CITY OF PACIFICA

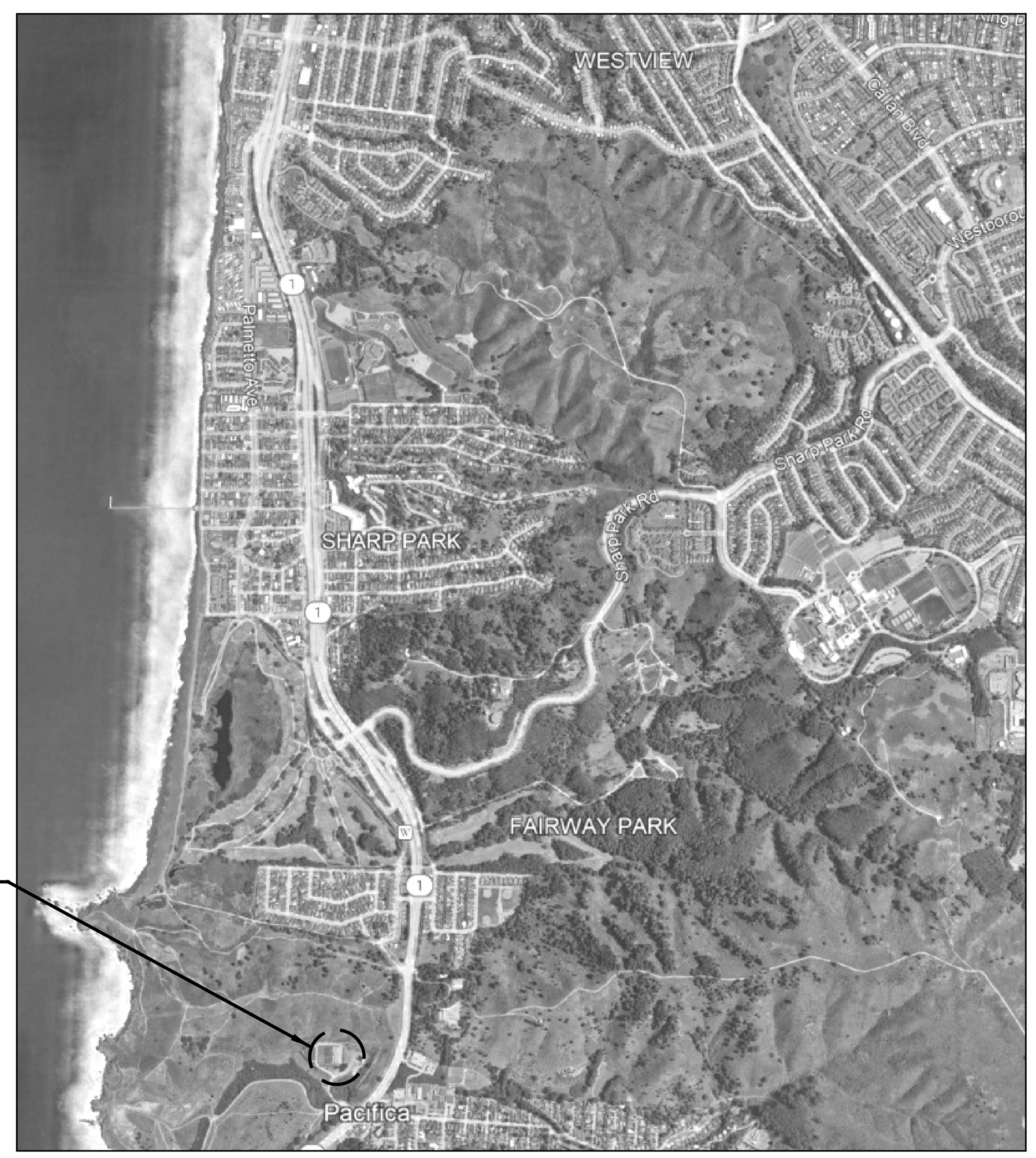
UV DISINFECTION SYSTEM REPLACEMENT

PROJECT NO. P034

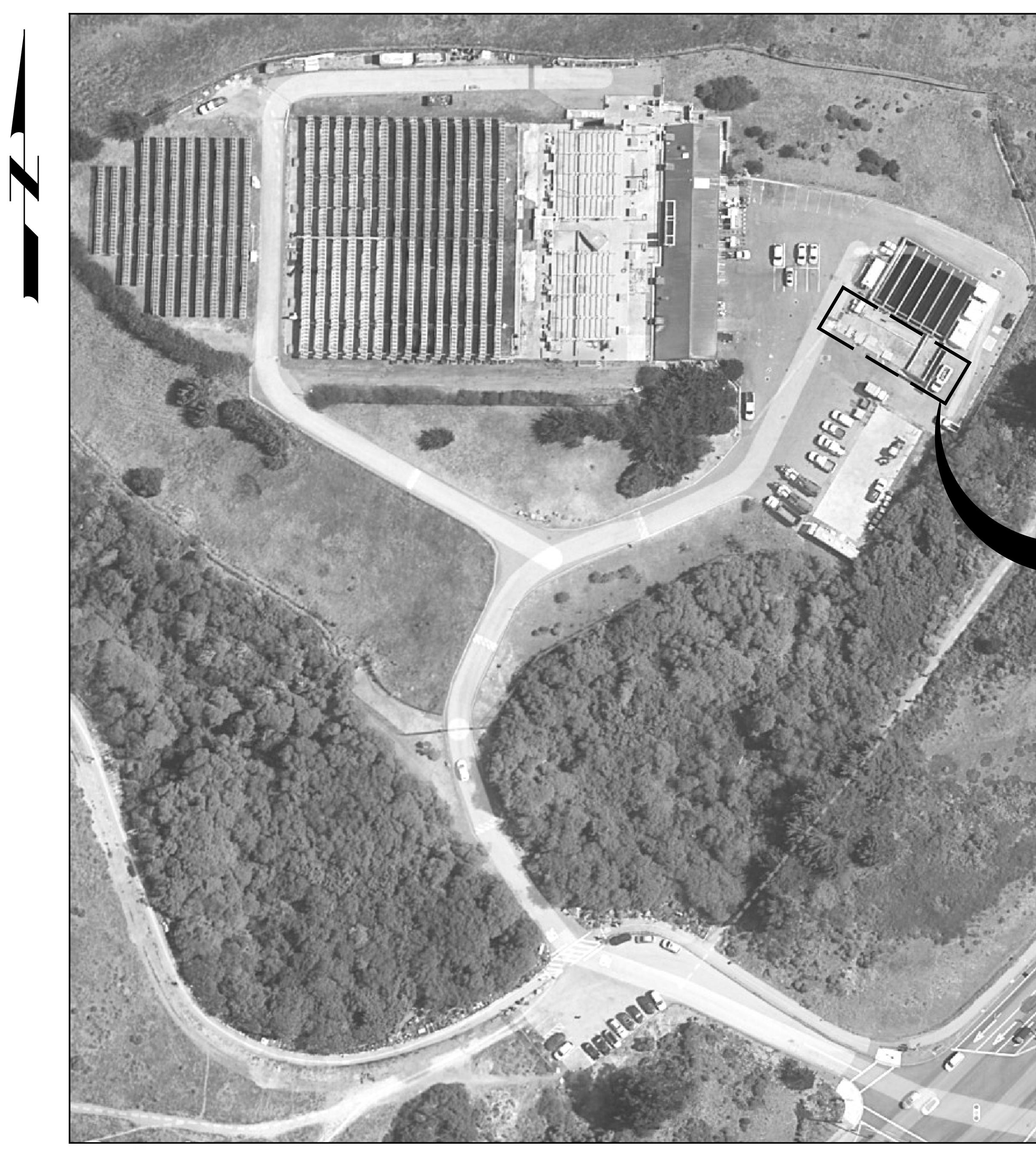
MARCH 2024

VOLUME 4 OF 5
DRAWINGS

BID DOCUMENTS



VICINITY MAP



LOCATION MAP

REGISTERED PROFESSIONAL ENGINEER — PAUL V. FRIEDLANDER — No. 55565 — CIVIL — STATE OF CALIFORNIA

Digitally signed by Paul V. Friedlander
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.25 08:28:50-06'00'

REGISTERED PROFESSIONAL ENGINEER — BRYAN A. BURNITT — No. 83046 — CIVIL — STATE OF CALIFORNIA

Digitally signed by Bryan A. Burnitt
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.25 08:26:08-05'00'

IN ACCORDANCE WITH SECTION 7-8.100(B) OF CHAPTER 8 OF TITLE 7 OF THE PACIFICA MUNICIPAL CODE, AS CITY ENGINEER FOR THE CITY OF PACIFICA, I DO HEREBY EXERCISE THE DISCRETION DELEGATED TO ME AND APPROVE THE PLAN OR DESIGN OF A CONSTRUCTION OF, OR AN IMPROVEMENT TO, PUBLIC PROPERTY TO WHICH THIS STATEMENT AND MY SIGNATURE IS AFFIXED. EXECUTED THIS 23RD DAY OF MARCH, 2024.

ROLAND YIP, DEPUTY DIRECTOR/CITY ENGINEER

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JOB NO.
201447
DRAWING NO.
G01
SHEET NO.
1 OF 79

Plot Date: 21-MAR-2024 1:17:53 PM User: svcPW PlotScale: 1:1 DesignScript: Carollo_Std_Pen_v0905.pen ColorTable: gshade.ctb Model: Layout1 gleal

SHEET NO.	DWG NO.	DESCRIPTION
		(G) - GENERAL
1	G01	COVER SHEET
2	G02	DRAWING INDEX AND DESIGN CRITERIA
3	G03	ACCESS PLAN
4	G04	SITE PLAN
5	G05	HYDRAULIC PROFILE
6	G06	GENERAL NOTES, LEGEND, AND SYMBOLS
7	G07	GENERAL ABBREVIATIONS
8	G08	TEMPORARY BYPASS SITE PLAN
9	G09	TEMPORARY BYPASS PLAN AND SECTION
10	G10	TEMPORARY BYPASS PLANS AND DETAILS
11	G11	TEMPORARY HYPOCHLORITE (CLS) DETAILS
		(D) - DEMOLITION
12	40D01	UV DISINFECTION SYSTEM BOTTOM PLAN
13	40D02	UV DISINFECTION SYSTEM TOP PLAN
14	40D03	UV DISINFECTION SYSTEM SECTIONS
		(C) - CIVIL
15	GC01	CIVIL NOTES AND ABBREVIATIONS
16	GC02	GENERAL AND CIVIL LEGEND AND SYMBOLS
17	C01	YARD PIPING PLAN
		(S) - STRUCTURAL
18	GS01	GENERAL STRUCTURAL NOTES
19	40S01	UV DISINFECTION SYSTEM BOTTOM PLAN
20	40S02	UV DISINFECTION SYSTEM TOP PLAN
21	40S03	UV DISINFECTION SYSTEM SECTIONS AND DETAILS 1
22	40S04	UV DISINFECTION SYSTEM SECTIONS AND DETAILS 2
23	40S05	UV DISINFECTION SYSTEM SECTIONS AND DETAILS 3
24	40S06	UV DISINFECTION SYSTEM SECTIONS AND DETAILS 4
25	40S07	MISCELLANEOUS STRUCTURAL DETAILS
		(M) - MECHANICAL
26	GM01	GENERAL MECHANICAL LEGEND AND SYMBOLS
27	40M01	UV DISINFECTION SYSTEM BOTTOM PLAN
28	40M02	UV DISINFECTION SYSTEM TOP PLAN
29	40M03	UV DISINFECTION SYSTEM SECTIONS
30	40M04	UV DISINFECTION SYSTEM DETAILS
		(E) - ELECTRICAL
31	E01	LEGEND AND GENERAL NOTES
32	E02	SITE PLAN
33	E11	PLANT MAIN SINGLE LINE DIAGRAM - DEMOLITION
34	E12	PLANT MAIN SINGLE LINE DIAGRAM - INTERIM SYSTEM - 1
35	E13	PLANT MAIN SINGLE LINE DIAGRAM - INTERIM SYSTEM - 2
36	E14	PLANT MAIN SINGLE LINE DIAGRAM - MODIFICATIONS
37	E15	PANELBOARD SCHEDULES - PLN-TEMP1 AND PNL TEMP2
38	E16	PANELBOARD SCHEDULES - 40-PNL-11 AND 40-PNL-21
39	E21	CONTROL SCHEMATICS - 1
40	E22	CONTROL SCHEMATICS - 2
41	E23	CONTROL SCHEMATICS - 3
42	E24	CONTROL SCHEMATICS - 4
43	E25	CONTROL SCHEMATICS - 5
44	E26	CONTROL SCHEMATICS - 6
45	E31	CIRCUIT SCHEDULES - 1
46	E41	ELECTRICAL DETAILS - 1
47	E42	ELECTRICAL DETAILS - 2
48	E43	ELECTRICAL DETAILS - 3
49	E44	ELECTRICAL DETAILS - 4
50	E45	ELECTRICAL DETAILS - 5
51	E46	ELECTRICAL DETAILS - 6
52	E47	ELECTRICAL DETAILS - 7
53	E48	ELECTRICAL DETAILS - 8
54	E49	ELECTRICAL DETAILS - 9
55	E50	ELECTRICAL DETAILS - 10
56	E51	ELECTRICAL DETAILS - 11
57	E52	ELECTRICAL DETAILS - 12
58	40E01	UV AREA – MODIFICATION PLAN
59	90E01	PLANT MAIN STRUCTURE FIRST FLOOR - DEMOLITION PLAN
60	90E02	PLANT MAIN STRUCTURE SECOND FLOOR - DEMOLITION PLAN
61	90E03	PLANT MAIN STRUCTURE THIRD FLOOR - DEMOLITION PLAN
62	90E04	PLANT MAIN STRUCTURE FIRST FLOOR - MODIFICATION PLAN
63	90E05	PLANT MAIN STRUCTURE SECOND FLOOR - MODIFICATION PLAN
64	90E06	PLANT MAIN STRUCTURE THIRD FLOOR - MODIFICATION PLAN

SHEET NO.	DWG NO.	DESCRIPTION
		(N) - INSTRUMENTATION
65	N01	LEGEND AND GENERAL NOTES
66	N11	PLANT SCADA COMMUNICATION - DEMOLITION
67	N12	PLANT SCADA COMMUNICATION - INTERIM SYSTEM - 1
68	N13	PLANT SCADA COMMUNICATION - INTERIM SYSTEM - 2
69	N14	PLANT SCADA COMMUNICATION - FINAL SYSTEM CONFIGURATION
70	40N01	P&ID: UV DISINFECTION OVERVIEW
71	40N02	P&ID: UV CHANNEL NO. 1
72	40N03	P&ID: UV CHANNEL NO. 2
		(T) - TYPICAL DETAILS
73	TA01	ARCHITECTURAL 1
74	TS01	STRUCTURAL 1
75	TS02	STRUCTURAL 2
76	TS03	STRUCTURAL 3
77	TS04	STRUCTURAL 4
78	TS05	STRUCTURAL 5
79	TS06	STRUCTURAL 6

DESIGN CRITERIA

PARAMETER	VALUE
PEAK WET WEATHER FLOW RATE (MGD)	20
PEAK REUSE FLOW RATE (MGD)	2.5
AVERAGE DRY WEATHER FLOW RATE (MGD)	4
AVERAGE REUSE FLOW RATE (MGD)	1
DESIGN UVT (PERCENT)	56
MINIMUM T1 REDUCTION EQUIVALENT DOSE FOR DISCHARGE TO CALERA CREEK (mJ/SQ. CM.)	14
MINIMUM MS2 REDUCTION EQUIVALENT DOSE FOR REUSE (mJ/SQ. CM.)	102
PERMIT LIMIT (DISCHARGE)	
E. COLI, BASED ON A 6-WEEK ROLLING GEOMETRIC MEAN	100 CFU/100 mL
E. COLI, LESS THAN 10 PERCENT OF CALENDAR MONTH SAMPLES	320 CFU/100 mL
PERMIT LIMIT (REUSE)	
TOTAL COLIFORM, 7-DAY MEDIAN	2.2 MPN/100 mL
TOTAL COLIFORM, MORE THAN ONCE IN ANY 30-DAY PERIOD	23 MPN/100 mL
TOTAL COLIFORM, AT ANY TIME	240 MPN/100 mL
UV CHANNEL CONFIGURATION	
NUMBER OF CHANNELS	2
DUTY BANKS/CHANNEL	2
STANDBY BANKS/CHANNEL	1

0

REV	DATE	BY	DESCRIPTION

DESIGNED ARL
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
ALEXANDER R. LAMB
No. 92482
CIVIL
STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:35:17-05'00'

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CITY OF PACIFICA

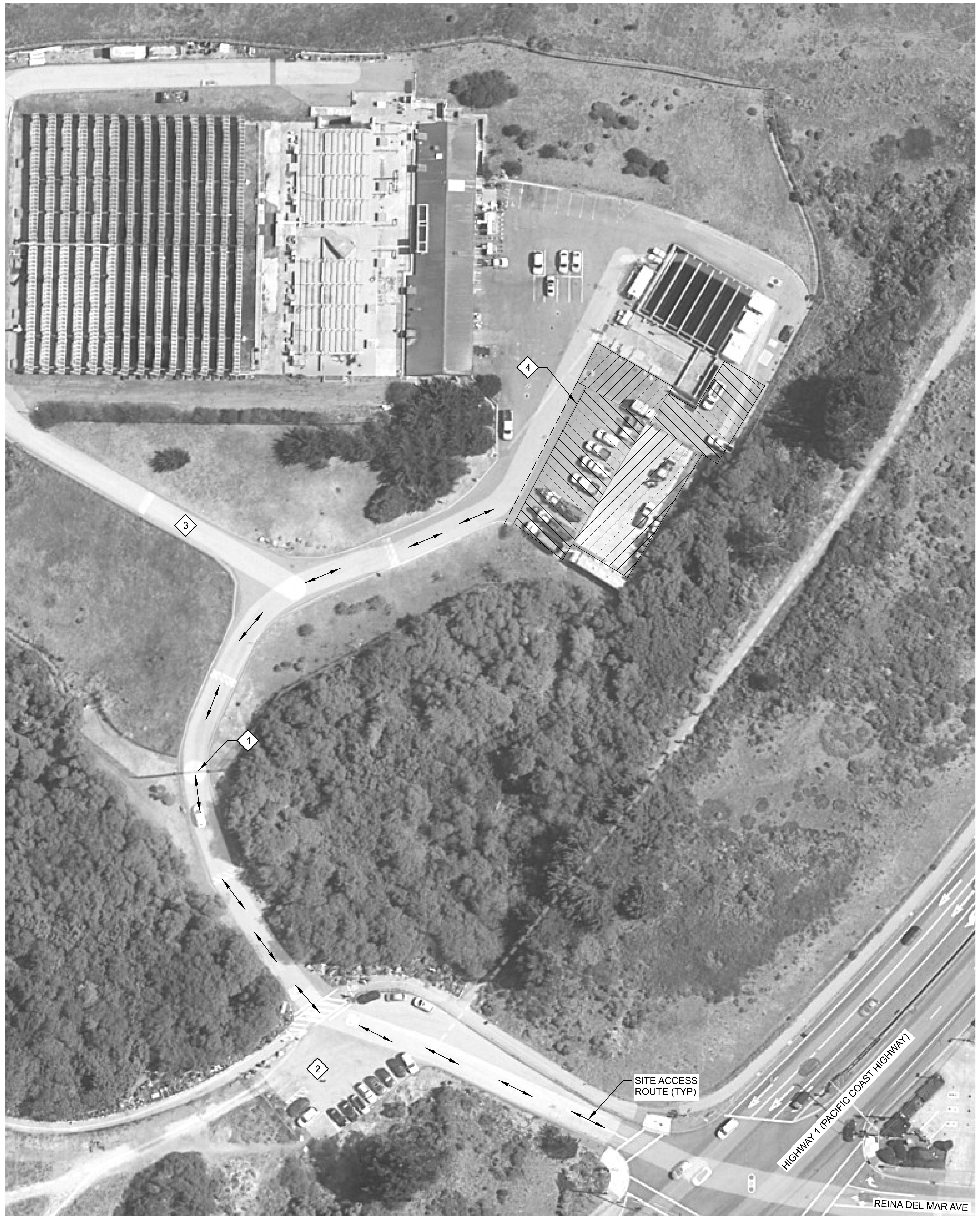
CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
GENERAL
DRAWING INDEX AND DESIGN CRITERIA

VERIFY SCALES
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JOB NO. 201447
DRAWING NO. G02
SHEET NO. 2 OF 79

Plot Date: 21-MAR-2024 2:05:36 PM User: svcPW PlotScale: 1:1 DesignScript: Carollo_Std_Pen_v0905.pen ColorTable: gshade.ctb Model: Layout1
LAST SAVED BY: gleal

Plot Date: 13-MAR-2024 9:46:06 AM User: svcPW PlotScale: 1:1 DesignScript: Carollo_Std_Pen_v0905.pen ColorTable: gshade.ctb Model: Layout1



A PLAN

SCALE: NO SCALE
FILE: Pacifica Vicinity

GENERAL NOTES:

1. ALL FACILITIES SHALL REMAIN ACCESSIBLE FOR PLANT PERSONNEL AT ALL TIMES UNLESS APPROVED BY THE CITY.
2. REFER TO SECTION 01_14_00 FOR WORK RESTRICTIONS.
3. SEE DWG G04 FOR SITE PLAN.

KEY NOTES:

1. PLANT ACCESS GATE AND CALL BOX. CONTRACTOR TO COORDINATE WITH CITY ON ACCESS.
2. PUBLIC PARKING LOT FOR RECREATIONAL AREA. AREA SHALL NOT BE BLOCKED BY CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL NOT USE THIS AREA FOR PARKING OR STORAGE. CITY SHALL ENFORCE TEMPORARY PARKING RESTRICTIONS WHEN NECESSARY. CONTRACTOR TO COORDINATE WITH CITY ON WHEN THESE TEMPORARY PARKING RESTRICTIONS ARE REQUIRED.
3. ACCESS ROAD TO UPPER PLANT AREA AND SOLAR FIELD. CONTRACTOR ACCESS PROHIBITED WITHOUT CITY APPROVAL.
4. SEE G04 CONTRACTOR LAYDOWN AND STAGING.

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REV	DATE	BY	DESCRIPTION

DESIGNED ARL
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:35:42-05'00'

alexander Lamb

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CITY OF PACIFICA

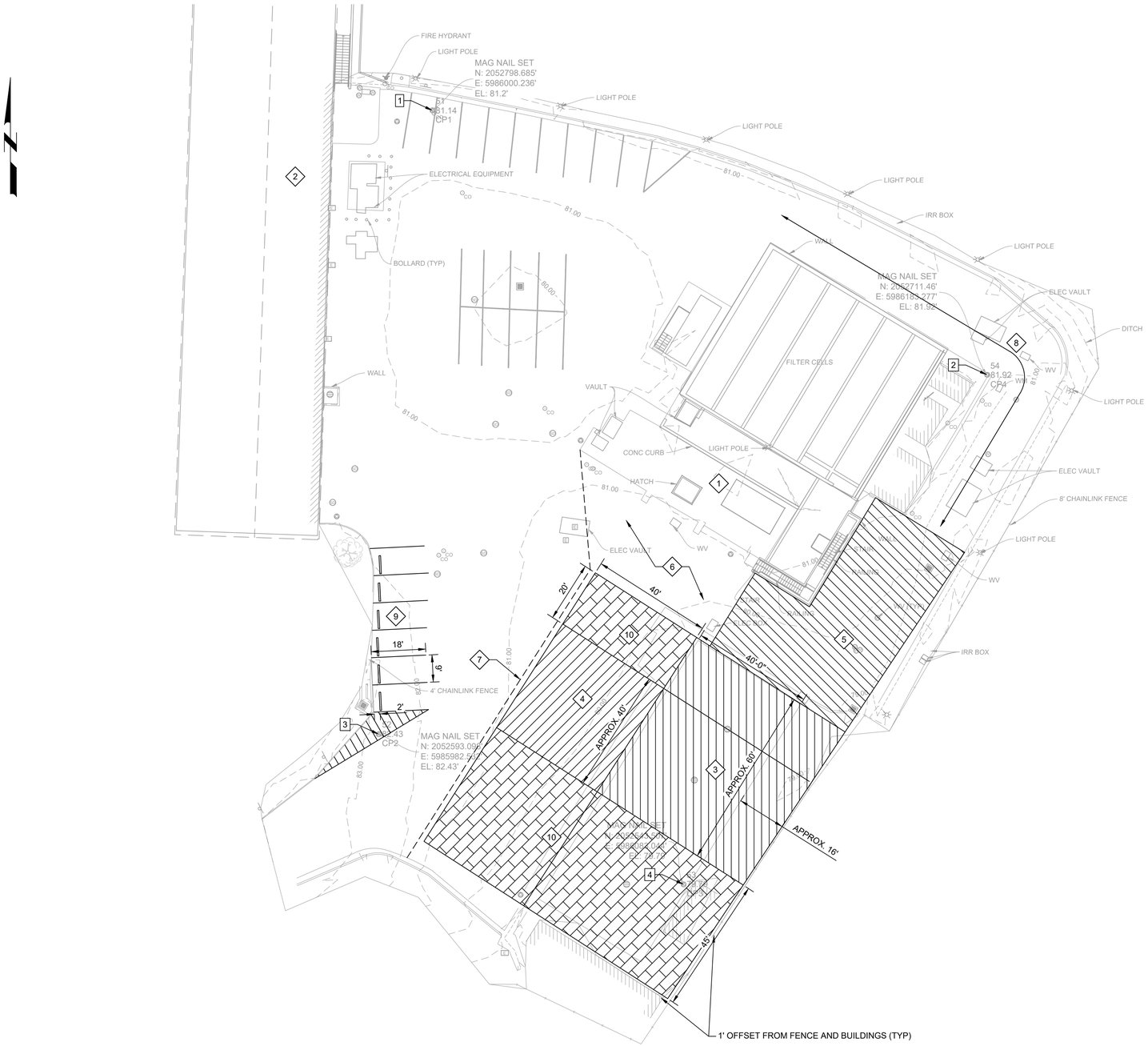
CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
GENERAL
ACCESS PLAN

VERIFY SCALES
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JOB NO. 201447
DRAWING NO. G03
SHEET NO. 3 OF 79

LAST SAVED BY: gleal

PROJECT NO. 201447-100000 FILE NAME: 201447G03.dgn



KEY NOTES (CONTINUED):

9. CONTRACTOR TO ESTABLISH SIX, 18' X 9' PASSENGER VEHICLE PARKING STALLS AND EXCLUSION HATCHED AREA IN THE APPROXIMATE CONFIGURATION SHOWN WITH 4-INCH WIDE STRIPES WITH UNIFORM STRAIGHT EDGES WITHOUT OVERSPRAY. FINAL LAYOUT TO BE CONFIRMED WITH THE CITY PRIOR TO MARKING. MARKING SHALL BE COMPLETED USING ONE OF THE FOLLOWING LATEX-BASED WHITE MARKING PAINTS, OR EQUAL:
   A. DUNN-EDWARDS: NO. W 801, VIN-L-STRIPE, EPOXY-MODIFIED ACRYLIC-LATEX BASED PAINT.
   B. GLIDDEN: 63240 SERIES, ULTRAHIDE LATEX TRAFFIC PAINT.
   C. SHERWIN WILLIAMS: SET FAST ACRYLIC WATER BORNE TRAFFIC MARKING PAINT.
   THE FOLLOWING CONDITIONS MUST BE MET PRIOR TO APPLICATION: PAVEMENT CLEANED (REMOVE DIRT, OIL, AND GREASE) AND DRY; AMBIENT TEMPERATURE ABOVE 40 DEGREES FAHRENHEIT; PRECIPITATION NOT EXPECTED WITHIN 12 HOURS OF FINAL APPLICATION; AND PAINT PREPARED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND MINIMAL THINNING. FINAL THICKNESS SHALL MEET MANUFACTURER'S RECOMMENDATION.
   CONTRACTOR TO PROVIDE AND INSTALL 4' WHEEL STOP FOR EACH STALL OFFSET 2 FEET FROM CURB AND SHIFTED TO ONE SIDE OF THE STALL, JENSEN PRECAST MODEL S-48 OR EQUAL. ONCE ESTABLISHED, THE CONTRACTOR MAY USE THESE PARKING STALLS FOR PASSENGER VEHICLES THAT FIT WITHIN THE STALL OR OTHER STORAGE THAT FITS WITHIN THE STALLS.
10. CONTRACTOR EXCLUSION AREAS FOR PLANT ACCESS AND OPERATIONS. LARGE VEHICLE PARKING, EQUIPMENT STORAGE, AND GRIT DEWATERING ACTIVITIES OCCUR IN THESE AREAS.

GENERAL NOTES:

1. ALL FACILITIES SHALL REMAIN ACCESSIBLE FOR PLANT PERSONNEL AT ALL TIMES.
2. REFER TO SECTION 01_14_00 FOR WORK RESTRICTIONS.
3. CONTRACTOR SHALL NOT ENCROACH ON NON-ASPHALTED AND NON-CONCRETED AREAS UNLESS OTHERWISE NOTED.
4. THE HORIZONTAL DATUM IS BASED ON CALIFORNIA COORDINATE SYSTEM NAD83. THE VERTICAL DATUM IS BASED ON NAVD88.
5. SEE GC01 AND GC02 FOR CIVIL NOTES, SYMBOLS, LEGEND, AND ABBREVIATIONS.

KEY NOTES:

1. TERTIARY FILTER, UV CHANNEL, AND CLEARWELL PUMP STATION STRUCTURE. CONTRACTOR SHALL NOT OPERATE ANY VEHICLES ON THE STRUCTURE. LIFTING PROCEDURES SHALL OCCUR FROM THE ADJACENT PAVED AREAS.
2. PLANT PRIMARY FACILITIES AND ADMIN BUILDING.
3. STORAGE PAD (APPROX. 40' X 60'), CONTRACTOR STAGING AND LAYDOWN. ADDITIONAL ADJACENT UNPAVED AREA.
4. CONTRACTOR LARGE VEHICLE AND EQUIPMENT PARKING.
5. TEMPORARY UV SYSTEM AREA AND BYPASS EQUIPMENT STAGING. NOT FOR USE IN 2024; THIS AREA MUST REMAIN ACCESSIBLE WHILE EXISTING UV SYSTEM IS OPERATIONAL FOR TITLE 22 PRODUCTION. AREA SHOWN IS APPROXIMATE BUT GENERALLY THE CONTRACTOR IS PERMITTED TO USE THE ENTIRE AREA AROUND THE SOUTH CORNER OF THE STRUCTURE WHEN TITLE 22 WATER PRODUCTION IS NOT OCCURRING (E.G., DURING BYPASSING AND DURING STARTUP).
6. TEMPORARY CONSTRUCTION AREA. CONSTRUCTION EQUIPMENT SHALL NOT BE LEFT FOR AN EXTENDED PERIOD IN AREA. SEE 01_14_00 - WORK RESTRICTIONS FOR DETAILS.
7. CONTRACTORS ACTIVITIES SHALL NOT ENCROACH NORTH OR WEST OF THE EXTENT SHOWN UNLESS NOTED OTHERWISE. WORK RELATED TO THE DUCTBANK INSTALLATION WILL REQUIRE WORK IN THIS RESTRICTED ZONE. SEE SECTION 01_14_00 - WORK RESTRICTIONS FOR RESTRICTIONS WHILE WORKING IN THE PARKING LOT AND ACCESS ROADS.
8. PLANT AND CONTRACTOR TO COORDINATE TO KEEP VEHICLE ACCESS TO THE TEMPORARY DISINFECTION SKIDS OPEN AS NEEDED.

SURVEY CONTROL POINT			
POINT #	NORTHING	EASTING	ELEVATION
1	2052798.685'	5986000.236'	81.20'
2	2052711.460'	5986183.277'	81.92'
3	2052593.098'	5985982.532'	82.43'
4	2052543.507'	5986083.044'	79.79'

Know what's below. Call before you dig.
usanorth811.org

SCALE

0 10' 20' 40'

SCALE: 1" = 20'

REV	DATE	BY	DESCRIPTION

DESIGNED BAB
DRAWN ART
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:38:31 -05'00'

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CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
GENERAL
SITE PLAN AND SURVEY CONTROL

VERIFY SCALES
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JOB NO. 201447
DRAWING NO. G04
SHEET NO. 4 OF 79

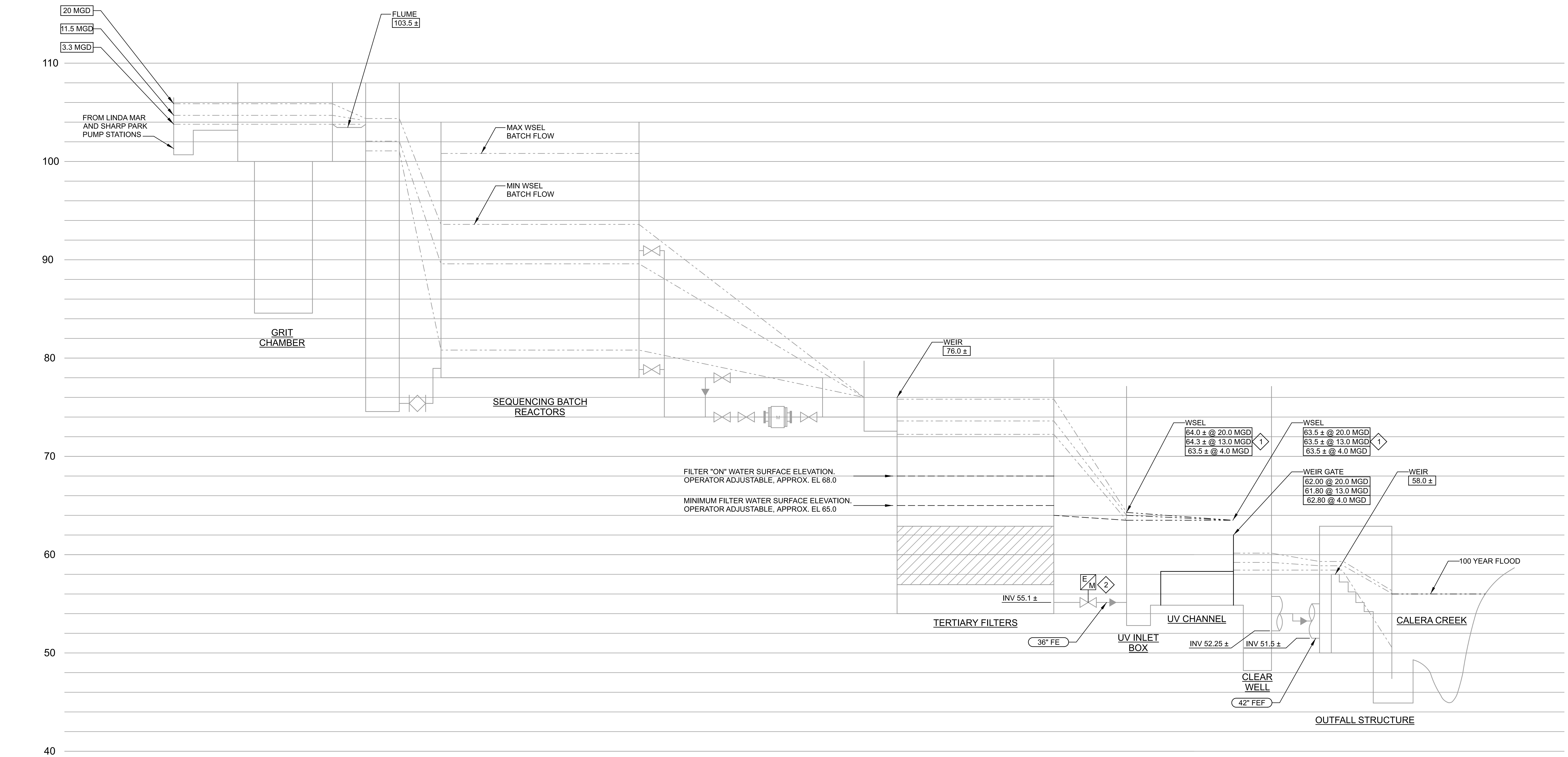
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LAST SAVED BY: atucker
PROJECT NO. 201447-100000 FILE NAME: 201447G04.dwg

Plot Date: 13-MAR-2024 9:45:55 AM User: svcPW Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1

KEY NOTES:

1. WATER SURFACE ELEVATIONS BASED ON THE 1996 PLANT HYDRAULIC PROFILE WITH UV DISINFECTION WATER SURFACE ELEVATIONS UPDATED BASED ON UV SYSTEM MODIFICATIONS. 13 MGD PROFILE ASSUMES 1 CHANNEL IN OPERATION, WHILE THE 4 MGD AND 20 MGD PROFILE ASSUME TWO CHANNELS IN OPERATION.

