REVISED

NOTICE OF REGULAR MEETING
OF THE
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY
ENGINEERING COMMITTEE

September 11, 2025
8:30 a.m.

NOTICE IS HEREBY GIVEN that a Regular Meeting of the South Orange County Wastewater Authority (SOCWA) Engineering Committee was called to be held on **September 11, 2025, at 8:30 a.m.** SOCWA staff will be present and conducting the meeting at the SOCWA Administrative Office located at 34156 Del Obispo Street, Dana Point, California.

THE SOCWA MEETING ROOM IS WHEELCHAIR ACCESSIBLE. IF YOU REQUIRE ANY SPECIAL DISABILITY RELATED ACCOMMODATIONS, PLEASE CONTACT THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY SECRETARY'S OFFICE AT (949) 234-5452 AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO THE SCHEDULED MEETING TO REQUEST SUCH ACCOMMODATIONS. THIS AGENDA CAN BE OBTAINED IN ALTERNATE FORMAT UPON REQUEST TO THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY'S SECRETARY AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO THE SCHEDULED MEETING. MEMBERS OF THE PUBLIC HAVE THE OPTION TO PARTICIPATE IN AND MAY JOIN THE MEETING REMOTELY VIA VIDEO CONFERENCE FOR VISUAL INFORMATION ONLY (USE ZOOM LINK BELOW) AND BY TELECONFERENCE FOR AUDIO PARTICIPATION (USE PHONE NUMBERS BELOW). THIS IS A PHONE-CALL MEETING AND NOT A WEB-CAST MEETING, SO PLEASE REFER TO AGENDA MATERIALS AS POSTED ON THE WEBSITE AT WWW.SOCWA.COM. ON YOUR REQUEST, EVERY EFFORT WILL BE MADE TO ACCOMMODATE PARTICIPATION. FOR PARTIES PARTICIPATING REMOTELY, PUBLIC COMMENTS WILL BE TAKEN DURING THE MEETING FOR ORAL COMMUNICATION IN ADDITION TO PUBLIC COMMENTS RECEIVED BY PARTIES PARTICIPATING IN PERSON. COMMENTS MAY BE SUBMITTED PRIOR TO THE MEETING VIA EMAIL TO ASSISTANT SECRETARY DANITA HIRSH AT DHIRSH@SOCWA.COM WITH THE SUBJECT LINE "REQUEST TO PROVIDE PUBLIC COMMENT." IN THE EMAIL, PLEASE INCLUDE YOUR NAME, THE ITEM YOU WISH TO SPEAK ABOUT, AND THE TELEPHONE NUMBER YOU WILL BE CALLING FROM SO THAT THE COORDINATOR CAN UN-MUTE YOUR LINE WHEN YOU ARE CALLED UPON TO SPEAK. THOSE MAKING PUBLIC COMMENT REQUESTS REMOTELY VIA TELEPHONE IN REAL-TIME WILL BE ASKED TO PROVIDE YOUR NAME, THE ITEM YOU WISH TO SPEAK ABOUT, AND THE TELEPHONE NUMBER THAT YOU ARE CALLING FROM SO THE COORDINATOR CAN UN-MUTE YOUR LINE WHEN YOU ARE CALLED UPON TO SPEAK. ONCE THE MEETING HAS COMMENCED, THE CHAIR WILL INVITE YOU TO SPEAK AND ASK THE COORDINATOR TO UN-MUTE YOUR LINE AT THE APPROPRIATE TIME.

AGENDA ATTACHMENTS AND OTHER WRITINGS THAT ARE DISCLOSABLE PUBLIC RECORDS DISTRIBUTED TO ALL, OR A MAJORITY OF, THE MEMBERS OF THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY ENGINEERING COMMITTEE IN CONNECTION WITH A MATTER SUBJECT FOR DISCUSSION OR CONSIDERATION AT AN OPEN MEETING OF THE ENGINEERING COMMITTEE ARE AVAILABLE FOR PUBLIC INSPECTION IN THE AUTHORITY ADMINISTRATIVE OFFICE LOCATED AT 34156 DEL OBISPO STREET, DANA POINT, CA ("AUTHORITY OFFICE") OR BY PHONE REQUEST MADE TO THE AUTHORITY OFFICE AT 949-234-5452. IF SUCH WRITINGS ARE DISTRIBUTED TO MEMBERS OF THE ENGINEERING COMMITTEE LESS THAN SEVENTY-TWO (72) HOURS PRIOR TO THE MEETING, THEY WILL BE AVAILABLE IN THE RECEPTION AREA OF THE AUTHORITY OFFICE AT THE SAME TIME AS THEY ARE DISTRIBUTED TO THE ENGINEERING COMMITTEE AND SENT TO ANY REMOTE PARTICIPANTS REQUESTING EMAIL DELIVERY OR POSTED ON SOCWA'S WEBSITE. IF SUCH WRITINGS ARE DISTRIBUTED IMMEDIATELY PRIOR TO, OR DURING, THE MEETING, THEY WILL BE AVAILABLE IN THE MEETING ROOM OR IMMEDIATELY UPON VERBAL REQUEST TO BE DELIVERED VIA EMAIL TO REQUESTING PARTIES PARTICIPATING REMOTELY.

THE PUBLIC MAY PARTICIPATE REMOTELY BY VIRTUAL MEANS. FOR AUDIO OF MEETING USE THE CALL IN PHONE NUMBERS BELOW AND FOR VIDEO USE THE ZOOM LINK BELOW.

Join Zoom Meeting
https://socwa.zoom.us
Meeting ID: 829 2769 9880
Passcode: 379713

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Engineering Committee Meeting
September 11, 2025

AGENDA

1. Call Meeting to Order

2. Public Comments

THOSE WISHING TO ADDRESS THE ENGINEERING COMMITTEE ON ANY ITEM LISTED ON THE AGENDA WILL BE REQUESTED TO IDENTIFY AT THE OPENING OF THE MEETING AND PRIOR TO THE CLOSE OF THE MEETING. THE AUTHORITY REQUESTS THAT YOU STATE YOUR NAME WHEN MAKING THE REQUEST IN ORDER THAT YOUR NAME MAY BE CALLED TO SPEAK ON THE ITEM OF INTEREST. THE CHAIR OF THE MEETING WILL RECOGNIZE SPEAKERS FOR COMMENT AND GENERAL MEETING DECORUM SHOULD BE OBSERVED IN ORDER THAT SPEAKERS ARE NOT TALKING OVER EACH OTHER DURING THE CALL.

3. Approval of Committee Member Request for Remote Participation (Standing Item)

Recommended Action: Committee Discussion/Direction and Action.

Recommended Action: Information item.

9. Regional Lab Feasibility Study 25

Recommended Action: Committee Discussion/Direction or Action.

10. Adjournment

I hereby certify that the foregoing Notice was personally emailed or mailed to each member of the SOCWA Engineering Committee at least 72 hours prior to the scheduled time of the Regular Meeting referred to above.

I hereby certify that the foregoing Notice was posted at least 72 hours prior to the time of the above-referenced Engineering Committee meeting at the usual agenda posting location of the South Orange County Wastewater Authority and at www.socwa.com.

Dated this 4th day of September 2025.
Revised this 8th day of September 2025.

Danita Hirsh, Assistant Board Secretary
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

Agenda Item 4

Engineering Committee Meeting

Meeting Date: September 11, 2025

TO: Engineering Committee

FROM: Roni Grant, Capital Improvement Program Manager

SUBJECT: Approval of Minutes

Overview

Minutes from the following meeting are included for review and approval by the Engineering Committee:

- June 12, 2025

Recommended Action: Staff recommends that the Engineering Committee approve the Minutes as submitted.

MINUTES OF REGULAR MEETING
OF THE
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

Engineering Committee

DRAFT

June 12, 2025

The Regular Meeting of the South Orange County Wastewater Authority (SOCWA) Engineering Committee was held on June 12, 2025, at 8:30 a.m. in-person and via teleconferencing from the Administrative Offices located at 34156 Del Obispo Street, Dana Point, California. The following members of the Engineering Committee were present:

MARK McAVOY	City of Laguna Beach
MIKE DUNBAR	Emerald Bay Service District
HANNAH FORD	El Toro Water District
LINDSAY LEAHY	Santa Margarita Water District
MARC SERNA	South Coast Water District

Absent:

DAVE REBENSDORF	City of San Clemente

Staff Present:

AMBER BOONE	General Manager
RONI GRANT	Capital Improvement Program (CIP) Manager
JIM BURROR	Deputy GM/Chief Engineer
JAMES JONES	Superintendent of O&M
ANNA SUTHERLAND	Staff Accountant
MATT CLARKE	Chief Technology Officer
DANITA HIRSH	Executive Assistant/Clerk of the Board

Also Present:

SANDER HUANG	South Coast Water District
ROGER BUTOW	Clean Water Now (CWN)
DAVE LARSEN	Moulton Niguel Water District
TARYN KJOLSING	South Coast Water District
STEPHEN DOPUDJA	Dopudja & Wells Consulting

1. Call Meeting to Order

   Ms. Roni Grant, Capital Improvement Program (CIP) Manager, called the meeting to order at 8:31 a.m.

2. Public Comments

   None.

3. Approval of Committee Member Request for Remote Participation (Standing Item)

   None.

4. Approval of Minutes

   - Engineering Committee Minutes of May 8, 2025.

ACTION TAKEN
A motion was made by Mr. Dunbar and seconded by Mr. Serna to approve the Engineering Committee Minutes for May 8, 2025.

Motion carried:	Aye 5, Nay 0, Abstained 0, Absent 1	
	Mr. McAvoy	Aye
	Ms. Ford	Aye
	Mr. Dunbar	Aye
	Ms. Leahy	Aye
	Mr. Serna	Aye
	Mr. Rebensdorf	Absent

5. General Manager's Report

Ms. Amber Boone, General Manager, provided an update to the PC 15 members on the status of the Taylor Collaboration Research with the Water Research Foundation. Ms. Boone also reported on the Clean Water SoCal Board meeting, which met the day before to address regulatory affairs. An open discussion ensued.

This was an information item; no action was taken.

6. Operations Report

Mr. Jim Burror, Deputy GM/Chief Engineer, also provided updates on the Clean Water SoCal meeting, in addition to updating the Committee on the status of the small capital budget. An open discussion ensued.

This was an information item; no action was taken.

7. Capital Improvement Construction Projects Progress and Change Order Report (June) [Project Committees 2 and 15]

Ms. Roni Grant updated the Engineering Committee on the status of the following CIP projects:

- JBL Scum Line Replacement – construction has been completed.
- JBL Electrical Upgrades - Pre-purchasing activities for the Motor Control Center (MCC) and Plant 1 Generator are currently underway.
- JBL and CTP SCADA System – System upgrades have been successfully completed.
- CTP Diffusers Replacement - The construction has been completed.
- CTP Aeration Deck Grating Replacement - Construction is currently in progress.
- CTP West Primary and Secondary Scum Skimming System - Pre-Purchasing of scum skimmers, launders, and weirs are currently in progress.

This was an information item; no action was taken.

8. J.B. Latham Treatment Plant (JBL) and Coastal Treatment Plant (CTP) Master Plan Level of Services Facilitation [Project Committees 2 and 15]

   ACTION TAKEN
   Mr. Serna made a motion, seconded by Ms. Leahy, to forward the agenda item to the Board of Directors for consideration and approval.

Motion carried:	Aye 4, Nay 0, Abstained 0, Absent 0	
	Mr. McAvoy	Aye
	Mr. Dunbar	Aye
	Ms. Leahy	Aye
	Mr. Serna	Aye

9. Contract Award for Coastal Treatment Plant Personnel Building Phase 2 Upgrades [Project Committee 15]

   This agenda item was tabled until the August Engineering Committee meeting so staff can obtain additional competitive quotes.

10. Adjournment

    There being no further business, Ms. Grant adjourned the meeting at 9:03 a.m.

I HEREBY CERTIFY that the foregoing Minutes are a true and accurate copy of the Minutes of the Regular Meeting of the South Orange County Wastewater Authority Engineering Committee of June 12, 2025, and approved by the Engineering Committee and received and filed by the Board of Directors of the South Orange County Wastewater Authority.

_____
Danita Hirsh, Assistant Board Secretary
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

Agenda Item 5

Engineering Committee Meeting

Meeting Date: September 11, 2025

TO: Engineering Committee

FROM: Amber Boone, General Manager

SUBJECT: General Manager's Status Report (Bylaws Update)

Resolution No. 2025-12, A Resolution No. 2025-12, A Resolution of the Board of Directors of the South Orange County Wastewater Authority Amending "Exhibit A" Engineering Committee Bylaws Revising the membership from seven (7) to six (6) with the meeting quorum Requirements to remain at four (4) members

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Discussion/Analysis

The March 2025 Board of Directors meeting revised the Engineering Committee Bylaws to reflect restructuring changes, resetting the membership from seven (7) to six (6) members while keeping the quorum requirement of (4) members. However, with the focus on engineering projects at the JB Latham Facility and the Coastal Treatment Plant, an additional revision of the bylaws are necessary.

Prior Related Project Committee or Board Action (s)

This item was reviewed and discussed by the Engineering Committee on August 14, 2025.

Recommended Action: The Engineering Committee recommends that the Board of Directors approve Resolution No. 2025-12, A Resolution of the Board of Directors of the South Orange County Wastewater Authority Amending "Exhibit A" Bylaws revising the Engineering Committee membership from six (6) members to four (4) members with the meeting quorum requirements updated to three (3) members.

Attachment(s): Resolution No. 2025-12 Amended Engineering Committee Bylaws

RESOLUTION NO. 2025-12

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE SOUTH ORANGE COUNTY WASTEWATER AUTHORITY AMENDING THE BYLAWS AND ESTABLISHING A NEW QUORUM REQUIREMENTS OF THE ENGINEERING COMMITTEE

WHEREAS, the Board of Directors of the South Orange County Wastewater Authority (SOCWA) did establish the quorum requirements for the SOCWA Engineering Committee in the Committee Bylaws by adoption of previous Resolution No. 2025-03;

WHEREAS, the Board wishes to reestablish Engineering Committee membership to reflect restructuring changes in order to facilitate the business of the Committee due to member agency withdrawal, which reduced the total number of SOCWA member agencies from six (6) to four (4).

NOW, THEREFORE, the Board of Directors of the South Orange County Wastewater Authority does hereby **RESOLVE, DETERMINE AND ORDER** as follows:

The SOCWA Engineering Committee Bylaws are hereby amended as set forth in the Bylaws attached hereto as "Exhibit A."

PASSED and **ADOPTED** by the Board of Directors of the SOUTH ORANGE COUNTY WASTEWATER AUTHORITY, County of Orange, State of California, on the 2nd day of October 2025.

SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

_____

Frank Ury, Chairman

_____

Amber Boone, General Manager/Board Secretary

(Seal)

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE)

I, AMBER BOONE, Secretary of the Board of Directors of the SOUTH ORANGE COUNTY WASTEWATER AUTHORITY ("SOCWA"), do hereby certify that the foregoing Resolution No. 2025-12 was duly adopted by the SOCWA Board of Directors at their Board Meeting held on October 2, 2025, and that it was so adopted by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Dated: October 2, 2025

_____
Amber Boone, Secretary/General Manager
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE)

I, AMBER BOONE, Secretary of the Board of Directors of the SOUTH ORANGE COUNTY WASTEWATER AUTHORITY ("SOCWA"), do hereby certify that the foregoing is a full, true, and correct copy of Resolution No. 2025-12 of said Board and that the same has not been amended or repealed.

Dated: October 2, 2025

_____
Amber Boone, Secretary/General Manager
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

(Seal)

EXHIBIT "A"

BYLAWS
OF THE
SOUTH ORANGE COUNTY WASTEWATER AUTHORITY
ENGINEERING COMMITTEE

The Engineering Committee is an advisory committee formed by the Board of Directors of SOCWA and comprised of Member agency technical staff to coordinate, advise, and oversee all engineering and technical matters, with the support of the General Manager and SOCWA staff.

Section 1. Membership. The Engineering Committee shall consist of ~~six (6)~~ four (4) technical or engineering staff representatives, including one representative appointed from each Member Agency. The members shall serve at the pleasure of the Member Agency and may serve continuously until replaced by that Member Agency. Alternate representatives from the same Member Agency may substitute for the appointed committee member at any Engineering Committee meeting in the appointed member's absence. Any such alternate representative substituting for a committee member shall be afforded all rights and be charged with all duties any Engineering Committee member has pursuant to the Bylaws.

Section 2. Committee Procedures. ~~Four (4)~~ Three (3) Engineering Committee members shall constitute a quorum for purposes of conducting business when the project/proposal being reviewed is for the benefit of the entire Authority. In other cases specific to a Project Committee, a quorum will consist of a simple majority of the members representing a particular Project Committee(s). Each member of the Engineering Committee is entitled to one (1) vote. Any actions or matters voted upon by the Engineering Committee must be approved by a majority of the members participating. The members of the Engineering Committee shall serve without compensation.

Section 3. Duties and Responsibilities. The Engineering Committee shall have the following duties and responsibilities:

(a) Review Authority capital projects and recommend same for approval by the Board, as appropriate.
(b) Annually review the Authority's Fiscal Year Capital Budgets and recommend same for approval by the Board, as appropriate.
(c) Assist SOCWA staff in the development, review, analysis, and planning of the Authority's technical, engineering, and capital projects, including long-term capital project planning.
(d) Other duties as delegated by the Board of Directors.

Section 4. Meetings. The Engineering Committee shall meet, as needed, on the 2nd Thursday of every month at 8:30 a.m. unless otherwise re-scheduled and properly noticed. The meetings shall be held at the SOCWA Administrative Office located at 34156 Del Obispo Street, Dana Point, California 92629.

Section 5. Public Meetings. All meetings of the Engineering Committee shall be open to the public, except as provided by law and in accordance with the law. The Secretary of SOCWA or their designee shall keep minutes of the Engineering Committee meetings.

Section 6. Amendment. The SOCWA Board of Directors may amend these Bylaws from time to time.

Agenda Item 6

Engineering Committee Meeting

Meeting Date: September 11, 2025

TO: Engineering Committee

FROM: Amber Boone, General Manager

SUBJECT: Use Audit Flows and Solids FY 24-25

Summary

The Use Audit flow allocation methodology has relied on historical practice for allocation of costs. This agenda item reviews the methodology per project committee (PC), which is presented to the Engineering Committee and SOCWA Board members on an annual basis for review, comment, and use in the annual Use Audit for FY 24-25.

Results

Captured herein are the methodologies employed and the results by member agency based on the raw and calculated data, which have been distributed to Engineering Committee members for review and comment. Please note that PC 5 and PC 24 are attributed to fixed costs.

PC 2

Member agency average flows for the FY were used in the flow allocation and applied proportionally from the total combined flow from each tributary trunk line. The PC 2 uses FY flows and three-year FY average solid loadings to reconcile the budgeted amounts. Solids loadings are calculated by adding the average FY BOD and TSS and, dividing by 2 and then multiplying the result by the flow and the 8.34 pounds conversion factor. In March 2018, PC2 members Moulton Niguel Water District (MNWD) and Santa Margarita Water District (SMWD) came to an agreement on how to allocate solids for budgeting and use audit purposes. The new method captures the influent loading at Plant 3A as it was recognized that this allocation would isolate MNWD's solids contributions to JBL to a single variable. SMWD solids to JBL would then be the balance of solids contributed by the Oso Creek Water Reclamation Plant, 3A, and any other discharges to the Oso Trabuco line to JBL.

Summary results for PC2 are included in Table 1. The total sum of the metered flows on the line influent into the JB Latham facility was 7.98 mgd. Calculated values with the 1.4mgd constant from MNWD is 8.49 mgd. The percentage difference between metered and billing flows was 6.2%.

Table 1: PC2 Liquids and Solids Summary Table

PC2 - JB Latham Plant				
Liquids Summary (mgd)				
Agency	2024-2025 Budgeted Flow (mgd)	2024-2025 Budgeted Percent	2024-2025 Total Billing Flow (mgd)	Total Percent To Date
San Juan Trunkline (1)				
MNWD (2)	1.40	19.07 %	1.40	16.50 %
SCWD	1.74	23.71 %	1.58	18.62 %
Oso-Trabuco Trunkline/SMWD (3)	4.20	57.22 %	5.51	64.88 %
	7.34	100.00 %	8.49	100.00 %
Solids Summary Loading (mgd)				
Agency	2024-2025 Budgeted Flow	2024-2025 Budgeted Percent	Total Avg. Loadings Billing Loading	Total Percent To Date
San Juan Trunkline (1)				
MNWD (2)	5134.17	19.29 %	4103.00	17.71 %
SCWD	6279.59	23.59 %	5980.00	25.80 %
Trunkline/SMWD (3)	15206.71	57.12 %	13091.00	56.49 %
	26620.47	100.00 %	23174.00	100.00 %
(1) San Juan Trunkline was previously allocated to the City of San SMWD, the flows are included in SMWD's total flows and solids loading and included for clarity in total flows and solids contribution Juan Capistrano (CSJC). With the acquisition of CSJC's flow by due to sharing of the Oso-Trabuco line by SMWD and MNWD.				
(2) Please refer to the MNWD & SMWD Agreement from 2018 for flow/solids splitting in the Oso-Trabuco line.				
(3) SMWD includes flow from San Juan Creek trunkline flow plus Oso trabuco flow split minus the 1.4mgd flow constant from MNWD.				

PC 12

The PC 12 method of production is detailed by member agency in the following narrative. San Juan Capistrano is the acre-foot sum of the Rosenbaum well, the Mission Street Well, and the total reclaimed water from the SMWD/CSJC intertie. For MNWD, it is the amount of reclaimed water produced from the Regional Treatment Plant (RTP) and the 3A Treatment Plant (split with SMWD). South Coast Water District (SCWD) is the total reclaimed water produced from the Coastal Treatment Plant (CTP). The Santa Margarita Water District (SMWD) is the combined sum of reclaimed water produced from the 3A Treatment Plant (split with MNWD), the Oso Creek Water Reclamation Plant (OCWRP), the Chiquita Water Reclamation Plant (CWRP), and the Nichols Water Reclamation Plant (NWRP). The Trabuco Canyon Water District (TCWD) is reclaimed water produced from the Robinson Ranch Water Reclamation Plant (RRWRP). Summary results for PC2 are included in Table 2.

Table 2: PC12 Liquids Summary Table

PC 12 Recycled Water Master Recycled Water Permit 2024-2025		
Member Agency	Region 9 Recyled Production FY 2024-2025 acft	% RW Produced FY 2024-2025 %
CSJC	868.00	6.45
MNWD	5650.00	42.03
SCWD	745.00	5.54
SMWD	5724.00	42.58
TCWD	458.00	3.41
Total	**13445.00**	**100.00**

PC 15

Due to the lack of solids handling capacity at the Coastal Treatment Plant (CTP), allocation methodology is based on flows to the treatment plant. In addition, there are no current flow meters installed to account for any flow sent to CTP from MNWD, so no flow is being accounted for in this PC flow allocation methodology. The City of Laguna Beach (CLB) is the average annual flow into CTP (metered). The Emerald Bay Services District (EBSD) is the average annual flow into CTP (calculated from the monthly meter reads from the lift station divided by the days in the month). The South Coast Water District (SCWD) is the average annual flow into CTP (metered). The meter calibration is performed annually in June. Summary results for PC15 are included in Table 3.

Table 3: PC15 Liquids and Solids Summary Table

PC 15 Actual Flows FY 2024-2025 Coastal Treatment Plant		
Member Agency	Plant Flows MGD	Plant Flow Percent
CLB	1.65	58.70
EBSD	.07	2.48
SCWD	1.09	38.82
MNWD	.00	.00
Total	2.82	100.00

PC 17

PC 17 has liquid and solids contribution. The liquid flow allocation is based on influent flow to the plant. The influent flow is solely contributed by the MNWD. Due to liquid flow from CTP, the centrate flow is divided by 5 and distributed to each agency, then summed to create a total liquid flow to RTP. The flows are then distributed on a proportional basis. The solids contribution is based on the total daily average pounds contributed by each agency distributed proportionally. The meter calibration is performed annually in June. Summary results for PC17 are included in Tables 4 and 5 with significant digits to the ten thousand digits due to lower comparative flows of the centrate.

Table 4 & 5: PC 17 Liquids (Table 4) and Solids (Table 5) Summary Tables

PC 17 Liquids
Regional Treatment Plant
FY 2024-2025

Member Agency	Plant Flow (MGD)	Centrate Flow (MGD)	Total Flow (MGD)	Liquid Flow (%)
CLB	.00	0.01384	0.0138	0.19%
EBSD	.00	0.00058	0.0006	0.01%
SCWD	.00	0.00989	0.0099	0.14%
ETWD	.00	0.01228	0.0123	0.17%
MNWD	7.21	0.05256	7.2626	99.50%
Total	**7.21**	**.09**	**7.30**	**100%**

PC 17 Solids
Regional Treatment Plant
FY 2024-2025

Agency	#/Day	%
CLB	5949.61	16.43%
ETWD	5413.00	14.95%
EBSD	232.17	0.64%
MNWD	20340.47	56.16%
SCWD	4280.64	11.82%
Total	**36215.89**	**100%**

Recommended Action: The Engineering Committee recommends that the Board of Directors approve the Use Audit calculated results for the close of the Use Audit for disbursement or collection of additional funds in FY 24-25.

Agenda Item 8

Engineering Committee Meeting

Meeting Date: September 11, 2025

TO: Engineering Committee

FROM: Roni Grant, Capital Improvement Program Manager

SUBJECT: Capital Improvement Construction Projects Progress and Change Order Report (September*)* [Project Committees 2 and 15]

Overview

This agenda item provides a status update on active construction projects, including any associated change orders. Updated Capital Improvement Program (CIP) reports are attached for reference.

Project Updates

JBL Electrical Upgrades
Pre-purchasing activities for the Motor Control Center (MCC) and Plant 1 Generator are currently underway.

JBL Effluent Pump Station and Energy Building Upgrades
Construction is currently in progress.

JBL Plant 2 Headworks Rehabilitation
Construction is currently in progress.

JBL Old Effluent Pump Station Storage and Staging
The project is currently in bidding phase.

CTP Diffusers Replacement
Construction has been completed.

CTP Aeration Deck Grating Replacement
Construction is near completion.

CTP West Primary and Secondary Scum Skimming System
Pre-Purchasing of scum skimmers, launders, and weirs is currently in progress.

CTP Personnel Building Phase 2 Reconstruction
The project is currently in re-bidding phase.

Recommended Action: Information only.

SCAQMD Permit Status Updates for Upcoming CIP Projects

JBL Plant 1 Generator (A/N 654624)				
Application Date	**Communication Dates from SCAQMD**	**Information requested from SCAQMD**	**Information provided to SCAQMD**	**Response Dates from SOCWA**
8/1/24	9/11/24	CG18 gas engine technical data	Provided technical data	9/25/24
	10/8/24	Serial number and model year	Serial number and model year not available, confirmed flapper type rain cap	10/9/24
	10/17/24	Maintenance and testing requirements	Confirmed requirements	10/18/24
	1/15/25	Confirmed receipt of serial number and model year	Provided serial number and model year	1/13/25
	4/25/25	Requested to confirm EPA family code	Confirmed EPA family code and provided EPA certificate	4/25/25
JBL Flare System (A/N 657267)				
Application Date	**Communication Dates from SCAQMD**	**Information requested from SCAQMD**	**Information provided to SCAQMD**	**Response Dates from SOCWA**
12/13/24	1/8/25	Requested additional fee	Paid online	1/21/25
	1/24/25	Requested voucher or receipt from the online payment	Provided voucher payment and receipt number	1/24/25
	4/1/25 and 4/18/25	Requested clarification on facility ownership	Clarified the facility ownership	4/23/25
	5/14/25	Additional information needed on the flare Varec 244E unit	Provided additional information	5/19/25
	5/21/25	Requested specifications on the flare retention time and temperature	Provided additional information	5/22/25
	8/7/25	Additional questions regarding the existing flare and proposed flare system	Responses provided	8/14/25

CTP Odor Scrubber System (A/N 656320)				
Application Date	**Communication Dates from SCAQMD**	**Information requested from SCAQMD**	**Information provided to SCAQMD**	**Response Dates from SOCWA**
10/2/24	11/8/24	Additional information needed	Design intent clarified	11/19/24
	7/15/25	Additional information needed	Additional information provided	7/18/25

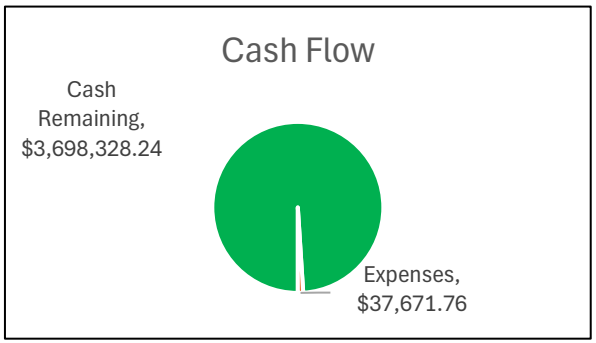
Recommended Action: Information only.

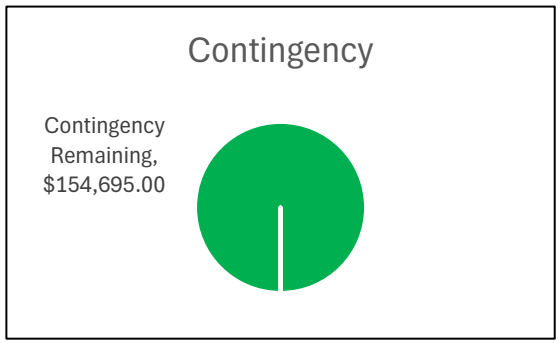
Project Financial Status

Project Committee	2
Project Name	Effluent Pump Station and Energy Building Upgrades
Project Description	Replacement of effluent valves and piping; installation of monorail, roof, safety upgrades and seimsic retrofit in the Energy Building

Data Last Updated

August 29, 2025





Cash Flow

Collected	$ 3,736,000.00
Expenses	$ 37,671.76

Project Completion

Schedule	10%
Budget	1.17%

Construction Contracts

Company	PO No.	Original	Change Orders	Amendments	Total	Costs to Date
Pacific Hydrotech	21280	$ 3,093,900.00			$ 3,093,900.00	
Carollo Engineers	20453	$ 119,316.00			$ 119,316.00	$ 7,867.00
Project Partners	21283	$ 12,500.00			$ 12,500.00	
SOCWA Staff Time	32226L/32225S/3216					$ 29,804.76
		$ 3,225,716.00	**$ -**	**$ -**	**$ 3,225,716.00**	**$ 37,671.76**

Construction Contingency

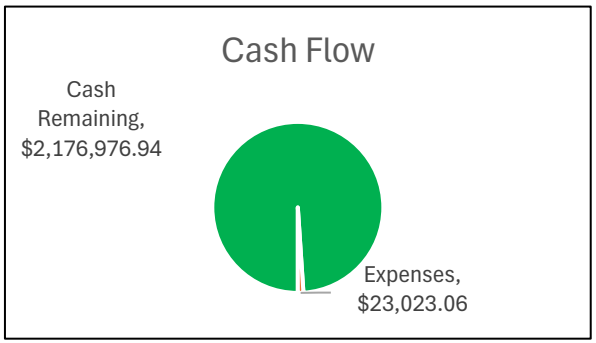
Area	Project Code	Amount	Change Orders	Total Remaining	Percent Used
Liquids/Solids/Common	32226L/32225S/3216	$ 154,695.00		$ 154,695.00	0.0%
		$ 154,695.00	**$ -**	**$ 154,695.00**	**0.0%**

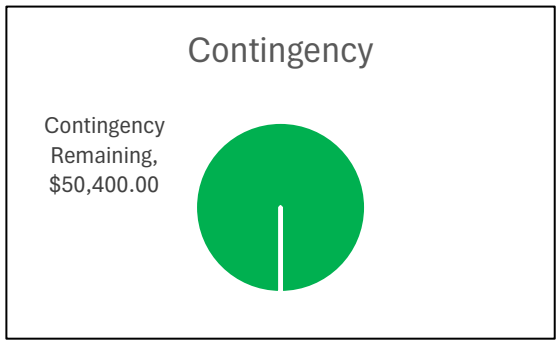
Project Financial Status

Project Committee	2
Project Name	Plant 2 Headworks Rehabilitation - 32243L
Project Description	Plant 2 Headworks building roof replacement, channel concrete repair and cover replacement, and electrical modification

Data Last Updated

August 29, 2025





Cash Flow

Collected	$ 2,200,000.00
Expenses	$ 23,023.06

Project Completion

Schedule	10%
Budget	1.05%

Construction Contracts

Company	PO No.	Original	Change Orders	Amendments	Total	Costs to Date
Pacific Hydrotech		$ 2,149,600.00			$ 2,149,600.00	
Dudek Engineers	20250	$ 47,858.00			$ 47,858.00	
Project Partners	21283	$ 5,000.00			$ 5,000.00	
SOCWA Staff Time	32243L					$ 23,023.06
		$ 2,202,458.00	**$ -**	**$ -**	**$ 2,202,458.00**	**$ 23,023.06**

Construction Contingency

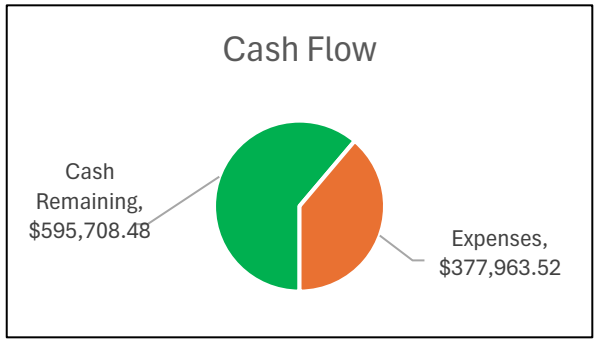
Area	Project Code	Amount	Change Orders	Total Remaining	Percent Used
Liquids	32243L	$ 50,400.00		$ 50,400.00	0.0%
		$ 50,400.00	**$ -**	**$ 50,400.00**	**0.0%**

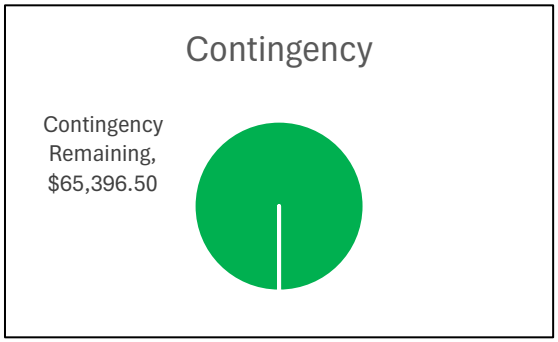
Project Financial Status

Project Committee	2
Project Name	Electrical System Upgrades - 3252
Project Description	Electrical System upgrades including MCC and Plant 1 Generator

Data Last Updated

August 29, 2025





Cash Flow

Collected	$	973,672.00
Expenses	$	377,963.52

Project Completion

Schedule	40%
Budget	46%

Construction Contracts

Company	PO No.	Original	Change Orders	Amendments	Total	Costs to Date
Quinn Power	20975	$ 414,940.00			$ 414,940.00	$ 264,999.15
Pacific Parts	20561	$ 239,025.00			$ 239,025.00	$ 56,331.22
Hazen	14331	$ 164,350.00			$ 164,350.00	$ 6,140.00
SOCWA Staff Time	3252					$ 50,493.15
		$ 818,315.00	**$ -**	**$ -**	**$ 818,315.00**	**$ 377,963.52**

Construction Contingency

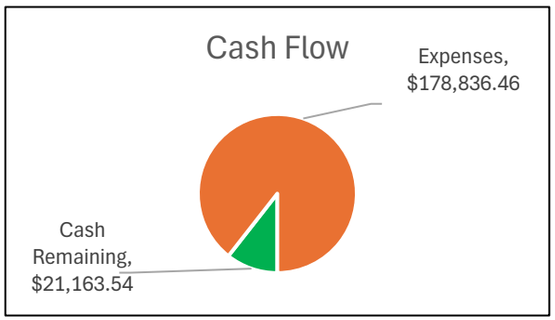
Area	Project Code	Amount	Change Orders	Total Remaining	Percent Used
Liquids	3252	$ 65,396.50		$ 65,396.50	0.0%
		$ 65,396.50	**$ -**	**$ 65,396.50**	**0.0%**

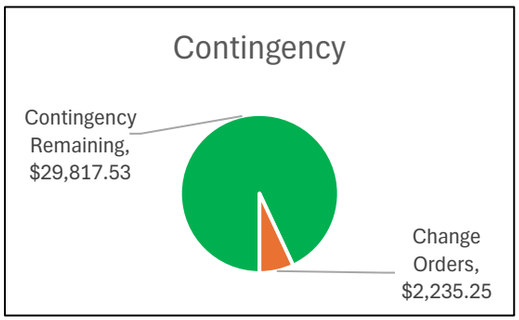
Project Financial Status

Project Committee	15
Project Name	Grating Replacement on Aeration/Secondary Deck - 35245L
Project Description	Replacement of grating on west aeration/secondary deck

Data Last Updated

August 29, 2025





Cash Flow

Collected	$	200,000.00
Expenses	$	178,836.46

Project Completion

Schedule	90%
Budget	89%

Construction Contracts

Company	PO No.	Original	Change Orders	Amendments	Total	Costs to Date
SS Mechanical	20588	$ 147,126.00	$ 23,056.47		$ 170,182.47	$ 161,673.35
Project Partners	20877	$ 25,000.00			$ 25,000.00	$ 7,482.50
Steve Andrews	20332	$ 2,818.00			$ 2,818.00	$ 483.00
SOCWA Staff Time	35245L					$ 9,197.61
		$ 174,944.00	**$ 23,056.47**	**$ -**	**$ 198,000.47**	**$ 178,836.46**

Construction Contingency

Area	Project Code	Amount	Change Orders	Total Remaining	Percent Used
Liquids	35245L	$ 52,874.00	$ 23,056.47	$ 29,817.53	43.6%
		$ 52,874.00	**$ 23,056.47**	**$ 29,817.53**	**43.6%**

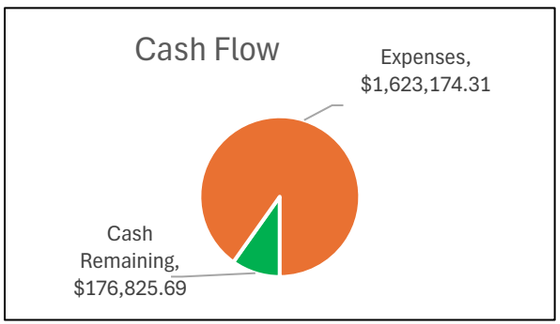
Change Order No.	Vendor Name	Project ID	Description	Status Date	Days	Amount
1	SS Mechanical	35245L	316L SST angle in lieu of 304L SST angle at the Step-Feed Channel	1/8/2025	94	$ 2,235.25
2	SS Mechanical	35245L	Change Secondary effluent grating from 1-inch to 1.5"	1/31/2025	89	$ 8,639.53
3	SS Mechanical	35245L	Removal and Replacement of Rebar without proper edge clerances	7/9/2025	90	$ 12,181.69
						$ 23,056.47

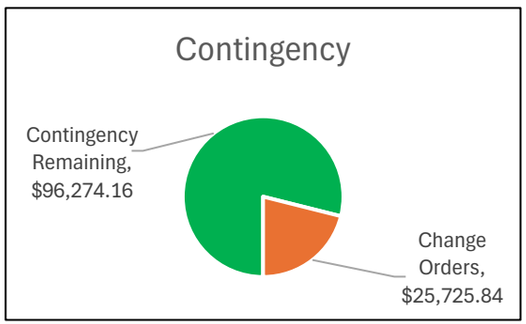
Project Financial Status

Project Committee	15
Project Name	Aeration Diffusers Replacement - 35228L
Project Description	Replacement of diffusers in the aeraiton tanks.

Data Last Updated

August 29, 2025





Cash Flow

Collected	$ 1,800,000.00
Expenses	$ 1,623,174.31

Project Completion

Schedule	100%
Budget	90%

Construction Contracts

Company	PO No.	Original	Change Orders	Amendments	Total	Costs to Date
Filanc	19640	$ 1,022,250.00	$ 25,725.84		$ 1,047,975.84	$ 1,047,975.84
EDI	16620	$ 250,490.00			$ 250,490.00	$ 250,490.00
EDI	20885	$ 82,800.00			$ 82,800.00	$ 82,800.00
Hazen	17256/19641	$ 93,578.00			$ 93,578.00	$ 68,266.54
SS Mechanical	20443	$ 37,535.00			$ 37,535.00	$ 37,537.00
SS Mechanical	21179	$ 81,480.00			$ 81,480.00	$ 81,480.00
SOCWA Staff Time	35228L					$ 54,624.93
		$ 1,568,133.00	**$ 25,725.84**	**$ -**	**$ 1,593,858.84**	**$ 1,623,174.31**

Construction Contingency

Area	Project Code	Amount	Change Orders	Total Remaining	Percent Used
Liquids	35228L	$ 122,000.00	$ 25,725.84	$ 96,274.16	21.1%
		$ 122,000.00	**$ 25,725.84**	**$ 96,274.16**	**21.1%**

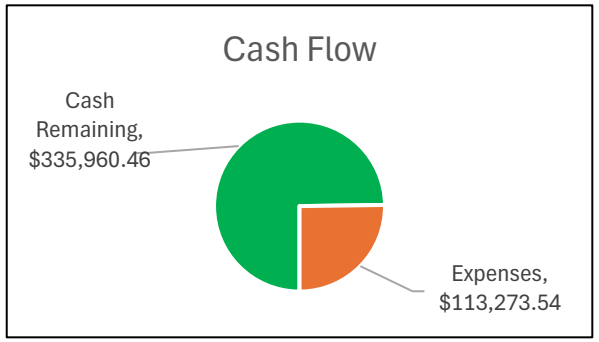
Change Order No.	Vendor Name	Project ID	Description	Status Date	Days	Amount
1	Filanc	35228L	Contract Extension	4/4/2024	273	$ -
2	Filanc	35228L	Solids removal in basins	1/25/2025	60	$ 25,725.84

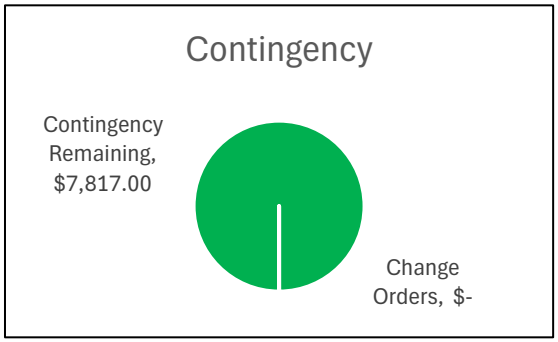
Project Financial Status

Project Committee	15
Project Name	Personnel Building Reconstruction - 3525
Project Description	Personnel building reconstruction including fixtures, lightings, ceiling, tiles and minor electrical

Data Last Updated

August 29, 2025





Cash Flow

Collected	$	449,234.00
Expenses	$	113,273.54

Project Completion

Schedule	100%
Budget	25%

Construction Contracts

Company	PO No.	Original	Change Orders	Amendments	Total	Costs to Date
T.E. Roberts	20930	$ 78,165.00			$ 78,165.00	$ 78,165.00
Project Partners	20877	$ 35,000.00			$ 35,000.00	$ 7,280.00
SOCWA Staff Time	3525					$ 27,828.54
		$ 113,165.00	**$ -**	**$ -**	**$ 113,165.00**	**$ 113,273.54**

Construction Contingency

Area	Project Code	Amount	Change Orders	Total Remaining	Percent Used
Liquids	3525	$ 7,817.00		$ 7,817.00	0.0%
		$ 7,817.00	**$ -**	**$ 7,817.00**	**0.0%**

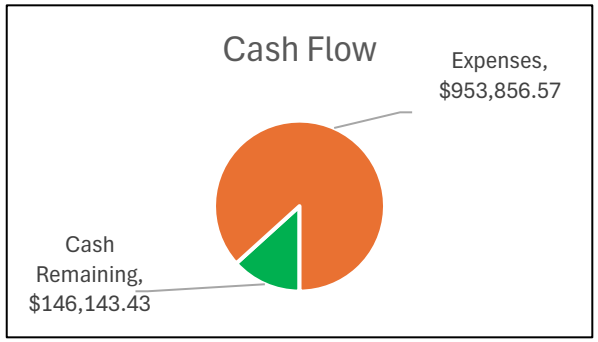
Change Order No.	Vendor Name	Project ID	Description	Status Date	Days	Amount
						$ -

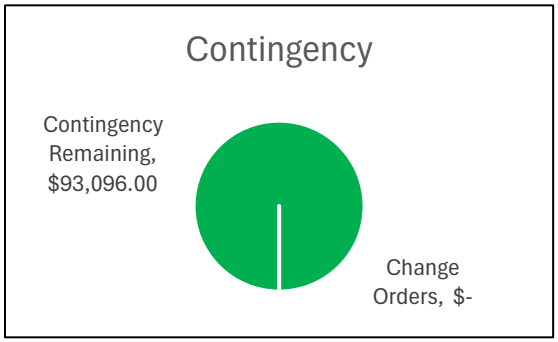
Project Financial Status

Project Committee	15
Project Name	West Primary and Secondary Sludge Skimming System - 35246L/35239L
Project Description	Replacement of west primary and secondary sludge skimming system

Data Last Updated

August 29, 2025





Cash Flow

Collected	$	1,100,000.00
Expenses	$	953,856.57

Project Completion

Schedule	50%
Budget	87%

Construction Contracts

Company	PO No.	Original	Change Orders	Amendments	Total	Costs to Date
Brentwood	20496	$ 930,960.00			$ 930,960.00	$ 930,960.00
Z&K/Ardurra	12240	$ 12,240.00			$ 12,240.00	$ 11,031.00
SOCWA Staff Time	35246L/35239L					$ 11,865.57
		$ 943,200.00	**$ -**	**$ -**	**$ 943,200.00**	**$ 953,856.57**

Construction Contingency

Area	Project Code	Amount	Change Orders	Total Remaining	Percent Used
Liquids	35246L/35239L	$ 93,096.00	$ -	$ 93,096.00	0.0%
		$ 93,096.00	**$ -**	**$ 93,096.00**	**0.0%**

Change Order No.	Vendor Name	Project ID	Description	Status Date	Days	Amount

Agenda Item 9

Engineering Committee Meeting

Meeting Date: September 11, 2025

TO: Engineering Committee

FROM: Amber Boone, General Manager

SUBJECT: Lab Feasibility Study Update

Summary

SOCWA's existing Laboratory, located at the Regional Treatment Plant in Laguna Niguel, provides essential water testing and analysis. SOCWA contracted with the Austin Company to conduct a feasibility study evaluating two scenarios:

1. Modernization of the existing laboratory without expansion.
2. Building expansion to include a separate drinking water and microbiology lab.

