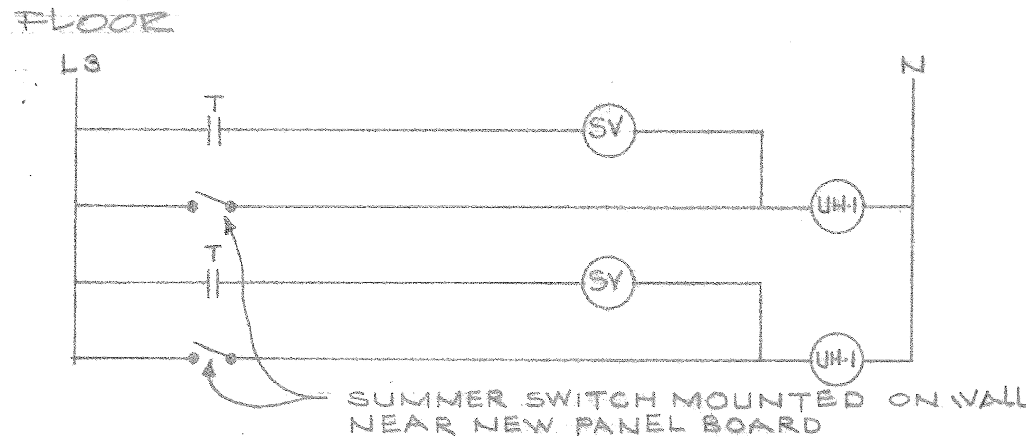


SECTION (A/57)
1/4" = 1'-0"

SECTION (B/57)
1/4" = 1'-0"



SECTION (C/57)
1/4" = 1'-0"



WIRING DIAGRAM UNIT HEATERS 1 & 2

UH 3 & 4 SIMILAR

PANEL SCHEDULE: L

BUS: 100 **AMP.** 120/240 **VOLT** 3 Φ 4 **W**

TYPE: D NQO **MAIN** BUS

CIR. NO.	BKR. AMP.	BKR. POLE	DESCRIPTION	LOAD A	LOAD B
1	20	1	MEZZANINE LIGHTS	640	
3	20	1	UNIT HEATERS		400
5	20	1	CEILING LIGHTS-SOUTH	1280	
7	20	1	EXHAUST FAN (WEST)		500
9	20	1	EXHAUST FAN (EAST)	500	
11	20	1	LIGHTS UNDER MEZZANINE		600
13			SPACE		
15			↓		
17			↓		
2	20	1	CEILING LIGHTS - NORTH	1280	
4	20	1	CEILING LIGHTS - SOUTH		120
6	20	1	UNIT HEATERS	400	
8	20	1	EXHAUST FAN - NORTH		500
10	20	1	EXTERIOR FLOODLIGHTS *	1350	
12	20	1	TIME CLOCK		
14			SPACE		
16			↓		
18			↓		

* THRU TIMECLOCK PARAGON 4001-0

FIXTURE SCHEDULE

TYPE	DESCRIPTION	LAMP
A	FLUORESCENT, PENDANT MOUNTING 8 FOOT 2-LAMP BARE TUBE WELLMADE #208-296.	2-F96T12/CW
B	MERCURY VAPOR, WALL MOUNT, FLOODLIGHT WIDE LIGHT CAT. #F-401-CWRB-B WITH WB-1 BRACKET AND WB-5 BOX.	H400DD

EQUIPMENT

(UH) UNIT HEATER. JANITROL SERIES 68. MODEL #68-130-7 AN 40-A, 130,000 BTU/H INPUT AND 104,000 BTU/H OUTPUT WHEN FIRED WITH NATURAL GAS. 1750 CFM. MOTOR: 1/15 HP 115V, 1Ø. 7" FLUE, METALBESTOS TYPE RV WITH FLASHING, STORM COLLAR AND VENT CAP. PROVIDE LINE VOLTAGE THERMOSTAT AND SUMMER SWITCH.

(EF) EXHAUST FAN. EXIT AIRE TYPE SFG. SIZE 15, SELF-FLASHING CURB & BIRDSCREEN & GRAVITY DAMPER 1800 CFM @ 1/8" S.P. MOTOR: 1/6 HP, 115V, 1Ø WITH DISCONNECT SWITCH.

GAS PIPING. BLACK STEEL WITH X-TRU-COAT FOR UNDERGROUND PIPING

DUCTWORK, GALVANIZED SHEET METAL IN ACCORDANCE WITH LATEST EDITION OF ASHRAE.

(IH) INTAKE HOOD, EXIT AIRE TYPE SFG SIZE 48 WITH SELF FLASHING CURB, BIRDSCREEN.

RICHARD M. TRAINER
ELECTRICAL & MECHANICAL ENGINEERS
824 SAN ANTONIO RD. PALO ALTO, CALIFORNIA

DES. G.J. E.S.J.	APP.		
DWN. G.T			
CHK. Rang	DATE	3-1-72	

NORTH COAST COUNTY WATER DISTRICT
SAN MATEO COUNTY CALIFORNIA

CHARLES S. McCANDLESS & COMPANY
CONSULTING ENGINEERS
1000 ELWELL COURT PALO ALTO, CALIFORNIA 94303

CORPORATION YARD BUILDING No. 2
HEATING VENTILATING & ELECTRICAL

NORTH COAST COUNTY WATER DISTRICT
SAN MATEO COUNTY CALIFORNIA

CHARLES S. McCANDLESS & COMPANY
CONSULTING ENGINEERS
1000 ELWELL COURT, PALO ALTO, CALIFORNIA

CORPORATION YARD BUILDING No. 1

MEZZANINE FRAMING AND DETAILS

DESIGN BY	PJR
DRAWN BY	PJR
DRWG DATE	6/17/63
CHECK BY	REB
JOB NO.	2-1-06
SHEET NO.	17 OF 18
FILE NO.	N.C. 1558 G

Revised 2-9-72 ADR

NORTH COAST COUNTY WATER DISTRICT
SAN MATEO COUNTY CALIFORNIA

CHARLES S. McCANDLESS & COMPANY
CONSULTING ENGINEERS
1000 ELWELL COURT, PALO ALTO, CALIFORNIA

CORPORATION YARD
BUILDING No. 1

MEZZANINE DETAILS AND ELECTRICAL PLAN

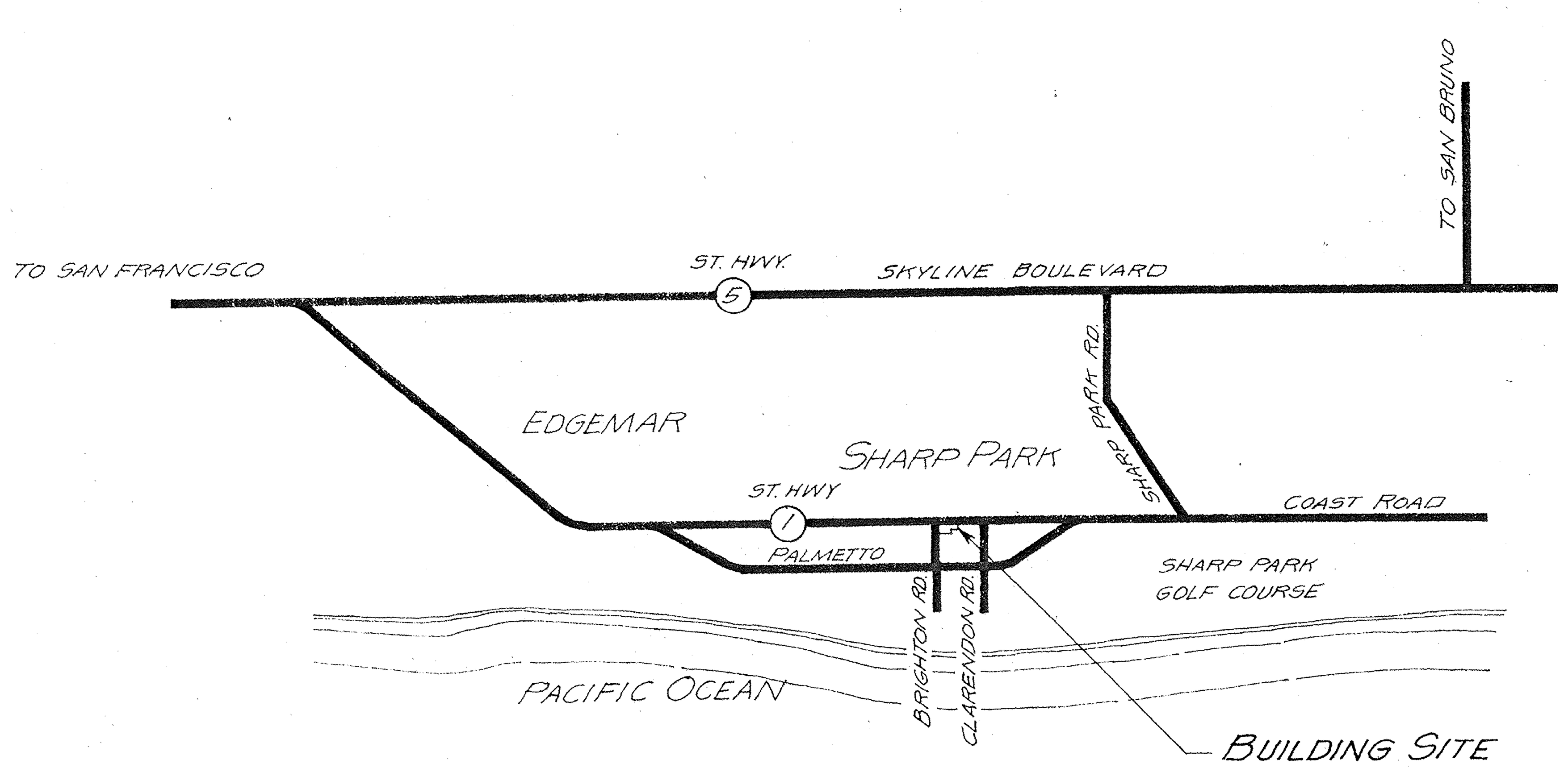
DESIGN BY	PJR
DRAWN BY	PJR
DWG DATE	3/4/63
CHECK BY	REB
JOB NO.	2-1-06
SHEET NO.	18 OF 18
FILE NO.	N.C.1559 G

MAINTENANCE BUILDING, CORPORATION YARD, ADMINISTRATIVE FACILITIES

NORTH COAST COUNTY WATER DISTRICT

SAN MATEO COUNTY, CALIFORNIA

Pod III



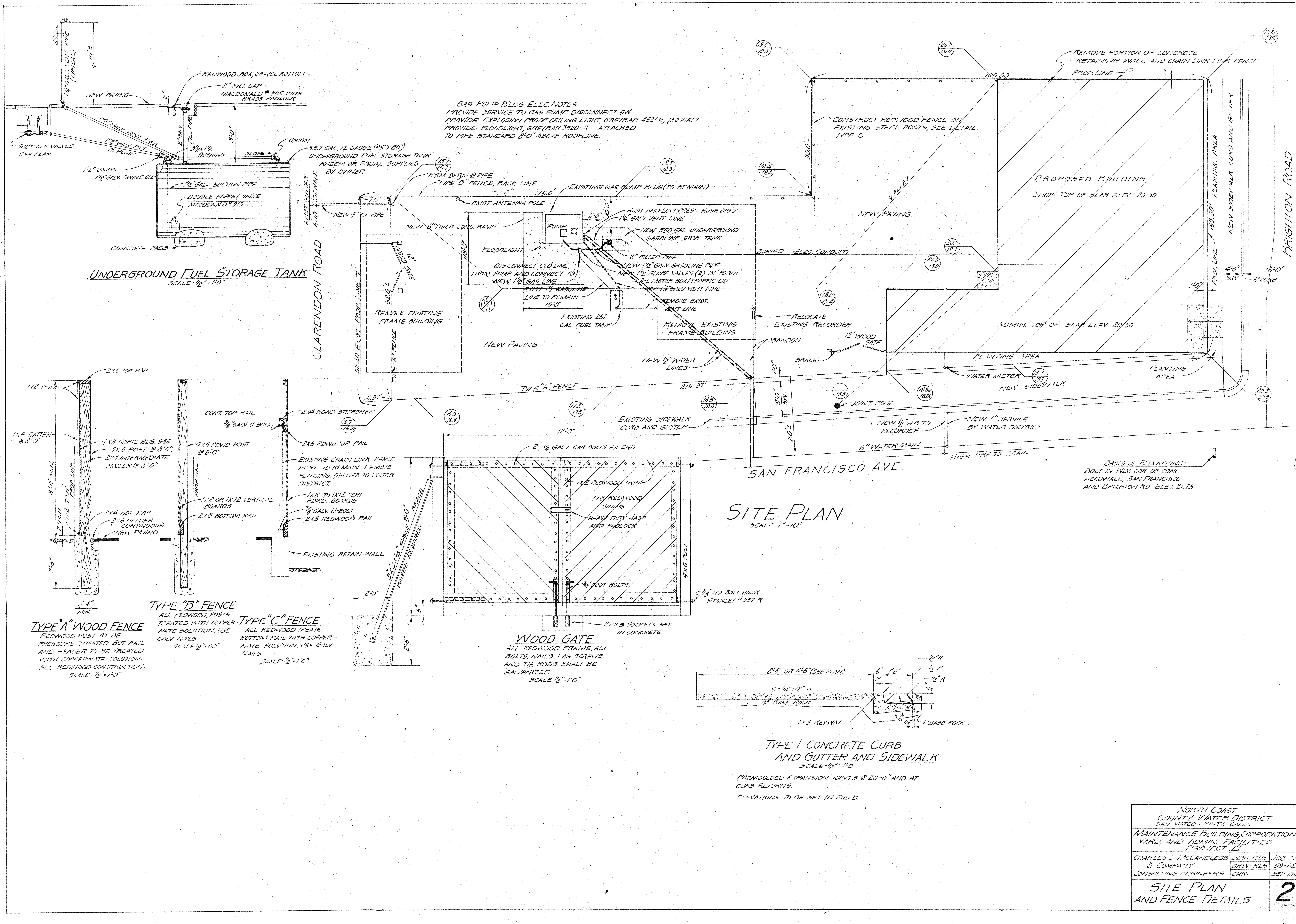
LOCATION MAP
NO SCALE

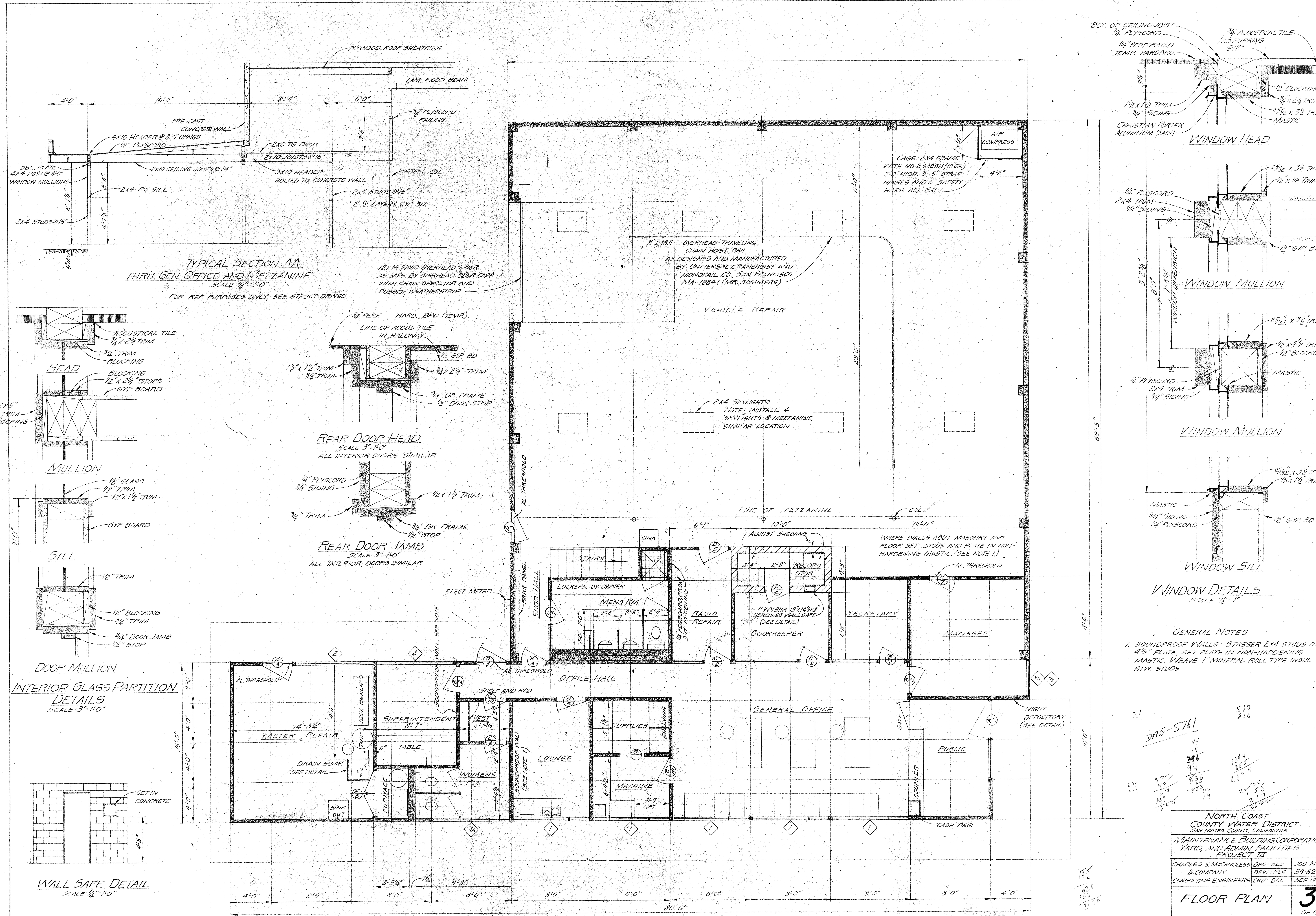
Official File Copy
DO NOT REMOVE FROM WATER DISTRICT OFFICE