2. MODULATING ACTUATORS TO BE INSTALLED ON FILTER EFFLUENT VALVES BY OTHERS PRIOR TO THIS PROJECT. HEADLOSS ACROSS MODULATING VALVE WILL VARY WITH UPSTREAM WATER SURFACE ELEVATION, FILTER CONDITION, AND VALVE POSITION. HYDRAULIC PROFILE SHOWS THE APPROXIMATE TOTAL HEADLOSS ACROSS MEDIA, PIPE AND VALVES AT OPERATIONAL FLOWS SHOWN ACCORDING TO THE ORIGINAL DESIGN CRITERIA AND FULLY OPEN VALVES.



0

REV	DATE	BY	DESCRIPTION

DESIGNED ARL
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:37:04-05'00'

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CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
GENERAL
HYDRAULIC PROFILE

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JOB NO. 201447
DRAWING NO. G05

LAST SAVED BY: gleal

PROJECT NO. 201447-100000 FILE NAME: 201447G05.dgn

GENERAL NOTES

1. FOLLOWING NOTES ARE GENERAL AND APPLY TO ALL SHEETS OF THESE CONTRACT DOCUMENTS AS IF THEY WERE WRITTEN IN THEIR ENTIRETY ON EACH SHEET.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
3. UNLESS DETAILED, SPECIFIED, OR OTHERWISE INDICATED ON THE DRAWINGS, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS SHALL APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS ON DRAWINGS.
4. WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF WORK. DETAILS SHALL BE IN THE SAME AS FOR OTHER SIMILAR WORK.
5. CONTRACTOR SHALL COMPLY WITH LOCAL CONSTRUCTION STORM WATER DISCHARGE REGULATIONS AND REQUIREMENTS.
7. EXISTING FACILITY AND UTILITY INFORMATION SHOWN ON THE DRAWINGS WAS OBTAINED FROM AVAILABLE RECORDS OR ELECTRONIC FILES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR FACILITIES AND UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS, SIZES, MATERIAL TYPES, AND ELEVATIONS SHOWN AROUND OR NEAR AREAS OF NEW CONSTRUCTION PRIOR TO START OF CONSTRUCTION.
8. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT FROM DAMAGE EXISTING FACILITIES AND UTILITIES SHOWN OR NOT SHOWN THAT ARE TO REMAIN IN PLACE. ALL FACILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED TO THE ORIGINAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
9. CONTRACTOR SHALL MAKE CONNECTIONS TO EXISTING PIPE, EQUIPMENT, ETC. AS REQUIRED AND SHALL PROVIDE ALL FITTINGS, ADAPTERS, AND APPURTENANCES REQUIRED TO MAKE THE CONNECTIONS. PROVIDE ALL SUPPORTS REQUIRED FOR A RIGIDLY SUPPORTED COMPLETE AND WORKING SYSTEM.
10. CONTRACTOR SHALL VERIFY LOCATION OF ALL ARCHITECTURAL, MECHANICAL, AND ELECTRICAL ITEMS BEFORE PLACING ANY STRUCTURAL STEEL OR CONCRETE. ALSO, STRUCTURAL DIMENSIONS AND OPENINGS CONTROLLED BY ARCHITECTURAL, MECHANICAL, OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
11. MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES, AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS, THAT ARE REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

LINE WORK

NEW | EXISTING

CONSTRUCTION
FENCE
GUARDRAIL
FUTURE CONSTRUCTION
CENTER LINE
HIDDEN LINE
REMOVE AND/OR ABANDON
GATE
MATCH LINE — MATCH LINE SEE DWG ##X##

SYMBOLS

BRACKET
BREAK LINE
PIPE BREAK PLAN VIEW
PIPE BREAK CROSS SECTION
PIPE CONTINUATION (SINGLE LINE)
KEY TAG — X
KEY NOTE — 34
REVISION DELTA — 2
EXISTING ELEVATION — T.O.W. XXXX.X± (EXIST)
ELEVATION — TOC XXXX.XX
SCALE — 0 50' 100' 200'
NORTH ARROW/PLANT NORTH — 30° NORTH NORTH TRUE PLANT

EQUIPMENT/DEVICE TAG AND NUMBER — XXX-XX-XXXX
EQUIPMENT
EX-EQUIP = EXISTING EQUIPMENT
EF-EQUIP = FUTURE EQUIPMENT

PIPE TAG
PIPE SIZE — X" XXX — FLOW STREAM
SIZE FLOW STREAM
EX-SIZE FLOW STREAM = EXISTING
EF-SIZE FLOW STREAM = FUTURE

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811 Know what's below. Call before you dig.
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Call before you OVERHEAD

DETAIL REFERENCES

PLAN/TITLE — A **PLAN TITLE** — VIEW; FILE: FILE; PLAN NOT REFERENCED

SECTION CUT — C / – — VIEW; - = SHOWN ON SAME DRAWING; ##X## = SEE INDICATED DRAWING

SECTION OR DETAIL TITLE W/ REFERENCE — C/1 / ##X## **SECTION/DETAIL TITLE** — ALPHA = SECTION; NUMERIC = DETAIL; SCALE: SCALE; FILE: FILE; DRAWING CUT ORIGINATION

DETAIL CALL-OUT (ENLARGED) — 1 / ##X## — VIEW; SEE INDICATED DRAWING

DRAWING REFERENCE — ##X## — AREA DESIGNATOR (WHEN APPLICABLE); DISCIPLINE DESIGNATOR; CONSECUTIVE SHEET NUMBER

TYPICAL DETAIL REFERENCE — ? / TYP — TYPICAL DETAIL #

EXTERIOR ELEVATION VIEWS — A / ##X##

PHOTO LOCATION — # / - — ARROW INDICATES POINT OF VIEW

GRID BUBBLE — A 1

TYPICAL DETAIL NUMBER
? / TYP
LINE 3
LINE 1 — TYPICAL DETAIL TITLE
LINE 2
MOD — MODIFICATION NOTE
S = STANDARD
J = JOB SPECIFIC
R = REVISED
N = NOTE TO TYPICAL DETAIL USER
SHT # OF # — SHEETS IN DETAIL
VER DATE — DATE CREATED (REVISED)

HATCH PATTERNS

AGGREGATE BASE COURSE (ABC)
ALUMINUM PLANK
ASPHALT PAVING
BEDROCK
BRICK OR BLOCK
BRONZE, BRASS, OR COPPER
CAST IRON OR FIBERGLASS
CLSM
CONCRETE (ALL CLASSES)
DRAIN ROCK
GRAVEL
GRATING — SPAN
LANDSCAPING
RUBBER
SAND OR GROUT
EXISTING/ UNDISTURBED SOIL
STRUCTURAL FILL OR BACKFILL
STEEL
TREAD PLATE
WOOD

MISCELLANEOUS

REV	DATE	BY	DESCRIPTION

DESIGNED CE
DRAWN CE
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:39:36-05'00'

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CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
GENERAL
GENERAL NOTES, LEGEND, AND SYMBOLS

VERIFY SCALES
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JOB NO. 201447
DRAWING NO. G06
SHEET NO. 6 OF 79

Plot Date: 13-MAR-2024 9:45:16 AM User: svcPW PlotScale: 1:1 DesignScript: Carollo_Std_Pen_v0905.pen ColorTable: gshade.ctb Model: Layout1 LAST SAVED BY: gleal

@	AT (MEASUREMENT)
△	DEFLECTION ANGLE, CENTRAL ANGLE
#	NUMBER (REBAR Ø)

A

AB	ANCHOR BOLT
ABC	AGGREGATE BASE COURSE
ABS	ACRYLONITRILE BUTADIENE STYRENE
AC	ASPHALTIC CONCRETE
ACB	AIR CIRCUIT BREAKER
ACI	AMERICAN CONCRETE INSTITUTE
ACP	ASBESTOS CEMENT PIPE
ACU	AIR CONDITIONING UNIT
AD	AREA DRAIN
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJUST, ADJUSTABLE
ADMIN	ADMINISTRATION
ADR	ACCESS DOOR
AED	AREA EQUIPMENT DRAIN
AER	AERAT(ION)(OR)
AFC	AFTERCOOLER
AFF	ABOVE FINISHED FLOOR
AFM	AIR FLOW MONITOR
AHU	AIR HANDLING UNIT
AIC	AIR COMPRESSOR
AIL	AIR INTAKE LOUVER
ALT	ALTERNATE
AL	ALUMINUM
ANCH	ANCHOR
ANV	ANGLE VALVE
APPROX	APPROXIMATE, APPROXIMATELY
ARCH	ARCHITECTURAL
ARV	AIR RELEASE VALVE
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AV	ACID VENT
AVG	AVERAGE
AVV	AIR AND VACUUM VALVE
AW	ACID WASTE

B

BC	BEGIN CURVE, BRASS CAP, BACK OF CURB, BOLT CIRCLE
BCKR	BACKER BOARD
BCM	BATCHMETER
BD	BOARD
BDD	BACKDRAFT DAMPER
BDR	BASIN DRAIN LINE
BF	BLIND FLANGE
BFG	BELOW FINISHED GRADE
BFP	BELT FILTER PRESS
BFV	BUTTERFLY VALVE
BG	BREAK GLASS HAND SWITCH
BKW	BACKWASH
BLDG	BUILDING
BLK	BLOCK
BLKHD	BULKHEAD
BLR	PROCESS BLOWER
BM	BEAM, BENCH MARK
BOTT	BOTTOM
BOTTS	BOTTOM SLUDGE
BPV	BACK PRESSURE VALVE
BRG	BEARING
BSP	BLACK STEEL PIPE
BTU	BRITISH THERMAL UNITS
BTWN	BETWEEN
BV	BALL VALVE
BWCCP	BAR-WRAPPED CONCRETE CYLINDER PIPE

C

C	CLOSE, CONDUIT CHANNEL (STRUCTURAL)
CA	CONCRETE ANCHOR
CAUSTIC	CAUSTIC SOLUTION (CONCENTRATED OR DILUTE)
CB	CATCH BASIN
CC	CENTER OF CURVATURE, CENTER TO CENTER
CCB	CHLORINE CONTACT BASIN
CD	CEILING DIFFUSER, CONDENSATE DRAIN
CDL	CHEMICAL DRAIN LINE
CDT	CONDUIT
CEF	CEILING EXHAUST FAN
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CFU	COLONY FORMING UNIT
CHEMD	CHEMICAL DRAIN
CHF	CHEMICAL FEEDER
CHKD PL	CHECKERED PLATE
CI	CAST IRON
CIP	CAST IRON PIPE
CIRC	CIRCUMFERENTIAL/CIRCUMFERENCE
CJ	CONSTRUCTION JOINT
CKA	CHECK VALVE, ANGLE
CKB	CHECK VALVE, BALL
CKF	CHECK VALVE, FLAP
CKS	CHECK VALVE, SWING
CL	CENTER LINE
CLK	CHAIN LINK
CLD	CHLORINE LEAK DETECTOR
CLL	CHLORINE LIQUID
CLP	CHLORINE GAS (PRESSURE)
CLR	CLEAR
CLS	CHLORINE SOLUTION
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CLV	CHLORINE GAS (VACUUM)
CM	CENTIMETERS
CML	CEMENT MORTAR LINED
CMLC	CEMENT MORTAR LINED AND COATED
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CNV	CONVEYOR
CO	CLEANOUT
COL(S)	COLUMN(S)
CONC	CONCRETE
CONN	CONNECT, CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS OR CONTINUATION OR (D) (OUS)
CORR	CORRUGATE(D), CORROSION
CP	CONTROL POINT
CPLG	COUPLING
CPT	CARPET
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CARBON STEEL, CIRCULATING SLUDGE
CSP	CHEMICAL SUMP PUMP, CORRUGATED STEEL PIPE
CT	CURRENT TRANSFORMER, CERAMIC TILE
CTJ	CONTROL JOINT
CTL	CONTROL
CTR	CENTER, CENTERED
CTSK	COUNTERSUNK
CU	CUBIC
CUP	COPPER PIPE
CV	CHECK VALVE
CW	COLD WATER
CWV	COMBINATION WASTE AND VENT
CY	CUBIC YARD

D

D	DEPTH, DIGITAL OR DISCRETE, DRAIN
D/W	DRIVEWAY
DBL	DOUBLE
DDR	DESICCANT DRYER
DEG or °	DEGREE
DEMO	DEMOLISH, DEMOLITION
DET	DETAIL
DFL	DECANT/FILTRATE
DG	DOOR GRILLE
DIA or Ø	DIAMETER
DIAG	DIAGONAL
DIF	DIFFUSER
DIG	DIGESTER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DIW	DEIONIZED WATER
DL	DEAD LOAD, DRAIN LINE
DLV	DOOR LOUVER
DMP	DAMPER
DMS	DIAPHRAGM SEAL
DN	DOWN
do	DITTO
DO	DOOR OPENING
DP	DEEP (OR DEPTH)
DPV	DIAPHRAGM VALVE
DR	DOOR, DRAIN
DRT	DRIP TRAP
DRV	DRAIN VALVE
DS	DIGESTED SLUDGE, DOWN SPOUT
DSW	DISTILLED WATER, DOOR SWITCH
DUC	DUST COLLECTOR
DUH	DUCT HEATER UNIT
DW	DISTILLED WATER
DWD	DEWATERING DRAIN
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)

E

E	EAST
EA	EACH
EC	END OF CURVE
ECC RED	ECCENTRIC REDUCER
ECU	EVAPORATOR COOLING UNIT
ED	EQUIPMENT DRAIN
EF	EXHAUST FAN, EACH FACE
EFF	EFFLUENT
EG	EXHAUST GRILLE
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EJR	INJECTOR/EDUCTOR
EL	ELEVATION
ELEC	ELECTRICAL
ELL	ELBOW
EMBED	EMBEDMENT
EMH	ELECTRICAL MANHOLE
EP	EDGE OF PAVEMENT
EPS	EXPANDED POLYSTYRENE
EPV	ECCENTRIC PLUG VALVE
EQ	EQUAL
EQUIP	EQUIPMENT
ER	EXHAUST REGISTER
ES	EACH SIDE
ESEW	EMERGENCY SHOWER AND EYE WASH
ESS	EMERGENCY HAND SWITCH
ET	ELECTRICALLY HEAT TRACED
EUH	ELECTRIC UNIT HEATER
EVR	EVAPORATOR
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWEF	EACH WAY EACH FACE
EWH	ELECTRIC WATER HEATER, EXHAUST
EX	EXISTING
EXIST	EXISTING
EXP	EXPANSION, EXPANSION TANK
EXPO	EXPOSED
EXT	EXTERIOR

F

FACT	FACTORY
FAD	FOUL AIR DUCT
FB	FLAT BAR
FBW	FILTER BACKWASH
FC	FACE OF CURB, FLEXIBLE COUPLING
FCA	FLANGE COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FIRE DAMPER, FLOOR DRAIN, FOUND
FDC	FIRE DEPARTMENT CONNECTION
FDL	FLOOR DRAIN LINE
FDR	FEEDER
FEF	FINAL EFFLUENT
FG	FLAP GATE
FH	FIRE HYDRANT
FILT	FILTRATE
FIN	FINISH
FIN FL	FINISHED FLOOR
FIN GR	FINISHED GRADE
FL	FLOOR, FLOW LINE
FLA	FOUL AIR
FLD	FILTER DRAIN
FLE	FILTER EFFLUENT
FLEX	FLEXIBLE
FLG	FLANGE, OR FLANGED
FLR	FILTER
FM	FORCE MAIN
FND	FOUNDATION
FO	FUEL OIL
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FPP	FLEXIBLE PLASTIC PIPE
FRP	FIBERGLASS REINFORCED PLASTIC
FRPP	FIBERGLASS REINFORCED PLASTIC PIPE
FRS	FROTH SPRAY
FS	FAR SIDE
FSTN	FASTEN(ED)
FT or '	FOOT, FEET
FTG	FOOTING
FUP	FUEL DISPENSER
FV	FLAP VALVE
FW	FLUSHING WATER, FINISHED WATER
FX	FIRE EXTINGUISHER
FXC	FIRE EXTINGUISHER CABINET
FXE	FIRE EXTINGUISHER - ELECTRICAL

G

G	GAS, GROUND, GUTTER
GA	GAUGE or GAGE
GAL	GALLONS
GALV	GALVANIZE(D)
GAV	GRAVITY VENTILATOR
GB	GRADE BREAK
GBT	GRAVITY BELT THICKENER
GC	GROOVED COUPLING
GEL	GRAVITY EXHAUST LOUVER
GEN	GENERAL, GENERATOR
GL	GLASS
GLV	GLOBE VALVE
GM	GAS METER
GND	GROUND
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GR	GRADE
GRTG	GRATING
GRV	GRAVITY VENTILATOR
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
GYP	GYPSUM

H

H	EXPLOSION-PROOF, HIGH, HORIZONTAL
H1E	HOOK ONE END
H2E	HOOK TWO ENDS
HAS	HEADED ANCHOR STUD
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HDW	HARDWARE
HDWL	HEADWALL
HEF	HOOD EXHAUST FAN
HGT	HEIGHT
HORIZ	HORIZONTAL
HP	HEAT PUMP, HORSEPOWER, HIGH PRESSURE
HPA	HIGH PRESSURE AIR
HPT	HIGH POINT
HPU	HEAT PUMP UNIT AIR
HR	HANDRAIL, HOSE REEL, HOUR
HSF	HOOD SUPPLY FAN
HSS	HOLLOW STRUCTURAL SECTION (STEEL)
HTX	HEAT EXCHANGER
HV	HOSE VALVE
HW	HOT WATER
HWL	HIGH WATER LEVEL
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HxW	HEIGHT BY WIDTH
HYD	HYDRANT

I

IA	INSTRUMENT AIR
ID	
I.F.	INSIDE DIAMETER, INSIDE DIMENSION, IDENTIFICATION / INSIDE FACE
IN or "	INCHES
INCL	INCLUDE, INCLUDING
INF	INFLUENT
INJ	INJECTOR
INSTR	INSTRUMENTATION
INSUL	INSULAT(E)(ED)(ING)(ION)
INT	INTERIOR
INV	INVERT
IP	IRON PIPE
ISR	INTRINSICALLY SAFE RELAY

J

JST	JOIST
JT	JOINT

K

KGV	KNIFE GATE VALVE

L

L	ANGLE (STRUCTURAL), LENGTH, LOUVER
LAB	LABORATORY
LAV	LAVATORY
LB(S)	POUND(S)
LDF	LIQUID DIESEL FUEL
LDFR	LIQUID DIESEL FUEL RETURN
LF	LINEAL FEET
LG	LONG
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LHRA	LEFT HAND REVERSE ACTIVE
LHRB	LEFT HAND REVERSE BEVEL
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW PRESSURE
LPA	LOW PRESSURE AIR
LPG	LIQUIFIED PROPANE GAS
LPT	LOW POINT
LR	LONG RADIUS
LS	LAB SINK
LT	LEFT
LWL	LOW WATER LEVEL

M

M	MOTOR
MAINT	MAINTENANCE
MAN	MANUAL
MASY	MASONRY
MATL	MATERIAL
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MECHANICAL COUPLING
MCJ	MASONRY CONTROL JOINT
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MET	METAL
MFR	MANUFACTURER
MG/L	MILLIGRAMS PER LITER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MIX	MIXER
mJ	MILLIJOULES
MJ	MECHANICAL JOINT
MK	MARK
ML	MILLILITERS
ML	MIXED LIQUOR
MO	MASONRY OPENING
MOD	MODIFIED
MOIST	MOISTURE
MON	MONUMENT
MOS	MOISTURE SEPARATOR
MPM	METERING PUMP
MPN	MOST PROBABLE NUMBER
MS	MOP SINK
MTD	MOUNTED

N

N	NORTH, NEUTRAL
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEV	VALVE, NEEDLE
NG	NATURAL GRADE, NATURAL OR LP GAS
NIC	NOT IN CONTRACT
NO., #	NUMBER
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NPW	NON-POTABLE WATER
NS	NEAR SIDE
NTS	NOT TO SCALE

O

O	OPEN
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER, OUTSIDE DIMENSION
OED	OPEN EQUIPMENT DRAIN
O.F.	OUTSIDE FACE
OFL	OVERFLOW
OPNG	OPENING
OPP	OPPOSITE
OPP HND	OPPOSITE HAND
OZ	OUNCE

P

P	POLE
PBL	POLYMER BLENDER
PC	POINT OF CURVATURE
PCC	PLANT CONTROL CENTER
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PCP	PROGRESSIVE CAVITY PUMP
PD	POSITIVE DISPLACEMENT, PLANT DRAIN
PD, PLD	PULSATION DAMPENER
PDP	POSITIVE DISPLACEMENT PUMP
PE	PLAIN END
PERP	PERPENDICULAR
PG	PRESSURE GAUGE
PH	PHASE, PHYSICALLY HANDICAPPED
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
PL	PLATE, PROPERTY LINE
PLAS	PLASTIC
PLCS	PLACES
PLS	POLYMER SOLUTION
PLWD	PLYWOOD
PMP	PUMP
PNL(S)	PANEL(S)
POL	POLYMER
POLY	POLYETHYLENE
POS	POSITION
POW	POTABLE WATER
PP	POWER POLE
PPMV	PARTS PER MILLION (VOLUME)
PRC	POINT OF REVERSE CURVATURE
PREFAB	PREFABRICATED
PRG	PRESSURE REGULATOR
PRI	PRIMARY
PROJ	PROJECTION
PRR	PRESSURE OR VACUUM RELIEF VALVE
PRV	PRESSURE REDUCING VALVE, PRESSURE REGULATION VALVE, PRESSURE RELIEF VALVE
PS	PUMP STATION, PIPE SUPPORT
PSF	POUNDS PER SQUARE FOOT
PSG	PRESSURE GAUGE
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	POINT, POINT OF TANGENCY
PV	PLUG VALVE
PVC	POINT OF VERTICAL CURVATURE, POLYVINYL CHLORIDE
PVDF	POLYVINYLIDENE FLUORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
PLW	PLANT WATER

Q

QTY	QUANTITY

R

R/W	RIGHT OF WAY
RAD	RADIUS, RADIAL
RAS	RETURN ACTIVATED SLUDGE
RCP	REINFORCED CONCRETE PIPE
RCCP	REINFORCED CONCRETE CYLINDER PIPE
RD	ROOF DRAIN
RDL	ROOF DRAIN LINE
RDOF	ROOF DRAIN OVERFLOW
RECIRC	RECIRCULATING
RED	REDUCER, ROOF EQUIPMENT DRAIN
REF	REFERENCE
REG	REGULATOR, REGULATING
REINF	REINFORCE(D)(ING)(MENT)
REJ	RUBBER EXPANSION JOINT
REQD	REQUIRED
RER	REACTOR
RES	RESERVOIR
REV	REVISION, REVERSE
RF	RETURN FAN
RG	RETURN GRILLE RUBBER GASKET
RH	RIGHT HAND
RHR	RIGHT HAND REVERSE
RHRA	RIGHT HAND REVERSE ACTIVE
RHRB	RIGHT HAND REVERSE BEVEL
RLS	REGISTERED LAND SURVEYOR
RM	ROOM
RO	ROUGH OPENING
ROT	ROTAMETER
RP	RADIUS POINT
RPM	REVOLUTIONS PER MINUTE
RPMP	REINFORCED PLASTIC MORTAR PIPE
RR	RETURN REGISTER
RSR	RISER
RT	RIGHT
RTF	ROTARY FEEDER
RTU	ROOF TOP UNIT
RUD	RUPTURE DISK
RW	RECLAIMED WATER, REUSE WATER
RWR	RECLAIMED WATER RETURN
RWW	RAW WASTEWATER

S

S/W	SIDEWALK
S	SOUTH, SWITCH, SLOPE
SA	SAMPLE
SC	SECONDARY CLARIFIER
SCB	SCRUBBER
SCD	SMOKE CONTROL DAMPER
SCFM	STANDARD CUBIC FEET PER MINUTE
SCH	SCHEDULE
SCO	SURFACE CLEANOUT
SCR	BAR SCREEN
SCR	SILICON CONTROL RECTIFIER
SD	SMOKE DETECTOR, SPLITTER DAMPER, STORM DRAIN
SDL	SUMP DISCHARGE DRAIN LINE
SDO	SLUDGE DRAWOFF
SE	SECONDARY EFFLUENT
SEC	SECONDARY, SECOND
SECT	SECTION
SED	SEDIMENTATION
SEP	SEPTAGE
SF	SUPPLY FAN
SFW	SOFTENED WATER
SG	SUPPLY GRILLE
SGS	STORE FRONT GLAZING SYSTEM
SHD	SHOWER DRAIN
SHDR	SOLIDS HANDLING-RECYCLE
SHR	SHOWER
SHT	SHEET
SIM	SIMILAR
SK	SKIMMINGS
SL	SLOPE, SLUDGE
SLC	SLUDGE COLLECTOR DRIVE
SLG	SLIDE GATE
SLV	SLEEVE VALVE
SMP	SAMPLER, SUMP PUMP
SN	SUPERNATANT OR SUBNATANT
SOL	SOLUTION
SP	STATIC PRESSURE, SET POINT
SPD	SUMP PUMP DRAIN
SPDT	SINGLE POLE DOUBLE THROW
SPEC(S)	SPECIFICATION(S)
SPL	SPLITTER BOX
SPR	SPARE
SPS	SAMPLE SINK
SPW	SAMPLE WATER
SQ	SQUARE
SQ FT	SQUARE FEET
SQ IN(S)	SQUARE INCH(ES)
SR	SHORT RADIUS, SUPPLY REGISTER
SRL	SCRUBBER RECIRCULATION LIQUID (CAUSTIC)
SS	SANITARY SEWER, SELECTOR SWITCH
SSK	SERVICE SINK
SSL	SECONDARY SLUDGE
SST	STAINLESS STEEL
ST	SLUDGE TRANSFER
STA	STATION
STB	STABILIZER
STD(S)	STANDARDS(S)
STIFF	STIFFENER
STIR	STIRRUPS
STL	STEEL
STM	STEAM
STP	STEEL PIPE
STR	STRAINER
STRUCT	STRUCTURAL
SUG	SLUICE GATE
SUPT	PIPE SUPPORT, SUPPORT
SV	SERVICE VALVE, SHUTOFF VALVE, SOLENOID VALVE
SW	SANITARY WASTE
SWR	SEAL WATER
SYM	SYMMETRICAL
SYN	SYNTHETIC

T

T	TANGENT LENGTH, THERMOSTAT, TIMER
T&B	TOP AND BOTTOM
TAS	THREADED ANCHOR STUD
TBM	TEMPORARY BENCHMARK
TC	TOP OF CURB
TCV	TEMPERATURE CONTROL VALVE
TDH	TOTAL DYNAMIC HEAD
TDR	TIME DELAY RELAY, TOWEL DISPENSER/RECEPTACLE
TEL	TELEPHONE
TH	TEST HOLE
THK	THICKENER, THICKNESS, THICK
TKS	THICKENED SLUDGE
TLV	TELESCOPING VALVE
TMH	TELEPHONE MANHOLE
TMP	TEMPERATURE
TNK	TANK
T.O.	TOP OF
TOC	TOP OF CONCRETE
TOG	TOP OF GRATING
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
T.O.W.	TOP OF WALL
TR	TRIAD (THREE CONDUCTOR SHIELDED CABLE), TIMING RELAY
TRD	TREAD
TS	THICKENER SUPERNATANT OR SUBNATANT
TSD	THICKENED SLUDGE DECANT
TSPL	TURBIDIMETER SAMPLE
TSTAT	THERMOSTAT
TTB	TELEPHONE TERMINAL BOARD
TUR	TURBINE
TV	TURNING VANES
TWV	THREE-WAY VALVE
TYP	TYPICAL

U

UC	UNDERCUT
UG	UNDERGROUND
UHMWPE	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE
UHMW	ULTRA HIGH MOLECULAR WEIGHT
UNO	UNLESS NOTED OTHERWISE
US	UTILITY SINK

V

V	VALVE
VAR	VARIES
VB	VALVE BOX
VCP	VITRIFIED CLAY PIPE
VEC	VINYL ESTER COATING
VERT	VERTICAL
VFR	VOLUMETRIC FEEDER
VG	VACUUM GAUGE, VALLEY GUTTER
VOL	VOLUME
VRV	VACUUM REGULATING VALVE
VTR	VENT THROUGH ROOF

W

W	WEST, WIDTH
W/	WITH
W/O	WITHOUT
WAS	WASTE ACTIVATED SLUDGE
WCO	WALL CLEANOUT
WEF	WALL EXHAUST FAN
WF	WALL FITTING, WASH FOUNTAIN
WH	WATER HEATER
WI	WEIGHT INDICATOR
WL	WALL LOUVER, WATER LEVEL
WM	WATER METER
WOD	WASTE OIL DRAIN
WP	WEATHERPROOF, WATERPROOF
WPT	WORKING POINT
WRG	WEIR GATE
WRS	WATER SOFTENER
WS	WATER SURFACE
WSTP	WATERSTOP
WT	WALK THROUGH, WEIGHT
WTF	WATER TREATMENT FACILITY
WTP	WATER TREATMENT PLANT
WTR	WATER
WV	WATER CONTROL VALVE
WW	WASTEWATER
WWF	WELDED WIRE FABRIC
WWTF	WASTEWATER TREATMENT FACILITY
WWTP	WASTEWATER TREATMENT PLANT

Y

Y	WYE
YCO	YARD CLEANOUT
YH	YARD HYDRANT

REV	DATE	BY	DESCRIPTION

DESIGNED CE
DRAWN CE
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:37:34-05'00'
alexander Lamb

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CITY OF PACIFICA

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UV DISINFECTION SYSTEM REPLACEMENT

GENERAL

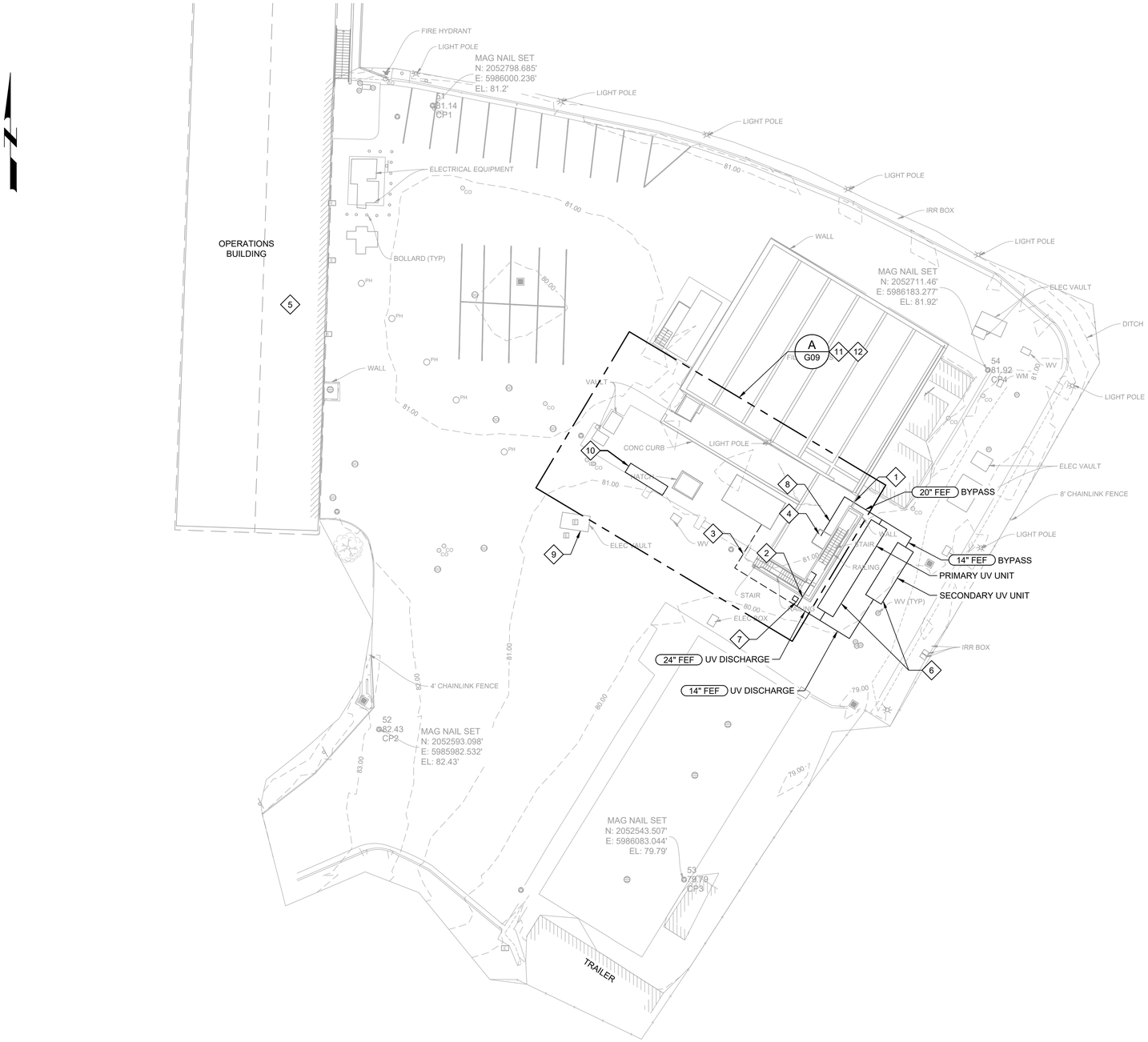
GENERAL ABBREVIATIONS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. G07
SHEET NO. 7 OF 79

Plot Date: 20-MAR-2024 9:48:21 AM User: svcPW PlotScale: 1:1 DesignScript: Carollo_Std_Pen_v0905.pen ColorTable: gshade.ctb Model: Layout1 LAST SAVED BY: gleal

PROJECT NO. 201447-100000 FILE NAME: 201447G07.dgn



X KEY NOTES:

2. CORE THROUGH WALL FOR 24" UV DISCHARGE PIPE. ONCE BYPASS IS COMPLETE, INSTALL 1/2" x 3' x 3' 304 SST PLATE WITH 1/2" DIA SS CONCRETE ANCHORS 8" MAX SPACING AND MINIMUM 4" EDGE DISTANCE ON EXTERIOR FACE. CAULK ALL AROUND WITH SYNTHETIC RUBBER SEALING COMPOUND. FILL HOLE IN STAIRWELL WALL WITH CONCRETE FROM INTERIOR FACE.

3. 24" UV DISCHARGE TO BE TEMPORARILY ROUTED THROUGH THE REMOVABLE SLAB OPENING WHILE THE BYPASS AND TEMPORARY DISINFECTION SYSTEM IS BEING TESTED. LINE TO BE REMOVED ONCE THE BYPASS SYSTEM HAS BEEN VERIFIED TO WORK PROPERLY. CONTRACTOR TO PROVIDE TEMPORARY PIPE CROSSING WHILE THIS PIPE IMPACTS ACCESS TO THE FACILITY.

4. REMOVE THE HANDRAIL AROUND THE CEILING OPENING AS NECESSARY TO INSTALL THE TEMPORARY BYPASS DISCHARGE PIPE. RAILING ON STRUCTURE ROOF AND OVERFLOW PIPE IN THE GALLERY TO BE REPLACED TO EXISTING CONDITIONS AFTER BYPASS CONCLUDES.

5. CONTRACTOR TO PROVIDE A TEMPORARY SODIUM HYPOCHLORITE FEED SKID SYSTEM PER SECTION 01_50_00 - TEMPORARY FACILITIES AND CONTROLS. CONTRACTOR SHALL PERFORM PIPING CONNECTIONS AND INITIAL WATER TESTING OF THE FEED SYSTEM PRIOR TO TEMPORARY UV BYPASS STARTUP. DURING THE TEMPORARY BYPASS PERIOD, PLANT STAFF WILL OPERATE THE SKID AND PROVIDE REQUIRED CHEMICALS. THE CONTRACTOR SHALL SUPPORT SKID OPERATIONAL ISSUES AND GENERAL MAINTENANCE THROUGHOUT THE PROJECT. CONTRACTOR SHALL DECOMMISSION, CLEAN, AND REMOVE THE SKID AFTER THE BYPASS OPERATIONS CONCLUDE. SEE G11 FOR ADDITIONAL DETAILS. CONTRACTOR TO ASSUME 40 FEET OF 1" SCHEDULE 80 PVC WITH FITTINGS FOR BIDDING PURPOSES.

6. CONTRACTOR TO LEVEL AREA FOR INSTALLATION OF THE TEMPORARY UV UNITS ACCORDING TO SUPPLIER'S REQUIREMENTS. MEANS AND METHOD FOR LEVELING TO BE DETERMINED BY THE CONTRACTOR IN COORDINATION WITH THE UV MANUFACTURER. SEISMIC RESTRAINTS ARE NOT REQUIRED BY CODE FOR THIS TEMPORARY EQUIPMENT, BUT THE EQUIPMENT MUST BE STABLE FOR OPERATIONAL SAFETY. PRIOR TO FINAL INSTALLATION, CONFIRM WITH THE PLANT REQUIRED ACCESS TO VALVE BOXES AND UTILITIES IN THE AREA OF THE PROPOSED INSTALLATION. TEMPORARY ACCESS PLATFORM SCAFFOLDING MEETING SAFETY STANDARDS WILL BE REQUIRED AGAINST TEMPORARY UV CHANNELS FOR MONITORING AND MAINTENANCE; COORDINATE LOCATION AND SIZE WITH UV SUPPLIERS.