The study involved reviewing local building codes, conducting a hazardous materials assessment, surveying the existing facility, reviewing record drawings, and holding programming meetings with SOCWA stakeholders. Two conceptual layouts were developed for each scenario, from which SOCWA selected Option 1B for modernization without expansion and Option 2A for the expansion scenario. These were further refined with facility plans, system narratives, preliminary cost opinions, and milestone schedules.

Discussion

The feasibility study evaluated the viability of both options and provides rough-order-of-magnitude (ROM) estimates with a -10%/+25% accuracy range. The study focuses on design intent for budgeting purposes, with exact details to be confirmed in subsequent design phases. Key elements include architectural, structural (for Option 2A), mechanical, plumbing, and electrical upgrades, ensuring compliance with local codes and zoning in Laguna Niguel. Hazardous materials quantities are below code allowances.

Option 1B: Modernization Without Expansion

- **Scope:** Interior tenant improvements to the existing 1,806 sf laboratory, including demolition of casework, countertops, and select walls/ceilings; new flooring, ceilings, metal cabinetry, sliding glass doors, fume hoods, and ventilation; relocation of equipment; and a premanufactured exterior metal shed for chemical waste. No structural expansion.
- **Key Features:** Updated general chemistry, microbiology, solids, and storage areas; enclosed drinking water and microbiology area; new safety cabinets; new fume hoods (2); high-density shelving mobile; and utility upgrades.
- **Preliminary Opinion of Cost:** $2,561,000 (includes construction, contingencies, engineering, general/administrative costs, and fees). Cost per sf: $1,418.
- **Preliminary Milestone Schedule:** Total duration approximately 186 days.

Option 2A: Modernization With Expansion

- **Scope:** Adds 1,235 sf expansion for additional lab and storage space, plus renovations to the existing 1,806 sf (total 3,041 sf). Includes sitework, new concrete foundations/slabs, structural steel framing, roofing, exterior walls, and similar interior upgrades as Option 1B.
- **Key Features:** Separate drinking water and microbiology lab; dedicated sample receiving area; one additional fume hood; enhanced storage; new rooftop heat pump; and expanded utilities.
- **Preliminary Opinion of Cost:** $5,212,000 (includes construction, contingencies, engineering, general/administrative costs, and fees). Cost per sf: $1,714.
- **Preliminary Milestone Schedule:** Total duration approximately 242 days,

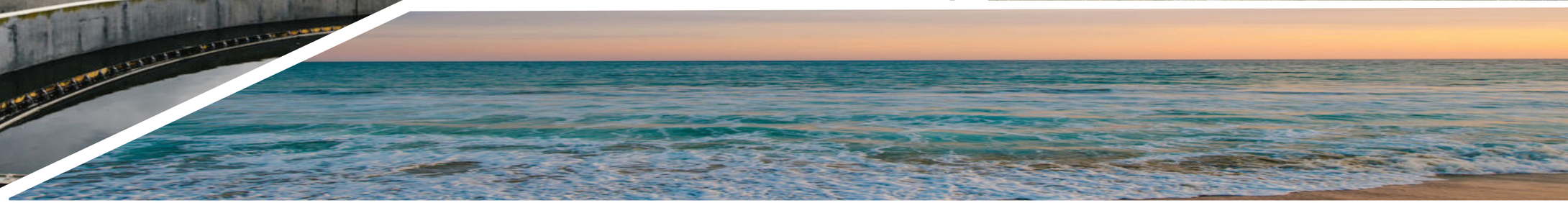
The study appendices include programming requirements, conceptual layouts, code summary, equipment list, proposed furnishings, and chemical inventory for reference.

Recommended Action: Committee Discussion/Direction or Action

Attachment: Laboratory Upgrades Feasibility Study

South Orange County Wastewater Authority

SOUTH ORANGE COUNTY WASTEWATER AUTHORITY
LABORATORY UPGRADES FEASIBILITY STUDY



THE AUSTIN COMPANY

TABLE OF CONTENTS

SECTION 1
EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

BACKGROUND

The South Orange County Wastewater Authority (SOCWA) is responsible for managing wastewater treatment, effluent and biosolids disposal, and water recycling in the southern region of Orange County. Their existing RTP Laboratory in Laguna Niguel, which provides water testing and analysis services, is aging and in need of modernization upgrades. SOCWA has contracted with The Austin Company to evaluate two distinct feasibility design scenarios:

1. Modernization of existing laboratory as-is.
2. Building expansion with separate drinking water lab.

The Austin Company began by reviewing the City of Laguna Niguel Building Codes, performing a hazardous materials assessment, surveying the existing laboratory, reviewing existing record drawings, and conducting programming meetings with SOCWA stakeholders to establish the project requirements.

Next, Austin developed two conceptual layouts for each scenario for owner review and feedback. From these conceptual layouts, SOCWA selected Option 1B for the Modernization of existing laboratory scenario, and Option 2A for the Building Expansion scenario.

Austin further developed these two preferred layouts and drafted narratives to define the quantity and quality of design elements and systems. These conceptual layouts and narratives were used to develop the ROM estimates and milestone schedules.

A general description of the major sections of the report is included below.

SECTION 2 – FACILITY PLANS

Sketches have been developed for two Options – Options 1B, which is an interior TI without building expansion, and Option 2A, which includes a building expansion. The sketches outlined below occur for both options, unless noted otherwise.

The Architectural sketches include a Demolition Plan indicating items to be removed, First Floor and Reflected Ceiling Plans showing the new scope of work, and a Roof Plan for Option 2A.

Structural sketches are provided for Option 2A only and include a Structural Roof Plan indicating proposed new framing members, a Structural Foundation Plan showing new concrete footings and slabs, and a Structural Section depicting new structural members and how they interface with the existing building.

The Mechanical sketches include a Demolition Plan indicating items to be removed, a Plumbing Floor Plan showing new plumbing fixtures, a Mechanical Reflected Ceiling Plan depicting new diffusers and grilles, and a Mechanical Roof Plan indicating approximate locations, quantities, and sizes of new mechanical equipment.

The Electrical sketches include schematic Single Line Diagrams, an Electrical Lighting Plan indicating approximate quantities, types and locations of new lighting fixtures, an Electrical Power Plan showing quantities of new receptacles/ power feeds and electrical equipment, and a Roof Plan indicating power feeds to the new mechanical equipment.

Note: The facility layouts represent design intent for the purposes of confirming feasibility and for establishing ROM budgeting. Exact locations of equipment, utility drops, etc. will be confirmed during the next phase of design development.

SECTION 3 – BUILDING SYSTEMS NARRATIVES

The system narratives describe in detail the scope of work and include architectural, structural, plumbing, mechanical, and electrical. The narratives are categorized into the industry standard Construction Specifications Institute (CSI) divisions. The narratives apply to both options, unless noted otherwise.

SECTION 4 – PRELIMINARY OPINION OF COST

A preliminary opinion of cost estimate has been developed for each option based on the scope of works defined in the Facility Plans and the Building Systems Narratives and includes construction costs, construction contingencies, and engineering services.

SECTION 5 – PRELIMINARY MILESTONE SCHEDULE

The preliminary project schedule was developed to create a timeline of the project's major steps, which include design/ engineering, city approvals, contractor bidding, and construction.

SECTION 6 – APPENDICES

The Appendices include the following documents:

A. Program requirements matrix, which documents and summarizes the square footage, circulation, utility and auxiliary requirements for each space. The input for the matrix was provided by SOCWA.

B. Conceptual Layout Options, which include two concepts per scenario that were reviewed at the beginning of the design process.

C. Code Summary, which addresses the exiting, restroom, and parking requirements of the building and zoning codes enforced in the city of Laguna Niguel, California. The existing building was assessed for typical codes that a city's zoning or building department would look at when approving building permits.

D. Equipment List, which includes the existing and new/ replacement lab equipment along with the proposed locations and utility requirements of each piece of equipment. The equipment list was provided by SOCWA.

E. Proposed Furnishings/ Equipment, which include examples of potential furniture and lab accessories.

F. SOCWA Chemical Inventory, which documents the hazardous material types and quantities. The input for the hazardous material spreadsheet was provided by SOCWA and indicates the maximum quantities of material that is expected to occur in the building at any given time. The actual quantities are less than the code allowable quantities.

SECTION 2 | FACILITY PLANS
OPTION 1B - WITHOUT EXPANSION

FIRST FLOOR DEMOLITION PLAN - OPTION 1B

N.T.S.
07/10/2025

GENERAL NOTES:

1. REMOVE EXISTING CONSTRUCTION TO THE EXTENT INDICATED ON THE DRAWINGS. EXISTING CONDITIONS SHOWN ON DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY AND DO NO SHOW ALL CONDITIONS THAT MAY AFFECT THE WORK OF THIS CONTRACT. REFER TO ALL ARCHITECTURAL, PLUMBING MECHANICAL, ELECTRICAL, AND STRUCTURAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION AND COORDINATION.

2. ALL FURNITURE AND LAB EQUIPMENT TO BE REMOVED OR RELOCATED BY OWNER AS NECESSARY PRIOR TO DEMOLITION WORK OF THIS PROJECT.

DEMOLITION NOTES:

- DEMO ALL CASEWORK (UPPER AND LOWER),COUNTER TOPS AND SINKS. PREP AREA FOR NEW CASEWORK. SEE FLOOR PLAN AND PLUMBING PLAN TOR MORE INFORMATION.

- REMOVE DOORS, FRAMES AND HARDWARE INDICATED ON PLAN WITH DASHED LINES.

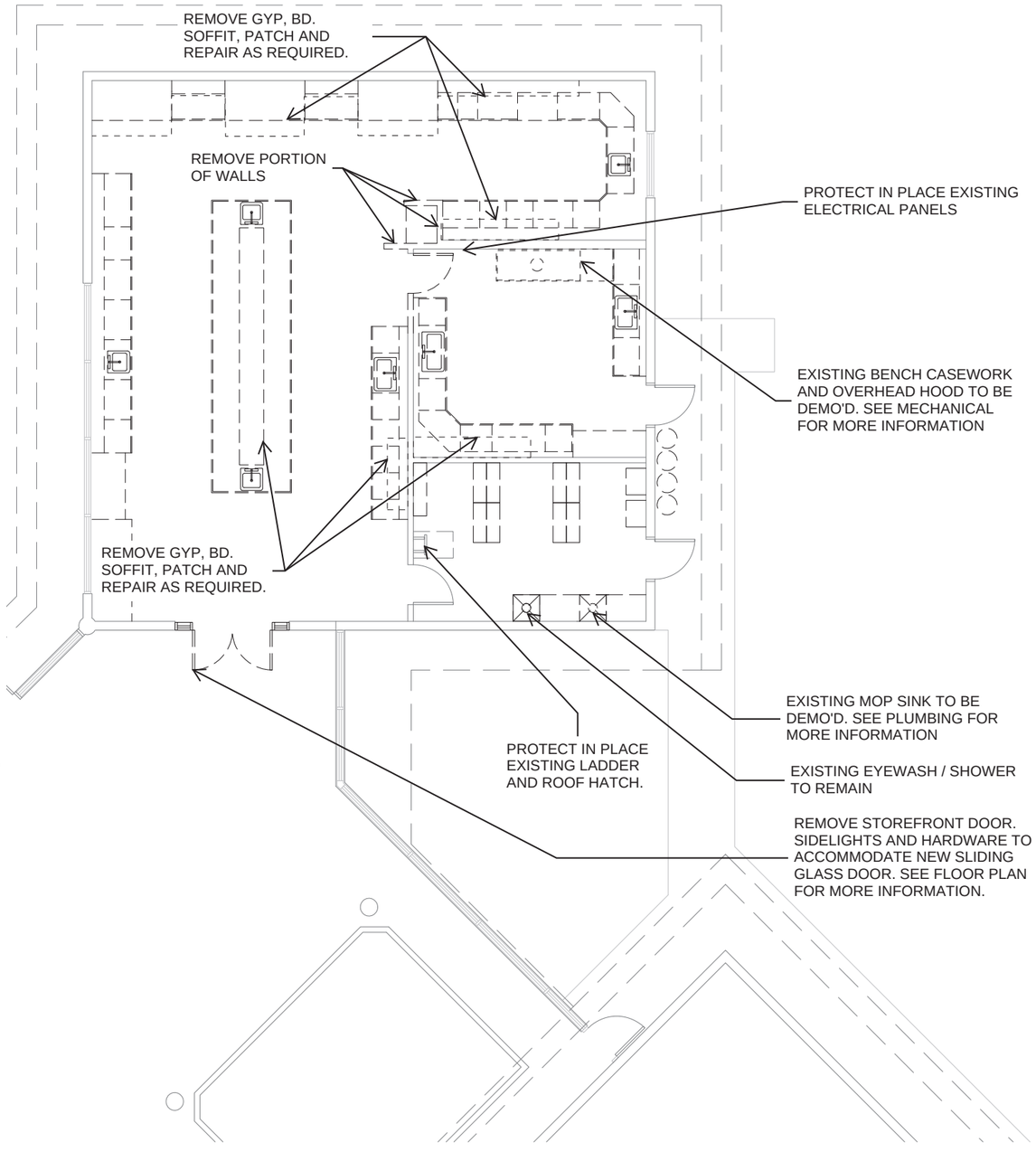
- EXISTING EXTERIOR DOORS TO REMAIN UNLESS OTHERWISE INDICATED.

- DEMOLISH FINISH FLOOR IN ALL ROOMS.

- DEMOLISH ACT CEILING SYSTEMS IN GEN CHEM INCLUDING LIGHTS AND DIFFUSERS.

- PROTECT IN PLACE GYP BD. CEILING SYSTEMS IN SOLIDS AND STORAGE ROOMS INCLUDING LIGHTS AND DIFFUSERS.

- REMOVE A PORTION OF THE EXISTING CEILING SYSTEM AS REQUIRED FOR INSTALLATION OF NEW FUME HOODS AND CASEWORK. SEE FLOOR PLAN AND CEILING PLAN FOR MORE INFORMATION.



FIRST FLOOR PLAN - OPTION 1B w/ EQUIPMENT

N.T.S.
07/10/2025

GENEAL NOTES:

1. ALL DIMENSIONS ARE TO FACE OF WALL FINISH.

2. SEAL EXTERIOR JOINTS AROUND DOORS, WINDOWS AND LOUVER FRAMES AND AT PENETRATIONS OF MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION ELEMENTS TO PREVENT AIR AND WATER LEAKAGE.

3. BLOCKING IS REQUIRED IN STEEL STUD AND GYPSUM WALLS FOR ALL ITEMS THAT ARE ATTACHED TO THE WALL.

4. EXTEND PARTITIONS TO THE UNDERSIDE OF THE STRUCTURAL DECK OR FRAMING ABOVE UNLESS SHOWN OR NOTED OTHERWISE.

5. TAPE, BED AND FINISH ALL CORNERS AND JOINTS.

6. SEALANTS SHALL BE INSTALLED WITH JOINT FILLER.

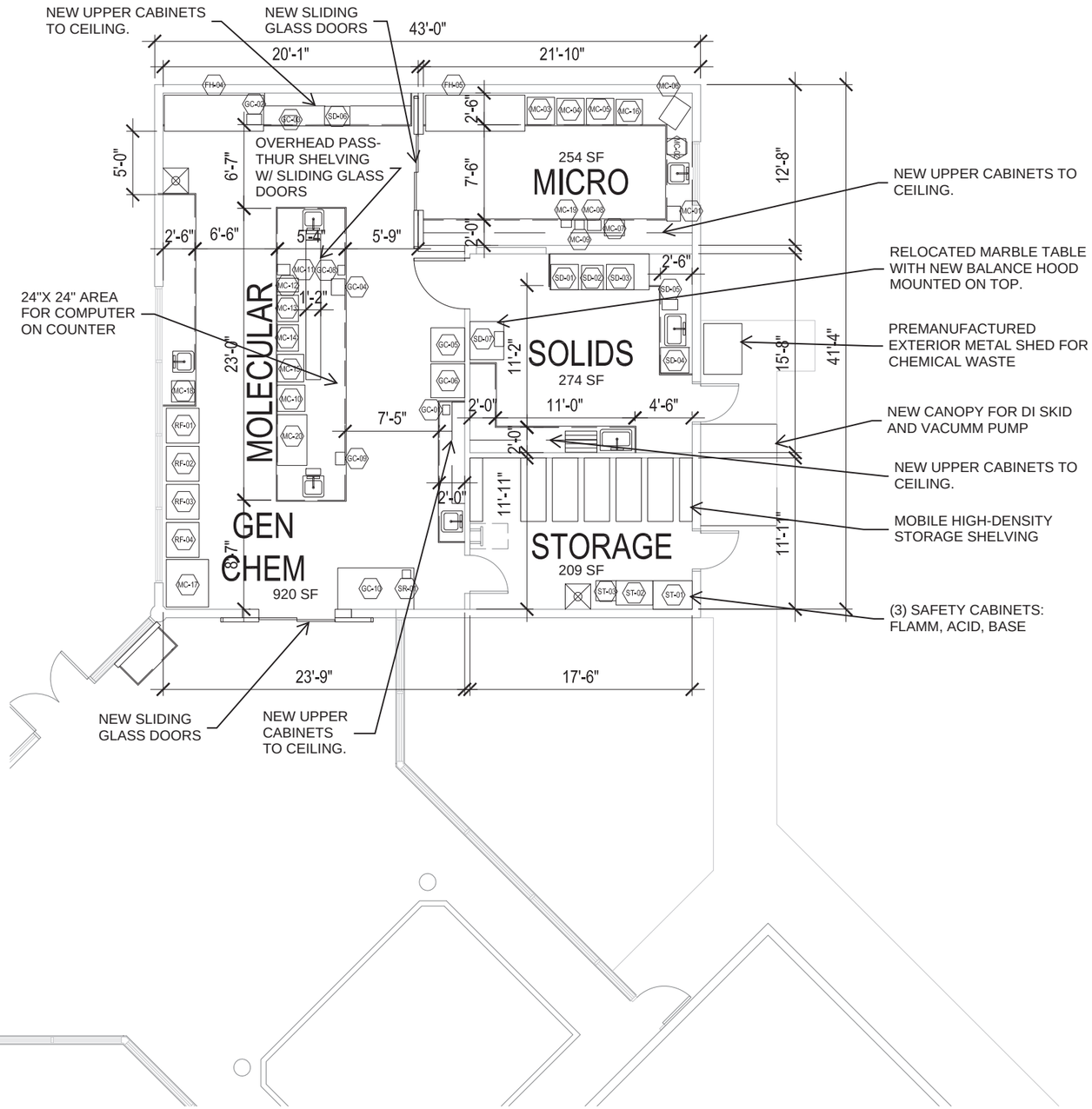
7. NO HAZARDOUS MATERIALS SHALL BE USED OR STORED WITHIN THE CONSTRUCTION SITE WHICH DO NOT COMPLY WITH THE LOCAL FIRE AUTHORITY AND STATE AND COUNTY REQUIREMENTS.

PLAN NOTES:

- ALL CASEWORK (UPPER AND LOWER), COUNTER TOPS AND SINKS ARE NEW.

- NEW DOORS, FRAMES AND HARDWARE INDICATED WITH DARK LINE WEIGHT.

- NEW FINISH FLOOR IN ALL ROOMS. SEE FINISH SCHEDULE.



FIRST FLOOR REFLECTED CEILING PLAN - OPTION 1B

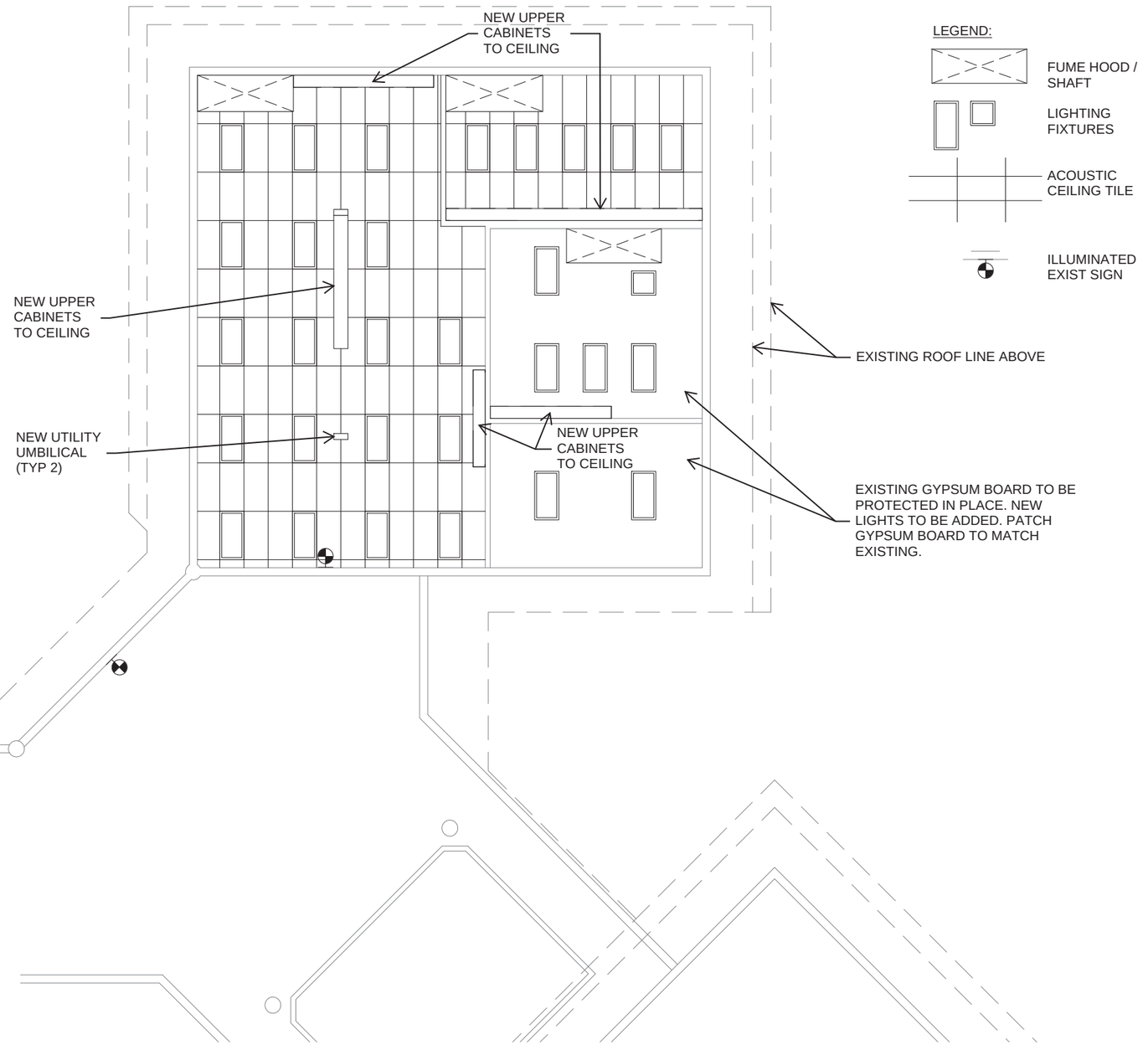
N.T.S.
07/10/2025

GENEAL NOTES:

1. CEILING HEIGHTS ARE MEASURED FROM FINISH FLOOR. ALL SPEAKERS, STROBES, AND OTHER HARDWARE INSTALLED IN CEILING TILES SHALL BE CENTERED IN BOTH DIRECTIONS UNLESS OTHERWISED NOTED.

2. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION, ABBREVIATIONS, AND SYMBOLS.

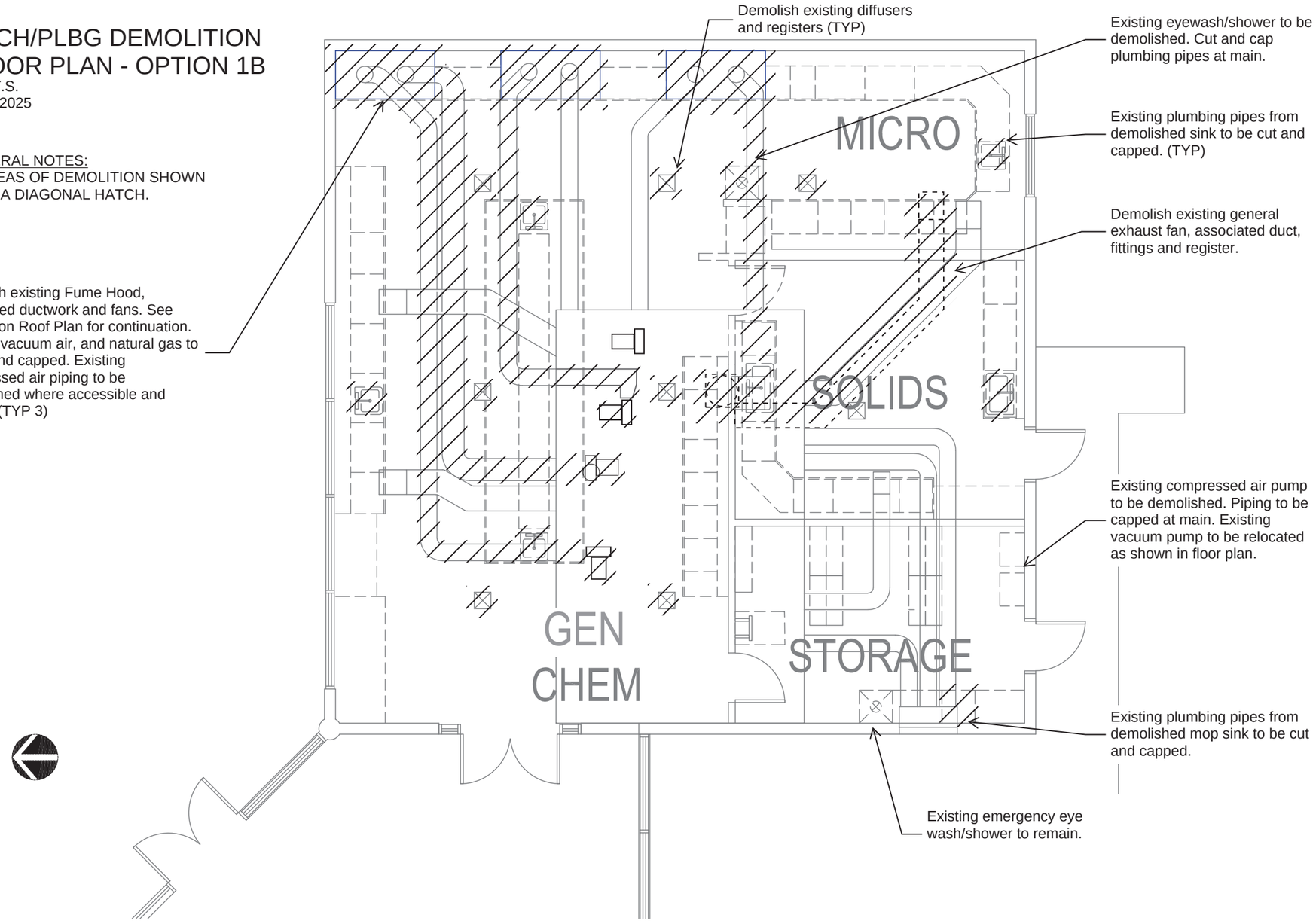
3. CEILING HEIGHT TO BE AT 10'-0" AFF.



MECH/PLBG DEMOLITION FLOOR PLAN - OPTION 1B

@ N.T.S.
07/10/2025

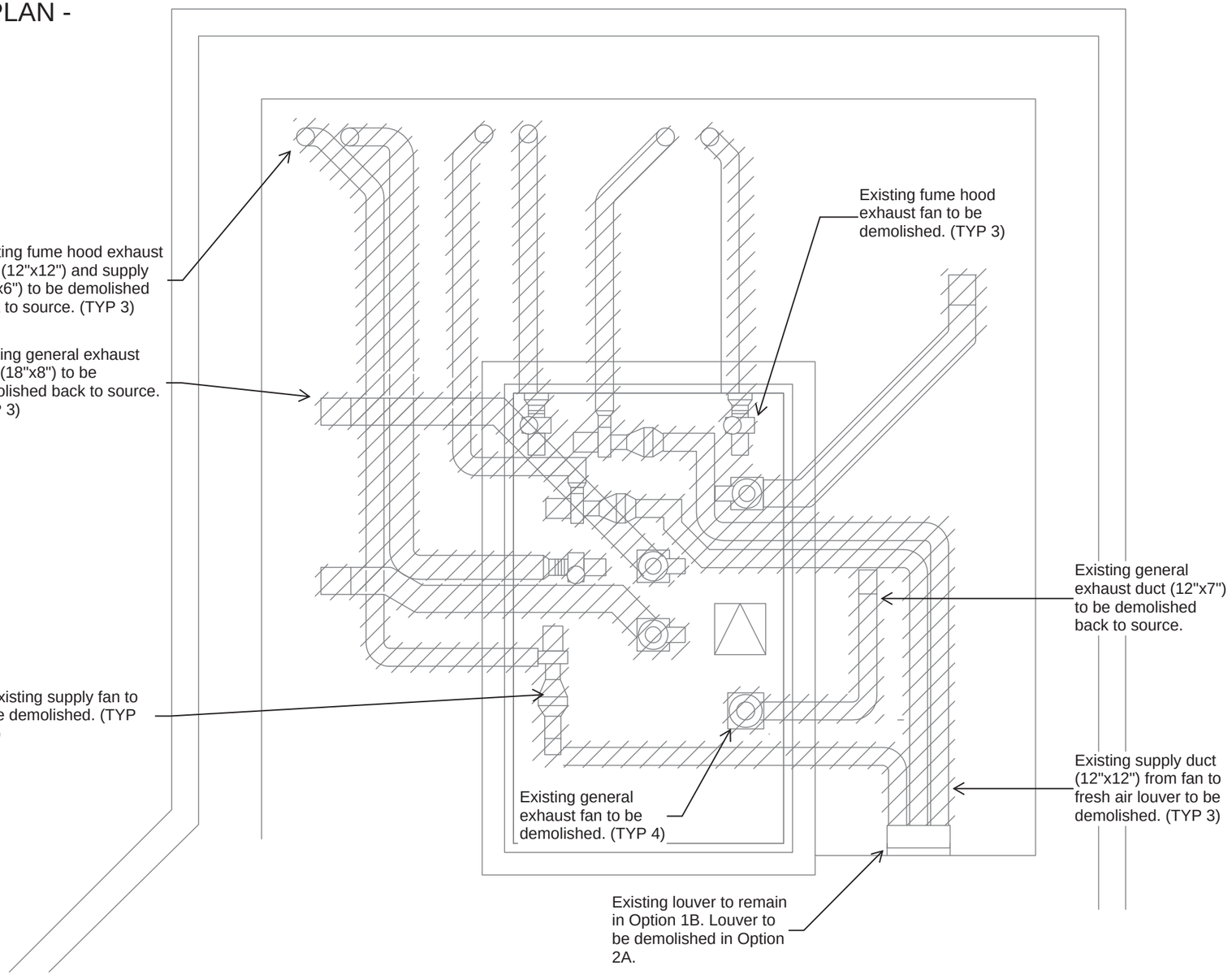
GENERAL NOTES:
1. AREAS OF DEMOLITION SHOWN WITH A DIAGONAL HATCH.



DEMOLITION ROOF PLAN - OPTION 1B

@ N.T.S.
07/10/2025

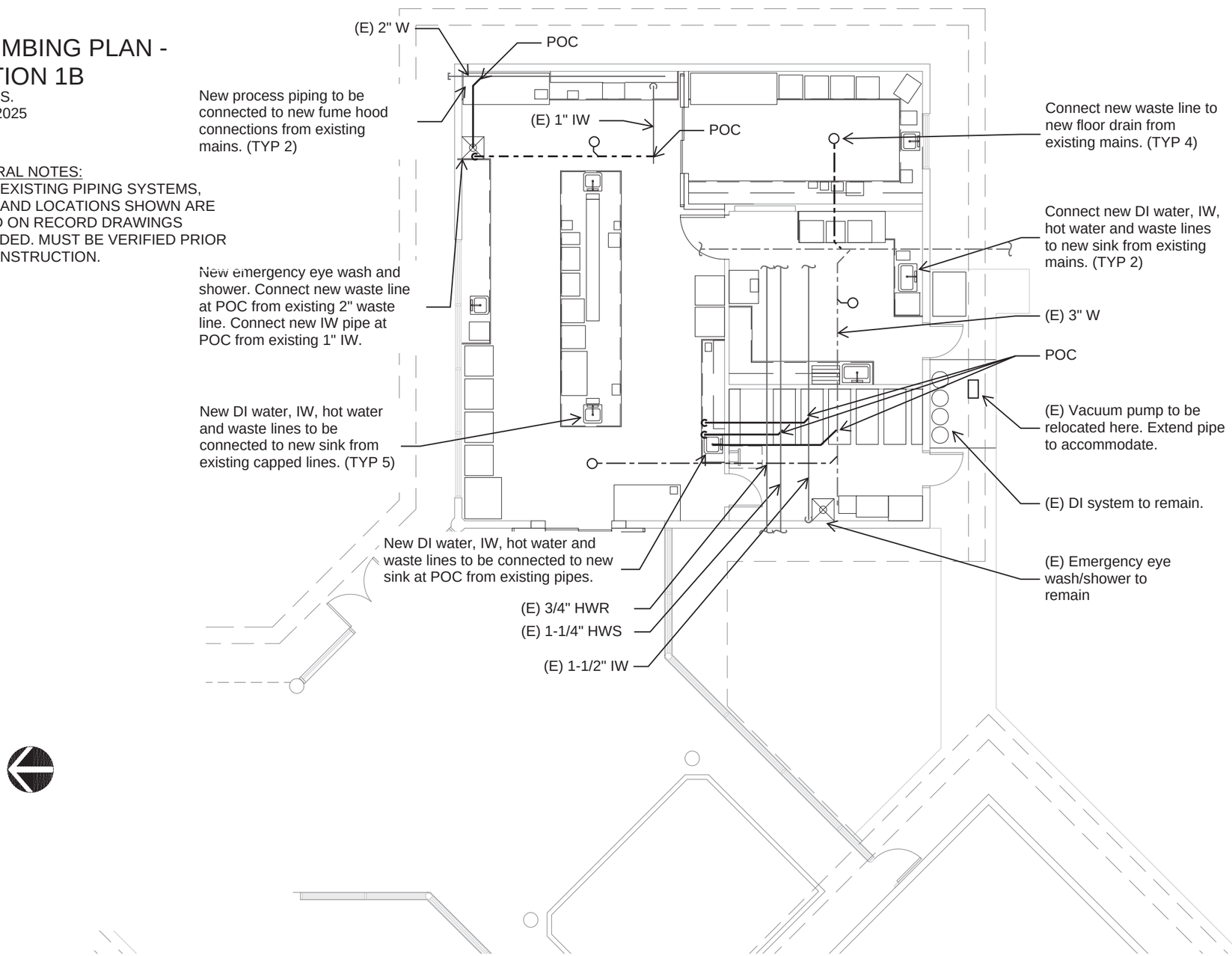
GENERAL NOTES:
1. AREAS OF DEMOLITION SHOWN WITH A DIAGONAL HATCH.



PLUMBING PLAN - OPTION 1B

@ N.T.S.
07/10/2025

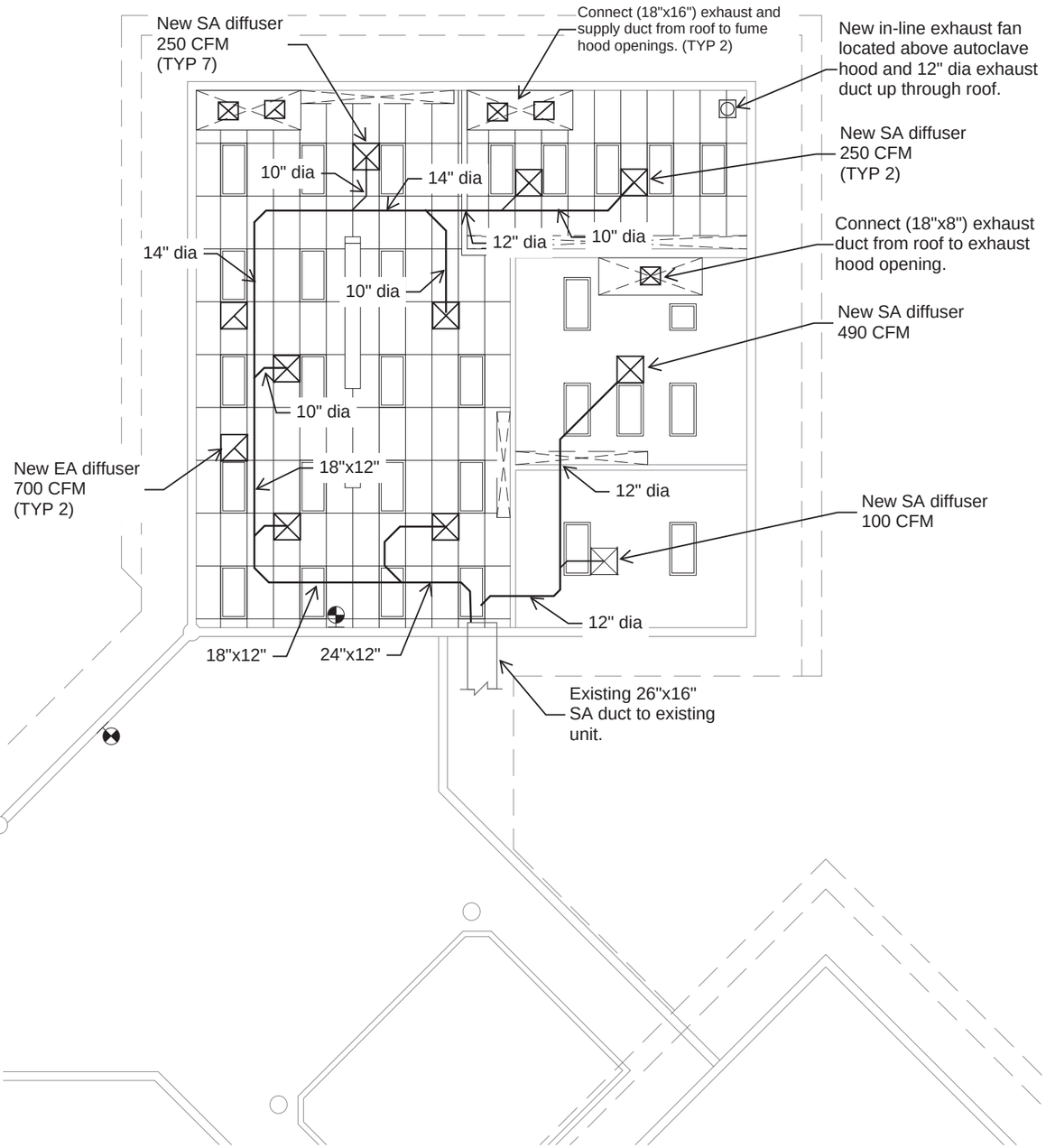
GENERAL NOTES:
1. ALL EXISTING PIPING SYSTEMS, SIZES AND LOCATIONS SHOWN ARE BASED ON RECORD DRAWINGS PROVIDED. MUST BE VERIFIED PRIOR TO CONSTRUCTION.



FIRST FLOOR REFLECTED CEILING PLAN - OPTION 1B

@ N.T.S.
07/10/2025

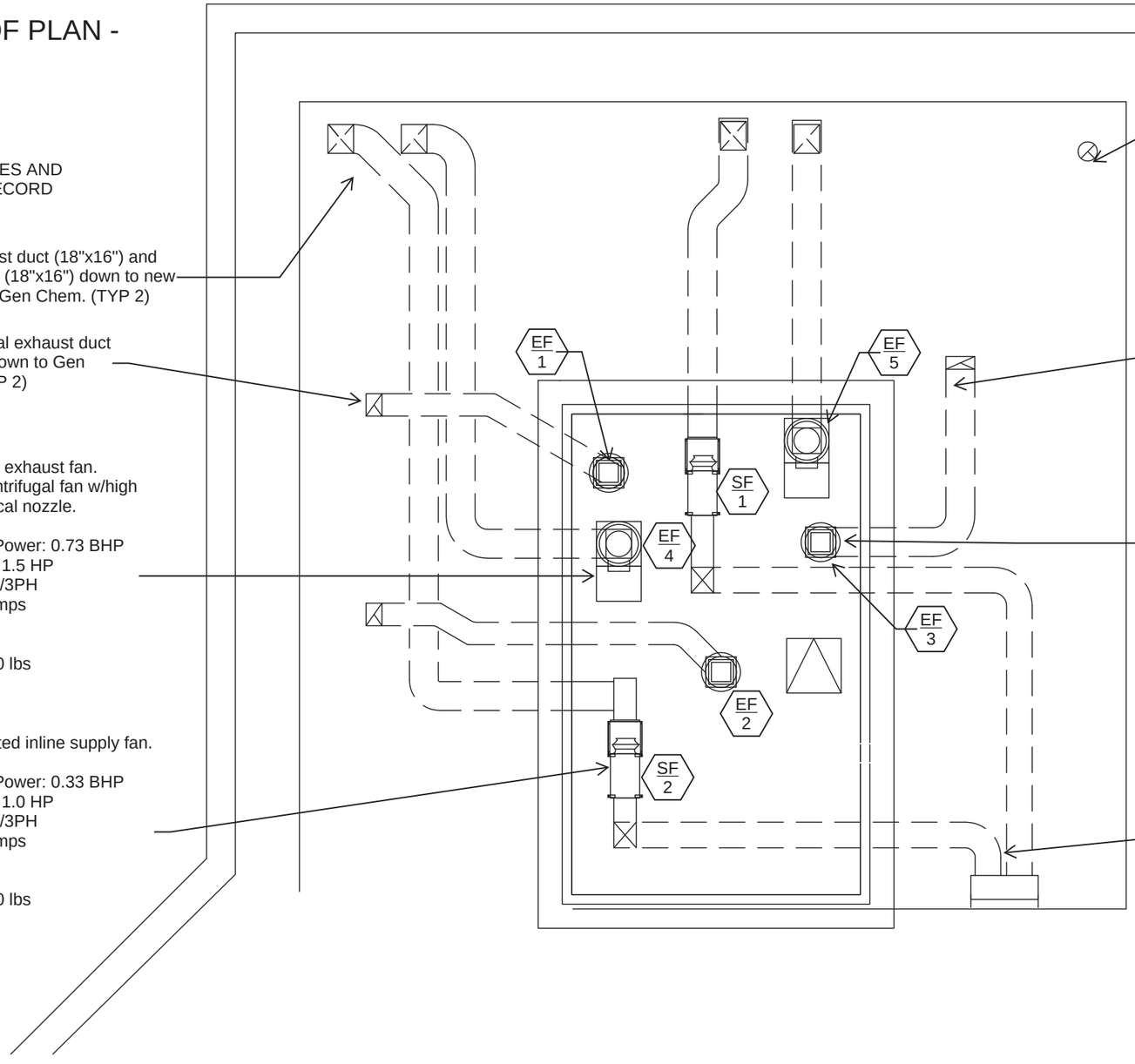
GENERAL NOTES:
1. ALL EXISTING SYSTEMS, SIZES AND LOCATIONS ARE BASED ON RECORD DRAWINGS PROVIDED.