INDEX

APPROVED FOR CONSTRUCTION
OCTOBER 16, 1961

REGISTERED PROFESSIONAL ENGINEER
CHARLES S. MCCANDLESS
No. 7154
CIVIL
STATE OF CALIFORNIA


UNDERGROUND FUEL STORAGE TANK
SCALE: 1/2" = 1'-0"
REDWOOD BOX, GRAVEL BOTTOM
2" FILL CAP
MACDONALD #905 WITH BRASS PADLOCK
NEW PAVING
1 1/4" GALV VENT PIPE (TYPICAL)
1 1/4" GALV VENT PIPE
1 1/2" GALV PIPE TO PUMP
SHUT OFF VALVES, SEE PLAN
1 1/2" UNION
1 1/2" GALV. SWING ELL
3 1/2 x 1 1/2 BUSHING
SLOPE
UNION
550 GAL. 12 GAUGE (45" x 80") UNDERGROUND FUEL STORAGE TANK RHEEM OR EQUAL, SUPPLIED BY OWNER
1 1/2" GALV. SUCTION PIPE
DOUBLE POPPET VALVE MACDONALD #913
CONCRETE PADS
GAS PUMP BLDG ELEC. NOTES
PROVIDE SERVICE TO GAS PUMP DISCONNECT SW.
PROVIDE EXPLOSION PROOF CEILING LIGHT, GREYBAR 4521 S, 150 WATT
PROVIDE FLOODLIGHT, GREYBAR 3520-A ATTACHED TO PIPE STANDARD 8'-0" ABOVE ROOFLINE.
CLARENDON ROAD
EXIST. GUTTER AND SIDEWALK
NEW 4" CI PIPE
FORM BERM @ PIPE
TYPE "B" FENCE, BACK LINE
EXISTING GAS PUMP BLDG (TO REMAIN)
EXIST. ANTENNA POLE
NEW 6" THICK CONC. RAMP
FLOODLIGHT
PUMP
HIGH AND LOW PRESS. HOSE BIBS
1 1/4" GALV. VENT LINE
NEW 550 GAL. UNDERGROUND GASOLINE STOR. TANK
2" FILLER PIPE
NEW 1 1/2" GALV GASOLINE PIPE
NEW 1 1/2" GLOBE VALVES (2) IN "FORNI" P.G.&E. METER BOX/TRAFFIC LID
NEW 1 1/4" GALV. VENT LINE
REMOVE EXIST. VENT LINE
DISCONNECT OLD LINE FROM PUMP AND CONNECT TO NEW 1 1/2" GAS LINE
EXIST 1 1/2" GASOLINE LINE TO REMAIN
EXISTING 267 GAL. FUEL TANK
12' WOOD GATE
REMOVE EXISTING FRAME BUILDING
TYPE "A" FENCE
EXIST. PROP. LINE
NEW PAVING
REMOVE EXISTING FRAME BUILDING
BURIED ELEC. CONDUIT
VALLEY
NEW PAVING
CONSTRUCT REDWOOD FENCE ON EXISTING STEEL POSTS, SEE DETAIL TYPE C
REMOVE PORTION OF CONCRETE RETAINING WALL AND CHAIN LINK LINK FENCE
PROP. LINE
PROPOSED BUILDING
SHOP TOP OF SLAB ELEV. 20.30
ADMIN. TOP OF SLAB ELEV. 20.80
PLANTING AREA
NEW SIDEWALK, CURB AND GUTTER
BRIGHTON ROAD
PROP. LINE
S.W.
6" CURB
RELOCATE EXISTING RECORDER
ABANDON
12' WOOD GATE
BRACE
NEW 1/2" WATER LINES
PLANTING AREA
WATER METER
NEW SIDEWALK
PLANTING AREA
JOINT POLE
TYPE "A" FENCE
215.37'
115.0'
100.00'
168.50'
EXISTING SIDEWALK CURB AND GUTTER
NEW 1/2" H.P. TO RECORDER
NEW 1" SERVICE BY WATER DISTRICT
6" WATER MAIN
HIGH PRESS. MAIN
SAN FRANCISCO AVE.
BASIS OF ELEVATIONS:
BOLT IN WLY. COR. OF CONC. HEADWALL, SAN FRANCISCO AND BRIGHTON RD. ELEV. 21.26
SITE PLAN
SCALE 1" = 10'
2x6 TOP RAIL
1x2 TRIM
1x4 BATTEN @ 8'-0"
1x8 HORIZ. BDS. S4S
4x6 POST @ 8'-0"
2x4 INTERMEDIATE NAILER @ 8'-0"
PROP. LINE
2x4 BOT. RAIL
2x6 HEADER CONTINUOUS
NEW PAVING
TYPE "A" WOOD FENCE
REDWOOD POST TO BE PRESSURE TREATED. BOT. RAIL AND HEADER TO BE TREATED WITH COPPERNATE SOLUTION. ALL REDWOOD CONSTRUCTION.
SCALE: 1/2" = 1'-0"
4x4 RDWD. POST @ 6'-0"
1x8 OR 1x12 VERTICAL BOARDS
2x8 BOTTOM RAIL
TYPE "B" FENCE
ALL REDWOOD, POSTS TREATED WITH COPPERNATE SOLUTION. USE GALV. NAILS
SCALE 1/2" = 1'-0"
CONT. TOP RAIL
3/8" GALV. U-BOLT
2x4 RDWD STIFFENER
2x6 RDWD TOP RAIL
EXISTING CHAIN LINK FENCE POST TO REMAIN. REMOVE FENCING, DELIVER TO WATER DISTRICT.
1x8 TO 1x12 VERT. RDWD. BOARDS
3/8" GALV. U-BOLT
2x6 REDWOOD RAIL
EXISTING RETAIN. WALL
TYPE "C" FENCE
ALL REDWOOD, TREATE BOTTOM RAIL WITH COPPERNATE SOLUTION. USE GALV NAILS
SCALE: 1/2" = 1'-0"
12'-0"
2-1/4 GALV. CAR. BOLTS EA. END
1x2 REDWOOD TRIM
1x8 REDWOOD SIDING
HEAVY DUTY HASP AND PADLOCK
3/4" FOOT BOLTS
7/8" x 10 BOLT HOOK STANLEY #952 R
4x6 POST
3"x3"x1/4" ANGLE 8'-0" BRACE WHERE REQUIRED
1" PIPE SOCKETS SET IN CONCRETE
WOOD GATE
ALL REDWOOD FRAME, ALL BOLTS, NAILS, LAG SCREWS AND TIE RODS SHALL BE GALVANIZED.
SCALE 1/2" = 1'-0"
8'-6" OR 4'-6" (SEE PLAN)
S = 1/4" - 12"
4" BASE ROCK
1x3 KEYWAY
4" BASE ROCK
TYPE I CONCRETE CURB AND GUTTER AND SIDEWALK
SCALE: 1/2" = 1'-0"
PREMOULDED EXPANSION JOINTS @ 20'-0" AND AT CURB RETURNS.
ELEVATIONS TO BE SET IN FIELD.
NORTH COAST COUNTY WATER DISTRICT
SAN MATEO COUNTY, CALIF.
MAINTENANCE BUILDING, CORPORATION YARD, AND ADMIN. FACILITIES PROJECT III
CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS
DES: KLS
DRW: KLS
CHK:
JOB NO 59-628
SEP 1961
SITE PLAN AND FENCE DETAILS
2


TYPICAL SECTION AA
THRU GEN. OFFICE AND MEZZANINE
SCALE 1/4" = 1'-0"
FOR REF. PURPOSES ONLY, SEE STRUCT. DRWGS.
PLYWOOD ROOF SHEATHING
LAM. WOOD BEAM
PRE-CAST CONCRETE WALL
4x10 HEADER @ 8'-0" OPNGS.
1/2" PLYSCORD
2x6 TG DECK
2x10 JOISTS @ 16"
3/8" PLYSCORD RAILING
DBL. PLATE
4x4 POST @ 8'-0"
WINDOW MULLIONS
2x10 CEILING JOISTS @ 24"
3x10 HEADER BOLTED TO CONCRETE WALL
STEEL COL.
2x4 STUDS @ 16"
2-1/2" LAYERS GYP. BD.
2x4 RO. SILL
2x4 STUDS @ 16"
12x14 WOOD OVERHEAD DOOR AS MFG. BY OVERHEAD DOOR CORP. WITH CHAIN OPERATOR AND RUBBER WEATHERSTRIP
8" I 18.4 OVERHEAD TRAVELING CHAIN HOIST RAIL AS DESIGNED AND MANUFACTURED BY UNIVERSAL CRANEHOIST AND MONORAIL CO., SAN FRANCISCO. MA-18841 (MR. SOMMERS)
CAGE: 2x4 FRAME WITH NO. 2 MESH (13GA.) 7'-0" HIGH. 3-6" STRAP HINGES AND 6" SAFETY HASP. ALL GALV.
AIR COMPRESS.
VEHICLE REPAIR
2x4 SKYLIGHTS NOTE: INSTALL 4 SKYLIGHTS @ MEZZANINE, SIMILAR LOCATION
LINE OF MEZZANINE
COL.
AL. THRESHOLD
WHERE WALLS ABUT MASONRY AND FLOOR SET STUDS AND PLATE IN NON-HARDENING MASTIC. (SEE NOTE 1.)
ADJUST. SHELVING
RECORD STOR.
#INV911A 13"x14"x8" HERCULES WALL SAFE (SEE DETAIL)
BOOKKEEPER
SECRETARY
MANAGER
STAIRS
SINK
LOCKERS, BY OWNER
MENS RM.
RADIO REPAIR
SHOP HALL
BRKR. PANEL
ELECT. METER
OFFICE HALL
SOUNDPROOF WALL, SEE NOTE
SHELF AND ROD
METER REPAIR
TEST BENCH
SUPERINTENDENT
TABLE
VEST
DRAIN SUMP. SEE DETAIL
FURNACE
SINK OUT
WOMENS RM.
SOUNDPROOF WALL (SEE NOTE 1)
LOUNGE
SUPPLIES
SHELVING
MACHINE
GENERAL OFFICE
GATE
NIGHT DEPOSITORY (SEE DETAIL)
PUBLIC
COUNTER
CASH REG.
80'-0"
69'-5"
REAR DOOR HEAD
SCALE 3" = 1'-0"
ALL INTERIOR DOORS SIMILAR
1/4" PERF. HARD. BRD. (TEMP.)
LINE OF ACOUS. TILE IN HALLWAY
1/2" GYP. BD.
3/4 x 2 1/4" TRIM
3/4" DR. FRAME
1/2" DOOR STOP
REAR DOOR JAMB
SCALE 3" = 1'-0"
ALL INTERIOR DOORS SIMILAR
1/4" PLYSCORD
3/4" SIDING
1/2 x 1 1/2" TRIM.
3/4" TRIM
3/4" DR. FRAME
1/2" STOP
HEAD
ACOUSTICAL TILE
3/4 x 2 1/4 TRIM
3/4" TRIM
BLOCKING
1/2" x 2 1/4" STOPS
GYP BOARD
3/4"x5" TRIM BLOCKING
MULLION
1/4" GLASS
1/2" TRIM
1/2" x 1 1/2" TRIM
SILL
1/2" TRIM
1/2" BLOCKING
3/4" TRIM
3/4" DOOR JAMB
1/2" STOP
DOOR MULLION
INTERIOR GLASS PARTITION DETAILS
SCALE 3" = 1'-0"
SET IN CONCRETE
WALL SAFE DETAIL
SCALE 1/4" = 1'-0"
BOT. OF CEILING JOIST
1/4" PLYSCORD
1/4" PERFORATED TEMP. HARDBRD.
3/4" ACOUSTICAL TILE
1x3 FURRING @ 12"
1/2" BLOCKING
3/4 x 2 1/4 TRIM
25/32 x 3 1/2 TRIM
MASTIC
1 1/2 x 1 1/2 TRIM
3/4" SIDING
CHRISTIAN PORTER ALUMINUM SASH
WINDOW HEAD
25/32 x 3 1/2 TRIM
1/2 x 1/2 TRIM
1/4" PLYSCORD
2x4 TRIM
3/4" SIDING
1/2" GYP. BD.
WINDOW DIMENSION
WINDOW MULLION
1/2 x 4 1/2 TRIM
1/2" BLOCKING
MASTIC
WINDOW MULLION
WINDOW SILL
WINDOW DETAILS
SCALE 1 1/2" = 1'
GENERAL NOTES
1. SOUNDPROOF WALLS: STAGGER 2x4 STUDS ON 4 1/2" PLATE, SET PLATE IN NON-HARDENING MASTIC. WEAVE 1" MINERAL ROLL TYPE INSUL. BTW. STUDS
NORTH COAST COUNTY WATER DISTRICT
SAN MATEO COUNTY, CALIFORNIA
MAINTENANCE BUILDING, CORPORATION YARD, AND ADMIN. FACILITIES
PROJECT III
CHARLES S. McCANDLESS & COMPANY
CONSULTING ENGINEERS
DES KLS
DRW KLS
CHD DCL
JOB NO. 59-62B
SEP 1961
FLOOR PLAN
3
OF 13

NORTH COAST COUNTY WATER DISTRICT

MAINTENANCE BUILDING, CORPORATION YARD, AND ADMINISTRATION FACILITIES PROJECT III

CHARLES S. MCCANDLESS & COMPANY CONSULTING ENGINEERS	DES: KLS	JOB NO
	DRW: KLS	59-628
	CHK:	SEP 1961

ARCHITECTURAL ELEVATIONS

4 OF 13

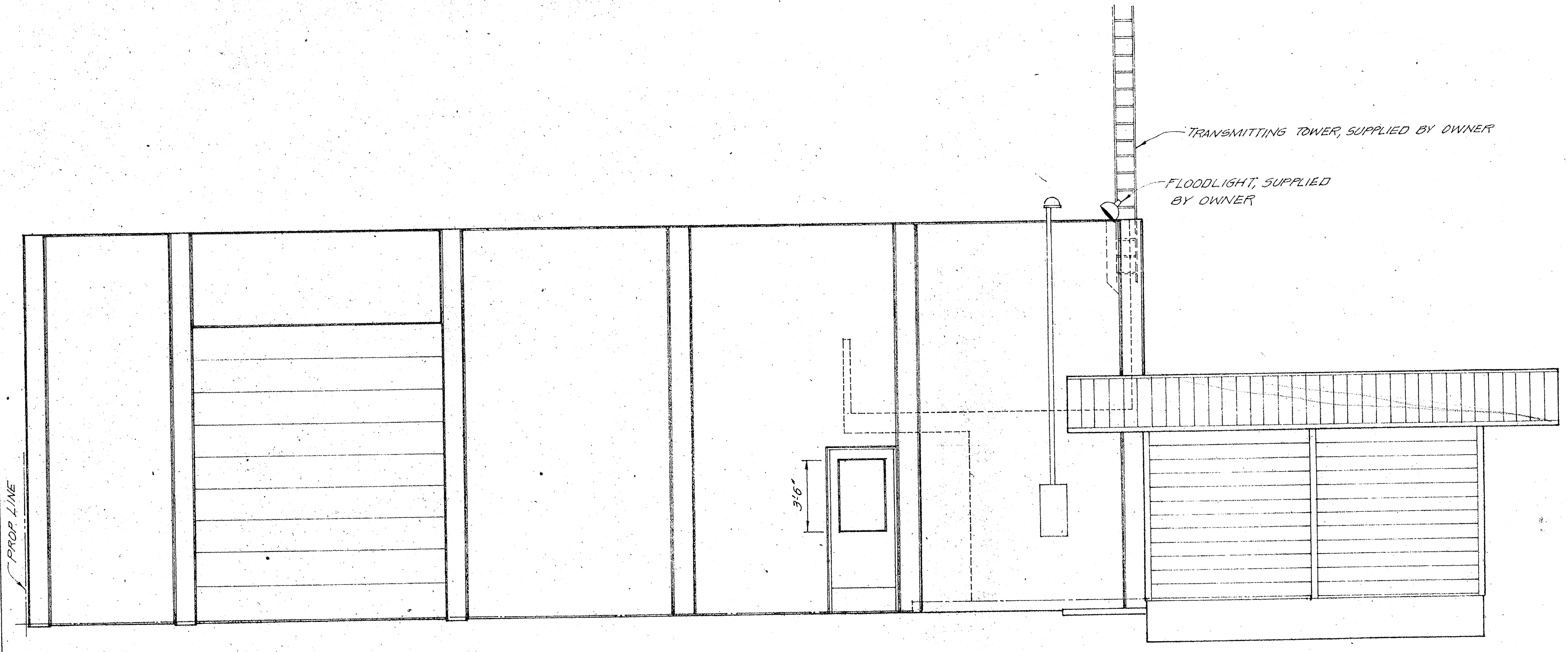
DOOR SCHEDULE

NO.	W.	HT.	TH.	DESCRIPTION	NOTES
A.	3'-6"	7'-0"	1¾"	ACME AL. DOOR, WITH FIXED TRANSOM AND SIDELIGHT	SEE SPECIFICATIONS
B.	3'-0"	7'-8¾	1⅜"	MASONITE, HOLLOW CORE	VERIFY HT.
C.	2'-6"	7'-8¾	1⅜"	MASONITE, HOLLOW CORE	ATTACH FORMICA ENGRAVED SIGNS: "MEN" WOMEN.
D.	3'-0"	7'-8¾	1¾"	MASONITE, SOLID CORE	SINGLE LITE, POLISHED WIRE GLASS, 2'-4" X 3'-6".
E.	DBL 2'-4	6'-8"	1⅜"	D. FIR, HOLLOW CORE	
F.	2'-4"	7'-0"		PYRODOR WITH METAL JAMBS	SEE SPECIFICATIONS
G.				NO DOOR	TRIMMED OPNG ONLY.
H.	2'-6"	7'-8¾"	1¾"	MASONITE, SOLID CORE.	

DOOR HARDWARE SCHEDULE

NO.	LOCKSET	BUTTS	LOCATION	KEYING
1	BY DR MFG. PROVIDE THUMBLATCH	BY DOOR MFG.	ENTRANCE DOOR, SEE SPECS.	ALL LOCKS TO BE MASTER KEYED. FR. ENTRY, BACK HALL ENTRY AND SHOP HALL KEYED SAME. REPAIR SHOP AND METER REPAIR KEYED SAME. ALL LOCKS SHALL HAVE SIMILAR COMPATABLE KEYWAYS.
2	SCHLAGE D73PD PLY 4	HAGER 1½ PR. BB-1184-B 4x4	INNER OFFICE DOORS.	
3	" D51PD PLY 4	" 2 PR. BB-1184-B 4x4	BACK ENTRY, INCL. SHOP HALL DOOR	
4	" D80PD PLY 4	" 1½ PR. BB-1191-B 4½x4½	METAL FIRE DOOR	
5	" D73PD PLY 4	" 1½ PR. BB-1184-B 4x4	RADIO REPAIR RM. DOOR	
6	" D73PD PLY 4	" 1½ PR. BB-1184-B 3½x3½	REST ROOM DOORS	
7	" D30D PLY 4	" 1½ PR. BB-1184-B 3½x3½	MGR-SHOP PASS DOOR	
8	" D80PD PLY 4	" 3 PR BB-1184-B 3½x3½	BOILER ROOM DOOR	
9	" D40S PLY 4	" 1½ PR. BB-1184-B 4x4	LOUNGE DOOR	
10	" D10S PLY 4	" 1½ PR BB-1184-B 3½x3½	MACHINE ROOM DOOR	

1. AUTOMATIC DOOR CLOSERS SHALL BE INSTALLED ON MENS RM. DR., WOMENS RM. DR., SHOP HALL DR. AND OFFICE HALL REAR ENTRY. DOOR CLOSERS SHALL BE LCN, 8-REG. FOR INT. DOORS, LCN E-REG. FOR EXT. DR.
2. REAR EXTERIOR DOORS SHALL HAVE STD. AL. KICKPLATES.



SOUTH ELEVATION
SCALE: ¼" = 1'-0"

ROOM FINISH SCHEDULE (NUMBERS REFER TO FINISHES LISTED IN SPECIFICATIONS)

ROOM	FINISHED FLOOR MATERIAL	FIN.	BASE MATERIAL	FIN	WALLS MATERIAL	FIN.	CEILING MATERIAL	FIN.	DOOR FIN.	DOOR TRIM MATERIAL	FIN.	WINDOW TRIM MATERIAL	FIN.	CASEWORK ITEM	FIN.	
LOBBY	ASPHALT TILE		V.G. FIR	10	1X8 REDWOOD SIDING	3	ACOUSTIC TILE	0	0	REDWOOD	3	REDWOOD	3	COUNTER AND GATE, V.G. FIR	3 11	
GENERAL OFFICE	ASPHALT TILE		V.G. FIR	10	½" GYP BOARD	7	ACOUSTIC TILE	0		V.G. FIR	10	V.G. FIR	10			
MGRS OFFICE	ASPHALT TILE		V.G. FIR	10	½" GYP. BOARD	7	ACOUSTIC TILE	0	9	V.G. FIR	10	V.G. FIR	10			
SECRETARY	ASPHALT TILE		V.G. FIR	10	½" GYP. BD.	7	ACOUSTIC TILE	0	9	V.G. FIR	10	V.G. FIR	10			
BOOK KEEPER	ASPHALT TILE		V.G. FIR	10	½ GYP. BD.	7	ACOUSTIC TILE	0	9	V.G. FIR	10	V.G. FIR	10			
RECORD VAULT	ASPHALT TILE		TOP SET	0	CONCRETE BLOCK	0	CONCRETE	0	9	STEEL JAMBS, NO TRIM.	9	NONE				
MACHINE RM.	ASPHALT TILE		V.G. FIR	10	½" GYP. BD.	7	ACOUSTIC TILE	0	9	V.G. FIR	10	V.G. FIR	10	SINK CABINET V.G. FIR	11	
SUPPLY RM.	ASPHALT TILE		V.G. FIR	10	½ GYP. BD.	7	½" GYP BD.	7		V.G FIR	10	NONE				
RADIO REPAIR	CONCRETE	0	D. FIR	10	½" GYP BD.	7	ACOUSTIC TILE	0	9	V.G. FIR	10	V.G. FIR	10			
MENS TOILET	CONCRETE	0	TOP SET	0	½ GYP BD.	8	½" GYP BD.	8	9	PINE	9	NONE				
HALL (OFFICE)	ASPHALT TILE		V.G. FIR	10	½" GYP. BD.	7	ACOUSTIC TILE	0	9	V.G. FIR	10	NONE				
LOUNGE	ASPHALT TILE		V.G. FIR	10	½" GYP BD	7	ACOUSTIC TILE	0	9	V.G. FIR	10	V.G. FIR.	10	SINK CABINET V.G. FIR	11	
WOMENS TOILET	CONCRETE	0	TOP SET	0	½" GYP BD.	8	½" GYP BD.	8	9	PINE	9	V.G. FIR	10			
SUPER-INTENDENT	ASPHALT TILE		V.G. FIR	10	½" GYP BD.	7	ACOUSTIC TILE	0	9	V.G. FIR	10	V.G. FIR	10	FIR DESK AND PLAN TABLE	11	
BOILER RM.	CONCRETE	0	NONE		2 LAYERS ½" GYP BD.	0	1" GYP. BD.	0	9	FIR	0	NONE				
METER REPAIR	CONCRETE	0	TOP SET	0	⅜" FIR PLYWOOD	5	½" GYP BD.	7	9	PINE	9	V.G. FIR	5			
REPAIR SHOP	CONCRETE	0	NONE		CONCRETE, 1" GYP. BD.	0	NONE, ½" GYP BD. ON MEZZ. SOFFIT.	0 7	9	NONE		NONE				
MEZZANINE	2x6 TG DECK	0	NONE		CONCRETE	0	NONE	0		NONE		NONE				MEZZANINE SOFFIT SHALL HAVE ½" GYP BOARD CEILING. FIN. 7
HALL (SHOP)	CONCRETE	0	TOP SET		CONCRETE 1" GYP BOARD	0 7	½" GYP BOARD	7	9	PINE	9	NONE				
VESTIBULE (WOMEN)	ASPHALT TILE		V.G. FIR	10	½" GYP BOARD	7	½" GYP BOARD	7	9	V.G. FIR	10	NONE		SHELF AND ROD	11	