7. AN EXISTING AUTOSAMPLER TO BE POSITIONED AT A LOCATION ON THE COMMON TEMPORARY UV DISCHARGE HEADER. COORDINATE WITH PACIFICA FOR TAP LOCATION. PROVIDE TEMPORARY PROTECTION FROM SUNLIGHT AND PRECIPITATION.

8. FLOW METER ON BYPASS PUMP DISCHARGE PIPE PER SECTION 33_05_12.

9. EXISTING UV SYSTEM MAIN SUPPLY CONDUCTORS SHALL BE UTILIZED FOR POWER SUPPLY TO TEMPORARY UV DISINFECTION AND BYPASS PUMPING EQUIPMENT. CUT EXISTING CONDUCTORS WITHIN EXISTING BELOW-GRADE PULLBOX PB NO.1 AND SPLICE TEMPORARY CONDUCTORS TO EXISTING CONDUCTORS WITHIN PB NO.1. SEE DRAWINGS E11 AND E12 FOR ADDITIONAL REQUIREMENTS.

10. PROVIDE TEMPORARY 480-VOLT PANELBOARDS PNL-TEMP1 AND PNL-TEMP2 FOR SUPPLYING POWER TO TEMPORARY UV DISINFECTION AND BYPASS PUMPING EQUIPMENT. CONTRACTOR SHALL PROVIDE TEMPORARY MOUNTING OF TEMPORARY 480-VOLT PANELBOARDS AS REQUIRED. SEE SECTION 26 00 10 AND DRAWING E15 FOR ADDITIONAL REQUIREMENTS.

11. EXISTING REMOTE INPUT/OUTPUT (RIO) PANEL NO.5 (40-LCP-01) SHALL BE UTILIZED FOR CONNECTION OF TEMPORARY BYPASS PUMPING SYSTEM HARDWIRED SIGNALS TO THE PLANT SCADA SYSTEM. SEE DRAWINGS E26 AND E45 FOR ADDITIONAL REQUIREMENTS. PANEL IS LOCATED WITHIN THE SUBGRADE UV FACILITY.

12. EXISTING COM3 NETWORK PANEL SHALL BE UTILIZED FOR CONNECTION OF TEMPORARY UV DISINFECTION SYSTEMS TO THE PLANT SCADA SYSTEM VIA ETHERNET COMMUNICATION. SEE DRAWINGS E26 AND E47 FOR ADDITIONAL REQUIREMENTS. PANEL IS LOCATED WITHIN THE SUBGRADE UV FACILITY.

GENERAL NOTES:

1. SEE G06 FOR GENERAL NOTES. SEE G03 AND G04 FOR ACCESS RESTRICTIONS. SEE 40D02 FOR DIMENSIONS OF EXISTING OPENINGS.

2. FINAL BYPASS MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBMITTED TO OWNER/ENGINEER FOR APPROVAL. REFER TO 01_14_00 - WORK RESTRICTIONS AND 33_05_12 - TEMPORARY BYPASS PUMPING FOR ADDITIONAL REQUIREMENTS.

3. DRAWINGS G09 AND G10 SHOW A SUGGESTED BYPASS PLAN. THE CORRESPONDING SUGGESTED SEQUENCE IS PROVIDED IN SECTION 01_14_00 - WORK RESTRICTIONS ATTACHMENT A: BYPASS CONTINGENCY PLAN. THE CONTRACTOR MUST COMPLY WITH CONSTRAINTS DESCRIBED HERE AND ELSEWHERE IN THE CONTRACT DOCUMENTS TO DEVELOP THEIR OWN SEQUENCE, MEANS AND METHODS, SAFETY PLANS AND SCHEDULE.

4. REFER TO SECTION 46_66_75 - TEMPORARY ULTRAVIOLET DISINFECTION SYSTEM IN THE ASSOCIATED ASSIGNED CONTRACTS WITH TROJAN SYSTEMS AND GLASCO UV FOR ADDITIONAL REQUIREMENTS FOR THE TEMPORARY UV DISINFECTION UNITS.

5. TEMPORARY PIPING SYSTEM SUPPORTS SHALL BE DESIGNED AND INSTALLED BY THE CONTRACTOR. ANY ENGINEERING REQUIRED BY CODE OR THE OWNER FOR ATTACHMENTS TO EXISTING STRUCTURES SHALL BE AT THE CONTRACTOR'S EXPENSE.

6. ACCESS TO UV GALLERY IS LIMITED AND THE INGRESS AND EGRESS OF EQUIPMENT NEEDS TO BE CLOSELY EVALUATED BY THE CONTRACTOR. LARGER EQUIPMENT SKIDS FOR EXAMPLE MAY NEED TO BE DISASSEMBLED AND REASSEMBLED WITHIN THE GALLERY.

7. CONTRACTOR TO PROVIDE PROPERLY SIZED ISOLATION VALVES FOR EACH PIECE OF BYPASS EQUIPMENT THAT WILL REQUIRE MAINTENANCE OR ISOLATION FROM THE OVERALL BYPASS SYSTEM DURING CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO: BYPASS PUMPS, TEMPORARY UV TREATMENT, AUTO SAMPLER(S), AND CHEMICAL INJECTION POINTS.

8. PROVIDE TRAFFIC-RATED TEMPORARY CABLE ROUTING RAMPS AND SCHEDULE 40 PVC CONDUIT FOR ROUTING OF TEMPORARY POWER, CONTROL AND COMMUNICATION CONDUCTORS PROVIDED FOR THE TEMPORARY UV DISINFECTION AND BYPASS PUMPING SYSTEMS. ROUTING OF TEMPORARY CONDUCTORS SHALL NOT IMPEDE VEHICULAR TRAFFIC IN THE VICINITY OF THE UV AREA. TEMPORARY CABLE RAMPS SHALL BE 4-CHANNEL LINEBACKER, MODEL NO. CP4X300-Y/O OR ACCEPTED EQUAL.

X KEY NOTES:

1. REMOVE STOP PLATE AND TURN OVER TO PLANT. CONTRACTOR TO REINSTALL STOP PLATE ONCE BYPASS IS COMPLETE.

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SCALE

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SCALE: 1" = 20'

REV	DATE	BY	DESCRIPTION

DESIGNED BAB
DRAWN ART
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:37:56-05'00'

carollo

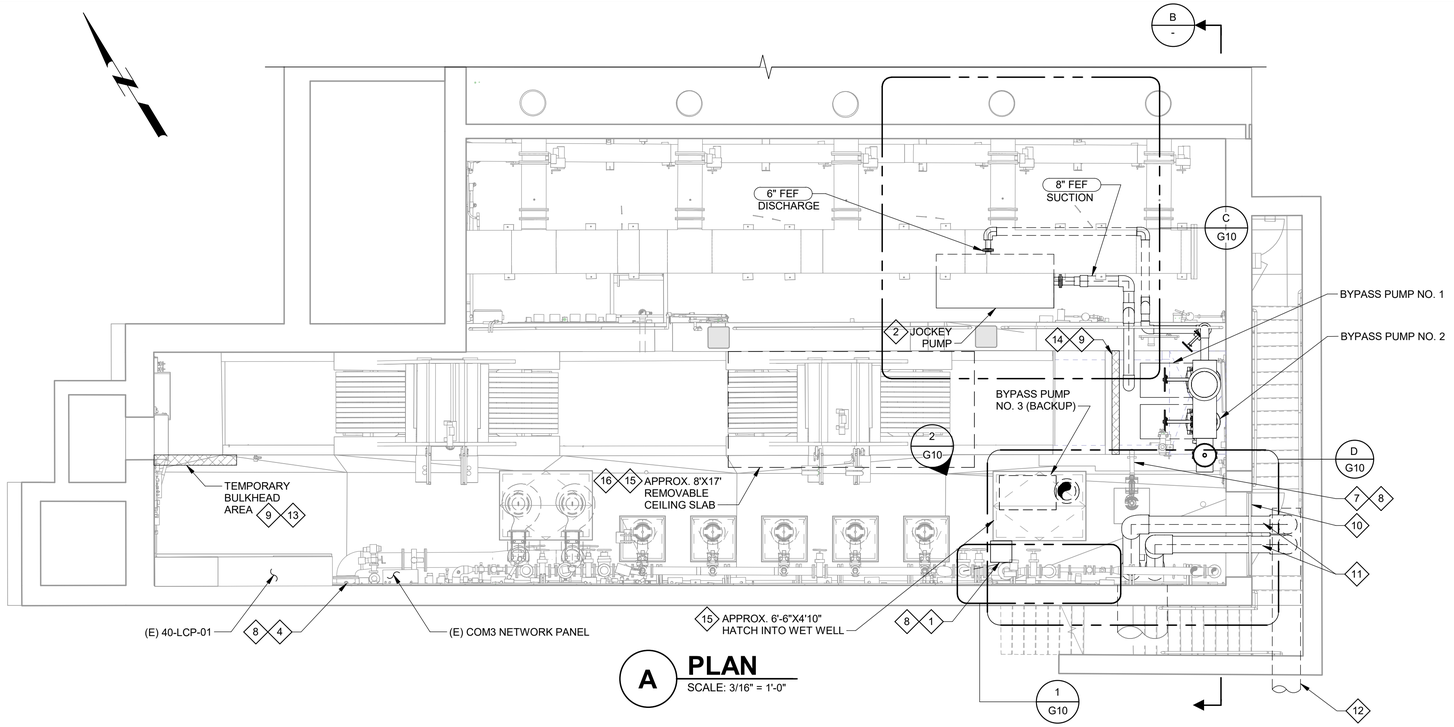
CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
GENERAL
TEMPORARY BYPASS SITE PLAN

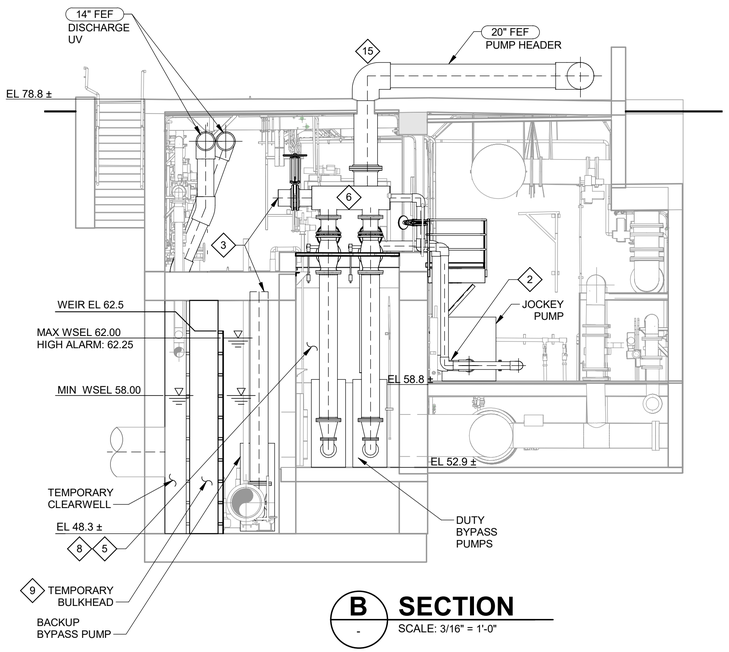
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JOB NO. 201447
DRAWING NO. G08
SHEET NO. 8 OF 79

Plot Date: 3/20/2024 1:50:46 PM
LAST SAVED BY: atucker
PROJECT NO. 201447-100000 FILE NAME: 201447G08.dwg



A PLAN
SCALE: 3/16" = 1'-0"



B SECTION
SCALE: 3/16" = 1'-0"

KEY NOTES (CONTINUED):

16. REFER TO ORIGINAL STRUCTURAL SUBMITTAL IN APPENDIX ### FOR EXISTING REMOVABLE SLAB. CONTRACTOR SHALL ASSUME REMOVAL AND REPLACEMENT IN KIND UNDER THE REQUIREMENTS WITHIN SECTIONS 03_41_41 - PRECAST CONCRETE ROOF PANEL AND 01_35_73 - DELEGATED DESIGN. REMOVAL SHALL BE COMPLETED IN A MANNER PROTECTING ALL OTHER EXISTING FACILITIES AND STRUCTURES.

GENERAL NOTES:

1. SEE G10 FOR GENERAL NOTES.
2. CONTRACTOR IS RESPONSIBLE FOR MOVING EQUIPMENT WITHIN THE GALLERY THROUGH USE OF TEMPORARY GANTRY CRANE OR OTHER TEMPORARY LIFTING LOCATIONS DESIGNED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CALIFORNIA. SEE SECTION 01_35_73 - DELEGATED DESIGN PROCEDURES FOR REQUIREMENTS.
3. ALL TEMPORARY ANCHORAGE SHALL BE REMOVED AND CONCRETE REPAIRED BEFORE PROJECT COMPLETION. CUT ANCHORS AND GRIND TO 2" BELOW CONCRETE SURFACE, PAINT ENDS WITH EPOXY, AND PATCH HOLES WITH DRY PACK MORTAR PER SPECIFICATION 01_35_21. CONCRETE TO BE REPAIRED AS REQUIRED TO RETURN TO EXISTING CONDITION.

KEY NOTES:

1. 60 GPM TEMPORARY IRRIGATION UV DISINFECTION UNIT. DISINFECTION UNIT IS OWNER FURNISHED AND SHALL BE INSTALLED BY THE CONTRACTOR. UNIT CUTSHEET AND INSTALLATION INSTRUCTIONS ARE INCLUDED IN VOLUME 5 - APPENDIX C.
2. A JOCKEY PUMP MUST BE CONSIDERED TO COVER LOW FLOWS BASED ON BYPASS PUMPING REQUIREMENTS IN SECTION 33_05_12, SITE AND SPACE LIMITATIONS AND SUCTION LIFT LIMITATIONS. THE JOCKEY PUMP MAY NEED TO BE DISASSEMBLED AT THE SURFACE AND THEN REASSEMBLED IN THE STRUCTURE DUE TO ACCESS CONSTRAINTS, AND THE SAME PROCESS REVERSED TO GET IT OUT. INSTALL SELF-PRIMING SYSTEM ON JOCKEY PUMP SUCTION HIGH LOOP TO AVOID AIR LOCK. REFER TO C/G10 FOR STRUCTURAL RETROFITS REQUIRED FOR SKID SUPPORT BASED ON THE ENGINEER'S SKID CONFIGURATION AND A NET WEIGHT OF 1,800 POUNDS. THE CONTRACTOR MUST CONFIRM SKID SIZING AND SUBMIT REVISED STRUCTURAL LAYOUT FOR APPROVAL BASED ON FINAL SKID SIZING. SUBSTANTIAL CHANGES TO SKID SIZE OR WEIGHT AND/OR THE STRUCTURAL LAYOUT WILL REQUIRE DELEGATED DESIGN TO BE COMPLETED BY THE CONTRACTOR PER SECTION 01_35_73. CONTRACTOR TO CONSIDER CONFLICT WITH SLAB ANGLE SUPPORT AND TEMPORARY EQUIPMENT. A SINGLE SUPPORT MAY BE REMOVED DURING TEMPORARY BYPASS AND REINSTALLED AFTER DEMOBILIZATION OF CONFLICTING TEMPORARY EQUIPMENT.
3. INSTALL QUICK DISCONNECT COUPLING AND PROVIDE APPROPRIATE LENGTH OF PRESSURE RATED FLEXIBLE HOSING COMPATIBLE WITH CONNECTIONS AND PUMPING SYSTEM.
4. UTILITY WATER WILL BE TEMPORARILY DISINFECTED BY DOSING HYPOCHLORITE AT THIS LOCATION. CONTRACTOR TO PROVIDE TEMPORARY EYEWASH/SHOWER PER OSHA GUIDELINES IN CASE OF EMERGENCY.
5. PROVIDE TEMPORARY LEVEL SENSORS IN THE UV INFLUENT BOX AND EXISTING CLEARWELL TO FACILITATE BYPASS PUMPING BASED ON LEVEL. REFER TO SECTION 33_05_12 FOR ADDITIONAL REQUIREMENTS.
6. TEMPORARY CHECK VALVES AND ISOLATION VALVES TO BE PROVIDED AND PROPERLY SUPPORTED AND INSTALLED ON THE TEMPORARY PUMPING MANIFOLD. CHECK VALVE FOR BACKUP PUMP IS NOT SHOWN AND MAY BE A VERTICAL BALL CHECK INSTALLED BELOW DECK ON THE DISCHARGE.
7. EXISTING RECIRCULATION PUMP DISCHARGE TO BE RELOCATED TO EXISTING UV CHANNEL DURING PHASE 2 OF THE BYPASS CONTINGENCY PLAN. SEE SPECIFICATION SECTION 01_14_00 - WORK RESTRICTIONS FOR ADDITIONAL DETAILS.
8. DENOTES A REQUIREMENT/CONSTRAINT REGARDLESS OF CONTRACTOR BYPASS PLAN.
9. TEMPORARY ISOLATION WITHIN THE CLEARWELL IS DELEGATED DESIGN. SEE SECTION 01_35_73 - DELEGATED DESIGN PROCEDURES FOR REQUIREMENTS.
10. REMOVE DOOR LOUVRE FOR TEMPORARY PIPE. REINSTALL LOUVRES AFTER BYPASS IS COMPLETE.
11. DISCHARGE HEADER MUST BE SIZED TO PASS THROUGH DOOR LOUVRE. ASSUME TWO PARALLEL,14" TEMP UV DISCHARGE PIPES TO BE ROUTED THROUGH DOOR LOUVRE AND DISCHARGE HATCH.
12. SHOWING A SINGLE 24" DISCHARGE HEADER PASSING AT GRADE THROUGH THE STAIRWELL WALL TO BE SUPPORTED OVERHEAD AND SPLIT INTO PARALLEL HEADERS TO PASS THROUGH LOUVRE.
13. TEMPORARY BULKHEAD TO ISOLATE THE UV CHANNEL FROM THE CLEAR WELL. APPROXIMATE OPENING DIMENSIONS ARE 4'-9" WIDE BY 16'-6" HIGH. THE BULKHEAD TO HOLD WATER UP TO THE ELEVATIONS SHOWN IN SECTION B/- (BETWEEN EL ~48.25 AND ~ 63.25 FOR OVERTOPPING WEIR). AS SHOWN, BULKHEAD MAY BE ANCHORED TO THE FLOOR SLAB, THE SOUTH UV CHANNEL WALL AND THE WEST CLEAR WELL WALL. CONTRACTOR SHALL DETERMINE MEANS AND METHODS AND ANCHORAGE OF TEMPORARY ISOLATION STRUCTURES.
14. TEMPORARY BULKHEAD TO ISOLATE THE UV CHANNEL FROM THE UV INLET BOX WHERE THE BYPASS PUMPS ARE STAGED FOR THE DEMOLITION OF THE EXISTING WEIR. APPROXIMATE OPENING DIMENSIONS ARE 7'-3" WIDE BY 9'-6". THE BULKHEAD TO HOLD WATER UP TO THE ELEVATIONS SHOWN IN SECTION B/- (BETWEEN EL ~55.2 AND ~63.25 FOR OVERTOPPING WEIR). AS SHOWN, BULKHEAD MAY BE ANCHORED WITHIN THE UV INLET BOX. REFER TO SECTION D/4ODO3 FOR WEIR DEMOLITION SECTION. CONTRACTOR SHALL DETERMINE MEANS AND METHODS AND ANCHORAGE OF TEMPORARY ISOLATION STRUCTURES.
15. PROTECT ALL TEMPORARY OPENINGS FROM WEATHER. CONTRACTOR IS RESPONSIBLE FOR MEANS AND METHODS AND ANY DAMAGE TO EXISTING FACILITIES PER GENERAL NOTES AND CONTRACT DOCUMENTS.

REV	DATE	BY	DESCRIPTION

DESIGNED ARL
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
ALEXANDER R. LAMB
No. 92482
CIVIL
STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:38:41 -05'00'
alexander lamb

carollo

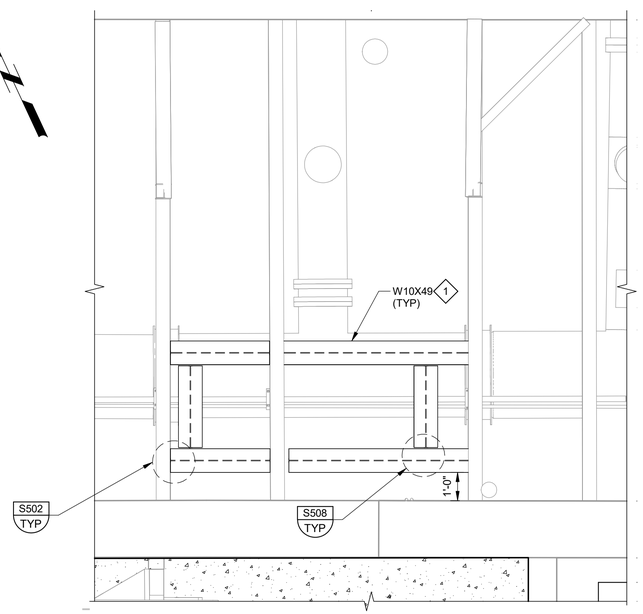
CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
GENERAL
TEMPORARY BYPASS
PLAN AND SECTION

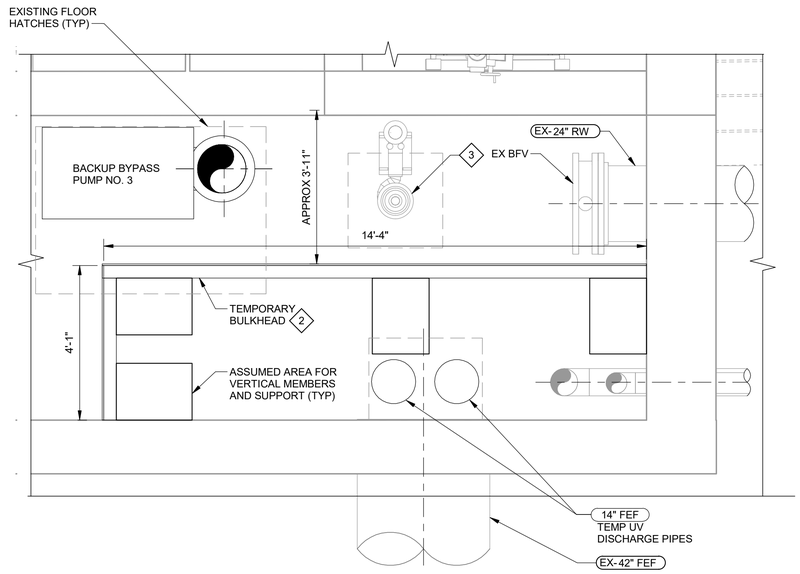
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DRAWING NO. G09
SHEET NO. 9 OF 79

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C ENLARGED PLAN
G09
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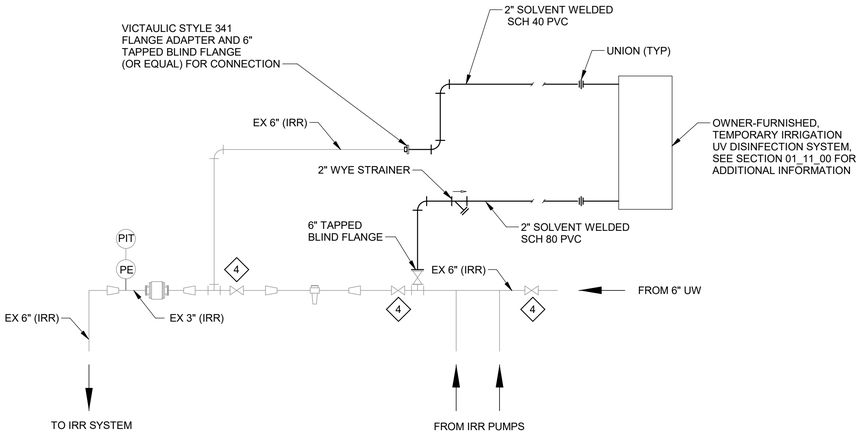
D ENLARGED PLAN
G09
SCALE: 1/2" = 1'-0"

GENERAL NOTES:

1. SEE G09 FOR GENERAL NOTES.

KEY NOTES:

1. COORDINATE THE LOCATION OF TEMPORARY JOCKEY PUMP SUPPORT BEAMS WITH THE LOCATION OF THE JOCKEY PUMP UNIT. TEMPORARY SUPPORT BEAMS TO BE REMOVED ONCE WORK IS COMPLETE. EXISTING GRATING AND SUPPORTS TO BE RETURNED TO PREVIOUS OPERATIONAL CONDITION.
2. TEMPORARY ISOLATION WITHIN THE CLEARWELL IS DELEGATED DESIGN. SEE SECTION 01_50_00 - TEMPORARY FACILITIES AND CONTROLS AND SECTION 01_35_73 - DELEGATED DESIGN PROCEDURES FOR REQUIREMENTS. A MINIMUM WEIR LENGTH OF 10 FEET IS RECOMMENDED TO KEEP THE WATER LEVEL WITHIN 1 FOOT OF WEIR ELEVATION.
3. EXISTING UV RECIRCULATION PUMP CONSISTS OF A SUMP PUMP HANGING FROM A CHAIN WITH A HOSE DISCHARGE. PUMP MAY BE MOVED AS NECESSARY TO ALLOW INSTALLATION OF THE TEMPORARY BULKHEAD.
4. CLOSED DURING TEMPORARY BYPASS. COORDINATE SYSTEM OPERATIONS WITH PLANT STAFF.



TEMPORARY IRR UV SCHEMATIC

1 DETAIL
G09
SCALE: 12" = 1'-0"



IRRIGATION BYPASS PHOTO

2 PHOTO
G09
SCALE: NO SCALE

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CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

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Date: 2024.03.22 10:16:36-05'00'

CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

GENERAL
TEMPORARY BYPASS PLANS AND DETAILS

VERIFY SCALES
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DRAWING NO. G10
SHEET NO. 10 OF 79

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MAIN BLDG CLS SKID AREA

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UV AREA CLS CONNECTION AREA

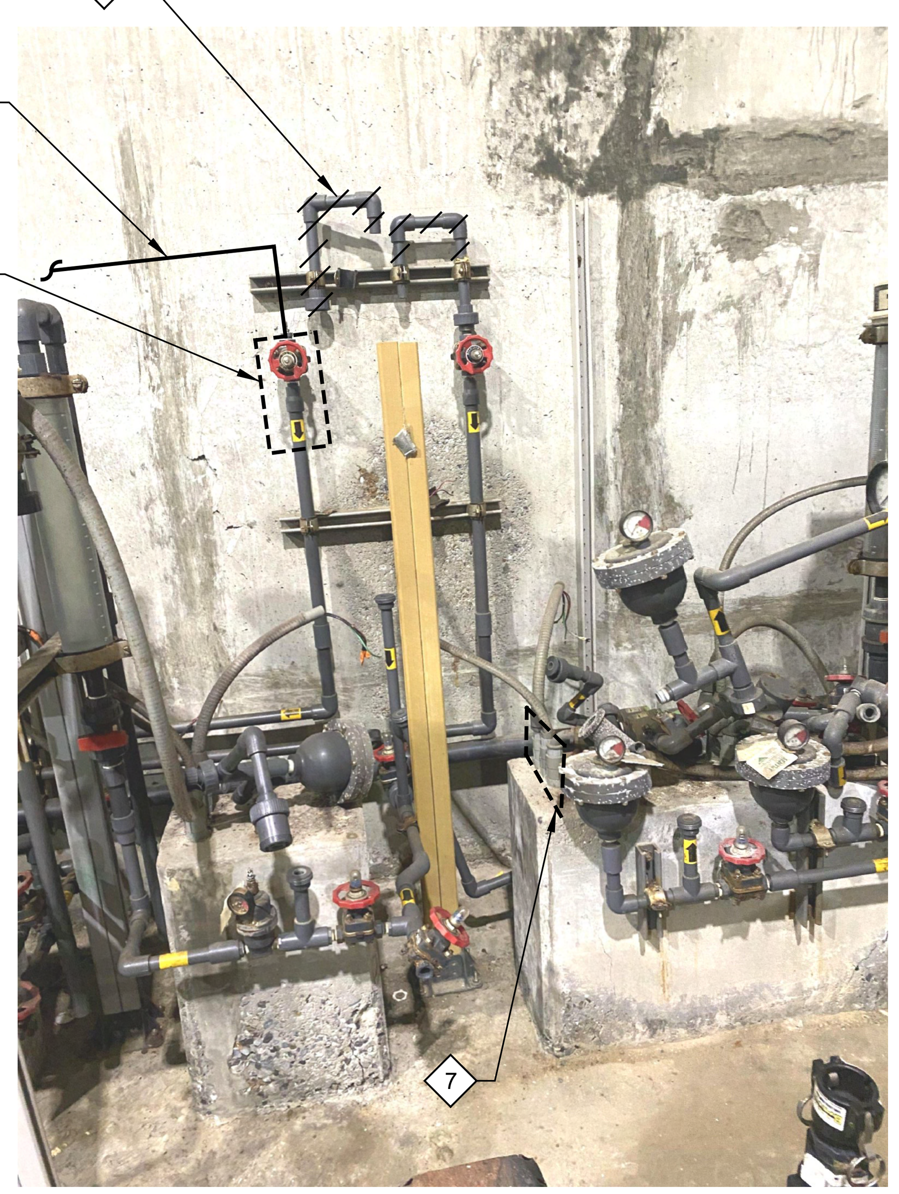
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GENERAL NOTES:

1. SEE G09 FOR GENERAL NOTES.
2. FOR USE IN HYPOCHLORITE (CLS) SYSTEMS MUST BE FULLY COMPATIBLE WITH 12.5% SODIUM HYPOCHLORITE SOLUTION.

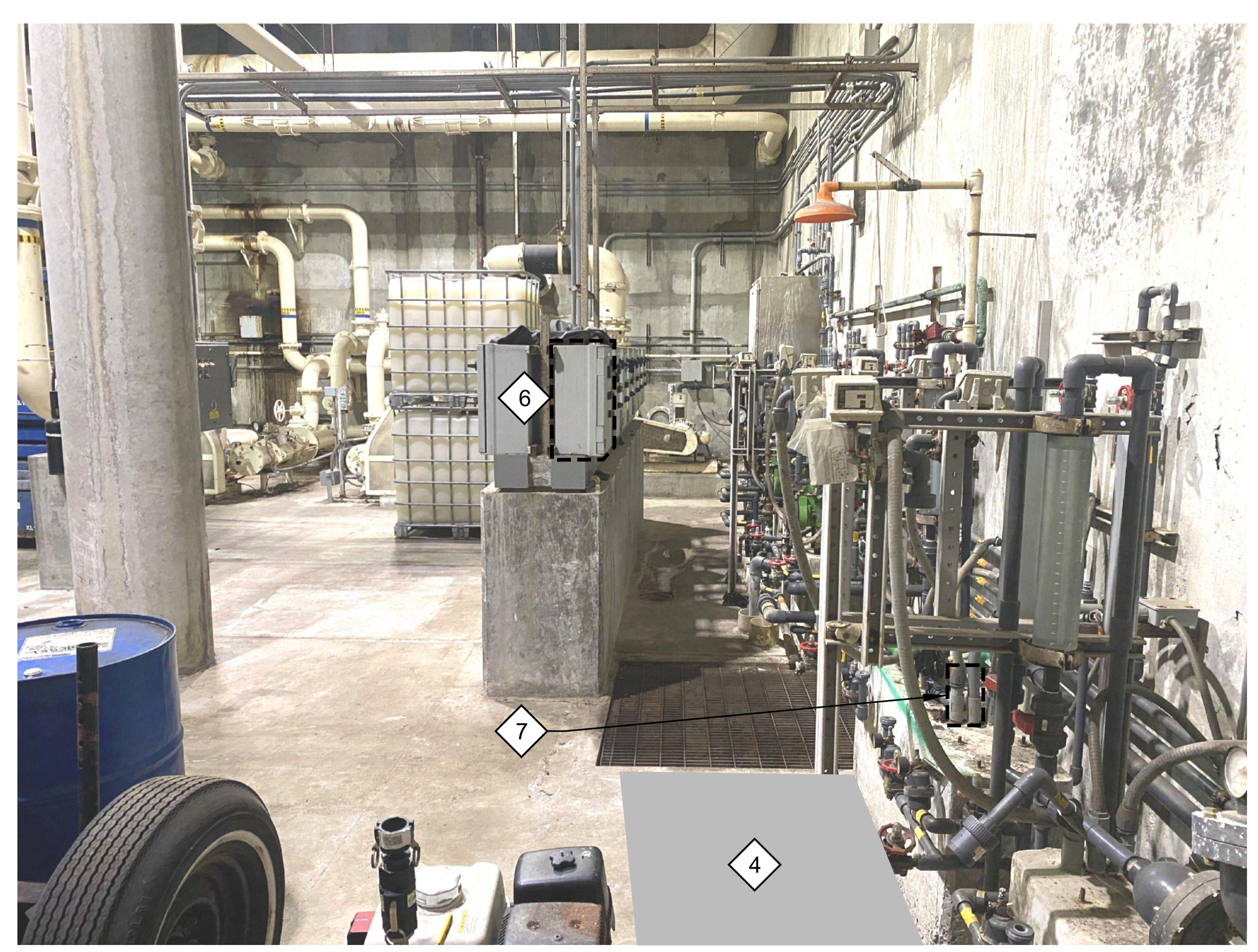
(#) KEY NOTES:

1. SUPPORT PIPE AS REQUIRED. TOTAL LENGTH OF 3/4" SCH 80 PVC SHOULD BE ASSUMED TO BE 80 FEET FOR BIDDING PURPOSES.
2. CONNECTION AND DISCONNECTION SHOULD BE MADE DURING A PLANNED SHUTDOWN TO AVOID ADDITIONAL PLANT WATER INTERRUPTION.
3. CONNECT AFTER CONFIRMING FEED PIPE LOCATION AND CONTINUITY BETWEEN THE CONNECTION POINTS. ONLY ONE LOCATION REQUIRES CONNECTION. CONTRACTOR TO CONFIRM LINE INTEGRITY AND CONTINUITY
4. PROVIDE TEMPORARY SELF-CONTAINED SKID WITH A DUTY AND STANDBY PUMP CAPABLE OF FEEDING CLS TO PROVIDE THE DOSE SPECIFIED IN SECTION 01_50_00 - TEMPORARY FACILITIES AND CONTROLS AT UP TO 100 PSI. SKID TO OPERATE OFF A SUCTION FEED FROM A STANDARD INTERMEDIATE BULK CONTAINER (IBC) TOTE PLACE A MINIMAL (< 6 INCHES) OF ELEVATION FROM THE FLOOR. SKID SHALL FIT WITHIN A 5' BY 3' FOOTPRINT (CONTROL PANEL MAY BE OUTSIDE OF THE FOOTPRINT OR INDEPENDENTLY MOUNTED, BUT MUST BE ACCESSIBLE). SKID SHALL CONTAIN ALL NECESSARY APPURTENANCES FOR OPERATION AND CALIBRATION, INCLUDING BUT NOT LIMITED TO EQUIPMENT REQUIRED FOR DEGASSING , PULSATION DAMPENING, SUCTION ACCUMULATION, ISOLATION AND MAINTENANCE, FLUSHING AND DRAINING, CALIBRATION, AND OPERATIONS AND CONTROLS. OWNER WILL CLEAR AREA FOR SKID SETUP FOLLOWING APPROVED SUBMITTAL. COORDINATE PLACEMENT AND ACCESS WITH THE PLANT. COORDINATE SUCTION CONNECTION AND ISOLATION WITH SKID FABRICATION SUCH THAT IBC TOTES CAN BE SWAPPED WITH MINIMAL SPILLAGE AND ASSUMING THE TOTE WILL BE PLACED WITHIN 10 FEET OF THE SKID AS COORDINATED WITH THE OWNER.
5. DECOMMISSIONED PIPING MAY BE DEMOLISHED AS TO THE FIRST ISOLATION VALVE WITH APPROVAL FROM THE OWNER TO OPEN PATH FOR TEMPORARY PIPING AND SUPPORTS.
6. TWO EXISTING END CONTROL PANELS ARE DECOMMISSIONED HYPO PUMP PANELS. PANELS TO BE USED FOR POWER AND COMMUNICATION ROUTING FOR TEMPORARY SKID.
7. CONDUIT TERMINATIONS FROM THE DECOMMISSIONED CONTROL PANELS TO BE USED TO PULL POWER AND COMMUNICATION.