MECHANICAL ROOF PLAN - OPTION 1B

@ N.T.S.
07/10/2025

GENERAL NOTES:
1. ALL EXISTING SYSTEMS, SIZES AND LOCATIONS ARE BASED ON RECORD DRAWINGS PROVIDED.



New exhaust duct (18"x16") and supply duct (18"x16") down to new fume hood Gen Chem. (TYP 2)

New general exhaust duct (14"x10") down to Gen Chem. (TYP 2)

Fume hood exhaust fan.
Tubular centrifugal fan w/high plume conical nozzle.
1,950 CFM
Operating Power: 0.73 BHP
Motor size: 1.5 HP
208V/60HZ/3PH
FLA: 6.6 Amps
MCA: 8.2
MOP: 15
Weight: 600 lbs
(TYP 2)

Roof mounted inline supply fan.
1,550 CFM
Operating Power: 0.33 BHP
Motor size: 1.0 HP
208V/60HZ/3PH
FLA: 3.6 Amps
MCA: 4.5
MOP: 15
Weight: 100 lbs
(TYP 2)

New exhaust duct (12" dia.) down to steam hood for autoclave in Micro.
Inline exhaust fan located above hood.
450 CFM
Operating Power: 0.1 BHP
Motor size: 1/6 HP
115V/60HZ/1PH
FLA: 2.8Amps
MCA: 3.5
MOP: 15
Weight: 45 lbs

New exhaust duct (18"x8") down to exhaust hood in Solids

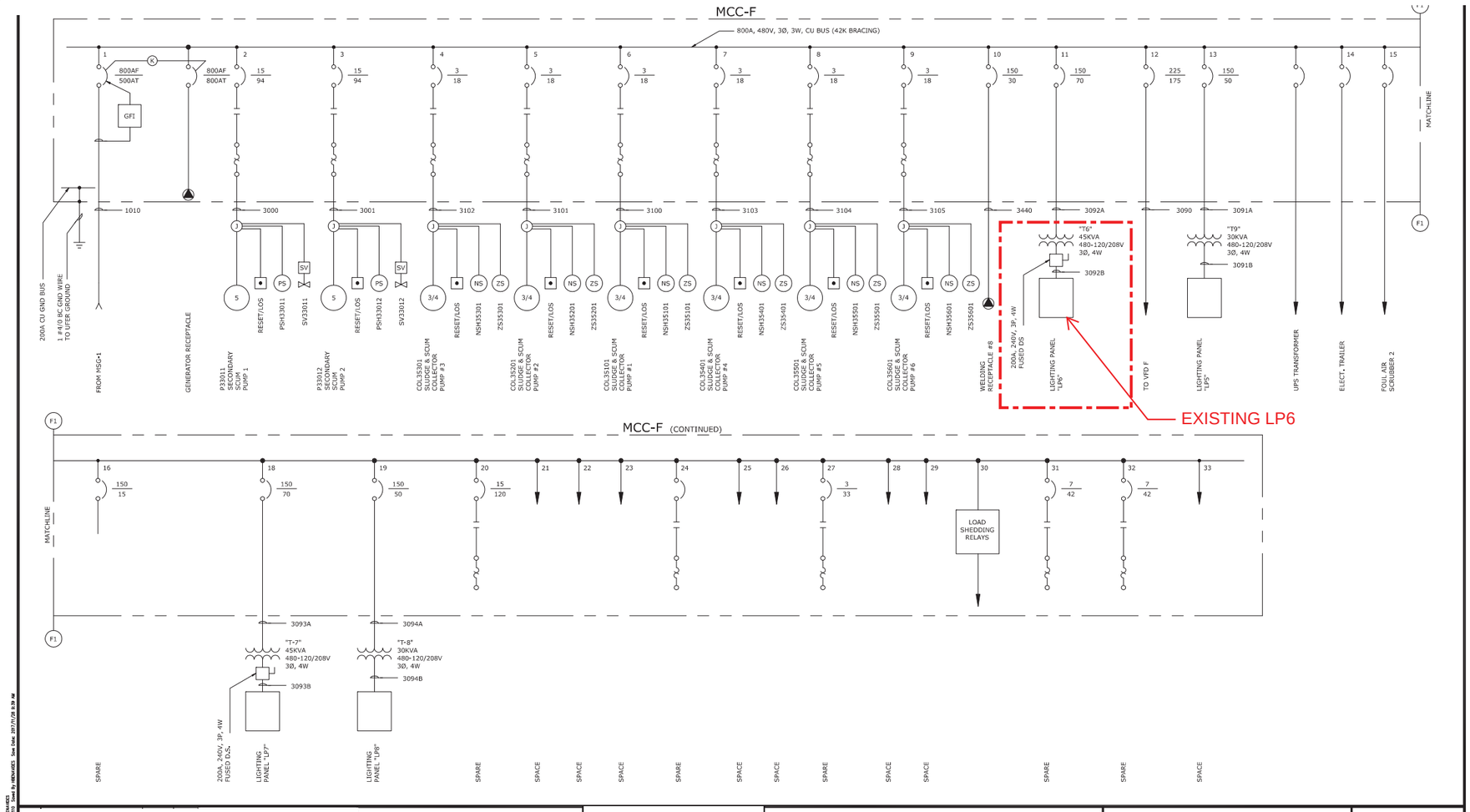
General exhaust fan.
Centrifugal roof fan.
700 CFM
Operating Power: 0.14 BHP
Motor size: 1/6 HP
115V/60HZ/1PH
FLA: 2.8
MCA: 3.5
MOP: 15
Weight: 85 lbs
(TYP 3)

New 18"x16" duct from supply air fan to existing louver. (TYP 2)

ELECTRICAL SLD 01
OPTION 1B

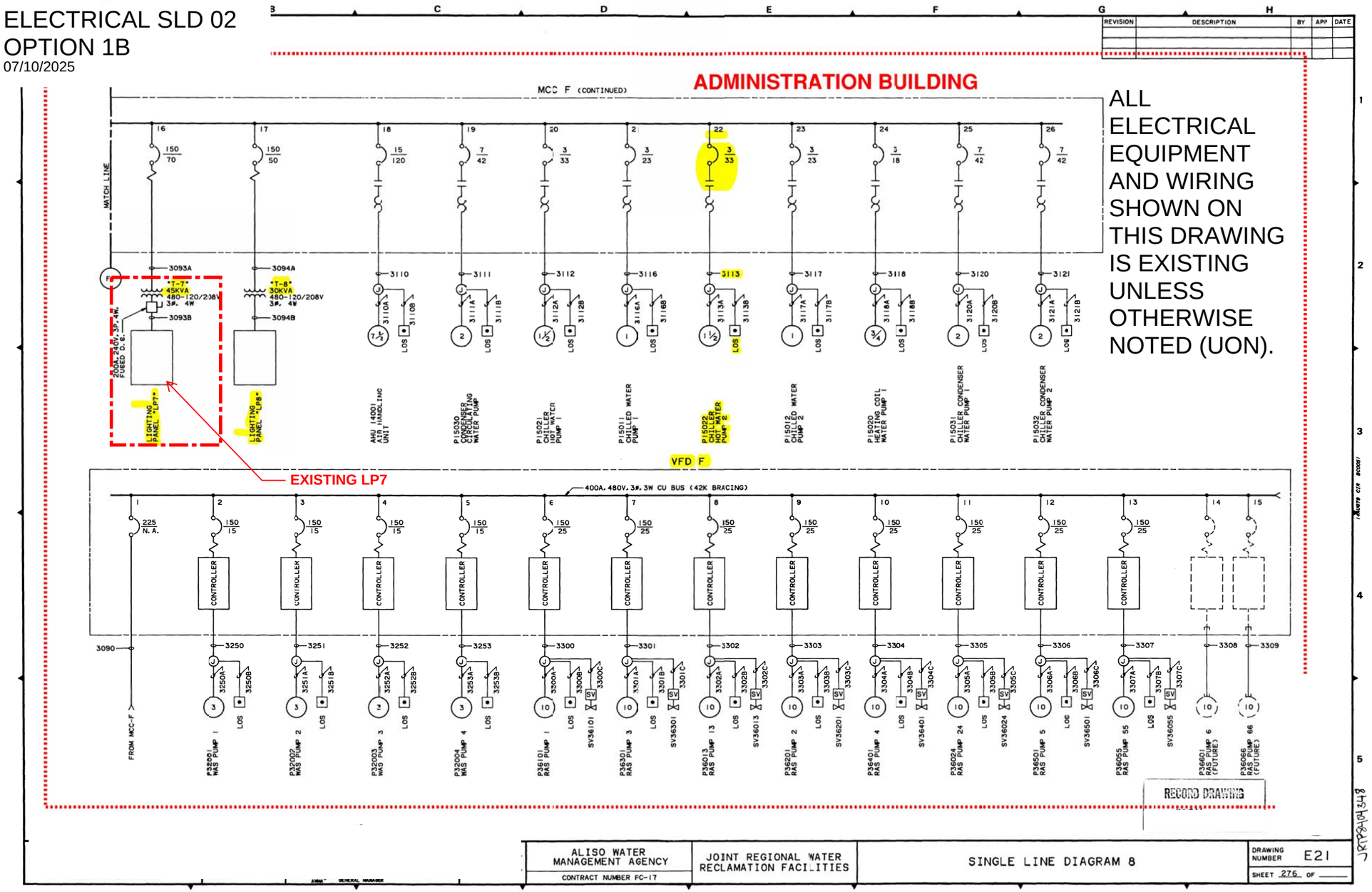
07/10/2025

ALL ELECTRICAL EQUIPMENT AND WIRING SHOWN ON THIS DRAWING IS EXISTING UNLESS OTHERWISE NOTED (UON).



RECORD DRAWING		SOUTH ORANGE COUNTY WASTEWATER AUTHORITY REGIONAL TREATMENT PLANT ELECTRICAL DISTRIBUTION SYSTEM DOCUMENTATION	EXISTING ELECTRICAL MCC-F SINGLE LINE DIAGRAM	DATE: NOV 2017 CONTRACT NO.: DRAWING NUMBER: E110

ELECTRICAL SLD 02
OPTION 1B
07/10/2025



ALL ELECTRICAL EQUIPMENT AND WIRING SHOWN ON THIS DRAWING IS EXISTING UNLESS OTHERWISE NOTED (UON).

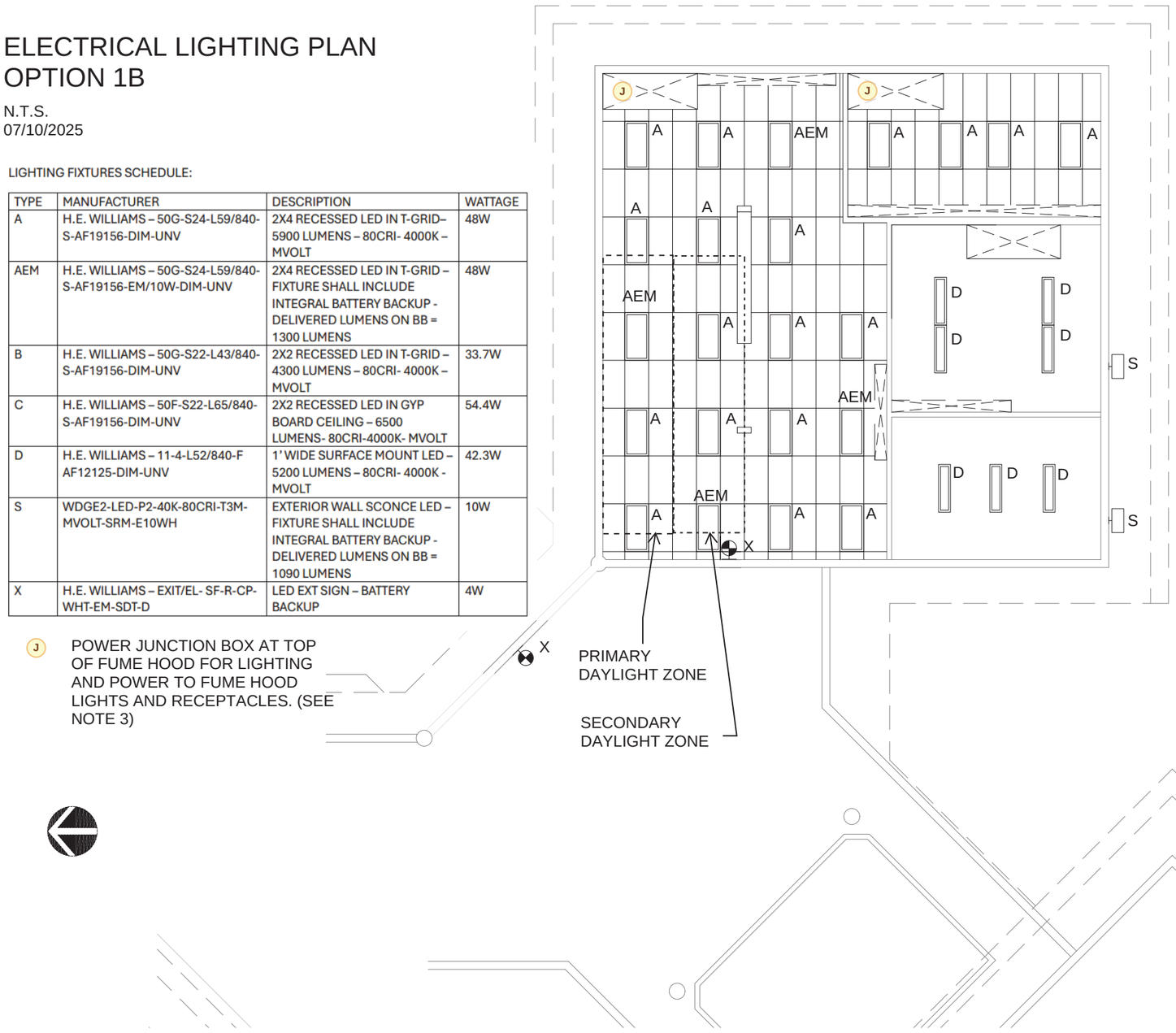
ELECTRICAL LIGHTING PLAN
OPTION 1B

N.T.S.
07/10/2025

LIGHTING FIXTURES SCHEDULE:

TYPE	MANUFACTURER	DESCRIPTION	WATTAGE
A	H.E. WILLIAMS – 50G-S24-L59/840-S-AF19156-DIM-UNV	2X4 RECESSED LED IN T-GRID– 5900 LUMENS – 80CRI- 4000K – MVOLT	48W
AEM	H.E. WILLIAMS – 50G-S24-L59/840-S-AF19156-EM/10W-DIM-UNV	2X4 RECESSED LED IN T-GRID – FIXTURE SHALL INCLUDE INTEGRAL BATTERY BACKUP - DELIVERED LUMENS ON BB = 1300 LUMENS	48W
B	H.E. WILLIAMS – 50G-S22-L43/840-S-AF19156-DIM-UNV	2X2 RECESSED LED IN T-GRID – 4300 LUMENS – 80CRI- 4000K – MVOLT	33.7W
C	H.E. WILLIAMS – 50F-S22-L65/840-S-AF19156-DIM-UNV	2X2 RECESSED LED IN GYP BOARD CEILING – 6500 LUMENS- 80CRI-4000K- MVOLT	54.4W
D	H.E. WILLIAMS – 11-4-L52/840-F AF12125-DIM-UNV	1' WIDE SURFACE MOUNT LED – 5200 LUMENS – 80CRI- 4000K - MVOLT	42.3W
S	WDGE2-LED-P2-40K-80CRI-T3M-MVOLT-SRM-E10WH	EXTERIOR WALL SCONCE LED – FIXTURE SHALL INCLUDE INTEGRAL BATTERY BACKUP - DELIVERED LUMENS ON BB = 1090 LUMENS	10W
X	H.E. WILLIAMS – EXIT/EL- SF-R-CP-WHT-EM-SDT-D	LED EXT SIGN – BATTERY BACKUP	4W

J POWER JUNCTION BOX AT TOP OF FUME HOOD FOR LIGHTING AND POWER TO FUME HOOD LIGHTS AND RECEPTACLES. (SEE NOTE 3)



NOTES:
1. PROVIDE DEMOLITION OF EXISTING LIGHTING FIXTURES, LIGHTING CONTROLS IN PROJECT AREA.PROVIDE DEMOLITION OF EXISTING LIGHTING BRANCH CIRCUITS AS REQUIRED BUT MAINTAIN LIGHTING IN AREAS NOT IN PROJECT.
2. PROVIDE NEW LIGHTING FIXTURES, LIGHTING BRANCH CIRCUITS AND LIGHTING CONTROLS AS INDICATED.
3. PROVIDE LIGHTING BRANCH CIRCUITS TO LIGHTS IN FUME HOODS AND CONNECT TO FUME HOOD LIGHT SWITCHES.
4. PROVIDE EMERGENCY LIGHTING IN EGRESS PATHS USING EMERGENCY BATTERY PACKS SWITCHED WITH THE AREA LIGHTING.
5. PROVIDE EXIT SIGNS AND EMERGENCY EXIT DISCHARGE LIGHTING AT NEW AND EXISTING EXIT DOORS FROM THE PROJECT AREA.
6. PROVIDE WALL MOUNTED DIMMER SWITCHES AT ENTRANCE DOORS AND CEILING-MOUNTED OCCUPANCY SENSORS IN EACH ROOM. PROVIDE PHOTOCELL CONTROLS IN DESIGNATED DAYLIGHT ZONES AS SHOWN ON PLANS.

ELECTRICAL POWER PLAN
OPTION 1B

N.T.S.
07/10/2025

J — POWER JUNCTION BOX AT TOP OF FUME HOOD FOR LIGHTING AND POWER TO FUME HOOD LIGHTS AND RECEPTACLES. (SEE NOTE 1)

DUPLEX 120V 20A (180VA 8 MAX PER CKT) RECEPTACLE (SEE NOTE 1) UON

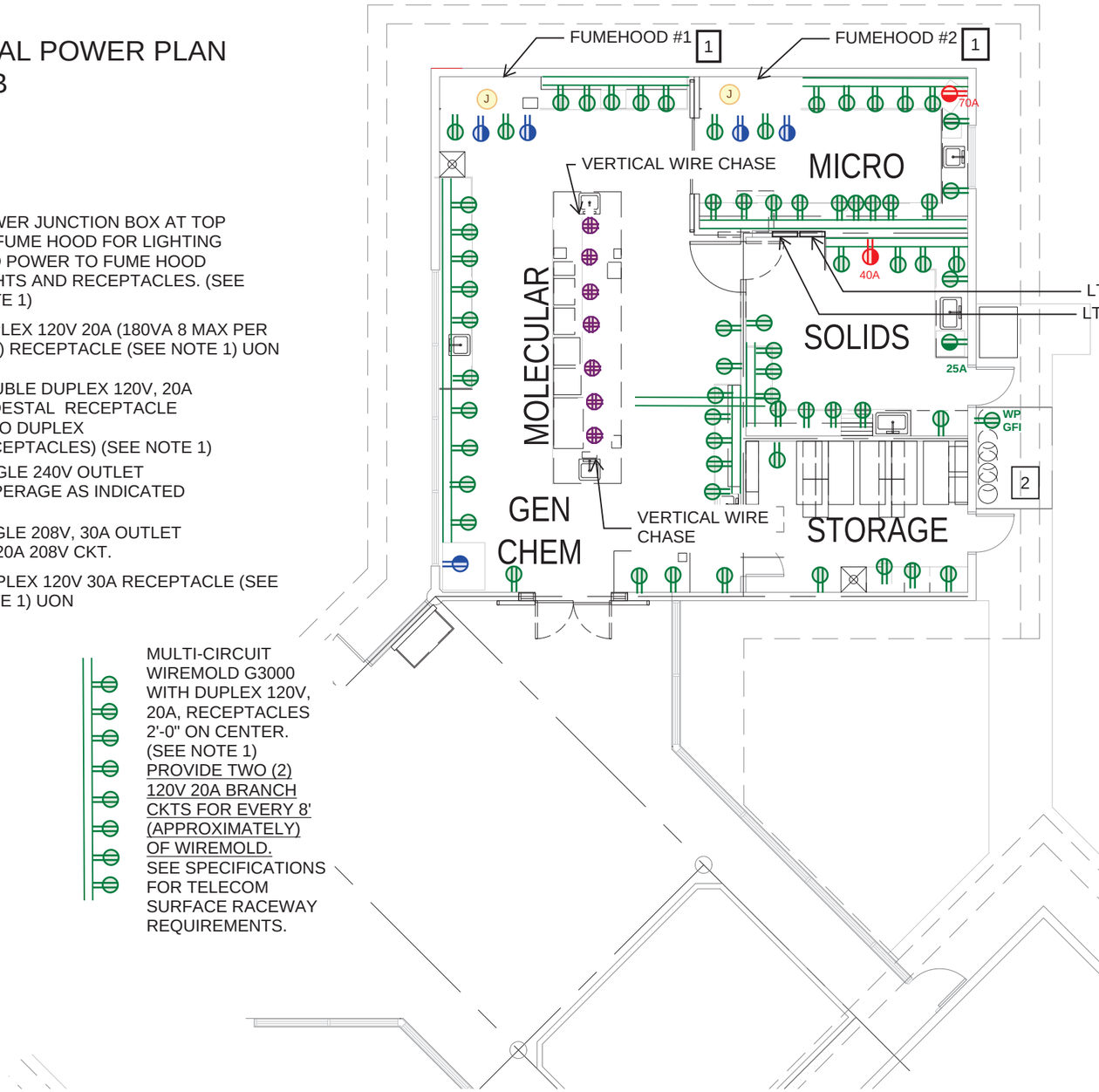
DOUBLE DUPLEX 120V, 20A PEDESTAL RECEPTACLE (TWO DUPLEX RECEPTACLES) (SEE NOTE 1)

SINGLE 240V OUTLET AMPERAGE AS INDICATED

SINGLE 208V, 30A OUTLET ON 20A 208V CKT.

SIMPLEX 120V 30A RECEPTACLE (SEE NOTE 1) UON

MULTI-CIRCUIT WIREMOLD G3000 WITH DUPLEX 120V, 20A, RECEPTACLES 2'-0" ON CENTER. (SEE NOTE 1) PROVIDE TWO (2) 120V 20A BRANCH CKTS FOR EVERY 8' (APPROXIMATELY) OF WIREMOLD. SEE SPECIFICATIONS FOR TELECOM SURFACE RACEWAY REQUIREMENTS.



NOTES:
1. ALL CB'S IN EXISTING PANELBOARD LP6 ARE GFCI TYPE. PROVIDE EACH NEW BRANCH CIRCUITS WITH DEDICATED EQUIPMENT GROUNDING CONDUCTORS, NEUTRAL CONDUCTORS AND PHASE CONDUCTORS.
2. PROVIDE BUCK-BOOST XFMRS (208V TO 240V) FOR EQUIPMENT SD-02 AND MC-06. SIZES AS REQUIRED FOR LOAD.
3. PROVIDE NEW CB'S AS REQUIRED FOR HIGHER AMPERAGE CKTS. SEE PANELBOARD SCHEDULE.

KEYNOTES:

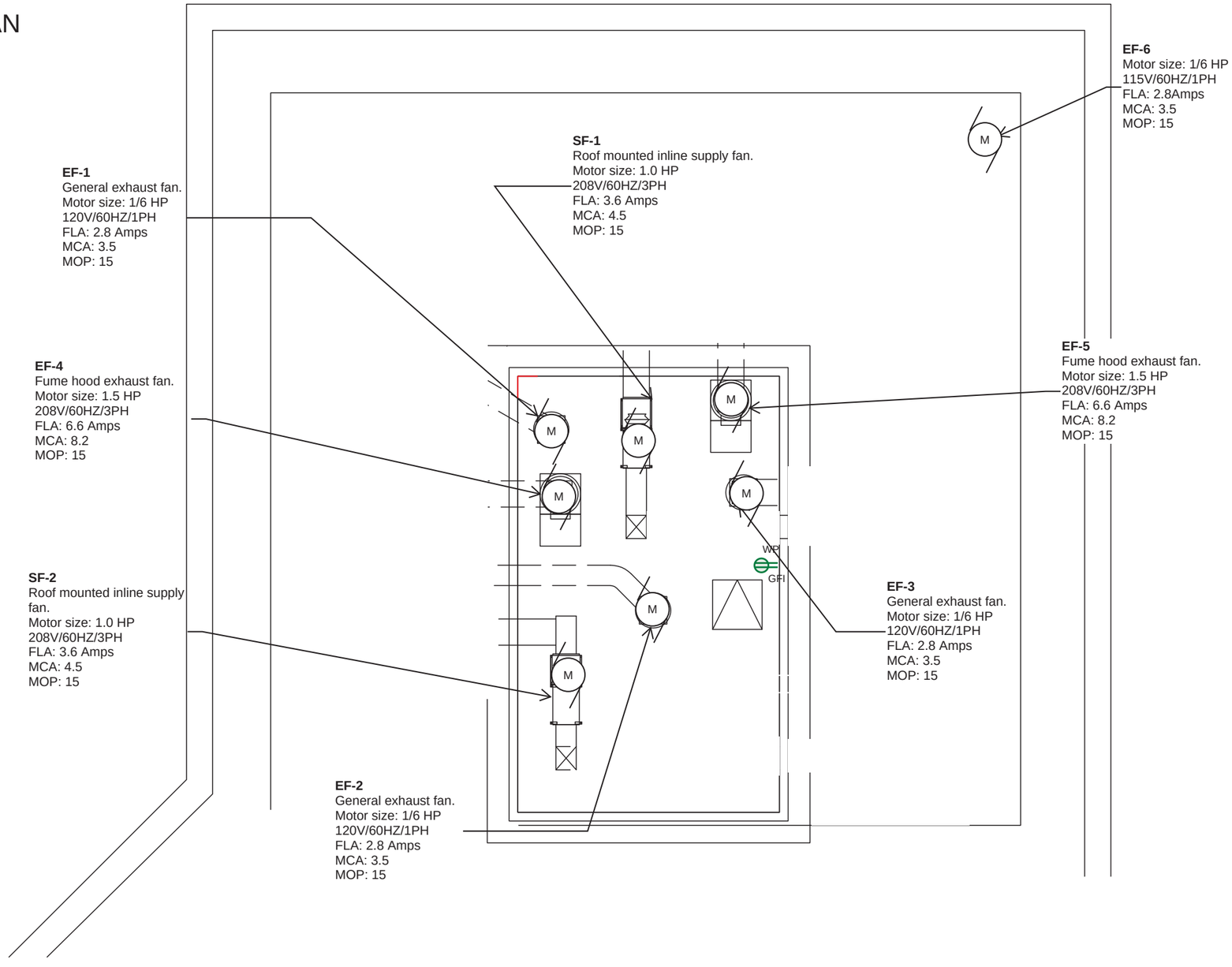
1 — PROVIDE LTG AND RECEPTACLE BRANCH CKT CONNECTIONS FOR EACH FUMEHOOD (FH). PROVIDE START STOP EF CONTROL WIRING FOR EACH FH.

2 — RELOCATE EXISTING VACUUM PUMP BRANCH CIRCUIT AND VACUUM PUMP TO HERE. PROVIDE WEATHERPROOF ELECTRICAL WIRING DEVICES.

ROOF POWER PLAN
OPTION 1B

N.T.S.
07/10/2025

NOTES:
1. PROVIDE A SEPARATE COMBINATION MCP FVNR AUTOMATIC STARTER WITH ELECTRONIC OL RELAYS, HOA, CPT, PILOT, NEMA 4X SS ENCLOSURE FOR ALL NEW SUPPLY AND EXHAUST FANS. MOUNT NEW STARTERS ON THE ROOF IN THE ROOF WELL.
2. DEMO TEN (10) EXISTING EXHAUST AND SUPPLY FAN STARTERS, POWER WIRING AND CONTROL WIRING.
3. PROVIDE STARTERS, BRANCH CIRCUITS AND CONTROL WIRING FOR NEW EXHAUST AND SUPPLY FANS INDICATED.
4. PROVIDE ONE (1) 30A, 3-POLE CB AND ONE (1) 20A, 3-POLE CB IN EXISTING PANEL LP7 FOR NEW SUPPLY FANS. REMOVE UNUSED CBS AS REQUIRED FOR SPACE.



SECTION 2 | FACILITY PLANS
OPTION 2A - WITH EXPANSION

FIRST FLOOR DEMOLITION PLAN - OPTION 2A

N.T.S.
07/10/2025

GENERAL NOTES:
1. REMOVE EXISTING CONSTRUCTION TO THE EXTENT INDICATED ON THE DRAWINGS. EXISTING CONDITIONS SHOWN ON DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY AND DO NO SHOW ALL CONDITIONS THAT MAY AFFECT THE WORK OF THIS CONTRACT. REFER TO ALL ARCHITECTURAL, PLUMBING MECHANICAL, ELECTRICAL, AND STRUCTURAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION AND COORDINATION.

2. ALL FURNITURE AND LAB EQUIPMENT TO BE REMOVED OR RELOCATED BY OWNER AS NECESSARY PRIOR TO DEMOLITION WORK OF THIS PROJECT.

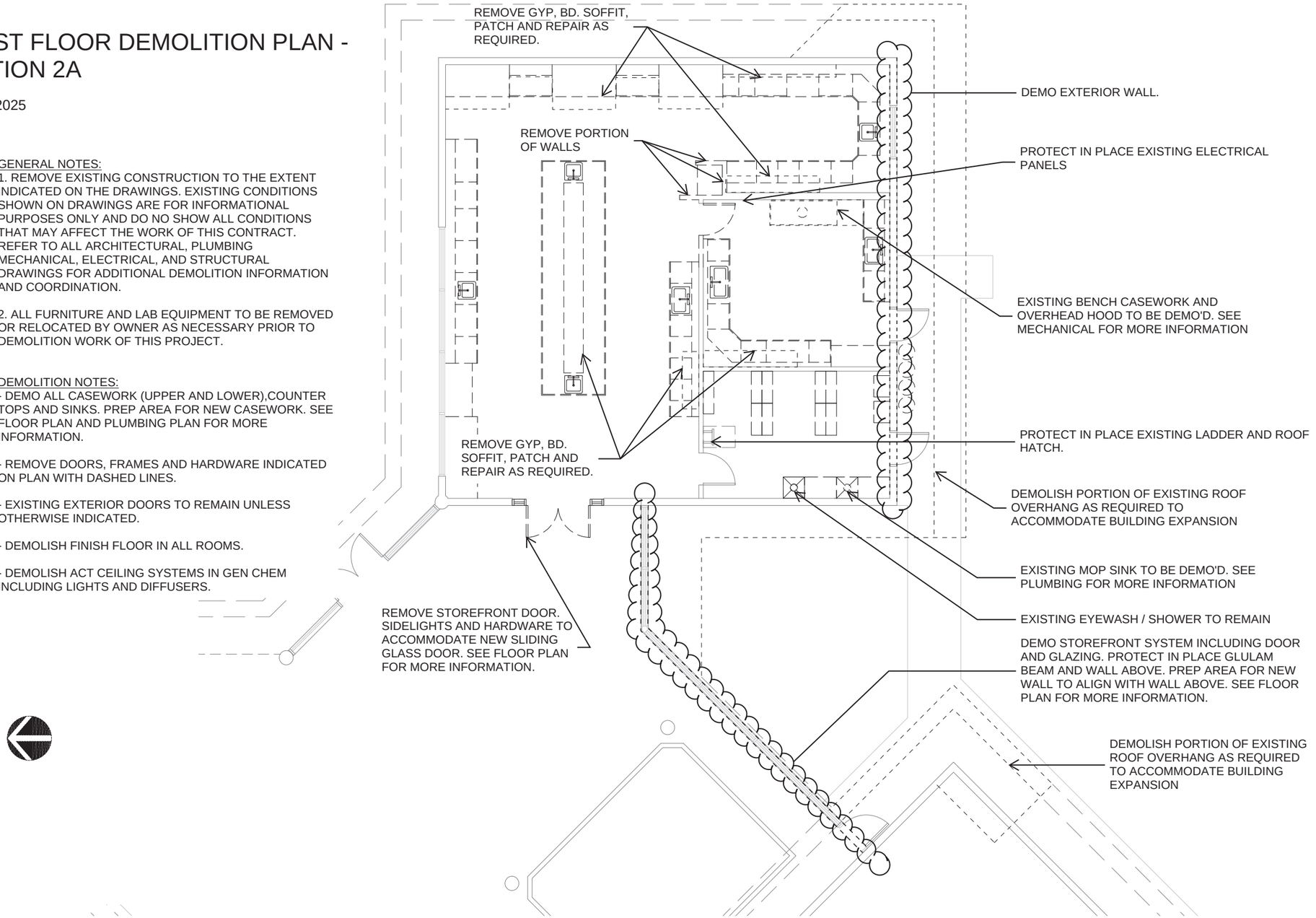
DEMOLITION NOTES:
- DEMO ALL CASEWORK (UPPER AND LOWER),COUNTER TOPS AND SINKS. PREP AREA FOR NEW CASEWORK. SEE FLOOR PLAN AND PLUMBING PLAN FOR MORE INFORMATION.

- REMOVE DOORS, FRAMES AND HARDWARE INDICATED ON PLAN WITH DASHED LINES.

- EXISTING EXTERIOR DOORS TO REMAIN UNLESS OTHERWISE INDICATED.

- DEMOLISH FINISH FLOOR IN ALL ROOMS.

- DEMOLISH ACT CEILING SYSTEMS IN GEN CHEM INCLUDING LIGHTS AND DIFFUSERS.



FIRST FLOOR PLAN - OPTION 2A w/ EQUIPMENT

N.T.S.
07/10/2025

GENEAL NOTES:
1. ALL DIMENSIONS ARE TO FACE OF WALL FINISH.

2. SEAL EXTERIOR JOINTS AROUND DOORS, WINDOWS AND LOUVER FRAMES AND AT PENETRATIONS OF MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION ELEMENTS TO PREVENT AIR AND WATER LEAKAGE.

3. BLOCKING IS REQUIRED IN STEEL STUD AND GYPSUM WALLS FOR ALL ITEMS THAT ARE ATTACHED TO THE WALL.

4. EXTEND PARTITIONS TO THE UNDERSIDE OF THE STRUCTURAL DECK OR FRAMING ABOVE UNLESS SHOWN OR NOTED OTHERWISE.

5. TAPE, BED AND FINISH ALL CORNERS AND JOINTS.

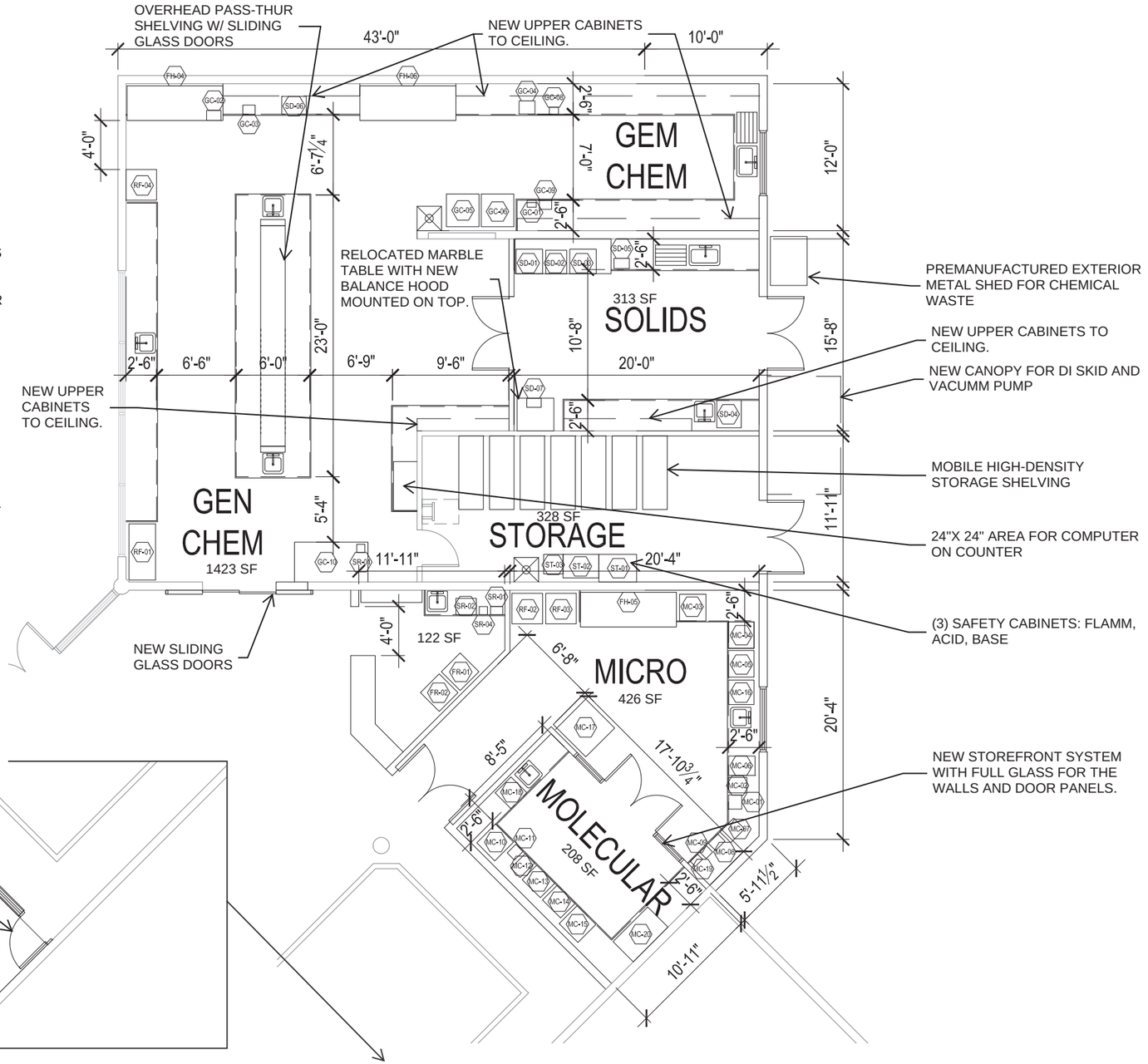
6. SEALANTS SHALL BE INSTALLED WITH JOINT FILLER.

7. NO HAZARDOUS MATERIALS SHALL BE USED OR STORED WITHIN THE CONSTRUCTION SITE WHICH DO NOT COMPLY WITH THE LOCAL FIRE AUTHORITY AND STATE AND COUNTY REQUIREMENTS.

PLAN NOTES:
- ALL CASEWORK (UPPER AND LOWER), COUNTER TOPS AND SINKS ARE NEW.

- NEW DOORS, FRAMES AND HARDWARE INDICATED WITH DARK LINE WEIGHT.

- NEW FINISH FLOOR IN ALL ROOMS. SEE FINISH SCHEDULE.



FIRST FLOOR REFLECTED CEILING PLAN - OPTION 2A

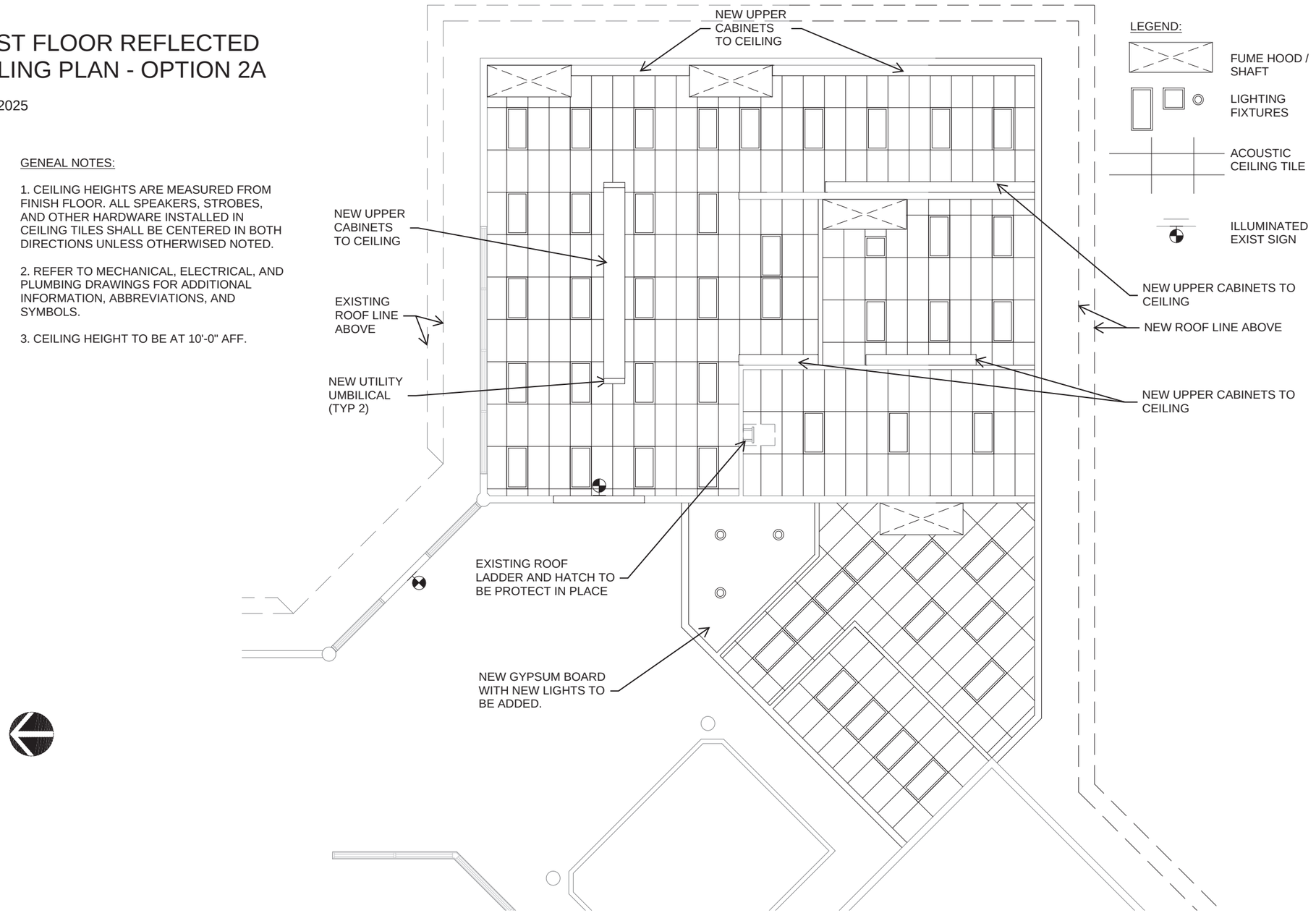
N.T.S.
07/10/2025

GENEAL NOTES:

1. CEILING HEIGHTS ARE MEASURED FROM FINISH FLOOR. ALL SPEAKERS, STROBES, AND OTHER HARDWARE INSTALLED IN CEILING TILES SHALL BE CENTERED IN BOTH DIRECTIONS UNLESS OTHERWISED NOTED.

2. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION, ABBREVIATIONS, AND SYMBOLS.

3. CEILING HEIGHT TO BE AT 10'-0" AFF.



ROOF PLAN - OPTION 2A

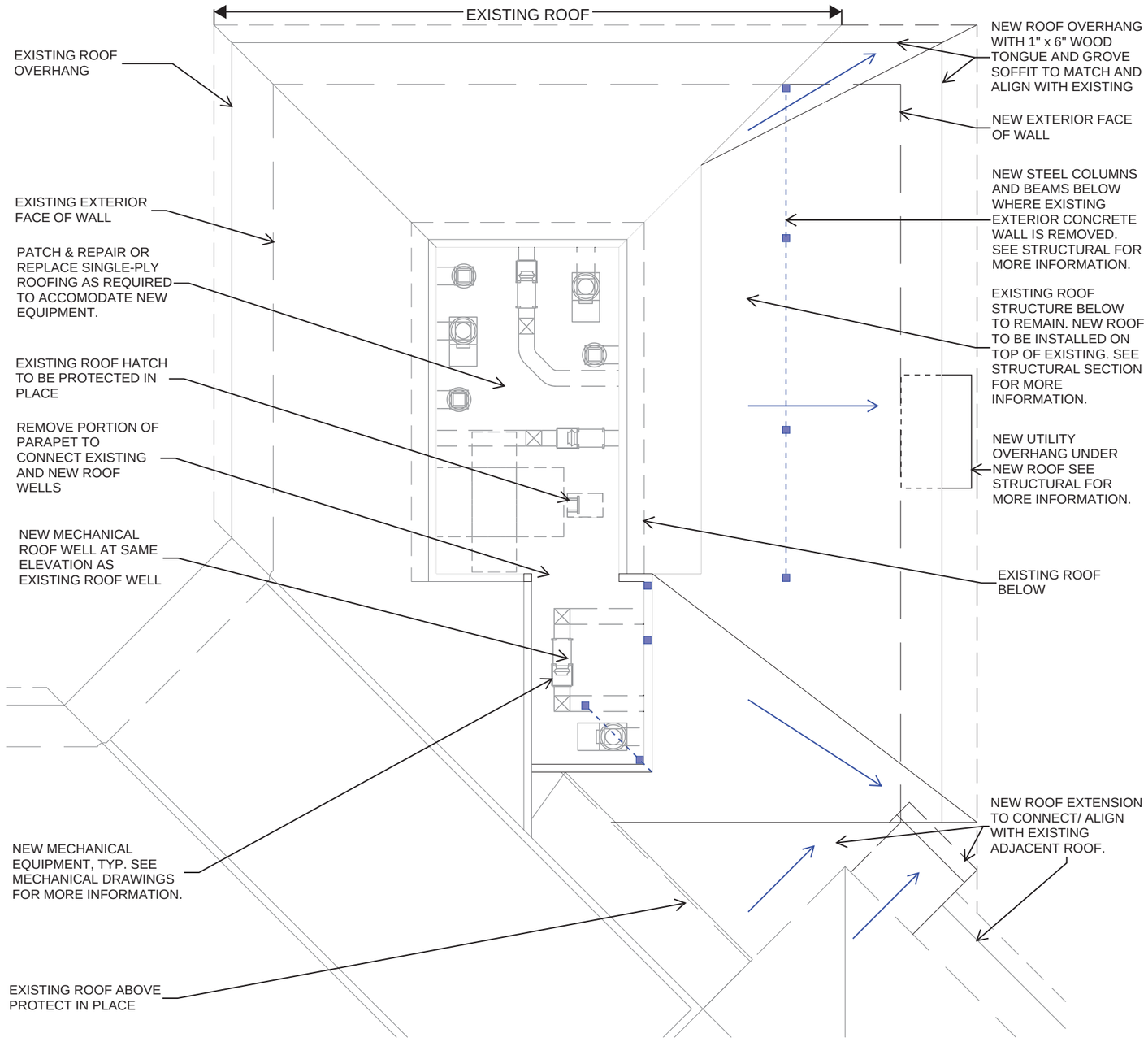
N.T.S.
07/10/2025

GENEAL NOTES:
1. SEAL EXTERIOR JOINTS AROUND NEW PARAPETS AND NEW ROOF AND PENETRATIONS OF MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION ELEMENTS TO PREVENT AIR AND WATER LEAKAGE.

PLAN NOTES:
- EXISTING ROOF IS CONCRETE SHAKE TILES OVER PLYWOOD.

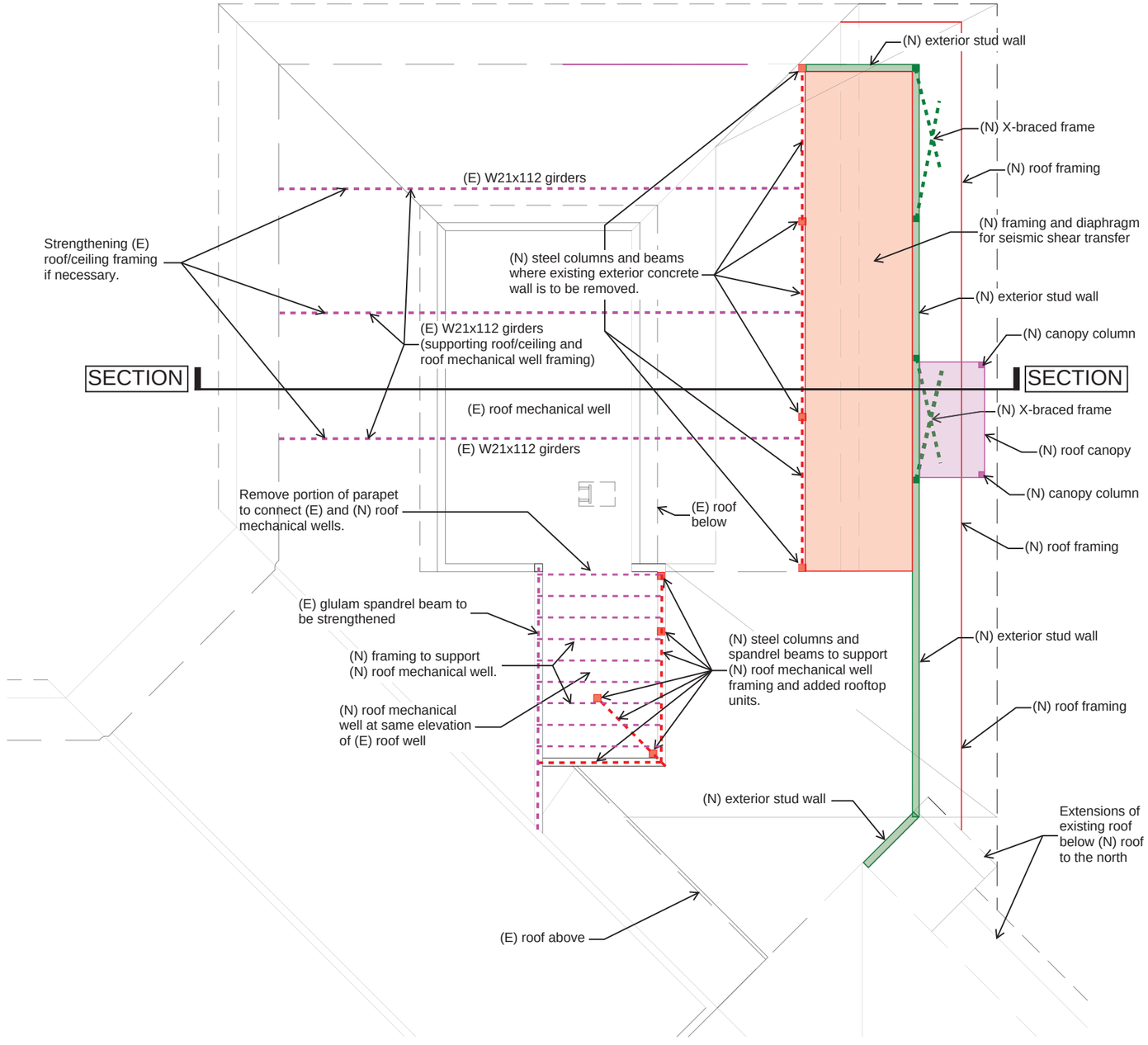
- EXISTING MECHANICAL WELL IS SINGLE PLY ROOFING OVER PLYWOOD.

- NEW ROOF TO MATCH EXISTING.



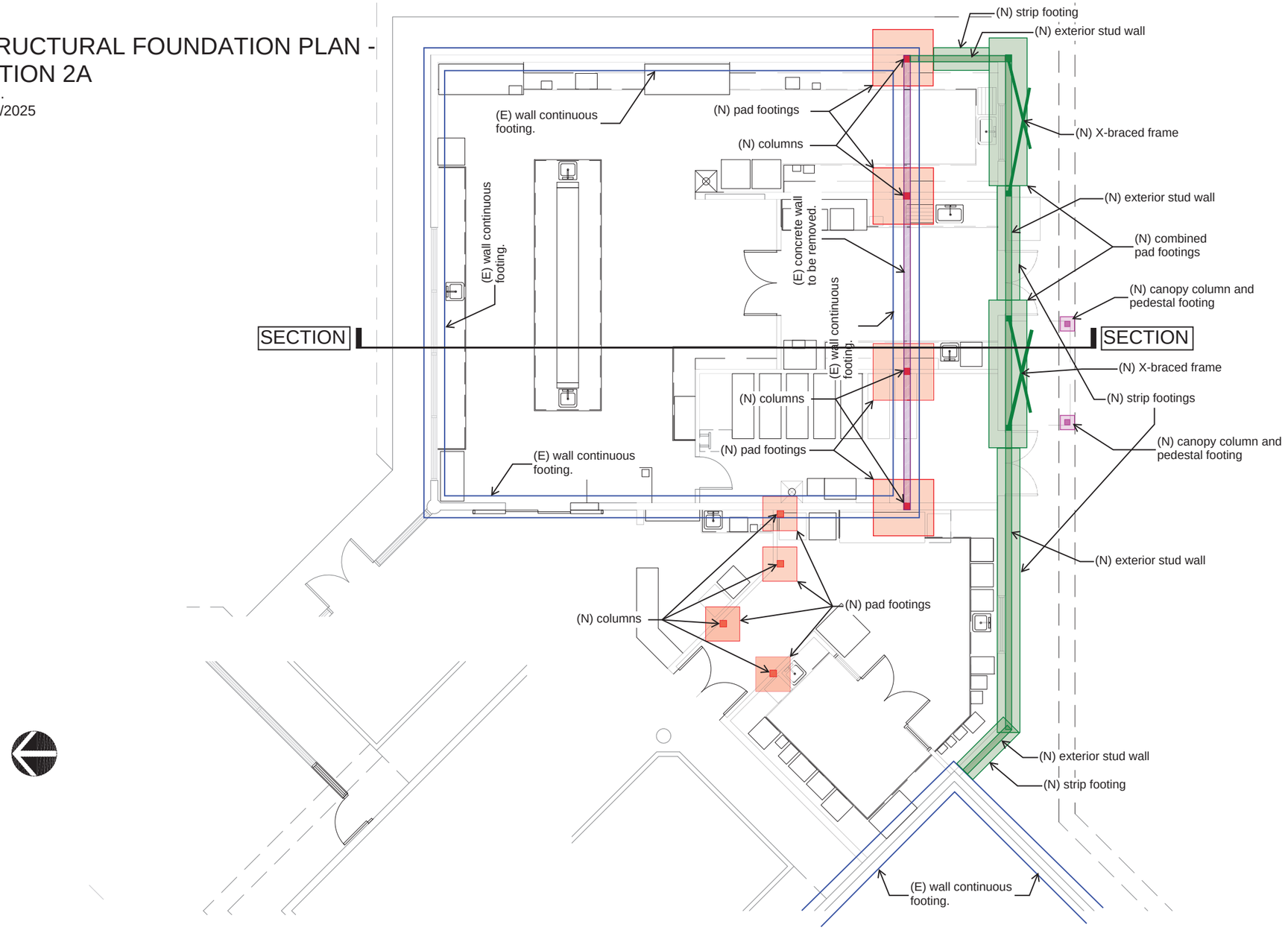
STRUCTURAL ROOF PLAN - OPTION 2A

N.T.S.
07/10/2025



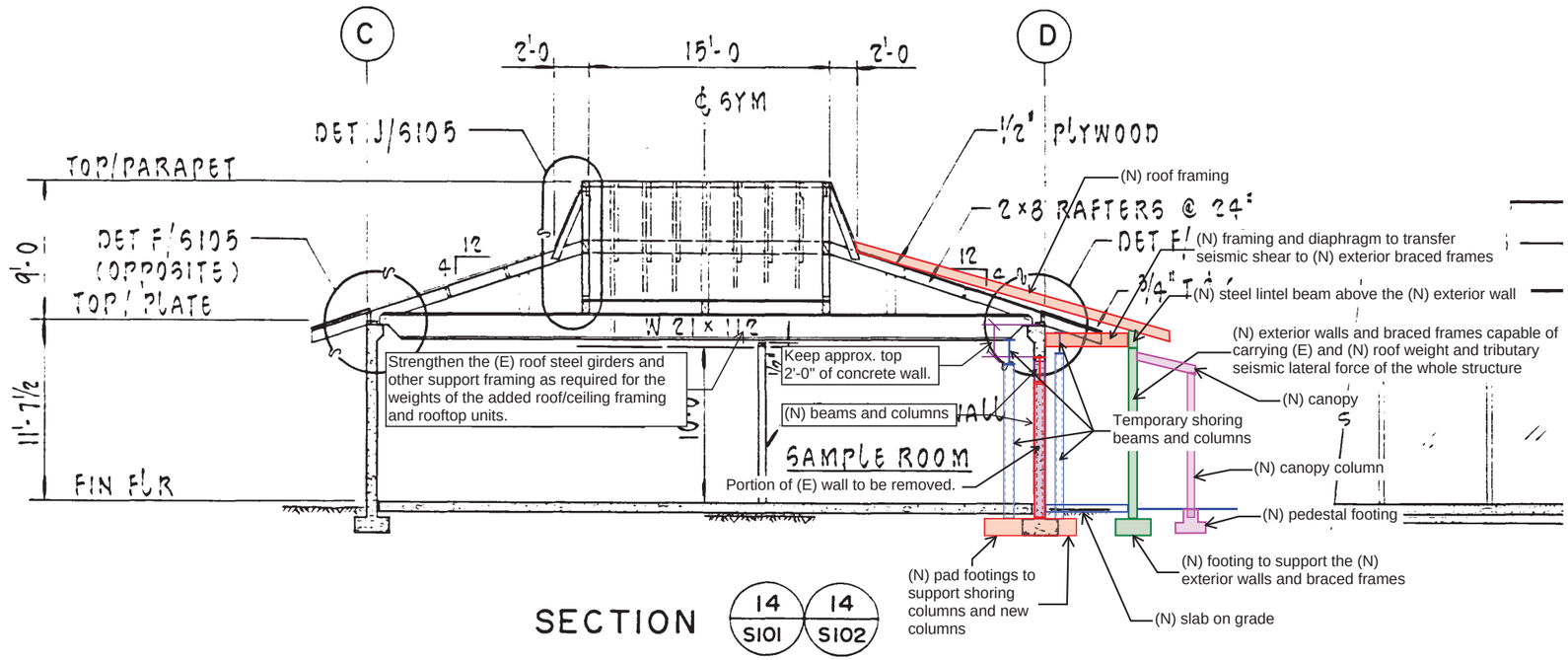
STRUCTURAL FOUNDATION PLAN - OPTION 2A

N.T.S.
07/10/2025



STRUCTURAL SECTION - OPTION 2A

N.T.S.
07/10/2025



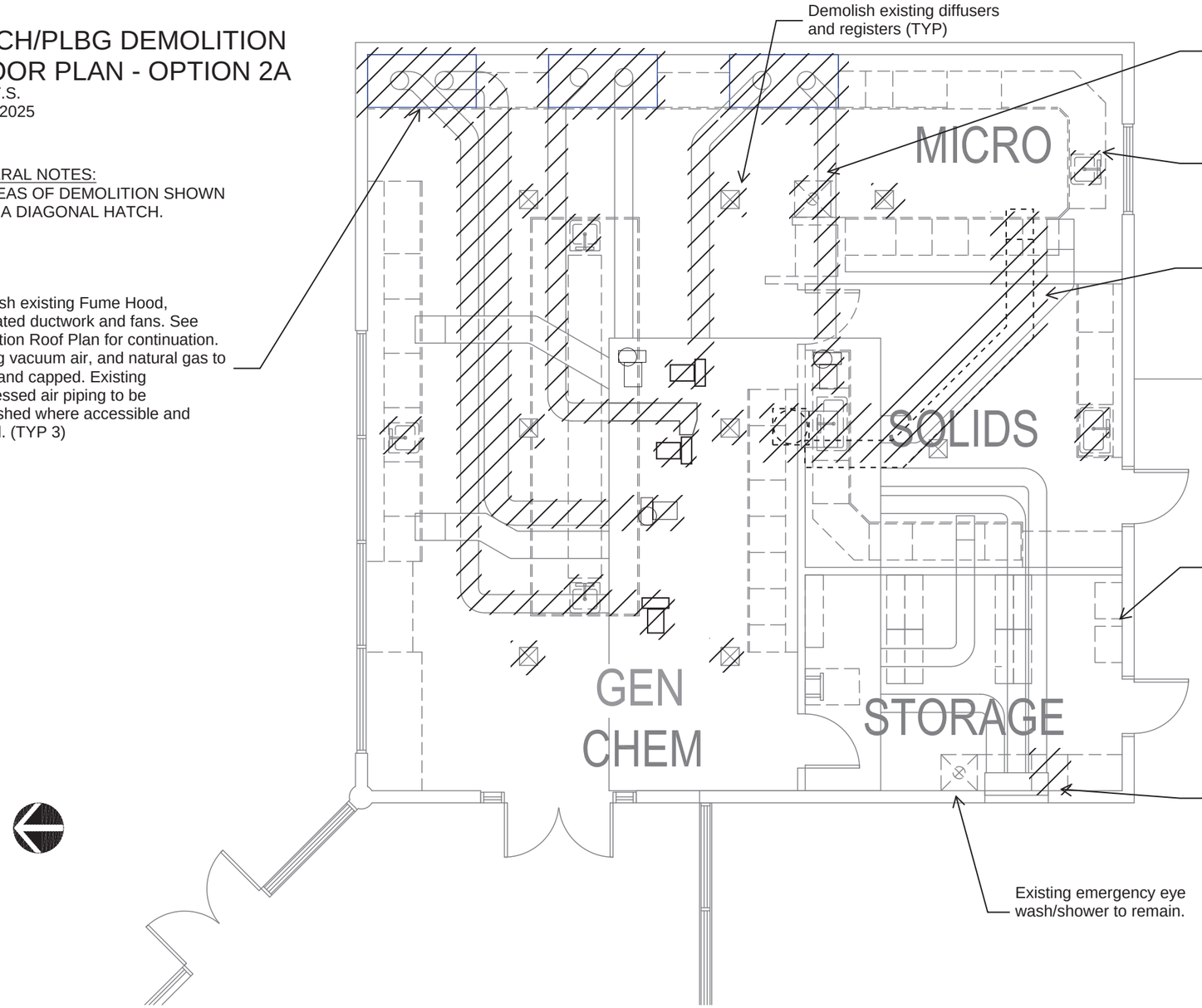
SECTION 14/S101 14/S102

MECH/PLBG DEMOLITION FLOOR PLAN - OPTION 2A

@ N.T.S.
07/10/2025

GENERAL NOTES:
1. AREAS OF DEMOLITION SHOWN WITH A DIAGONAL HATCH.

Demolish existing Fume Hood, associated ductwork and fans. See Demolition Roof Plan for continuation. Existing vacuum air, and natural gas to be cut and capped. Existing compressed air piping to be demolished where accessible and capped. (TYP 3)



Demolish existing diffusers and registers (TYP)

Existing eyewash/shower to be demolished. Cut and cap plumbing pipes at main.

Existing plumbing pipes from demolished sink to be cut and capped. (TYP)

Demolish existing general exhaust fan, associated duct, fittings and register.

Existing compressed air pump to be demolished. Piping to be capped at main. Existing vacuum pump to be relocated as shown in floor plan.

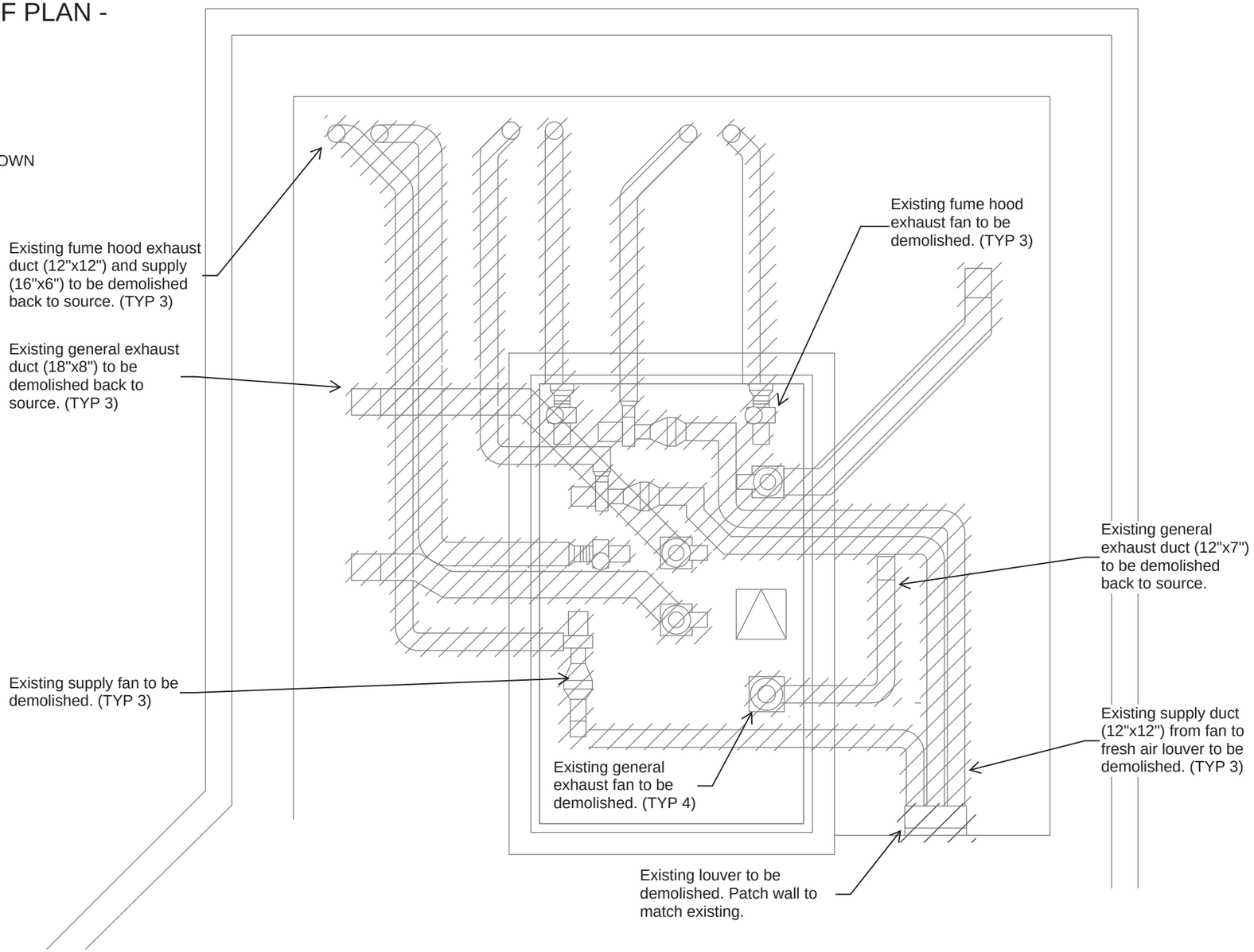
Existing plumbing pipes from demolished mop sink to be cut and capped.

Existing emergency eye wash/shower to remain.

DEMOLITION ROOF PLAN - OPTION 2A

@ N.T.S.
07/10/2025

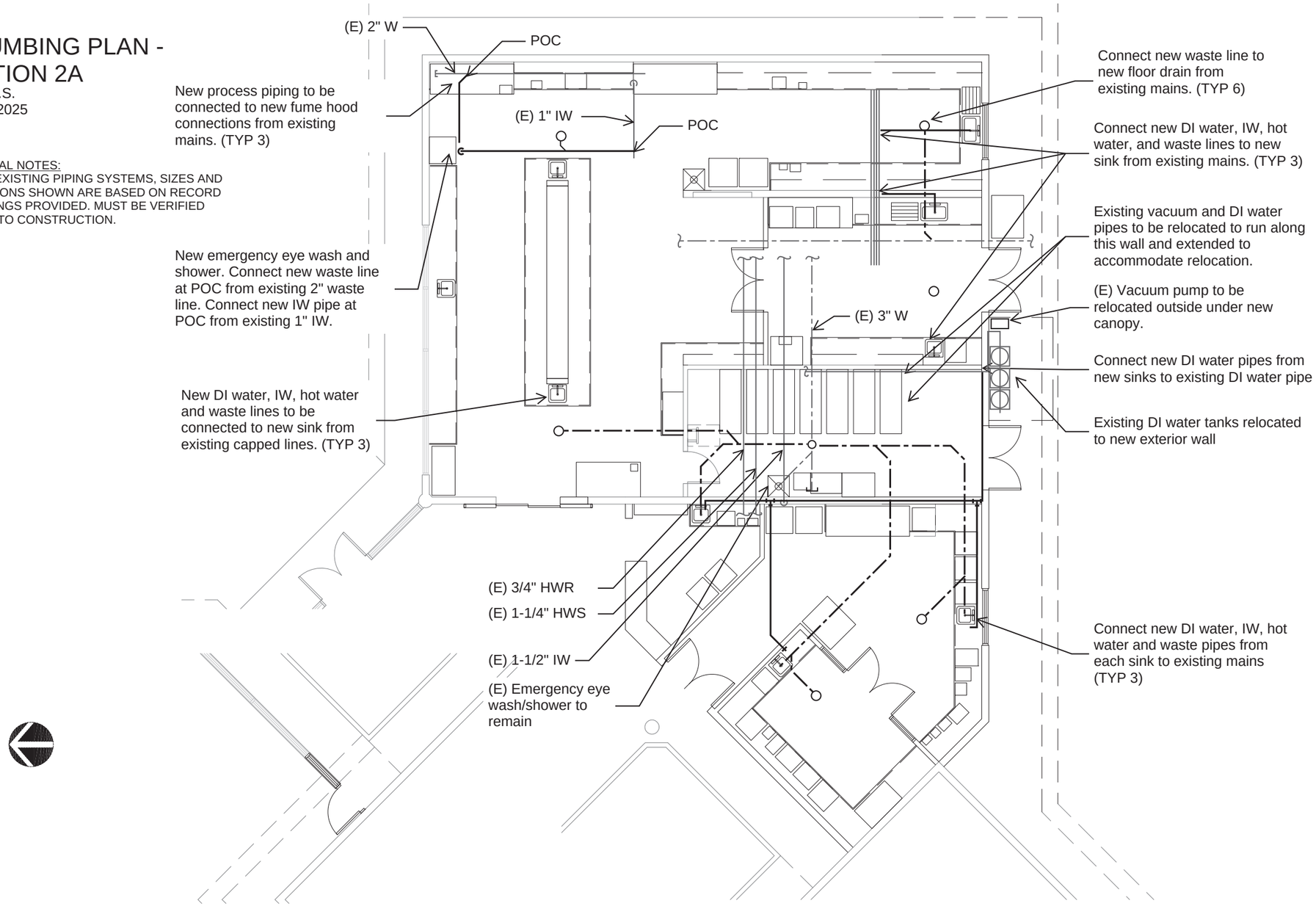
GENERAL NOTES:
1. AREAS OF DEMOLITION SHOWN WITH A DIAGONAL HATCH.



PLUMBING PLAN - OPTION 2A

@ N.T.S.
07/10/2025

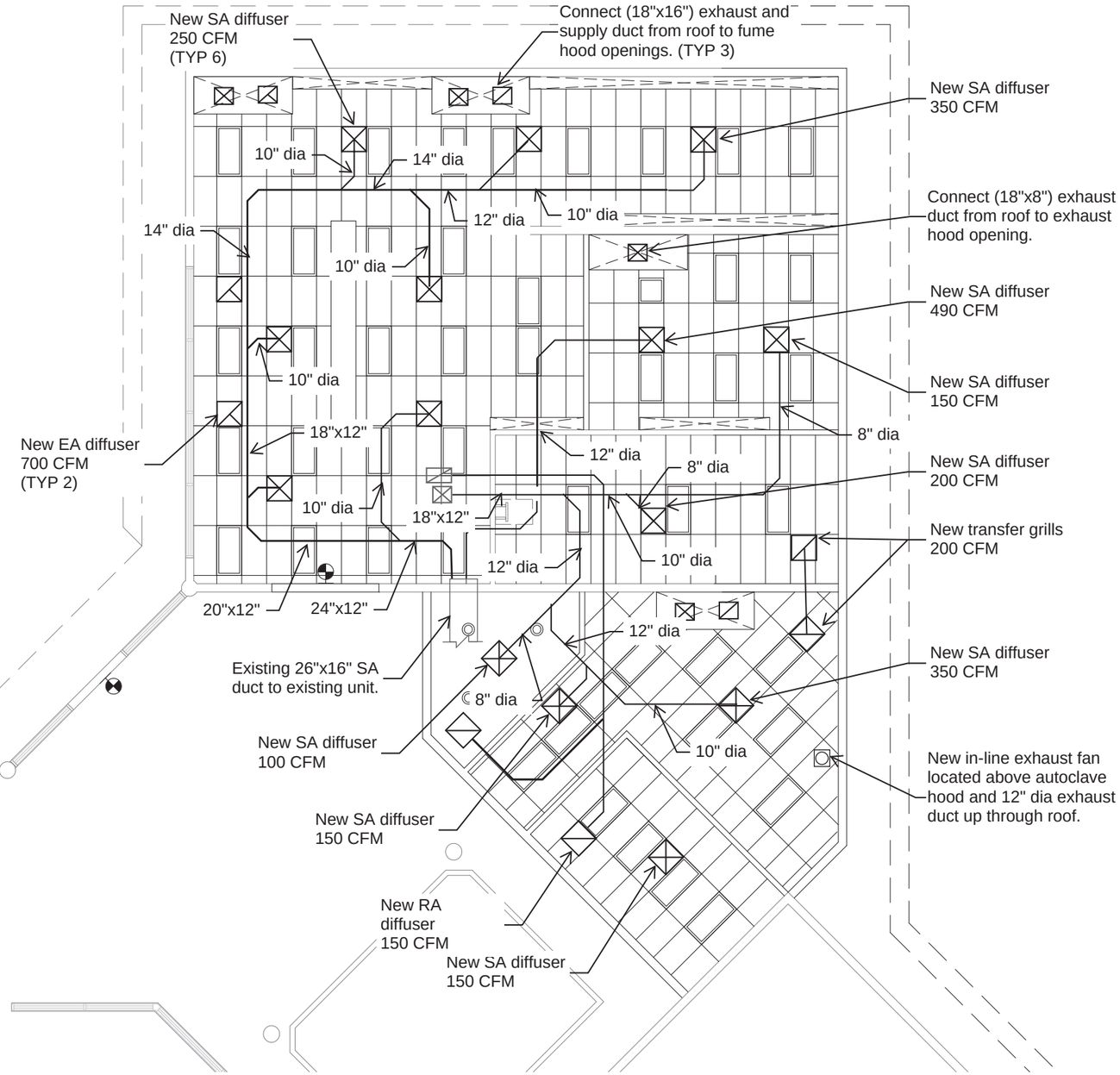
GENERAL NOTES:
1. ALL EXISTING PIPING SYSTEMS, SIZES AND LOCATIONS SHOWN ARE BASED ON RECORD DRAWINGS PROVIDED. MUST BE VERIFIED PRIOR TO CONSTRUCTION.



FIRST FLOOR REFLECTED CEILING PLAN - OPTION 2A

@ N.T.S.
07/10/2025

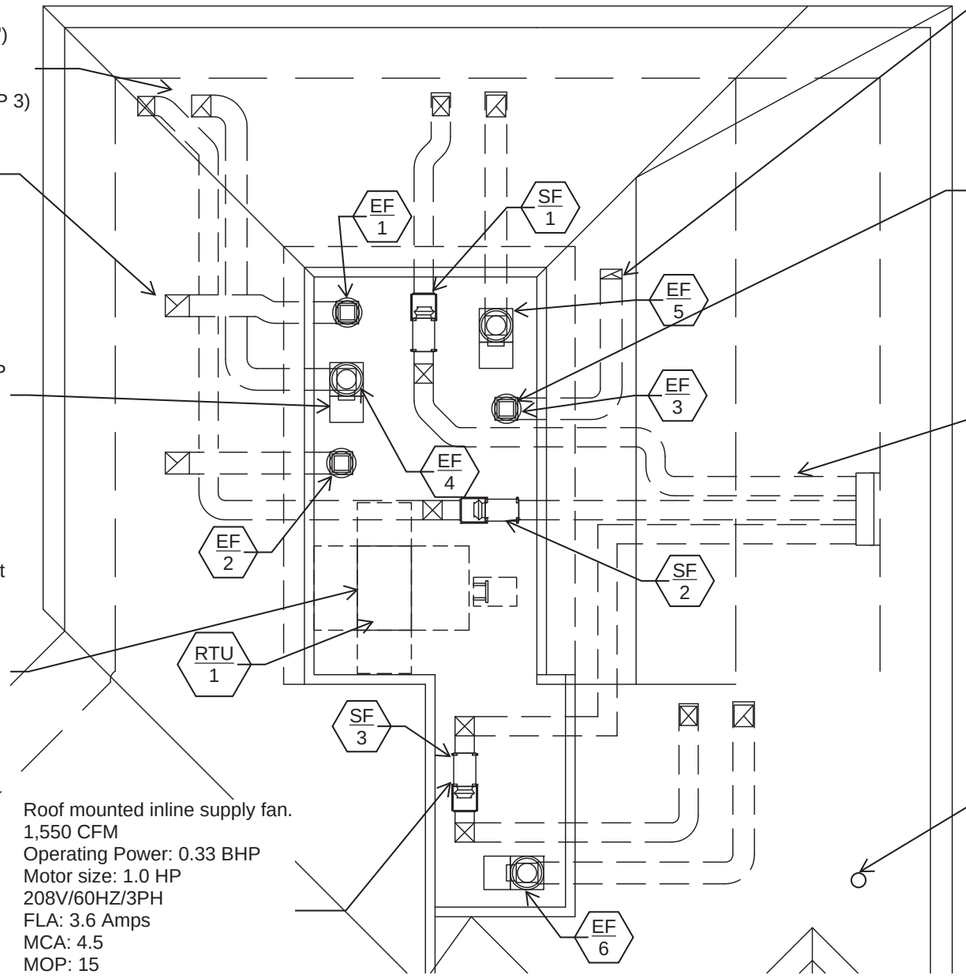
GENERAL NOTES:
1. ALL EXISTING SYSTEMS, SIZES AND LOCATIONS ARE BASED ON RECORD DRAWINGS PROVIDED.



MECHANICAL ROOF PLAN - OPTION 2A

@ N.T.S.
07/10/2025

GENERAL NOTES:
1. ALL EXISTING SYSTEMS, SIZES AND LOCATIONS ARE BASED ON RECORD DRAWINGS PROVIDED.



New exhaust duct (18"x16") and supply duct (18"x16") down to new fume hood in Gen Chem. and Micro (TYP 3)

New general exhaust duct (14"x10") down to Gen Chem. (TYP 2)

Fume hood exhaust fan.
Tubular centrifugal fan w/high plume conical nozzle.
1,950 CFM
Operating Power: 0.73 BHP
Motor size: 1.5 HP
208V/60HZ/3PH
FLA: 6 Amps
MCA: 7.5
MOP: 15
Weight: 600 lbs
(TYP 3)

3-Ton RTU Heat Pump Unit
Trane WSK036A4 or equal
1,200 CFM
Refrigerant: R-454B
208-230V/60HZ/3PH
MCA: 23
MOP: 30
Dim: 3.9ft H x 3.7ft W x 5.82ft L
Weight: 1,050 lbs (w/curb)

Roof mounted inline supply fan.
1,550 CFM
Operating Power: 0.33 BHP
Motor size: 1.0 HP
208V/60HZ/3PH
FLA: 3.6 Amps
MCA: 4.5
MOP: 15
Weight: 100 lbs
(TYP 3)

New exhaust duct (18"x8") down to exhaust hood in Solids

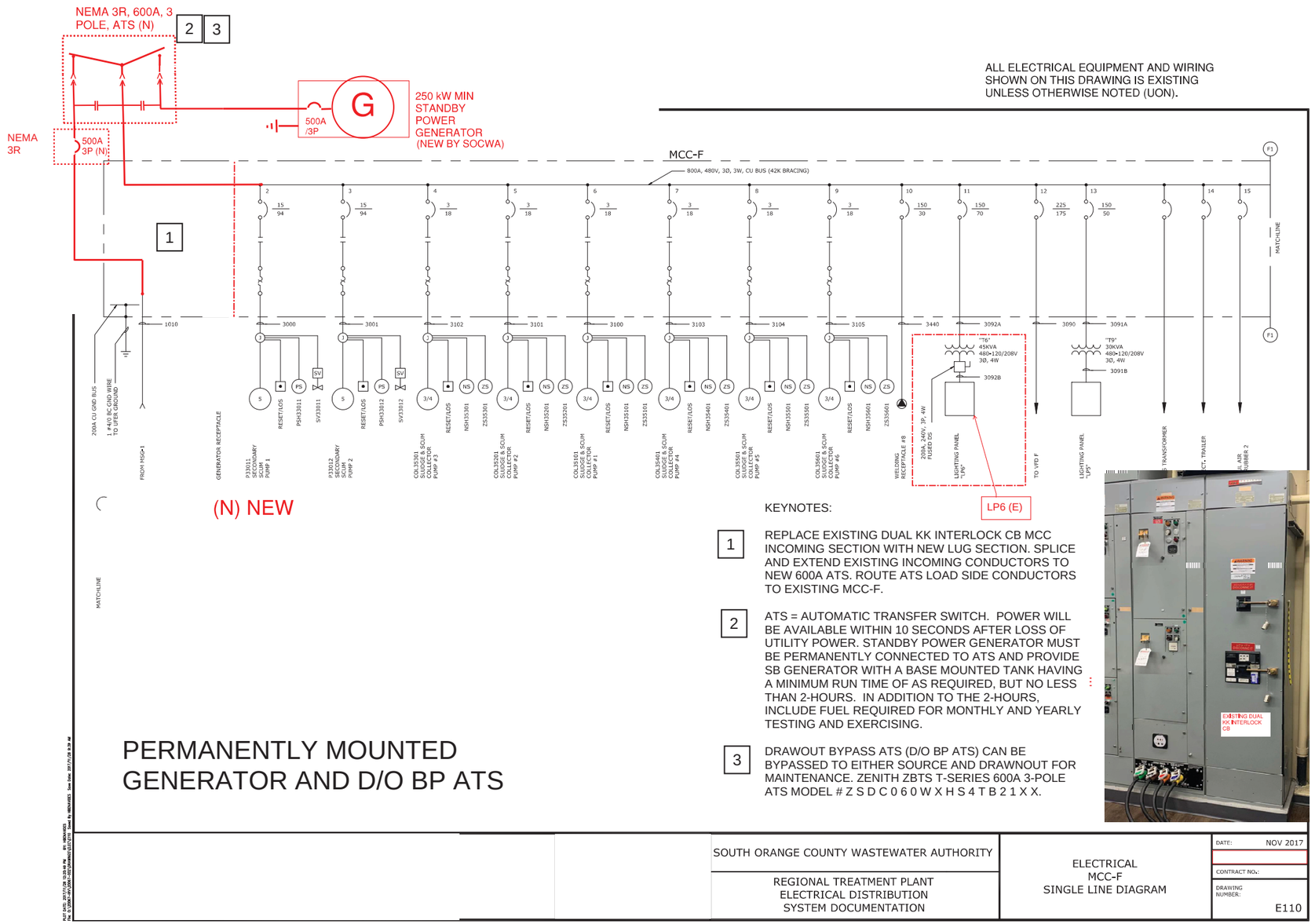
General exhaust fan.
Centrifugal roof fan.
700 CFM
Operating Power: 0.14 BHP
Motor size: 1/6 HP
115V/60HZ/1PH
FLA: 2.8
MCA: 3.5
MOP: 15
Weight: 85 lbs
(TYP 3)

New 18"x16" duct from supply air fan (TYP 2) to new 5'-0" x 2'-0" acoustical louver w/insect screen.

New exhaust duct (12" dia.) down to steam hood for autoclave in Micro.
Inline exhaust fan located above hood.
450 CFM
Operating Power: 0.1 BHP
Motor size: 1/6 HP
115V/60HZ/1PH
FLA: 2.8Amps
MCA: 3.5
MOP: 15
Weight: 45 lbs

SINGLE LINE DIAGRAM 01 OPTION 2A

N.T.S.
07/10/2025



KEYNOTES:

1. REPLACE EXISTING DUAL KK INTERLOCK CB MCC INCOMING SECTION WITH NEW LUG SECTION. SPLICE AND EXTEND EXISTING INCOMING CONDUCTORS TO NEW 600A ATS. ROUTE ATS LOAD SIDE CONDUCTORS TO EXISTING MCC-F.
2. ATS = AUTOMATIC TRANSFER SWITCH. POWER WILL BE AVAILABLE WITHIN 10 SECONDS AFTER LOSS OF UTILITY POWER. STANDBY POWER GENERATOR MUST BE PERMANENTLY CONNECTED TO ATS AND PROVIDE SB GENERATOR WITH A BASE MOUNTED TANK HAVING A MINIMUM RUN TIME OF AS REQUIRED, BUT NO LESS THAN 2-HOURS. IN ADDITION TO THE 2-HOURS, INCLUDE FUEL REQUIRED FOR MONTHLY AND YEARLY TESTING AND EXERCISING.
3. DRAWOUT BYPASS ATS (D/O BP ATS) CAN BE BYPASSED TO EITHER SOURCE AND DRAWNOUT FOR MAINTENANCE. ZENITH ZBTS T-SERIES 600A 3-POLE ATS MODEL # Z S D C 0 6 0 W X H S 4 T B 2 1 X X.

PERMANENTLY MOUNTED GENERATOR AND D/O BP ATS

SOUTH ORANGE COUNTY WASTEWATER AUTHORITY	DATE: NOV 2017
REGIONAL TREATMENT PLANT ELECTRICAL DISTRIBUTION SYSTEM DOCUMENTATION	ELECTRICAL MCC-F SINGLE LINE DIAGRAM
	CONTRACT NO.:
	DRAWING NUMBER: E110

ELECTRICAL SLD 02
OPTION 2A
07/10/2025

ADMINISTRATION BUILDING

MCC F (CONTINUED)

ALL ELECTRICAL EQUIPMENT AND WIRING SHOWN ON THIS DRAWING IS EXISTING UNLESS OTHERWISE NOTED (UON).