WINDOW SCHEDULE

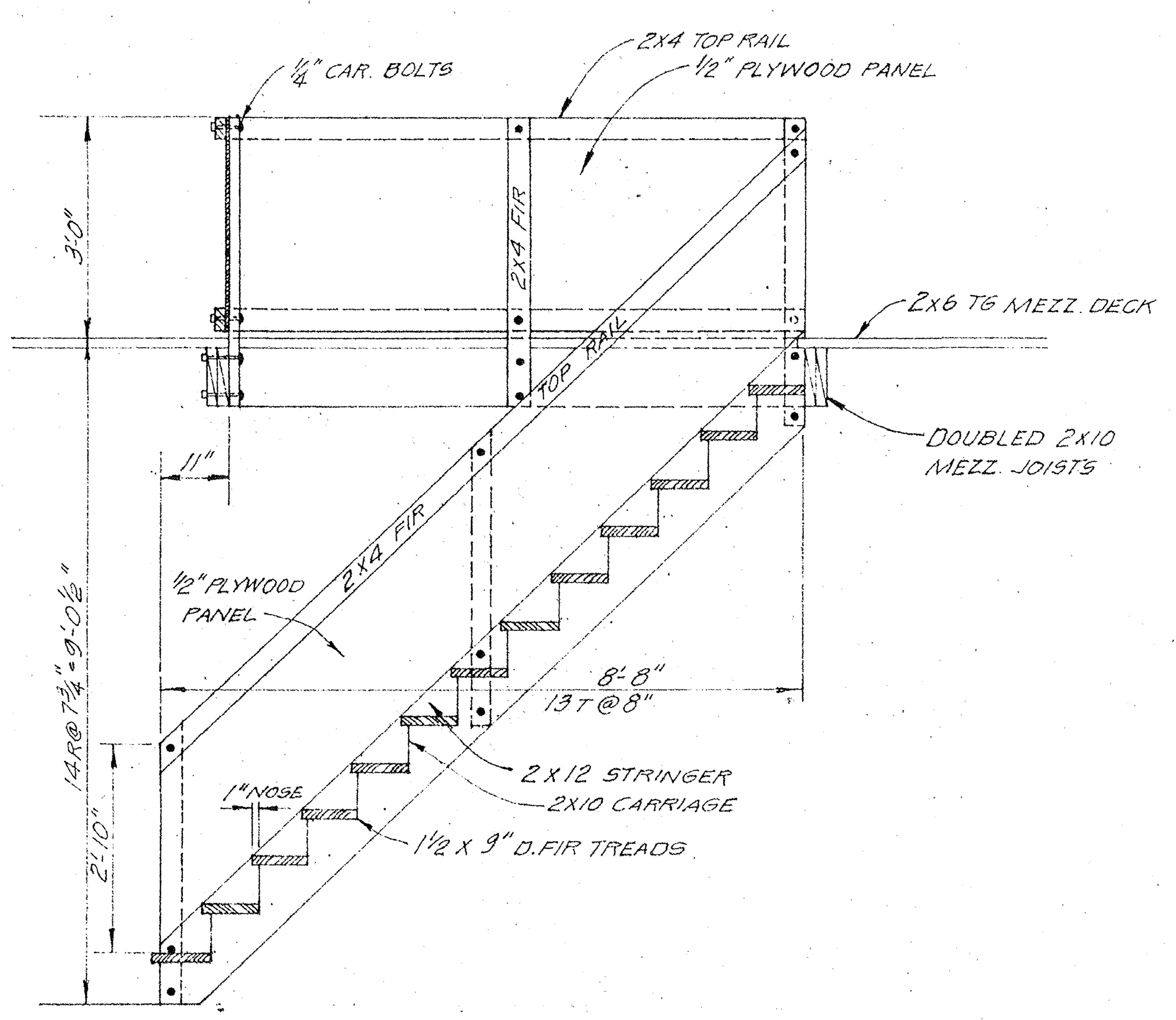
NO.	TYPE	W	H	MFG.	OPERATING LITE W	OPERATING LITE GLAZING	FIXED LITE W	FIXED LITE GLAZING
1	SPEC.	7'-8½	3'-2⅜"	CHRISTIAN PORTER ALUMINUM CO.	2'-0"	⅛" CATHEDRAL BLUE (HAVLIN-WITKIN MFG.)	5'-8½	⅛" CLEAR
2	STD.	8'-0"	4'-2⅝"	DO	STD	⅛" CLEAR	STD	⅛" CLEAR
3	STD.	3'-4	3'-2⅜	DO	1'-8"	⅛" CATHEDRAL BLUE	1'-8"	⅛" CLEAR
4	STD.	3'-4"	4'-2⅝"	DO		NONE	3'-4"	7/32" PACIFIC ROUGH #50
1A	SPEC	7'-8½"	3'-2⅜"	DO	2'-0"	⅛" CATHEDRAL BLUE	5'-8½	⅛" PACIFIC ROUGH #50

NORTH COAST COUNTY WATER DISTRICT
SAN MATEO COUNTY, CALIF.

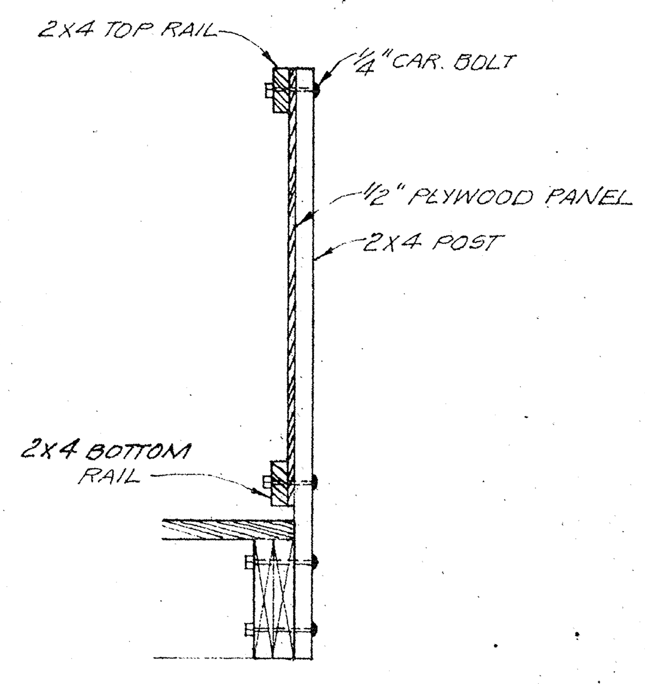
MAINTENANCE BUILDING, CORPORATION YARD, AND ADMIN. FACILITIES
PROJECT III

CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS	DES.: KLS	JOB No.
	DRW.: KLS	59-628
	CHK.:	SEP 1961

FINISH SCHEDULE AND DETAILS

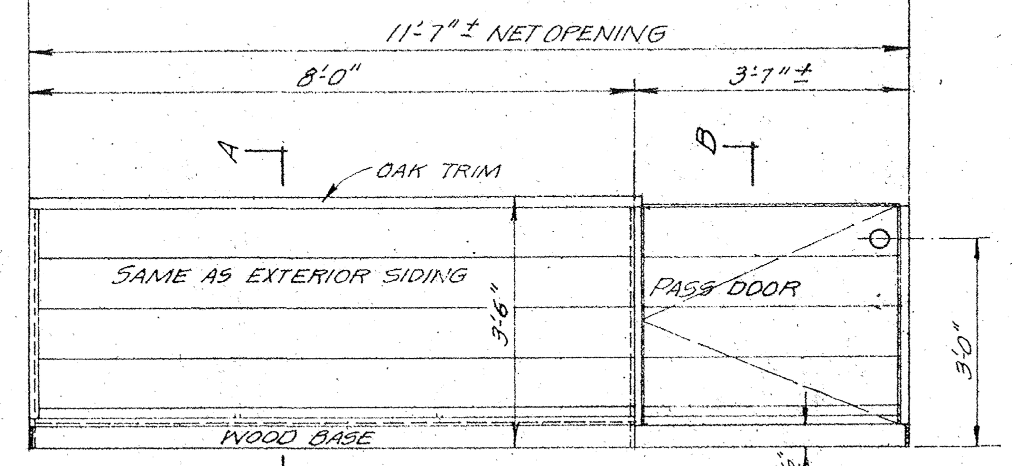


STAIR DETAILS
SCALE: 1/2" = 1'-0"

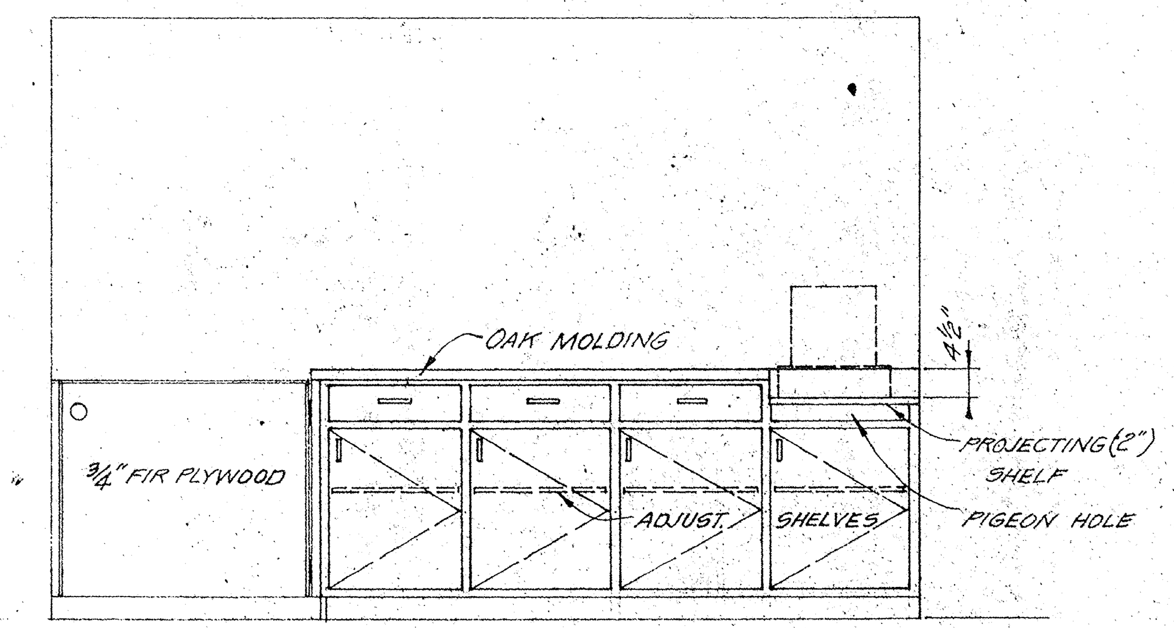


RAILING DETAIL
SCALE 1" = 1'-0"
STAIR RAILING SIMILAR

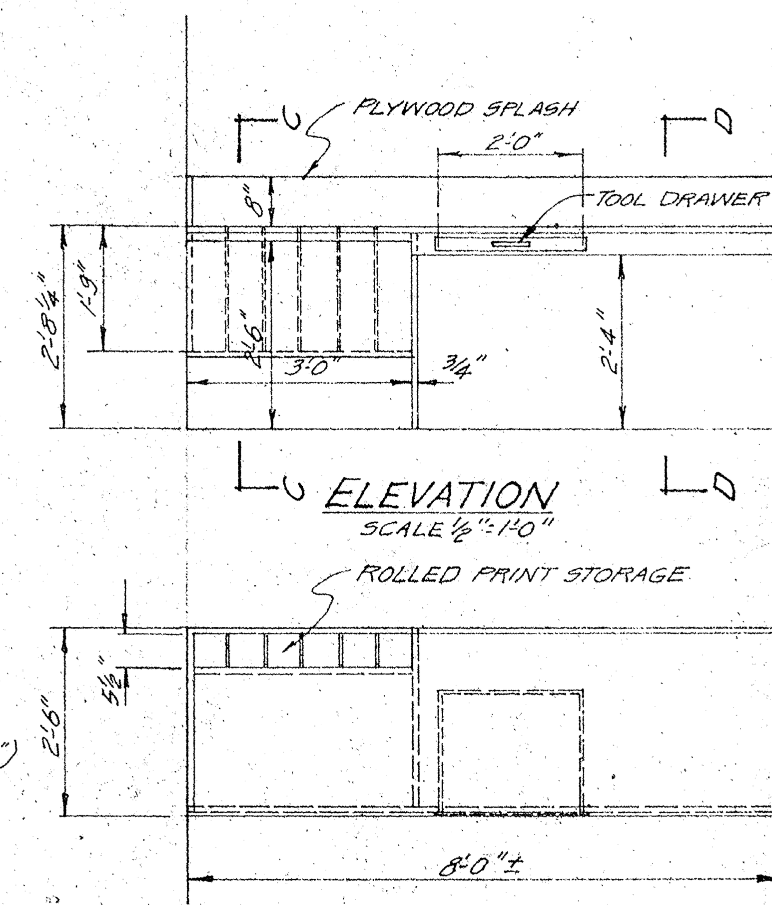
NORTH COAST COUNTY WATER DISTRICT SAN MATEO COUNTY, CALIF.		
MAINTENANCE BUILDING, CORPORATION YARD, AND ADMIN. FACILITIES PROJECT III		
CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS	DES: KLS	JOB No
	DRW.: KLS	59-62B
	CHK:	SEP. 1961
MISCELLANEOUS DETAILS		6 OF 13



ENTRANCE ELEVATION
SCALE ½" = 1'0"

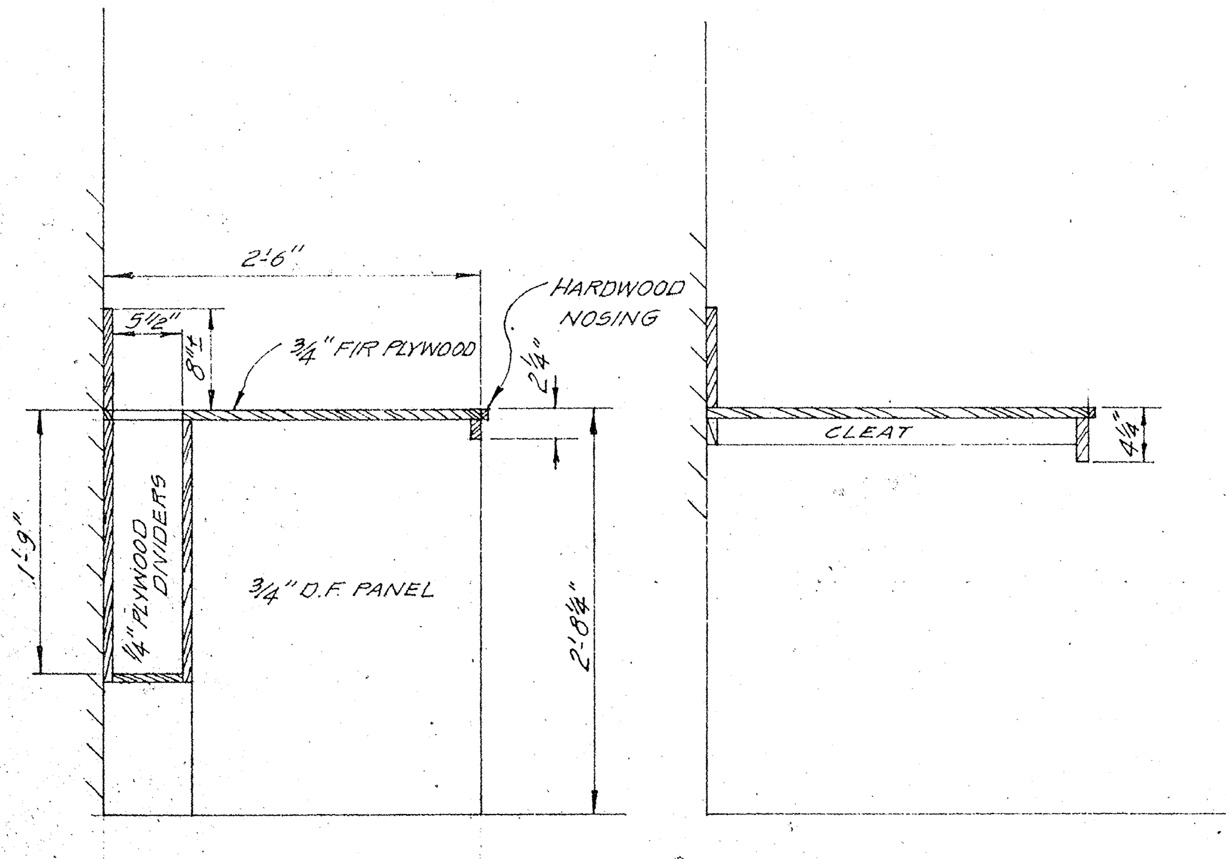


GEN. OFFICE ELEVATION
SCALE ½" = 1'0"



ELEVATION
SCALE ½" = 1'0"

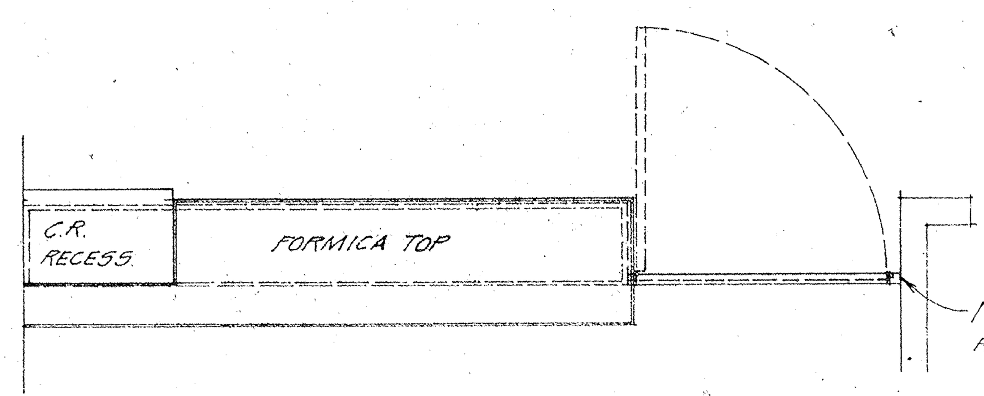
PLAN
SCALE ½" = 1'0"