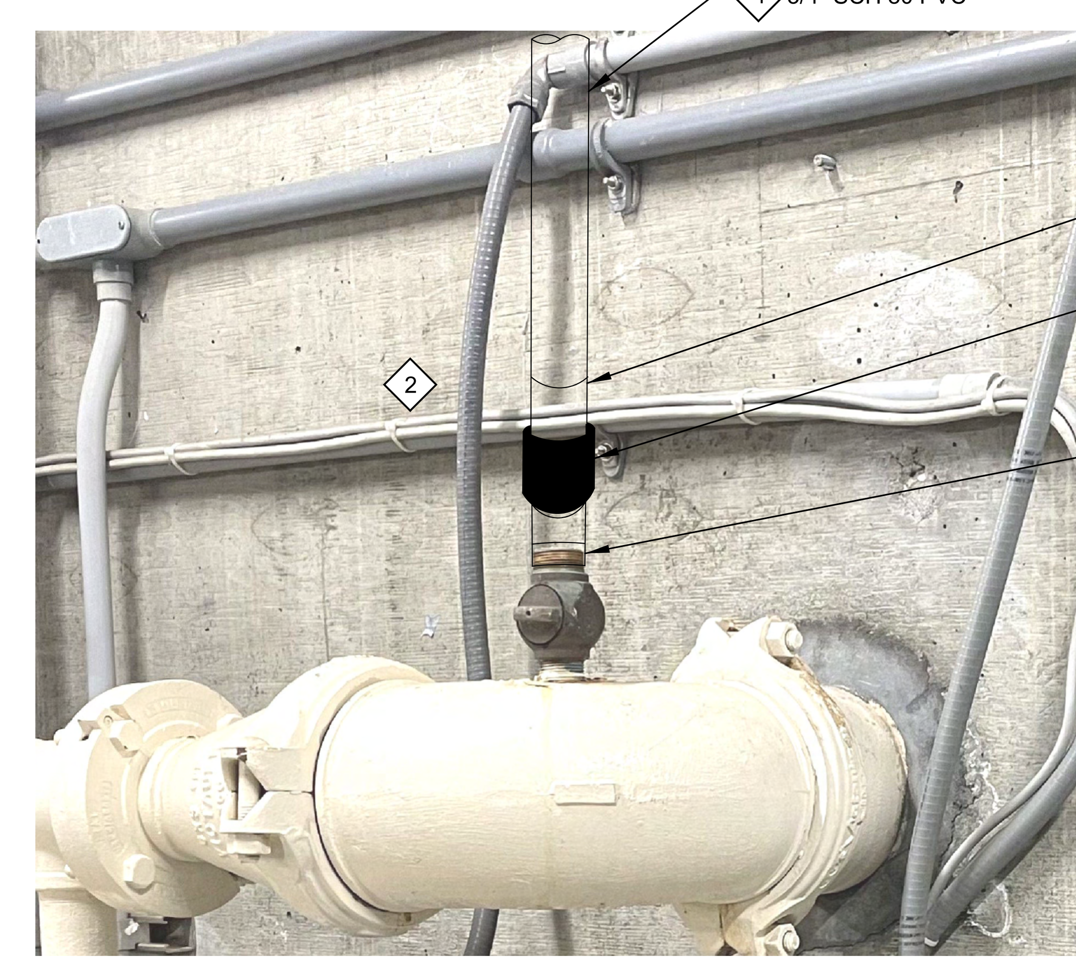
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MAIN BLDG CLS EXISTING CONTROL PANELS

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UV AREA CLS CONNECTION DETAIL

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DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

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Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:38:18-05'00'
alexander Lamb

carollo®

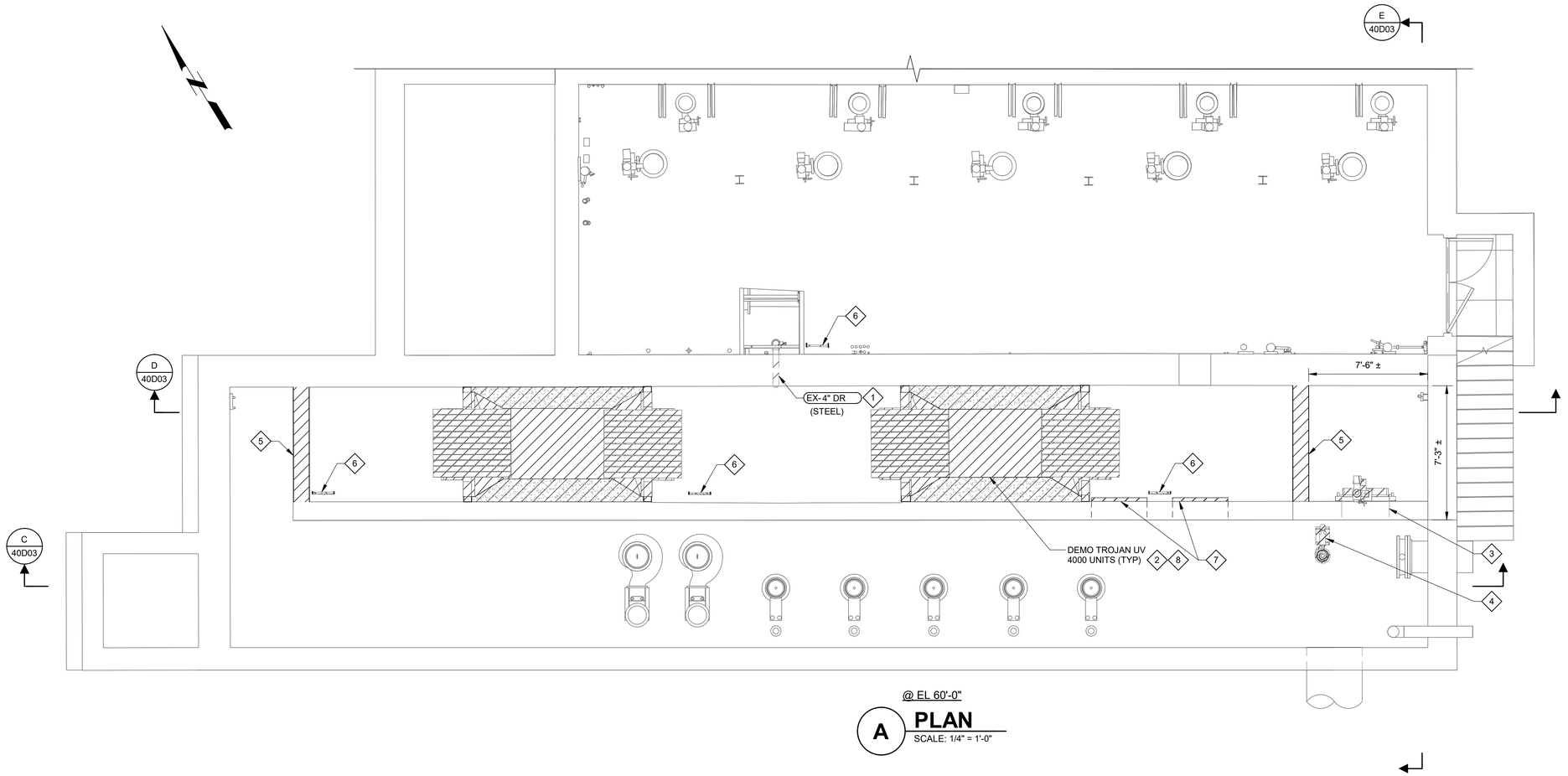
CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
GENERAL
TEMPORARY HYPOCHLORITE (CLS) DETAILS

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JOB NO. 201447
DRAWING NO. G11
SHEET NO. 11 OF 79

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@ EL 60'-0"

A PLAN

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

GENERAL NOTES:

1. SEE G06 FOR GENERAL NOTES. SEE G08, G09 AND G10 FOR BYPASS DETAILS REQUIRED TO PERFORM THIS WORK.
2. LOCATE ALL REBAR AND EMBEDDED CONDUITS USING NON-DESTRUCTIVE MEANS PRIOR TO DEMOLITION. SEE SECTION 01_35_21 FOR ADDITIONAL REQUIREMENTS.
3. CONTRACTOR SHALL COORDINATE THE SHUTDOWN OF ALL POWER AND ELECTRICAL EQUIPMENT WITH THE OWNER AND CONSTRUCTION MANAGER. SEE SPECIFICATION SECTION 01_14_00 - WORK RESTRICTIONS FOR SHUTDOWN REQUIREMENTS.
4. REFER TO SECTION 01_35_21 - SELECTIVE DEMOLITION FOR ADDITIONAL REQUIREMENTS FOR DEMOLITION. INCLUDING REQUIREMENTS TO GRIND BACK, REPAIR AND DRY PACK ANCHORS AND REINFORCING IN CONCRETE
5. SEE SHEET E11 FOR ELECTRICAL DEMOLITION. NOTE ADDITIONAL ELECTRICAL DEMOLITION IN THE YARD AND MAIN BUILDING.

(#) KEY NOTES:

1. DEMO 4" BALL VALVE AND ALL ASSOCIATED PIPE. DEMO ANY EXISTING GROUT IN WALL PENETRATION, AND ROUGHEN SURFACE TO 1/4" AMPLITUDE.
2. METAL FRAMES AT ENDS MAY NEED TO BE CUT OUT TO ALLOW ACCESS TO DEMOLISH GROUT SEALING THE UNIT TO THE CHANNEL. SEE VOLUME 5 - APPENDIX A AND B FOR ORIGINAL INSTALLATION DRAWINGS OF UV4000 UNITS, AND MANUFACTURER'S INFORMATION REMOVING A TROJAN UV4000PLUS. THIS INFORMATION HAS BEEN PROVIDED FOR REFERENCE. THE CONTRACTOR MUST ESTABLISH MEANS AND METHODS AND REPAIR CONCRETE CHANNEL TO MEET NEW EQUIPMENT INSTALLATION REQUIREMENTS. THE BID FORM INCLUDES STRUCTURAL CONCRETE REPAIR ASSUMPTIONS FOR BIDDING PURPOSES, BUT CONTRACTOR MUST ACCOUNT FOR FINISHING TOLERANCES. CONCRETE WALL SURFACES TO BE REPAIRED PER DETAIL S204/TYP, TYPE 2 REPAIR.
3. DEMO SLIDE GATE. SEE SPECIFICATION SECTION 01_14_00 - WORK RESTRICTIONS FOR ADDITIONAL REQUIREMENTS.
4. DEMO UV RECIRCULATION PUMP. SEE SPECIFICATION SECTION 01_14_00 - WORK RESTRICTIONS FOR ADDITIONAL REQUIREMENTS.
5. DEMOLISH EXISTING WEIR WALLS TO ELEVATION SHOWN ON 40D03. CUT REINFORCING AND GRIND TO 2" BELOW CONCRETE SURFACE, PAINT ENDS WITH EPOXY, AND PATCH HOLES WITH DRY PACK MORTAR PER SPECIFICATION 01_35_21. REPAIR SURFACES PER DETAIL S204/TYP, TYPE 2 REPAIR.
6. DEMO LADDER. CUT ANCHORS AND GRIND TO 2" BELOW CONCRETE SURFACE, PAINT ENDS WITH EPOXY, AND PATCH HOLES WITH DRY PACK MORTAR PER SPECIFICATION 01_35_21.
7. DEMO SST WEIR PLATE AND ASSOCIATED ANCHORS.
8. UV LAMPS CONTAIN MERCURY AND MUST BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS, INCLUDING BUT NOT LIMITED TO CALIFORNIA CODE OF REGULATIONS, TITLE 22 AND US EPA, RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) UNIVERSAL WASTE RECYCLING AND DISPOSAL REQUIREMENTS. CONTRACTOR MUST PROVIDE PROOF OF FINAL DISPOSITION OF MERCURY-CONTAINING MATERIALS BY A QUALIFIED WASTE COLLECTION AND MANAGEMENT ORGANIZATION. REFER TO SECTION 01_35_21 - SELECTIVE DEMOLITION FOR ADDITIONAL SPECIFIC REQUIREMENTS.

REV	DATE	BY	DESCRIPTION

DESIGNED ARL
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
ALEXANDER R. LAMB
No. 92482
CIVIL
STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 10:37:17-07'00'

carollo

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
DEMOLITION
UV DISINFECTION SYSTEM
BOTTOM PLAN

VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DRAWING NO. 40D01
SHEET NO. 12 OF 79

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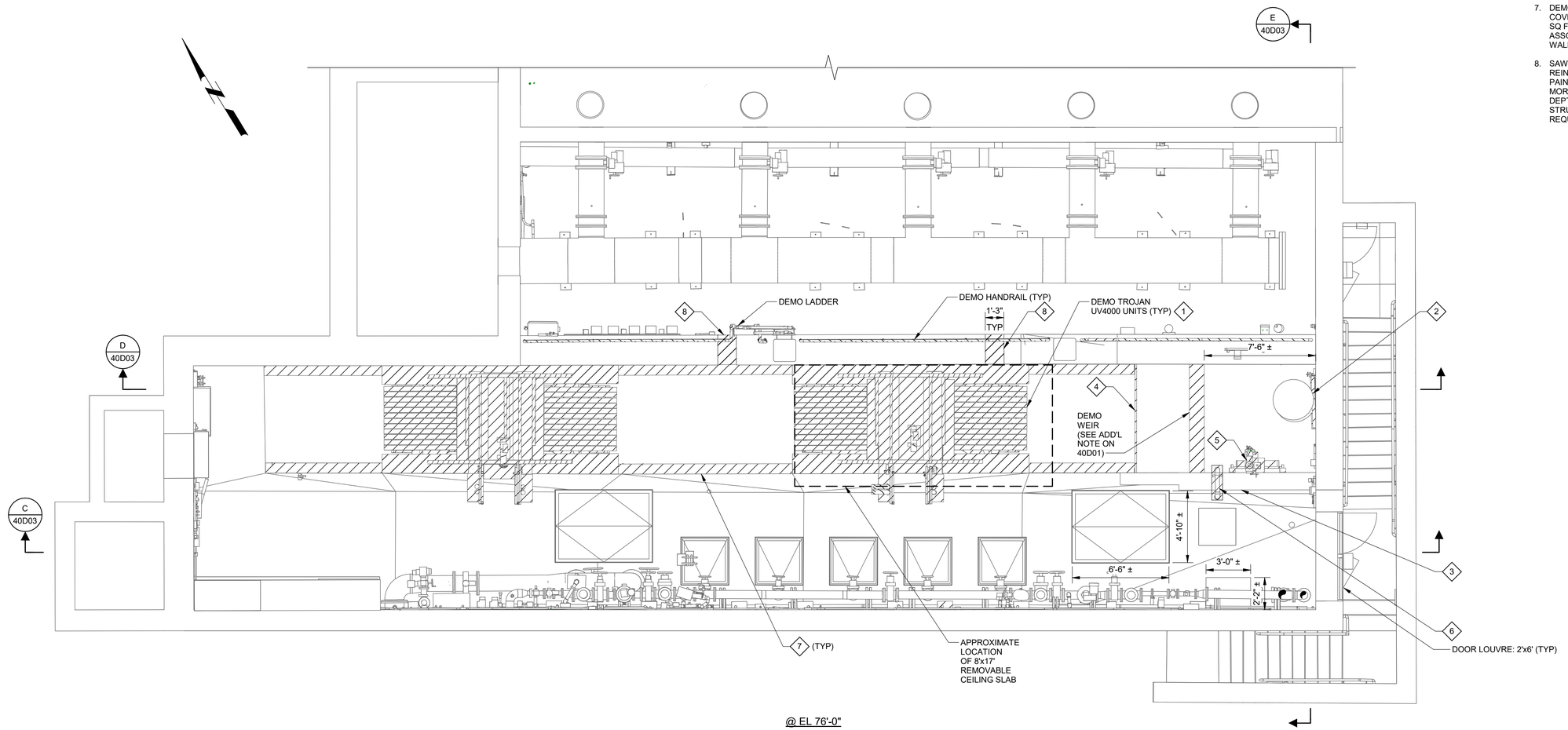
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GENERAL NOTES:

1. SEE 40D01 FOR GENERAL NOTES.

KEY NOTES:

1. SEE NOTES ON 40D01 FOR UV400PLUS DEMOLITION.
2. REMOVE 24" FILTERED WATER OVERFLOW. OVERFLOW TO BE REPLACED TO EXISTING OPERATIONAL CONDITION AFTER BYPASS IS COMPLETE.
3. GRATING AND SUPPORT ANGLES IN THE RAISED CHANNEL AREA MAY BE REMOVED IF NECESSARY FOR ACCESS, BUT SHALL BE REPLACED TO EXISTING OPERATIONAL CONDITION PRIOR TO COMPLETION.
4. DEMOLISH WOOD UNDERFLOW BAFFLES AND GUIDES.
5. DEMO SLIDE GATE. SEE SPECIFICATION SECTION 01_14_00 - WORK RESTRICTIONS FOR ADDITIONAL REQUIREMENTS.
6. DEMO UV RECIRCULATION PUMP. SEE SPECIFICATION SECTION 01_14_00 - WORK RESTRICTIONS FOR ADDITIONAL REQUIREMENTS.
7. DEMO UV CHANNEL COVER PLATES AND SUPPORT ANGLES. COVER PLATES NOT SHOWN ON DRAWING. ASSUME DEMO OF 350 SQ FT OF 2" DEEP FIBERGLASS GRATING AND 80 FEET OF ASSOCIATE SUPPORT ANGLES AND ANCHORS IN THE CHANNEL WALLS.
8. SAWCUT WALL FOR CABLE TRENCH PENETRATION, CUT REINFORCING AND GRIND TO 2" BELOW CONCRETE SURFACE, PAINT ENDS WITH EPOXY, AND PATCH HOLES WITH DRY PACK MORTAR PER SPECIFICATION 01_35_21. WALL PENETRATION DEPTH PER SECTION H/40S04. COORDINATE FINAL LOCATION WITH STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS AND REQUIREMENTS.



@ EL 76'-0"

B PLAN

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

REV	DATE	BY	DESCRIPTION

DESIGNED ARL
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
ALEXANDER R. LAMB
No. 92482
CIVIL
STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 10:37:36-05'00'

alexander lamb

carollo

CITY OF PACIFICA

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UV DISINFECTION SYSTEM REPLACEMENT

DEMOLITION

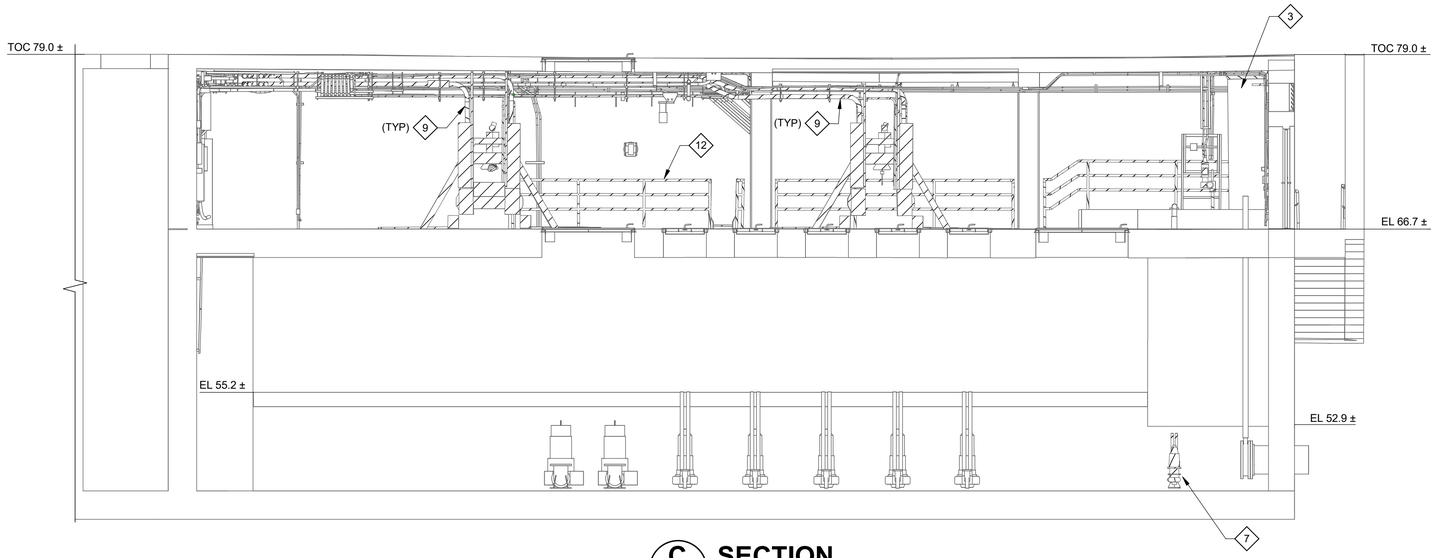
UV DISINFECTION SYSTEM
TOP PLAN

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

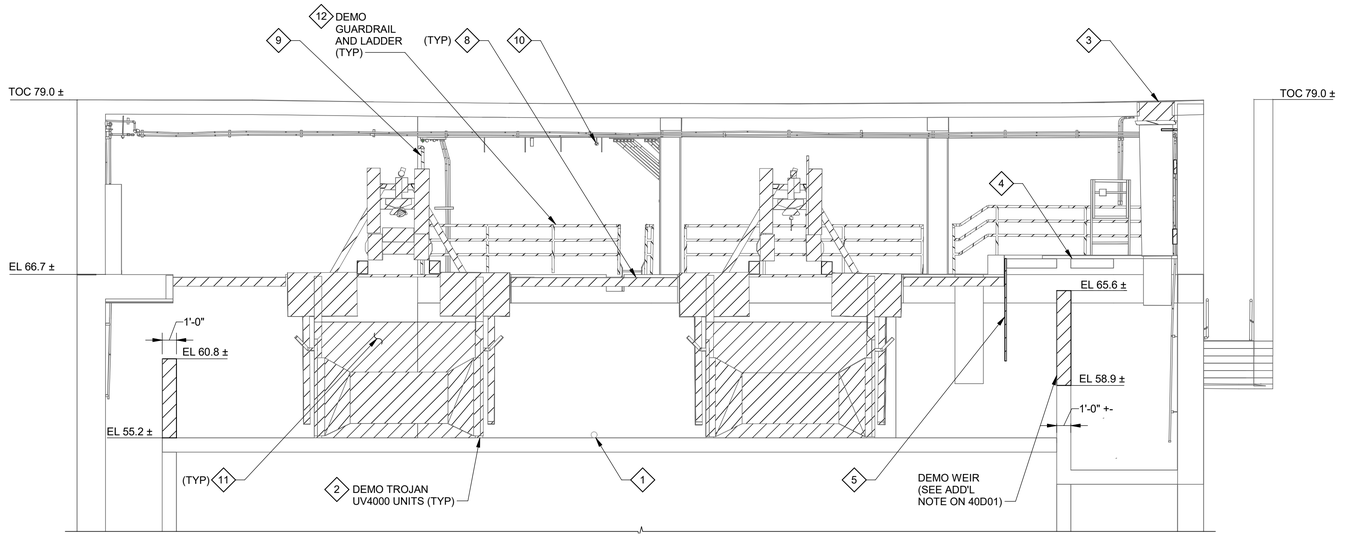
JOB NO. 201447
DRAWING NO. 40D02
SHEET NO. 13 OF 79

PLOT DATE: 3/15/2024 8:38:00 AM

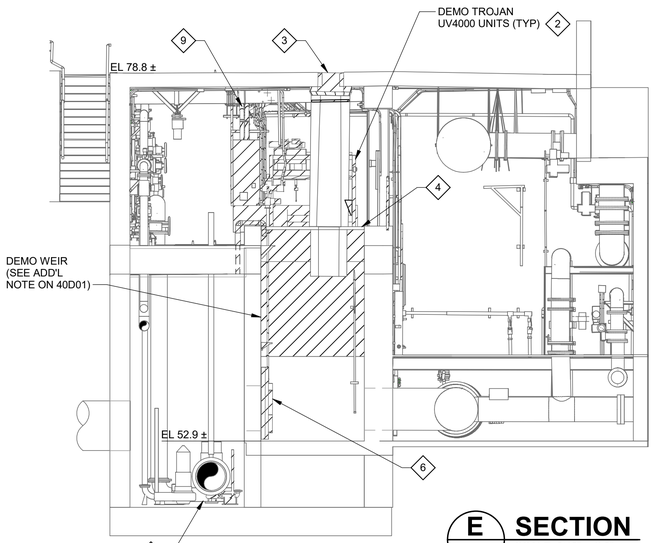
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C 40D01 **SECTION**
SCALE: 3/16" = 1'-0"



D 40D01 **SECTION**
SCALE: 3/16" = 1'-0"



E 40D01 **SECTION**
SCALE: 3/16" = 1'-0"

GENERAL NOTES:

1. SEE 40D01 FOR GENERAL NOTES.

KEY NOTES:

1. DEMO 4" STEEL DRAIN. DEMO ANY EXISTING GROUT IN WALL PENETRATION, AND ROUGHEN SURFACE TO 1/4" AMPLITUDE.
2. SEE NOTES ON 40D01 FOR UV4000PLUS DEMOLITION. DEMOLITION OF THE EMBEDDED METAL TUBE IS PART OF THE DEMOLITION. CONTRACTOR SHOULD NOT UNDER ESTIMATE THE AMOUNT OF DEMOLITION REQUIRED TO REMOVE TUBE AND CONCRETE.
3. REMOVE 24" FILTERED WATER OVERFLOW. OVERFLOW TO BE REPLACED TO EXISTING OPERATIONAL CONDITION AFTER BYPASS IS COMPLETE. EXISTING OVERFLOW AND SUPPORTS MAY BE STORED AT THE CONTRACTOR'S EXPENSE AND RETURNED TO SERVICE AT THE END OF THE PROJECT PROVIDED THAT THE MATERIALS ARE IN THE SAME CONDITION AS BEFORE REMOVAL. OTHERWISE, THE CONTRACTOR SHALL REPLACE IN KIND.
4. GRATING AND SUPPORT ANGLES IN THE RAISED CHANNEL AREA MAY BE REMOVED IF NECESSARY FOR ACCESS, BUT SHALL BE REPLACED TO EXISTING OPERATIONAL CONDITION PRIOR TO COMPLETION.
5. DEMOLISH WOOD UNDERFLOW BAFFLES AND GUIDES.
6. DEMO SLIDE GATE. SEE SPECIFICATION SECTION 01_14_00 - WORK RESTRICTIONS FOR ADDITIONAL REQUIREMENTS.
7. DEMO UV RECIRCULATION PUMP. SEE SPECIFICATION SECTION 01_14_00 - WORK RESTRICTIONS FOR ADDITIONAL REQUIREMENTS.
8. DEMO UV CHANNEL COVER PLATES AND SUPPORT ANGLES. SEE NOTE ON 40D02.
9. DEMOLISH CONDUIT, CONDUCTORS, AND COMMUNICATION WIRE ASSOCIATED WITH THE EXISTING UV4000 UNITS COMPLETELY IN THE UV BUILDING. TIMING OF DEMOLITION AND REUSE OF CONDUIT AND/OR WIRING TO BE COORDINATED WITH DEMOLITION AND INSTALLATION OF NEW WIRING AND CONDUIT.
10. DEMOLISH SECTION OF 2" UW OVER UV CHANNEL. SEE MECHANICAL PLANS FOR ADDITIONAL DETAIL AND EXTENT.
11. DEMOLISH CONCRETE AROUND UV UNIT. EXISTING STRUCTURE WALLS AND SLAB TO BE PROTECTED AND/OR REPAIRED ACCORDING TO STRUCTURAL REPAIR DETAILS.
12. DEMO FLOOR MOUNTED HANDRAIL (TYP) PER SPECIFICATION 01_35_21.

REV	DATE	BY	DESCRIPTION

DESIGNED ARL
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 10:37:54-05'00'

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UV DISINFECTION SYSTEM REPLACEMENT

DEMOLITION

UV DISINFECTION SYSTEM SECTIONS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 40D03
SHEET NO. 14 OF 79

PLOT DATE: 3/15/2024 8:38:03 AM

FILE NAME: R:\d0203205\201447M800.rvt

ABBREVIATIONS

	△	DELTA, DEFLECTION ANGLE, OR CENTRAL ANGLE
	#	NUMBER (REBAR Ø)
	@	AT (MEASUREMENT)
	+/-	PLUS/MINUS
A	ABC	AGGREGATE BASE COURSE
	ABND	ABANDONED
	AC	ASPHALTIC CONCRETE
	ACI	AMERICAN CONCRETE INSTITUTE
	ACP	ASBESTOS CEMENT PIPE
	ADDL	ADDITIONAL
	ADJ	ADJACENT, ADJUST(ABLE)
	AL	ALUMINUM
	APPROX	APPROXIMATE(LY)
	ARV	AIR RELEASE VALVE
	ASSY	ASSEMBLY
	ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
	AVG	AVERAGE
	AVV	AIR AND VACUUM VALVE
B	BC	BEGIN CURB
	BF	BLIND FLANGE
	BFP	BACK FLOW PREVENTER
	BFV	BUTTERFLY VALVE
	BH	BOREHOLE
	BLDG	BUILDING
	BM	BENCH MARK
	BO	BLOW OFF
	BOC	BACK OF CURB
	BOP	BOTTOM OF PIPE
	BOT	BOTTOM
	BV	BALL VALVE
	BVC	BEGINNING OF VERTICAL CURVE
	BYP	BYPASS
C	CATV	CABLE TV
	CAV	COMBINATION AIR VALVE
	CB	CATCH BASIN
	CC	CENTER OF CURVATURE, CENTER TO CENTER, CONCRETE CURB
	CDT	CONDUIT
	CF	CUBIC FEET
	CFM	CUBIC FOOT PER MINUTE
	CFS	CUBIC FEET PER SECOND
	CI	CAST IRON
	CIP	CAST IRON PIPE
	CIPP	CURED IN PLACE PIPE
	CJ	CONSTRUCTION JOINT
	CL	CENTER LINE
	CLK	CHAIN LINK
	CLR	CLEAR / CLEARANCE
	CLSM	CONTROL LOW STRENGTH MATERIAL
	CMLC	CEMENT MORTAR LINED AND COATED
	CMP	CORRUGATED METAL PIPE
	CMU	CONCRETE MASONRY UNIT
	CO	CLEANOUT
	CONC	CONCRETE
	CONN	CONNECT, CONNECTION
	CONST	CONSTRUCTION
	CONT	CONTINUOUS OR CONTINUATION OR (D)
	COORD	COORDINATE
	CP	CONTROL POINT
	CPLG	COUPLING
	CSP	CORRUGATED STEEL PIPE
	CTJ	CONTROL JOINT
	CTL	CONTROL
	CTR	CENTER, CENTERED
	CU	CUBIC
	CULV	CULVERT
	CY	CUBIC YARD
D	D	DRAIN, DEPTH
	D/W	DRIVEWAY APRON
	DB	DUCTBANK
	DEG or °	DEGREE
	DEMO	DEMOLISH, DEMOLITION
	DET	DETAIL
	DI	DROP INLET
	DIA or Ø	DIAMETER
	DIFF	DIFFERENCE
	DIM	DIMENSION
	DIP	DUCTILE IRON PIPE
	DIST	DISTANCE
	DR	DRIVE, DRAIN
	DWG(S)	DRAWING(S)
E	E	ELECTRICAL, EAST
	EA	EACH
	EC	END OF CURB
	ECC	ECCENTRIC REDUCER
	EG	EXISTING GROUND
	EL	ELEVATION
	ELL	ELBOW
	ELEC	ELECTRICAL
	EMH	ELECTRICAL MANHOLE
	EOP	END OF PIPE
	EP	EDGE OF PAVEMENT
	EQ	EQUAL
	EQUIP	EQUIPMENT
	ES	EACH SIDE
	ESMT	EASEMENT
	EVC	END OF VERTICAL CURVE
	EW	EACH WAY
	EX/EXIST	EXISTING
	EXP	EXPANSION
	EXT	EXTERIOR
F	FC	FLEXIBLE COUPLING
	FCA	FLANGE COUPLING ADAPTER
	FF	FINISHED FLOOR
	FG	FINISHED GRADE
	FH	FIRE HYDRANT
	FIN	FINISH
	FL	FLOOR, FLOW LINE
	FLEX	FLEXIBLE
	FLG	FLANGE(D)
	FM	FORCE MAIN
	FND	FOUNDATION
	FO	FIBER OPTIC
	FOB	FLAT ON BOTTOM
	FOC	FACE OF CURB
	FOT	FLAT ON TOP
	FPM	FEET PER MINUTE
	FS	FIRE SERVICES
	FSP	FABRICATED STEEL PIPE
	FT or '	FOOT, FEET
	FTG	FOOTING
G	G	GAS, GUTTER
	GA	GAUGE
	GAL	GALLONS
	GALV	GALVANIZE(D)
	GB	GRADE BREAK
	GC	GROOVED COUPLING
	GEN	GENERAL, GENERATOR
	GM	GAS METER
	GND	GROUND
	GPD	GALLONS PER DAY
	GPM	GALLONS PER MINUTE
	GR	GRADE
	GRTG	GRATING
	GSP	GALVANIZED STEEL PIPE
	GV	GATE VALVE
H	HDPE	HIGH DENSITY POLYETHYLENE
	HORIZ	HORIZONTAL
	HP	HIGH POINT
	HPGM	HIGH PRESSURE GAS MAIN
	HW	HEADWALL, HOT WATER
	HWL	HIGH WATER LEVEL
	HWY	HIGHWAY
	HYD	HYDRANT
I	ID	INSIDE DIAMETER
	IE	INVERT ELEVATION
	IN or "	INCHES
	INCL	INCLUDE, INCLUDING
	INSTR	INSTRUMENTATION
	INV	INVERT
	IP	IRON PIPE
	IRR	IRRIGATION
J	JT	JOINT
L	L	LENGTH
	LAT	LATERAL, LATITUDE
	LB(S)	POUND(S)
	LF	LINEAL FEET
	LH	LEFT HAND
	LONG	LONGITUDINAL
	LP	LOW POINT
	LT	LEFT
	LWL	LOW WATER LEVEL
M	MATL	MATERIAL
	MAX	MAXIMUM
	MECH	MECHANICAL
	MFR	MANUFACTURER
	MGD	MILLION GALLONS PER DAY
	MH	MANHOLE
	MIN	MINIMUM
	MISC	MISCELLANEOUS
	MJ	MECHANICAL JOINT
	MON	MONUMENT
N	N	NORTH, NORTHING
	NA	NOT APPLICABLE
	NE	NORTHEAST
	NG	NATURAL GAS
	NIC	NOT IN CONTRACT
	NO or #	NUMBER
	NOM	NOMINAL
	NW	NORTHWEST
O	O.F.	OUTSIDE FACE
	OC	ON CENTER
	OD	OUTSIDE DIAMETER, OUTSIDE DIMENSION
	OHE	OVERHEAD ELECTRIC
P	PB	PULLBOX
	PC	POINT OF CURVATURE
	PCC	POINT OF COMPOUND CURVE
	PCO	PRESSURE CLEAN OUT
	PERP	PERPENDICULAR
	PH	POTHOLE
	PI	POINT OF INTERSECTION
	PL	PLATE, PROPERTY LINE
	POB	POINT OF BEGINNING
	PP	POWER POLE
	PRC	POINT OF REVERSE CURVATURE
	PROP	PROPERTY
	PL	PROPERTY LINE
	PSI	POUNDS PER SQUARE INCH
	PT	POINT, POINT OF TANGENCY
	PV	PLUG VALVE
	PVC	POINT OF VERTICAL CURVATURE
	PVC	POLYVINYL CHLORIDE
	PVI	POINT OF VERTICAL INTERSECTION
	PVMT	PAVEMENT
	PVT	POINT OF VERTICAL TANGENCY
Q	QTY	QUANTITY
R	R	RADIUS
	RAD	RADIAL
	RCB	REINFORCED CONCRETE BOX CULVERT
	RCP	REINFORCED CONCRETE PIPE
	RED	REDUCER
	REF	REFERENCE
	REINF	REINFORCE(D)(ING)(MENT)
	REQ'D	REQUIRED
	REV	REVISION
	RFCA	RESTRAINED FLEX COUPLING ADAPTER
	RH	RIGHT HAND
	R/W or ROW	RIGHT OF WAY
	RR	RAILROAD
	RT	RIGHT
S	S	SLOPE, SOUTH
	SCH	SCHEDULE
	SD	STORM DRAIN
	SDDI	STORM DRAIN DROP INLET
	SDMH	STORM DRAIN MANHOLE
	SE	SOUTHEAST
	SECT	SECTION
	SHLD	SHOULDER
	SHT	SHEET
	SIM	SIMILAR
	SL	SLOPE
	SPEC(S)	SPECIFICATION(S)
	SQ	SQUARE
	SS	SANITARY SEWER
	SSCO	SANITARY SEWER CLEANOUT
	SSMH	SANITARY SEWER MANHOLE
	SST	STAINLESS STEEL
	ST	STREET
	STA	STATION
	STD(S)	STANDARD(S)
	STL	STEEL
	STRUCT	STRUCTURAL
	SW	SOUTHWEST
	SWK	SIDEWALK
	SYM	SYMMETRICAL
T	TB	THRUST BLOCK
	TC	TOP OF CURB
	TEL	TELEPHONE
	TOG	TOP OF GRADING
	TMH	TELEPHONE MANHOLE
	TOC	TOP OF CONCRETE
	TOP	TOP OF PIPE
	TOW or TW	TOP OF WALL
	TRD	TREAD
	TYP	TYPICAL
U	UC	UNDERCUT
	UG	UNDERGROUND
	UGE	UNDERGROUND ELECTRIC
	UNKN	UNKNOWN
	UNO	UNLESS NOTED OTHERWISE
	USA	UNDERGROUND SERVICE ALERT
V	V	VERTICAL, VALVE
	VAR	VARIES
	VB	VALVE BOX
	VC	VERTICAL CURVE, VICTAULIC COUPLER
	VCP	VITRIFIED CLAY PIPE
	VERT	VERTICAL
	VLT	VAULT
	VPI	VERTICAL POINT OF INTERSECTION
W	W	WATER, WIDTH OR WEST
	W/	WITH
	W/O	WITHOUT
	WL	WATER LEVEL
	WM	WATER METER
	WS	WATER SURFACE
	WSP	WELDED STEEL PIPE
	WSTP	WATERSTOP
	WV	WATER CONTROL VALVE
	WW	WASTEWATER
X	XFMR	TRANSFORMER
Y	YD	YARD