EXISTING LP7

VFD F

400A, 480V, 3Φ, 3W CU BUS (42K BRACING)

RECORD DRAWING

REVISION	DESCRIPTION	BY	APP	DATE

ALISO WATER MANAGEMENT AGENCY CONTRACT NUMBER FC-17	JOINT REGIONAL WATER RECLAMATION FACILITIES	SINGLE LINE DIAGRAM 8	DRAWING NUMBER E21 SHEET 276 OF ____

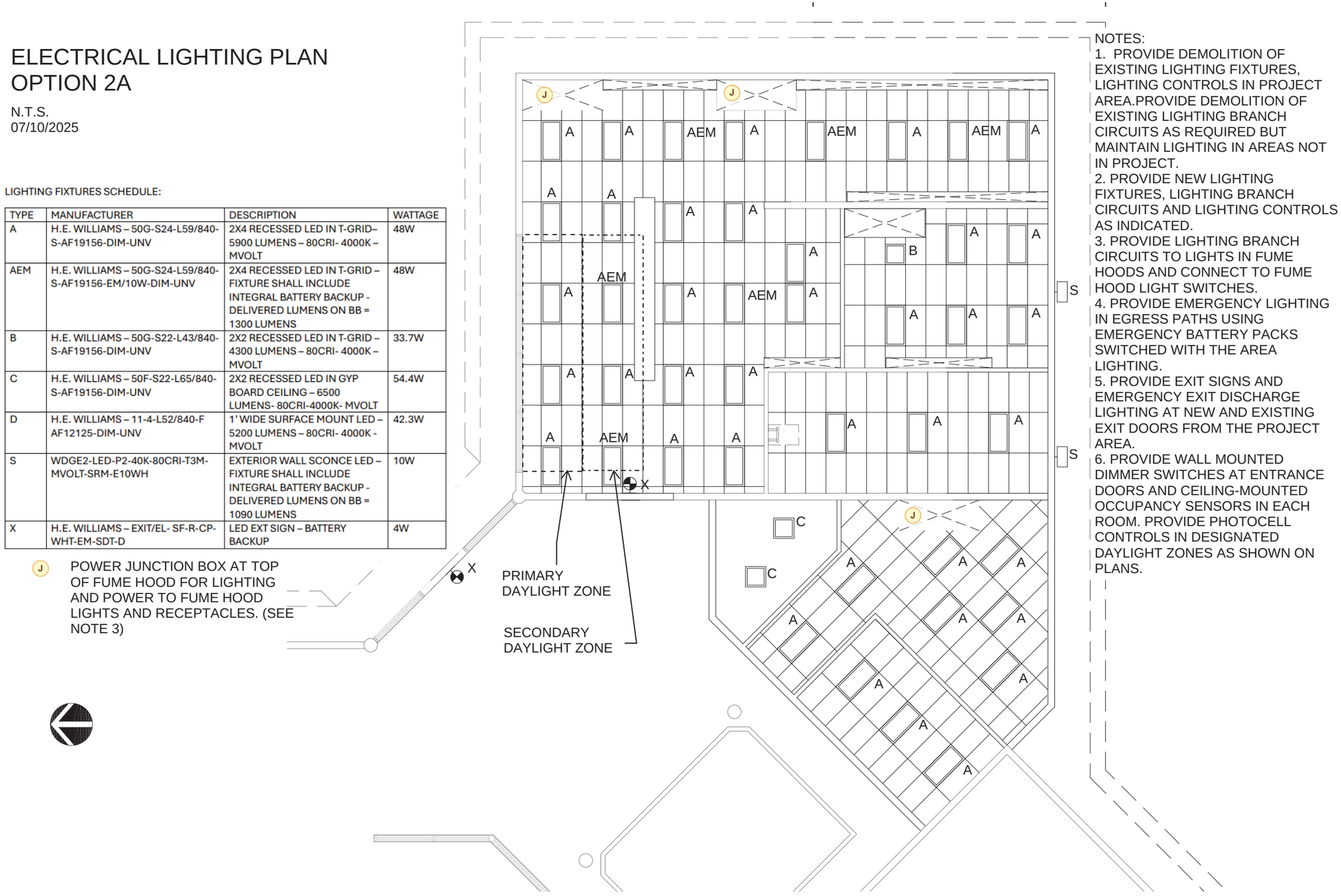
ELECTRICAL LIGHTING PLAN
OPTION 2A

N.T.S.
07/10/2025

LIGHTING FIXTURES SCHEDULE:

TYPE	MANUFACTURER	DESCRIPTION	WATTAGE
A	H.E. WILLIAMS – 50G-S24-L59/840-S-AF19156-DIM-UNV	2X4 RECESSED LED IN T-GRID– 5900 LUMENS – 80CRI- 4000K – MVOLT	48W
AEM	H.E. WILLIAMS – 50G-S24-L59/840-S-AF19156-EM/10W-DIM-UNV	2X4 RECESSED LED IN T-GRID – FIXTURE SHALL INCLUDE INTEGRAL BATTERY BACKUP - DELIVERED LUMENS ON BB = 1300 LUMENS	48W
B	H.E. WILLIAMS – 50G-S22-L43/840-S-AF19156-DIM-UNV	2X2 RECESSED LED IN T-GRID – 4300 LUMENS – 80CRI- 4000K – MVOLT	33.7W
C	H.E. WILLIAMS – 50F-S22-L65/840-S-AF19156-DIM-UNV	2X2 RECESSED LED IN GYP BOARD CEILING – 6500 LUMENS- 80CRI-4000K- MVOLT	54.4W
D	H.E. WILLIAMS – 11-4-L52/840-F AF12125-DIM-UNV	1' WIDE SURFACE MOUNT LED – 5200 LUMENS – 80CRI- 4000K - MVOLT	42.3W
S	WDGE2-LED-P2-40K-80CRI-T3M-MVOLT-SRM-E10WH	EXTERIOR WALL SCONCE LED – FIXTURE SHALL INCLUDE INTEGRAL BATTERY BACKUP - DELIVERED LUMENS ON BB = 1090 LUMENS	10W
X	H.E. WILLIAMS – EXIT/EL- SF-R-CP-WHT-EM-SDT-D	LED EXT SIGN – BATTERY BACKUP	4W

J POWER JUNCTION BOX AT TOP OF FUME HOOD FOR LIGHTING AND POWER TO FUME HOOD LIGHTS AND RECEPTACLES. (SEE NOTE 3)



NOTES:
1. PROVIDE DEMOLITION OF EXISTING LIGHTING FIXTURES, LIGHTING CONTROLS IN PROJECT AREA.PROVIDE DEMOLITION OF EXISTING LIGHTING BRANCH CIRCUITS AS REQUIRED BUT MAINTAIN LIGHTING IN AREAS NOT IN PROJECT.
2. PROVIDE NEW LIGHTING FIXTURES, LIGHTING BRANCH CIRCUITS AND LIGHTING CONTROLS AS INDICATED.
3. PROVIDE LIGHTING BRANCH CIRCUITS TO LIGHTS IN FUME HOODS AND CONNECT TO FUME HOOD LIGHT SWITCHES.
4. PROVIDE EMERGENCY LIGHTING IN EGRESS PATHS USING EMERGENCY BATTERY PACKS SWITCHED WITH THE AREA LIGHTING.
5. PROVIDE EXIT SIGNS AND EMERGENCY EXIT DISCHARGE LIGHTING AT NEW AND EXISTING EXIT DOORS FROM THE PROJECT AREA.
6. PROVIDE WALL MOUNTED DIMMER SWITCHES AT ENTRANCE DOORS AND CEILING-MOUNTED OCCUPANCY SENSORS IN EACH ROOM. PROVIDE PHOTOCELL CONTROLS IN DESIGNATED DAYLIGHT ZONES AS SHOWN ON PLANS.

ELECTRICAL POWER PLAN OPTION 2A

N.T.S.
07-10-25

J — POWER JUNCTION BOX AT TOP OF FUME HOOD FOR LIGHTING AND POWER TO FUME HOOD LIGHTS AND RECEPTACLES..

DUPLEX 120V 20A (180VA 8 MAX PER CKT) RECEPTACLE (SEE NOTE 1) UON

DOUBLE DUPLEX 120V, 20A PEDESTAL RECEPTACLE (TWO DUPLEX RECEPTACLES)

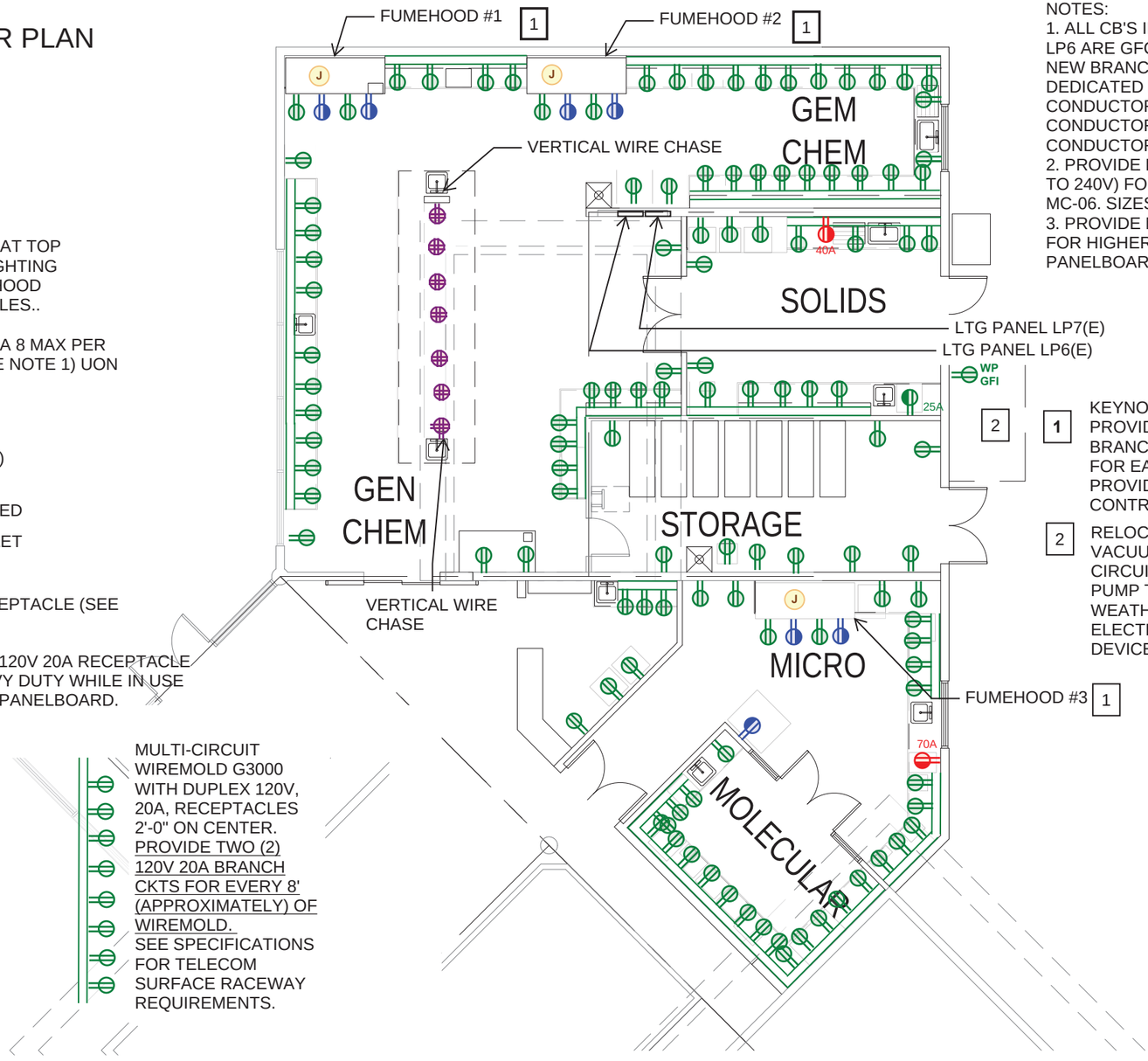
SINGLE 240V OUTLET AMPERAGE AS INDICATED

SINGLE 208V, 30A OUTLET ON 20A 208V CKT.

SIMPLEX 120V 30A RECEPTACLE (SEE NOTE 1) UON

WP GFI — WEATHER RESISTANT 120V 20A RECEPTACLE WITH CAST TYPE HEAVY DUTY WHILE IN USE WP COVER. GFI CB AT PANELBOARD.

MULTI-CIRCUIT WIREMOLD G3000 WITH DUPLEX 120V, 20A, RECEPTACLES 2'-0" ON CENTER. PROVIDE TWO (2) 120V 20A BRANCH CKTS FOR EVERY 8' (APPROXIMATELY) OF WIREMOLD. SEE SPECIFICATIONS FOR TELECOM SURFACE RACEWAY REQUIREMENTS.



NOTES:
1. ALL CB'S IN EXISTING PANELBOARD LP6 ARE GFCI TYPE. PROVIDE EACH NEW BRANCH CIRCUITS WITH DEDICATED EQUIPMENT GROUNDING CONDUCTORS, NEUTRAL CONDUCTORS AND PHASE CONDUCTORS.
2. PROVIDE BUCK-BOOST XFMRS (208V TO 240V) FOR EQUIPMENT SD-02 AND MC-06. SIZES AS REQUIRED FOR LOAD.
3. PROVIDE NEW CB'S AS REQUIRED FOR HIGHER AMPERAGE CKTS. SEE PANELBOARD SCHEDULE.

KEYNOTES:

1 PROVIDE LTG AND RECEPTACLE BRANCH CKT CONNECTIONS FOR EACH FUMEHOOD (FH). PROVIDE START STOP EF CONTROL WIRING FOR EACH FH.

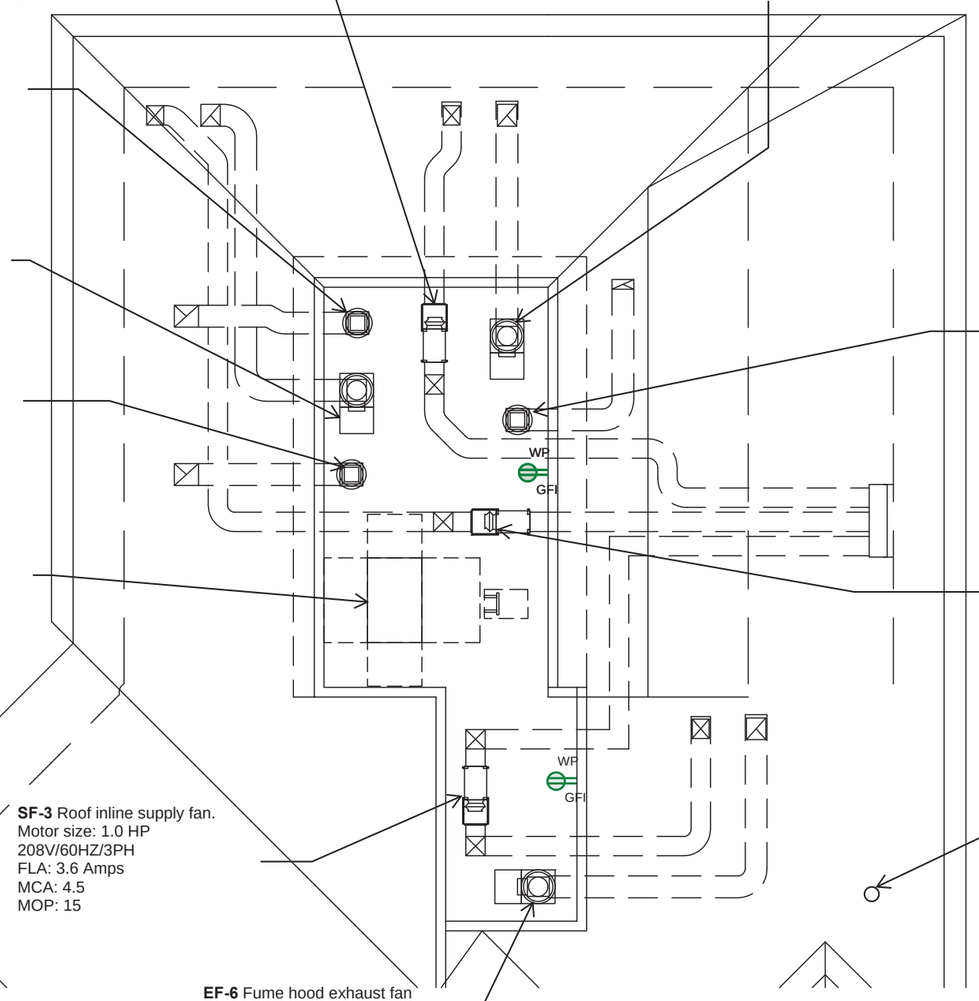
2 RELOCATE EXISTING VACUUM PUMP BRANCH CIRCUIT AND VACUUM PUMP TO HERE. PROVIDE WEATHERPROOF ELECTRICAL WIRING DEVICES.

ROOF POWER PLAN
OPTION 2A

N.T.S.
07/10/2025

WP GFI WEATHER RESISTANT 120V 20A RECEPTACLE WITH CAST TYPE HEAVY DUTY WHILE IN USE WP COVER. CONNECT TO GFI CB AT PANELBOARD LP6.

NOTES:
1. PROVIDE A SEPARATE COMBINATION MCP FVNR AUTOMATIC STARTER WITH ELECTRONIC OL RELAYS, HOA, CPT, PILOT, NEMA 4X SS ENCLOSURE FOR ALL NEW SUPPLY AND EXHAUST FANS. MOUNT NEW STARTERS ON THE ROOF IN THE ROOF WELL.
2. DEMO TEN (10) EXISTING EXHAUST AND SUPPLY FAN STARTERS, POWER WIRING AND CONTROL WIRING.
3. PROVIDE STARTERS, BRANCH CIRCUITS AND CONTROL WIRING FOR NEW EXHAUST AND SUPPLY FANS INDICATED.
4. PROVIDE NEW BRANCH CIRCUIT TO NEW RTU.
5. PROVIDE TWO (2) 30A, 3-POLE CBS AND ONE (1)20A, 3-POLE CB IN EXISTING PANEL LP7 FOR NEW SUPPLY FANS AND NEW RTU. REMOVE UNUSED CBS AS REQUIRED FOR SPACE.



SF-1 Roof inline supply fan.
Motor size: 1.0 HP
208V/60HZ/3PH
FLA: 3.6 Amps
MCA: 4.5
MOP: 15

EF-5 Fume hood exhaust fan
Motor size: 1.5 HP
208V/60HZ/3PH
FLA: 6.6 Amps
MCA: 8.25
MOP: 15

EF1 General exhaust fan.
Motor size: 1/6 HP
120V/60HZ/1PH
FLA: 2.8 Amps
MCA: 3.5
MOP: 15

EF-4 Fume hood exhaust fan
Motor size: 1.5 HP
208V/60HZ/3PH
FLA: 6.6 Amps
MCA: 8.25
MOP: 15

EF2 General exhaust fan.
Motor size: 1/6 HP
120V/60HZ/1PH
FLA: 2.8 Amps
MCA: 3.5
MOP: 15

EF3 General exhaust fan.
Motor size: 1/6 HP
120V/60HZ/1PH
FLA: 2.8 Amps
MCA: 3.5
MOP: 15

3-Ton **RTU1** Heat Pump Unit
208-230V/60HZ/3PH
MCA: 23
MOP: 30

SF-2 Roof inline supply fan.
Motor size: 1.0 HP
208V/60HZ/3PH
FLA: 3.6 Amps
MCA: 4.5
MOP: 15

Inline exhaust fan located above hood.
Motor size: 1/6 HP
120V/60HZ/1PH
FLA: 2.8Amps
MCA: 3.5
MOP: 15

SF-3 Roof inline supply fan.
Motor size: 1.0 HP
208V/60HZ/3PH
FLA: 3.6 Amps
MCA: 4.5
MOP: 15

EF-6 Fume hood exhaust fan
Motor size: 1.5 HP
208V/60HZ/3PH
FLA: 6.6 Amps
MCA: 8.25
MOP: 15

SECTION 3
BUILDING SYSTEMS NARRATIVES

Division 00 General Narrative
Division 02 Existing Conditions

STRUCTURAL NARRATIVES

Conceptional Description of Structural Renovation/Retrofit
Division 03 Concrete
Division 05 Metals
Division 06 Woods, Plastics and Composites

ARCHITECTURAL NARRATIVES

Division 07 Thermal and Moisture Protection
Division 08 Openings
Division 09 Finishes
Room Finish Schedule
Division 10 Specialties
Division 12 Furnishings

PLUMBING NARRATIVES

Division 22 Plumbing

MECHANICAL NARRATIVES

Division 23 Heating, Ventilating, and Air Conditioning

ELECTRICAL NARRATIVES

Division 26 Electrical
Division 27 Communications
Division 28 Electronic Safety and Security

PROCESS UTILITIES

Division 40 Process Utilities

DIVISION 00 GENERAL NARRATIVE

This document is submitted for review and approval by SOCWA, Southern Orange County Wastewater Authority.

The SOCWA facility from a building code perspective is a renovation of the laboratory area. The existing building is to remain in operation for as long as possible during construction. In documents, The Austin Company have provided two options. 1B where the existing footprint is to remain. 2A is where we add to the courtyard area to expand the building. Throughout the report the specifications will describe the work as a whole. Work only occurring in option 1B or 2A will be noted.

The Austin Company conducted a preliminary code analysis based on the specific building type and building operation processes identified in the program requirements.

Based on our analysis, the building construction is Type VB. The changes proposed do not require additional protection of the existing structural elements from fire. The buildings side yards qualify the building for unlimited area allowance. Overall occupancy increased between the two options. From 57 to 66 occupants due to the increase in square footage from option 1B to 2A. Based on the current building layout, the occupancy increase in the SOCWA facility will affect the exit location in option 2A. However, the number of exits or plumbing counts required are not affected. Code related occupancy calculations were developed and are included. The code related occupancy quantities exceed the anticipated actual facility occupancy significantly. The restroom fixture count numbers are based on the code related occupancies.

The SOCWA facility is zoned per city of Laguna Niguel as a Public/Institutional District (PI). The parcel number is 654-381-09. Based on the City of Laguna Niguel Secs. 9-1-66 Table 6.5, the parking requirements are based on the number of employees plus one per number of company vehicles. Based on the current conditions, including the increase in square footage for option 2A, the number of employees is not increasing. Therefore, there are enough stalls on site.

Site Improvements will include installing a new utility canopy at the side of the building and a new chemical storage shed. For Option 2A, new concrete paths need to be added around the building for egress.

Based on the size of the project, there may be a 20% accessibility spending required per California Building Code 11B-202.4. Depending on the budget, the accessibility requirements may be met with site path of travel, parking improvements and/or restroom improvements.

RESTROOM FIXTURE COUNT

The proposed occupancy group for SOCWA facility is B. The total occupancy load factor for B occupancies is 150 sf/occ. Based on the required plumbing fixtures, the SOCWA Facility has a total of 57 (1B) and 66 (2A) occupants. The building meets the required fixtures count per 2022 CPC Table 422.1.

DIVISION 02 EXISTING CONDITIONS

SECTION 024100 – DEMOLITION

SCOPE

- Demolition includes the following:
- Demolition of upper and base cabinets and finishes in lab areas and storage spaces;
- Utilities and mechanical equipment;
- Storefront;
- Concrete paths in courtyard (Option 2A).

The SOCWA existing structure system is composed of reinforced concrete bearing/shear walls with wood roof framing and is surrounded by pavement consisting of both asphalt and concrete. The building materials are to be recycled to the greatest extent possible during the demolition. Hazardous materials evaluation, abatement, and/or remediation is outside the scope of this report.

EXTERIOR:

- The majority of exterior will remain as is.
- Protect in place all existing roof structure.
- For option 2A, the new roof will be installed on top of the existing roof to maintain the existing envelope and thus allow operations to continue during a portion of the construction phase.
- Protect in place roof hatch and ladder.
- For other demolition notes, see Demolition Plan.

INTERIOR:

- Demolition of ceilings and existing floor finishes is included in the scope of work.
- Complete removal of built-in fume-hoods, upper & lower cabinets, and associated soffits.
- Protect existing restrooms, including fixtures, walls, and ceilings of the restrooms. The building meets the required fixtures count per 2022 CPC Table 422.1.
- For other demolition notes, see Demolition Plan.

SITE:

- Prepping area on east exterior wall for chemical storage and waste shed.

END OF DIVISION 02 – EXISTING CONDITIONS

OPTION 2A - STRUCTURAL NARRATIVES

SCOPE OF WORK

The structural task for SOCWA - Option 2A is to expand the existing building and construct new roof mechanical well connecting to the existing one. The scope of structural renovation/retrofit works includes: adding and modifying roof framing (rafters, hip beams and roof sheathing); expanding and modifying roof mechanical well; demolishing existing concrete walls; adding gravity structural framing components (beams and columns to support existing and new building components and roof top mechanical units); constructing new exterior walls and braced frames capable of carrying new roof framing weight and tributary seismic lateral force of the whole structure; constructing new diaphragm framing to transfer ceiling/roof shear to the new braced frame; expanding existing foundations and adding new foundations to support new columns, walls and braced frames (to resist seismic lateral forces); constructing new slab on grade in the expanded building area; new canopy attaching to the new exterior wall. Adequate temporary structural shoring should be provided during the construction for structural renovation/retrofit.

CONCEPTIONAL DESCRIPTION OF STRUCTURAL RENOVATION/RETROFIT

The general concept of structural renovation and retrofit is presented in the conceptual structural layouts.

The structural work on the southern side of the building is to expand the working space of the lab. The southern perimeter concrete wall is to be demolished, and new interior gravity supports (beams and columns) and new exterior walls are to be constructed. Also, the roof framing south to the existing mechanical well is to be renovated. The structural renovation/retrofit includes the following schemes presented in the order of construction sequence:

1. Construct new foundations for the temporary shoring columns and new (permanent) columns (which is to replace the existing concrete wall to be removed to provide adequate gravity support for the weights of all the existing and added roof framing, roof mechanical well system and rooftop units). The new footings shall be connected to the existing concrete wall footing via epoxy rebar dowels. The new footings shall be dimensioned so that the soil bearing pressures under the footings do not exceed 1,500 psf (assumed allowable soil bearing pressure since no geotechnical information is available.)
2. Erect temporary shoring beams and columns to support the existing ceiling/roof framing, the major W12x112 girders, roof mechanical well and rooftop mechanical units. The shoring framing must be properly designed and erected before removing the concrete walls.
3. After the temporary shoring framing is properly installed, then the existing concrete walls can be demolished. Keep about 2'-0" top wall concrete in which the end anchors of the existing W21x112 girders and roof rafters are embedded.
4. Erect the new beams and columns which are to support the tributary weights of all the existing and added structural framing, roof mechanical well and rooftop units in place of the removed concrete wall. The new beam shall directly support and be connected to the remaining top portion of the existing concrete wall. The new columns shall support the new beams at the locations as shown in the attached layout sketches per the architect. The estimated size of the new beam is W21x132; and the estimated size of the columns is HSS8x8x1/2.
5. Strengthen the existing roof steel girders, and other support framing members as required for the weights of the added components (including added rooftop units).
6. Construct strip footings for the new exterior walls and combined pad footings for the new braced frames. Also construct the new slab on grade.
7. Install the new exterior metal stud walls (6" deep, 12 gauge thick cold-formed metal stud walls proposed), structural steel braced (X-braced) frames and structural steel wall lintels (H8x6x1/2 estimated) over the stud walls. The new stud walls shall be designed to carry the weight of the added roof framing. The braced frames are to be buried inside the stud wall. The new braced frames should be designed to carry the existing and new tributary seismic lateral force of the whole structure. The estimated columns and diagonals of the braced frames could be HSS6x6x1/2.
8. Install framing and diaphragm to transfer seismic shear force from the existing roof/ceiling framing to the new exterior wall and braced frames. The possible framing/diaphragm system could be HSS 4x4 sections with plywood sheathing, connecting the remining top portion of the existing concrete wall and the new HSS lintel over the exterior stud wall.

9. Install new roof framing, which includes new roof rafters, hip beams and plywood sheathing. The new roof framing is constructed over the existing roof framing, which is intended to be kept.
10. Construct pedestal footings (two), wood columns (two) and top framing of the new canopy. 6x6 and 2x6 dimensional lumber sections are suggested for the canopy columns and top framing. Attach the top framing to the new exterior stud wall.

Note that construction sequence 6 to 7 may proceed independent of construction sequence 1 to 5.

The structural work on the western side of the building is to expand the working space of the lab and to construct a new roof mechanical well connecting to the existing one. The exterior wall of the building is extended from the exterior wall as described above. New gravity components (spandrel beams and columns) are installed to support the new mechanical well, added rooftop units and new roof framing. Also, the roof framing west to the existing mechanical well is to be renovated. The structural renovation/retrofit includes the following schemes presented in the order of construction sequence:

1. Construct strip foundations for the new exterior stud walls; and pad foundations for the new interior columns (supporting expanded mechanical well and roof framing). Also construct the new slab on grade.
2. Erect new exterior metal stud walls (6" deep, 12 gauge thick cold-formed metal stud walls proposed) and the interior column (6"x0.5" round HSS or HSS6x6x1/2 columns estimated).
3. Erect new wood spandrel beams (8-3/4"x24" glulam beams estimated) over the new interior columns. Also strengthen the existing 6-3/4" x 18" glulam ridge beam. The new spandrel beams and the existing 6-3/4"x18" glulam beam are to support the new mechanical well framing, parapets, new roof framing and added rooftop units.
4. Install the support framing and parapets of the new mechanical well. The estimated support joists are 2x10 at 16" o.c.
5. Install new roof framing (new roof rafters, hip beams and plywood sheathing).
6. Note that the estimated types and sizes of the new structural components addressed above are subject to change with detailed structural analysis.

DIVISION 02 EXISTING CONDITIONS

The existing structure is a reinforced concrete shear wall building with wood roof framing sheathed with ½" plywood panels per as-bult structural drawing and was verified via site observation. The weights of the existing roof mechanical well, roof and ceiling framing are mostly carried by the three major W21x112 steel girders which then are supported by the perimeter concrete walls. The perimeter concrete walls also directly support the roof rafters and hip beams at their exterior ends. Concrete walls are supported by continuous pad footings around the perimeters of the building. Interior concrete slab on grade is 8" thick.

No geotechnical technical report is available. It is conservatively assumed that the allowable soil bearing capacity under the slab on grade or footings is 1,500 psf per California Building Code (CBC). It is expected that no soil boring samples and tests shall be necessary.

END OF DIVISION 02 – EXISTING CONDITIONS

DIVISION 03 CONCRETE

SECTION 033000 - CAST-IN-PLACE CONCRETE

- New concrete foundations are to be constructed to support the new gravity columns (pad footings), walls (strip footings) and braced frames (combined pad footings). It is estimated all the new footings should be at least 12" thick. The new slab on grade should be at least 6" thick.
- The minimum 28-day design compressive strength of the new foundations shall be 4,000 psi. The required Portland cement type is V. The maximum water/cement (W/C) ratio shall be 0.45. The new foundations shall be reinforced to meet the strength and minimum reinforcement ratio requirements. Connection of the new footings to the existing foundations should be achieved via epoxy reinforcing steel dowels (HILTI HIT-RE 500 V3 + rebar (ICC ESR-3814)).
- Where portions of the existing concrete walls and slab are to be removed, the existing concrete should be saw-cut.

END OF DIVISION 03 – CONCRETE

DIVISION 05 METALS

SECTION 051200 – STRUCTURAL STEEL FRAMING

- The new structural steel framing components include the new beams, columns and braced frames (end columns, beams and diagonal braces). It is proposed to install new braced frames inside the new exterior light-frame walls. The strength of the new braced frames should be sufficient to resist the tributary seismic lateral force of the whole structure.
- New structural steel components should follow the ASTM specifications. The ASTM specifications for structural steel sections shall be based on the following:
  1. Wide flange (W and WT) sections: A992, Grade 50
  2. Angle (L), Channel (C and MC) sections: A-36
  3. HSS tube (rectangular and square) sections: A500 Grade C (Fy = 50 ksi)
  4. HSS pipe (round) sections: A500 Grade C (Fy = 46 ksi)
  5. Pipe section: A53, Grade B
  6. All other shapes and misc. metals: A-36, unless noted otherwise.
- Bolt connections, if required, should be ASTM A-325N unless noted otherwise.
- Weld connections, if required, should be E70XX electrodes. All welds shall be in conformity with AWS D1.1, latest edition.
- Post-installed anchors shall be used to anchor the equipment units to the slab on grade or pad footings, existing or new. The following post-installed anchors (epoxy or expansion anchors) are acceptable to be used:
  1. HILTI HIT-HY 200 V3 + HIS threaded rod (ICC ESR-4868) (Epoxy Anchor)
  2. HILTI HIT-RE 500 V3 + HAS threaded rod (ICC ESR-3814) (Epoxy Anchor)
  3. HILTI Kwik Bolt TZ2 (ICC ESR-4266) (Expansion Anchor)
- Existing structural components, such as the major W21x112 steel girders, may be subjected to reinforcement/ strengthening for additional gravity loads due to new roof framing, expansion of roof mechanical well, and added rooftop equipment units.
- All exterior structural steel components exposed to weather should be galvanized.

SECTION 054000 – COLD-FORMED METAL FRAMING

- It is proposed to adopt cold-formed metal stud wall system as the new exterior walls for cost considerations. The stud walls shall be adequate to support the tributary gravity loads from the new roof framing system. In-plane seismic lateral force is intended to be carried by the structural steel braced frames buried inside the stud walls.
- Light gauge cold-formed metal framing shall be used for new wall studs and tracks conforming to ICC ESR-3064P (SSMA Specifications).
- The cold-formed steel material should conform to ASTM A1003 Type H (Grade 33 or Grade 50).
- Light gauge cold-formed steel members 43 mils and lighter shall have a minimum yield strength of 33 ksi (use Grade 33). Light gauge cold-formed steel members 54 mils and heavier shall have a yield strength of 50 ksi (use Grade 50).

- All cold-formed steel components shall have a minimum coating conforming to CP60 - G60 requirements.
- Welding, if used, should be performed by certified welders complying with AWS D1.3. For Grade 33 members and Grade 50 members, the types of electrodes should be E60XX and E70XX, respectively.
- Lateral bridging for wall studs is required where wall board does not continue full height on both sides. Bridging shall be installed per manufacturer's recommendations.
- Ceiling joist studs shall be braced by full depth blocking at all points of support. Blocking shall be installed per manufacturer's recommendations.
- Metal studs gauge and sizing to be determined during schematic design.

PRODUCTS

Metal Support Systems

- Bearing and Non-load bearing wall/partition framing systems consist of metal studs, runners, and accessories.
- Metal furring will be provided for support of gypsum board that cannot be directly applied to substrates.

SECTION 055000 – METAL FABRICATIONS

- Pre-manufactured Metal shed for chemical waste storage.

Metal fabrications are to be field painted as defined in Section 099100, Painting, except as otherwise noted in this Section.

END OF DIVISION 05 – METALS

DIVISION 06 WOODS, PLASTICS AND COMPOSITES

SECTION 061000 – ROUGH CARPENTRY

- The wood grades of the new roof framing members, including the roof rafters, hip beams and roof plywood sheathing, should be no lower than those of the existing roof framing members. The grade of the wood framing of the new canopy should be no lower than Douglas Fir "No. 1 and Better".
- The plywood sheathing panels of the new exterior walls shall be Douglas Fir Structural 1 grade or above, and should be pressure treated. Plywood panels should be at least ½" thick. The wood framing members of the new canopy should also be pressure treated.
- The exterior face of plywood shear wall shall be covered with stucco finish. Proper moisture barrier and metal wire mesh lath shall be installed on outside face of plywood wall for stucco to attach to.
- Waterproof, light-weight roofing material shall be installed above roof plywood sheathing.
- Plywood wood panels shall be attached to cold-formed wall studs with #8 screws minimum, typical.

MATERIALS

Wood Products, General:

The following products will be FSC-certified:

- Wood nailers.
- Wood sleepers/battens.
- Plywood backboard panels.

PRODUCTS

- Plywood panels are to be provided in Data Rooms, 4' x 8' x ¾", fire-treated and painted. Plywood panels to contain no urea formaldehyde.
- Miscellaneous wood nailers at roof, pressure treated Douglas fir, with the preservative containing no arsenic or chromium.

END OF DIVISION 06

DIVISION 07 THERMAL AND MOISTURE PROTECTION

SECTION 072100 – THERMAL INSULATION

Exterior walls: Existing to remain.

Option 2A: Exterior walls: New exterior walls shall receive minimum R-21 cavity insulation and R-5 rigid insulation with an exterior stucco finish. New roof needs to meet CalGreen. New exterior walls need to meet CalGreen (continuous insulation)

Interior walls: The interior walls will receive R-13 batt insulation between the studs. Interior walls between conditioned and non-conditioned spaces will require thermal insulation.

Fire-safing will be used at penetrations and joints of fire-rated walls.

PRODUCTS

Acoustical batt insulation: unfaced thermafiber mineral wool insulation.

Thermal insulation in stud walls: Kraft faced fiberglass batt insulation, R-13.

Fire-safing: Unfaced mineral wool blankets.

Recycled Content of fiberglass batts and fire-safing: Postconsumer recycled content plus one-half of pre-consumer recycled content will be not less than 35 percent.

All products are to be manufactured within 500 miles of the project site.

SECTION 074113 – FORMED WALL AND ROOF PANELS

Horizontal-seam metal roof panels will be installed at the new canopy over DI system and pump. Material shall be factory finished with a two-coat fluoropolymer.

SECTION 073216 – CONCRETE ROOF TILES

The existing sloped portion of the roof is a residential shaker tile roofing system over plywood/ sheathing. The existing flat mechanical well portion is single-ply roofing over plywood sheathing.

Portions of the existing roofing system will be removed, patched, and repaired as required for placement of new HVAC equipment, exhaust fans, vents, and other penetrations.

Option 2A: The building addition shall have a new roof with a shallower slope than the existing and shall connect to the top and sides of the existing roof as indicated in the roof plan. The sloped portion of the roof shall have new tiles to match existing. The flat mechanical well portion shall have single-ply roofing to match and align with the existing mechanical well.

SECTION 076200 – SHEET METAL FLASHING AND TRIM

Flashings will be provided for construction features normally flashed to retard water penetration and withstand the design wind loads.

PRODUCTS

Wall flashings will be the flexible sheet type.

Counter flashings at the roofing system will be of sheet metal type.

SECTION 077200 – ROOF ACCESSORIES

Prefabricated insulated metal curbs/equipment supports will be used for roof supported accessories and for roof mounted equipment set forth in Division 23, Heating, Ventilating and Air Conditioning.

SECTION 079200 – JOINT SEALANTS

EXTERIOR JOINTS SCHEDULE

Silicone sealants will be used to seal joints at outside surfaces of exterior walls above-grade.

Urethane sealants will be used to seal joints at outside of exterior walls at on-grade and below-grade.

INTERIOR JOINTS SCHEDULE

Silicone sealant to be used to seal joints at inside surfaces of exterior walls above-grade.

Silicone sealant to be used to seal non-traffic joints at laboratories where substrates are compatible with sealant.

Acrylic sealant to be used at gypsum board walls.

Urethane sealant to be used to seal joints in interior traffic bearing surfaces.

END OF DIVISION 07 – THERMAL AND MOISTURE PROTECTION

DIVISION 08 OPENINGS

SECTION 081113 – STEEL DOORS AND FRAMES

Doors and frames are as indicated below.

All single acting swing-doors are to be steel doors and frames, at interior new walls.

Recycled Content of all steel: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.

All doors are to be manufactured within 500 miles of the project site.

PRODUCTS

Standard Steel Doors

- Exterior doors (non-secured) will comply with ANSI/SDI 100, Grade III, extra-heavy duty, Model 4, minimum 16-gauge galvanized steel faces.
- Interior doors (non-secured) will comply with ANSI/SDI 100, Grade II, heavy-duty, Model 3 or 4, minimum 18-gauge cold-rolled sheet steel faces.

Standard Steel Frames

- Exterior frames (non-secured) will be welded construction with mitered fully welded corners and be 14-gauge minimum.
- Interior frames (non-secured) will be welded construction with mitered fully welded corners and be 16-gauge minimum.

Doors and frames will be fire rated as required by Code.

SECTION 084113 – ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

Option 2A: Adding new interior storefront door panels and windows. Modifying exterior storefront glazing to add new exterior storefront entry door. Exterior & interior glazing and doors are located as indicated on the Drawings.

PRODUCTS

Exterior Units

- Two-inch by six-inch exterior glazed aluminum frames.
- Aluminum will have a standard Kynar 500 finish.
- Exterior glass units will be tinted sealed insulating, low-e tempered glass units. Exterior glazing will include units with etched frit for solar control.

Interior Units

- Two-inch by six-inch Interior glazed aluminum frames.
- Aluminum will have a standard Kynar 500 finish.
- Interior glass units will be clear sealed insulating, low-e tempered glass units.

SECTION 087100 – DOOR HARDWARE

Door Hardware will include mortised lock sets at exterior doors, cylindrical locksets and latch sets at interior doors, exit devices, hinges, door closers, wall stops, thresholds, automatic door bottoms, weather stripping, astragals, coordinators, push, pulls, and kick plates. Finish door hardware will be heavy duty line series.

Hardware finish will match existing.

Locks on passage doors will be arranged for grand master keying.

END OF DIVISION 08 – OPENINGS

DIVISION 09 FINISHES

SECTION 092400 – CEMENT PLASTER

New exterior walls shall be finished with ¾" plaster over metal lath over a membrane and ½" plywood. New roof and exterior walls need to meet CalGreen. (continuous insulation)

SECTION 092900 – GYPSUM BOARD

Locations are as shown in the Room Finish Schedule.

PRODUCTS

Gypsum Board

- Gypsum board thickness will be determined based upon the assembly type selected to satisfy fire-resistance rating, sound rating or other criteria.
- Gypsum board shall be moisture-resistant at wet walls.

Joint Treatment

- Wallboard joints will be taped, filled with joint compound and smoothed before application of paint and similar decorative finishes.
- Final coat of joint compound and sanding will be omitted on concealed work which is indicated for finishing, or which requires finishing to achieve fire or sound rating or to function as air or smoke barrier.

SECTION 095113 – ACOUSTICAL PANEL CEILINGS

Acoustical panels and metal suspension system will be as shown in the Room Finish Schedule.

General

- Acoustical panels and metal suspension systems are based upon manufacturers' stock systems.

Acoustical Panels

- Acoustical panel as listed in the Room Finish Schedule is 24" x 48" and 5/8" thick. The panel will be the molded type with a painted finish, a white color, fissured pattern, and a square edge condition, unless otherwise noted.

Suspension System

- Exposed metal suspension system will be the steel type with a painted finish. The structural classification will be heavy-duty.

SECTION 096513 – RESILIENT BASE AND ACCESSORIES

Resilient wall base and accessories will be located as shown in the Room Finish Schedule.

PRODUCTS

Products are based upon manufacturers' stock products in standard sizes, colors, and patterns.

Resilient wall base is rubber, four inches high, standard top set and preformed outside corners.

SECTION 096519 - VINYL FLOORING

Homogeneous sheet vinyl flooring is located as shown in the Room Finish Schedule. Flooring shall be installed with 4" integral cove base in lab areas.

PRODUCTS

Products will be based upon manufacturers' stock products in standard sizes, colors, and patterns.

Basis of Deign shall be Sphera system by Forbo, or equal.

SECTION 099100 – PAINTING

Paint finishes will be applied to surfaces as shown in the Room Finish Schedule.

Surfaces concealed from view, factory finished items and surfaces where the natural finish is obviously not intended to be painted will not be field painted unless specifically set forth on the drawings or in the Room Finish Schedule.

PAINT SCHEDULE

Finish coats for exterior surfaces:

Substrate	Type of Coating	No. of Coats
Ferrous Metal	Latex, Semi-gloss	2
Concrete	Latex, Semi-gloss	2
Stucco	Latex, Semi-gloss	2

Finish coats for interior surfaces shall be:

Substrate	Type of Coating	No. of Coats
Gypsum Board Walls	Latex, Semi-gloss, or Eggshell	2
Nongalvanized Ferrous Metal	Latex, Semi-gloss	2
Galvanized Ferrous Metal	Latex, Semi-gloss	2
Concrete Walls (Tilt-up)	Latex, Semi-gloss	2

Piping, conduit, ductwork, and structural steel exposed to view in painted areas will be painted in with adjacent surfaces.