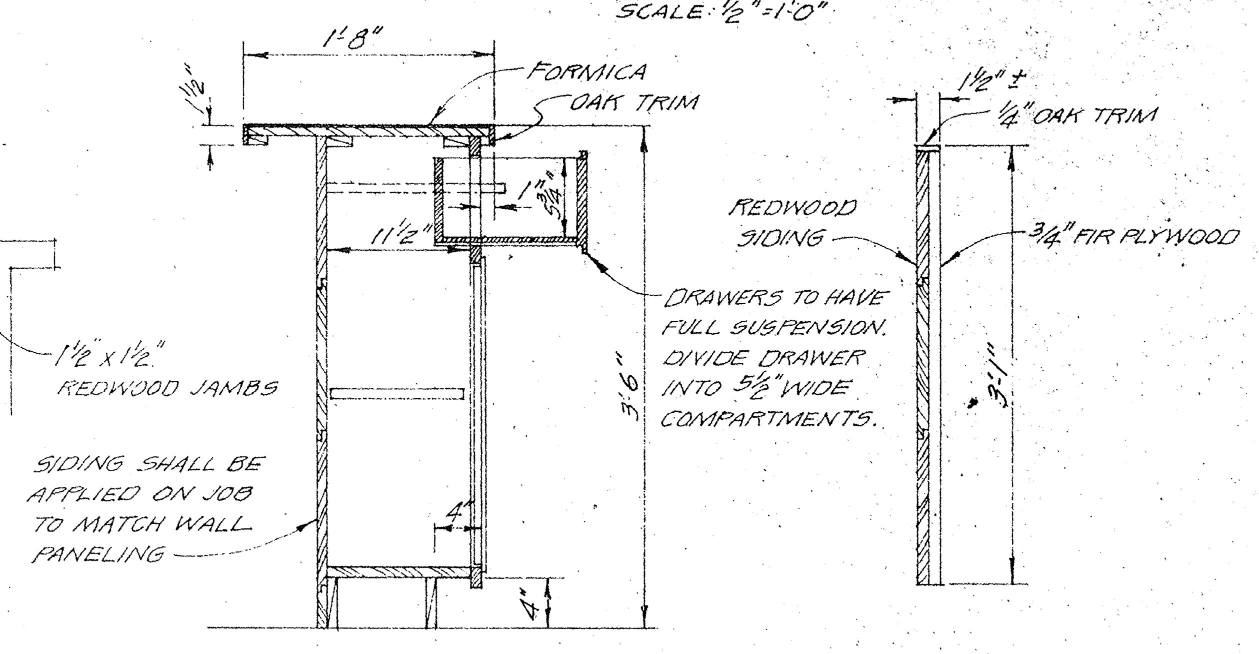
SECTION CC
SCALE 1" = 1'0"

SECTION DD
SCALE 1" = 1'0"

SUPERINTENDENT'S TABLE



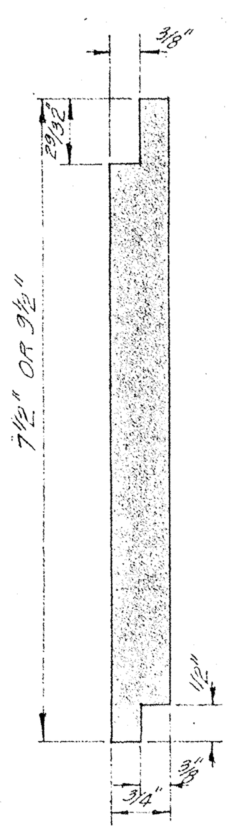
PLAN OF COUNTER
SCALE: ½" = 1'0"



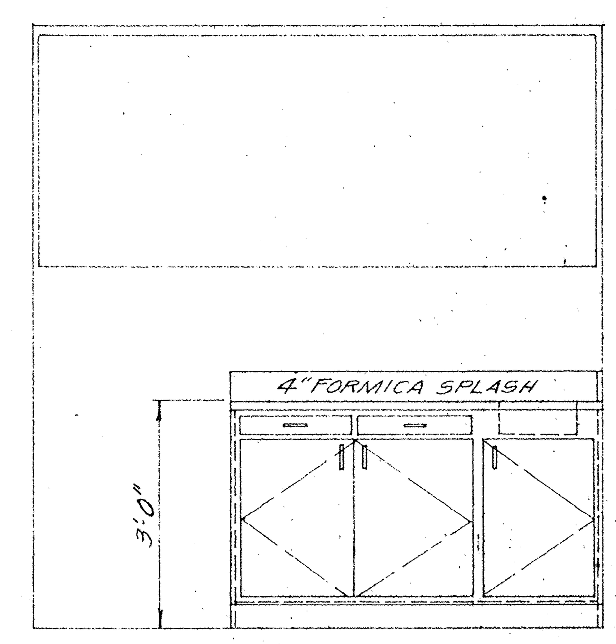
AA SECTION THRU COUNTER
SCALE 1" = 1'0"

PASS DOOR BB
SCALE: 1" = 1'0"

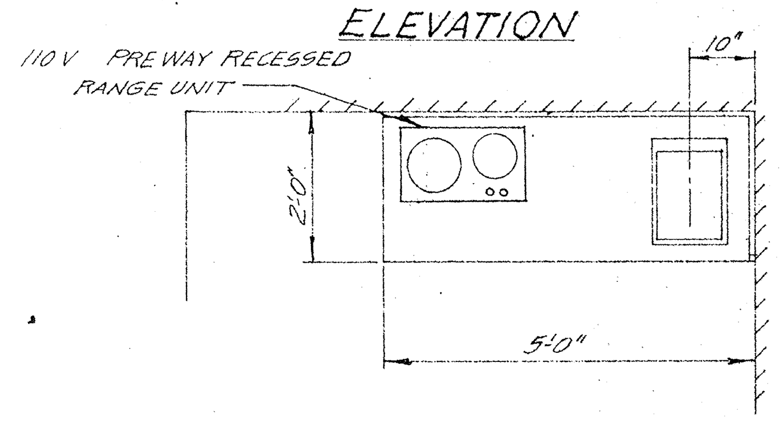
COUNTER AND PASS DOOR DETAILS



REDWOOD SIDING PATTERN
HALF SIZE
RELIEVE ALL EXPOSED CORNERS

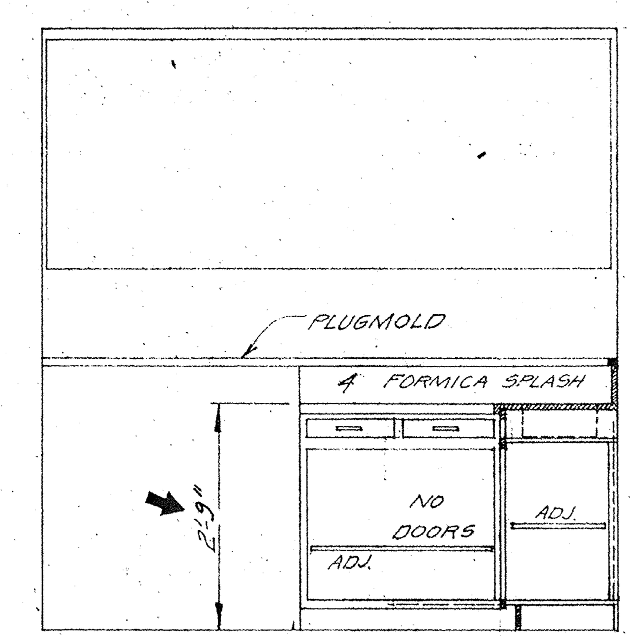


ELEVATION

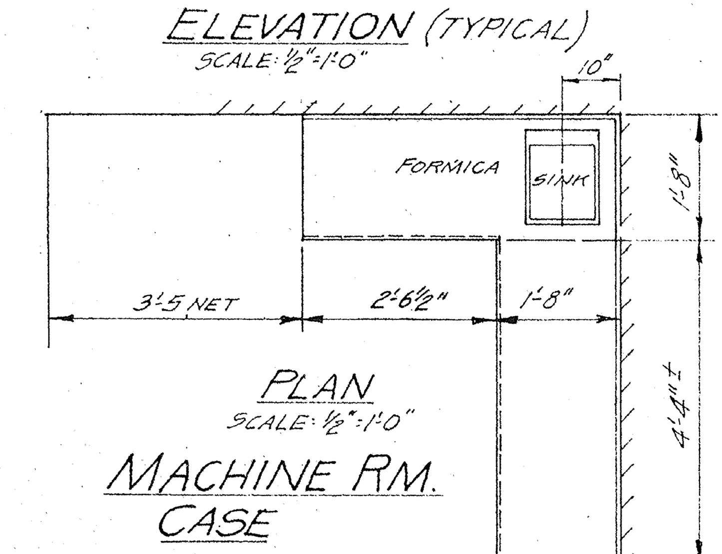


PLAN

LOUNGE CASE

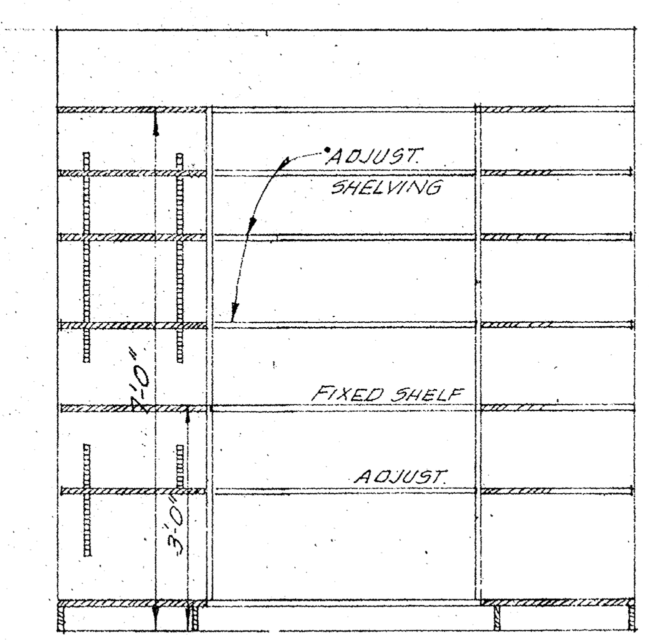


ELEVATION (TYPICAL)
SCALE ½" = 1'0"

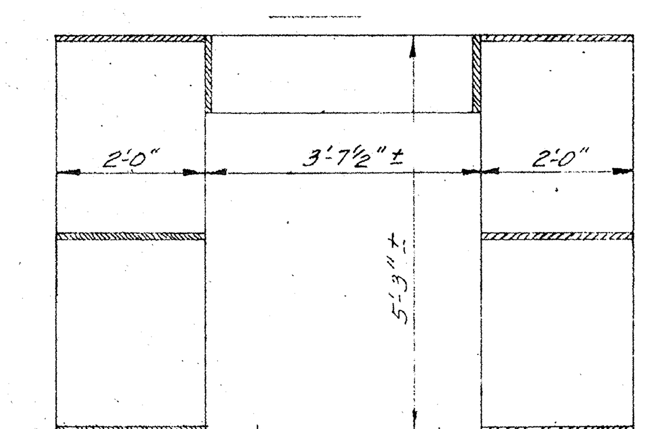


PLAN
SCALE: ½" = 1'-0"

MACHINE RM. CASE

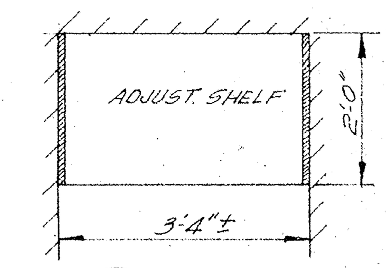


ELEVATION
SCALE ½" = 1'0"

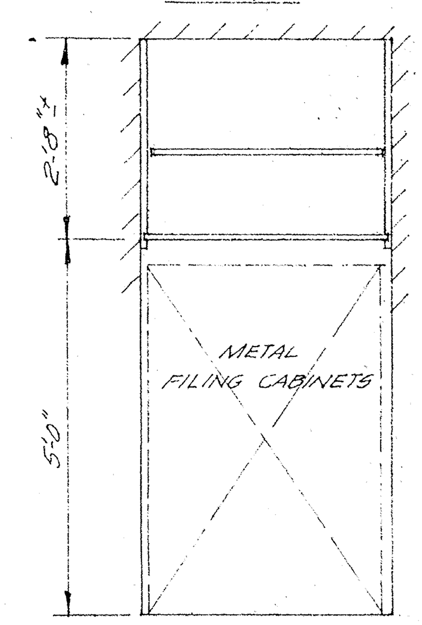


PLAN
SCALE ½" = 1'0"

SUPPLY RM. SHELVING



PLAN



ELEVATION

RECORD STOR. VAULT SHELVING
SCALE ½" = 1'0"

CABINET HARDWARE

HINGES	STANLEY 1535½
ALL PULLS	EPCO #MC42 4" (E.B. BRADLEY CO., SAN FRANCISCO)
DOOR CATCHES	STANLEY MAGNETIC #40
DRAWER EXTEN	KV. 1400 12"
ADJ. SHELF	KV. 233-237
PASS GATE HINGES	2X2 STANLEY #189
PASS GATE LOCK	SCHLAGE D30D PLY 4

NORTH COAST
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MAINTENANCE BUILDING, CORPORATION YARD, AND ADMIN. FACILITIES
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CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS	DES: KLS	JOB No.
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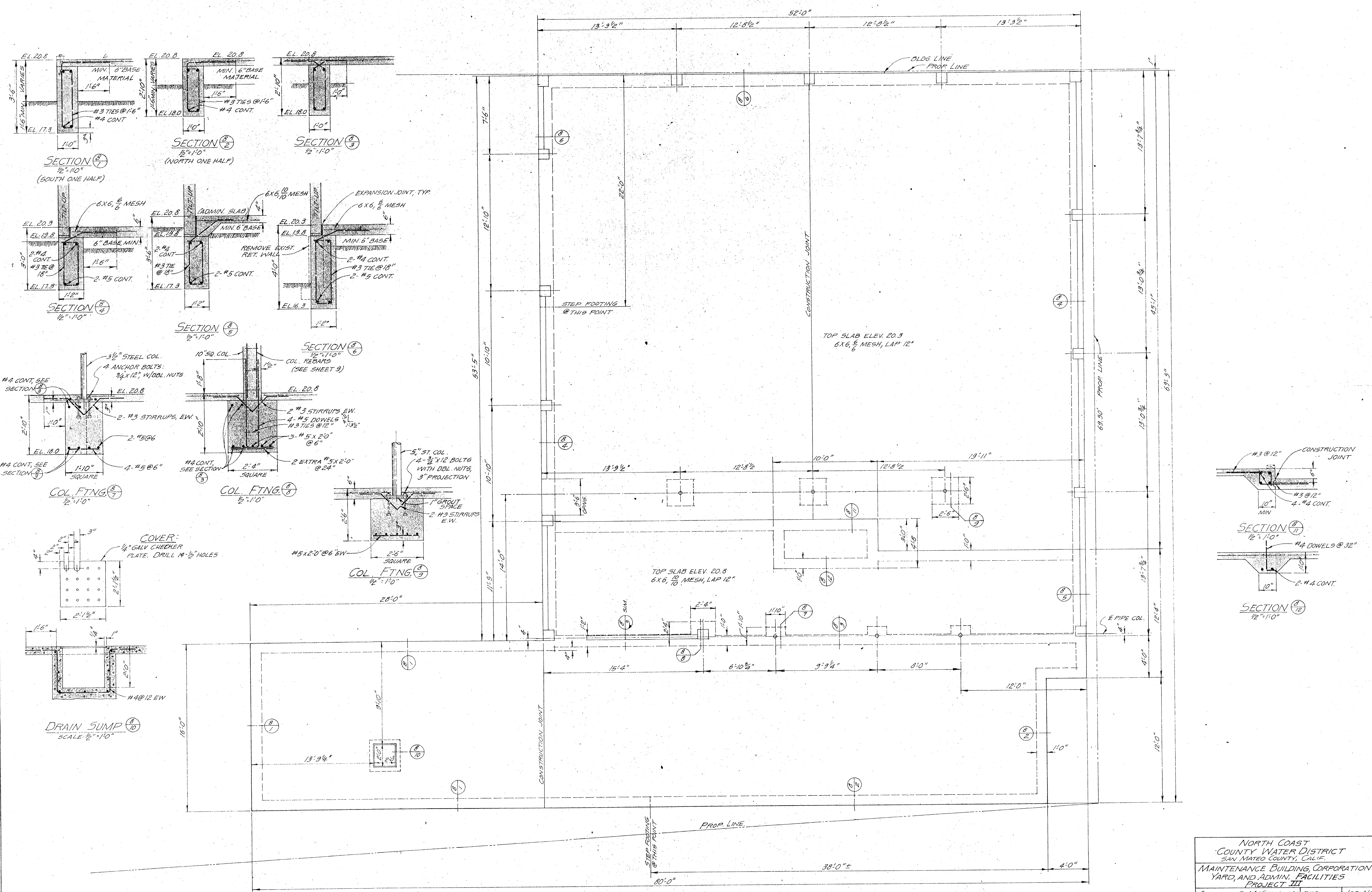
CABINET AND MILLWORK DETAILS



NORTH COAST
COUNTY WATER DISTRICT
SAN MATEO COUNTY, CALIF.

MAINTENANCE BUILDING, CORPORATION YARD, AND ADMIN. FACILITIES
PROJECT III

CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS	DES:	JOB No.
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FOUNDATION
PLAN AND DETAILS

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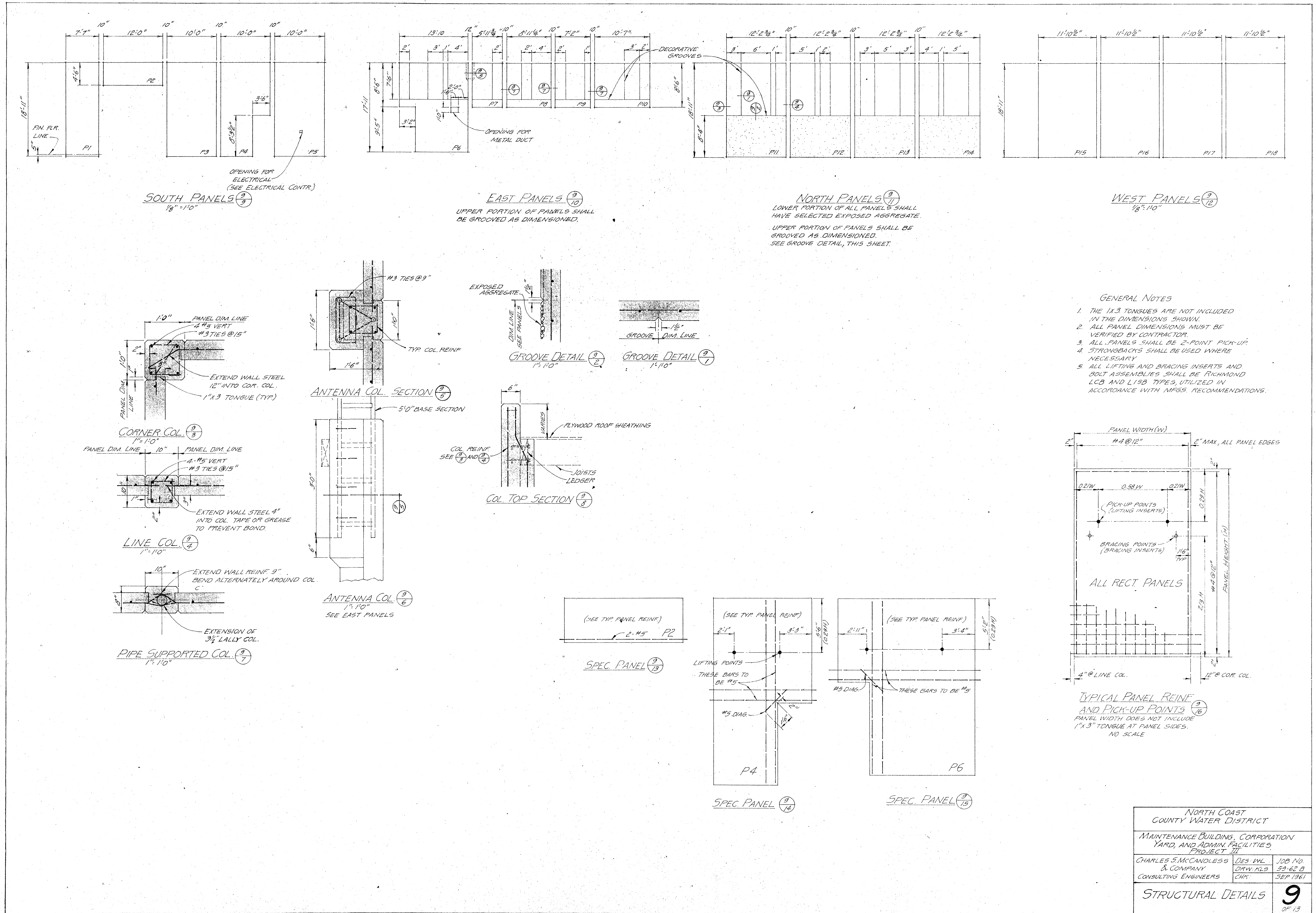
OF 13