NOTES

GENERAL NOTES:

1. FOLLOWING NOTES ARE GENERAL AND APPLY TO ALL SHEETS OF THESE CONTRACT DOCUMENTS AS IF THEY WERE WRITTEN IN THEIR ENTIRETY ON EACH SHEET.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
3. UNLESS DETAILED, SPECIFIED, OR OTHERWISE INDICATED ON THE DRAWINGS, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS SHALL APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS ON DRAWINGS.
4. WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF WORK. DETAILS SHALL BE IN THE SAME AS FOR OTHER SIMILAR WORK.
5. CONTRACTOR SHALL COMPLY WITH LOCAL CONSTRUCTION STORM WATER DISCHARGE REGULATIONS AND REQUIREMENTS.
6. PRIOR TO EXCAVATION FOR NEW STRUCTURES, ELECTRICAL CONDUIT, FABRICATION OF NEW PIPING AND/OR OTHER PROPOSED UTILITIES, CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL EXISTING PIPING AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL TEMPORARILY RELOCATE CONFLICTING EXISTING UTILITIES AT TIE-IN/CONNECTION LOCATIONS AND REINSTALL THEM AS REQUIRED TO ELIMINATE THE CONFLICT AT NO ADDITIONAL COST TO THE OWNER.
7. ALL PIPELINES 12" AND LARGER SHALL HAVE A MINIMUM COVER OF 36" UNLESS THE COVER DEPTH IS SPECIFICALLY INDICATED ON THE DRAWINGS. PIPE SMALLER THAN 12" SHALL HAVE A MINIMUM COVER OF 30" UNLESS NOTED OTHERWISE. PIPES SHALL BE ROUTED AS SHOWN UNLESS MINOR REVISIONS ARE NECESSARY TO MISS EXISTING PIPES, STRUCTURES, ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL FITTINGS AND ADAPTERS REQUIRED TO MAKE THE ROUTING CHANGES AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL INCLUDE COST FOR THIS IN THE BID.
8. EXISTING FACILITY AND UTILITY INFORMATION SHOWN ON THE DRAWINGS WAS OBTAINED FROM AVAILABLE RECORDS OR ELECTRONIC FILES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR FACILITIES AND UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS, SIZES, MATERIAL TYPES, AND ELEVATIONS SHOWN AROUND OR NEAR AREAS OF NEW CONSTRUCTION PRIOR TO START OF CONSTRUCTION.
9. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT FROM DAMAGE EXISTING FACILITIES AND UTILITIES SHOWN OR NOT SHOWN THAT ARE TO REMAIN IN PLACE. ALL FACILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED TO THE ORIGINAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
10. CONTRACTOR SHALL MAKE CONNECTIONS TO EXISTING PIPE, EQUIPMENT, ETC. AS REQUIRED AND SHALL PROVIDE ALL FITTINGS, ADAPTERS, AND APPURTENANCES REQUIRED TO MAKE THE CONNECTIONS. PROVIDE ALL SUPPORTS REQUIRED FOR A RIGIDLY SUPPORTED COMPLETE AND WORKING SYSTEM.
11. ADJUST ALL VALVE BOXES, VAULTS, PULL BOXES, AND MANHOLES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR DIRECTED. MANHOLES IN OPEN FIELDS SHALL BE SET TWELVE INCHES ABOVE FINISHED GRADE AND VAULTS SHALL BE SIX INCHES ABOVE FINISHED GRADE.
12. THE CONTRACTOR SHALL CONTACT THE PROPER UTILITY REPRESENTATIVE AS FOLLOWS FOR QUESTIONS OR COORDINATION OF CONSTRUCTION RELATED TO EXISTING UTILITIES.
13. CONTRACTOR SHALL VERIFY THAT PIPING SHOWN TO BE ABANDONED OR AS ABANDONED PREVIOUSLY IS NO LONGER IN SERVICE. LINES IN SERVICE SHALL BE MAINTAINED UNTIL NO LONGER REQUIRED BY THE PLANT.
14. ALL EXISTING PIPES THAT ARE TO BE ABANDONED IN PLACE OR REMOVED MAY NOT BE SHOWN. WHERE PIPING IS TO BE ABANDONED AND MUST REMAIN IN SERVICE UNTIL COMPLETION OF OTHER PHASES OF WORK, AND IT CONFLICTS WITH NEW PIPING, TEMPORARILY RELOCATE PIPING AS REQUIRED TO MAINTAIN SERVICE BY THE PLANT.
15. CONTRACTOR SHALL REROUTE THE EXISTING PIPING IF REQUIRED TO MISS THE PROPOSED STRUCTURES. THE EXISTING PIPE SHALL REMAIN IN SERVICE UNTIL NEW PIPING IS READY TO BE PLACED INTO SERVICE. DOWNTIME SHALL BE A MAXIMUM OF 2 HOURS, UNLESS SPECIFIED OR SHOWN OTHERWISE.
16. ALL SIDEWALKS TO BE 3'-0" WIDE UNLESS SHOWN OTHERWISE.
17. THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS IN THE VICINITY OF ANY OVERHEAD ELECTRIC LINES. CONTRACTOR SHALL ABIDE BY THE NATIONAL ELECTRIC CODE AND ANY REQUIREMENT BY THE OWNER OF THE ELECTRIC LINES.
18. PROVIDE ALL SHEETING/SHORING REQUIRED TO PROTECT EXISTING STRUCTURES, PIPES AND FACILITIES.
19. CONTRACTOR SHALL VERIFY LOCATION OF ALL ARCHITECTURAL, MECHANICAL, AND ELECTRICAL ITEMS BEFORE PLACING ANY STRUCTURAL STEEL OR CONCRETE. ALSO, STRUCTURAL DIMENSIONS AND OPENINGS CONTROLLED BY ARCHITECTURAL, MECHANICAL, OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
20. MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES, AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS, THAT ARE REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

GENERAL PIPELINE NOTES:

1. DIMENSIONS TO STRUCTURES, REFERENCED PIPING, PAVING, AND OTHER IMPROVEMENTS IS APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND CONDITIONS 14 DAYS IN ADVANCE OF THE CONSTRUCTION PROGRESS. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER.
2. CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE OF 10 FEET HORIZONTAL AND 3 FEET VERTICAL BETWEEN THE SEWER LINES AND EXISTING WATER LINES.
3. IN ALL LOCATIONS WHERE TRENCH PLATE IS USED FOR VEHICULAR OR PEDESTRIAN TRAFFIC, THE CONTRACTOR SHALL APPLY SKID RESISTANT COATING ON THE TRENCH PLATES AND COLD MIX ASPHALT CONCRETE AT THE EDGES. THE TRENCH PLATES SHALL BE NOTCHED INTO THE ASPHALT, CONCRETE, OR TRAVELED SURFACE TO PREVENT SLIPPAGE AND ROCKING UNDER TRAFFIC.
4. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES ADJACENT TO THE WORK, THROUGHOUT THE CONSTRUCTION PERIOD.
5. ALL OPEN TRENCHES, WORK AREAS AND SHAFTS SHALL HAVE A SHORING SYSTEM IN ACCORDANCE WITH OSHA, STATE AND LOCAL REQUIREMENTS.
6. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, COUNTY, AND LOCAL LAWS AND ORDINANCES RELATING TO THE SAFETY AND CHARACTER OF WORK, EQUIPMENT AND PERSONNEL. THIS INCLUDES BUT IS NOT LIMITED TO SHEETING, SHORING, BRACING, VENTILATION, CONFORMANCE WITH TRAFFIC CONTROL AND MAINTENANCE OF BARRICADES AND WARNING DEVICES.
7. LAYOUT DRAWINGS ARE REQUIRED FOR PIPING INSTALLED.
8. CONTRACTOR SHALL TAKE ALL PRACTICAL PRECAUTIONS TO MINIMIZE DISTURBANCES TO STREAMS, VEGETATION, TREES AND CROP LANDS. WHEREVER PRACTICAL LEAVE EXISTING TREES AND VEGETATED AREAS UNDISTURBED.

UTILITY NOTES:

1. EXISTING UTILITIES IN THE PROJECT MAY BE IN A FRAGILE CONDITION. THE CONTRACTOR SHALL EXERCISE NECESSARY CAUTION WHEN WORKING NEAR EXISTING UTILITIES.
2. PLAN LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES ARE BASED ON RECORD DRAWINGS, POTHOLING AND SURVEY INFORMATION AND ARE CONSIDERED APPROXIMATE ONLY. WHERE NO ELEVATIONS ARE SHOWN, NO INFORMATION WAS AVAILABLE DURING THE DESIGN PERIOD.
3. SOME UTILITY SERVICES MAY NOT BE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO LOCATE AND PROTECT SERVICE DURING CONSTRUCTION.
4. CONTRACTOR SHALL CALL THE "LOCAL UTILITY LOCATOR" PRIOR TO ANY EXCAVATION ACTIVITIES.
5. THE LOCATION, SIZE, AND MATERIALS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE DRAWINGS ARE APPROXIMATE AND IS SHOWN FOR BIDDING PURPOSES. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE UTILITY OWNERS SO THAT THOSE UTILITIES MAY MARK THE LOCATION OF THEIR UTILITIES PRIOR TO ANY EXCAVATION ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT EXISTING UTILITIES.

EARTHWORK NOTES:

1. CLEAR THE CONSTRUCTION AREA OF NATURAL OBSTRUCTIONS EXISTING FOUNDATIONS, BUILDINGS, FENCES, LUMBER, WALLS, STUMPS, BRUSH, WEEDS, RUBBISH, TREES, BOULDERS, AND ANY OTHER ITEMS WHICH INTERFERES WITH CONSTRUCTION OPERATIONS OR ARE DESIGNATED FOR REMOVAL.
2. GRUB OUT AND DISPOSE OF TREE TRUNKS AND ROOT MATERIAL BELOW THE GROUND SURFACE REMAINING AFTER CLEARING.
3. DISPOSE OF THE UNACCEPTABLE BACKFILL MATERIAL FROM THE CLEARING AND GRUBBING OPERATIONS AT NO ADDITIONAL COST TO THE OWNER.
4. STRIP AND STOCKPILE THE TOPSOIL. THE DEPTH OF STRIPPING SHALL BE ESTIMATED TO BE 12-INCHES BUT WILL BE DETERMINED IN THE FIELD AS SOIL CONDITIONS DICTATE.
5. REPLACE STOCKPILED SOIL AND RESTORE SITE AS SPECIFIED.
6. ROCK AND AGGREGATE STORAGE AREAS SHALL BE RESTORED BY EXCAVATING ANY SOILS CONTAINING ROCK OR AGGREGATE AND BACKFILLING WITH TOPSOIL. SOIL REMOVED MAY BE USED FOR TRENCH BACKFILL ABOVE THE PIPE ZONE AND 3 FEET BELOW FINISHED GRADE.

REV	DATE	BY	DESCRIPTION

DESIGNED CE
DRAWN CE
CHECKED CHK
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER — BRYAN A. BURNITT — No. 83046 — CIVIL — STATE OF CALIFORNIA

Digitally signed by Bryan A. Burnitt
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.21 18:54:50-00'00'

carollo

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
CIVIL
CIVIL NOTES AND ABBREVIATIONS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. GC01
SHEET NO. 15 OF 79

Plot Date: 10/5/2022 11:06:47 AM
LAST SAVED BY: alucker

PROJECT NO. 201447-100000 FILE NAME: 201447GC01.dwg

Plot Date: 10/5/2022 11:08:46 AM

DETAIL REFERENCES

PLAN/TITLE — VIEW; DESCRIPTION; VIEW TITLE; A PLAN; SCALE: SCALE; FILE: FILE; PLAN NOT REFERENCED

SECTION CUT — A; VIEW; ##X##; - = SHOWN ON SAME DRAWING; ##X## = SEE INDICATED DRAWING

SECTION OR DETAIL — ALPHA = SECTION; NUMERIC = DETAIL; DESCRIPTION; VIEW TITLE; C/1; ##X##; ELEVATION; SCALE: SCALE; FILE: FILE

TITLE W/ REFERENCE — DRAWING CUT ORIGINATION

DETAIL CALL-OUT (ENLARGED) — 1; VIEW; ##X##; SEE INDICATED DRAWING

DRAWING REFERENCE — AREA DESIGNATOR (WHEN APPLICABLE); DISCIPLINE DESIGNATOR; ##X##; CONSECUTIVE SHEET NUMBER

TYPICAL DETAIL REFERENCE — TYPICAL DETAIL #; ?; TYP

EXTERIOR ELEVATION VIEWS — A; ##X##

PHOTO LOCATION — # ; - ; ARROW INDICATES POINT OF VIEW

GRID BUBBLE

TYPICAL DETAIL # — ?; TYP; LINE 3; LINE 1; LINE 2; TYPICAL DETAIL TITLE

S — MODIFICATION NOTE; S = STANDARD; J = JOB SPECIFIC; R = REVISED; N = NOTE TO TYPICAL DETAIL USER

SHT X OF X — SHEETS IN DETAIL

XX/XX/20XX — DATE CREATED (REVISED)

LINE WORK

- NEW STRUCTURES OR EDGE OF PAVEMENT
- EXISTING STRUCTURES (SCREENED)
- NEW PIPING (TRIPLE LINES)
- NEW PIPING (SINGLE LINE)
- EXISTING PIPING (TRIPLE LINES) (SCREENED)
- EXISTING PIPING (SINGLE LINE)(SCREENED)
- HIDDEN LINE OR TRAIL EDGE
- CENTER, MONUMENT, OR SURVEY LINE
- GUARDRAIL
- EXISTING CONTOURS (SCREENED) — 310
- NEW CONTOURS — 310
- NEW FENCE — X
- EXISTING FENCE (SCREENED) — X
- REMOVE OR ABANDONED (CROSS HATCHING: FENCE SHOWN AS EXAMPLE)
- POWER POLE & LINE — OHE; PP; OHE
- CABLE TV (UNDERGROUND) — CTV
- FIBER OPTIC — FO
- FUEL — F
- NATURAL GAS — G
- UNDERGROUND ELECTRIC — UGE
- SANITARY SEWER — SS
- FORCEMAIN SANITARY SEWER — FM
- STORM DRAIN — SD
- TELEPHONE — TEL
- WATER — W
- PROPERTY LINE OR RIGHT OF WAY
- SLOPE
- NEW ROAD
- EXISTING ROAD (SCREENED)
- FUTURE ROAD, WATER EDGE OR RIDGE
- CURB & GUTTER
- CURB
- SWALE
- FLOWLINE
- SHORING
- RAILROAD TRACKS
- LIMITS OF CONSTRUCTION — LOC
- SILT FENCE — SF
- EASEMENT
- EXISTING EASEMENT
- CITY LIMITS
- EXISTING GRADE (PROFILE)
- PROPOSED GRADE (PROFILE)
- MATCH LINE — MATCH LINE STA XXX SEE DWG XXX

COORDINATES / ELEVATION

COORDINATES — XX; N 1600000 E 1000000; N XXXXXXX.XX; E XXXXXXX.XX

CONTROL POINT — XX

SPOT ELEVATION — FG XX.XX; ANY SPECIFIC DESIGNATIONS NOTED WILL NEED TO REFER TO ABBREVIATIONS

EXISTING SPOT ELEVATION — X 1325.00

SLOPE CALLOUT — 2:1; 2; 1; 2.0%; S=0.0020

ROADWAY / PIPE CURVES

ROADWAY / PIPE CURVE

(SEE TABLE ON EACH PAVING AND GRADING OR CIVIL PIPING DWG WITH ROADWAY / PIPE CURVES.)

LENGTH; CURVE NUMBER; CXX; PC; CLOCKWISE; ANGLE; RADIUS; PT; RADIUS POINT; EDGE OF PVMT OR OUTSIDE FACE OF CURB

HATCH PATTERNS

- AGGREGATE BASE COURSE (ABC)
- ASPHALT PAVING
- OR
- (WITH AERIAL)
- BEDROCK
- CLSM
- CONCRETE (ALL CLASSES)
- DRAIN ROCK
- GRAVEL
- GRATING; SPAN
- LANDSCAPING
- RIPRAP
- EXISTING/ UNDISTURBED SOIL
- STRUCTURAL FILL OR BACKFILL
- STEEL
- STAGING AREA
- TREAD PLATE

SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	EXISTING CONTROL POINT	CTV	CABLE TV	CO	CLEANOUT
	EXISTING MONUMENT		POWER TOWER		AIR RELEASE VALVE
XX	CONTROL POINT		GATE		BLOW OFF VALVE
B-XX	SOIL BORING LOCATIONS		GUARD POST		HOSE BIBB / YARD HYDRANT
PH	POTHOLE		HEADWALL		SERVICE CONNECTION
PHXX	POTHOLE NUMBER		ROCK WALL		BURIED VALVE
	FLOW/SLOPE DIRECTION		SHRUB/HEDGE		FLANGE
	MANHOLE (PLAN)		TREE		BALL VALVE
	CATCH BASIN		SIGN/SIGN POST		BUTTERFLY VALVE
E	ELECTRICAL MANHOLE AND PULL BOX		LIGHT		CHECK VALVE
M	METER BOX		UTILITY POLE		GATE VALVE
P	PULL BOX		UTILITY POLE GUY WIRE		PLUG VALVE
T	TELEPHONE PEDESTAL	PP	POWER POLE		PIPE CAP OR CONNECTION
SD	STORM DRAIN MANHOLE		FIRE HYDRANT		REDUCER

NOTE: ALL SYMBOLS SHOWN AS NEW. EXISTING SYMBOLS ARE SCREENED.

BRACKET

BREAK LINE

PIPE BREAK PLAN VIEW

PIPE BREAK CROSS SECTION

SCALE — 0; 10'; 20'; 40'; SCALE: 1" = 20'

PIPE CONTINUATION (SINGLE LINE)

KEY NOTE — 34

REVISION DELTA — 2

EXISTING ELEVATION — EX TOW XXXX.X±

ELEVATION — TOC XXXX.XX

EQUIPMENT/DEVICE KEY TAG — 1

EQUIPMENT/DEVICE NUMBER — XXX-XX-XXX

PIPE TAG — * PIPE SIZE; FLOW STREAM; "X" XXX; FUTURE PIPING (WHERE APPLICABLE); FUTURE

* FOR EXISTING PIPING SHOW AS EX *SIZE FLOW STREAM*

UNDERGROUND/ OVERHEAD WARNING (STATE/REGION SPECIFIC)

811 Know what's below. Call before you dig. usanorth811.org

Avoid overhead power line contact. It's costly.

Call before you OVERHEAD

Replace with Regional Phone Number

NORTH ARROW/ PLANT NORTH — 30.0°; NORTH; NORTH; TRUE; PLANT

REV	DATE	BY	DESCRIPTION

DESIGNED DES
DRAWN DWN
CHECKED CHK
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER — BRYAN A. BURNITT — No. 83046 — CIVIL — STATE OF CALIFORNIA

Digitally signed by Bryan A. Burnitt
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.21 18:01:38 -06'00'

carollo

CITY OF PACIFICA

CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

GENERAL

GENERAL AND CIVIL LEGEND AND SYMBOLS

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

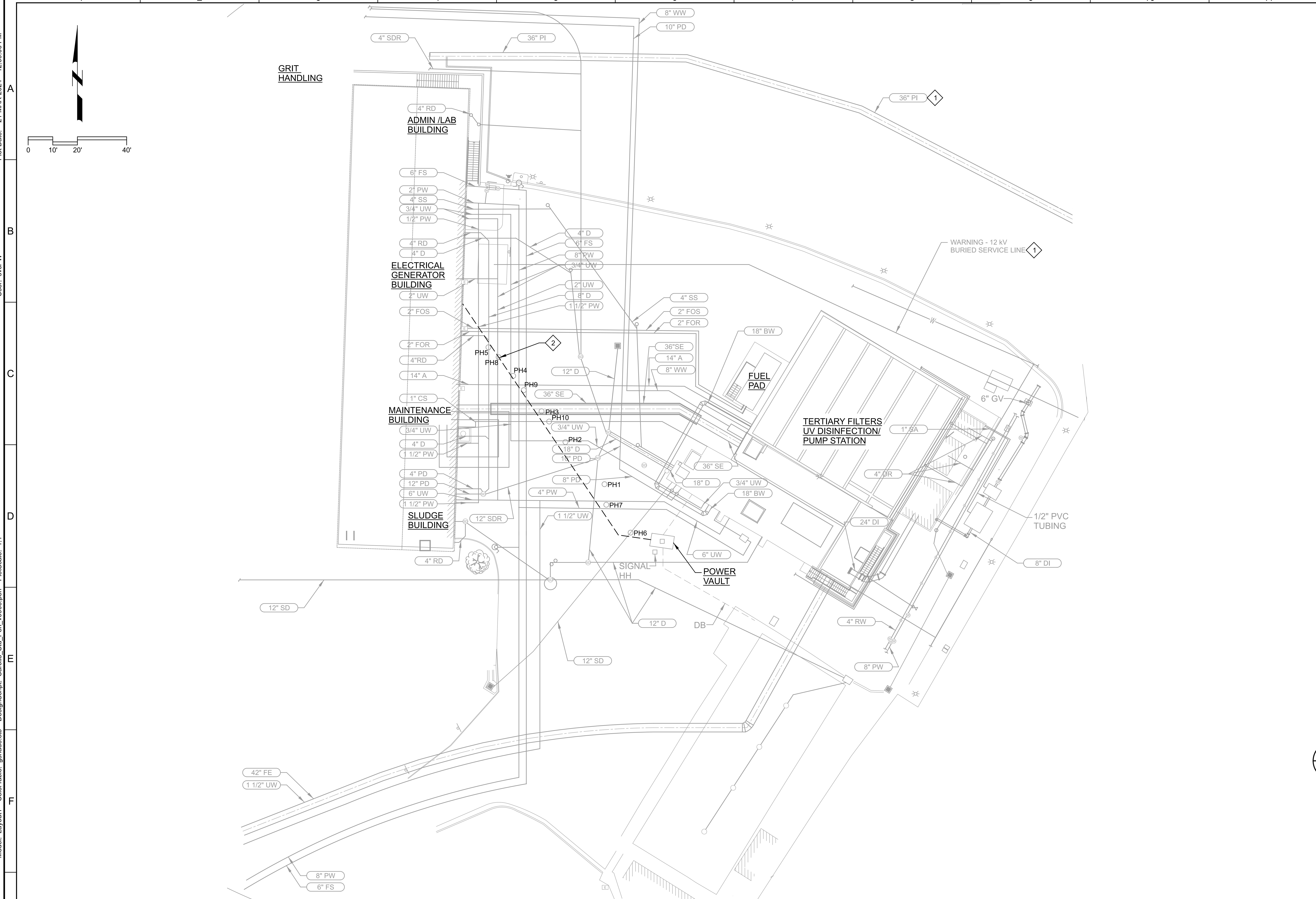
JOB NO. 201447

DRAWING NO. GC02

SHEET NO. 16 OF 79

LAST SAVED BY: alucker

PROJECT NO. 201447-100000 FILE NAME: 201447GC02.dwg



A PLAN

FILE: 201447C0900

GENERAL NOTES:

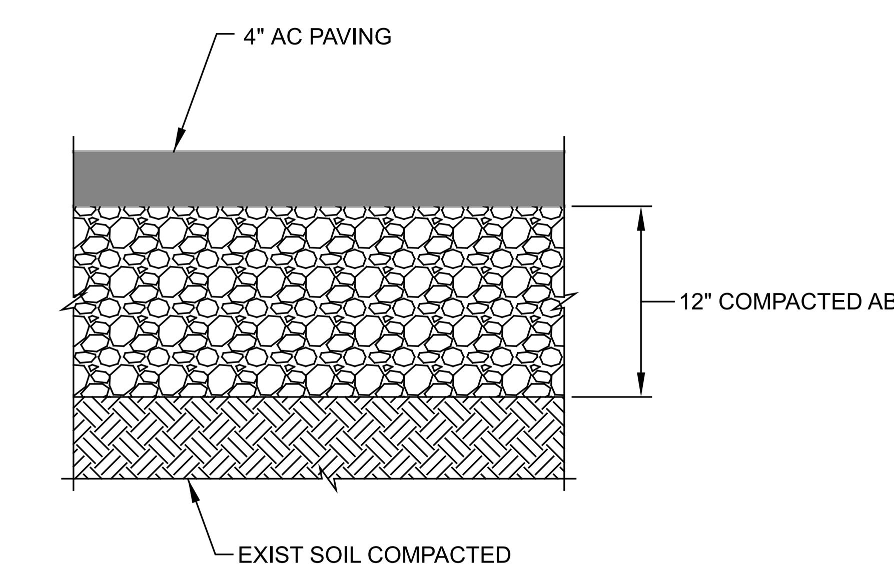
1. EXISTING UTILITIES ARE BASED ON PLANT RECORD DRAWINGS. CONTRACTOR TO FIELD INVESTIGATE AS NEEDED IN AREAS IMPACTED BY PROJECT BEFORE WORK PROCEEDS.
2. REFER TO G04 FOR EXISTING PAVING AND GRADING WORK, SITE PLAN AND SURVEY CONTROL.
3. SIGNIFICANT DEVIATIONS WERE IDENTIFIED BETWEEN SURFACE FEATURES ON THE RECORD DRAWINGS AND THE SITE SURVEY. POTHOLING WAS CONDUCTED DURING DESIGN BASED ON RECORD DRAWINGS, GROUND PENETRATING RADAR, AND ELECTRONIC SURFACE DETECTION. CONTRACTOR MUST ASSUME ADDITIONAL POTHOLING AND SUBSURFACE UTILITY INVESTIGATION IS REQUIRED PRIOR TO PROCUREMENT OF DUCTBANK MATERIALS. DUCTBANK ALIGNMENT MUST ONLY BE CLEARED TO APPROX. 21 TO 24 INCHES BELOW EXISTING GROUND SURFACE BASED ON DRAWING E02 AND REFERENCED DETAILS. PROOF TRENCH WILL BE PERMITTED IF BACKFILLED WITH COMPACTED AGGREGATE BASE WHILE AWAITING FINAL DUCTBANK SUBMITTALS APPROVAL AND MATERIALS.
4. SEE DETAIL 1/- FOR PAVEMENT SECTION FOR REPAVING ON THE PLANT SITE.

KEY NOTES:

1. NO RECORD OF ACTUAL ALIGNMENT WAS FOUND. APPROXIMATE LOCATION PROVIDED BASED ON PLANT KNOWLEDGE.
2. NEW DUCTBANK ALIGNMENT, SEE DRAWING E02 FOR DETAILS DRAWING G04 FOR SURVEY CONTROL AND ADDITIONAL SITE INFORMATION.

POTHOLE TABLE

PH ID	DEPTH	UTILITY	SIZE	MATERIAL
PH1	60"	NONE	-	-
PH2	60"	NONE	-	-
PH3	24"	ELEC	CAP	CONC
PH4	48"	NONE	-	-
PH5	60"	NONE	-	-
PH6(1)	3"	STORM	ENCASE	CONC
PH6(1)	8"	STORM	12"	PVC
PH7	58"	NONE	-	-
PH8	47"	NONE	-	-
PH9	42"	NONE	-	-
PH10	48"	NONE	-	-



1 - AC PAVING SECTION HEAVY TRUCK TRAFFIC

SCALE: NO SCALE
FILE:

0

REV	DATE	BY	DESCRIPTION

DESIGNED AL
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER — BRYAN A. BURNITT — No. 83046 — CIVIL — STATE OF CALIFORNIA

Digitally signed by Bryan A. Burnitt
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.21 18:51:06-05'00'

carollo®

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
CIVIL
YARD PIPING PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. C01
SHEET NO. 17 OF 79

LAST SAVED BY: gleal Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1 User: svcPW Plot Date: 21-MAR-2024 12:09:00 PM

GENERAL NOTES:

1. USE STRUCTURAL DRAWINGS IN CONJUNCTION WITH PROJECT DRAWINGS BY OTHER DISCIPLINES AND WITH THE SPECIFICATIONS.

2. UNLESS DETAILED, SPECIFIED, OR INDICATED OTHERWISE, CONSTRUCTION SHALL BE AS INDICATED IN THE GENERAL NOTES AND TYPICAL DETAILS.

3. PRESENTATION CONVENTIONS FOR STRUCTURAL DRAWINGS:

   A. SCREENED LINE WORK INDICATES EXISTING CONDITIONS.
   B. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED SIZES.
   C. PLANS ARE TREATED AS HORIZONTAL SECTIONS. (I.E.: “PLAN AT ELEVATION 110” SHOWS CONSTRUCTION AT AND BELOW ELEVATION 110.)

4. VERIFY DIMENSIONS AND CONDITIONS BEFORE BEGINNING WORK. ADVISE ENGINEER IMMEDIATELY OF DISCREPANCIES BETWEEN EXISTING CONDITIONS AND DIMENSIONS, AND INFORMATION SHOWN ON THESE DRAWINGS. CONFIRM THE FOLLOWING BEFORE PREPARATION AND SUBMITTAL OF SHOP DRAWINGS:

   A. DIMENSIONS AND WEIGHTS FOR EQUIPMENT SELECTED.
   B. SIZES AND LOCATIONS OF EQUIPMENT PADS FOR EQUIPMENT SELECTED.
   C. DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURE.

5. TYPICAL DETAILS ARE INCLUDED ON THE “TS” DRAWINGS.

   A. TYPICAL DETAILS ARE INTENDED TO APPLY AT LOCATIONS DESCRIBED BY THEIR TITLES, EVEN WHEN NOT SPECIFICALLY REFERENCED ON THE DRAWINGS.
   B. IN STRUCTURAL TYPICAL DETAILS, ORIENTATION OF BARS IN EACH MAT OF REINFORCEMENT (WHETHER “LINES” OR “DOTS”ARE CLOSER TO THE FACE OF THE CONCRETE) IS GENERALLY ARBITRARY. SEE DRAWINGS OF EACH STRUCTURE FOR ORIENTATION REQUIRED AT THAT STRUCTURE.

6. SEE CIVIL DRAWINGS FOR STRUCTURE COORDINATES. POINTS ON THE STRUCTURES TO WHICH SITE COORDINATES REFER ARE SHOWN ON THE STRUCTURAL PLANS.

7. DRAWINGS PREPARED BY OTHER DISCIPLINES INCLUDE OPENINGS, ANCHORS, PIPES, CONDUITS, AND OTHER ITEMS THAT ARE EMBEDDED INTO OR PASS THROUGH STRUCTURES.

   A. CONFIRM SIZE AND LOCATIONS OF OPENINGS, PENETRATIONS AND EMBEDMENT FOR ITEMS AND EQUIPMENT FURNISHED.
   B. IN GENERAL, OPENINGS, EMBEDMENTS, AND PENETRATIONS LESS THAN 12 INCHES IN DIAMETER ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS.
   C. SEE MECHANICAL DRAWINGS FOR DETAILS OF PIPE PENETRATIONS, PIPE SUPPORTS, AND ASSOCIATED STRUCTURAL REQUIREMENTS.
   D. SEE MECHANICAL DRAWINGS FOR EQUIPMENT PADS AND PIPE SUPPORTS.

STRUCTURAL DESIGN CRITERIA - GENERAL:

SEE DRAWINGS OF INDIVIDUAL STRUCTURES FOR SPECIFIC DESIGN CRITERIA BASED ON THESE OVERALL CRITERIA FOR THE SITE.

1. BUILDING CODE:

   A. 2022 CALIFORNIA BUILDING CODE WITH ASCE 7-16.

2. STRUCTURE RISK CATEGORY: III.

3. DEAD LOADS: CALCULATED FOR STRUCTURE SELF-WEIGHT.

4. LIVE LOADS:

   A. FLOOR LIVE LOAD: 200 PSF.
   B. GRATING AND CHECKERED PLATE: 100 PSF (UNO).
   C. EQUIPMENT LOADS: SEE PLANS.

5. FLUID PRESSURE LOADS: 63 PSF/FT (UNO).

6. EARTHQUAKE DESIGN DATA:

	0.2 SECOND	*1.0 SECOND
A. SITE CLASS: D.		
B. MAPPED SPECTRAL RESPONSE ACCELERATIONS:	Ss = 2.114 g	S1 = 0.877 g
C. SITE COEFFICIENTS:	Fa = 1	Fv = 1.7
D. MAXIMUM CONSIDERED ACCELERATIONS:*	Sms = 2.114 g	Sm1 = 1.491 g
E. DESIGN SPECTRAL RESPONSE ACCELERATIONS:*	Sds = 1.41 g	Sd1 = 0.944 g

   (* 5% DAMPED)

7. CONSTRUCTION LOADS:
   STRUCTURES HAVE BEEN DESIGNED FOR OPERATING LOADS ON COMPLETED FACILITIES. UNTIL CONSTRUCTION IS COMPLETE AND MEMBERS HAVE ACHIEVED THEIR DESIGN STRENGTH, PROTECT STRUCTURES AS REQUIRED BY SHORING, BRACING, AND BALANCING.

TYPICAL STRUCTURAL MATERIALS:

1. MATERIALS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

2. SEE PROJECT SPECIFICATIONS AND NOTES ON DRAWINGS OF SPECIFIC STRUCTURES FOR DETAILED AND LOCATION-SPECIFIC REQUIREMENTS.

REINFORCING STEEL (FOR CONCRETE AND MASONRY):

1. DEFORMED BARS:
   A. TYPICAL: ASTM A 615, GRADE 60.
   B. WHERE INDICATED ON THE DRAWINGS: ASTM A 706.

2. WELDED WIRE FABRIC: ASTM A 1064.

CONCRETE:

1. NORMAL DENSITY.

2. MINIMUM SPECIFIED CONCRETE COMPRESSIVE STRENGTH, f'c (AT 28 DAYS UNO).

   A. STRUCTURES: “CLASS A” f'c = 4500 PSI.

STRUCTURAL STEEL:

1. SECTIONS

   A. SHAPES W, WT: ASTM A 992 (Fy = 50 KSI)
   B. SHAPES S, ST, M, MT, HP, C, MC, L: ASTM A 36 (Fy = 36 KSI)
   C. PLATES AND BARS: ASTM A 36 (Fy = 36 KSI)
   D. PIPES: ASTM A 53, GRADE B (Fy = 35 KSI)
   E. HOLLOW STRUCTURAL SECTIONS:
      ROUND: ASTM A 500, GRADE B (Fy = 42 KSI)
      SQUARE AND RECTANGULAR: ASTM A 500, GRADE B (Fy = 46 KSI)

2. CONNECTIONS:

   A. BOLTS - STEEL TO-STEEL:
      ASTM F 3125 GRADE A325 HIGH-STRENGTH BOLTS, WITH LOAD INDICATOR WASHERS.
   B. BOLTS - STEEL TO CONCRETE OR MASONRY:
      ANCHOR BOLTS WITH HEX FORGED HEAD
   C. WELDS - SHIELDED METAL ARC PROCESS USING E70-XX ELECTRODES.

STAINLESS STEEL:

1. ANSI TYPE 316/316L EXCEPT WHERE TYPE 304/304L IS INDICATED ON THE DRAWINGS.

2. SECTIONS: SHAPES AND BARS: ASTM A 276.

3. BOLTED CONNECTIONS - BOLTS AND ANCHOR BOLTS:

   A. MATCH ALLOY OF THE STRUCTURAL MEMBERS CONNECTED.
   B. TYPE 316/316L: ASTM F 593, GRADE B8M, CLASS 1, HEAVY HEX.
   C. TYPE 304/304L: ASTM F 593, GRADE B8, CLASS 1, HEAVY HEX.

4. WELDED CONNECTIONS:

   A. TYPE 316L: E316L-15 ELECTRODES.
   B. TYPE 304L: E304L-15 ELECTRODES.

STRUCTURAL ALUMINUM:

1. SECTIONS

   A. SHAPES: ASTM B 308, ALLOY 6061-T6.
   B. SHEET AND PLATE: ASTM B 209, ALLOY 6061-T6.

2. BOLTED CONNECTIONS - BOLTS AND ANCHOR BOLTS:

   A. STAINLESS STEEL - TYPE 316, ASTM F 593, GRADE B8M, CLASS 1, HEAVY HEX.

3. WELDED CONNECTIONS:

   A. GAS METAL ARC (MIG) OR GAS TUNGSTEN ARC (TIG) PROCESS USING FILLER ALLOY 4043 ELECTRODES.

CONSTRUCTION:

CONFORM TO THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

EXCAVATION AND BACKFILLING:

1. EXPOSE AND PREPARE SUBGRADE AS SHOWN ON THE DRAWINGS AND SPECIFIED. OBTAIN ENGINEER’S OBSERVATION OF SUBGRADE SURFACES, AS EXPOSED AND AS PREPARED, BEFORE PROCEEDING WITH FOUNDATION CONSTRUCTION.