END OF DIVISION 09 – FINISHES

FINISH SCHEDULE																
RM		Floor			North Wall		East Wall		South Wall		West Wall		Ceiling			
Number	Name	Substrate	Finish	Base Finish	Substrate	Finish	Substrate	Finish	Substrate	Finish	Substrate	Finish	Substrate	Finish	Height	Comments
FIRST FLOOR																
900	Lobby	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
901	Men	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
902	Women	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
903	Corr.	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
904	Corr.	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
905	Corr.	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
910	Laboratory - Gem Chem	EXIST	VS	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT	FF	10'-0"	Match existing ceiling height
910A	Micro (1B)	EXIST	VS	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT	FF	10'-0"	Match existing ceiling height
911	Sample RM - Solids	EXIST	VS	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	EXIST (1B) ACT (2A)	FF	10'-0"	(1B) Existing ceiling to remain. (2A) New ceiling to match existing ceiling height.
912	Storage	EXIST	VS	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	EXIST (1B) ACT (2A)	FF	10'-0"	(1B) Existing ceiling to remain. (2A) New ceiling to match existing ceiling height.
915	Receiving RM (2A)	EXIST	VS	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT	FF	10'-0"	(2A) New Ceiling
916	Micro (2A)	EXIST	VS	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT	FF	10'-0"	(2A) New Ceiling
917	Molecular (2A)	EXIST	VS	RB	GWB	PT	GWB	PT	GWB	PT	GWB	PT	ACT	FF	10'-0"	(2A) New Ceiling
920	Control RM	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
921	Office	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
922	Office	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
923	MCC	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
924	Storage RM	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
930	Library & Training	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
931	Day RM	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
932	Women's Locker RM	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
933	Men's Locker RM	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
934	Janitor	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
935	Boot RM	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
936	Boot RM	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	
SECOND FLOOR																
940	Mechanical RM	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	-	

FINISH ABBREVIATIONS

GENERAL	EXIST	EXISTING, PROTECT IN PLACE
	FF	FACTORY FINISH
	N/A	NOT APPLICABLE
	PT	PAINT
WALLS	GWB	GYPSUM WALL BOARD
WALL BAS	RB	RUBBER BASE
FLOORS	VS	VINYL SHEET
CEILING	ACT	**ACOUSTIC CEILING TILE**

DIVISION 10 SPECIALTIES

SECTION 101410 – INTERIOR SIGNAGE

Interior signage will be provided.

PRODUCTS

ADA Interior signage will be provided at each permanent electrical room, mechanical room, restroom, exits and as required by Building Code.

- Quantity: approximately 6

Tactile exit signage will be provided as required by Building Code.

Wall-mounted plastic placards (±4" x 10").

SECTION 101450 – EXTERIOR SIGNS

Exterior signage will be provided as required by Building Code.

SECTION 104400 – FIRE EXTINGUISHERS, CABINETS AND ACCESSORIES

Cabinet mounted fire extinguishers will be provided.

PRODUCTS

Fire extinguisher cabinets will be semi-recessed. Doors will be flush glazed steel with baked enamel finish.

END OF DIVISION 10 – SPECIALTIES

DIVISION 12 FURNISHINGS

SECTION 123553 – LABORATORY CASEWORK AND FUME HOODS

Install new base and upper cabinets in all laboratory spaces. Cabinets shall be metal laboratory casework similar to the "HLF" system as manufactured by Hanson Laboratory Solutions with black chemical resistant cast epoxy resin countertop and integral sinks with gooseneck faucet. Small size sinks shall be 18"x15"x11"; large size sinks shall be 30"x15"x12". See plans for sink sizes and quantities.

Include the following casework accessories: utility umbilicals (qty. 2), wall-mounted peg board drying racks (qty. 6), counter-mounted drying racks (qty. 4), lab gas ball valves (qty. 20), and ceiling and wall closure panels.

Eight-foot-wide fume hoods with ceiling enclosures and solvent storage base cabinets will be provided as indicated on the plans. New Fume Hoods will be the 5SA Series by Hanson Lab Solutions or similar.

Provide two (2) 120V, 20A, 5-20R, duplex receptacles and two (2) 208V, 20A, 6-20R, receptacles along with internal LED lighting for each of the fume hoods. Provide a light switch for internal lighting on the face of each hood. Provide receptacles externally mounted in the face of each fume hood or in the face of the base cabinets below the hoods.

Mount conduits and wire for the receptacles and lighting fixtures internal to the fume hoods and bring wiring to junction boxes at the top of the hoods for field connections.

Provide an on-off switch for the respective fume hood exhaust fan on the roof. This switch shall be furnished wired with each fume hood with the wiring brought to a junction box at the top of the hood for field connection to the exhaust fan starter controls.

END OF DIVISION 12 – FURNISHINGS

DIVISION 22 PLUMBING

SECTION 220500 – COMMON WORK RESULTS FOR PLUMBING

Plumbing systems will be designed to reasonably limit noise level.

Plumbing systems will be designed in conformance with the California Building, Mechanical, Plumbing, Fire, Electrical and Energy codes.

Sizes listed for equipment or piping are estimated and will require calculation during design.

All requirements listed apply to Option 1B and 2A unless noted otherwise.

COMMON MOTOR REQUIREMENTS

Motors will comply with NEMA MG 1 and EPACT.

Motors in wet or damp environments will be a minimum of totally-enclosed-fan-cooled (TEFC).

METERS AND GAUGES

Meters and Gauges are not included.

HANGERS, SUPPORTS AND SEISMIC RESTRAINTS

Equipment and piping will be supported and seismically braced in conformance with the California Building and Plumbing Codes.

HEAT TRACING

Pipe heat tracing is not included.

IDENTIFICATION

Equipment will be labeled with a minimum of unit tag, manufacturer, model number, serial number, electrical characteristics and labeling, and area of service.

Piping will be labeled to identify utility and direction of flow.

Control valves will have metal tags with unique identifying numbers.

SECTION 220719 – PLUMBING PIPING INSULATION

See other Division 22 sections for additional plumbing piping insulation requirements.

SECTION 221100 – DOMESTIC WATER SYSTEM

Domestic hot water is existing and will connect to the existing potable hot water system.

Existing domestic hot water systems are assumed to have adequate pressure and capacity. Record drawings do not indicate a hot water return loop in the existing piping system. Piping will be modified to accommodate fixture changes.

Domestic hot water piping will be ASTM B88, Type L, copper, seamless, drawn-temper; wrought-copper fittings; and brazed joints.

Domestic hot water piping will be insulated in conformance with the California Energy Code.

See Division 40 for Process Cold Water.

SECTION 221120 – DOMESTIC WATER BOOSTER PUMPS

Domestic water booster pumps are not included.

SECTION 221200 – FACILITY POTABLE WATER STORAGE TANKS

Facility storage of domestic water is not included.

SECTION 221300 – SANITARY SEWER SYSTEM

Sanitary sewer system is not included.

SECTION 221360 – INDUSTRIAL WASTE SYSTEM

Industrial waste sewerage system is existing and will be modified to provide drainage of all laboratory sinks, fume hood cup sinks and emergency eye wash and showers. System shall be designed in accordance with the California Building and Plumbing Codes.

The industrial waste will not cross connect at any point with the sanitary sewer system.

Above floor industrial waste piping will be acid resistant polypropylene flame retardant additive (PPFR) Schedule 40 with heat or electro fusion joints. Underground building industrial waste will be acid resistant polypropylene (PP) Schedule 80 with heat or electro fusion joints or approved equal.

It is assumed that the site industrial waste main outside the building is adequate to accommodate the new fixtures from the laboratories.

Sanitary lift station(s) are not included.

SECTION 221400 – STORM DRAINAGE SYSTEM

The existing building storm sewerage system consists of storm drain risers located along the exterior perimeter walls. Storm drain risers are connected to underground storm drain main.

Option 1B: No modifications to the existing roof and overflow drain piping will be required.

Option 2A: Architectural wall furring will be provided as needed to enclose existing storm drain risers. New storm drains will be required to accommodate extended roof and new roof above Micro and Molecular spaces.

SECTION 223100 – WATER SOFTENER SYSTEM

A soft water system is not included.

SECTION 223300 – ELECTRIC DOMESTIC WATER HEATERS

Electric domestic water heaters not included.

SECTION 223400 – FUEL-FIRED DOMESTIC WATER HEATERS

Fuel-fired domestic water heaters not required.

SECTION 224200 – PLUMBING FIXTURES

Fixtures will comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.

Fixtures will comply with requirements in Public Law 102-486, "Energy Policy Act," about water flow and consumption rates for plumbing fixtures.

Fixtures will comply with requirements in ICC A117.1, "Accessible and Usable Buildings and Facilities"; Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act"; for plumbing fixtures for people with disabilities.

Electrical Components, Devices, and Accessories will be Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

Fixtures and fittings will be furnished with supports, stops on water supply, flush valves and other items necessary for installation.

See Specification Section 123553 – Laboratory Casework for integral epoxy resin sinks and faucets.

EMERGENCY EYEWASH AND SHOWERS

Emergency showers, emergency eyewashes or combination emergency eyewash-showers will be provided in areas known to contain materials that may be considered hazardous. Areas will include Chemistry Labs and Micro Tech Labs.

The water source for the emergency eyewashes and showers will be domestic water.

Emergency eye wash and showers will drain to the existing industrial waste sewage system.

SECTION 226113 – COMPRESSED AIR SYSTEM

Existing compressed Air System to be demolished.

SECTION 226213 – VACUUM SYSTEM

Existing Vacuum Pump currently located in the Storage room will be relocated outdoors. The existing piping will be extended as required to accommodate new location.

SECTION 226313 – SPECIALTY GAS SYSTEM

Specialty Gas Systems not included.

SECTION 226713 – DIONIZED WATER SYSTEM

Deionized Water System is existing to remain.

END OF DIVISION 22 – PLUMBING

DIVISION 23 HEATING, VENTILATING AND AIR CONDITIONING

SECTION 230500 – COMMON WORK RESULTS FOR HVAC

The heating-ventilating and air conditioning (HVAC) systems will be designed to operate through the normal change of seasons.

Heating, ventilating and air conditioning systems will be designed in conformance with the California Building, Mechanical, Energy, Plumbing, Fire, and National Electrical Codes.

Sizes listed for equipment, ductwork and piping are estimated and will require calculation during design.

All requirements listed apply to Option 1B and 2A unless noted otherwise.

ELEVATION

The site is 500 feet above sea level. Elevations will be accounted for in system designs.

DESIGN TEMPERATURES

Table, Outdoor Design Conditions (Laguna Niguel, CA)			
Equipment / Season	**Dry Bulb °C (°F)**	**Wet Bulb °C (°F)**	**Comment**
Winter Conditions	4.4 (40)	-	JA2 (0.6%)
Winter Extreme	0.6 (33)	-	-
Summer Conditions	29.4 (89)	18.3 (65)	JA2 (1%)
Air Cooled Condensers	35 (95)	19.4 (67)	JA2 (0.1%)

Note 1 – These temperatures are exceeded during indicated percentage of hours in an average year based on California Building Energy Efficiency Standards, Appendix JA2.

Table, Indoor Conditions			
Room / Area	**System Type**	**Temperature °C (°F) dry bulb**	**Relative Humidity (%)**
Laboratory 910			
General Chemistry	HVAC	25 (77) ±2	N/A
Solids	HVAC	25 (77) ±2	N/A
Storage	HVAC	25 (77) ±2	N/A
Micro	HVAC, EX	25 (77) ±2	N/A
Misc.			
Gas Cylinder (Storage)	Natural Ventilation	N/A	N/A

System Type Legend:

HVAC – Heating, ventilating and air conditioning

EX – Exhaust (fume, heat, ventilation)

METERS AND GAUGES

Pressure gauges will be provided on piping systems at the inlets and outlets of major equipment such as air handling units and pumps.

Temperature gauges will be provided on piping systems at the inlets and outlets of major equipment such as air handling units and heat exchangers.

Test ports will be provided on piping at the inlets and outlets of equipment such as air handling units, heat exchangers and pumps.

HANGERS, SUPPORTS AND SEISMIC RESTRAINTS

Equipment, ductwork and piping will be supported and seismically braced in conformance with the California Building and Mechanical Codes.

IDENTIFICATION

Equipment will be labeled with a minimum of unit tag, manufacturer, model number, serial number, electrical characteristics and labeling, and area of service.

Piping will be labeled to identify utility and direction of flow.

Control valves will have tags with unique identifying numbers.

COMMON MOTOR REQUIREMENTS

Motors will comply with NEMA MG 1 and EPACT.

Motors in wet or damp environments will be a minimum of totally-enclosed-fan-cooled (TEFC).

TESTING, ADJUSTING AND BALANCING

Air systems will be balanced in accordance with AABC, NEBB or TABB.

SECTION 230900 – INSTRUMENTATION AND CONTROLS FOR HVAC

Control systems for the HVAC systems will be stand-alone controls with wall mounted thermostats, humidistats and hard wire interlocks as required.

SECTION 231000 – FACILITY FUEL SYSTEMS

NATURAL GAS PIPING

Natural gas piping for HVAC equipment is not included.

SECTION 232000 – HVAC PIPING

CONDENSATE DRAIN PIPING

Condensate drain piping for HVAC equipment will be ASTM B88, Type DWV, copper, drawn-temper; wrought-copper fittings; and soldered joints. Condensate drains running above laboratory ceiling space will be insulated and provided with PVC jacketing.

REFRIGERANT PIPING

Refrigerant piping will be provided for split-system air conditioners.

Piping will comply with ASME B31.5 Refrigeration Piping and ASHRAE 15 Safety Code for Refrigeration Systems.

Piping will be ASTM B280, Type ACR, copper, annealed-temper tubing; wrought-copper fittings; and brazed joints. Refrigerant piping will be insulated in conformance with the California Mechanical Code and Energy Codes.

SECTION 233000 – HVAC AIR DISTRIBUTION

DUCTWORK SYSTEMS

Ductwork for heating, ventilating and air conditioning will be galvanized sheet metal ASTM A653. Lab exhaust ductwork for fume hoods will be galvanized sheet metal. Exhaust ductwork for steam exhaust will be stainless steel ASTM A 480, Type 304.

Air conditioning ductwork will be insulated in conformance with the California Mechanical and Energy Codes.

Air distribution systems will include, but not limited to, accessories for a complete and operation system such as inlets and outlets, backdraft and pressure relief dampers, manual volume dampers, control dampers, fire dampers, smoke dampers, flange connectors, turning vanes, duct-mounted access doors, flexible connectors, flexible ducts, and duct accessory hardware.

HOODS

For chemical fume hoods and Laminar Air Flow (LAF) hoods, see Division 12.

Sheet metal hoods will be provided for heat, steam and odor removal at process equipment in the General Chemistry Lab for the autoclave and Solids room. Hoods will be in conformance with the California Mechanical Code.

FLAMMABLE AND CHEMICAL STORAGE CABINETS

For flammable and chemical storage cabinets, see Division 12.

Flammable and chemical storage cabinets will be vented for fume removal. Ventilation rate will be in conformance with the California Mechanical Code and NFPA 30 Flammable and Liquids Code.

SECTION 233433 – AIR CURTAINS

Air curtains are not included.

SECTION 234000 – HVAC AIR CLEANING DEVICES

Filters will comply with ASHRAE 52.1 for arrestance; ASHRAE 52.2 for MERV for methods of testing and rating air-filter units; and NFPA 90A and NFPA 90B.

All air will be filtered before being supplied to the facility. All new AHU equipment will have pre-filters with a minimum MERV 8 (30%) rating and final-filters with a minimum MERV 14 (90-95%) rating.

SECTION 235100 – BREECHINGS, CHIMNEYS AND STACKS

Breechings, chimneys and stacks are not included.

SECTION 235200 – HEATING BOILERS

Heating boilers are not included.

SECTION 235533 – FUEL-FIRED UNIT HEATERS

Gas-fired unit heaters are not included.

SECTION 236000 – CENTRAL COOLING EQUIPMENT

CHILLED WATER SYSTEM

Chilled Water system is not included.

CONDENSER (TOWER) WATER SYSTEM

Cooling towers are not included.

COMPRESSED AIR COOLING WATER SYSTEM

Cooling water system for air compressors is existing.

SECTION 237000 – CENTRAL HVAC EQUIPMENT

OPTION 1B:

Existing multi-zone unit currently serving the laboratory will remain. Existing supply air duct and diffusers will be relocated/rerouted to accommodate additional wall separating the Micro area.

OPTION 2A:

The Chemistry Laboratory expansion and new Micro and Molecular area will be served by an independent packaged rooftop heat pump unit (RTU) with economizer. The new RTU will be located on the new mechanical equipment well located above the Micro and Molecular area.

The system will provide heating and cooling and consist of low-pressure ductwork, ductwork accessories, supply diffusers, return registers/grilles, and automatic controls. Ventilation requirements will be provided by the unit and exhaust systems.

The RTU will be packaged, constant volume, variable temperature and consist of a supply fan, direct expansion (DX) cooling and gas heating, filters, economizer, internal vibration isolation mounts for supply fan and microprocessor control panel. Unit will be provided with 2-stage filtration – MERV 8 and MERV 14.

The RTU shall be provided with sound and vibration isolation roof curb.

Economizer cooling (blending of cool outside air with return air) will be provided when outdoor conditions allow.

The RTU will have duct and utility connections through the bottom to reduce the risk of roof leaks.

SECTION 238000 – DECENTRALIZED HVAC EQUIPMENT

SPECIALTY EXHAUST VENTILATION WITH MAKEUP AIR SYSTEMS

Laboratory fume hoods, and autoclaves will have exhaust systems for heat, steam and odor removal. Make-up air will be provided by supply air fans located on the roof. System will be in conformance with the California Mechanical Code and standard industrial hygiene practices.

SECTION 238413 – HUMIDIFIERS

HUMIDITY CONTROL EQUIPMENT

Humidity control equipment is not included.

SECTION 238416 – DEHUMIDIFICATION

DEHUMIDIFICATION EQUIPMENT

Dehumidification equipment is not included.

END OF DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING

DIVISION 26 ELECTRICAL

SECTION 26000 – ANALYSIS OF EXISTING CONDITIONS

The Austin Company was provided with the plans of the SOCWA Lab Building. The concept for the project is to rearrange the labs in accordance with the project programming. The existing electrical distribution equipment appears to be in reasonably good condition. The existing 277/480V, 3-phase, 4-wire, main distribution board MCC-F, which is located in the Administration Building main electrical room, will be utilized for power to the Lab areas.

The load for the rearranged labs will be similar to the existing loads. The existing distribution panels and transformers will be reused for the project. New branch circuits, new multi-outlet raceways and receptacles will be provided for the rearranged and new equipment.

New lighting fixtures and lighting controls will be provided for the rearranged labs.

All specifications listed apply to both Options 1B and 2A unless noted otherwise.

SECTION 260519 – LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

All new power conductors and cables shall be in accordance with SOCWA Electrical Standards and the California Electrical Code.

SECTION 262000 – LOW VOLTAGE ELECTRICAL DISTRIBUTION

The new electrical design will be in accordance with SOCWA Electrical Standards, the 2022 California Electrical Code, the 2022 California Fire Code, the 2022 California Energy Code and the requirements of the County of Orange and City of Laguna Niguel, California Electrical Code and Code of Ordinances.

PANELBOARDS

It is anticipated that the existing 277/480V power distribution board MCC-F will be sufficient to feed the lab electrical loads. The existing 480V to 120/208V transformers and 120/208V appliance panelboards will be reused to feed the relocated equipment. Provide new CBs in existing panelboards as required for new loads that have been added to the lab areas and roof. Provide new panelboard extension sections as required for new load CBs.

POWER TO NEW OR RELOCATED EQUIPMENT

Power will be provided to floor-standing lab and process equipment as required using receptacles, disconnect switches or hard wiring as appropriate. New multi-outlet raceways and receptacles will be provided to feed the bench mounted lab equipment.

Power will be provided to all new HVAC air conditioning equipment and other pieces of Building Equipment.

For Option 1B, there are no standby power requirements for any of the relocated or new equipment. There exists a method for SOCWA to manually connect a portable standby generator to MCC-F. The existing distribution system will remain as is.

STANDBY POWER

For Option 2A, a design for a Standby power generator is not included nor is the cost for a standby power generator included. However, Option 2A includes the modification of MCC-F to add a drawout, bypass isolation automatic transfer switch and connection to a permanently mounted standby power generator. The standby power generator will be provided by SOCWA.

SECTION 262726 – WIRING DEVICES

NEW RECEPTACLES

Receptacles will be provided for the new equipment areas and lab areas as required. Existing receptacles will also be utilized as is where appropriate.

Occupancy sensor-controlled receptacles shall be provided in labs, offices and conference rooms in accordance with 2022 California Energy Code requirements.

Wiremold or Plugmold will be provided at all Lab benches requiring power.

SECTION 265100 – INTERIOR LIGHTING

NEW LIGHTING SYSTEM

A new lighting system will be provided throughout the rearranged labs and new spaces. The new lighting system will consist of LED lighting fixtures installed and controlled in accordance with the 2022 California Energy Code.

A general overhead lighting level of 50 footcandles average maintained will be provided in the areas with new lighting fixtures. SOCWA will provide additional task lighting fixtures as required.

Emergency lighting will be provided by internal battery packs for the new lighting only.

New recessed lighting fixtures will be provided in areas where a new ceiling is being provided. New surface mounted lighting fixtures will be provided in rooms with non-accessible ceilings. New pendant or surface mounted lighting fixtures will be provided in other areas without ceilings.

Lighting will typically be controlled by occupancy sensors, which will be fixture mounted for most surface and pendant fixtures, ceiling mounted for recessed fixtures and wall mounted for small rooms. In new spaces, where the use of occupancy sensors may not be desirable or may not be possible, a programmable time switch shall be used for on-off scheduled control with local wall mounted override controllers. Photosensors will be provided in daylit areas.

It is assumed that all task lighting will be provided by SOCWA.

END OF DIVISION 26

DIVISION 27 COMMUNICATIONS

SECTION 27000 – COMMUNICATIONS SYSTEMS

IT EQUIPMENT ROOM

A new IT equipment room or Communications Room is not included. The existing IT rooms will be modified as required by SOCWA for use with the lab equipment and areas.

VOICE AND DATA OUTLETS

Voice and data outlets and telecom cabling will be provided by SOCWA as required throughout the lab areas. A matching telecom surface raceway will be provided along with the multioutlet raceways above lab benches. A 1-1/4"C will be provided as required from each telecom surface raceway to the ceiling space for SOCWA's cables.

PAGING SYSTEM

The existing paging system speakers will be upgraded to accommodate the new ceilings. A new amplifier or source is not included.

TV Outlets

Two (2) TV outlets will be provided in the Micro and General Chemistry Labs. A 1" conduit will be provided from each TV outlet to the ceiling space for SOCWA's source cables. A 120V receptacle will be provided for each TV outlet location.

FIRE ALARM SYSTEM

Modifications to the existing building fire alarm system will be provided for the lab areas as an extension of the existing site fire alarm system. Horns and strobes will be provided in the common areas to notify building occupants that evacuation is required. Smoke detectors will be provided for HVAC equipment as required by the mechanical code and will be interfaced with the fire alarm panel.

END OF DIVISION 27

DIVISION 28 ELECTRONIC SAFETY AND SECURITY

SECTION 28000 - ELECTRONIC SAFETY AND SECURITY

ACCESS CONTROL

An access control system (ACS) is not included. Any rooms added to the existing ACS will be an extension of the existing ACS for the site.

Exit request devices will be provided at controlled entry doors to allow "free" exit through the controlled door without having to activate a reader.

VIDEO SURVEILLANCE

A Video Surveillance System (VSS) is not included.

END OF DIVISION 28

DIVISION 40 PROCESS UTILITIES

SECTION 400500 – COMMON WORK RESULTS FOR PROCESS UTILITIES

Process utility systems will be designed in conformance with the California Building, Mechanical, Plumbing, Fire, Electrical and Energy codes.

Sizes listed for equipment or piping are estimated and will require calculation during design.

All requirements listed apply to Option 1B and 2A unless noted otherwise.

SECTION 401100 – PROCESS STEAM SYSTEM

Process steam systems not included.

SECTION 401200 – PROCESS COMPRESSED AIR SYSTEM

Existing compressed air system in laboratory will be demolished.

SECTION 401400 – VACUUM SYSTEM

Process vacuum system is existing and is assumed to have adequate pressure and capacity. Vacuum air is piped from the storage room to various laboratory equipment or work benches.

Vacuum piping exposed in the laboratory will be ASTM A312, Type 304, Schedule 5, stainless steel, seamless, threaded fittings.

Vacuum piping above ceiling will be ASTM B88, Type L, copper, seamless, drawn-temper; wrought-copper fittings; and brazed joints.

SECTION 401600 – SPECIALTY AND HIGH-PURITY GASES

Specialty and High-Purity Gases are not included.

SECTION 401600 – FLAMMABLE SPECIALTY GASES

Flammable specialty gases are not included.

SECTION 402313 – DEIONIZED WATER

The Deionized Water system is existing and located in the exterior of the building, adjacent to the Storage Room. The system is assumed to have adequate pressure and flow capacity.

Deionized water will be provided for laboratory sinks and various equipment. Deionized Water piping will recirculate throughout the laboratory in a manner to avoid dead legs.

Deionized water piping above ceiling and exposed in laboratories will be Polypropylene with flame retardant additive (PPFR).

Option 2A: Location of existing Deionized water tank will be relocated to the new exterior wall.

SECTION 402319 – INDUSTRIAL COLD WATER

Existing industrial water is separated from the domestic water system by a backflow preventer located. See Division 22 for additional information about the Domestic Water System.

Existing industrial cold water is currently piped throughout the laboratory to sinks and various equipment. Faucets for new and relocated laboratory sinks will include vacuum breakers for backflow prevention.

Process cold water piping recessed inside walls and above ceilings will be ASTM B88, Type L, copper, seamless, drawn-temper; wrought-copper fittings; and brazed joints.

SECTION 402320 – PROCESS HOT WATER

Process hot water is not included.

SECTION 402320 – WATER FOR INJECTION (WFI)

Water for Injection is not included.

SECTION 402340 – PROCESS GLYCOL-WATER

Process glycol-water is not included.

END OF DIVISION 40 – PROCESS UTILITIES

SECTION 4
PRELIMINARY OPINION OF COST

PROJECT INFORMATION

Client: SOCWA

Project: SOCWA Lab Study Option 1B

Location: Laguna Niegel, CA

Type of Estimate: -10%/+25% ROM Estimate

Date: August 6, 2025

Brief Project Description: This Basis of Estimate (BOE) covers the following scope for the proposed SOCWA Lab Study Project in Laguna Niguel, CA. SOCWA Lab Study Project in Laguna Niguel, CA - as follows: The project consists of renovation to the existing laboratory area to include new flooring, ceilings, metal cabinetry, new sliding glass doors and ventilation for new fume hoods. A total project square footage of 1,806-sf. The project will consist of demolition, structural steel at roof openings, roof patching, openings, typical office finishes, painting, metal laboratory cabinetry, premanufactured shed, canopy, fire suppression, plumbing, HVAC, electrical.

PROJECT COSTS

ROM Estimate -10%/+25% $2,561,000

DRAWINGS & DOCUMENTS USED FOR ESTIMATE

1. SOCWA ARCH_1B.pdf
2. SOCWA ARCH_2A.pdf
3. SOCWA Equipment List.pdf
4. SOCWA Finish Schedule.pdf
5. SOCWA Lab Elec Drawings 2A-071025.pdf
6. SOCWA Lab Elec Drawings 1B-071025.pdf
7. SOCWA MP Set-Option 1B.pdf
8. SOCWA MP Set-Option 2A.pdf
9. SOCWA Opt 2A-Structural Layouts_Deliverable_2025-07-10.pdf
10. SOCWA_Narratives.pdf

GENERAL CLARIFICATIONS

Inclusions:

1. The Austin Company General Conditions (GCs) & Staffing
2. Engineering
3. An allowance of $ 20,000 for permit
4. General and Administrative Costs (GAC)
5. Fee
6. Sales tax
7. Construction trade permits
8. Contingency

Exclusions:

Lab equipment is provided and installed by owner and not included in the scope of work, unless otherwise noted.

CIVIL, STRUCTURAL, & ARCHITECTURAL

Inclusions:

1. Demo cabinets and countertops.
2. Demo safety cabinets.
3. Demo fume hoods.
4. Demo soffits.
5. Demo partition walls.
6. Demo flooring.
7. Demo ceilings.
8. Demo aluminum storefront and door.
9. Demo 3070 door.
10. Demo roof for new openings.
11. Structural steel is included at $6,500/tn.
12. Framing for new exhaust fans and ducts.
13. Patching roof at new and existing openings.
14. (1) 4070 steel doors/frames/hardware at $5,000/each.
15. (2) 6070 bi-parting sliding glass doors at $15,000/each.
16. Temporary Tuffwrap walls.
17. Patch drywall at demoed soffits.
18. MSDW infill at door opening.

19. Drywall ceilings.
20. ACT ceilings.
21. Vinyl sheet flooring.
22. Rubber base.
23. Painting of steel doors, drywall walls and ceilings.
24. Paint (3) existing doors.
25. Paint 3,300 sf of existing drywall walls.
26. 100 lf of metal base cabinets at $1,500/lf.
27. 23 lf of 4'-0" wide metal base cabinets at $2,500/lf.
28. 60 lf of metal upper cabinets at $800/lf.
29. 12 lf of metal overhead pass-thru shelving with sliding glass doors at $1,800/lf.
30. 35 lf of metal high-density storage shelving at $1,400/lf.
31. 385 sf of epoxy resin countertops at $200/sf.
32. (7) epoxy resin sinks.
33. Premanufactured metal shed, temperature controlled for chemical waste at an allowance of $25,000.
34. 6'-0" x 8'-0" canopy.

Exclusions:

1. Concrete
2. Masonry
3. Intumescent fireproofing
4. Spray-on fireproofing
5. Interior SOG striping
6. Sitework
7. Site demo
8. Landscaping

MECHANICAL, FIRE PROTECTION, HVAC & PLUMBING

Inclusions:

1. All fire protection systems will be designed in accordance with state, local and applicable codes, and NFPA standards.
2. The fire protection cost for new piping system to the new floor layout as designed.
3. Maintain existing fire protection system during construction.
4. Selective demolition for fire protection, plumbing, and HVAC systems.
5. New plumbing fixtures and floor drains based on the new floor plan layout.
6. Industrial waste and vent piping for below grade shall be schedule 80 acid resistant polypropylene (PP) and above grade shall be schedule 40 acid resistant polypropylene (PP) with matching fittings.
7. Sawcutting concrete floor for new below grade industrial waste piping.
8. Domestic water distribution insulated piping shall be type L copper pipe with wrot copper fittings with insulation and standard jacketing.
9. New Fume Hood Exhaust and Supply air fans.
10. New Fume Hoods.
11. New galvanized insulated distribution ductwork layout with supply, return, and exhaust air distribution devices, and ductwork accessories.
12. Relocate existing Vacuum Pump.
13. Vacuum distribution concealed piping shall be type L copper and exposed piping shall be stainless steel type 304 schedule 5 pipe with matching fittings.
14. Deionized water distribution piping shall be polypropylene with flame retardant additive (PPFR) with matching fittings.
15. Receive, rig, set, and install in-place new mechanical and plumbing equipment.
16. HVAC temperature controls.
17. HVAC Air Testing and Balancing.
18. Start-up of all HVAC equipment.
19. All Piping systems testing, cleaning, and flushing.
20. All pipe labeling, duct markings, valve tags, and equipment ID.
21. Construction trade permits.

ELECTRICAL

Inclusions:

1. Power to originate from existing MCC. And low voltage panels.
2. Provide (2) 30 KVA 240/208/ buck and boost transformers, (1) each 3P20A, 3P30A, 3P40A & 3P70 250V breakers.
3. Provide trenching, backfilling.
4. Provide wiring to the owner supplied generator.
5. Provide feeders to new distribution equipment per one-line drawing.
6. Provide connections to 120V, 208V, 277V and 480V equipment.
7. Provide controls for receptacles per the energy code.
8. Provide connections to HVAC equipment.
9. Provide power to the owner supplied equipment.

10. Provide branch power to outlets as shown on drawings.
11. Provide new LED lighting and controls per fixture schedule and drawings.
12. Expand the fire alarm system and connect to existing. Modify as needed.
13. Provide rough only conduit stub and box for phone/data.
14. Temporary light and power.
15. Provide internal ground per drawings.
16. Provide demo and make safe.
17. All conductors to be copper.
18. All work to be in EMT with RGS as required 10' AFF in hazardous areas and PVC for underground work.
19. Trade Permit

Exclusions:

1. Devices, cabling, testing/termination, and head end equipment for phone/data,
2. Line and low voltage controls, control panels, instruments, conduits, cabling testing and termination.

COMMODITY CLAUSE:

Commodity pricing for materials (i.e., steel, copper, aluminum, and associated fabricated elements and equipment that utilize commodities) has been highly volatile over the past year or more and imported commodities and finished goods are potentially exposed to tariffs. Because of these current conditions, the pricing indicated in all estimates remain at risk of large fluctuations. If commodity pricing and/or fabricated elements or equipment increase between the time of this estimate time of final purchase, this estimate may vary beyond the qualified range associated with the type of estimate indicated.

General Exclusions

1. LEED Requirements
2. Abatement of hazardous materials
3. Site security
4. Builders risk insurance
5. Third party construction testing services
6. Topographical site survey
7. Ground Penetrating Radar survey
8. Land costs, Development charges, Legal fees, and expenses
9. Right of way charges and Easement costs
10. Payment and Performance Bond
11. Maintenance equipment after start up
12. Preventative maintenance contracts after startup
13. Utility transformers & connection costs
14. Utility consumption charges during construction
15. Correction of any existing code related violation or other substandard construction
16. Unforeseen subsurface conditions
17. Utility tap fees, connection permits and assessments
18. Private Utility location services
19. Material testing
20. Geotechnical report
21. Racks
22. FM Global or other specific insurance regulations
23. Sanitary, storm, or water tap, connection or use fees

Project Summary
Base Estimate

Owner:	**Southern Orange County Wastewater Authority -SOCWA**
Location:	**Laguna Niguel, CA**
Project:	**SOCWA Laboratory - Option 1B**
Date:	**8/6/2025**

SF= 1,806

CSI	Description	Total Estimate	Cost PSF	Weight
1	General Conditions & Staffing	$510,000	$282.39	27%
2	Existing Conditions	$50,000	$27.69	3%
5	Metals	$17,000	$9.41	1%
6	Wood, Plastics & Composites	$1,000	$0.55	0%
7	Thermal & Moisture Protection	$49,000	$27.13	3%
8	Openings	$35,000	$19.38	2%
9	Finishes	$64,000	$35.44	3%
12	Furnishings	$492,000	$272.43	26%
13	Special Construction	$29,000	$16.06	2%
21	Fire Suppression	$13,000	$7.20	1%
22	Plumbing	$80,000	$44.30	4%
23	HVAC	$284,000	$157.25	15%
26	Electrical	$201,000	$111.30	11%
40	Process	$33,000	$18.27	2%
	Sub Total	**$1,858,000**	$1,028.79	100%
	Contractor's Contingency 10.00%	$186,000	$102.99	
	Engineering 15.00%	$279,000	$154.49	
	GAC 5.00%	$116,000	$64.23	
	Fee 5.00%	$122,000	$67.55	
	Total Design & Construction	**$2,561,000**	**$1,418**	

PROJECT INFORMATION

Client: SOCWA

Project: SOCWA Lab Study Option 2A Location: Laguna Niegel, CA

Type of Estimate: -10%/+25% ROM Estimate

Date: August 6, 2025

Brief Project Description: This Basis of Estimate (BOE) covers the following scope for the proposed SOCWA Lab Study Project in Laguna Niguel, CA. SOCWA Lab Study Project in Laguna Niguel, CA - as follows: The project consists of a 1,235 sf expansion to the existing facility for additional lab and storage space and renovation to the existing 1,806 sf laboratory area to include new flooring, ceilings, metal cabinetry, new sliding glass doors and ventilation for new fume hoods. A total project square footage of 3,041-sf. The project will consist of demolition, concrete, structural steel, roofing, openings, typical office finishes, painting, metal laboratory cabinetry, premanufactured shed, canopy, fire suppression, plumbing, HVAC, electrical, sitework, paving, and utilities.

PROJECT COSTS

ROM Estimate -10%/+25% $5,212,000

DRAWINGS & DOCUMENTS USED FOR ESTIMATE

1. SOCWA ARCH_1B.pdf
2. SOCWA ARCH_2A.pdf
3. SOCWA Equipment List.pdf
4. SOCWA Finish Schedule.pdf
5. SOCWA Lab Elec Drawings 2A-071025.pdf
6. SOCWA Lab Elec Drawings 1B-071025.pdf
7. SOCWA MP Set-Option 1B.pdf
8. SOCWA MP Set-Option 2A.pdf
9. SOCWA Opt 2A-Structural Layouts_Deliverable_2025-07-10.pdf
10. SOCWA_Narratives.pdf

GENERAL CLARIFICATIONS

Inclusions:

1. The Austin Company General Conditions (GCs) & Staffing
2. Engineering
3. An allowance of $ 20,000 for permit
4. General and Administrative Costs (GAC)
5. Fee
6. Sales tax
7. Construction trade permits
8. Contingency

Exclusions:

Lab equipment is provided and installed by owner and not included in the scope of work, unless otherwise noted.

CIVIL, STRUCTURAL, & ARCHITECTURAL

Inclusions:

1. Estimate assumes a balanced site.
2. Excavated dirt is assumed to be disposed of on site.
3. Demo cabinets and countertops.
4. Demo safety cabinets.
5. Demo fume hoods.
6. Demo soffits.
7. Demo partition walls.
8. Demo flooring.
9. Demo ceilings.
10. Demo aluminum storefront and door.
11. Demo (4) 3070 doors.
12. Demo roof for new openings.
13. Demo exterior concrete wall.
14. Demo SOG.
15. Demo roof overhang, gutters, and downspouts.
16. Demo concrete roof tiles.
17. Demo parapet wall.
18. Demo wall for new door opening.
19. Column spread footings and strip footings.
20. Drill and grout dowels into existing foundations and slab.
21. 8" SOG.
22. Structural steel is included at $6,500/tn.
23. Temporary shoring at demoed concrete wall.
24. Reinforce existing girders.
25. Framing to support new mechanical well.
26. Framing for new exhaust fans, ducts, and RTU.

27. Framing to support new mechanical wells.
28. Framing over existing roof.
29. Reinforce existing glulam beam at new mechanical well.
30. Patching roof at new and existing openings.
31. Concrete roof tiles at an allowance of $50/sf.
32. Single ply roofing at mechanical well.
33. Gutters and downspouts.
34. (2) 6070 steel doors/frames/hardware at $7,000/each.
35. (1) 3070 FRP door/frame/hardware at $4,500/each.
36. (1) 6070 bi-parting sliding glass doors at $15,000/each.
37. (1) single alum/glass door at $4,500/each.
38. (3) double alum/glass doors at $7,000/each.
39. Aluminum storefront system.
40. (2) 5'-3"x3'-0" windows.
41. Temporary Tuffwrap walls.
42. Patch drywall at demoed soffits.
43. MSDW partition walls and MSDW infill at door opening.
44. Load bearing MSDW exterior wall with stucco exterior.
45. Drywall ceilings.
46. ACT ceilings.
47. Vinyl sheet flooring.
48. Rubber base.
49. Painting of steel doors, drywall walls, ceilings, underside of new roof overhang, and new stucco.
50. Paint 560 sf of existing stucco wall.
51. Paint 1,755 sf of existing drywall walls.
52. 208 lf of metal base cabinets at $1,500/lf.
53. 23 lf of 4'-0" wide metal base cabinets at $2,500/lf.
54. 79 lf of metal upper cabinets at $800/lf.
55. 19 lf of metal overhead pass-thru shelving with sliding glass doors at $1,800/lf.
56. 48 lf of metal high-density storage shelving at $1,400/lf.
57. 690 sf of epoxy resin countertops at $200/sf.
58. (9) epoxy resin sinks.
59. Premanufactured metal shed, temperature controlled for chemical waste at an allowance of $25,000.
60. 6'-0" x 8'-0" canopy.
61. Silt fence.
62. Demo sidewalk, paving and landscape areas.
63. Strip topsoil.
64. Building pad grading.
65. Spread topsoil stored on site.
66. Seed disturbed areas.
67. 1,500 sf of 4" sidewalk
68. Mandoor stoop.
69. 500 sf of 8" concrete paving replacement.
70. Demo existing underground storm line.
71. 100 lf of new 10" storm line.
72. (4) downspout connections.
73. Connect to existing storm line.

Exclusions:

1. Masonry
2. Intumescent fireproofing
3. Spray-on fireproofing
4. Interior SOG striping
5. Landscaping
6. Tree removal

MECHANICAL, FIRE PROTECTION, HVAC & PLUMBING

Inclusions:

1. All fire protection systems will be designed in accordance with state, local and applicable codes, and NFPA standards.
2. The fire protection cost for new piping system to the new floor layout.
3. Maintain existing fire protection system during construction.
4. Selective demolition for fire protection, plumbing, and HVAC systems.
5. New plumbing fixtures, floor, and roof drains based on the new floor plan layout.
6. Industrial waste and vent piping for below grade shall be schedule 80 acid resistant polypropylene (PP) and above grade shall be schedule 40 acid resistant polypropylene (PP) with matching fittings.
7. Storm piping for below and above grade shall be schedule 40 DWV PVC with matching fittings.

8. Sawcutting concrete floor for new below grade industrial waste piping.
9. Domestic water distribution insulated piping shall be type L copper pipe with wrot copper fittings with insulation and standard jacketing.
10. New rooftop 3-ton heat pump with DX cooling for new floor area.
11. Condensate Drain piping shall be type L and DWV copper with matching fittings.
12. New Fume Hood Exhaust and Supply air fans.
13. New Fume Hoods.
14. New galvanized insulated distribution ductwork layout with supply, return, and exhaust air distribution devices, and ductwork accessories.
15. Relocate existing Vacuum Pump.
16. Vacuum distribution concealed piping shall be type L copper and exposed piping shall be stainless steel type 304 schedule 5 pipe with matching fittings.
17. Deionized water distribution piping shall be polypropylene with flame retardant additive (PPFR) with matching fittings.
18. Receive, rig, set, and install in-place new mechanical and plumbing equipment.
19. HVAC temperature controls.
20. HVAC Air Testing and Balancing.
21. Start-up of all HVAC equipment.
22. All Piping systems testing, cleaning, and flushing.
23. All pipe labeling, duct markings, valve tags, and equipment ID.
24. Construction trade permits.

ELECTRICAL

Inclusions:

1. Power to originate from existing MCC and low voltage panels.
2. Provide (1) 600A 277/480V Nema 3R ATS, (1) 600A 277/480V Nema 3R service entrance section with pull out breaker, (2) 30 KVA 240/208/ buck and boost transformers, (1) each 3P20A, 3P30A, 3P40A & 3P70 250V breakers.
3. Provide trenching, backfilling.
4. Install & wire owner supplied generator.
5. Provide feeders to new distribution equipment per one-line drawing.
6. Provide connections to 120V, 208V, 277V and 480V equipment.
7. Provide controls for receptacles per the energy code.
8. Provide connections to HVAC equipment.
9. Provide power to owner supplied equipment.
10. Provide branch power to outlets as shown on drawings.
11. Provide new LED lighting and controls per fixture schedule and drawings.
12. Expand fire alarm system and connect to existing. Modify as needed.
13. Provide rough only conduit stub and box for phone/data.
14. Temporary light and power.
15. Provide internal ground per drawings.
16. Provide demo and make safe.
17. All conductors to be copper.
18. All work to be in EMT with RGS as required 10' AFF in hazardous areas and PVC for underground work.
19. Trade Permit

Exclusions:

1. Devices, cabling, testing/termination, and head end equipment for phone/data.
2. Line and low voltage controls, control panels, instruments, conduits, cabling testing and termination.

COMMODITY CLAUSE:

Commodity pricing for materials (i.e., steel, copper, aluminum, and associated fabricated elements and equipment that utilize commodities) has been highly volatile over the past year or more and imported commodities and finished goods are potentially exposed to tariffs. Because of these current conditions, the pricing indicated in all estimates remain at risk of large fluctuations. If commodity pricing and/or fabricated elements or equipment increase between the time of this estimate time of final purchase, this estimate may vary beyond the qualified range associated with the type of estimate indicated.