SOUTH PANELS 9/9
1/8" = 1'-0"
OPENING FOR ELECTRICAL (SEE ELECTRICAL CONTR.)
FIN. FLR. LINE
EAST PANELS 9/10
UPPER PORTION OF PANELS SHALL BE GROOVED AS DIMENSIONED.
DECORATIVE GROOVES
OPENING FOR METAL DUCT
NORTH PANELS 9/11
LOWER PORTION OF ALL PANELS SHALL HAVE SELECTED EXPOSED AGGREGATE.
UPPER PORTION OF PANELS SHALL BE GROOVED AS DIMENSIONED.
SEE GROOVE DETAIL, THIS SHEET.
WEST PANELS 9/12
1/8" = 1'-0"
PANEL DIM. LINE
4-#9 VERT
#3 TIES @15"
EXTEND WALL STEEL 12" INTO COR. COL.
1"x3 TONGUE (TYP.)
CORNER COL. 9/3
1" = 1'-0"
4-#5 VERT
#3 TIES @15"
EXTEND WALL STEEL 4" INTO COL. TAPE OR GREASE TO PREVENT BOND.
LINE COL. 9/4
1" = 1'-0"
EXTEND WALL REINF. 9" BEND ALTERNATELY AROUND COL.
EXTENSION OF 3½" LALLY COL.
PIPE SUPPORTED COL. 9/7
1" = 1'-0"
#3 TIES @9"
TYP. COL. REINF.
ANTENNA COL. SECTION 9/5
5'0" BASE SECTION
ANTENNA COL. 9/6
1" = 1'-0"
SEE EAST PANELS
EXPOSED AGGREGATE
DIM. LINE SEE PANELS
GROOVE DETAIL 9/2
1" = 1'-0"
GROOVE DIM. LINE
GROOVE DETAIL 9/1
1" = 1'-0"
PLYWOOD ROOF SHEATHING
VARIES
COL. REINF. SEE 9/3 AND 9/4
JOISTS
LEDGER
COL. TOP SECTION 9/8
GENERAL NOTES
1. THE 1x3 TONGUES ARE NOT INCLUDED IN THE DIMENSIONS SHOWN.
2. ALL PANEL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR.
3. ALL PANELS SHALL BE 2-POINT PICK-UP.
4. STRONGBACKS SHALL BE USED WHERE NECESSARY.
5. ALL LIFTING AND BRACING INSERTS AND BOLT ASSEMBLIES SHALL BE RICHMOND LCB AND L1SB TYPES, UTILIZED IN ACCORDANCE WITH MFGS. RECOMMENDATIONS.
PANEL WIDTH (W)
#4 @12"
2" MAX, ALL PANEL EDGES
0.21W 0.58W 0.21W
PICK-UP POINTS (LIFTING INSERTS)
BRACING POINTS (BRACING INSERTS)
ALL RECT. PANELS
PANEL HEIGHT (H)
4" @ LINE COL.
12" @ COR. COL.
TYPICAL PANEL REINF. AND PICK-UP POINTS 9/16
PANEL WIDTH DOES NOT INCLUDE 1"x3" TONGUE AT PANEL SIDES.
NO SCALE
(SEE TYP. PANEL REINF.)
2-#5 P2
SPEC. PANEL 9/13
LIFTING POINTS
THESE BARS TO BE #5
#5 DIAG.
P4
SPEC. PANEL 9/14
THESE BARS TO BE #5
P6
SPEC. PANEL 9/15
NORTH COAST COUNTY WATER DISTRICT
MAINTENANCE BUILDING, CORPORATION YARD, AND ADMIN. FACILITIES, PROJECT III
CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS
DES: WL
DRW: KLS
CHK:
JOB NO. 59-62 B
SEP 1961
STRUCTURAL DETAILS
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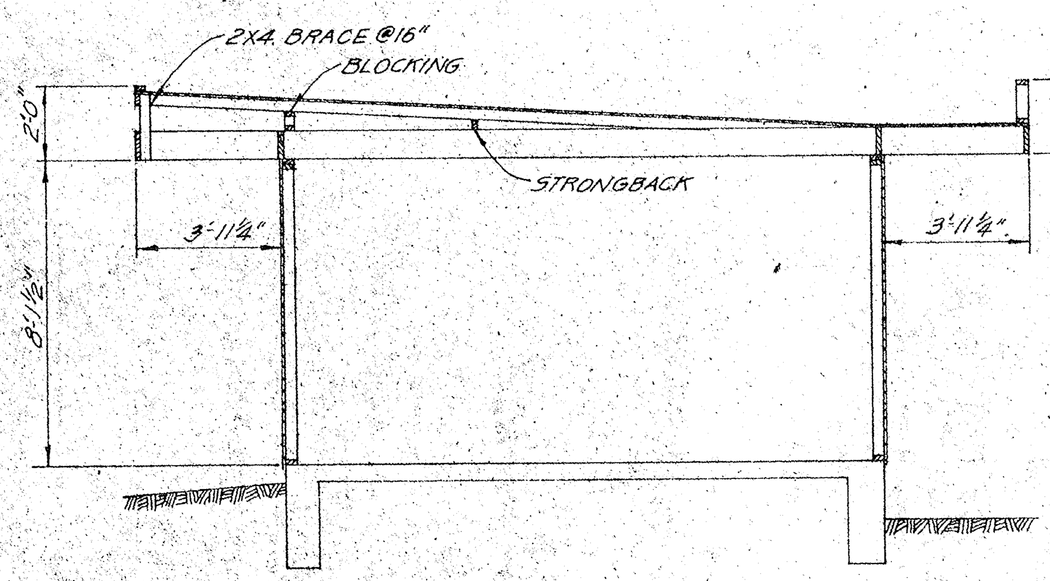
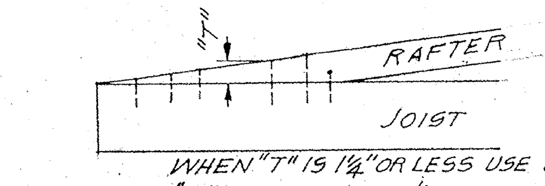


SECTION-S3

SCALE ¼"=1'-0"

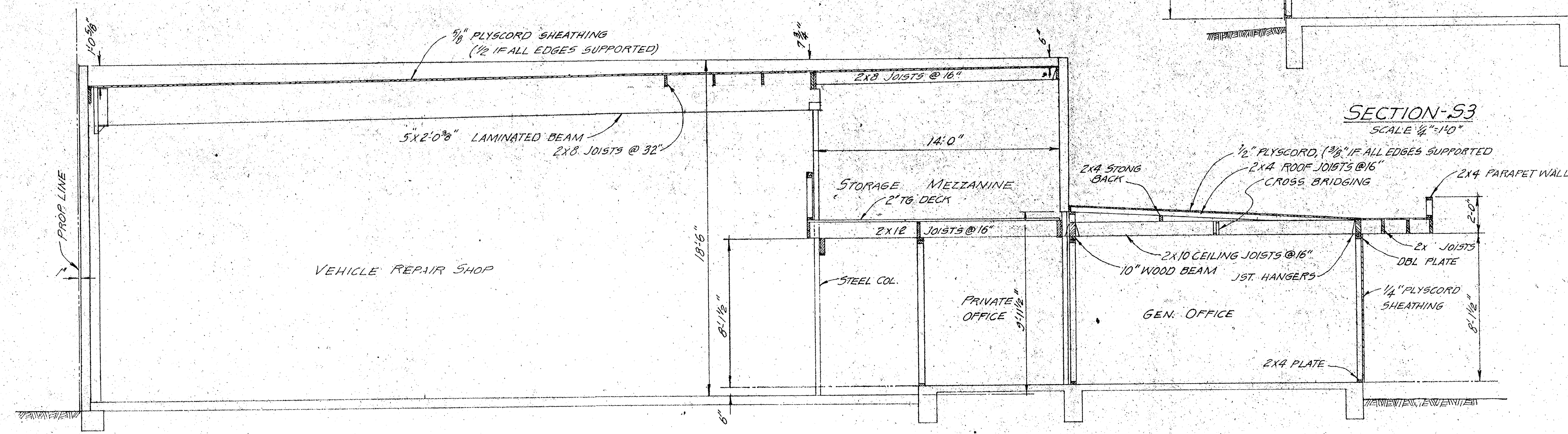


WHEN "T" IS 1¼" OR LESS USE 8d @ 8".
WHEN "T" IS MORE THAN 1¼ AND LESS THAN 2" USE 16d @ 16".
WHEN "T" IS MORE THAN 2" USE 16d TOENAILS @ 12" EA. SIDE.

NAILING SCHEDULE

MEMBER	LOCATION	NAILING
STUDS TO BEARING	2X6 AND SMALLER	2-16d TOENAILS EA. SIDE
DOUBLE TOP PLATE	LOWER PL. TO STUD	2-20d FOR 2X6 AND SMALLER
	UPPER PL. TO LOWER PL.	16d @ 16" STAGGERED
	AT SPLICE POINTS	6-16d STAGGERED EACH END
JOISTS	TO BEARING	2-16d TOENAILS EACH SIDE
	AT LAPS	4-16d, MIN. LAP OF 12"
BLOCKING	TO JOISTS OR RAFTERS	2 10d TOENAILS, EA. SIDE, EA. END
	TO BEARING (PL)	2 10d " " " " "
MULTIPLE STUDS	EACH PIECE	16d @ 12" STAGGERED
BUILT-UP JOISTS	" "	16d @ 12" "
CEILING STRIPPING	AT EA. JOIST	2-16d, ONE STRAIGHT, ONE SLANT
PLYWOOD WALL SHEATH.	AT EDGES	8d @ 6"
	IN FIELD	8d @ 12"
PLYWOOD ROOF SHEATH. 3/8" AND 1/2"	AT EDGES	8d @ 6"
	IN FIELD	8d @ 12"
PLYWOOD ROOF SHEATH. 5/8"	AT EDGES	8d @ 6"
	IN FIELD	8d @ 12"
REDWOOD SIDING	AT EA. STUD	2-8d GALVANIZED
2X3 CROSS BRIDGING	EA. END	2-8d TOENAILED

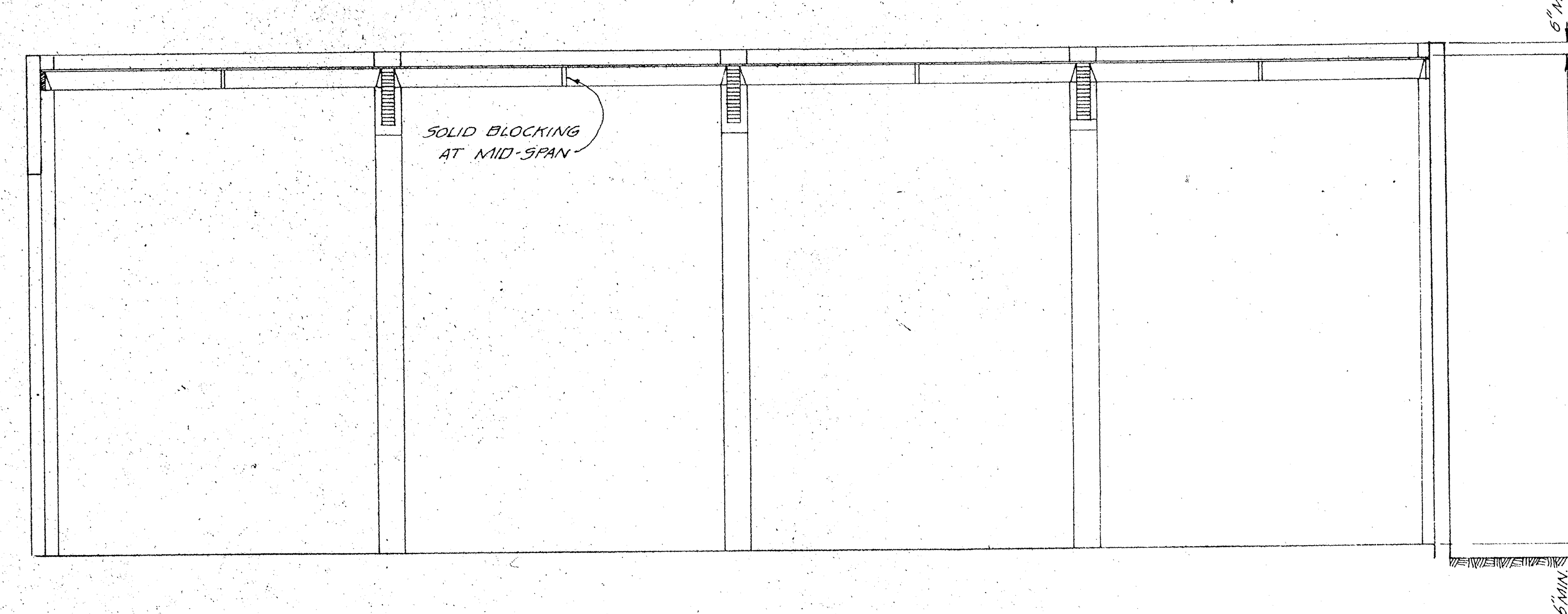
1. ALL NAILS SHALL BE COMMON WIRE, AMERICAN MADE.
2. FOR UNSPECIFIED FRAME MEMBERS (ABOVE) USE 8d FOR 1" 16d FOR 2".
3. WHEN NECESSARY TO PREVENT SPLITTING, DRILLING IS REQUIRED. PLYWOOD NAILING: NAILS SHALL BE PLACED 3/8" OR MORE FROM EDGE



SECTION-S1

SCALE ¼"=1'-0"

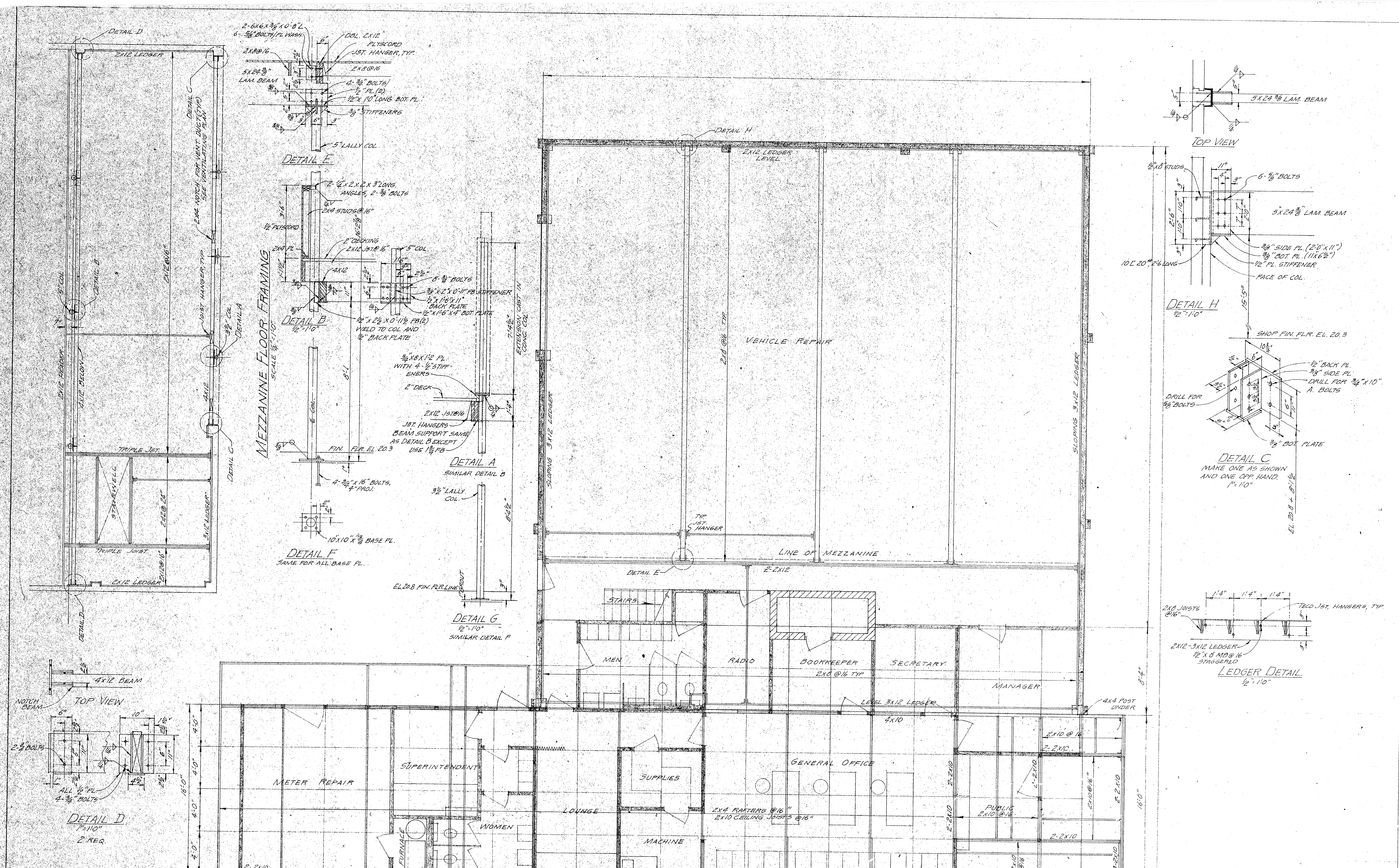
1. CUTTING OF BEAMS, JOISTS, AND RAFTERS SHALL BE LIMITED TO CUTS SHOWN ON PLANS OR TO CUTS AND BORED HOLES NOT DEEPER THAN 1/5 THE MEMBER DEPTH FROM THE TOP OF MEMBER AND LOCATED NOT MORE THAN 3 TIMES THE MEMBER DEPTH FROM THE MEMBER SUPPORT.
2. STUD WALLS WITH PIPES SHALL BE SO FRAMED AS TO GIVE PROPER PIPING CLEARANCES. PIPES SHALL BE PLACED IN THE CENTER OF THE PLATES USING NEAT BORED HOLES, NOT EXCEEDING 2" DIA. NO PLATES SHALL BE NOTCHED FOR PIPING.
3. BOLTS IN WOOD FRAMING SHALL BE STD. MACHINE WITH STD MALLEABLE IRON WASHERS. BOLT HOLES SHALL BE 1/16" LARGER THAN BOLT DIA. SILL BOLTS SHALL BE PLACED 9" FROM THE SILL PL. ENDS.
4. PLYWOOD SHALL BE EXTERIOR GRADE, C-D FOR EXTERIOR WALL AND ROOF SHEATHING. END JOINTS OF PLYWOOD PANELS SHALL BE STAGGERED. FACE GRAIN OF PLYWOOD SHALL BE INSTALLED AT RIGHT ANGLES TO ROOF JOISTS AND PARALLEL TO STUDS.
5. JOIST HANGERS AND FRAMING ANCHORS SHALL BE USED WHERE EVER INDICATED ON DRAWINGS AND ALWAYS WHEN JOISTS OR RAFTERS DO NOT BEAR ON PLATE OR POSTS.
6. ALL BOLTS SHALL BE TIGHTENED BEFORE CLOSING IN.