2. DO NOT PLACE BACKFILL AGAINST WALLS UNTIL STRUCTURES SUPPORTING THE TOP OF THE WALL ARE IN PLACE, ARE COMPLETE, AND (IN THE CASE OF CONCRETE) HAVE CURED TO THEIR MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH.

3. WHERE BACKFILL MUST BE PLACED AGAINST WALLS BEFORE STRUCTURES ABOVE ARE COMPLETE, PROVIDE BRACING FOR WALLS. KEEP BRACING IN PLACE UNTIL THE STRUCTURE ABOVE IS COMPLETE AND (IN THE CASE OF CONCRETE) HAS CURED TO ITS MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH.

CONCRETE:

1. SEE S101/TYP FOR CONCRETE NOTES, INCLUDING CLEAR COVER AND LAP SPLICE LENGTH REQUIREMENTS FOR REINFORCING.

2. SUBMIT LOCATIONS OF CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS FOR ACCEPTANCE BY THE ENGINEER BEFORE FORM LAYOUT.

3. PROVIDE CHAMFER AT EXPOSED EDGES OF CAST-IN-PLACE CONCRETE. SEE SPECIFICATION 03_11_07 FOR CHAMFERS.

4. PROVIDE REINFORCING:

   A. AT CORNERS AND JUNCTIONS - AS INDICATED IN S144/TYP, SUPPLEMENT WITH ADDED BARS WHERE INDICATED ON THE DRAWINGS.
   B. AT OPENINGS - AS INDICATED IN S180/TYP.

5. WELDING OF REINFORCING IS NOT PERMITTED UNLESS DETAILED ON THE DRAWINGS OR ACCEPTED IN ADVANCE BY THE ENGINEER.

6. MAINTAIN MINIMUM 3 INCHES CLEAR CONCRETE COVER BETWEEN REINFORCING AND EMBEDMENTS.

7. FINISH CONCRETE AS SPECIFIED IN SECTION 03_35_29.

STEEL, STAINLESS STEEL, AND ALUMINUM - CONNECTIONS:

1. BOLTED:

   A. MADE USING 3/4-INCH DIAMETER BOLTS.
   B. HAVING A MINIMUM OF 2 BOLTS, SPACED NOT CLOSER THAN 3 INCHES ON CENTER.
   C. WITH A DISTANCE OF AT LEAST 1 1/2 INCHES FROM CENTER OF BOLT TO ANY EDGE OF A PLATE OR STRUCTURAL ELEMENT.

2. WELDED:

   A. FILLET WELDS: PER AWS CODE BASED ON THE THICKNESS OF THE MATERIALS BEING JOINED, AND FULL LENGTH OF THE JOINT.

3. INTERFACE BETWEEN MATERIALS:

   A. AT BOLTED CONNECTIONS THAT INCLUDE DIFFERENT METALS (E.G.: STEEL AND STAINLESS STEEL, OR ALUMINUM AND STEEL) PROVIDE ISOLATING SLEEVES AND WASHERS AS SPECIFIED IN SECTION 05_05_24.
   B. WHERE ALUMINUM IS IN CONTACT WITH MASONRY OR CONCRETE, COAT ALUMINUM SURFACES AS SPECIFIED IN SECTION 09_96_01.

4. POST-INSTALLED ANCHORS AND REINFORCING STEEL DOWELS IN CONCRETE AND MASONRY:

   A. INSTALL IN FULL COMPLIANCE WITH ACCEPTED BUILDING CODE EVALUATION REPORT AND MANUFACTURER’S INSTRUCTIONS.
   B. DO NOT CUT, DAMAGE, OR INTERRUPT EXISTING REINFORCEMENT TO INSTALL ANCHORS AND REINFORCING STEEL DOWELS. USE NON-DESTRUCTIVE TESTING EQUIPMENT TO IDENTIFY LOCATIONS OF REINFORCEMENT IN MEMBERS BEFORE DRILLING HOLES FOR ANCHORS AND REINFORCING STEEL DOWELS.

METAL FABRICATIONS:

1. HANDRAILS AND GUARDRAILS:

   A. ALUMINUM, EXCEPT WHERE OTHER MATERIALS ARE NOTED.

2. GRATING:

   A. ALUMINUM WITH TYPE 316 STAINLESS STEEL FASTENERS, UNLESS OTHERWISE NOTED.
   B. GRATING AND ITS SEATS OR SUPPORTS SHALL BE OF THE SAME MATERIAL.
   C. UNLESS INDICATED ON THE DRAWINGS AS “REMOVABLE GRATING”, SECURELY FASTEN GRATING TO SUPPORTS AS INDICATED IN S559/TYP.

3. COVER PLATES:

   A. ALUMINUM WITH TYPE 316 STAINLESS STEEL FASTENERS, UNLESS OTHERWISE NOTED.
   B. COVER PLATE AND ITS SEATS OR SUPPORTS SHALL BE OF THE SAME MATERIAL.

SPECIAL INSPECTION:

1. SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING STRUCTURAL MATERIALS AND CONSTRUCTION. SEE SPECIFICATION SECTION 01_45_24 FOR DETAILS.

2. DIVISION 03 CONCRETE:

   A. LOCATIONS.
   B. FORMWORK AND MEMBER SIZES.
   C. REINFORCING STEEL.
   D. ANCHORS: CAST-IN AND POST-INSTALLED.
   E. CONCRETE MIX AND PLACEMENT.
   F. PROTECTION AND CURING PROCEDURES.

3. DIVISION 05 METALS

   A. GENERAL ALL METALS:
      1) MEMBER LOCATIONS.
      2) MEMBER SIZES/TYPES.
      3) ANCHORS - CAST-IN AND BUILT-IN ANCHOR BOLTS.
      4) ANCHORS - POST-INSTALLED MECHANICAL AND ADHESIVE.

   B. STRUCTURAL STEEL (CARBON AND STAINLESS).
      1) HIGH-STRENGTH BOLTING.
      2) WELDING.

   C. STRUCTURAL ALUMINUM.
      1) BOLTING.
      2) WELDING.

STRUCTURAL OBSERVATION:

1. STRUCTURAL OBSERVATION IS REQUIRED DURING AND AT SPECIFIC STAGES OF CONSTRUCTION. SEE SPECIFICATION SECTION 01_45_24 FOR DETAILS.

STRUCTURAL SYMBOLS:

1. SEE DRAWING G06 FOR KEY TO DRAWING TITLES AND SECTION CUTS, AND FOR DEFINITION OF MATERIALS SHADING PATTERNS.

2. WELDING: SYMBOLS: IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) A2.4.

STRUCTURAL ABBREVIATIONS:

1. SEE DRAWING G07 FOR GENERAL LIST OF ABBREVIATIONS USED ON DRAWINGS.

2. ABBREVIATIONS FOR NAMES OF TECHNICAL GROUPS MAY BE FOUND IN THE PROJECT SPECIFICATIONS.

3. STRUCTURAL MEMBERS:

   A. STEEL: ABBREVIATIONS AND DESIGNATIONS ARE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION’S STEEL CONSTRUCTION MANUAL, CURRENT EDITION.

   B. ALUMINUM: ABBREVIATIONS AND DESIGNATIONS ARE IN ACCORDANCE WITH THE ALUMINUM ASSOCIATION’S ALUMINUM DESIGN MANUAL, CURRENT EDITION.

4. ABBREVIATIONS FOR STRUCTURAL DRAWINGS:
   WHEN USED ON THE STRUCTURAL DRAWINGS, THE FOLLOWING ABBREVIATIONS HAVE THE MEANINGS LISTED.

REINFORCEMENT:		OTHER:	
BO	BOTTOM OF	L	ANGLE
EF	EACH FACE	PL	PLATE
I.F.	INSIDE FACE		
O.F.	OUTSIDE FACE		
T.O.	TOP OF		
#	NUMBER (REINFORCING BAR SIZE)		

DEFERRED DESIGN SUBMITTALS

AS DEFINED IN THE BUILDING CODE, DEFERRED DESIGN SUBMITTALS ARE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION, AND THAT ARE TO BE REVIEWED BY THE REGISTERED DESIGN PROFESSIONAL AND SUBSEQUENTLY SUBMITTED TO THE BUILDING OFFICIAL. SEE SECTION 01_35_73 - DELEGATED DESIGN PROCEDURES FOR REQUIREMENTS.

DEFERRED DESIGN SUBMITTALS FOR THIS PROJECT INCLUDE:

1. DIVISION 03 CONCRETE.

   A. 03_30_00 CONCRETE MIX DESIGN
   B. 03_20_00 CONCRETE REINFORCEMENT
   C. 03_41_41 PRECAST CONCRETE ROOF PANEL

2. DIVISION 05 METALS.

   A. 05_50_00 HANDRAILS AND GUARDRAILS
      05_50_00 GRATING, TREAD PLATES AND PLANKS

3. DIVISION 33 UTILITIES.

   A. 33_05_12 TEMPORARY BULKHEAD

4. LIFTING EYES: SUBMIT DETAILS WITH CALCULATIONS DEMONSTRATING THE SPECIFIED LOAD CAPACITY TO ENGINEER. DELIVER REMOVABLE EYES TO OWNER AFTER INSTALLATION OF REMOVABLE PANELS.

REV	DATE	BY	DESCRIPTION

DESIGNED CE
DRAWN CE
CHECKED EQ
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER NIVEDITHAA VENKATANARAYANASAMI No. 92381 CIVIL STATE OF CALIFORNIA

Digitally signed by Nivedithaa Venkatanarayanasami
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 11:09:02-05'00'

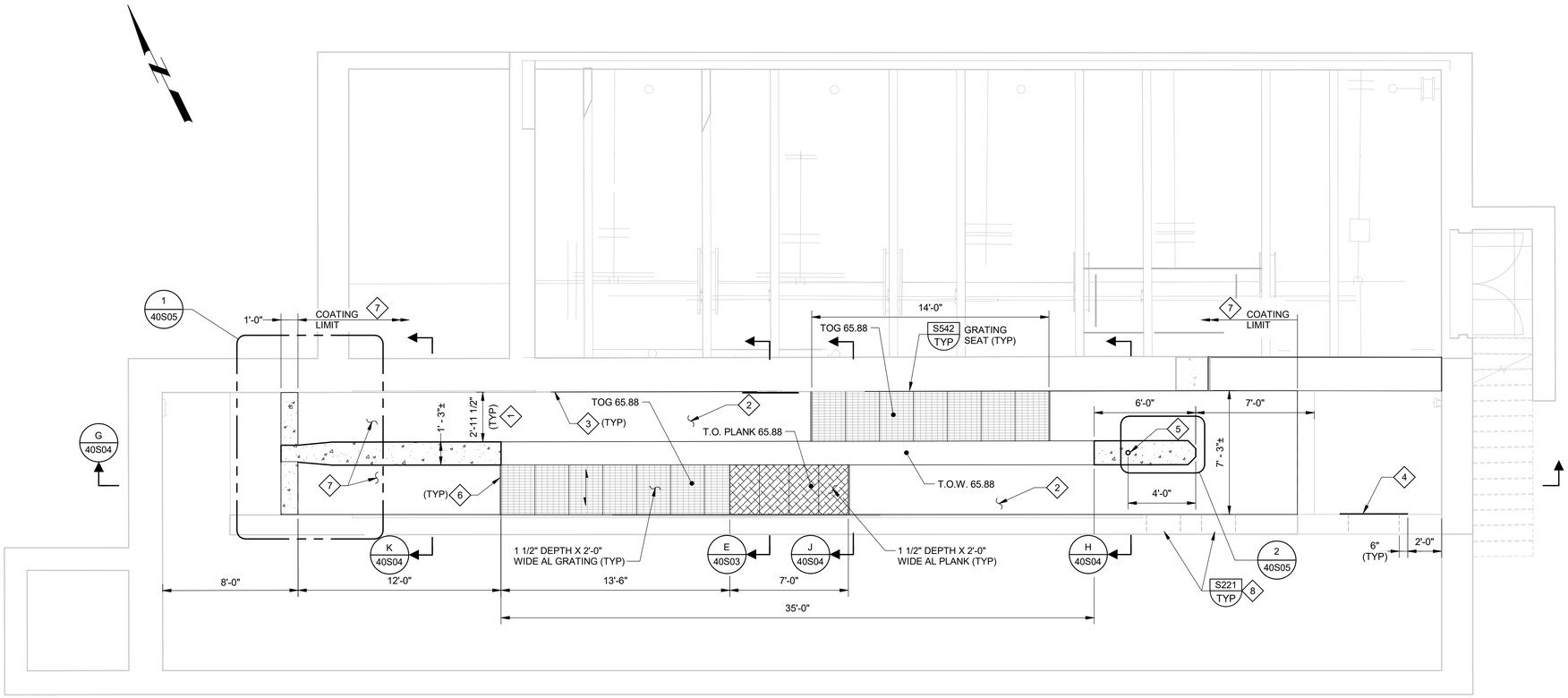
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CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
STRUCTURAL
GENERAL STRUCTURAL NOTES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. GS01
SHEET NO. 18 OF 79



@ EL 65.88

A PLAN

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

GENERAL NOTES:

1. FOR STRUCTURAL GENERAL NOTES SEE DRAWING G08.
2. COORDINATE OPENINGS WITH ELECTRICAL AND MECHANICAL EQUIPMENT MANUFACTURERS.
3. NOT ALL STRUCTURAL PENETRATIONS ARE SHOWN OR DIMENSIONED. COORDINATE ALL PENETRATIONS AND/OR CONNECTIONS WITH MECHANICAL, HVAC, AND ELECTRICAL DRAWINGS.
4. EXISTING CONDITIONS:
   A. FIELD VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS, AND CONDITIONS PRIOR TO STARTING WORK.
   B. NOTIFY ENGINEER IMMEDIATELY IF CONDITIONS NOT COVERED BY THESE DRAWINGS ARE EXPOSED DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO:
      I. SIZES OR DIMENSIONS DIFFERING FROM THE CONTRACT DOCUMENTS.
      II. DAMAGE OR DETERIORATION TO MATERIAL COMPONENTS.
      III. CONDITIONS OR DETAILS DIFFERENT FROM THOSE SHOWN ON THESE DRAWINGS.
5. SEE MECHANICAL DRAWINGS FOR ALL PIPE SIZES AND LOCATIONS.
6. CONSTRUCTION TOLERANCES: CONTRACTOR SHALL TAKE ADDITIONAL SPECIAL MEASURES IN CONSTRUCTING CHANNEL WALL AND FLOOR FOR UV EQUIPMENT. CONTRACTOR SHALL:
   A. FOR SURFACE FREE FROM IRREGULARITIES. IRREGULARITIES OVER A 1-FOOT DISTANCE SHALL NOT EXCEED ±0.1% IN ALL DIRECTIONS.
   B. CONCRETE SURFACES SHALL BE CLASS A AS DEFINED IN ACI 117.
   C. HORIZONTAL AND VERTICAL DEVIATIONS FROM PLAN SHALL NOT EXCEED ±1/8-INCH AND MINUS 0.
   D. FILL VOIDS WITH LOW DENSITY CELLULAR CONCRETE. REFER TO SPECIFICATION 31_34_07.
7. CONTRACTOR TO FIELD VERIFY AND CONFIRM THE EXISTING DIMENSIONS.
8. DESIGN FLOOR LIVE LOAD ON GRATING/ AL PLANKS = 100 PSF.

KEY NOTES:

1. FINAL CHANNEL WIDTH SHALL BE 2'-11 1/2" ± 1/8" AS REQUIRED FOR THE INSTALLATION OF UV EQUIPMENT. SEE SECTION 46_66_85 FOR REVIEWED SHOP DRAWINGS. COATING WILL NOT BE INSTALLED AT FRAME LOCATION SO WILL NOT BE INCLUDED IN THE FINISHED CHANNEL DIMENSION. COORDINATE CENTER WALL DIMENSIONS AFTER ESTABLISHING EXISTING CONDITIONS AND DIMENSIONS.
2. INSTALL UV MODULES IN STRICT ACCORDANCE WITH UV MANUFACTURER'S INSTRUCTIONS. SEE SECTION 46_66_85 FOR UV REQUIREMENTS.
3. REPAIR EXISTING CONCRETE WALL SURFACE AS REQUIRED PER DETAIL S204/TYP. REFER TO SECTION 00_41_00 - BID FORM FOR ESTIMATED QUANTITIES FOR BIDDING PURPOSES.
4. INSTALL 1/2" x 4'-0" x 4'-0" 304 SST PLATE WITH 1/4" THICK NEOPRENE PAD A50 (ALL AROUND) WITH 1/2" DIA SS CONCRETE ANCHORS 8" MAX SPACING AND MINIMUM 4" EDGE DISTANCE. CAULK ALL AROUND WITH SYNTHETIC RUBBER SEALING COMPOUND.
5. DAVIT CRANE CAST-IN-PLACE POST PER MANUFACTURER.
6. INSTALL GRATING STOP PLATE TO PREVENT SLIDE OUT OF GRATING/PLANK.
7. PREPARE AND COAT THE CONCRETE FLOOR AND VERTICAL WALL SURFACES TO EL 60.68 IN THE UV CHANNELS ACCORDING TO SECTION 09_96_08 PRIOR TO UV EQUIPMENT INSTALLATION. CONTRACTOR WILL NOT COAT LOCATION FOR UV FRAME INSTALLATION. CONTRACTOR WILL MARK OUT FRAME INSTALLATION LOCATIONS AND WILL PREPARE COATING TERMINATIONS WITHIN 2 INCHES OF FRAME LIMITS. ACCOUNT FOR SPECIFIED COATING THICKNESS OF APPROXIMATE 125 MILS WHEN PREPARING SHOP DRAWINGS FOR EQUIPMENT, GRATING, AND OTHER INSTALLATIONS WITHIN CHANNEL. REFER TO SECTION 00_41_00 - BID FORM FOR ESTIMATED QUANTITIES FOR BIDDING PURPOSES.
8. ENSURE THAT ANCHORS FROM GATE FRAME OR BAFFLE PLATES ARE NOT INSTALLED IN THIS CONCRETE IN FILL AREA. ADJUST THE LOCATIONS OF ANCHORS TO AVOID THIS INFILL SECTION.

REV	DATE	BY	DESCRIPTION

DESIGNED NV
DRAWN RYW
CHECKED EQ
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER — NIVEDITHAA VENKATANARAYANASAMI — No. 92381 — CIVIL — STATE OF CALIFORNIA

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Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 11:08:45-07'00'

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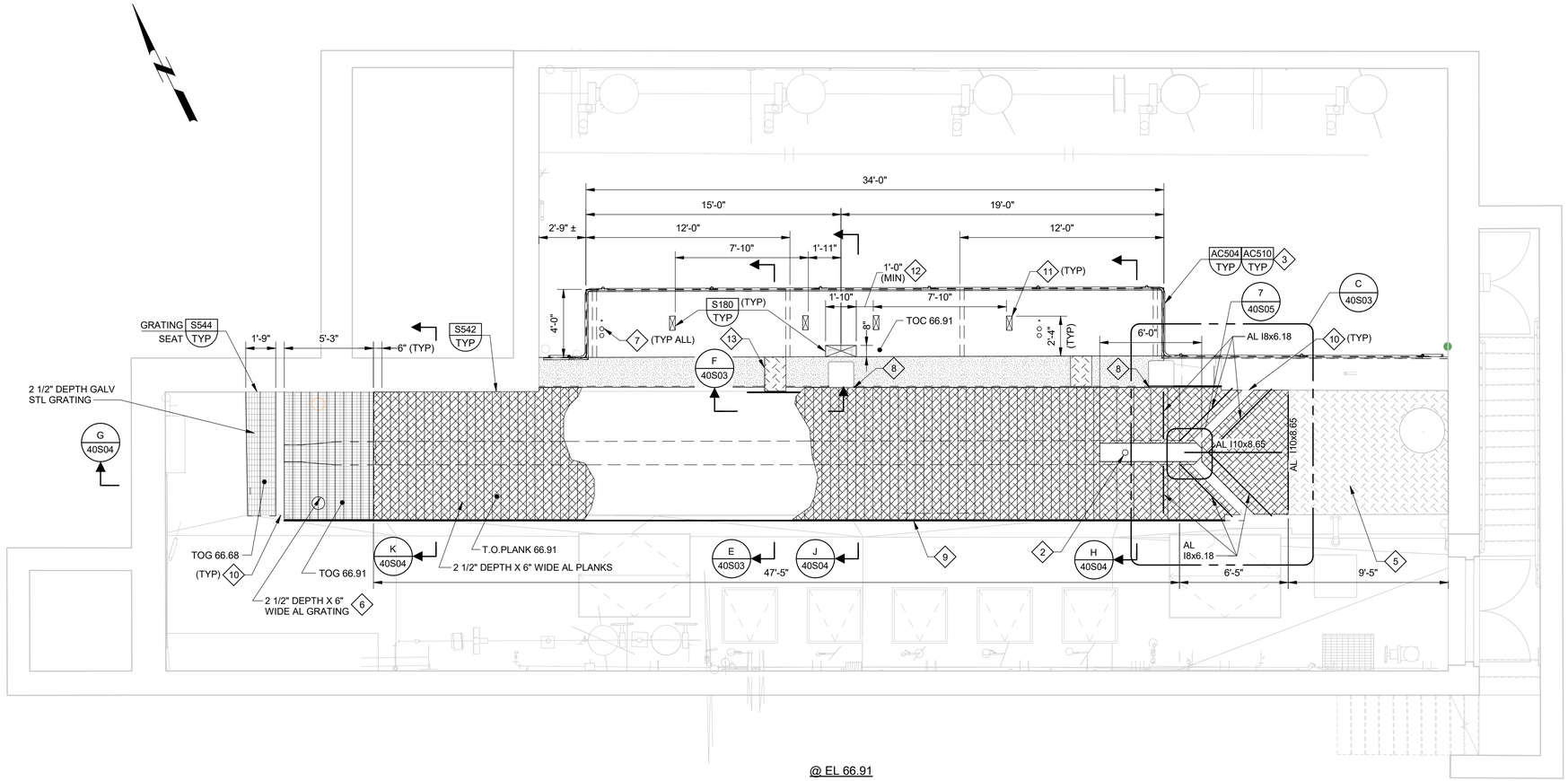
CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
STRUCTURAL
UV DISINFECTION SYSTEM BOTTOM PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 40S01
SHEET NO. 19 OF 79

PLOT DATE: 3/13/2024 3:39:51 PM

FILE NAME: R:\d0203194\201447S0800.rvt



@ EL 66.91

B PLAN

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

GENERAL NOTES:

1. FOR STRUCTURAL GENERAL NOTES SEE DRAWING G08.
2. COORDINATE OPENINGS WITH ELECTRICAL AND MECHANICAL EQUIPMENT MANUFACTURERS.
3. NOT ALL STRUCTURAL PENETRATIONS ARE SHOWN OR DIMENSIONED. COORDINATE ALL PENETRATIONS AND/OR CONNECTIONS WITH MECHANICAL, HVAC, AND ELECTRICAL DRAWINGS.
4. EXISTING CONDITIONS:
   A. FIELD VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS, AND CONDITIONS PRIOR TO STARTING WORK.
   B. NOTIFY ENGINEER IMMEDIATELY IF CONDITIONS NOT COVERED BY THESE DRAWINGS ARE EXPOSED DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO:
      I. SIZES OR DIMENSIONS DIFFERING FROM THE CONTRACT DOCUMENTS.
      II. DAMAGE OR DETERIORATION TO MATERIAL COMPONENTS.
      III. CONDITIONS OR DETAILS DIFFERENT FROM THOSE SHOWN ON THESE DRAWINGS.
5. SEE MECHANICAL DRAWINGS FOR ALL PIPE SIZES AND LOCATIONS.
6. CONTRACTOR TO FIELD VERIFY AND CONFIRM THE EXISTING DIMENSIONS.
7. PROVIDE FLUSH PICK POINTS ON ALL ALUMINUM TREAD PLANK/ GRATING ON TWO OPPOSITE SIDES AS SPECIFIED IN SECTION METAL FABRICATIONS - 05_50_00.
8. DESIGN FLOOR LIVE LOAD ON GRATING/ AL PLANKS = 100 PSF.

KEY NOTES:

1. INSTALL UV MODULES IN STRICT ACCORDANCE WITH UV MANUFACTURER'S INSTRUCTIONS. SEE SECTION 46_66_85 FOR UV REQUIREMENTS.
2. PROVIDE EMBEDDED BASE FOR DAVIT CRANE POST AT THIS LOCATION. SUBMIT DAVIT CRANE SUBMITTAL FOR APPROVAL PRIOR TO CONCRETE POUR AT WALL SECTION.
3. SIDE MOUNTED AS APPLICABLE.
4. NOT USED.
5. EXISTING TREAD PLATE TO BE TEMPORARILY REMOVED AND REINSTALLED.
6. KEEP TOP OF GRATING FLUSH WITH THE AL PLANKS.
7. COORDINATE THE LOCATION AND SIZE OF PENETRATION WITH ELECTRICAL AND MECHANICAL LAYOUT.
8. COORDINATE ANGLE AND PLANK INSTALLATION WITH THE FINAL DIMENSION AND LOCATION OF THE COLUMN.
9. COORDINATE THE ANGLE DIMENSION WITH DEPTH OF AL PLANK/GRATING PRIOR TO INSTALLATION.
10. COORDINATE THE WIDTH OF GATE OPENING WITH GATE MANUFACTURER. REFER TO ASSIGNED AGREEMENT WITH TROJAN TECHNOLOGIES, SECTION 00_54_34, AND REVIEWED SUBMITTALS, ATTACHMENT B OF SECTION 46_66_85.
11. 4"X10" OPENING IN SLAB FOR PDC CABLES. COORDINATE FINAL LOCATION AND SIZE OF OPENING WITH ELECTRICAL AND MECHANICAL LAYOUT. OPENINGS HAVE BEEN COORDINATED WITH TROJAN UV EQUIPMENT SIZE AND LAYOUT. CONTRACTOR SHALL CONFIRM FINAL LOCATIONS AGREE WITH STRUCTURAL AND EQUIPMENT LAYOUT. IF MODIFICATIONS TO THE CANTILEVERED SLAB AND/OR OPENINGS ARE PROPOSED/IDENTIFIED BY THE CONTRACTOR, THE MODIFICATIONS MUST BE REVIEWED AND APPROVED BY THE DESIGN ENGINEER PRIOR TO IMPLEMENTATION.
12. PROVIDE A MINIMUM OF 12 INCHES BETWEEN DISCONTINUITIES IN THE CANTILEVERED INTERFACE WITH THE EXISTING WALL AND OPENING IN THE CANTILEVERED SLAB.
13. INSTALL ALUMINUM TREAD PLATE OVER THE NOTCH SIMILAR TO DETAIL 6/40S05.

REV	DATE	BY	DESCRIPTION

DESIGNED NV
DRAWN RYW
CHECKED EQ
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER NIVEDITHA VENKATANARAYANASAMI No. 92381 CIVIL STATE OF CALIFORNIA

Digitally signed by Nivedithaa Venkatanarayanasami
Contact Info: nivedithaa.v@carollo.com, TX
Date: 2024.03.22 11:08:27-05'00'

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CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

STRUCTURAL

UV DISINFECTION SYSTEM TOP PLAN

VERIFY SCALES
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0 1"
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JOB NO. 201447
DRAWING NO. 40S02
SHEET NO. 20 OF 79

PLOT DATE: 3/13/2024 3:39:54 PM

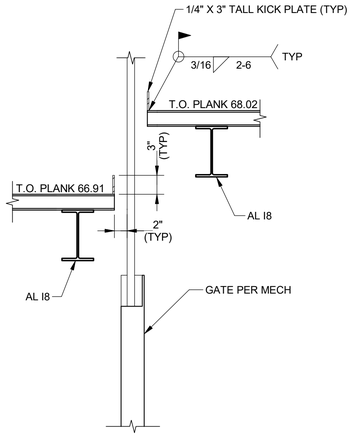
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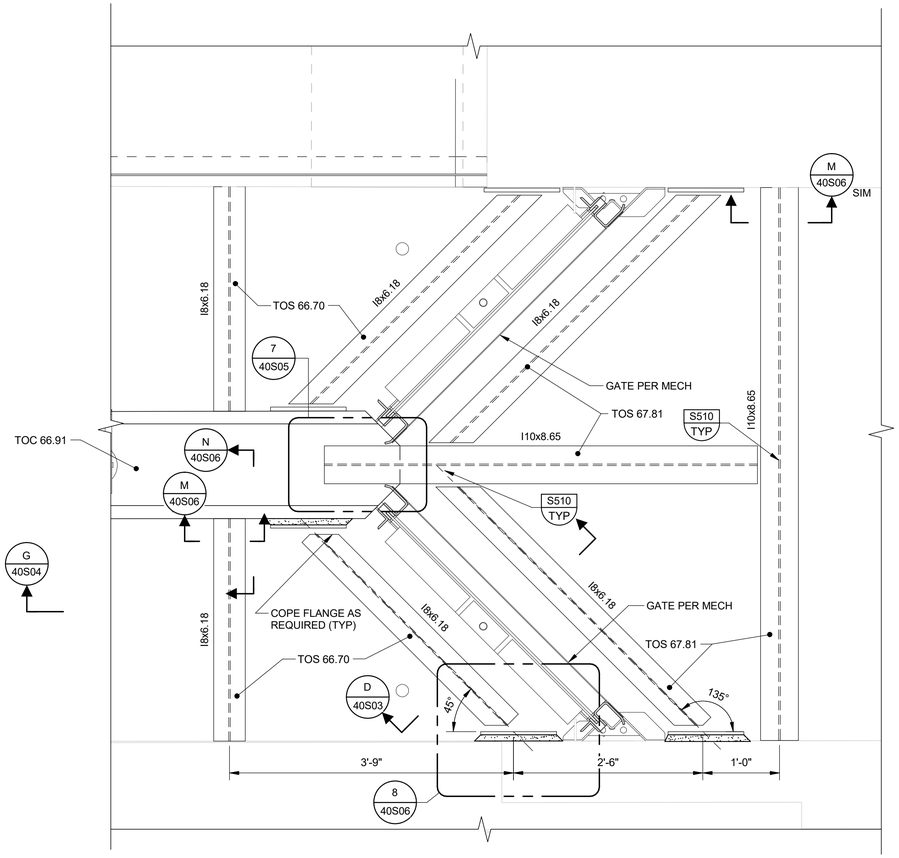
1. FOR STRUCTURAL GENERAL NOTES SEE DRAWING G08.
2. COORDINATE OPENINGS WITH ELECTRICAL AND MECHANICAL EQUIPMENT MANUFACTURERS.
3. SEE MECHANICAL DRAWINGS FOR ALL PIPE SIZES AND LOCATIONS.
4. ALL METAL SUBMERGED SHALL BE 316 SST.

KEY NOTES:

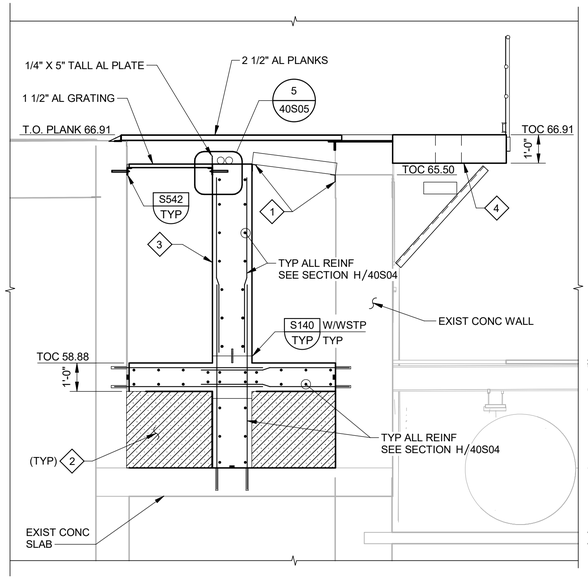
1. FIELD ADJUSTED ANGLE SUPPORTS COORDINATED WITH INSTALLATION AND CABLE TRAY. SEE ELECTRICAL SPECIFICATIONS FOR CABLE TRAY REQUIREMENTS. (TYP BOTH SIDES)
2. FILL VOIDS WITH LOW DENSITY CELLULAR CONCRETE. REFER TO SPECIFICATION 31_34_07.
3. COAT UV CHANNEL WALLS AND FLOORS WITH POL-C-1 (POLYURETHANE) COATING PER SPECIFICATION 09_96_01.
4. PROVIDE TEMPORARY SHORING SUPPORT UNTIL CONCRETE HAS ATTAINED THE DESIGN STRENGTH AND THE BRACKETS ARE INSTALLED.