General Exclusions

1. LEED Requirements
2. Abatement of hazardous materials
3. Site security
4. Builders risk insurance
5. Third party construction testing services
6. Topographical site survey
7. Ground Penetrating Radar survey
8. Land costs, Development charges, Legal fees, and expenses
9. Right of way charges and Easement costs
10. Payment and Performance Bond
11. Maintenance equipment after start up
12. Preventative maintenance contracts after startup

13. Utility transformers & connection costs
14. Utility consumption charges during construction
15. Correction of any existing code related violation or other substandard construction
16. Unforeseen subsurface conditions
17. Utility tap fees, connection permits and assessments
18. Private Utility location services
19. Material testing
20. Geotechnical report
21. Racks
22. FM Global or other specific insurance regulations
23. Sanitary, storm, or water tap, connection or use fees

Project Summary
Base Estimate

Owner:	**Southern Orange County Wastewater Authority -SOCWA**
Location:	**Laguna Niguel, CA**
Project:	**SOCWA Laboratory - Option 2A**
Date:	**8/6/2025**

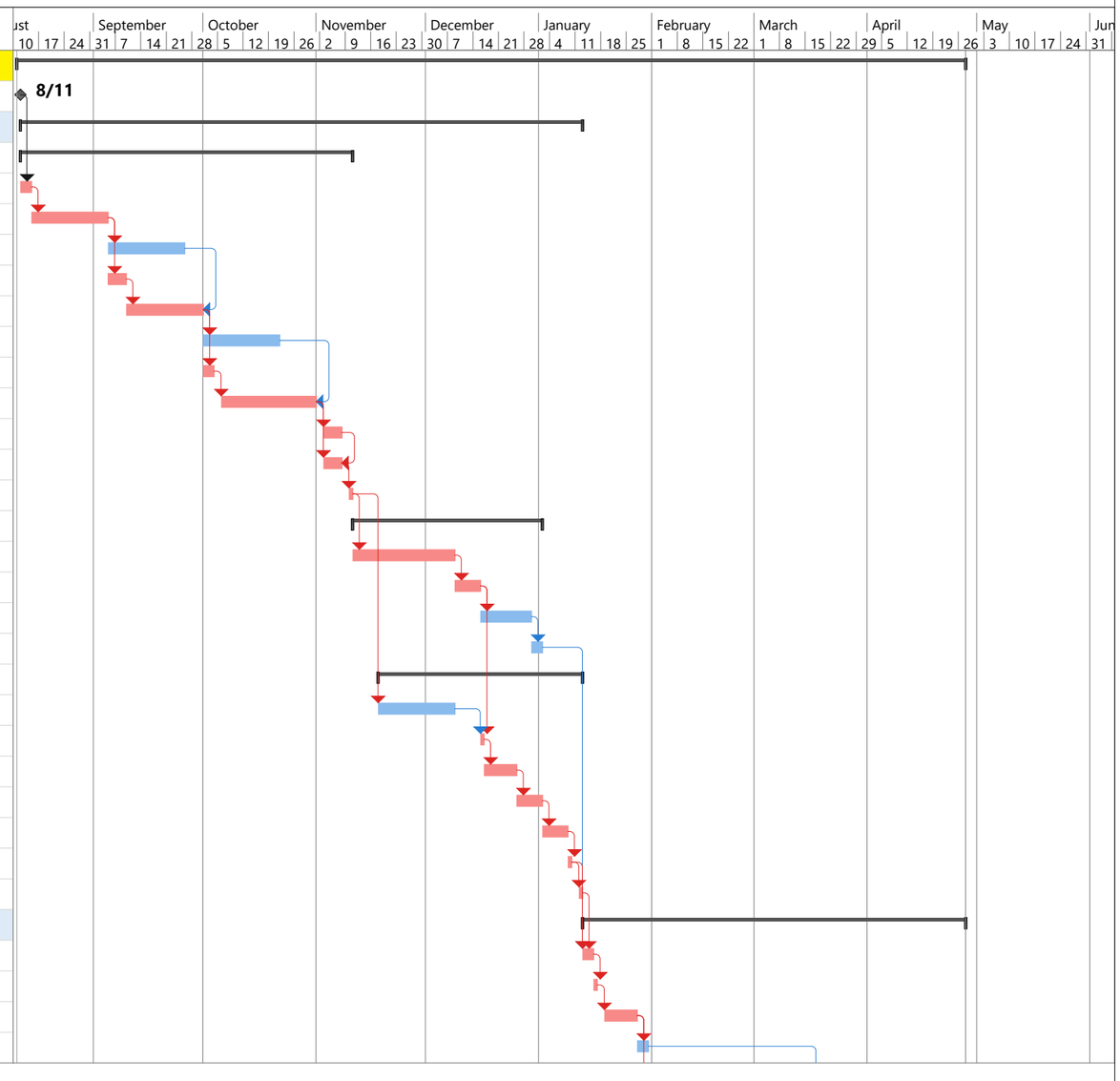
SF= 3,041

CSI	Description		Total Estimate	Cost PSF	Weight
1	General Conditions & Staffing		$790,000	$259.78	20%
2	Existing Conditions		$93,000	$30.58	2%
3	Concrete		$80,000	$26.31	2%
5	Metals		$193,000	$63.47	5%
6	Wood, Plastics & Composites		$107,000	$35.19	3%
7	Thermal & Moisture Protection		$202,000	$66.43	5%
8	Openings		$100,000	$32.88	3%
9	Finishes		$236,000	$77.61	6%
12	Furnishings		$798,000	$262.41	21%
13	Special Construction		$29,000	$9.54	1%
21	Fire Suppression		$19,000	$6.25	0%
22	Plumbing		$149,000	$49.00	4%
23	HVAC		$512,000	$168.37	13%
26	Electrical		$457,000	$150.28	12%
31	Sitework		$18,000	$5.92	0%
32	Exterior Improvements		$21,000	$6.91	1%
33	Utilities		$28,000	$9.21	1%
40	Process		$43,000	$14.14	1%
	Sub Total		**$3,875,000**	$1,274.25	100%
	Contractor's Contingency	**10.00%**	$388,000	$127.59	
	Engineering	**12.00%**	$465,000	$152.91	
	GAC	**5.00%**	$236,000	$77.61	
	Fee	**5.00%**	$248,000	$81.55	
	Total Design & Construction		**$5,212,000**	**$1,714**	

SECTION 5
PRELIMINARY MILESTONE SCHEDULE

South Orange County Water Authority
Preliminary Schedule-Option 1B
August 8, 2025

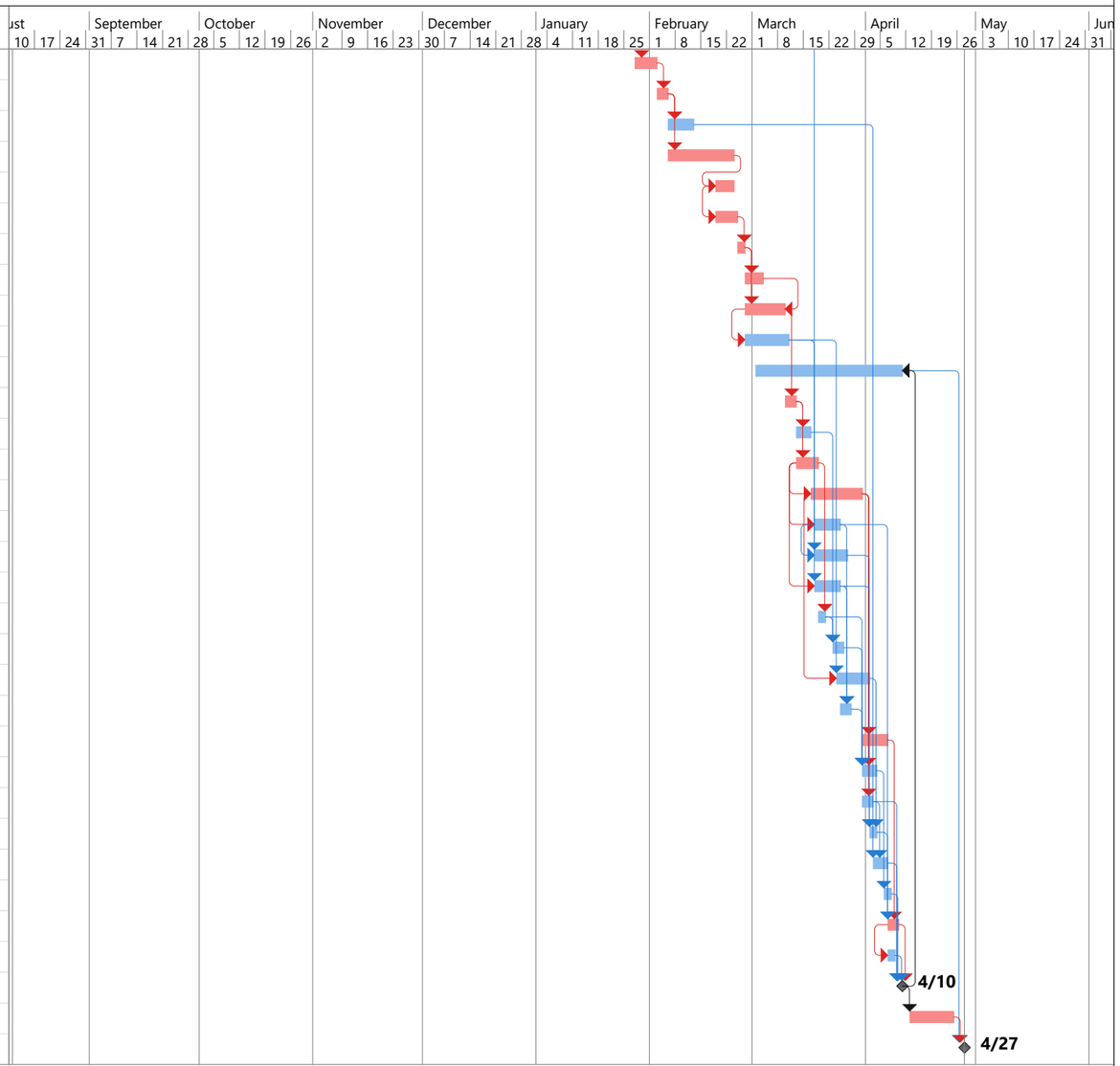
ID	Task Name	Duration	Start	Finish
1	**South Orange County Water Authority-Option 1B**	**186 days**	**8/11/25**	**4/27/26**
2	Notice to Proceed	1 day	8/11/25	8/11/25
3	**Preconstruction**	**110 days**	**8/12/25**	**1/12/26**
4	**Design**	**65 days**	**8/12/25**	**11/10/25**
5	Design Kick-off	3 days	8/12/25	8/14/25
6	30% Documents	15 days	8/15/25	9/4/25
7	30% ROM Estimate	15 days	9/5/25	9/25/25
8	30% Review and Approval	3 days	9/5/25	9/9/25
9	60% Documents	15 days	9/10/25	9/30/25
10	60% Design Development Estimate	15 days	10/1/25	10/21/25
11	60% Review and Approval	3 days	10/1/25	10/3/25
12	90% Documents	20 days	10/6/25	10/31/25
13	Constructability Review	5 days	11/3/25	11/7/25
14	90% Review and Approval	5 days	11/3/25	11/7/25
15	Issue Documents for Plan Check and Bid	1 day	11/10/25	11/10/25
16	**Plan Check and Permit**	**38 days**	**11/11/25**	**1/1/26**
17	Plan Check	20 days	11/11/25	12/8/25
18	Incorporate Plan Check Comments	5 days	12/9/25	12/15/25
19	Back Check Documents	10 days	12/16/25	12/29/25
20	Issue Permit	3 days	12/30/25	1/1/26
21	**Procurement**	**40 days**	**11/18/25**	**1/12/26**
22	Bid 90% Construction Documents	15 days	11/18/25	12/8/25
23	Issue Bid Addendum	1 day	12/16/25	12/16/25
24	Finalize and Submit Bids	7 days	12/17/25	12/25/25
25	Review Bids & Recommend Award	5 days	12/26/25	1/1/26
26	Finalize Contract	5 days	1/2/26	1/8/26
27	Construction Notice to Proceed	1 day	1/9/26	1/9/26
28	Issue For Construction Documents	1 day	1/12/26	1/12/26
29	**Construction**	**75 days**	**1/13/26**	**4/27/26**
30	Mobilize, Protection of Existing & Safe-off	3 days	1/13/26	1/15/26
31	Layout	1 day	1/16/26	1/16/26
32	Demolition-Interior as Needed	7 days	1/19/26	1/27/26
33	Remove Existing Mechanical Equipment	3 days	1/28/26	1/30/26



Page 1

South Orange County Water Authority
Preliminary Schedule-Option 1B
August 8, 2025

ID	Task Name	Duration	Start	Finish
34	Underslab Utilities	4 days	1/28/26	2/2/26
35	Pour Back Slab on Grade	3 days	2/3/26	2/5/26
36	Pour Perimeter Concrete Slab/Pads	5 days	2/6/26	2/12/26
37	Overhead MEP	12 days	2/6/26	2/23/26
38	Frame Walls and Soffits	3 days	2/19/26	2/23/26
39	In-Wall MEP Roughin	4 days	2/19/26	2/24/26
40	Insulation	2 days	2/25/26	2/26/26
41	Set New Door Frame	3 days	2/27/26	3/3/26
42	Drywall and Finish Walls/Hard lid	7 days	2/27/26	3/9/26
43	Pull Electrical Wiring/Make Up Panels	8 days	2/27/26	3/10/26
64	Closeout Documents	30 days	3/2/26	4/10/26
44	Paint	3 days	3/10/26	3/12/26
45	Glass Doors	2 days	3/13/26	3/16/26
46	Ceiling Grid	4 days	3/13/26	3/18/26
47	Set Casework/Counter Tops	10 days	3/17/26	3/30/26
48	Mechanical Registers/Finish	5 days	3/18/26	3/24/26
49	Set/Connect New Mechanical Equipment	7 days	3/18/26	3/26/26
50	Light Fixtures	5 days	3/18/26	3/24/26
51	Doors/Hardware	2 days	3/19/26	3/20/26
54	Finish Paint	3 days	3/23/26	3/25/26
52	Electrical Finishes	7 days	3/24/26	4/1/26
53	Ceiling Tiles	3 days	3/25/26	3/27/26
55	Plumbing Finishes	5 days	3/31/26	4/6/26
56	Flooring /Base	4 days	3/31/26	4/3/26
57	Relocate Vacuum Pump/Connect	3 days	3/31/26	4/2/26
59	Energize Electrical	2 days	4/2/26	4/3/26
58	Set Chemical Shed	2 days	4/3/26	4/6/26
60	High Density Shelving	2 days	4/6/26	4/7/26
61	Startup, Verification, and Air Balance	3 days	4/7/26	4/9/26
62	Final Clean	2 days	4/7/26	4/8/26
63	**Substantial Completion**	1 day	4/10/26	4/10/26
65	Punchlist	10 days	4/13/26	4/24/26
66	**Final Completion**	1 day	4/27/26	4/27/26



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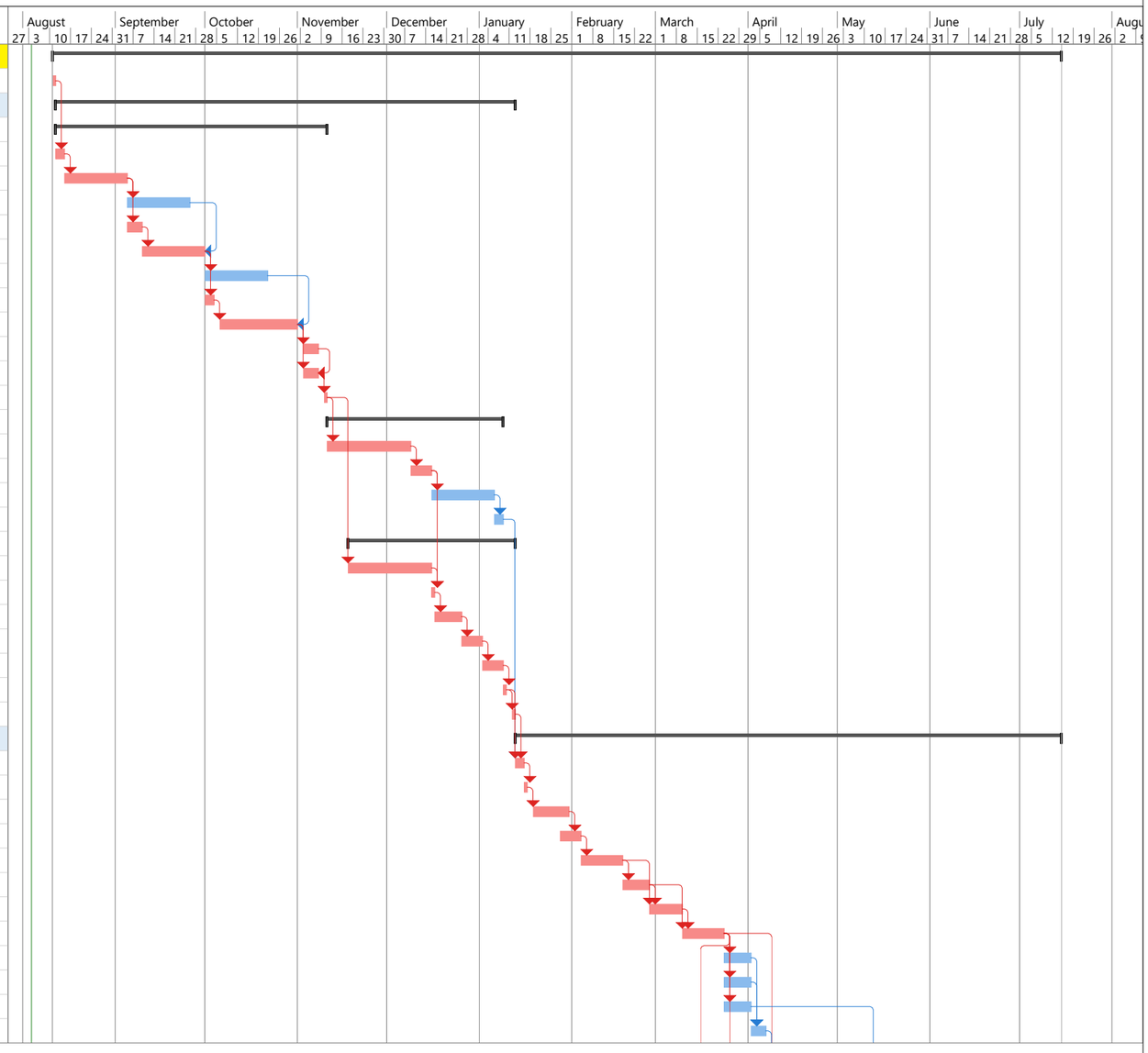
South Orange County Water Authority
Preliminary Schedule-Option 2A
August 8, 2025

ID	Task Name	Duration	Start	Finish
1	**South Orange County Water Authority-Option 2A**	**242 days**	**8/11/25**	**7/14/26**
2	Notice to Proceed	1 day	8/11/25	8/11/25
3	**Preconstruction**	**110 days**	**8/12/25**	**1/12/26**
4	**Design**	**65 days**	**8/12/25**	**11/10/25**
5	Design Kick-off	3 days	8/12/25	8/14/25
6	30% Documents	15 days	8/15/25	9/4/25
7	30% ROM Estimate	15 days	9/5/25	9/25/25
8	30% Review and Approval	3 days	9/5/25	9/9/25
9	60% Documents	15 days	9/10/25	9/30/25
10	60% Design Development Estimate	15 days	10/1/25	10/21/25
11	60% Review and Approval	3 days	10/1/25	10/3/25
12	90% Documents	20 days	10/6/25	10/31/25
13	Constructability Review	5 days	11/3/25	11/7/25
14	90% Review and Approval	5 days	11/3/25	11/7/25
15	Issue Documents for Plan Check and Bid	1 day	11/10/25	11/10/25
16	**Plan Check and Permit**	**43 days**	**11/11/25**	**1/8/26**
17	Plan Check	20 days	11/11/25	12/8/25
18	Incorporate Plan Check Comments	5 days	12/9/25	12/15/25
19	Back Check Documents	15 days	12/16/25	1/5/26
20	Issue Permit	3 days	1/6/26	1/8/26
21	**Procurement**	**40 days**	**11/18/25**	**1/12/26**
22	Bid 90% Construction Documents	20 days	11/18/25	12/15/25
23	Issue Bid Addendum	1 day	12/16/25	12/16/25
24	Finalize and Submit Bids	7 days	12/17/25	12/25/25
25	Review Bids & Recommend Award	5 days	12/26/25	1/1/26
26	Finalize Contract	5 days	1/2/26	1/8/26
27	Construction Notice to Proceed	1 day	1/9/26	1/9/26
28	Issue For Construction Documents	1 day	1/12/26	1/12/26
29	**Construction**	**131 days**	**1/13/26**	**7/14/26**
30	Mobilize, Protection of Existing & Safe-off	3 days	1/13/26	1/15/26
31	Layout	1 day	1/16/26	1/16/26
32	Demolition-Interior, Slab, Roofing, Sheathing	10 days	1/19/26	1/30/26
33	Shore Existing Structure	5 days	1/28/26	2/3/26
34	Selective Demolition of Existing Structure	10 days	2/4/26	2/17/26
35	Footings	7 days	2/18/26	2/26/26
36	Structural Steel	7 days	2/27/26	3/9/26
37	Frame New Roof Structure & Sheathing	10 days	3/10/26	3/23/26
38	Modify Mech Area @ Roof for New Equipment	7 days	3/24/26	4/1/26
39	Frame & Finish New Mechanical Screen	7 days	3/24/26	4/1/26
40	Roofing	7 days	3/24/26	4/1/26
41	Waterproofing Mechanical Area	3 days	4/2/26	4/6/26



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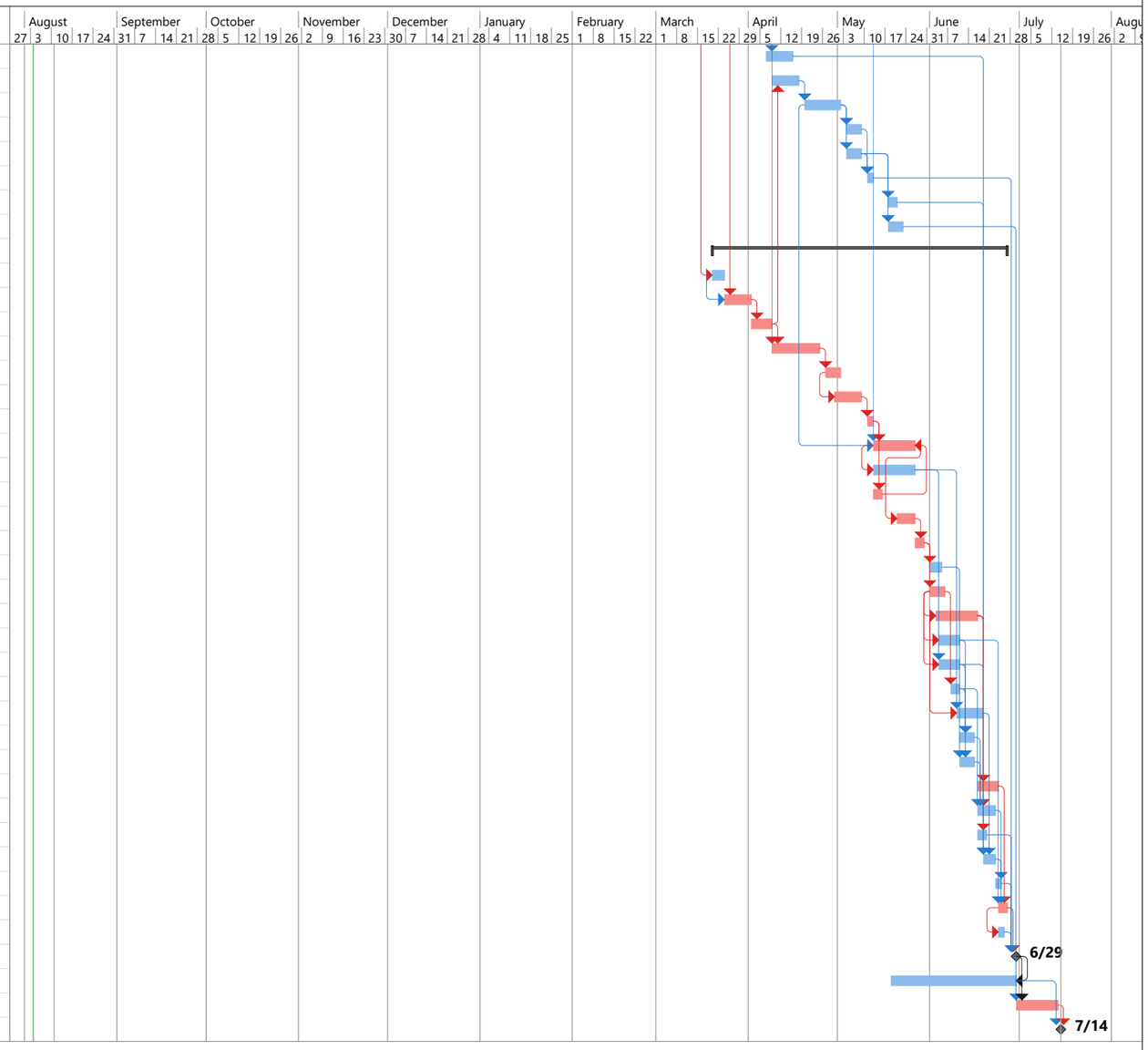
South Orange County Water Authority
Preliminary Schedule-Option 2A
August 8, 2025

ID	Task Name	Duration	Start	Finish
42	Set/Connect New Mechanical Equipment	7 days	4/7/26	4/15/26
43	Frame Exterior Wall and Soffits	7 days	4/9/26	4/17/26
44	Exterior Wall Finish/Doors/Windows/Canopy	10 days	4/20/26	5/1/26
45	Paint Exterior Finishes	5 days	5/4/26	5/8/26
46	Pour Perimeter Concrete Slab/Pads	5 days	5/4/26	5/8/26
47	Set Chemical Shed	2 days	5/11/26	5/12/26
48	Set/Connect New ATS	3 days	5/18/26	5/20/26
49	Set/Connect New Generator (By SOCWA)	5 days	5/18/26	5/22/26
50	**Interior Work**	**71 days**	**3/20/26**	**6/26/26**
51	Remove Temporary Shoring	2 days	3/20/26	3/23/26
52	Underslab Utilities	7 days	3/24/26	4/1/26
53	Pour Back Slab on Grade	5 days	4/2/26	4/8/26
54	Overhead MEP	12 days	4/9/26	4/24/26
55	Frame Walls and Soffits	5 days	4/27/26	5/1/26
56	In-Wall MEP Roughin	7 days	4/30/26	5/8/26
57	Insulation	2 days	5/11/26	5/12/26
58	Drywall and Finish Walls/Hard lid	10 days	5/13/26	5/26/26
59	Pull Electrical Wiring/Make Up Panels	10 days	5/13/26	5/26/26
60	Set Door Frames	3 days	5/13/26	5/15/26
61	Repair Interior Perimeter Conditions	4 days	5/21/26	5/26/26
62	Paint	3 days	5/27/26	5/29/26
63	Storefront/Doors	4 days	6/1/26	6/4/26
64	Ceiling Grid	5 days	6/1/26	6/5/26
65	Set Casework/Counter Tops	10 days	6/3/26	6/16/26
66	Mechanical Registers/Finish	5 days	6/4/26	6/10/26
67	Light Fixtures	5 days	6/4/26	6/10/26
68	Doors/Hardware	3 days	6/8/26	6/10/26
69	Electrical Finishes	7 days	6/10/26	6/18/26
70	Ceiling Tiles	3 days	6/11/26	6/15/26
71	Finish Paint	3 days	6/11/26	6/15/26
72	Plumbing Finishes	5 days	6/17/26	6/23/26
73	Flooring /Base	4 days	6/17/26	6/22/26
74	Relocate Vacuum Pump/Connect	3 days	6/17/26	6/19/26
75	Energize Electrical	2 days	6/19/26	6/22/26
76	High Density Shelving	2 days	6/23/26	6/24/26
77	Startup, Verification, and Air Balance	3 days	6/24/26	6/26/26
78	Final Clean	2 days	6/24/26	6/25/26
79	**Substantial Completion**	1 day	6/29/26	6/29/26
80	Closeout Documents	30 days	5/19/26	6/29/26
81	Punchlist	10 days	6/30/26	7/13/26
82	**Final Completion**	1 day	7/14/26	7/14/26



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SECTION 6
APPENDICES

APPENDIX A: SOCWA PROGRAMMING REQUIREMENTS TABLE

Room #	Area/ Room	Notes	Space Planning	Total Existing Area (sf)	Total Desired Area (sf)	Occupant Count	Floor Finish (Material/ Finish)	Wall Finish (Material/ Finish)	Ceiling Finish (Material/ Finish)	Ceiling Height (x'-x")	Space Planning Notes (Adjacencies, etc.)	Access	Material Handling Type (forktruck/ cart/ pallet jack, etc.)	Exterior Access (Yes/No)	Access/ Door Width (x'-x")	Access/ Door Height (x'-x")	Security (Yes/No, Type)	Views/ Windows (Ext/Int, Size)	Access Comments	Furnishing	Cubicles (Qty, size)	Storage Cabinets (Qty, size)	Industrial Shelving (Qty, Type, Size)	Bench/ SS Worktable (LF)	Base Cabinet (LF)	Upper Cabinet (LF)	Refrig./ Freezer (Yes/No/ Type/ Size)	Fume Hood (Qty, Type, Size)	Haz. Mat. Storage Cabinet (Qty, Type, Size)	PPE Dispensers (Qty, Type)	Equipment Comments	Environmental	Maint/ Cleaning (dry/wet/ steam)	Mechanical	Ventilation Type (natural, mech supply, exhaust)	Ventilation Rate (air changes per hour)	Pressure (neutral/ positive/ negative)	Temp - Low (deg C/ deg F)	Temp - High (deg C/ deg F)	Humidity % (xx% +/-x or N/A)	Exhaust (Yes/No, grille/hood/ snorkel)	Supply Filter (Type)	Mech Comments
Lab/Production Areas																																											
1	General Chemistry	for all rooms increase interior visibility where possible, doors, walls		994	1,500	6	flex epoxy?	level 5 drywall?	concield grid or open industrial	at least 10'	current lab room set up gen chem/micro/solids is acceptable. BOO incubators next to each other		pallet jack	no	72"	8'	lab access	ext/int view	Tour viewing. Safety precations, active shooter, lock down. Doors with windows for al interior		0-1					with visible pane	1 Refrig 2door (samples 55"*30"*80") 1 Refrida 1door(standards 27"30"80)	(interior 60"-32"	0	glove, glassess cleaner, lab coat rack when entering lab area		wet		6-12	negative	68	77	30-50%			improve ventalation overall, increase width of high traffic areas
2	Solids			255	350	3	flex epoxy?	level 5 drywall?	concield grid or open industrial	at least 10'	ventailtion to outside, ovens and furnace in order on bench		cart	yes	72"	8'	lab access	int view	Tour viewing		0					with visible pane		0-1 (interior 60"-32	0	glove, glassess cleaner	snorkel option for prep	wet		6-12	negative	68	77	30-50%	hoods for solids ovens, snorkel for prep		
3	Micro	Separate from wastewater lab in Option 2. Filtering and ddPCR additions		205	600	2	flex epoxy?	level 5 drywall?	concield grid or open industrial	at least 10'	separate from solids/gen chem(wastewater). All micro incubators moves to micro in order. Sterilizer, ddPCR		cart	no	72"	8'	lab access	int view	Tour viewing		0					with visible pane	2 Refrida 1door(micro 27"30"80) 80 freezer(increase size), 1 bench top -20 freezer	(interior 60"-32"	0	glove, glassess cleaner	additional clean hood	wet		6-12	positive	68	77	30-50%	ood for autoclave	HEPA for micro	
7	Sample Receiving	currently part of general chem area		0	100	3	flex epoxy?	level 5 drywall?	concield grid	at least 10'	work flow into fridge and gen chem		pallet jack	yes	72"	8'	align with building	ext/int view	Tour viewing		1					with visible pane	2-3 Freezers for blue ice. 10-16 cubic feet total of segregated space needed	0	0	glove, glassess cleaner		wet		6-12	neutral	68	77	30-50%			
Lab/Production Area Totals:				**1,454**		**0**															**1**	**0**																			
Support Areas																																											
4	Lab Office	separate office for Lab Manager not accounted for		330	500	8	tile or tile carpet	level 5 drywall?	concield grid	at least 10'	1 larger cubicle for QA/lab Lead		pallet jack	yes	72"	8'	align with building	yes			8							0	0	n/a		(dry/wet/ steam)		normal	neutral	68	77	30-50%			
5	Chemical Storage			195	300	2	flex epoxy?	level 5 drywall?	concield grid or open industrial	at least 10'	ventalation to outside		cart	yes	36"	8'	lab access	ext/int view			0							0	3(flammable, base, acid)	glove, glassess cleaner		wet		higher level	negative	68	70	30-50%	increased ventalation		
6	Waste	currently under fume hood		10	60	2	flex epoxy?	level 5 drywall?	concield grid	at least 10'	separate, off main site(exterior) climate controlled with ventilation		cart	yes(remote with access from lab)	36"	8'	locked	no			0							0	3(flammable, base, acid)	glove, glassess cleaner		wet		higher level	negative	68	70	30-50%	hood or increased ventalation		
8	Lab Storage	currently in remote building		384	400	3	flex epoxy?	level 5 drywall?	concield grid or open industrial	at least 10'			forklift, pallet	yes	at least 72"	8" or higher	locked	no			0							0	0	glove, glassess cleaner		wet		normal	neutral	68	77	30-50%			
Support Area Total:				**919**		**0**															**8**	**0**																			
OVERALL BUILDING TOTALS				2,373		0															9	0																			
+ Circulation				**2,848**																																					
+ 20% Expansion				**3,417**																																					
Building Exterior																																										
Building Exterior Total Area:				**0**																																					

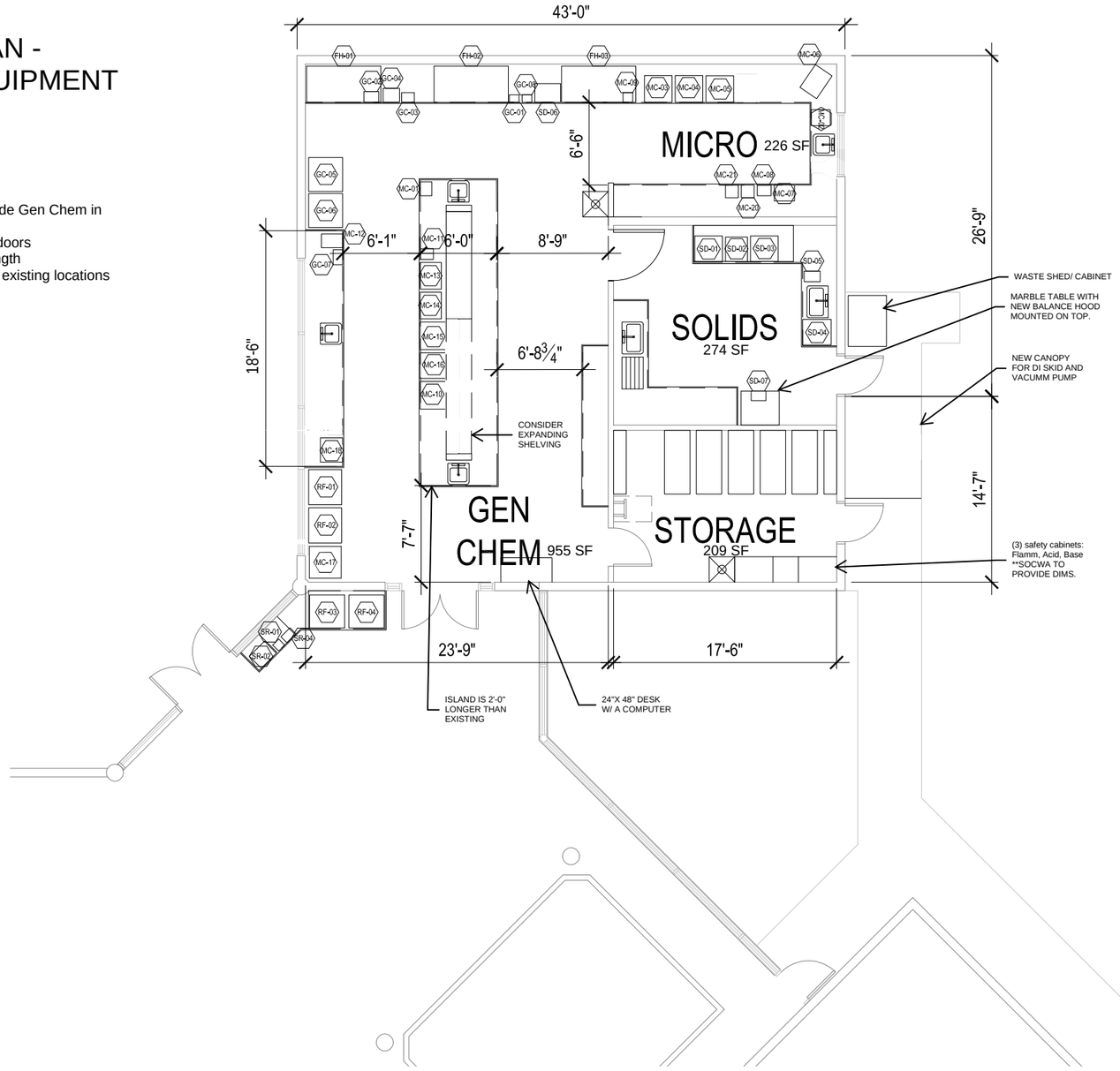
APPENDIX A: SOCWA PROGRAMMING REQUIREMENTS TABLE

Room #	Area/ Room	Notes	Plumbing	Water Supply (domestic, DI, etc)	Drain (Industrial/ Sanitary) System (sanitary/ industrial)	Sinks (type, qty)	Qty of Eye Wash/ Shower	Drain Type (floor/ trench)	Floor Slope (Yes/No % slope to drain)	Drain Contents (water, hot temp, solids, etc.)	Plumb Comments	Utilities	Process Utilities (CA,CW,Steam, Vacuum,Gasses,etc.)	Process Wet Waste (Type. How Collected)	Process Dry Waste (Type. How Collected)	Process Comments	Electrical	Emergency Power (Yes/No)	UPS (Yes/No)	Task Lighting (Yes/No)	Light Level FC	Power 120V/1PH (Yes/No)	Power 208V/1PH (Yes/No)	Power 208V/3PH (Yes/No)	Power 480V/3PH (Yes/No)	Elec Comments	AUX	Aux Comments List special systems (CCTV, phone, Data PA, etc.)	Chemical QTY	Chemical Type	Chemical Qty per Room in Open Use (Liters/ Gallons)	Chemical Qty per Room in Closed Use (Liters/ Gallons)	Chemical Qty per Room in Storage (Liters/ Gallons)	Tank Diameter (x'-x")	Chemical Notes
Lab/Production Areas																																			
1	General Chemistry	for all rooms increase interior visibility where possible, doors, walls		domestic/DI(UV)/na	industrial lab grade	st 24*16) (1 larger for main	lab ware washin	1			wastewater, sludge, corrosive, hot	Eye was/ safety showers per regulations	Vacuum, Air	refer to drain if compliant	collect and dispose	Vaccum and Air pumps,tcompressor located remote(noise concerns)		Option 1-No Standy Power Option 2 -Standby power with ATS All UPS will be individual and provided by SOCWA	no	Yes, over the OHAUS balance		Yes	Yes	Yes		UPS remote if possible, possible 220 for future needs		phone, ethernet, tv screen for micro, PA		see chem inventory					
2	Solids			domestic/DI(UV)	industrial lab grade	2(1 larger for main	lab ware washing 36*20)	1			wastewater, sludge, corrosive, hot	main lab ware wash area	Vacuum, Air	refer to drain if compliant	collect and dispose			Option 1-No standy Power Option 2 -Standby power with ATS All UPS will be individual and provided by SOCWA	no	NO		Yes	Yes	Yes		220/240-Furnace		ethernet,PA							
3	Micro	Separate from wastewater lab in Option 2. Filtering and ddPCR additions		domestic/DI(UV)	industrial lab grade	2(at least 24*16)		1			wastewater, sludge, corrosive, hot		Vacuum, Air	refer to drain if compliant	collect and dispose			Option 1-No Standy Power Option 2 -Standby power with ATS All UPS will be individual and provided by SOCWA	no	NO		Yes	Yes	Yes		220/240-Sterilizer, -80 Freezer		ethernet, tv screen for micro, PA							
7	Sample Receiving	currently part of general chem area		domestic/DI(UV)	industrial lab grade	1(at least 24*16)		per reg			wastewater, sludge, corrosive, hot							Option 1-No Standy Power Option 2 -Standby power with ATS All UPS will be individual and provided by SOCWA	no	NO		Yes	No	No				Phone, ethernet, PA							
Lab/Production Area Totals:																														0	0	0			
Support Areas																																			
4	Lab Office	separate office for Lab Manager not accounted for		n/a														Yes	no	No		Yes	No	No				Phone, ethernet/PA							
5	Chemical Storage			domestic	industrial lab grade	1(at least 24*16)		1			wastewater, sludge, corrosive							vent?	n/a	No		Yes	No	No				PA							
6	Waste	currently under fume hood		n/a														vent?	n/a	No		Yes	No	No				PA							
8	Lab Storage	currently in remote building		n/a														n/a	n/a	No		Yes	No	No				PA							
Support Area Total:																														0	0				
OVERALL BUILDING TOTALS																														0	0				
+ Circulation																																			
+ 20% Expansion																																			
Building Exterior																																			
Building Exterior Total Area:																																			

FIRST FLOOR PLAN - OPTION 1A w/ EQUIPMENT

@ 1/8" = 1"-0"
05/07/2025

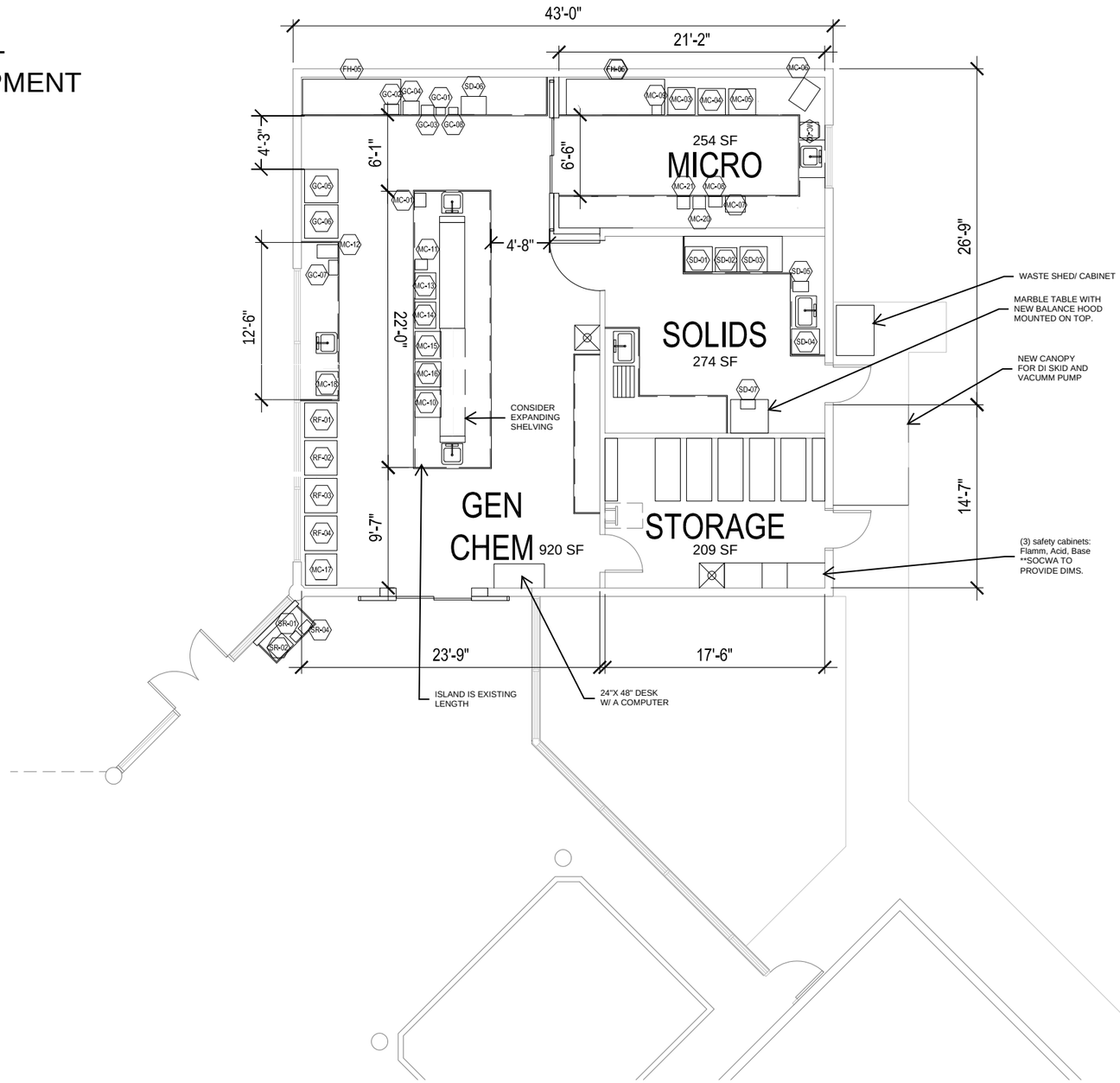
Highlights
- Half of the Refrigerators outside Gen Chem in Sample Receiving Area
- Keep original swinging entry doors
- Expand Island by 2-feet in length
- (3) 6-foot wide fume hoods in existing locations