SECTION-S2

SCALE: ¼"=1'-0"

NORTH COAST COUNTY WATER DISTRICT SAN MATEO COUNTY, CALIF.		
MAINTENANCE BUILDING, CORPORATION YARD, AND ADMIN. FACILITIES PROJECT III		
CHARLES S McCANDLESS & COMPANY CONSULTING ENGINEERS	DES: KLS DRW: KLS CHK:	JOB NO. 59-628 SEP. 1961
STRUCTURAL DETAILS		10 OF 13



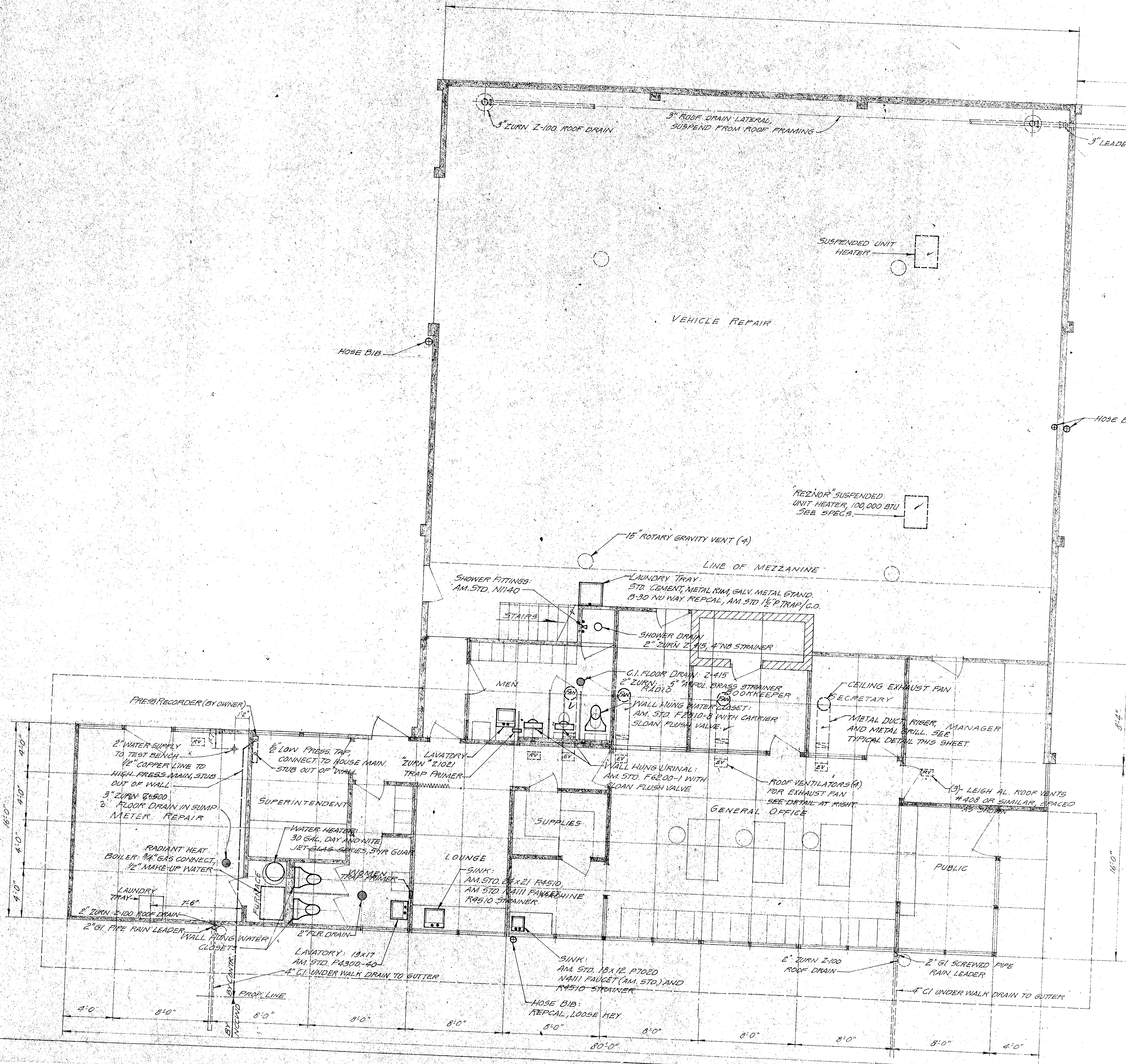
NORTH COAST
COUNTY WATER DISTRICT
SAN MATEO COUNTY, CALIFORNIA

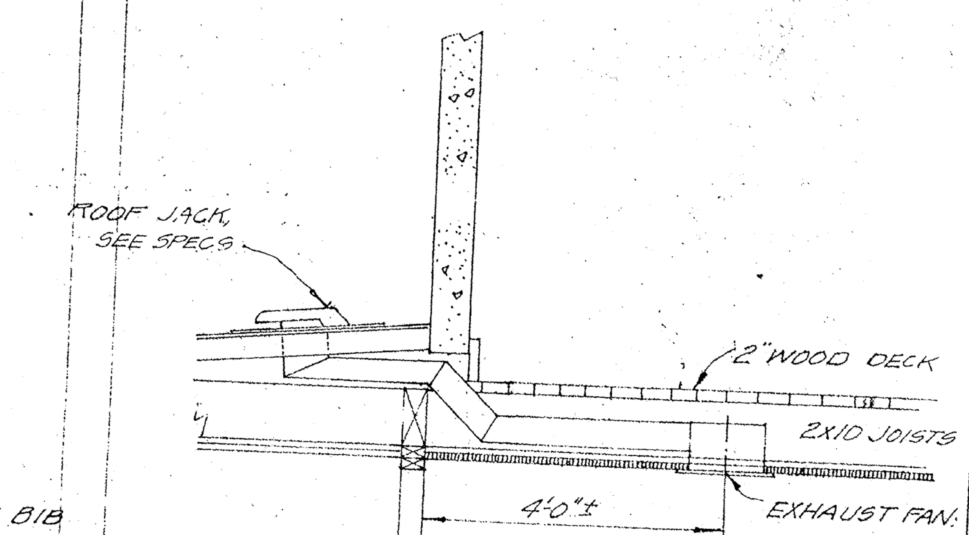
MAINTENANCE BUILDING, CORPORATION YARD, AND ADMIN. FACILITIES
PROJECT III

CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS	DES. KLS	JOB NO.
	DRW. KLS	59-628
	CKD. DCL	SEP 1961

STRUCTURAL DETAILS-
ROOF FRAMING

11
OF 13





TYPICAL EXHAUST FAN DETAIL
SCALE: ½" = 1'-0"

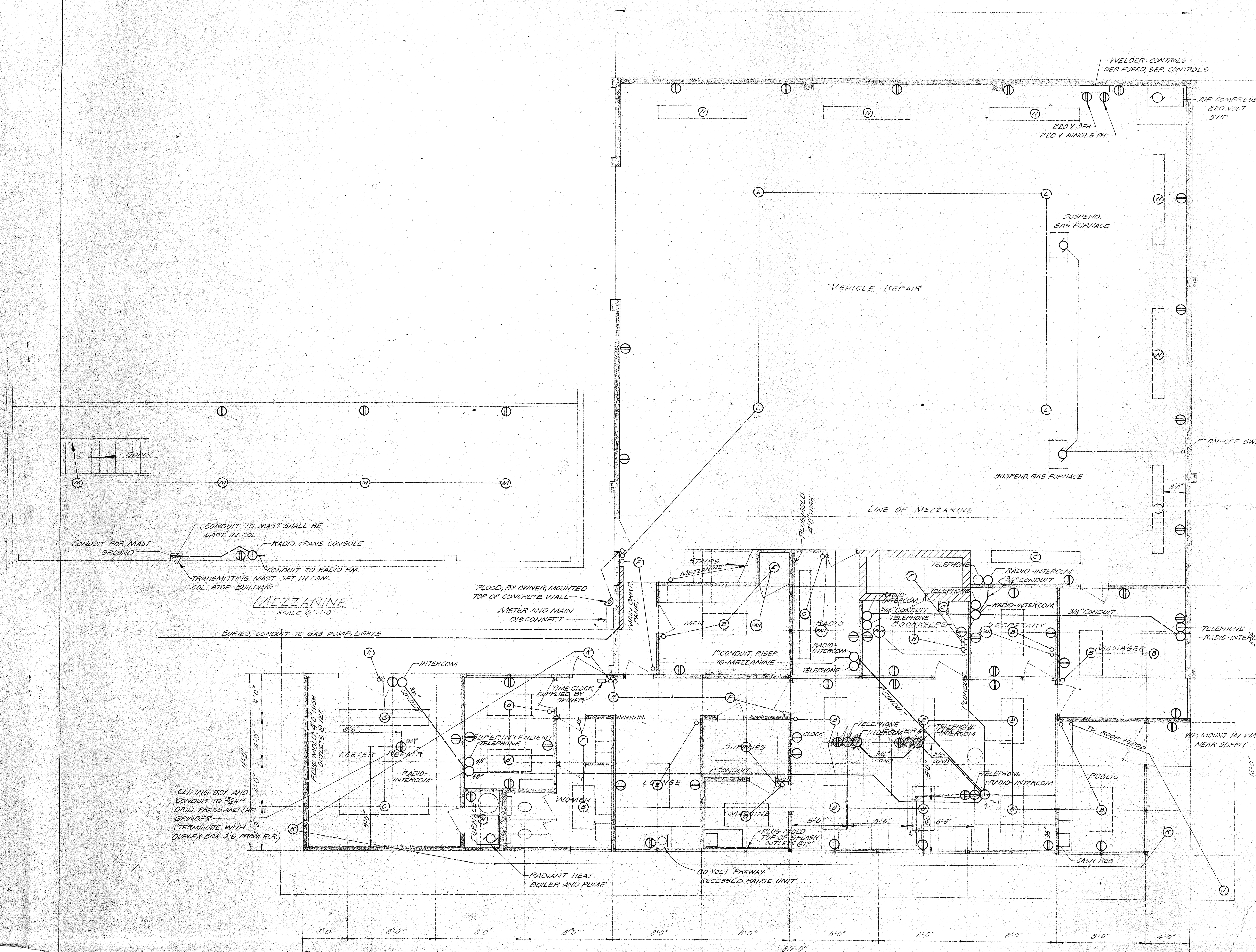
PLUMBING NOTES

1. FIXTURES NOT SPECIFIED ARE SIMILAR TO THOSE SPECIFIED ELSEWHERE ON THIS SHEET.
2. ALL FLOOR DRAINS SHALL BE CONNECTED TO TRAP PRIMERS.
3. TRAP PRIMERS SHALL BE ACCESSABLE, IN AN INCONSPICUOUS LOCATION
4. WALL HUNG WC SHALL HAVE CARRIERS.
5. INTERIOR C.O. SHALL BE ZURN Z-1326
   EXTERIOR C.O. SHALL BE ZURN Z-1326-10

SHEET METAL NOTES

1. ALL ROOF VENTS, BONNETS, CAPS, HOODS SHALL BE OF LOWEST PROFILE PERMISSALE.

NORTH COAST COUNTY WATER DISTRICT SAN MATEO COUNTY, CALIFORNIA		
MAINTENANCE BUILDING, CORPORATION YARD, AND ADMIN. FACILITIES PROJECT III		
CHARLES S. McCANDLESS & COMPANY CONSULTING ENGINEERS	DES. KLS DRW. KLS CKD. DCL	JOB NO. 59-62B SEP 1961
PLUMBING, HEATING AND VENTILATING PLAN		12 OF 13



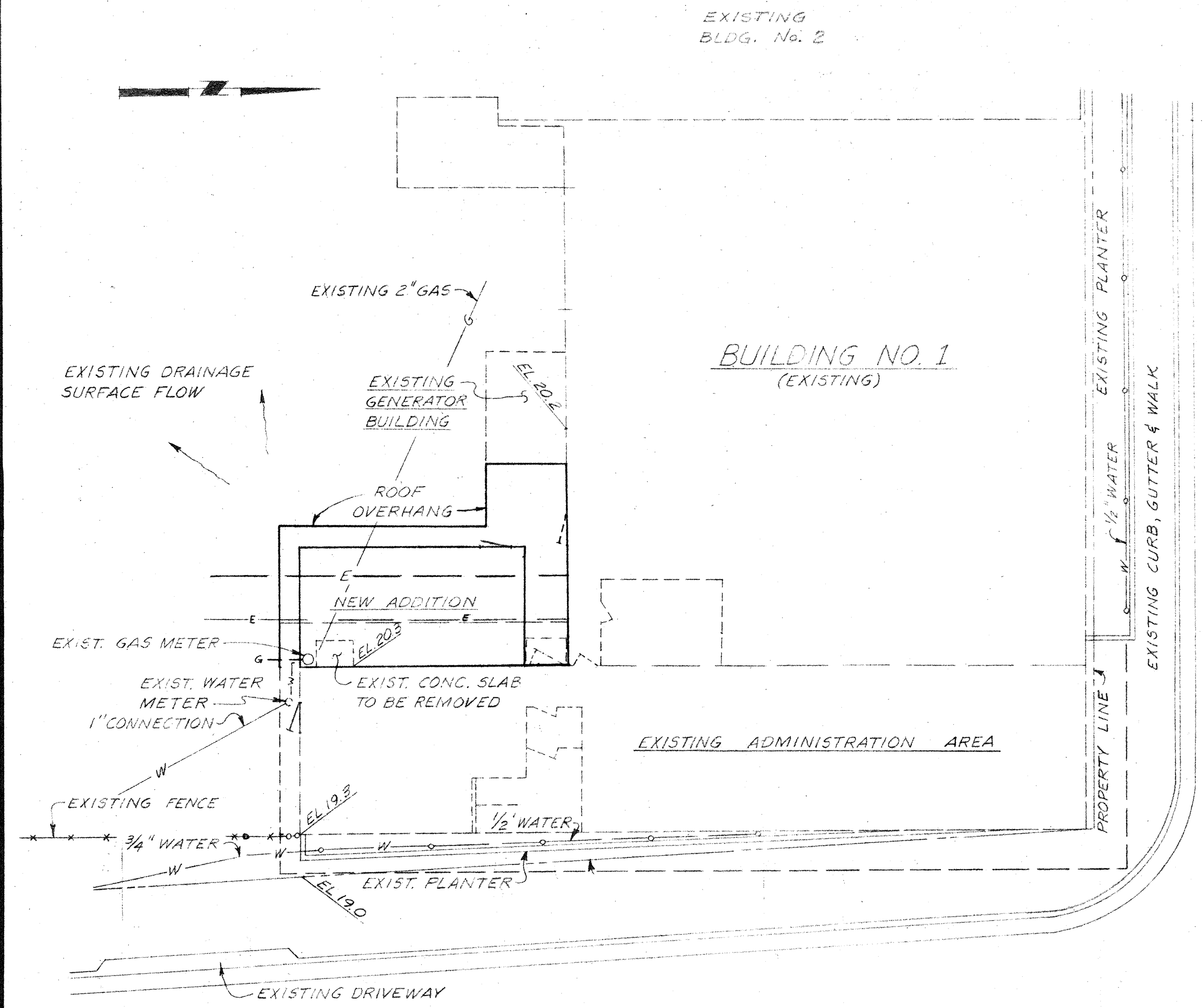
LIGHT FIXTURE SCHEDU	
	DESCRIPTION
A	
B	SUNBEAM QPCX4604-48 RS 192 WATTS
C	300 WATTS SUNBEAM # 303-S FLUSHMOUNTED
D	
E	60 WATT PRESCOLITE # 62
F	PRESCOLITE # CF-10 100 WATT
G	100 WATT (NIGHT LIGHT) PRESCO RECESS.
H	100 WATT, PORCELAIN BASE, P
I	
J	500 WATTS ROUGH IN ONLY FO ON ROOF (LIGHTING FOR HIGH
K	150 WATTS PRESCOLITE # 1014-
L	750/1000 WATT RLM DOME, VEN BENJAMINE # V5645 PROVID
M	300/500 WATT RLM DOME, BE
N	300 WATTS SUNBEAM # 303-96 JACK CHAIN MOUNTED, 7'-0"
O	FLOODLIGHT, BENJAMINE UTIL. # P6032-E (WALL MOUNT)

1. NO CONDUIT IN TILT-UP WALLS,
2. EXHAUST FANS SUPPLIED AND IN HEATING SHEETMETAL CONTRACT
3. CONDUIT RUNS DIAGRAMATIC ONLY
4. ELECT. OUTLETS FREE OF WALL S
5. TELEPHONE CONDUIT, PULL BOXES, BE INSTALLED ACCORDING TO THE OF THE TELEPHONE CO.