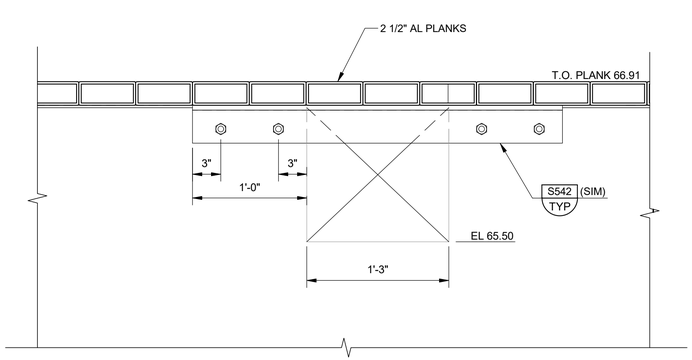
D SECTION
40S03 SCALE: 1" = 1'-0"



C ENLARGED PLAN
40S02 SCALE: 1" = 1'-0"



E SECTION
40S01 SCALE: 3/8" = 1'-0"



F SECTION
40S02 SCALE: 1 1/2" = 1'-0"

REV	DATE	BY	DESCRIPTION

DESIGNED NV
DRAWN RYW
CHECKED EQ
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER NIVEDITHAA VENKATANARAYANASAMI No. 92381 CIVIL STATE OF CALIFORNIA

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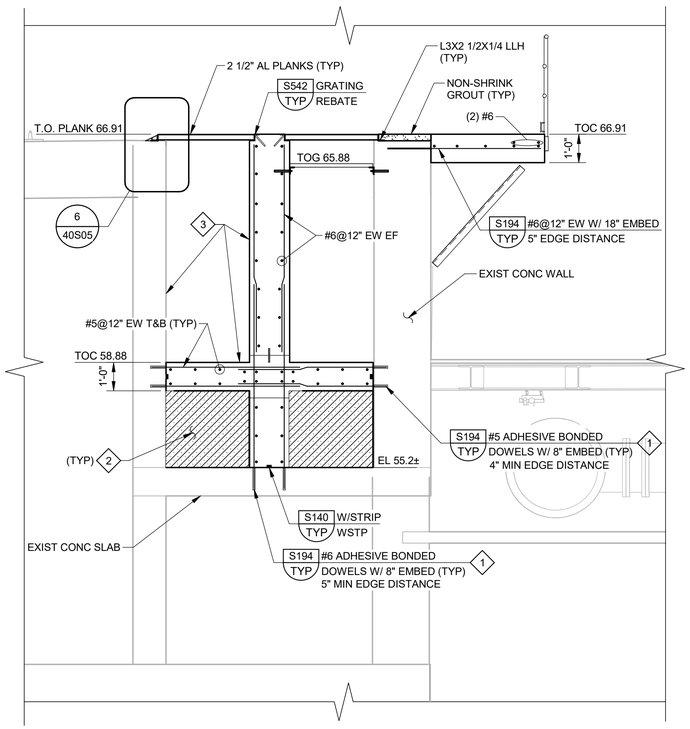
CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
STRUCTURAL
UV DISINFECTION SYSTEM SECTIONS AND DETAILS 1

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

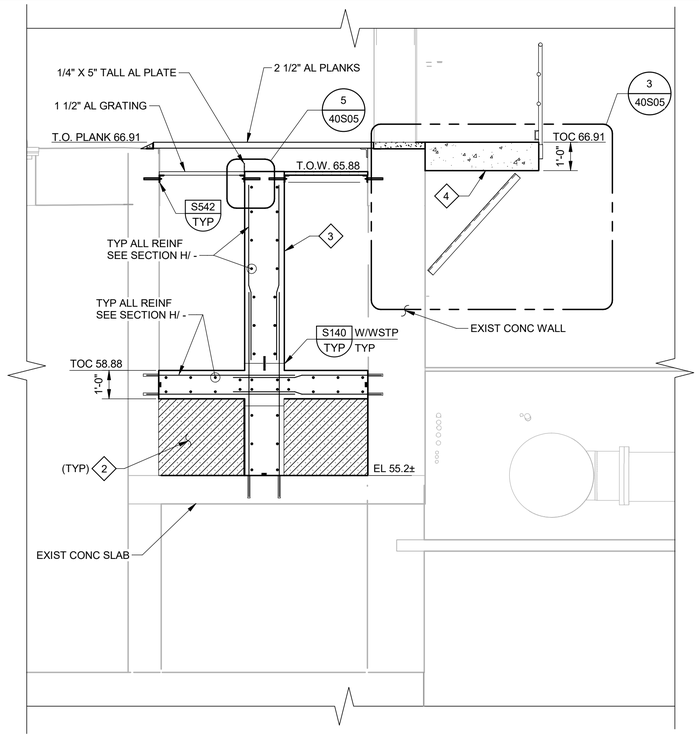
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DRAWING NO. 40S03
SHEET NO. 21 OF 79

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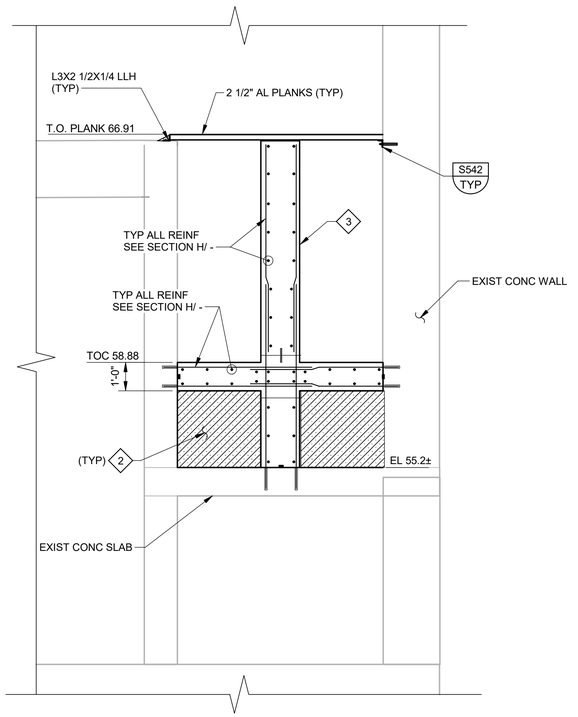
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H 40S01 **SECTION**
SCALE: 3/8" = 1'-0"



J 40S01 **SECTION**
SCALE: 3/8" = 1'-0"



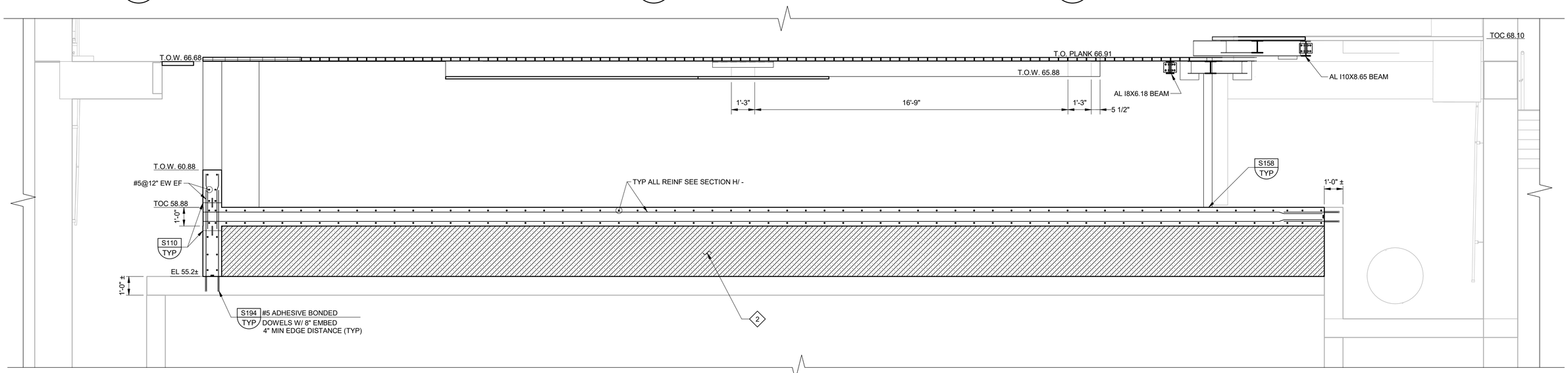
K 40S01 **SECTION**
SCALE: 3/8" = 1'-0"

GENERAL NOTES:

1. FOR STRUCTURAL GENERAL NOTES SEE DRAWING G08.
2. COORDINATE OPENINGS WITH ELECTRICAL AND MECHANICAL EQUIPMENT MANUFACTURERS.
3. SEE MECHANICAL DRAWINGS FOR ALL PIPE SIZES AND LOCATIONS.
4. ALL METAL SUBMERGED SHALL BE 316 SST.
5. CONSTRUCTION TOLERANCES: CONTRACTOR SHALL TAKE ADDITIONAL SPECIAL MEASURES IN CONSTRUCTING CHANNEL WALL AND FLOOR FOR UV EQUIPMENT. CONTRACTOR SHALL:
   - A. FOR SURFACE FREE FROM IRREGULARITIES. IRREGULARITIES OVER A 10-FOOT DISTANCE SHALL NOT EXCEED ±0.1% IN ALL DIRECTIONS.
   - B. CONCRETE SURFACE SHALL BE CLASS A AS DEFINED IN ACI 117.
   - C. HORIZONTAL AND VERTICAL DEVIATIONS FROM PLAN SHALL NOT EXCEED +1/8 INCH AND MINUS 0.
   - D. FILL VOIDS WITH LOW DENSITY CELLULAR CONCRETE. REFER TO SPECIFICATION 31_34_07.

KEY NOTES:

1. CONTRACTOR SHALL CONDUCT NON-DESTRUCTIVE TESTING TO LOCATE EXISTING REINFORCEMENT. DO NOT DAMAGE EXISTING REINFORCEMENT.
2. FILL VOIDS WITH LOW DENSITY CELLULAR CONCRETE. REFER TO SPECIFICATION 31_34_07.
3. COAT UV CHANNEL WALLS AND FLOORS WITH POL-C-1 (POLYURETHANE) COATING PER SPECIFICATION 09_96_01.
4. PROVIDE TEMPORARY SHORING SUPPORT UNTIL CONCRETE HAS ATTAINED THE DESIGN STRENGTH AND THE BRACKETS ARE INSTALLED.



G 40S01 **SECTION**
SCALE: 3/8" = 1'-0"

REV	DATE	BY	DESCRIPTION

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DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER — NIVEDITHAA VENKATANARAYANASAMI — No. 92381 — CIVIL — STATE OF CALIFORNIA

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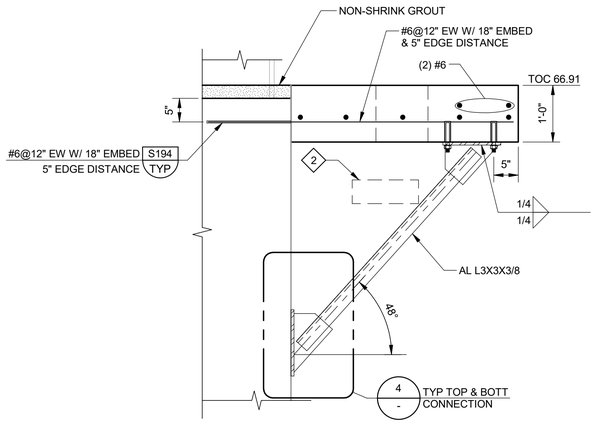
CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
STRUCTURAL
UV DISINFECTION SYSTEM SECTIONS AND DETAILS 2

VERIFY SCALES
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 40S04
SHEET NO. 22 OF 79

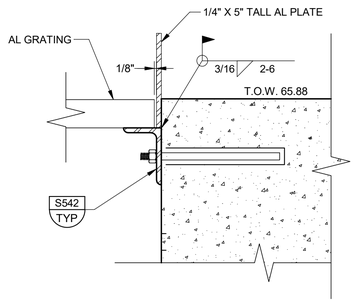
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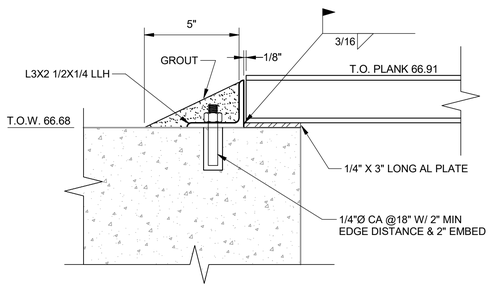


NOTE: GUARDRAIL NOT SHOWN FOR CLARITY.

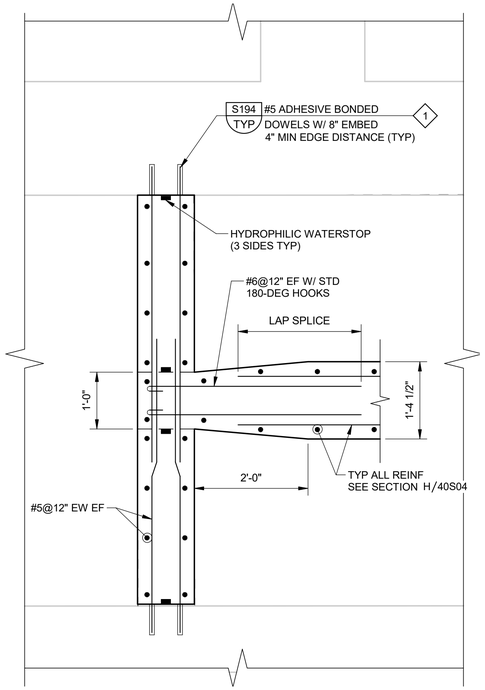
3 DETAIL (40S04)
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5 DETAIL (40S03)
SCALE: 3" = 1'-0"



6 DETAIL (40S04)
SCALE: 3" = 1'-0"



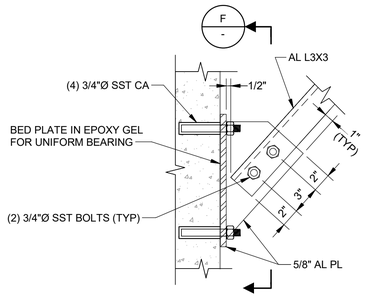
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GENERAL NOTES:

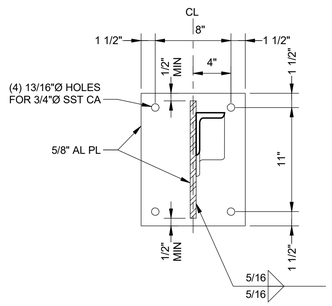
1. FOR STRUCTURAL GENERAL NOTES SEE DRAWING G08.
2. COORDINATE OPENINGS WITH ELECTRICAL AND MECHANICAL EQUIPMENT MANUFACTURERS.
3. SEE MECHANICAL DRAWINGS FOR ALL PIPE SIZES AND LOCATIONS.
4. ALL METAL SUBMERGED SHALL BE 316 SST.

◇ KEY NOTES:

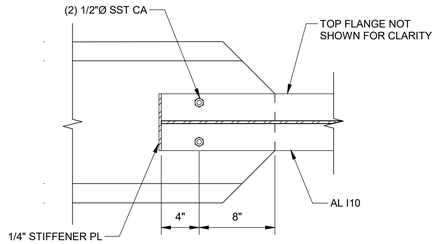
1. CONTRACTOR SHALL CONDUCT NON-DESTRUCTIVE TESTING TO LOCATE EXISTING REINFORCEMENT. DO NOT DAMAGE EXISTING REINFORCEMENT.
2. APPROXIMATE SPACE FOR CABLE TRAY, REFER TO ELECTRICAL FOR DETAILS AND COORDINATION.



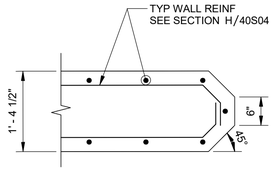
4 DETAIL (-)
SCALE: 1 1/2" = 1'-0"



F SECTION (-)
SCALE: 1 1/2" = 1'-0"



7 DETAIL (40S02)
SCALE: 1 1/2" = 1'-0"



2 DETAIL (40S01)
SCALE: 3/4" = 1'-0"

REV	DATE	BY	DESCRIPTION

DESIGNED NV
DRAWN RYW
CHECKED EQ
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER — NIVEDITHA VENKATANARAYANASAMI — No. 92381 — CIVIL — STATE OF CALIFORNIA

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Contact 916.375.1876, nivi@carollo.com
Date: 2024.03.22 11:07:34-07'00'

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CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
STRUCTURAL
UV DISINFECTION SYSTEM
SECTIONS AND DETAILS 3

VERIFY SCALES
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0 1"
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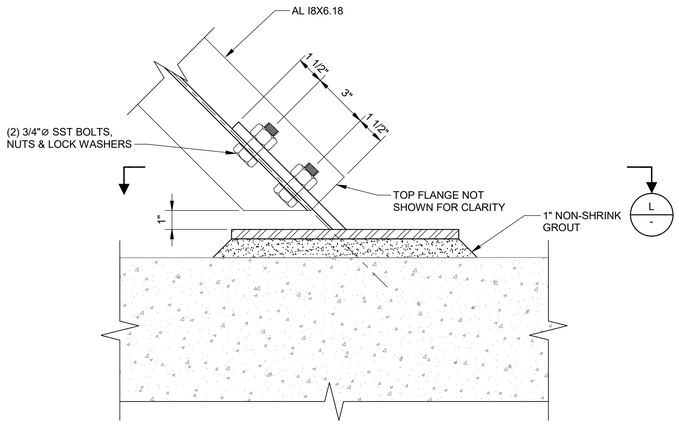
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SHEET NO. 23 OF 79

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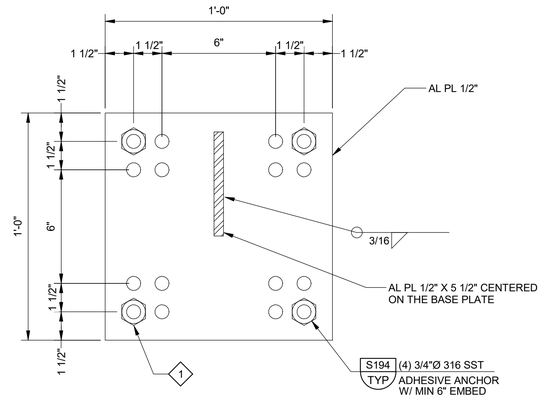
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GENERAL NOTES:

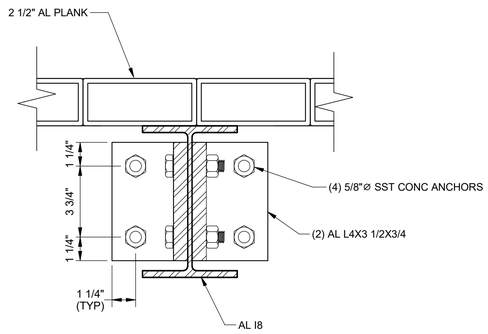
1. FOR STRUCTURAL GENERAL NOTES SEE DRAWING G08.
2. COORDINATE OPENINGS WITH ELECTRICAL AND MECHANICAL EQUIPMENT MANUFACTURERS.
3. SEE MECHANICAL DRAWINGS FOR ALL PIPE SIZES AND LOCATIONS.
4. ALL METAL SUBMERGED SHALL BE 316 SST.



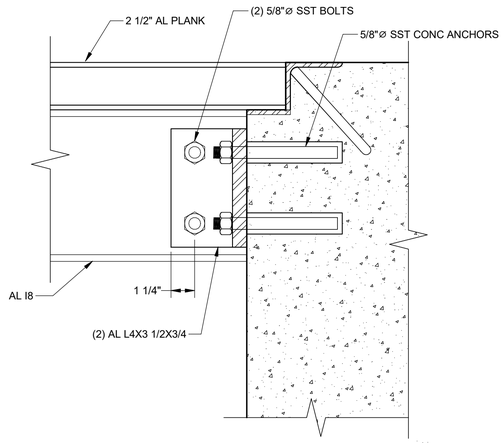
8 DETAIL
40S03
SCALE: 3" = 1'-0"



L SECTION
-
SCALE: 3" = 1'-0"



M SECTION
40S03
SCALE: 3" = 1'-0"



N SECTION
40S03
SCALE: 3" = 1'-0"

REV	DATE	BY	DESCRIPTION

DESIGNED NV
DRAWN RYW
CHECKED EQ
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER — VENKATANARAYANASAMI NIVEDITHA — No. 92381 — CIVIL — STATE OF CALIFORNIA

Digitally signed by Niveditha Venkatanarayanasami
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 11:07:16-07'00'

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CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

STRUCTURAL
UV DISINFECTION SYSTEM
SECTIONS AND DETAILS 4

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 40S06
SHEET NO. 24 OF 79

PLOT DATE: 3/20/2024 2:13:13 PM

FILE NAME: R:\d0203194\201447S0800.rvt

Plot Date: 21-MAR-2024 1:04:57 PM User: svcPW PlotScale: 1:1 DesignScript: Carollo_Std_Pen_v0905.pen ColorTable: gshade.ctb Model: Layout1

LAST SAVED BY: gleal



LOUVER DEMOLITION FOR DUCTBANK

9 DETAIL
-
SCALE: NO SCALE
FILE: 20144740S06100A



SCREEN AND SUPPORT EXAMPLE

10 DETAIL
-
SCALE: NO SCALE
FILE: 20144740S06100B



EXTERIOR LOUVERS

11 DETAIL
-
SCALE: NO SCALE
FILE: 20144740S06100C

KEY NOTES:

1. DISCONNECT AUTOMATIC LOUVERS FROM CONTROL SHAFT IN SECTION REQUIRED FOR NEW CONDUIT AND ELECTRICAL APPURTENANCES. DEMOLISH INTERIOR AUTOMATIC LOUVERS IN THIS SECTION.
2. WELD ADDITIONAL SUPPORT IF REQUIRED TO SUPPORT REMAINING LOUVERS. MINIMIZE DEMOLITION OF UPPER LOUVER TO PRESERVE FRAMING AND SUPPORT.
3. PROTECT GALVANIZED WIRE MESH SCREEN IN PLACE EXCEPT AS NECESSARY TO INSTALL NEW CONDUIT AND ELECTRICAL APPURTENANCES. REPLACE AND/OR REPAIR MESH IN KIND. SEAL ANY REMAINING GAPS TO LEAVE NO GREATER THAN A 1" GAP USING MEAN APPROVED BY THE CITY. PREFERRED METHOD IS FABRICATION OF WIRE MESH SECTIONS BONDED TOGETHER WITH GALVANIZED WIRE AND MINIMUM 2-INCH OVERLAPS.
4. IF 12" OR MORE OF FIXED LOUVER REMAINS BEYOND EITHER SIDE OF THE INSTALLED JUNCTION BOX, CUT LOUVERS AND PROVIDE VERTICAL SOLID 316 SST STRUT. ATTACH CUT END OF LOUVER TO VERTICAL STRUT WITH 1/4" DIAMETER, SST, SELF-TAPPING SCREWS OF APPROPRIATE LENGTH. IN THE EXAMPLE SHOWN, SOLID CHANNEL WAS NOT PROVIDED AND PROPER LOCATION OF SCREWS WAS NOT POSSIBLE. ALTERNATIVELY, SLOTTED CHANNEL AND 3/8" SST HARDWARE MAY BE USED. IF LESS THAN 12" OF LOUVER REMAINS, REMOVE ENTIRE LOUVER. ONLY REMOVE LOUVERS NECESSARY TO PASS CONDUIT AND ELECTRICAL APPURTENANCES.

0

REV	DATE	BY	DESCRIPTION

DESIGNED BAB
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER BRYAN A. BURNITT No. 83046 CIVIL STATE OF CALIFORNIA

Digitally signed by Bryan A. Burnitt
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 08:35:05-05'00'

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CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
STRUCTURAL
MISCELLANEOUS STRUCTURAL DETAILS

VERIFY SCALES
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0 1"
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JOB NO. 201447
DRAWING NO. 40S07
SHEET NO. 25 OF 79

PIPING SYMBOLS

DOUBLE LINE	SINGLE LINE	DESCRIPTION
		WELDED JOINT
		GROOVED END JOINT
		FLANGED JOINT
		HUB & SPIGOT JOINT (RUBBER GASKET)
		PUSH-ON JOINT (RESTRAINED)
		ADAPTER SIDE GROOVED END ADAPTER FLANGE
		FLANGED COUPLING ADAPTER
		FLANGED COUPLING ADAPTER WITH THRUST TIES
		FLEXIBLE COUPLING
		FLEXIBLE COUPLING WITH THRUST TIES
		METAL BELLOWS EXP JOINT
		ELASTOMER BELLOWS EXP JOINT
		FLEXIBLE COUPLING ADAPTER
		DISMANTLING JOINT
		EXPANSION COMPENSATOR
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER (FOT. FOB)
		UNION
		CAP
		ANCHOR
		ELBOW, 90 DEGREE
		CROSS
		TEE
		ELBOW, 45 DEGREE
		ELBOW, 22.5 DEGREE
		ELBOW, 11.25 DEGREE
		LATERAL

SINGLE LINE	DESCRIPTION
	GATE VALVE
K	KNIFE GATE VALVE
	BUTTERFLY VALVE
V	CHARACTERIZED BALL CONTROL VALVE
	BALL VALVE
	GLOBE VALVE
	3-WAY GLOBE TYPE MIXING VALVE
	FOUR WAY VALVE
	PINCH VALVE
	DIAPHRAGM VALVE
	PLUG VALVE
	LUBRICATED PLUG VALVE
	ECCENTRIC PLUG VALVE
	CONCENTRIC PLUG VALVE
	SWING CHECK VALVE
	WAFER CHECK VALVE
	BALL CHECK VALVE
	DUAL CHECK VALVE
	CHECK BACKFLOW PREVENTER
	HOSE VALVE
	MUD VALVE (PLAN VIEW)
	NEEDLE VALVE
	CONE VALVE
	PRESSURE RELIEF PRESSURE-REDUCING REGULATOR
	TELESCOPING VALVE
	THREE WAY VALVE AIR OPERATED
M	THREE WAY VALVE MOTOR OPERATED
S	THREE WAY VALVE SOLENOID OPERATED
	VACUUM VALVE
	BACKPRESSURE REGULATOR SELF-CONTAINED
	BACKPRESSURE REGULATOR W/ EXTERNAL PRESSURE TAP
	PRESSURE-REDUCING REGULATOR: SELF-CONTAINED
	PRESSURE-REDUCING REGULATOR W/EXTERNAL PRESSURE TAP

MECHANICAL SYMBOLS

SINGLE LINE	DESCRIPTION
	AIR OR CHEMICAL DIFFUSER
	QUICK DISCONNECT HIGH PRESSURE AIR OR FLUSHING
	BATCHMETER
	AIR VENT
	BASKET STRAINER
	BLOWER
	CALIBRATION COLUMN
	COMPRESSOR/TURBINE
	COMPRESSOR: RECIPROCATING
	DIAPHRAGM SEAL
	DRAIN
	EJECTOR OR EDUCTOR
M	ELECTRIC MOTOR
	EQUIPMENT DRAIN
	EXPANSION JOINT, FLEXIBLE VIBRATION JOINT
	FAN: EXHAUST/SUPPLY
	FILTER
	FIRE HYDRANT
	FLAME ARRESTER
	FLAME ARRESTER WITH THERMALLY OPERATED VALVE
	FLOOR DRAIN
	FLOW SWITCH
	GAUGE: PRESSURE
	GAUGE: DIFFERENTIAL PRESSURE
	WEIR
	MIXER
	OIL OR MOISTURE TRAP
	PRIMARY LEVEL ELEMENT: BUBBLER
	PRIMARY LEVEL ELEMENT: ELECTRODE
	PRIMARY LEVEL ELEMENT: FLOAT SWITCH
	PRIMARY LEVEL ELEMENT: FLUID
	PRIMARY LEVEL ELEMENT: INVERTED COLUMN

SINGLE LINE	DESCRIPTION
	PRIMARY LEVEL ELEMENT: RADAR
	PRIMARY LEVEL ELEMENT: ULTRASONIC
	PRIMARY FLOW ELEMENT: FLUME
X	PRIMARY FLOW ELEMENT: X = C - CORIOLIS X = M - MAGNETIC X = P - PROPELLER X = PT - PITOT TUBE X = R - ROTAMETER X = T - TURBINE X = TH - THERMAL X = U - ULTRASONIC X = D - DENSITY
	PRIMARY FLOW ELEMENT: ORIFICE PLATE
	PRIMARY FLOW ELEMENT: VENTURI TUBE
	PRIMARY FLOW ELEMENT: WEIR
	PULSATION DAMPENER
M	PUMP: CENTRIFUGAL
	PUMP: DIAPHRAGM
	PUMP: METERING
	PUMP: PLUNGER
	PUMP: PERISTALTIC TUBE METERING
	PUMP: PROGRESSIVE CAVITY
	PUMP: RECIPROCATING
	PUMP: ROTARY
	PUMP: SCREW
	PUMP: SUBMERSIBLE
	PUMP: VERTICAL LIFT
	PIPE REDUCER: CONCENTRIC
	PIPE REDUCER: ECCENTRIC (FOT, FOB)
	ROTARY CHEMICAL FEEDER
	RUPTURE DISK
	SAMPLE PORT
	SIGHT GLASS
	SLIDE GATE
	SLUICE GATE
	STRAINER: WYE TYPE

SINGLE LINE	DESCRIPTION
	STRAINER: WYE TYPE WITH BLOWOFF
	THERMOMETER
	VALVE: ANGLE
	VALVE: AIR RELIEF
	PIPE MATERIAL CHANGE

IDENTIFICATION SYMBOLS

CHEMICAL INJECTION POINT	CHEMICAL DWG NO.
PIPE DESIGNATOR	PIPE SIZE, FLOW STREAM X" XXX
CONTINUATION TAG	UNIQUE IDENTIFIER, CONTINUATION FROM DWG NO., CONTINUATION TO DWG NO. A B C
EQUIPMENT / VALVE TAG	XXX-XX-XXXX
KEY TAG	X

LINE SYMBOLS

- PIPE ABOVE OR BELOW GROUND
- PIPE UNDERNEATH SLAB OR STRUCTURE
- FUTURE
- EXISTING
- DEMO

PROCESS LINE SYMBOLS

- PRIMARY PROCESS FLOW IN PIPE
- SECONDARY PROCESS FLOW IN PIPE
- PRIMARY PROCESS FLOW IN CHANNEL
- SECONDARY PROCESS FLOW IN CHANNEL

REV	DATE	BY	DESCRIPTION

DESIGNED CE
DRAWN CE
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
ALEXANDER R. LAMB
No. 92482
CIVIL
STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:43:39-05'00'

CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

MECHANICAL

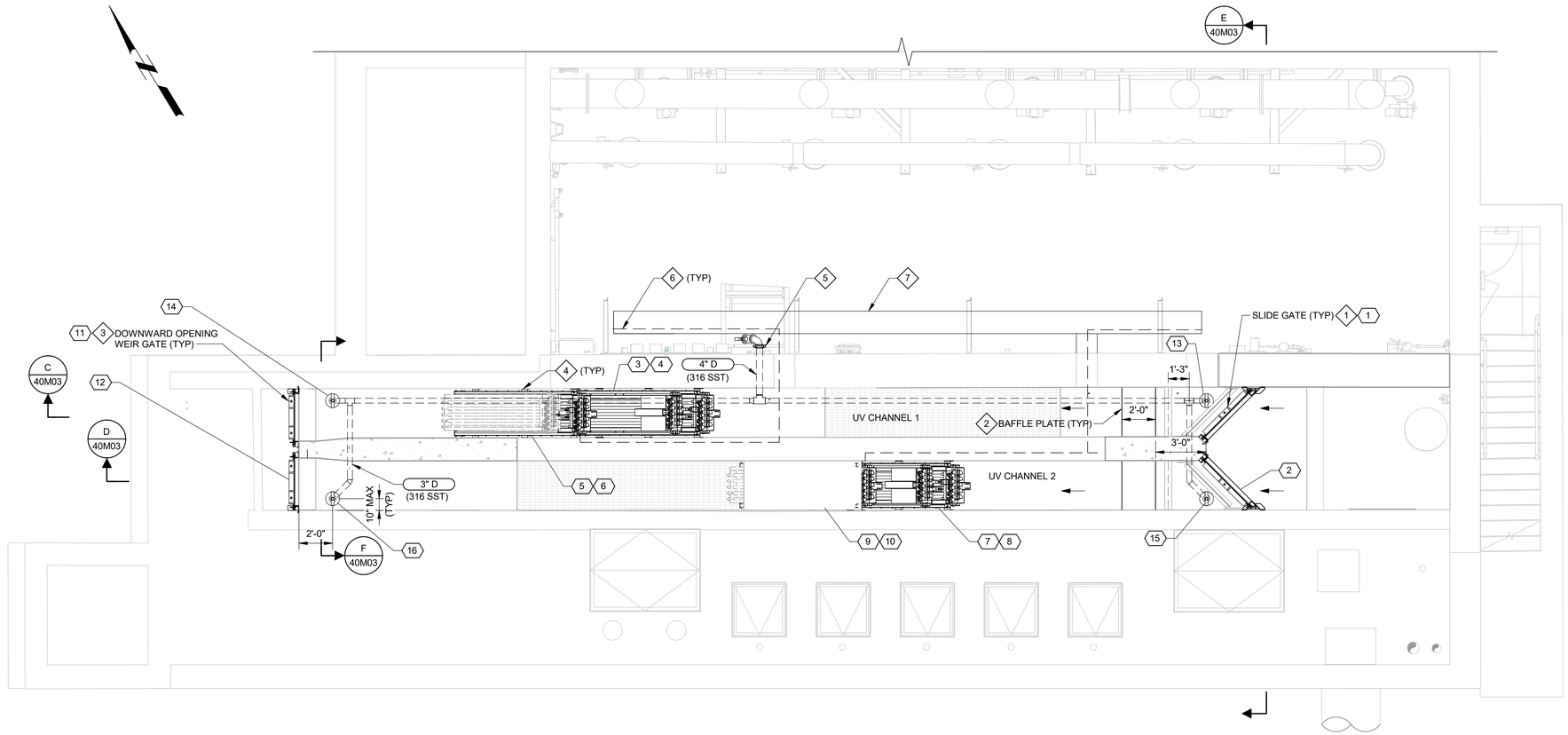
GENERAL MECHANICAL LEGEND AND SYMBOLS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. GM01

PROJECT NO. 201447-100000 FILE NAME: 201447GM01.dgn

Plot Date: 15-MAR-2024 10:24:50 AM
User: svcPW
Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
LAST SAVED BY: gleal



@ EL 65'-6"

A PLAN

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

GENERAL NOTES:

1. SEE G06 FOR GENERAL NOTES. SEE G08, G09, G10, AND G11 FOR BYPASS DETAILS REQUIRED TO PERFORM THIS WORK.
2. VENDOR SUPPLIED EQUIPMENT INFORMATION AND RESPONSIBILITIES ARE FOUND IN THE FOLLOWING DOCUMENTS:
   a. SECTION 00_54_34 - ASSIGNMENT OF PROCUREMENT CONTRACT.
   b. APPENDIX D - PRE-PROCUREMENT CONTRACT DOCUMENTS.
   c. SECTION 46_66_85 - ULTRAVIOLET DISINFECTION SYSTEM INCLUDING ATTACHMENT B - REVIEWED SUPPLIER SUBMITTALS.
3. MECHANICAL LAYOUT PROVIDED BASED ON THE SPECIFIED UV EQUIPMENT IN SECTION 46_66_85 AND APPROVED SUBMITTALS IN APPENDIX E. INSTALLATION SHOP DRAWINGS DEMONSTRATING THE METHOD OF INSTALLATION AND IDENTIFYING REQUIRED MODIFICATION TO THE EXISTING FACILITY.
4. SEE PROCUREMENT CONTRACT DOCUMENTS FOR EQUIPMENT TO BE SUPPLIED BY THE UV SUPPLIER. EQUIPMENT NOT SPECIFIED TO BE PROVIDED UNDER THE PROCUREMENT CONTRACT SHALL BE SUPPLIED BY THE CONTRACTOR. EQUIPMENT INSTALLATION TO BE COMPLETED BY INSTALLATION CONTRACTOR IN COORDINATION WITH THE EQUIPMENT SUPPLIER.
5. CONTRACTOR IS RESPONSIBLE FOR MOVING EQUIPMENT WITHIN THE GALLERY THROUGH USE OF TEMPORARY GANTRY CRANE OR OTHER TEMPORARY LIFTING LOCATIONS OR MEANS DESIGNED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CALIFORNIA.
6. FOR ADDITIONAL UV EQUIPMENT INSTALLATION UNDER THIS CONTRACT, REFER TO SECTION 46_66_85 OF THE INSTALLATION CONTRACT DOCUMENTS.

(#) KEY NOTES:

1. SST ISOLATION CHANNEL-MOUNTED SLIDE GATE WITH ELECTRIC ACTUATOR, SEE SECTION 40_05_59.20 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
2. SST INLET BAFFLE PLATE, SEE SECTION 46_66_85 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
3. SST DOWNWARD OPENING WEIR GATE WITH ELECTRIC ACTUATOR SEE SECTION 40_05_59.20 AND 46_66_85 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
4. UV BANK INSTALLATION AREA. SEE SECTION 46_66_85 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
5. INSTALL 4" TEE AND PIPE THROUGH EXISTING CORE/SLEEVE. GROUT SEAL ANNULAR SPACE. INSTALL SST GROOVED COUPLING (VICTAULIC STYLE 489 OR EQUAL), 90 ELBOW, AND 4" BALL VALVE WITH 4" SST CAM LOCK IN FILTER GALLERY SUBLEVEL. SEE E/40M03.
6. HYDRAULIC LINES TO BE ROUTED IN CABLE TRAYS TO THEIR RESPECTIVE HYDRAULIC SYSTEM CENTER. REFER TO APPROVED TROJAN SUBMITTALS FOR DETAILS AND INSTALLATION INSTRUCTIONS.
7. APPROXIMATE LOCATION FOR CABLE TRAY AND SUPPORTS. REFER TO STRUCTURAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR INSTALLATION AND COORDINATION. CABLE TRAYS AND DEPRESSED WALL SECTION WILL BE USED TO ROUTE LAMP CABLES AND HYDRAULIC LINES UNDER TOP DECKING. REFER TO APPROVED SUBMITTALS FOR ADDITIONAL DETAILS.