FIRST FLOOR PLAN - OPTION 1B w/ EQUIPMENT

@ 1/8" = 1"-0"
05/07/2025

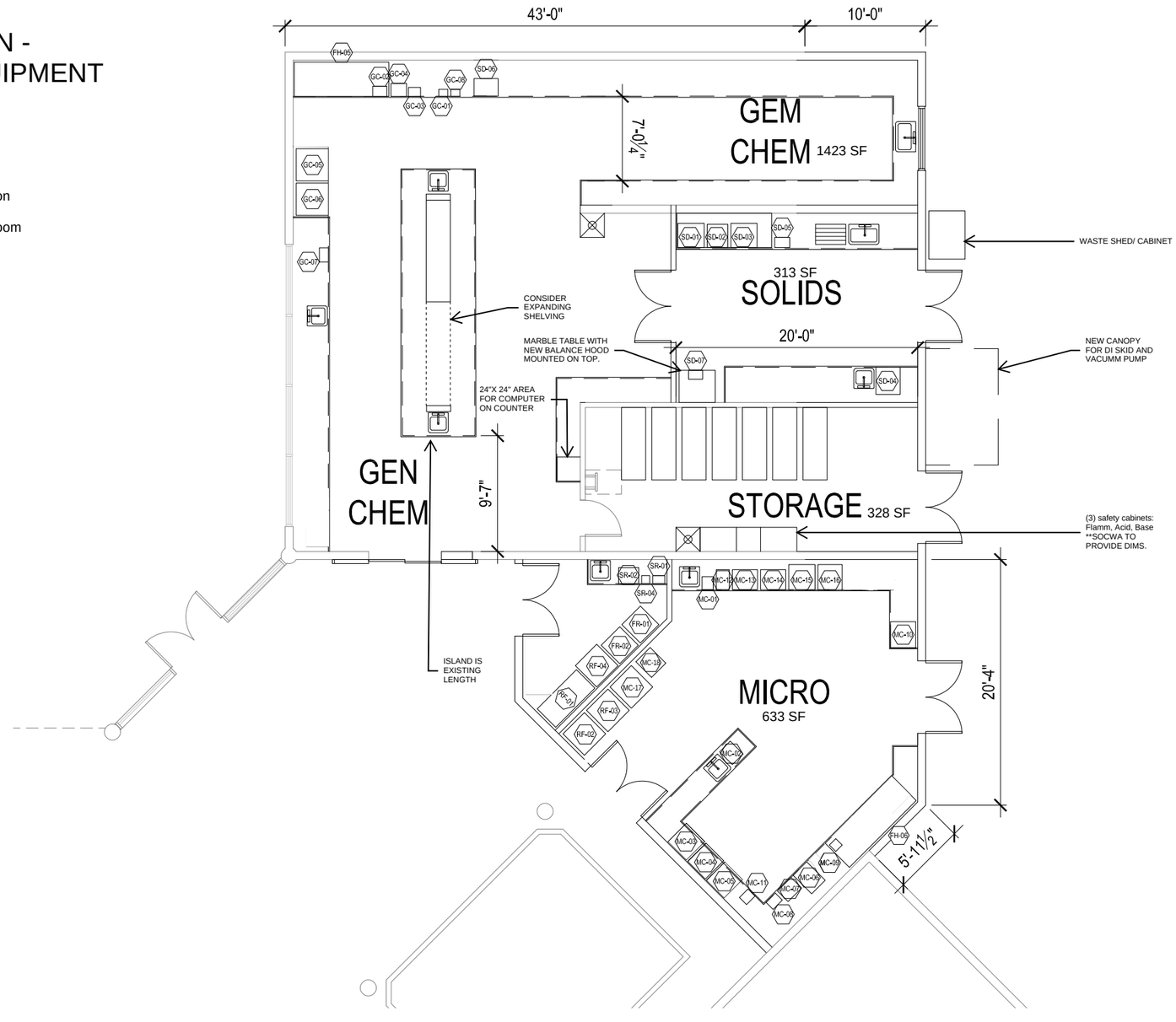
Highlights
- Enclosed Micro Room
- All Refrigerators inside Gen Chem.
- Sliding Doors
- Original Island size
- (2) 8-foot wide fume hoods



FIRST FLOOR PLAN - OPTION 2A w/ EQUIPMENT

@ 1/8" = 1"-0"
05/07/2025

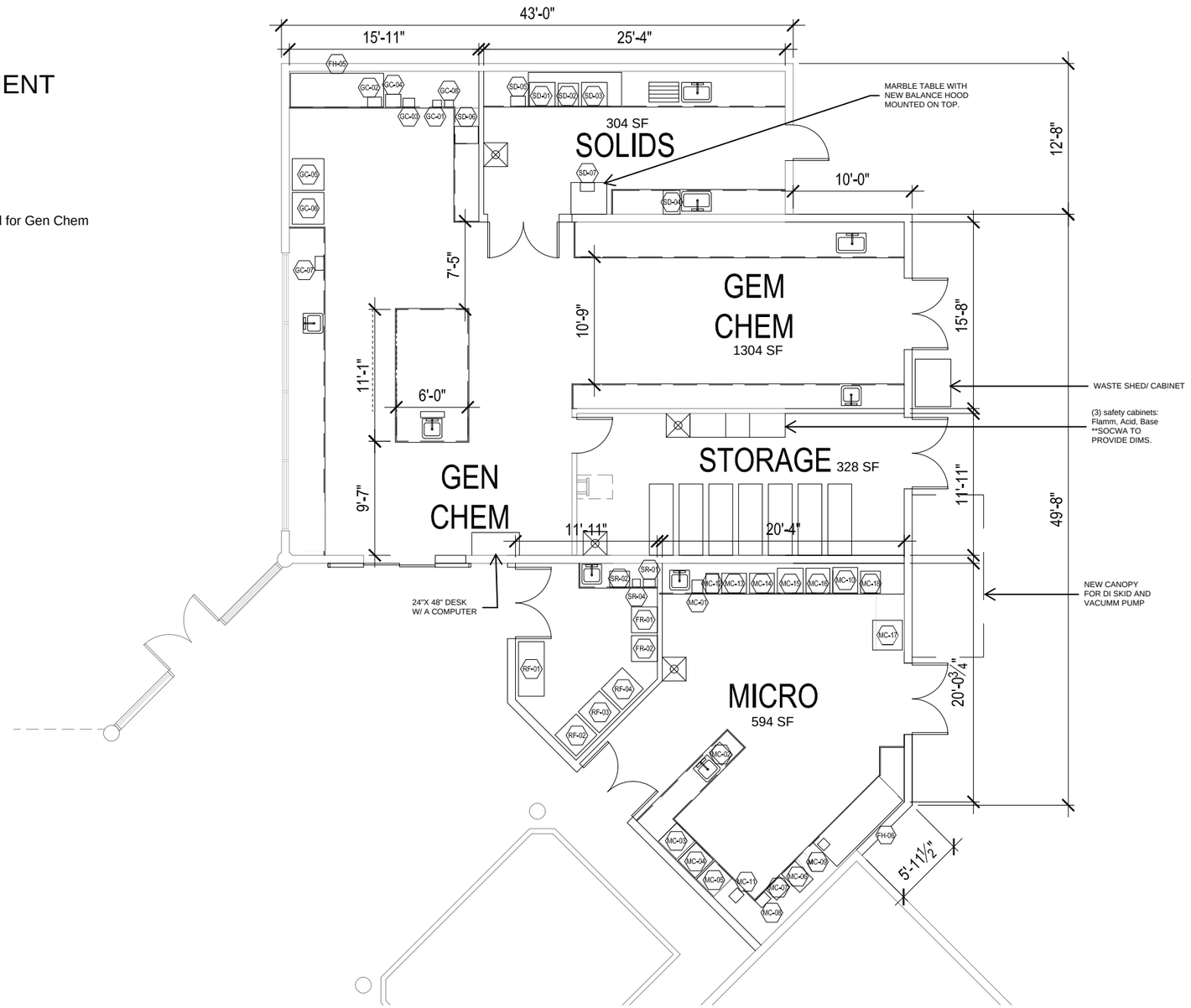
Highlights
- Solids Room in Original Location
- Larger Expansion area
- Separate Sample/Receiving Room
- Sliding Entry Doors
- Original Island size
- (2) 8-foot wide fume hoods



FIRST FLOOR PLAN - OPTION 2B w/ EQUIPMENT

@ 1/8" = 1"-0"
05/07/2025

Highlights
- Solids Room in top corner
- Separate exterior access for Solids and for Gen Chem
- Separate Sample/Receiving Room
- Sliding Entry Doors
- Smaller Island size
- (2) 8-foot wide fume hoods



Building Code Analysis - SOCWA FACILITY

Code References: 2022 California Building Code

Construction / Occupancy Type

Construction Type	V-B
Wall Construction	Concrete Walls
Roof Construction	Wood Panelized Roof
Structure	Steel tube Columns with Steel beams

Building Element (CBC Table 601)	Required Fire Rating	Comments
Primary Structural Frame	0 hours	
Bearing Walls	0 hours	
Exterior Non-bearing Walls	0 hours	
Interior Non-bearing Walls	0 hours	
Floor Construction	0 hours	
Roof Construction	0 hours	

Space Type	Occupancy Classification (Sections 304, 306 & 311)	Original Building SF	Proposed Building SF - 1B	Proposed Building SF - 2A	Extra (+)/ Deficient (-)
Office	Group B	7,194	7,194	8,216	1,022

Allowable Height in feet

Section 504 & Table 504.3

Occupancy	Existing Height (ft)	Allowable Height (ft)
Groups B	29'-2" +/-	40'-0"

Allowable Stories

Section 504 & Table 504.4

Occupancy	Existing Stories	Allowable Number of Stories	Extra (+)/ Deficient (-)
Groups B	2 Story	3	+1

Exit Access Travel Distance

Table 1017.2

Occupancy	with Sprinklers
Group B	300 feet

Corridor Fire Resistance Rating

Table 1020.1

Occupancy	Required Fire Resistance Rating with Sprinklers
Groups B	0 Hours

Required Separation of Occupancies

Table 508.4

Occupancy	(Sections 304, 306 & 311)	Required Separation
Office	Group B	0 hours

Building Code Analysis - SOCWA FACILITY - 1B

Code References: City of Laguna Niguel, CA (9-1-66)

Required Parking

Function	Existing SF	Proposed SF	Parking Load Factor	Required Number of Stalls	Existing Number of Stalls	Extra (+) Deficient (-)
Business - B	7,194	7,194	**	22	29	7

Provided Standard Stalls:	27
Provided Accessibly Stalls:	2
Provided Total Stalls:	29

Building Code Analysis - SOCWA FACILITY - 2A

Code References: City of Laguna Niguel, CA (9-1-66)

Required Parking

Function	Existing SF	Proposed SF	Parking Load Factor	Required Number of Stalls	Existing Number of Stalls	Extra (+) Deficient (-)
Business - B	7,194	8,216	**	22	29	7

**Table 6.5 Miscellaneous

Public utility facilities including, but not limited to, electric, gas, water, telephone and telegraph facilities not having business offices on the premises	1 space per employee plus 1 space per vehicle used in connection with the facility	Applicant may be required to submit a study addressing parking for the facility

OCCUPANCY TABLE																	
		EXISTING OCCUPANCY					OPTION 1B OCCUPANCY						OPTION 2A OCCUPANCY					
Room Number	Room Name	Area (SF)	Occ Type	Occ Load Factor	Number of Occ		Area (SF)	Occ Type	Occ Load Factor	Number of Occ	# Exits Req'd		Area (SF)	Occ Type	Occ Load Factor	Number of Occ	# Exits Req'd	Comments
FIRST FLOOR - 54,227 SF																		
900	Lobby	785	B	150	6		785	B	150	6	1		785	B	150	6	1	
901	Men	142	B	150	1		142	B	150	1	1		142	B	150	1	1	
902	Women	142	B	150	1		142	B	150	1	1		142	B	150	1	1	
903	Corr.	182	B	150	2		182	B	150	2	1		182	B	150	2	1	
904	Corr.	101	B	150	1		101	B	150	1	1		101	B	150	1	1	
905	Corr.	71	B	150	1		71	B	150	1	1		71	B	150	1	1	
910	Laboratory - Gem Chem	**1,265**	**B**	**150**	**9**		**985**	**B**	**150**	**7**	**1**		**1,423**	**B**	**150**	**10**	**1**	SF changes per option.
910A	Micro (1A)	**-**	**-**	**-**	**-**		**280**	**B**	**150**	**2**	**1**		**-**	**-**	**-**	**-**	-	Added room for occupancy for 1A. Reduced SF from Labortory - Gem Chem
911	Sample RM - Solids	298	B	150	2		298	B	150	2	1		**313**	**B**	**150**	**3**	**1**	Increased SF for 2A.
912	Storage	235	B	150	2		235	B	150	2	1		**328**	**B**	**150**	**3**	**1**	Increased SF for 2A.
915	**Receiving RM (2A)**	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**		**122**	**B**	**150**	**1**	**1**	Added room to Building. Increasing occupants.
916	**Micro (2A)**	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**		**426**	**B**	**150**	**3**	**1**	Added room to Building. Increasing occupants.
917	**Molecular (2A)**	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**		**208**	**B**	**150**	**2**	**1**	Added room to Building. Increasing occupants.
920	Control Room	685	B	150	5		685	B	150	5	1		685	B	150	5	1	
921	Office	247	B	150	2		247	B	150	2	1		247	B	150	2	1	
922	Office	247	B	150	2		247	B	150	2	1		247	B	150	2	1	
923	MCC	262	B	150	2		262	B	150	2	1		262	B	150	2	1	
924	Storage Room	258	B	150	2		258	B	150	2	1		258	B	150	2	1	
930	Library & Training	356	B	150	3		356	B	150	3	1		356	B	150	3	1	
931	Day Room	356	B	150	3		356	B	150	3	1		356	B	150	3	1	
932	Women's Locker Room	250	B	150	2		250	B	150	2	1		250	B	150	2	1	
933	Men's Locker room	605	B	150	5		605	B	150	5	1		605	B	150	5	1	
934	Janitor	80	B	150	1		80	B	150	1	1		80	B	150	1	1	
935	Boot Room	94	B	150	1		94	B	150	1	1		94	B	150	1	1	
936	Boot Room	94	B	150	1		94	B	150	1	1		94	B	150	1	1	
First Floor Total Occupants		6,755			54		6,755			54			7,777			63		
SECOND FLOOR - 16,025 SF																		
940	Mechanical Room	439	B	150	3		439	B	150	3	1		439	B	150	3	1	
Second Floor Total Occupants					3					3						3		
TOTALS		7,194			57		7,194			57			8,216			66		

Building Code Analysis - SOCWA FACILITY

Code References: 2022 California Plumbing Code

Restroom Fixture Count (Plumbing Code) - PROPOSED

Function	Existing SF	Proposed SF	Occupant Load Factor	Existing Number of Occupants	Proposed Number of Occupants	Extra (+) Deficient (-)
Business - B	7,194	8,216	150	48	55	7
Total				**155**	**221**	**66**

Table 403.1 Minimum Number of Fixtures

	50% Female	50% Male		50% Female	50% Male
	Required	Required		Required	Required
Business	24	24	**Business**	28	28
Toilets	2	1	Toilets	2	1
Formula	2:16-30	1: 1-50	Formula	2:16-30	1: 1-50
Urinals	NA	1	Urinals	NA	1
Formula	NA	1:1-100	Formula	NA	1:1-100
Lavatories	1	1	Lavatories	1	1
Formula	1: 1-75	1: 1-50	Formula	1: 1-75	1: 1-50
Drinking Fountains	1		Drinking Fountains	1	
Formula	1: 1-250		Formula	1: 1-250	

Plumbing Fixture Count

	Women's			Men's		
	Existing	Required	Extra (+) Deficient (-)	Existing	Required	Extra (+) Deficient (-)
Toilets	4	2	2	2	2	0
Urinals	-	NA	NA	3	1	2
Lavatories	3	1	2	3	2	1
Drinking Fountains	1	1	0	1	NA	NA

EQUIP #	NAME	BRAND	MODEL	UID	Serial Number	QTY	DATE OF SERVICE	LENGTH IN	WIDTH IN	HEIGHT IN	Location
	Gen Chem										
GC-01	Multi-Parameter Meter	HACH	HQ440D	Lab Bench DO Meter	170500014856	1	2017	9	7	4	**Gen Chem**
GC-02	Spectrophotometer	HACH	DR3900	Spectrophotometer #1	2236011	1	2023	10	14	7	**Gen Chem**
GC-03	COD Reactor	HACH	DRB200	n/a	15060C0019	1	2016	12	9	9	**Gen Chem**
GC-04	Turbidimeter	HACH	TU5200	TU5200	1702535	1	2016	11	15.5	8	**Gen Chem**
GC-05 & GC-06	Incubator (BOD)	Thermo Scientific	Precision 3721	BOD 1/BOD 2	WB64458102 & WB42676035	2	2015/2016	32	32	76	**Gen Chem**
RF-01	Refrigerator	General Electric	GTS22KGNCRWW	Fridge 2A	MZ828100	1	2024	31	33	66	**Gen Chem**
RF-02	Refrigerator	General Electric	GTS18FBRERWW	Fridge 1	VG767027	1	Unknown	31	33	66	**Gen Chem**
RF-03	Refrigerator	General Electric	GTS22KGNCRWW	Fridge 4	LV802217	1	2023	31	33	66	**Gen Chem**
RF-04	Refrigerator	Maytag	M1TYEGMYWOO	Fridge 3	VS21988298	1	2012	31	33	66	**Gen Chem (currently in solids)**
GC-07	Titrator	HACH	AT1000	n/a	00-0E-1C-04-65-AE	1	2015	19	12	19	**Storage**
SD-07	Lab Bench Balance	OHAUS	AX224	AX244	B603002727	1	~2016	14	9	14	**Solids?**
GC-08	Lab Bench ph Meter	Hach	HQ411D	Lab Bench pH 2	240300047780	1	2024	9	7	4	**Gen Chem**
Void	Fume Hood 1	?	?	?	?	1	?	34	70	34	**Gen Chem**
Void	Fume Hood 2	?	?	?	?	1	?	34	70	34	**Gen Chem**
Void	Fume Hood 3	?	?	?	?	1	?	34	70	34	**Gen Chem**
FH-04	Fume Hood 5	?	?	?	?	1	?	34	96	34	**Gen Chem**
FH-05	Fume Hood 5	?	?	?	?	1	?	34	96	34	**Gen Chem**
FH-06	Fume Hood 6	?	?	?	?	1	?	34	96	34	**Gen Chem**
ST-01	Flammable Cabinet	?	?	?	?	1	?	27	37	78	**Storage**
ST-02	Acid Cabinet	?	?	?	?	1	?	23	35	36	**Storage**
ST-03	Base Cabinet	?	?	?	?	1	2023	19	19	22	**Storage**
	Solids										
SD-01	Oven	Fisher	Isotemp	TSS#1	919086	1	~2010	24	26	26.5	**Solids**
SD-02	Furnace	Thermolyne	30400	n/a	Unknown	1	Unknown	23	21.5	30	**Solids**
SD-03	Oven	Isotemp	51030510	TSS # 2	42202269	1	2018	24	26	26.5	**Solids**
SD-04	Flask Scrubber	Labconco	4420330	n/a	191287069	1	~2018	27	24	36	**Solids**
SD-05	Solids Balance	Adam Equipment	PLG 303	Solids Balance	AE767438	1	Unknown	15	10	9	**Solids**
SD-06	Centrifuge	OHAUS	FC5816	n/a	91B9A105006	1	~2019	24	17.5	30	**Gen Chem**
	Micro										
MC-01	Water Bath	Poly Science	Unknown	n/a	010A1760241	1	2015	13	14	17	**Micro (Back Room)**
MC-02	Water Bath	Fisher	Isotemp 210	Water Bath #1	104N0344	1	Unknown	18	15	15	**Micro (Back Room)**
MC-03	Incubator (T. Coliform)	Fisher	Isotemp Water Jacketed	TC1	111611-1042	1	~2010	26	26	42	**Micro (Back Room)**
MC-04	Incubator (Fecal)	Thermo	IMH100	FC1	42564201	1	2020	25	26	34	**Micro (Back Room)**
MC-05	Incubator (Ent)	Thermo	IMH100	Entero 1	42833265	1	2021	25	26	34	**Micro (Back Room)**

MC-06	Autoclave	Market Forge	Sterilmatic	n/a	10-6226-D	1	2013	26	19	35	**Micro (Back Room)**
MC-07	QT Sealer	Idexx	QT Sealer Plus	n/a	QTP13154000022	1	~2016	15	19	14	**Micro (Back Room)**
MC-08	UV	Spectroline	EA-160	n/a		1	~2016	10	13	12	**Micro (Back Room)**
MC-09	Media Balance	Sartorius	B610-OUR	Media Balance	40030006	1	Unknown	9	9	4	**Micro (Back Room)**
MC-10	Automated Droplet Generator	Biorad	Automated Droplet Generator	n/a	773BR3219	1	2022	26	25	36	**Micro (Molecular)**
MC-11	ddPCR Plate Sealer	Biorad	PX1	n/a	770BR8487	1	2022	12	10	8	**Micro (Molecular)**
MC-12	Touch Thermal Cycler	Biorad	C1000	n/a	CT063359	1	2022	20	13	13	**Micro (Molecular)**
MC-13	Droplet Reader	Biorad	QX200	n/a	771BR9202	1	2022	20	25	13	**Micro (Molecular)**
MC-14	Centrifuge	ThermoFisher	Sorvall Legend X1R	n/a	42740079	1	2022	20	25	13	**Micro (Molecular)**
MC-15	Automated DNA Extraction Station	ThermoFisher	Qiagen Qiacube or Kingfisher	n/a	n/a	1	Pending	Pending	Pending	Pending	**Micro (Molecular)**
MC-16	Fisher Isotemp 180 Sterilization Oven	ThermoFisher	Isotemp 60L	TFSO1	42202269	1	?	24	25	20	**Micro (Back Room)**
Void	-80C Freezer	ThermoFisher	ULT185-5-A	ULT Freezer 1	1115474801210220.00	1	2021	23	21	30	**Micro (Molecular) (Currently in Gen Chem)**
MC-18	So-Low Freezer	So-Low	MV20-20CF	SLF1	KYD0060F12011090	1	?	20	22	26	**Micro (Molecular) (Currently in Gen Chem)**
MC-17	-80C Freezer 2	ThermoFisher	TSX60086FA90	-80C Freezer 2	1155424701250310	1	2025	40	45	78	**Micro (Molecular) (Currently in Gen Chem)**
GC-09	Solids Microscope	ThermoFisher	NA	Solids Microscope	NA	1	?	12	9	20	**Gen Chem**
MC-19	Micro Microscope	ThermoFisher	NA	Micro Microscope	NA	1	?	10	7	17	**Micro (Back Room)**
MC-20	Clean Hood 1	Airclean	Airclean 600 PCR Workstation	Clean Hood 1	NA	1	2025	28	48	34	**Micro (Molecular) (Currently in Gen Chem)**
	Lab Office										
N/A	Desktop Computer	Varies	Varies	Varies	Varies	7	Varies	36	48	72	**Office Space**
N/A	Small Food Refrigerator	Danby						20	20	34	**Office Space**
	Sample Receiving										
SR-01	Dymo Label Printer	Dymo	LW450 TwinTurbo	LW1		1	?	8	8	8	**Gen Chem**
SR-02	RTP HP Lab Printer	HP	M454dn	RTP Lab Printer		1	?	16	20	12	**Gen Chem**
SR-03	Xerox Versalink	Xerox	Versalink	XV1		1	?				**Gen Chem**
SR-04	Scansnap	Fujitsu	Scansnap Ix1800	SS1		1	?	8	12	12	**Gen Chem**
GC-10	SR Bench	Uline		SRB		1	2023	72	39	31	**Gen Chem**

Approx Total Amps at 120V for most
Max Watts = 76.4*240
223.6*120
Total Demand possible

Refrigerators/Freezers:

Iron Mountain Refrigeration:

RF-01: double door refrigerators and RF-02 – RF-04 single door refrigerators:

FR-01 – FR-02 Freezers:

Thermo Fisher

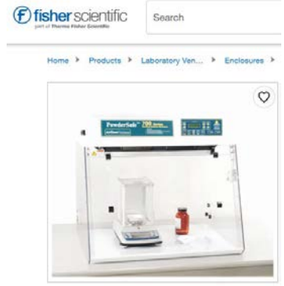
MC-17: Low-temp Freezer – 85L Capacity (TDEC06386LA):

So-Low

MC-18: Undercounter Freezer – 3.2 Cu. Ft. Capacity (MV30-4UCF):

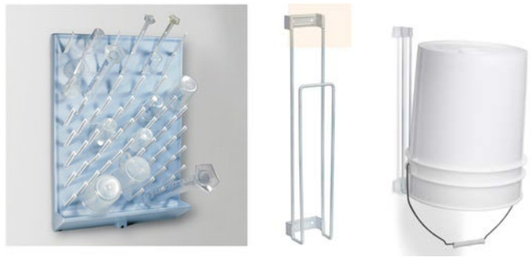
Balance Hood:

Fisher Scientific PowderSafe balance hood:



Industrial drying racks:

Wall mounted racks (Fisher Scientific):



Wall mounted drip tray/ drying shelves:

Countertop drain trays (Fisher Scientific Fisherbrand Spilltray and Drying Rack):

SOCWA Chemical Inventory

Item Number	Description	Manufacturer	Location	Quantity	Size	State	Unit	CAS #	Flam IB Stor (L)	Flam IB Use (L)	Flam IC Stor (L)	Flam IC Use (L)	Comb II Stor (L)	Comb II Use (L)	Comb IIIA Stor (L)	Comb IIIA Use (L)	Comb IIIB Store (L/kg)	Comb IIIB Use (L)	Oxid 2 Store (L/kg)	Oxid 1 Store (L/kg)	Unstab. React. 3 Store (L)	Unstab. React. 3 Use (L)	Water React. 2 Store (kg)	Water React. 2 Use (kg)	Water React. 1 Store (L/kg)	Water React. 1 Use (L/kg)	Corr Store (L/kg)	Corr Use (L/kg)	Toxic Store (L/kg)	Toxic Use (L/kg)	Highly Toxic Store (L/kg)	Highly Toxic Use (L/kg)	Carcin. (L/kg)	Irritant (L/kg)	Non-Hazard
01	ACETATE BUFFER	None	Fridge 1	1	1L	Liquid	Liter	000174-00-0																			1.0								
02	REAGENT GRADE KI, POTASSIUM IODIDE	None	Fridge 1	1	1L	Liquid	Liter	7681-11-0																										1.0	
03	2,3,5-triphenyl-2H-tetrazolium Chloride	MP BIOMEDICALS	Fridge 1	1	0.5L(kg)	Solid	Liter(kg)	298-96-4																										0.5	
04	HYDROCHLORIC ACID	EUROFINS EATON	Chem. Stor. Rm.	4	0.02L	Liquid	Liter	7647-01-0																			0.08								
05	ALPHA NAPHTHOL (1-Naphthol)	REMEL	Fridge 1	5	0.1L(kg)	Solid	Liter(kg)	90-15-3																					0.5					0.5	
06	BACTIDROP OXIDASE	REMEL	Fridge 1	60	0.005L	Liquid	Liter																												X
07	VP (NaOH) REAGENT DROPPERS	LILOFILCHEM	Fridge 1	20	0.005L	Liquid	Liter		0.1																		0.1								
08	POTASSIUM HYDROGEN PHTHALATE	None	Fridge 1	1	1L	Liquid	Liter	877-24-7																										1.0	
09	SULFURIC ACID 50%	RICCA	Fume Hood 3	1	1L	Liquid	Liter	7664-93-9																		1.0		1.0		1.0					
10	MEI AGAR (Sodium Azide)	DIFCO	Micro 163	1	0.5L(kg)	Solid	Liter(kg)	26628-22-8														0.5	0.5	0.5	0.5				0.5	0.5				1.0	
11	NITRATE N STANDARD SOLUTION (Potassium Nitrate).	HACH	Chem. Stor. Rm.	5	0.5L	Liquid	Liter	7757-79-1																										2.5	
12	LIQUID NITRATE IONIC STRENGTH ADJUSTER BUFFER (Ammonium Sulfate)	HACH	Chem. Stor. Rm.	4	0.5L	Liquid	Liter	7783-20-2																											X
13	ELECTRODE FILLING SOLUTION (Potassium Chloride)	HACH	Chem. Stor. Rm.	8	0.05L	Liquid	Liter	7447-40-7																										0.4	
14	NITROGEN AMMONIA STD. SOLUTION (Ammonium Chloride <1%)	HACH	Chem. Stor. Rm.	6	0.5L	Liquid	Liter	12125-02-9																											X
15	AMMONIA ISA SOLUTION (Lithium Hydroxide Monohydrate 10-20%, Disodium EDTA 1-5%)	HACH	Chem. Stor. Rm.	3	0.5L	Liquid	Liter	1310-66-3 139-33-3																				1.5		1.5						
16	AMMONIUM SULFATE CRYSTALS	None	Chem. Stor. Rm.	1	0.5kg	Solid	Kilogram	7783-20-2																											X
17	POTASSIUM CHLORIDE SOLUTION (Silver Chloride, Hydrochloric Acid, Potassium Chloride)	FISCHER SCIENTIFIC	Chem. Stor. Rm.	3	0.5L	Liquid	Liter	7783-90-6 7647-01-0 7447-40-7																				1.0	0.5						1.5	
18	mEndo LES AGAR (Basic Fuchsin HCL 1.6%)	CRITERION	Micro 163	1	0.5kg	Solid	Kilogram	569-61-9																									0.5		
19	TRYPTIC SOY BROTH	MICROTECH SCIENTIFIC	Micro 163	2	0.5kg	Solid	Kilogram																												X
20	LAURYL SULFATE BROTH	MICROTECH SCIENTIFIC	Micro 163	2	0.5kg	Solid	Kilogram																												X
21	BRILLINAT GREEN BILE BROTH	MICROTECH SCIENTIFIC	Micro 163	2	0.5kg	Solid	Kilogram	8008-63-7																										1.0	
22	EC MEDIUM W/ MUG	MICROTECH SCIENTIFIC	Micro 163	2	0.5kg	Solid	Kilogram																											1.0	
23	BILE ESCULIN AGAR (Bile, Sodium Azide)	MICROTECH SCIENTIFIC	Micro 163	1	0.5kg	Solid	Kilogram	68990-09-0 26628-22-8																						0.5					0.5	
24	BRAIN HEART INFUSION BROTH	MICROTECH SCIENTIFIC	Micro 163	4	0.5kg	Solid	Kilogram																												X
25	NUTRIENT AGAR	MICROTECH SCIENTIFIC	Micro 164	1	0.5kg	Solid	Kilogram																												X
26	STANDARD METHODS AGAR	MICROTECH SCIENTIFIC	Micro 165	2	0.5kg	Solid	Kilogram																												X
27	NALIDIXIC ACID	MICROTECH SCIENTIFIC	Micro 153	1	0.05kg	Solid	Kilogram	389-08-2																										0.05	0.05		
28	ROSOLIC ACID	MICROTECH SCIENTIFIC	Micro 153	6	0.001kg	Solid	Kilogram	603-45-2																			0.005	0.001	0.005	0.001					
29	BROMOTHYMOL BLUE	ALDON	Chem. Stor. Rm.	1	0.1L	Liquid	Liter	7732-18-5 34722-90-2																												X
30	COBOLT CHLORIDE SOLUTION	HACH	Chem. Stor. Rm.	1	0.3L	Liquid	Liter	7646-79-9																					0.3						
31	CALMAGITE	ACROS	Chem. Stor.Rm.	1	0.005kg	Solid	Kilogram	3147-14-6																										0.005	
32	CURCUMIN	SPECTRUM CHEMICAL	Chem. Stor. Rm.	1	0.025kg	Solid	Kilogram	458-37-7																										0.025	
33	CHLORIDE 2 INDICATOR PILLOWS (Chromic Acid Dipotassium Salt, Sodium Bicarbonate)	HACH	Chem. Stor. Rm.	100	0.005kg	Solid	Kilogram	7789-00-6 144-55-8																			0.5		0.5				0.5		
34	POTASSIUM CHLORIDE STD. (0.1%)	RICCA	Chem. Stor. Rm.	3	0.5L	Liquid	Liter	7447-40-7																												X
35	CALCIUM CHLORIDE	FISCHER SCIENTIFIC	Chem. Stor. Rm.	1	0.5kg	Solid	Kilogram	10043-52-4																										0.5	
36	HYPOCHLORITE	HACH	Chem. Stor. Rm.	1	0.25L	Liquid	Liter	7681-52-9 1310-73-2																										0.25	
37	FLUORESCEIN	None	Chem. Stor. Rm.	1	1L	Liquid	Liter	153,954																										1.0	
38	D(+) GLUCOSE	ACROS ORGANICS	Chem. Stor. Rm.	1	0.5kg	Solid	Kilogram	50-99-7																												X
39	METHYL RED	ARCOS ORGANICS	Chem. Stor. Rm.	1	0.025kg	Solid	Kilogram	493-52-7																												X
40	L-(+)- GLUTAMIC ACID	FISHER CHEMICAL	Chem. Stor. Rm.	1	0.1kg	Solid	Kilogram	56-86-0																										0.1	
41	MAGNESIUM CHLORIDE HEXAHYDRATE	MICROTECH SCIENTIFIC	Chem. Stor. Rm.	1	0.5kg	Solid	Kilogram	7791-18-6																										0.5	
42	OXALIC ACID DIHYDRATE	FISHER CHEMICAL	Chem. Stor. Rm.	1	0.25kg	Solid	Kilogram	6153-56-6																			0.25		0.25						
43	SILVER NITRITE	FISHER CHEMICAL	Chem. Stor. Rm.	1	0.1kg	Solid	Kilogram	7761-88-8												0.1									0.1					0.1	
44	POLYETHYLENE GLYCOL 8000	SPECTRUM CHEMICAL	Chem. Stor. Rm.	1	2.5kg	Solid	Kilogram	25322-68-3								2.5																			
45	PHENOLPHTHALEIN LIQUID (w/ Alcohol)	None	Chem. Stor. Rm.	1	0.1L	Liquid	Liter	77-09-8 000446-00-0	0.1																									0.1	
46	POTASSIUM CHROMATE	None	Chem. Stor. Rm.	1	0.5L	Liquid	Liter	7789-00-6												0.5									0.5			0.5	0.5		
47	TNT-AMMONIA (832)	HACH	Fridge 3	18	1L	Liquid	Liter	54-21-7 1310-73-2																				18.0						18.0	
48	TNT-AMMONIA (830) LOW RANGE	HACH	Fridge 3	10	1L	Liquid	Liter	14402-89-2 2893-78-9																						10.0				10.0	
49	POTASSIUM PHOSPHATE (Monobasic anhydrous)	VWR	Chem. Stor. Rm.	1	0.5kg	Solid	Kilogram	7778-77-0																										0.5	
50	POTASSIUM IODIDE GRANULES	US FILTER	Chem. Stor. Rm.	1	0.5kg	Solid	Kilogram	7681-11-0																						0.5				0.5	
51	TOTAL CHLORINE REAGENT	HACH	Chem. Stor. Rm.	13	1L	Solid	Liter	7558-79-4 7681-11-0																										13.0	
52	SODIUM ACETATE TRIHYDRATE	FISCHER SCIENTIFIC	Chem. Stor. Rm.	1	0.5kg	Solid	Kilogram	6131-90-4																												X
53	SODIUM BICARBONATE	FISCHER SCIENTIFIC	Chem. Stor. Rm.	1	3kg	Solid	Kilogram	144-55-8																												X
54	SODIUM SULFITE	HONEYWELL	Chem. Stor. Rm.	1	0.5kg	Solid	Kilogram	7757-83-7																												X
55	SODIUM CHLORIDE	SIGMA ALDRICH	Chem. Stor. Rm.	1	1kg	Solid	Kilogram	7647-14-5																												X

Item Number	Description	Manufacturer	Location	Quantity	Size	State	Unit	CAS #	Flam IB Stor (L)	Flam IB Use (L)	Flam IC Stor (L)	Flam IC Use (L)	Comb II Stor (L)	Comb II Use (L)	Comb IIIA Stor (L)	Comb IIIA Use (L)	Comb IIIB Store (L/kg)	Comb IIIB Use (L)	Oxid 2 Store (L/kg)	Oxid 1 Store (L/kg)	Unstab. React. 3 Store (L)	Unstab. React. 3 Use (L)	Water React. 2 Store (kg)	Water React. 2 Use (kg)	Water React. 1 Store (L/kg)	Water React. 1 Use (L/kg)	Corr Store (L/kg)	Corr Use (L/kg)	Toxic Store (L/kg)	Toxic Use (L/kg)	Highly Toxic Store (L/kg)	Highly Toxic Use (L/kg)	Carcin. (L/kg)	Irritant (L/kg)	Non-Hazard
56	SODIUM SULFATE	MICROTECH SCIENTIFIC	Chem. Stor. Rm.	1	0.5kg	Solid	Kilogram	7757-82-6																											X
57	SODIUM SULFITE	CHEM CENTER	Chem. Stor. Rm.	1	0.5kg	Solid	Kilogram	7757-83-7																											X
58	ISODIUM THIOSULFATE	CHEM CENTER, MICROTECH SCIENTIFIC	Chem. Stor. Rm.	2	0.5kg	Solid	Kilogram	7772-98-7																											X
59	THYMOL BLUE	MALLINCKRODT, BAKER	Chem. Stor. Rm.	2	0.005kg	Solid	Kilogram	76-61-9																											X
60	POTASSIUM HYDROGEN PHTHALATE	ARCOS ORGANICS	Chem. Stor. Rm.	2	0.1kg	Solid	Kilogram	877-24-7																										0.2	
61	PHENYLARSINE OXIDE	LABCHEM	Chem. Stor. Rm.	2	1L	Liquid	Liter	637-03-6																							2.0				
62	EDTA	HACH	Chem. Stor. Rm.	3	0.013L	Liquid	Liter	57-55-6																											X
63	NaOH SOLUTION	None	Chem. Stor. Rm.	2	0.5L	Liquid	Liter	1310-73-2																			0.5	0.5							
64	AMMONIUM HYDROXIDE	SPECTRUM CHEMICAL	Chem. Stor. Rm.	2	0.5L	Liquid	Liter	7664-41-7																			1.0		1.0						
65	SODIUM HYDROXIDE PELLETS	MICROTECH SCIENTIFIC	Chem. Stor. Rm.	2	0.5L	Liquid	Liter	1310-73-2																		1.0		1.0		1.0					
66	HYDROCHLORIC ACID	RICCA	Chem. Stor. Rm.	1	0.5L	Liquid	Liter	7647-01-0																			0.5								
67	SULFURIC ACID 50%	RICCA	Chem. Stor. Rm.	2	0.5L	Liquid	Liter	7664-93-9																		1.0	1.0		1.0						
68	NITRIC ACID	THERMO SCIENTIFIC	Chem. Stor. Rm.	1	1L	Liquid	Liter	7697-37-2											1.0								1.0		1.0						
69	FERRIC CHLORIDE	CALIFORNIA WATER TECH	Chem. Stor. Rm.	3	0.25L	Liquid	Liter	7705-08-0																			0.75		0.75						
70	PHOSPHATE STANDARD SOLUTION	HACH	Chem. Stor. Rm.	2	0.5L	Liquid	Liter																												X
71	TROPICAL SHADE, LAKE AND POND DYE	None	Chem. Stor. Rm.	2	4L	Liquid	Liter																												X
72	BUFFER SOLUTION PH 4.0	MICROTECH SCIENTIFIC	Chem. Stor. Rm.	4	4L	Liquid	Liter																												X
73	BUFFER SOLUTION PH 7.0	MICROTECH SCIENTIFIC	Chem. Stor. Rm.	4	4L	Liquid	Liter																												X
74	BUFFER SOLUTION PH 6.0	MICROTECH SCIENTIFIC	Chem. Stor. Rm.	3	4L	Liquid	Liter																												X
75	COD HIGH RANGE/LOWRANGE	HACH	Hach Drawer, Hood 1, Hood 2	3	1L	Liquid	Liter	7664-93-9 7783-35-9 10294-26-5 7738-94-5																				3.0		3.0					3.0		
76	TNT 870	HACH	Hach Drawer, Hood 1, Hood 2	3	1L	Liquid	Liter	110-15-6 7761-88-8 62625-32-5																											X
77	TNT 872	HACH	Hach Drawer, Hood 1, Hood 3	5	1L	Liquid	Liter	7664-93-9 5470-11-1 1310-73-2 7705-08-0																				1.0	4.0						5.0	
78	RX WASTE		?	1	43Gal	Liquid	Gal	?																											
79	BIOHAZARD WASTE		?	1	43Gal	Liquid	Gal	?																											
80	TNT FLAMMABLE/CORROSIVE WASTE		?	1	30Gal	Liquid	Gal	?		113.5																									
81	TNT CORROSIVE BASE WASTE		?	1	30Gal	Liquid	Gal	?																				113.5							
82	TNT CORROSIVE ACID WASTE		?	1	30Gal	Liquid	Gal	?																				113.5							
83	TNT MERCURY WASTE		?	1	15Gal	Liquid	Gal	?																											X
TOTAL									0.2	113.5	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	1.0	0.6	0.5	0.5	0.5	0.50	2.00	1.00	14.19	251.00	12.91	11.50	2.00	0.05	4.55	61.18	
CONVERSION (L to gal/kg to lbs)									0.05 gal	30 gal	0	0	0	0	0	0	0.66 gal	0	2.2 lbs	1.3 lbs	1.1 lbs	1.1 lbs	1.1 lbs	1.1 lbs	4.4 lbs	2.2 lbs	31.3 lbs	678 lbs	28.5 lbs	25.4 lbs	4.4 lbs	1.1 lbs	10.0 lbs	134.9 lb	
ALLOWABLE (gal or lbs) storage/use (in Fire Sprinklered Building)								Storage/Use	240 gal	60 gal	240 gal	60 gal	240 gal	60 gal	660 gal	160 gal	Unlimited	Unlimited	500 lbs	Unlimited	10 lbs	2 lbs	100 lbs	20 lbs	Unlimited	Unlimited	10000 lbs	2000 lbs	1000 lbs	1250 lbs	20 lbs	6 lbs	Unlimited	Unlimited	Unlimited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