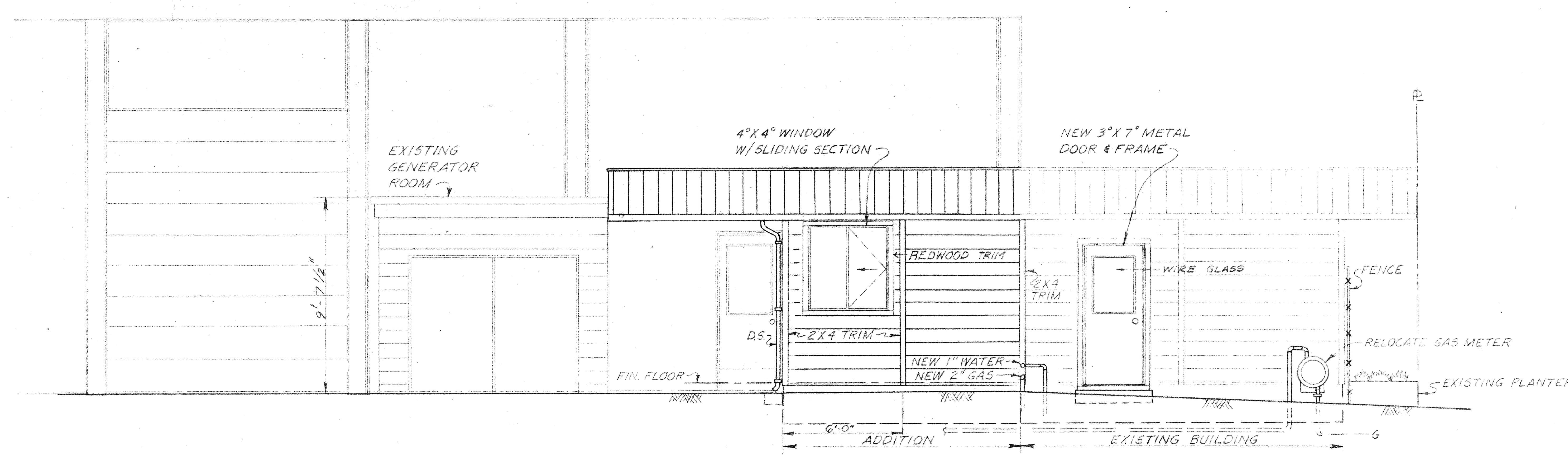
NORTH CO
COUNTY WATE
SAN MATEO COUNTY,

MAINTENANCE BUIL
YARD, AND ADMIN.
PROJECT

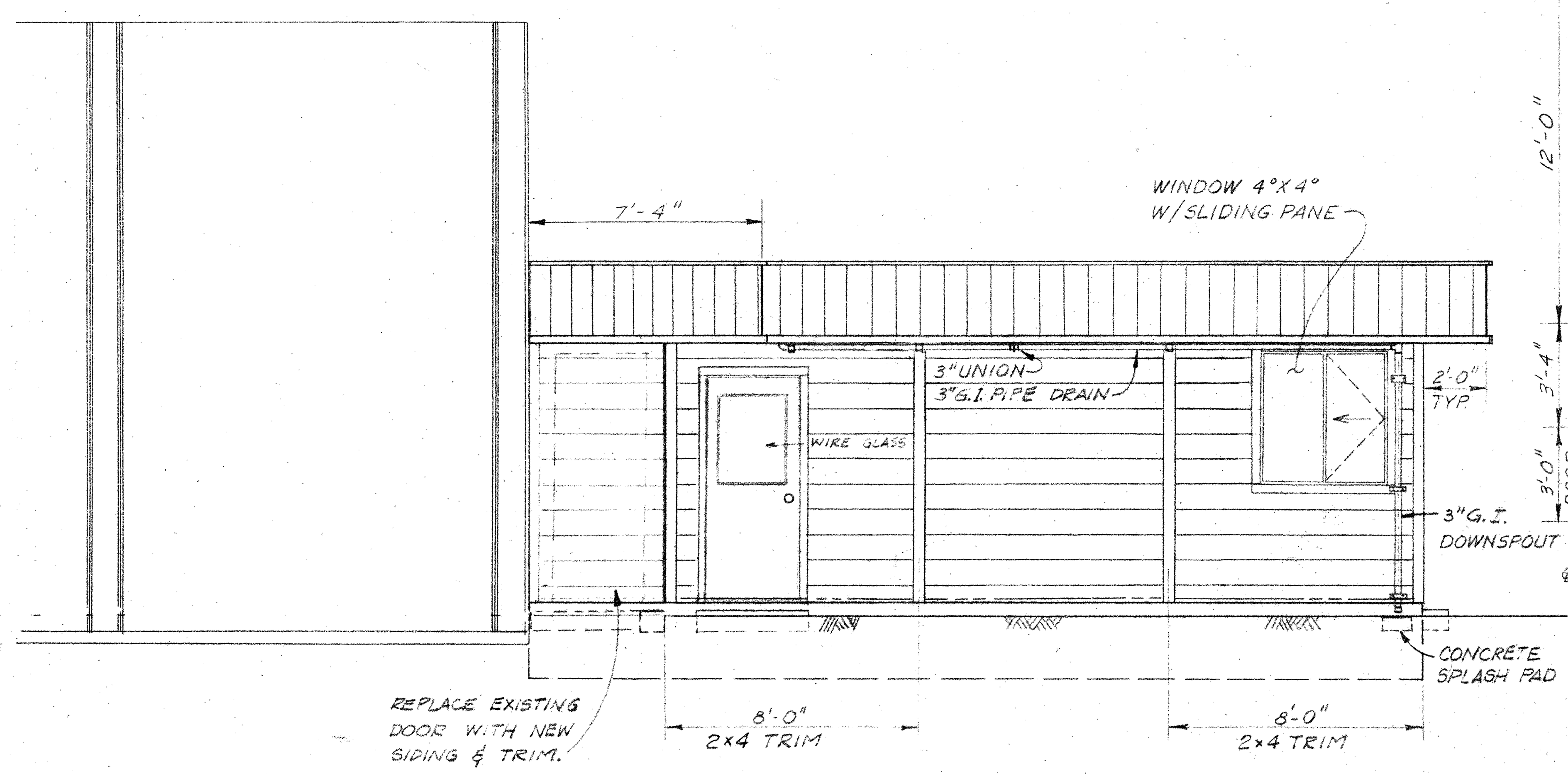
CHARLES S. McC
& COMP
CONSU



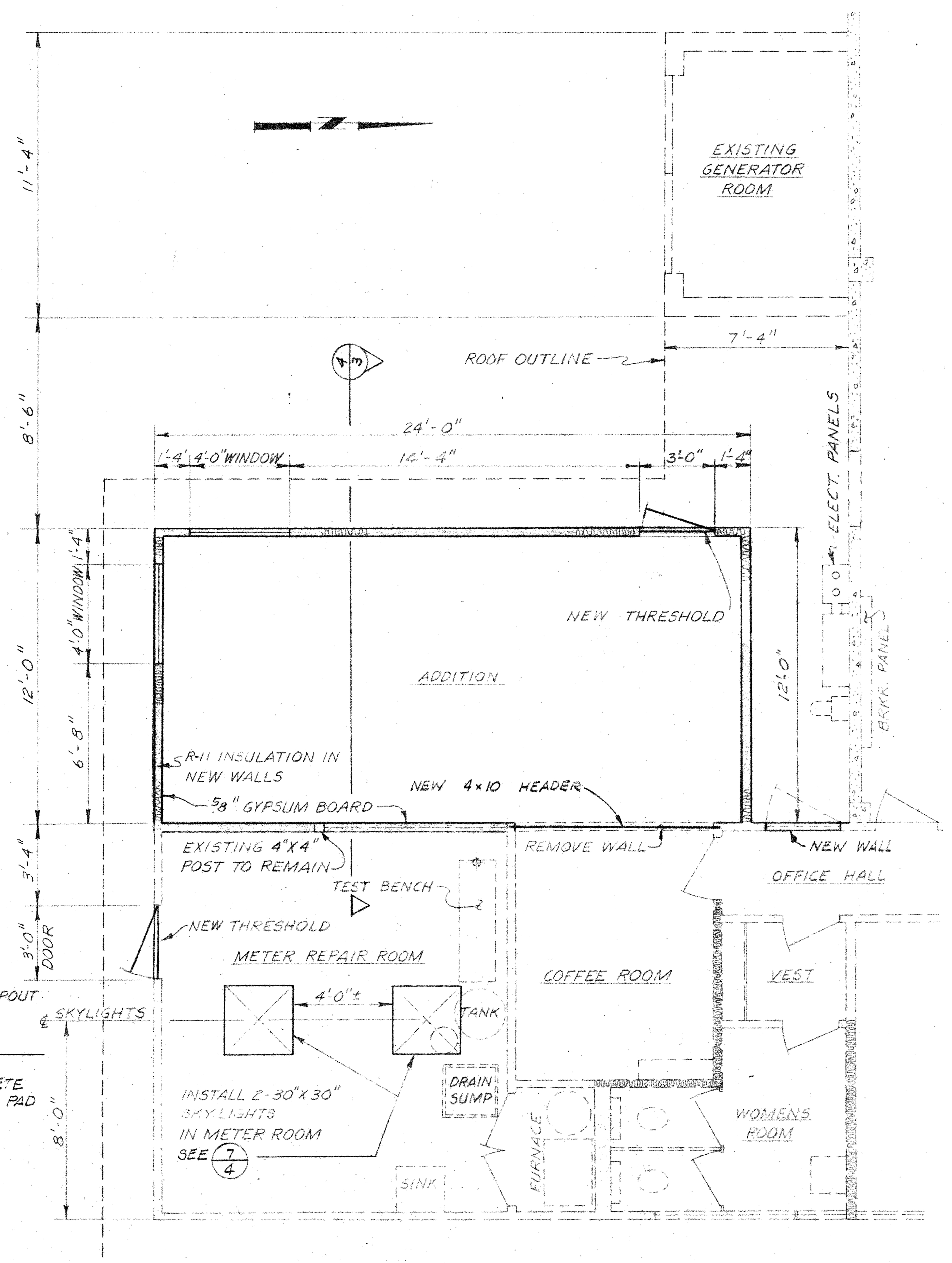
SITE PLAN
SCALE 1"=10'



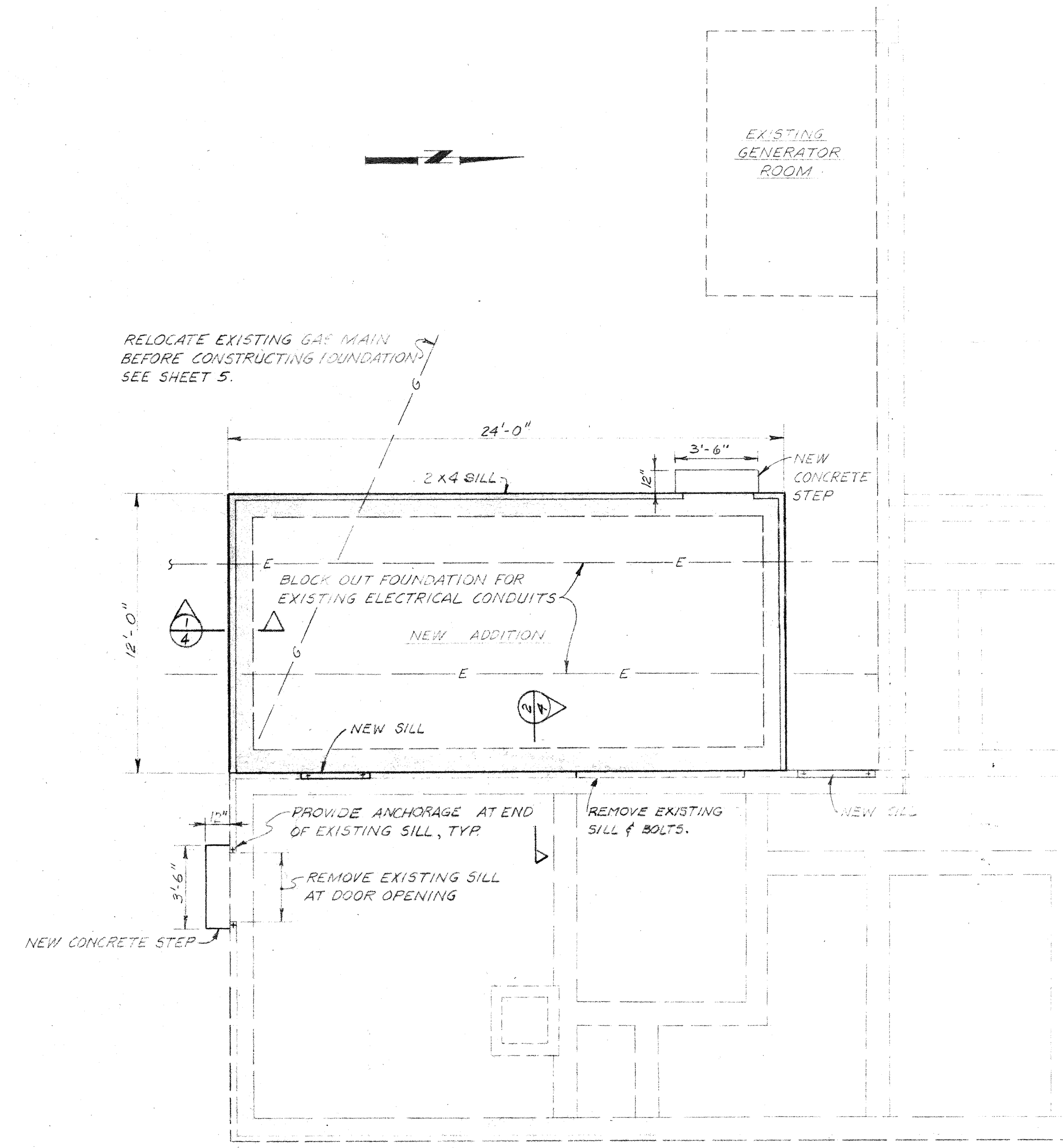
SOUTH ELEVATION
SCALE: 1/4"=1'-0"



WEST ELEVATION
SCALE 1/4"=1'-0"

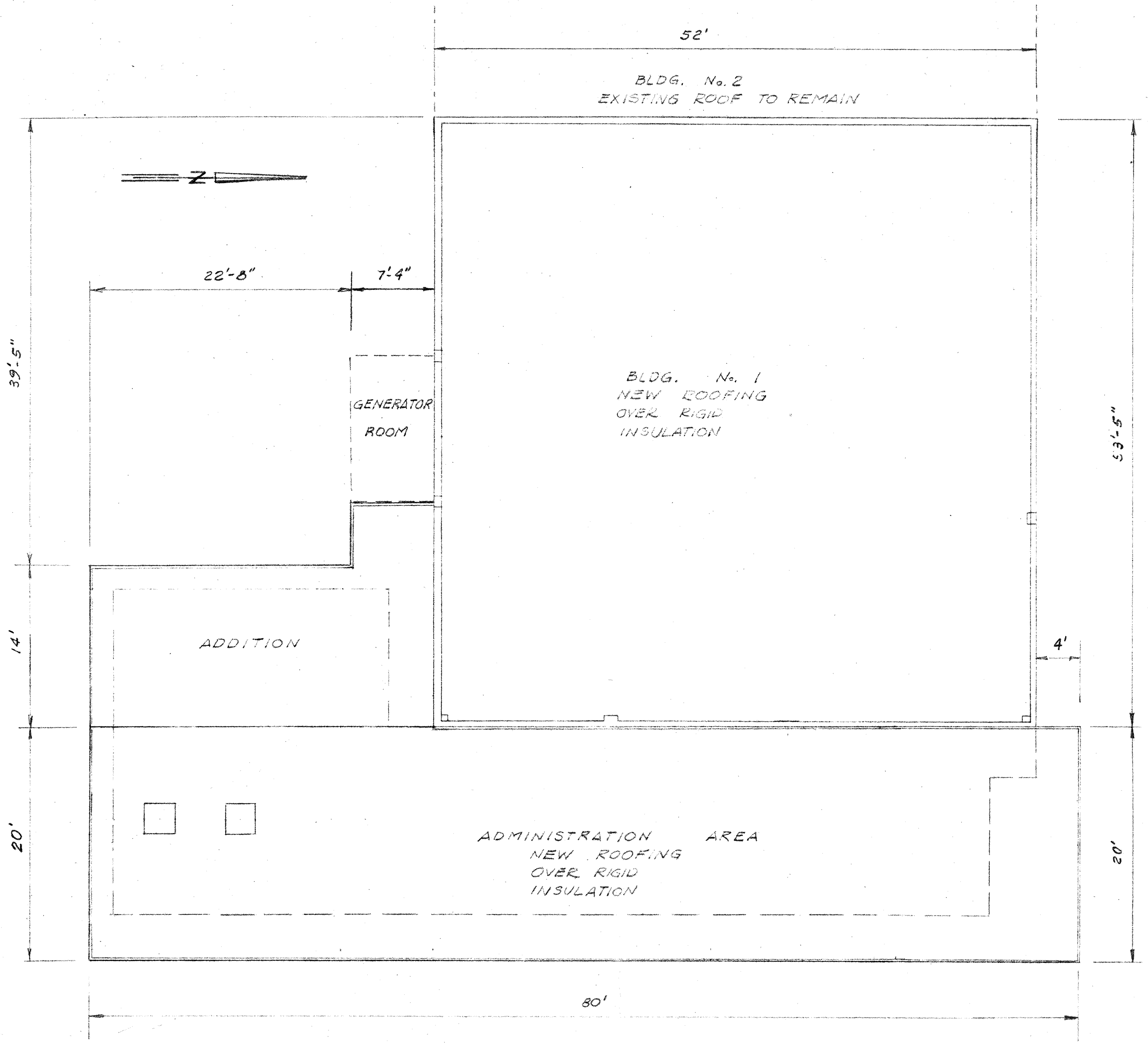


FLOOR PLAN
SCALE: 1/4"=1'-0"



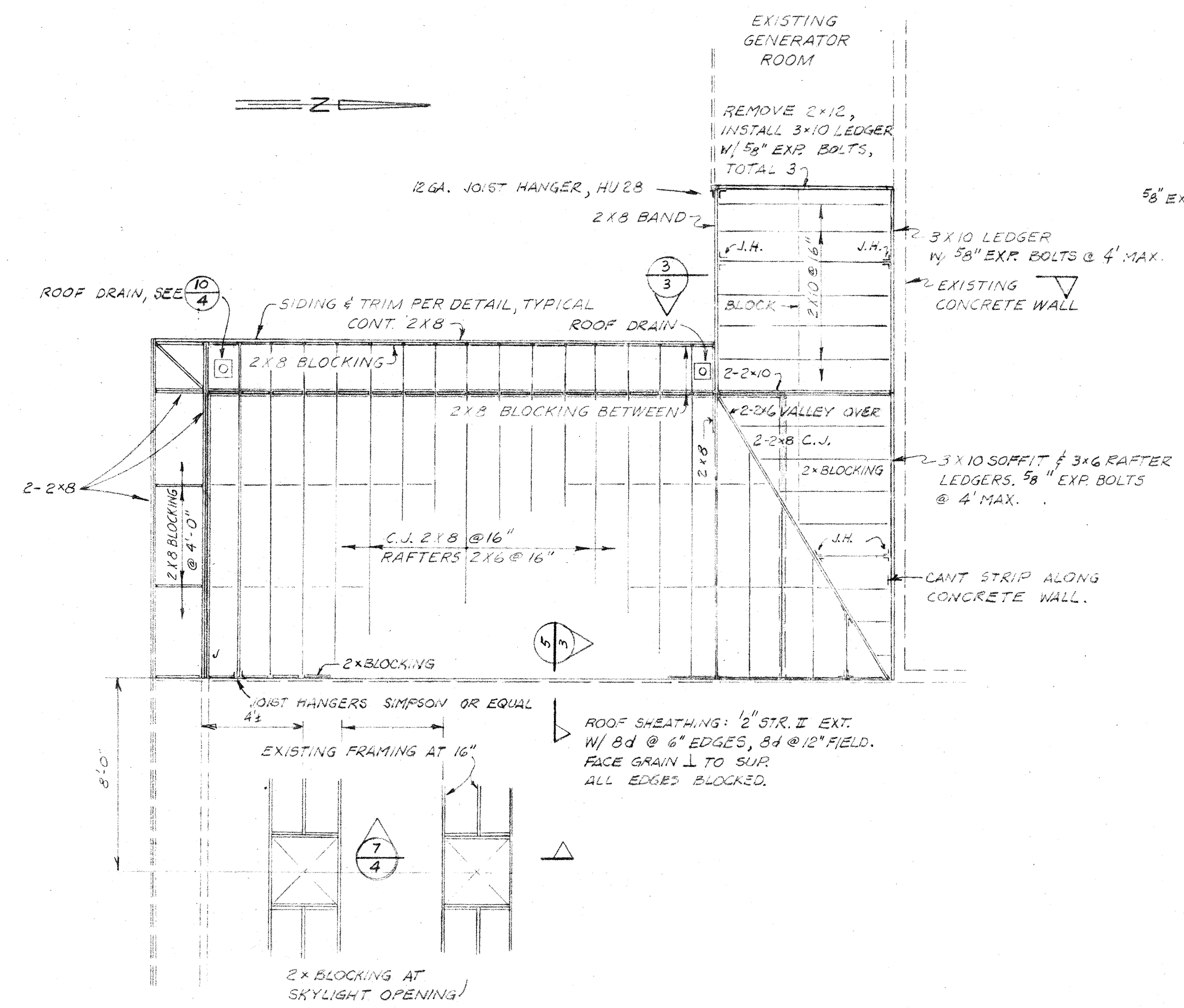
FOUNDATION PLAN
SCALE: 1/4"=1'-0"

DES. G.M.	APP. R.E.B.	NORTH COAST COUNTY WATER DISTRICT	McCANDLESS, BOONE & COOK	ADDITION TO DISTRICT OFFICE BUILDING	DWG. NO. NC 1739 G
DWN. R.G.	DATE	SAN MATEO COUNTY, CALIFORNIA	CONSULTING ENGINEERS	SITE PLAN AND ELEVATIONS	2 OF 5
CHK. G.M.	JULY 1979		1020 CORPORATION WAY PALO ALTO CALIFORNIA 94303		JOB. NO. 2-3-22

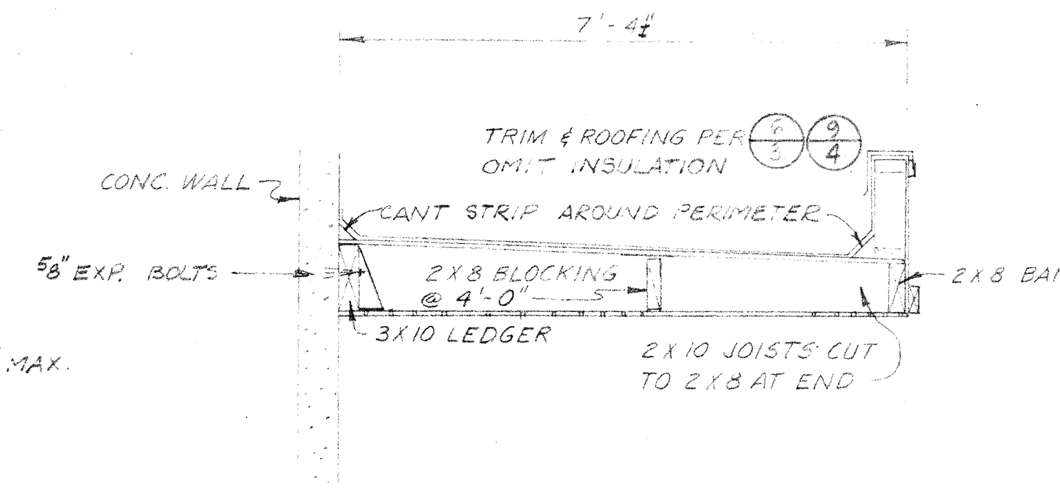


PLAN OF AREA TO BE ROOFED (1/3)
SCALE: 1/8"=1'-0"

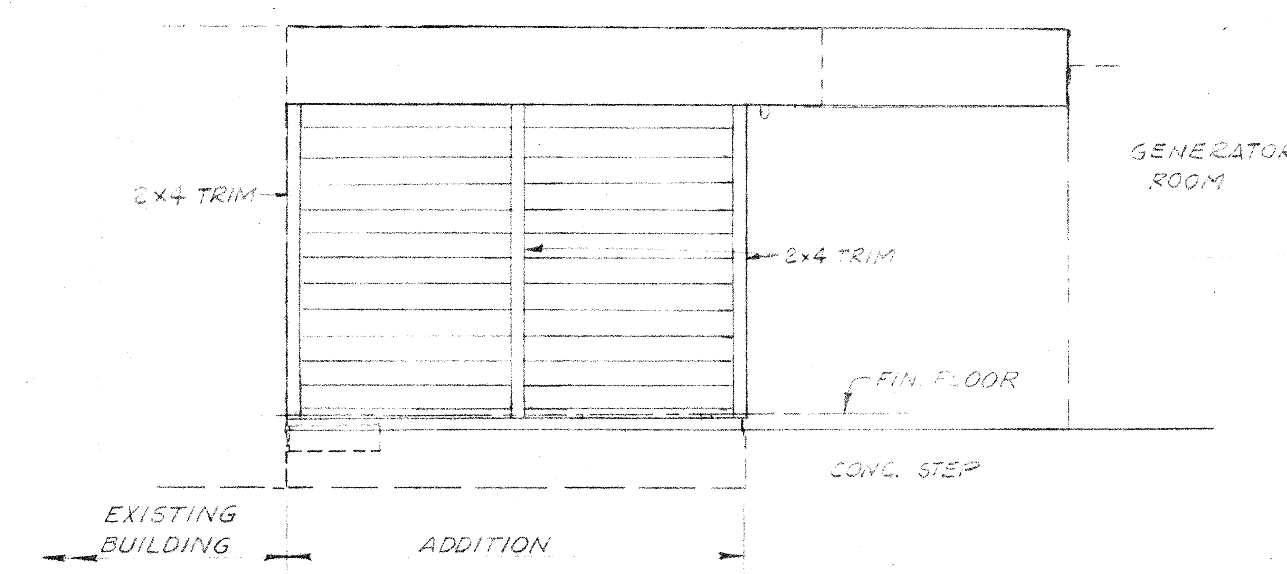
NOTE: CONTRACTOR SHALL PROVIDE NEW 20 YR. ROOFING PER SPECS. OVER BUILDING No. 1, ADMINISTRATION AREA & ADDITION.



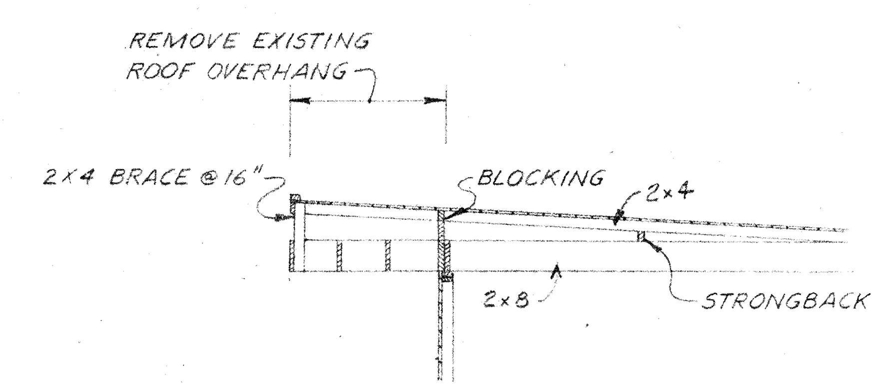
ROOF FRAMING PLAN (2/3)
SCALE: 1/4"=1'-0"



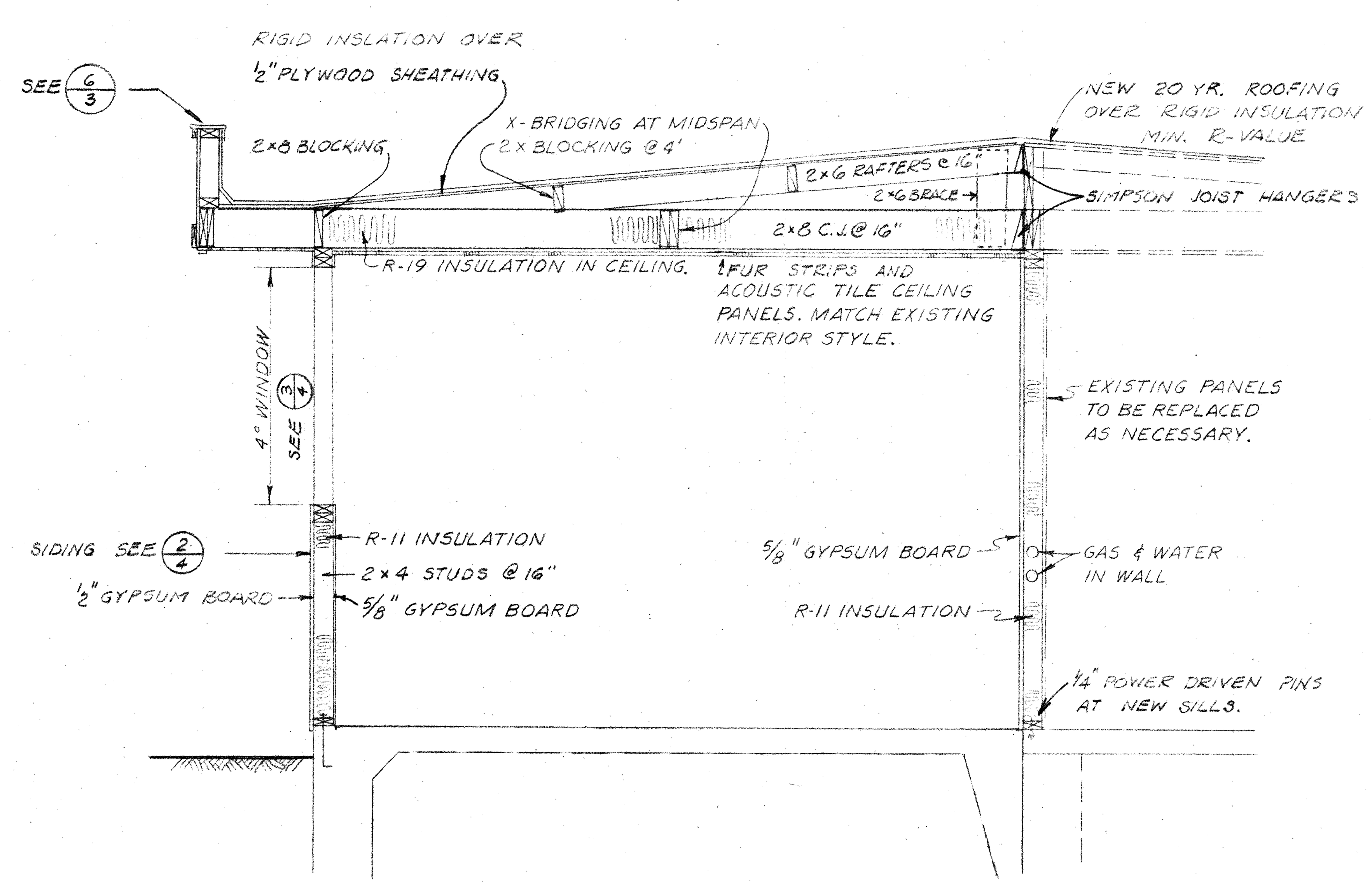
ROOF EXTENSION TO GENERATOR ROOM (3/3)
SCALE: 1/2"=1'-0"



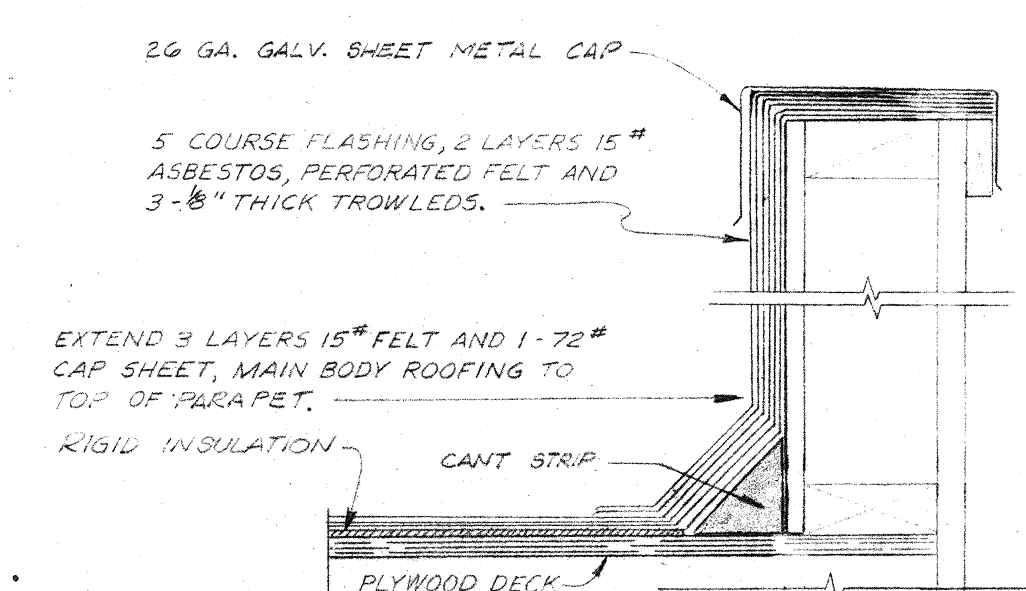
NORTH ELEVATION
SCALE: 1/4"=1'-0"



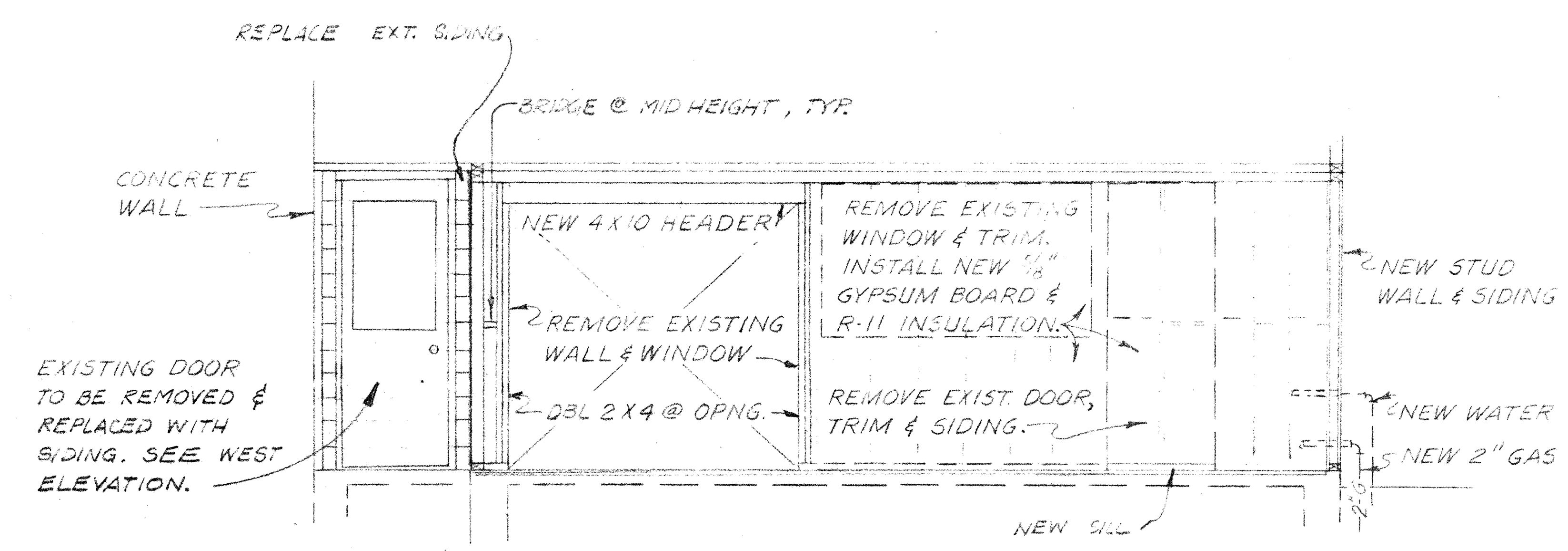
EXISTING ROOF CONSTRUCTION (5/3)
NO SCALE



FRAMING SECTION (4/3)
SCALE: 1/2"=1'-0"



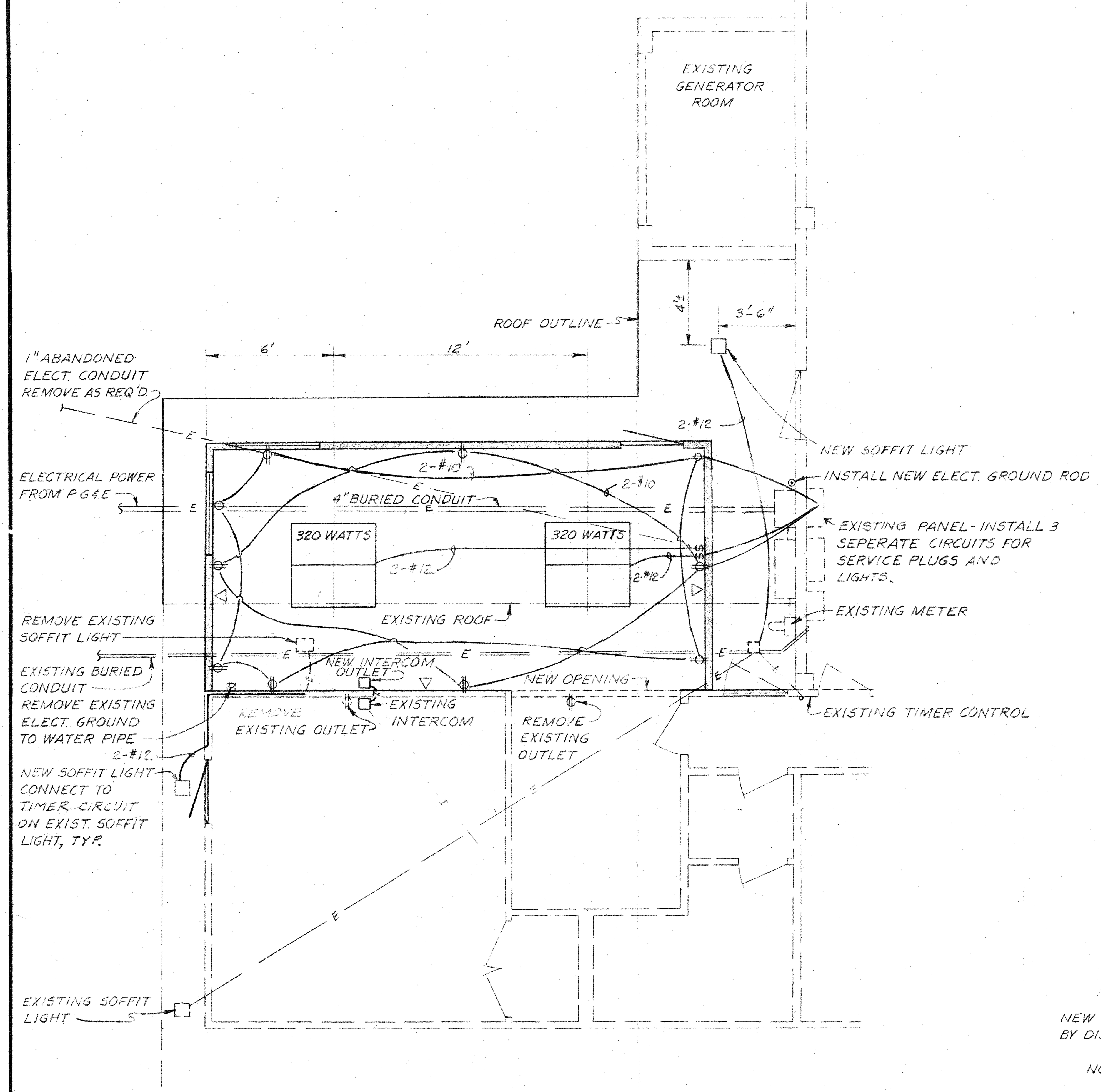
FLASHING DETAIL (6/3)
SCALE: 3"=1'-0"



NEW INTERIOR WALL (7/3)
SCALE: 1/4"=1'-0"

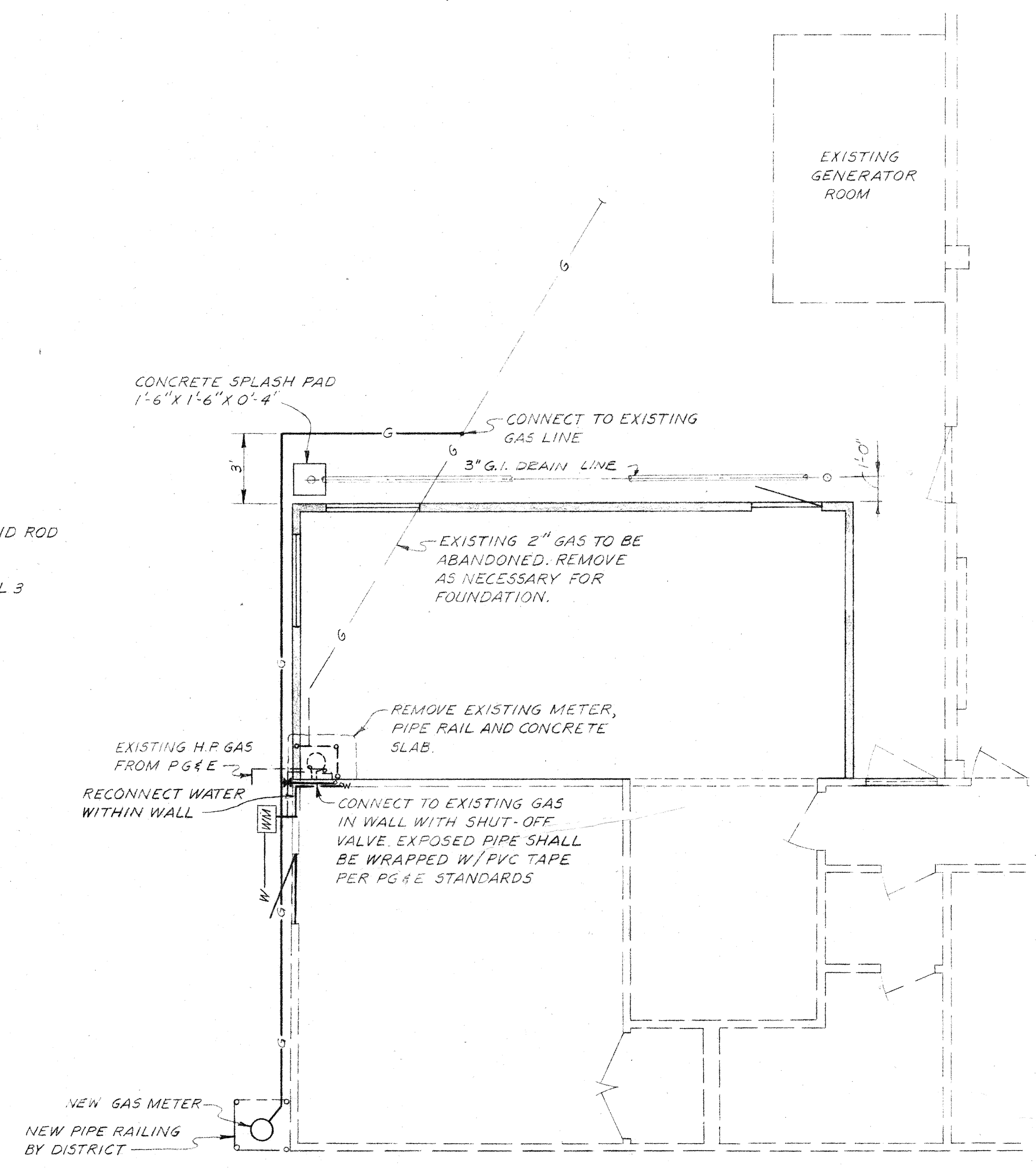
DES. G.M. DWN. R.G. CHK. G.M.	APP. R.E.B. DATE JULY 1979	NORTH COAST COUNTY WATER DISTRICT SAN MATEO COUNTY, CALIFORNIA	McCANDLESS, BOONE & COOK CONSULTING ENGINEERS 1020 CORPORATION WAY PALO ALTO CALIFORNIA 94303	ADDITION TO DISTRICT OFFICE BUILDING FRAMING SECTIONS AND DETAILS	DWG. NO. NC 1740 G 3 OF 5 JOB. NO. 2-3-22

DES. G.M. DWN. R.G. CHK. G.M.	APP. R.E.B. DATE JULY 1979	NORTH COAST COUNTY WATER DISTRICT SAN MATEO COUNTY, CALIFORNIA	McCANDLESS, BOONE & COOK CONSULTING ENGINEERS 1020 CORPORATION WAY PALO ALTO CALIFORNIA 94303	ADDITION TO DISTRICT OFFICE BUILDING DETAILS	DWG. NO. NC 1741 G 4 OF 5 JOB. NO. 2-3-22



ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"



NOTE: CONTRACTOR SHALL COORDINATE GAS METER RELOCATION WITH PG&E. CONTRACTOR SHALL PAY ALL COSTS FOR METER RELOCATION.

PLUMBING PLAN

SCALE: 1/4" = 1'-0"

ADDITION TO THE METER ROOM

OFFICE N.C.C.W.D. BLDG.

LEGEND

⌽	110V DUPLEX WALL OUTLET
$	WALL SWITCH
———	NEW ELECTRICAL CIRCUIT IN 3/4" CONDUIT
— I —	INTERCOM
□	SOFFIT LIGHT - PRESCOLITE # 1014-6614 OR EQUAL 150 WATTS
— E —	EXISTING ELECTRIC CIRCUIT
═ E ═	EXISTING BURIED ELECTRICAL CONDUIT
— G —	NEW GAS LINE
▽	TELEPHONE OUTLET
— G —	EXISTING GAS LINE

DES. G.M. DWN. R.G. CHK. G.M.	APP. R.E.B. DATE JULY 1979	NORTH COAST COUNTY WATER DISTRICT SAN MATEO COUNTY, CALIFORNIA	McCANDLESS, BOONE & COOK CONSULTING ENGINEERS 1020 CORPORATION WAY PALO ALTO CALIFORNIA 94303	ADDITION TO DISTRICT OFFICE BUILDING ELECTRICAL AND PLUMBING PLAN

DWG. NO. NC 1742 G

5 OF 5

JOB. NO. 2-3-22