(#) KEY TAGS:

1	40-G-11-FEF	UV CHANNEL NO. 1 INLET GATE
2	40-G-21-FEF	UV CHANNEL NO. 2 INLET GATE
3	40-UV-11	UV CHANNEL NO. 1 UV BANK A
4	40-UV-12	UV CHANNEL NO. 1 UV BANK B
5	40-UV-13	UV CHANNEL NO. 1 UV BANK C
6	40-UV-14	UV CHANNEL NO. 1 UV BANK D (FUTURE)
7	40-UV-21	UV CHANNEL NO. 2 UV BANK A
8	40-UV-22	UV CHANNEL NO. 2 UV BANK B
9	40-UV-23	UV CHANNEL NO. 2 UV BANK C
10	40-UV-24	UV CHANNEL NO. 2 UV BANK D (FUTURE)
11	40-G-12-FEF	UV CHANNEL NO. 1 OUTLET WEIR GATE
12	40-G-22-FEF	UV CHANNEL NO. 2 OUTLET WEIR GATE
13	40-V-11-FEF	UV CHANNEL NO. 1 MUD VALVE NO. 1
14	40-V-12-FEF	UV CHANNEL NO. 1 MUD VALVE NO. 2
15	40-V-21-FEF	UV CHANNEL NO. 2 MUD VALVE NO. 1
16	40-V-22-FEF	UV CHANNEL NO. 2 MUD VALVE NO. 2

REV	DATE	BY	DESCRIPTION

DESIGNED ARL
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:43:32 -05'00'

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CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

MECHANICAL

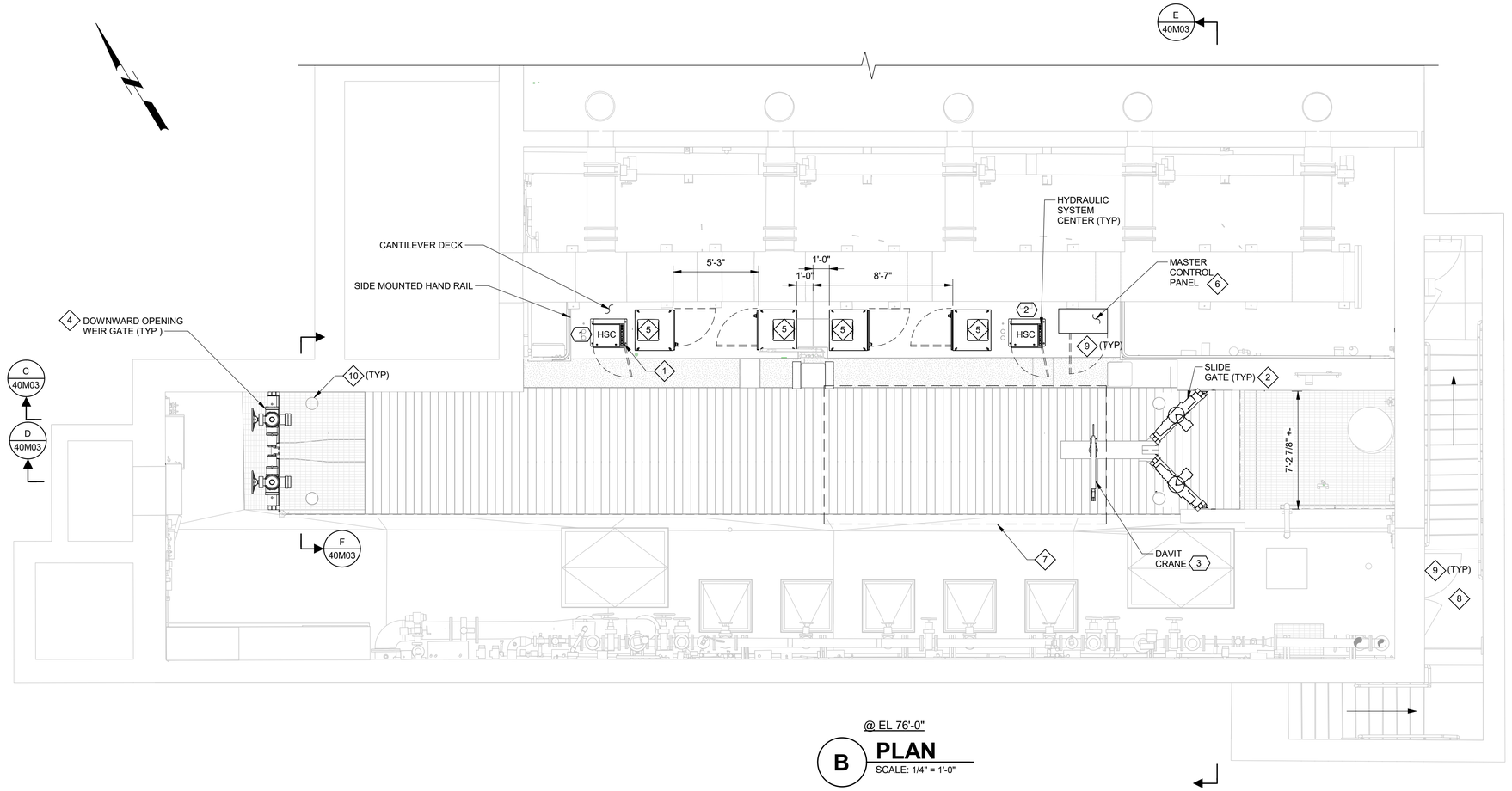
UV DISINFECTION SYSTEM BOTTOM PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 40M01
SHEET NO. 27 OF 79

PLOT DATE: 3/20/2024 11:14:26 AM

FILE NAME: R:\d0203205\201447M800.rvt



@ EL 76'-0"

B PLAN

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

GENERAL NOTES:

1. SEE 40M01 FOR GENERAL NOTES.

KEY NOTES:

1. HYDRAULIC SYSTEM CENTER. SEE SECTION 46_66_85 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
2. SST ISOLATION CHANNEL-MOUNTED SLIDE GATE WITH ELECTRIC ACTUATOR. SEE SECTION 40_05_59.20 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
3. NOT USED.
4. SST DOWNWARD OPENING WEIR GATE WITH ELECTRIC ACTUATOR. SEE SECTION 40_05_59.20 AND 46_66_85 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
5. POWER DISTRIBUTION CENTER (PDC). SEE SECTION 46_66_85 AND 40_61_05 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
6. MASTER CONTROL PANEL, SEE SECTION 46_66_85 AND 40_61_05 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
7. APPROXIMATE LOCATION OF OPENING IN CEILING. ALL EQUIPMENT MUST BE ABLE TO BE LIFTED AND FIT THROUGH THIS 8'X17' OPENING. MOVEMENT AND LIFTING OF EQUIPMENT WITHIN GALLERY SHALL BE DETERMINED BY THE CONTRACTOR AND WILL REQUIRE DELEGATED STRUCTURAL DESIGN ACCORDING TO SECTION 01_35_73 - DELEGATED DESIGN PROCEDURES, WHERE MODIFICATIONS TO EXISTING STRUCTURES AND/OR RELIANCE ON EXISTING STRUCTURES IS REQUIRED BY THE SELECTED METHODS OR OTHERWISE REQUIRED BY THE CONTRACT DOCUMENTS.
8. PERSONNEL ACCESS BY 3'-6" WIDE STAIRWELL TO UV DECK AND PIPE GALLERY LEVELS.
9. CLEARANCE REQUIRED FOR DOOR SWING.
10. COORDINATE OPENING IN GRATING FOR OPERATOR NUT ACCESS WITH GRATING MANUFACTURER.

KEY TAGS:

1	40-HSC-11	UV CHANNEL NO. 1 HYDRAULIC SYSTEM CENTER
2	40-HSC-21	UV CHANNEL NO. 2 HYDRAULIC SYSTEM CENTER
3	40-CRN-11	UV CHANNEL DAVIT CRANE

REV	DATE	BY	DESCRIPTION

DESIGNED ARL
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:42:59-05'00'

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CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

MECHANICAL

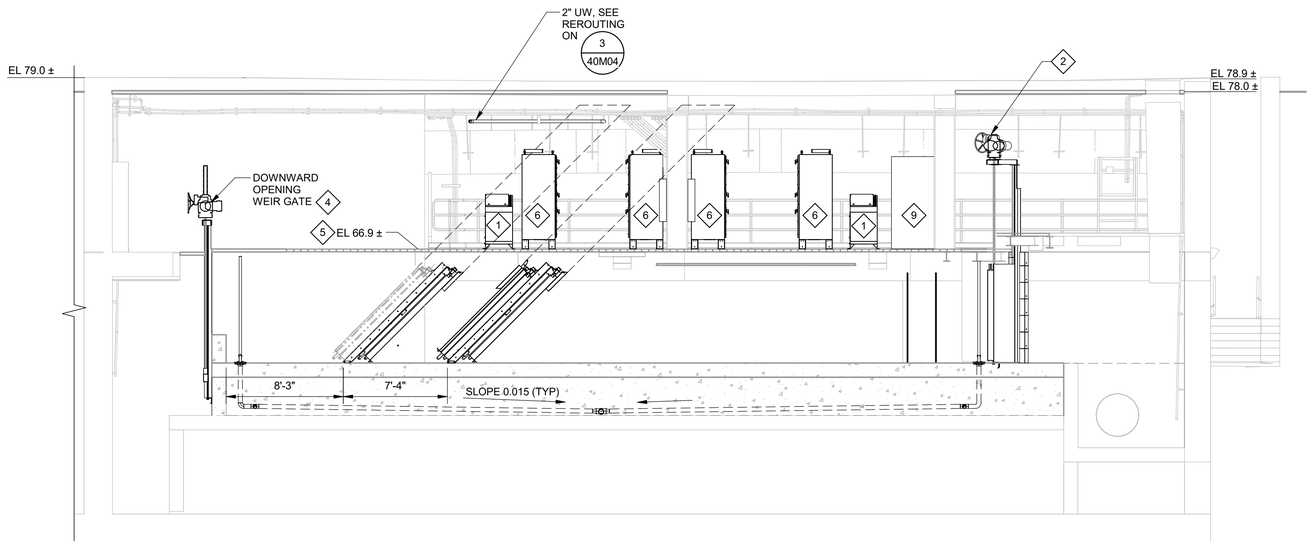
UV DISINFECTION SYSTEM TOP PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

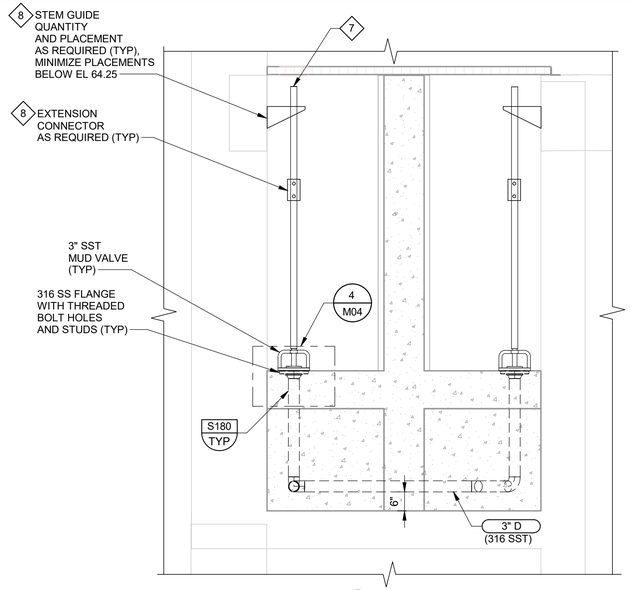
JOB NO. 201447
DRAWING NO. 40M02
SHEET NO. 28 OF 79

PLOT DATE: 3/20/2024 12:01:15 PM

FILE NAME: R:\d0203205\201447M800.rvt



C SECTION
40M01 SCALE: 3/16" = 1'-0"



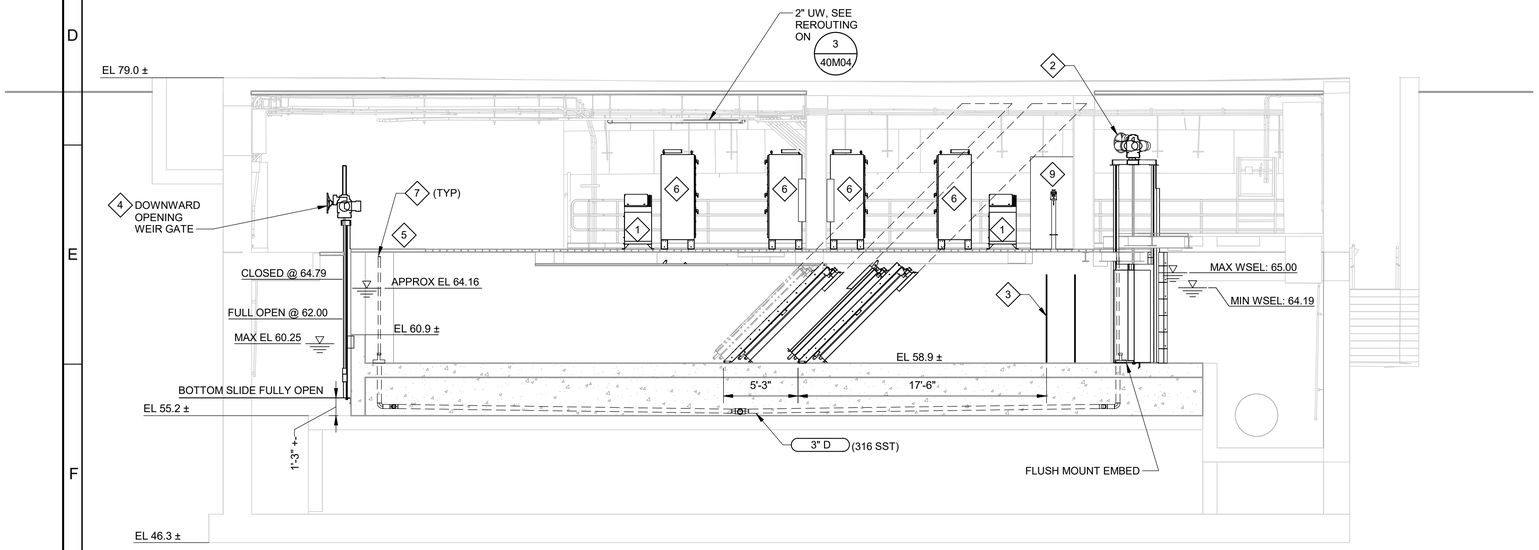
F SECTION
40M01 SCALE: 1/2" = 1'-0"

GENERAL NOTES:

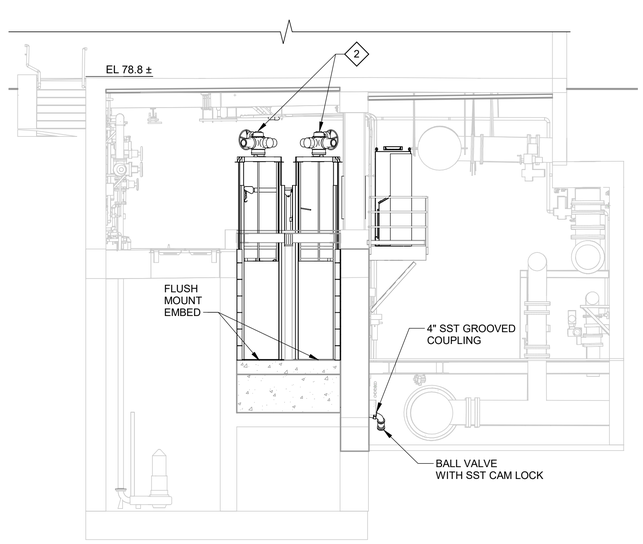
1. SEE 40M01 FOR GENERAL NOTES.

KEY NOTES:

1. HYDRAULIC SYSTEM CENTER, SEE SECTION 46_66_85 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
2. SST ISOLATION CHANNEL-MOUNTED SLIDE GATE WITH ELECTRIC ACTUATOR, SEE SECTION 40_05_59.20 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
3. SST INLET BAFFLE PLATE, SEE SECTION 46_66_85 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
4. SST DOWNWARD OPENING WEIR GATE WITH ELECTRIC ACTUATOR. SEE SECTION 40_05_59_20 AND 46_66_85 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
5. SEE STRUCTURAL SHEETS FOR DECKING. UV BANKS AND FRAMES SHALL NOT COME WITHIN 4" OF THE TOP DECK ELEVATION.
6. POWER DISTRIBUTION CENTERS AND MASTER CONTROL PANEL, SEE SECTION 46_66_85 AND 40_61_05 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.
7. EXTEND MUD VALVE STEM TO 3" BELOW INVERT OF COVER PLATES, WITH 2" OPERATORS NUT. TYPICAL OF ALL MUD VALVES. COORDINATE OPENING IN GRATING/COVER FOR OPERATOR NUT ACCESS WITH GRATING/COVER MANUFACTURER .
8. 316 SS STEM, CONNECTORS, AND BRACKETS TO BE SIZED BY VALVE MANUFACTURER (TYP).
9. MASTER CONTROL PANEL, SEE SECTION 46_66_85 AND 40_61_05 OF ASSIGNED TROJAN TECHNOLOGIES CONTRACT DOCUMENTS AND ASSOCIATED SUBMITTALS.



D SECTION
40M01 SCALE: 3/16" = 1'-0"



E SECTION
40M01 SCALE: 3/16" = 1'-0"

REV	DATE	BY	DESCRIPTION

DESIGNED ARL
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:42:37-05'00'

CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

MECHANICAL
UV DISINFECTION SYSTEM SECTIONS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 40M03
SHEET NO. 29 OF 79

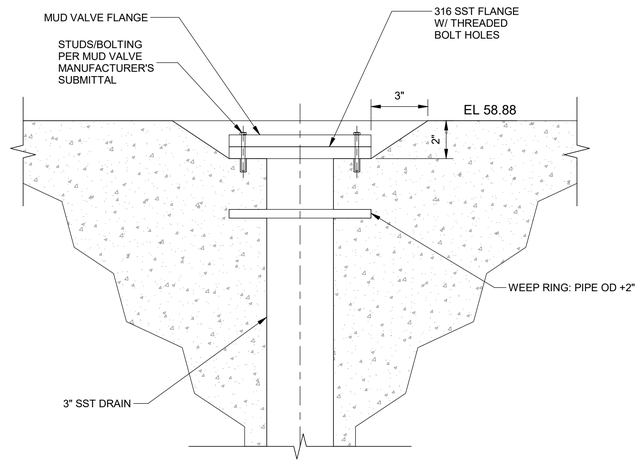
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FILE NAME: R:\d0203205\201447M800.rvt



PLANT WATER LINE RELOCATION

3 PHOTO
40M03 SCALE: NO SCALE



4 DETAIL
40M03 SCALE: 3" = 1'-0"

GENERAL NOTES:

1. SEE 40M01 FOR GENERAL NOTES.

KEY NOTES:

1. APPROXIMATELY 30 L.F. OF ASME THREADED SCHEDULE 20 STEEL AND ASSOCIATED FITTINGS FOR BIDDING PURPOSES. PIPE TO BE FLUSHED AND PRESSURE TESTED AFTER INSTALLATION. ALL COATINGS AND LININGS TO BE REPAIRED. NEW PIPE TO BE COATED WITH EPX-M-1 AND LINED WITH EPX-M-1-PWS PER SECTION 09_96_01.

REV	DATE	BY	DESCRIPTION

DESIGNED BB
DRAWN GL
CHECKED DWW
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:42:19-05'00'

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CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
MECHANICAL
UV DISINFECTION SYSTEM
DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 40M04
SHEET NO. 30 OF 79

PLOT DATE: 3/21/2024 12:22:46 PM

FILE NAME: R:\d0203205\201447M800.rvt

PLOT DATE: 3/15/2024 3:49:43 AM
USER: BEI
COLOR TABLE:CAROLLO_STD_F_V0805.CTB
PLOT SCALE:1:1
PAGE SETUP: ----
LAST SAVED BY: tbeecher

ABBREVIATIONS

A	AMPERES
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BCW	BARE COPPER WIRE
BKR	BREAKER
C	CONDUIT
CO	CONDUIT ONLY
CPT	CONTROL POWER TRANSFORMER
CU	COPPER
FS	FLOAT SWITCH
GND	GROUND
GFI	GROUND FAULT INTERRUPTER
GRS	GALVANIZED RIGID STEEL
HDG	HOT-DIP GALVANIZED
HOA	HAND-OFF-AUTO
HIM	VFD KEYPAD/DISPLAY MODULE
HMI	HUMAN-MACHINE INTERFACE SCREEN
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LIT	LEVEL INDICATOR/TRANSMITTER
LOS	LOCKOUT STOP
LS	LIMIT SWITCH
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFM	MULTI FUNCTION METER
MTD	MOUNTED
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OL	OVERLOAD
PDC	POWER DISTRIBUTION CENTER
PLC	PROGRAMMABLE LOGIC CONTROLLER
PS	PRESSURE SWITCH
PR	PAIR
R	RUN RELAY
RIO	REMOTE INPUT-OUTPUT
RTU	REMOTE TERMINAL UNIT
S	START RELAY
SHD	SHIELDED
SST	STAINLESS STEEL
SV	SOLENOID VALVE
T	TELEPHONE
TC	TIME CLOCK
TDC	TIME DELAY CLOSING
TDO	TIME DELAY OPENING
TR	TIME RELAY
TS	TEMPERATURE SWITCH
TSP	TWISTED SHIELDED PAIR(S)
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
W	WIRE
WP	WEATHER PROOF

GENERAL NOTES:

1. NOT ALL EQUIPMENT INTERCONNECTIONS ARE SHOWN ON THE PLANS. REFER TO ALL DETAILS, CONTROL SCHEMATIC DIAGRAMS, SINGLE LINE DIAGRAMS AND SPECIFICATIONS FOR ADDITIONAL FIELD WIRING REQUIRED.
2. ALL POWER CONDUIT RUNS SHALL CONTAIN A SEPARATE GROUNDING CONDUCTOR (SIZED PER NEC) WHETHER OR NOT SHOWN ON THE PLANS.
3. COORDINATE ALL CONDUIT STUB-UP LOCATIONS INTO ELECTRICAL EQUIPMENT WITH ACCEPTED VENDOR DRAWINGS.
4. COORDINATE ALL NEW UNDERGROUND CONDUIT RUNS WITH NEW AND EXISTING PIPING AND UTILITIES.
5. INSTALL PULL TAPE IN ALL SPARE CONDUIT RUNS.
6. ALL OUTDOOR ENCLOSURES SHALL BE NEMA 4X, 316 STAINLESS STEEL UNLESS NOTED OTHERWISE.
7. THE CONDUIT ROUTES SHOWN IN EXISTING FACILITIES ARE SCHEMATIC IN NATURE AND ARE INTENDED TO BE USED AS A GUIDE.
8. CONDUITS SHALL BE ROUTED TO AVOID INTERFERENCES WITH NEW AND EXISTING PROCESS PIPING, CONDUITS, STRUCTURES ETC.
9. SEAL ALL CONDUITS IN UNDERGROUND PULL BOXES USING DUCT SEAL.
10. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.

LEGEND

- PNL 4A — NEW EMBEDDED OR ENCASED HOMERUN WITH DESTINATION INDICATED
- PNL 4A — NEW EXPOSED HOMERUN WITH DESTINATION INDICATED
- NEW CONDUIT IN DUCTBANK, SLAB OR BELOW GRADE
- NEW EXPOSED CONDUIT
- CONDUIT BENDS TOWARD OBSERVER
- CONDUIT BENDS AWAY FROM OBSERVER
- EXISTING EXPOSED CONDUIT
- EXISTING CONDUIT IN DUCTBANK, SLAB OR BELOW GRADE
- CONDUIT CHANGE IN ELEVATION
- CONDUIT STUBBED-OUT AND CAPPED
- CONDUIT ENDS WITH INSULATED BUSHING UNLESS OTHERWISE NOTED
- FLEXIBLE CONDUIT
- SUBMERSIBLE CABLE
- SOFTWARE OR DATA LINK
- M — MOTOR STARTER
- MEDIUM VOLTAGE POWER CIRCUIT BREAKER (DRAWOUT TYPE)
- 2000AF / 1600AT — LOW VOLTAGE POWER CIRCUIT BREAKER (DRAWOUT TYPE, FRAME AND TRIP RATINGS INDICATED)
- MCP / 100 — MOTOR CIRCUIT PROTECTOR WITH CURRENT RATING
- 15A — CIRCUIT BREAKER WITH TRIP RATING INDICATED
- TRANSFORMER
- DMP — DIGITAL METER PACKAGE
- PMM — POWER MULTI FUNCTION METER
- 3 — CURRENT TRANSFORMER (QUANTITY INDICATED)
- A — AMMETER
- V — VOLTMETER
- MOT OR 5 — MOTOR-NUMBER INDICATES HORSEPOWER
- OR — SPACE HEATER
- VARIABLE FREQUENCY DRIVE
- SSRVS — SOLID-STATE REDUCED VOLTAGE STARTER
- K — KIRK-KEY INTERLOCK
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSOR
- SST — SOLID STATE TRIP UNIT
- VOLTAGE SURGE SUPPRESSOR
- MEDIUM VOLTAGE SURGE ARRESTER
- 27 — RELAY DEVICE (NUMBER REFERS TO ANSI/IEEE STD C37.2 DEVICE DESCRIPTION)
- BIMETALLIC THERMAL OVERLOAD RELAY
- △ — INDICATES DEVICE LOCATED IN FIELD AT OR NEAR LOAD

- FUSE
- FUSE WITH BLOWN FUSE INDICATOR
- GROUND CONNECTION
- CR OR CR — CONTROL RELAY
- TR OR TR — TIME DELAY RELAY
- CR1 — NORMALLY OPEN CONTACT, RELAY COIL INDICATED
- CR1 — NORMALLY CLOSED CONTACT, RELAY COIL INDICATED
- PLC OR RIO DISCRETE OUTPUT CONTACT
- TIME DELAY RELAY CONTACT (NORMALLY OPEN WITH TIME DELAYED CLOSING UPON COIL ENERGIZATION)
- TIME DELAY RELAY CONTACT (NORMALLY CLOSED WITH TIME DELAYED OPENING UPON COIL ENERGIZATION)
- TIME DELAY RELAY CONTACT (NORMALLY CLOSED WITH TIME DELAYED CLOSING UPON COIL DE-ENERGIZATION)
- TIME DELAY RELAY CONTACT (NORMALLY OPEN WITH TIME DELAYED OPENING UPON COIL DE-ENERGIZATION)
- M — MOTOR STARTER COIL (SCHEMATIC DIAGRAMS ONLY)
- XS OR XS — MOISTURE DETECTOR
- SV OR SV — SOLENOID VALVE
- T OR T — THERMOSTAT
- PC OR PC — PHOTOCELL
- TM OR TM — TIMER
- OR ZS — LIMIT OR POSITION SWITCH
- OR PS — PRESSURE SWITCH
- OR FS — FLOW SWITCH
- OR TS — TEMPERATURE SWITCH
- OR LS — LEVEL FLOAT SWITCH
- OR — START PUSHBUTTON
- OR — STOP OR RESET PUSHBUTTON
- OR — STOP PUSHBUTTON WITH LOCKOUT
- OR — SELECTOR SWITCH
- R OR — INDICATING LIGHT-LETTER DENOTES COLOR (SCHEMATIC OR ELEVATION ONLY) A=AMBER, R=RED, W=WHITE, G=GREEN
- CONDUCTOR CONNECTED
- CONDUCTOR NOT CONNECTED
- RTM — RUNNING TIME METER

- LIGHTING FIXTURE
- WALL-MOUNTED LIGHTING FIXTURE
- POLE OR STANCHION MOUNTED LIGHTING FIXTURE
- DUAL HEAD EMERGENCY LIGHTING UNIT WITH BATTERY PACK
- EXIT LIGHTING FIXTURE-DARKENED QUADRANT INDICATES ILLUMINATED FACE; ARROW INDICATES DIRECTION
- PENDANT OR CEILING MOUNTED LIGHTING FIXTURE
- PENDANT OR CEILING MOUNTED LIGHTING FIXTURE (UNSWITCHED) WITH EMERGENCY POWER PACK
- OR — DISCONNECT SWITCH
- $ OR S — SINGLE POLE SWITCH
- $3 OR S3 — THREE WAY SWITCH
- $M OR SM — MANUAL STARTER
- LOCALLY MTD STARTER OR CONTROLLER
- HS — LOCAL CONTROL STATION
- MV — MOTORIZED VALVE
- ALARM BEACON
- FIRE ALARM HORN, WITH STROBE
- SD — SMOKE DETECTOR
- F — FIRE ALARM MANUAL PULL STATION,
- H — HEAT DETECTOR
- FACP — FIRE ALARM CONTROL PANEL
- DD — DUCT MOUNTED SMOKE DETECTOR
- P — INTERCOM SPEAKER
- R — RELAY
- ELR — END-OF-LINE RESISTOR
- COMPUTER OUTLET
- TELEPHONE OUTLET
- DUPLEX RECEPTACLE
- RECEPTACLE 250 VOLT
- 600V, 60A — RECEPTACLE, RATING INDICATED
- J — JUNCTION BOX
- EXPOSED GROUNDING CABLE
- BURIED OR CONCRETE ENCASED GROUNDING CABLE
- GROUNDING CABLE CONNECTION
- GROUND ROD IN GROUND WELL

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
3/20/2024

carollo®

CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

ELECTRICAL

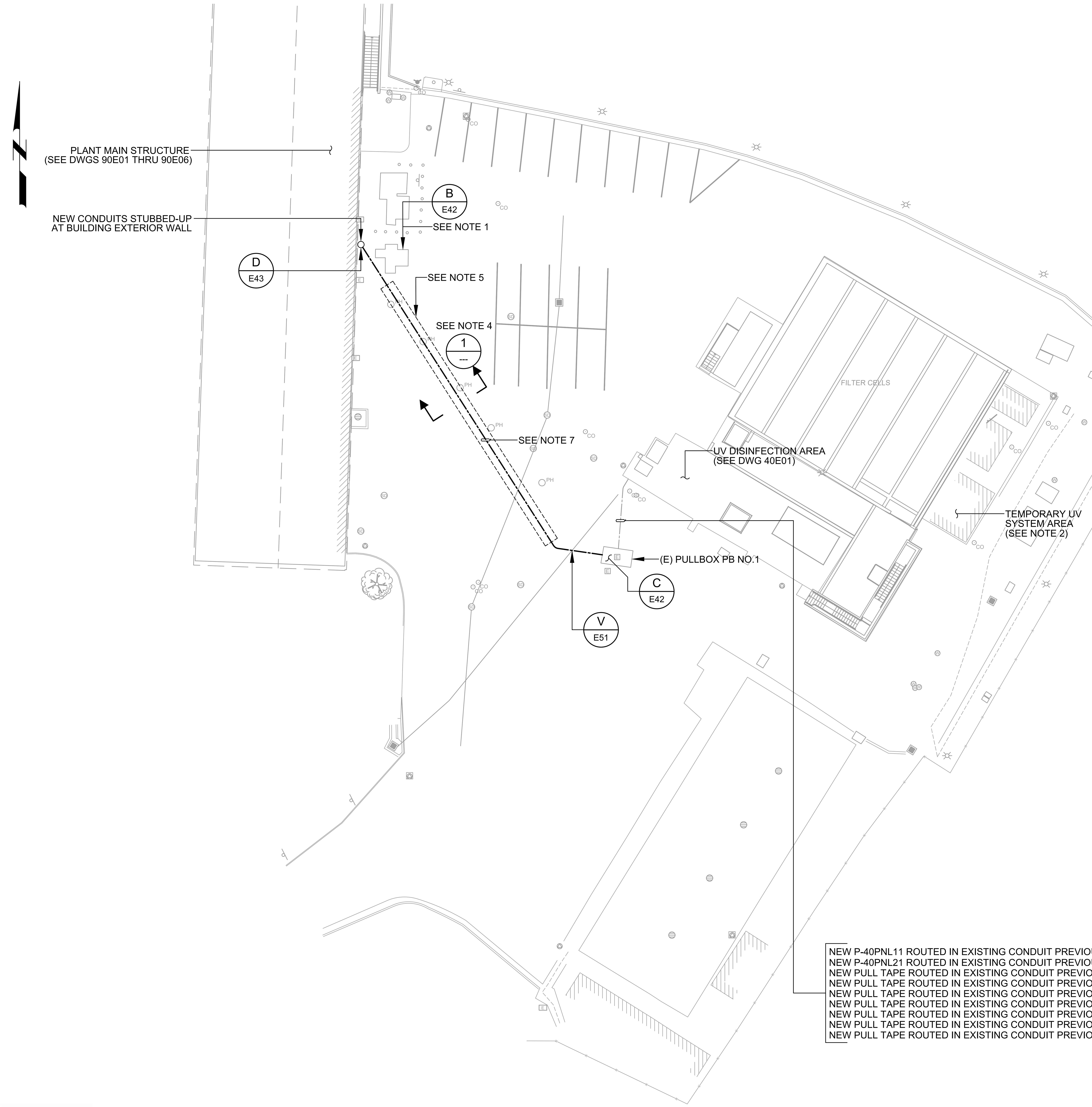
LEGEND AND GENERAL NOTES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E01
SHEET NO. 31 OF 79

PROJECT NO. 201447-100000 FILE NAME: 201447_E01.dwg

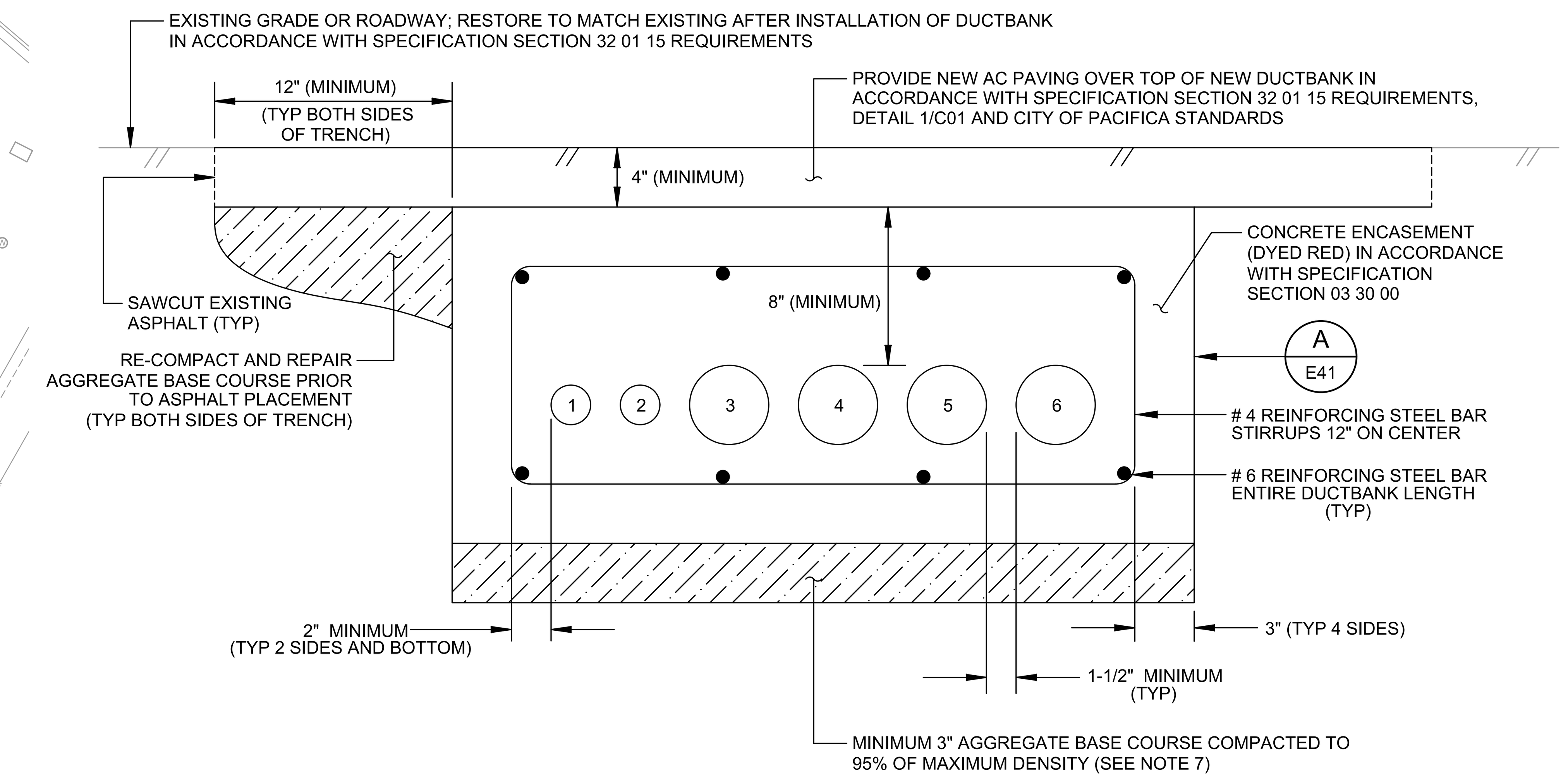
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SITE PLAN

NOTES:

1. EXISTING TRANSFORMER EQUIPMENT IS NOT CONNECTED AND IS CURRENTLY BEING STORED AT LOCATION SHOWN. CONTRACTOR SHALL RELOCATE EXISTING TRANSFORMER TO ALTERNATE LOCATION WITHIN THE PLANT SITE AS DIRECTED BY THE CITY DURING CONSTRUCTION PRIOR TO CONSTRUCTION OF NEW BELOW-GRADE ELECTRICAL DUCTBANK.
2. SEE DRAWING G10 FOR TEMPORARY UV SYSTEM REQUIREMENTS.
3. AFTER REMOVAL OF EXISTING CONDUCTORS AND BEFORE INSTALLATION OF NEW CONDUCTORS/PULL TAPE, MANDREL AND SWAB EXISTING CONDUIT.
4. ALL NEW 2-INCH CONDUIT BENDS PROVIDED IN NEW BELOW-GRADE DUCTBANK SHALL HAVE MINIMUM 24-INCH RADIUS, INCLUDING 90-DEGREE BENDS AT TURN-UP LOCATION AT EXISTING PLANT MAIN STRUCTURE.
5. PROVIDE TEMPORARY TRENCH PLATE TO ALLOW VEHICULAR TRAFFIC PASSAGE OVER NEW BELOW-GRADE TRENCH UNTIL NEW TRENCH BACKFILL IS COMPLETED. COORDINATE TRENCH PLATE PLACEMENT SCHEDULE WITH CONSTRUCTION MANAGER DURING CONSTRUCTION.
6. REFER TO DRAWING G04 FOR SURVEY CONTROL AND POTHOLING INFORMATION PERFORMED DURING DESIGN PERIOD.
7. IF A SHALLOW EXISTING UTILITY CROSSING PREVENTS INSTALLATION OF MINIMUM INDICATED AGGREGATE BASE, PLACE DUCTBANK DIRECTLY ON EXISTING UTILITY WITH 1/4" THICK FOAM LAID BETWEEN BOTTOM OF DUCTBANK AND TOP OF EXISTING UTILITY.



DUCTBANK SCHEDULE		
CONDUIT NO.	SIZE	CIRCUIT(S) / FILL
1	2"	PULL TAPE (SPARE)
2	2"	PULL TAPE (SPARE)
3	4"	P-40PNL11
4	4"	P-40PNL21
5	4"	PULL TAPE (SPARE)
6	4"	PULL TAPE (SPARE)

APPROXIMATE OVERALL DUCTBANK DIMENSIONS: 37-1/2"W x 17"H

1 NEW UNDERGROUND DUCTBANK SECTION

NO SCALE

Know what's **below.** **Call** before you dig.
usanorth811.org

SITE PLAN SCALE

0 10' 20' 40'
SCALE: 1" = 20'

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
3/20/2024

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
SITE PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E02
SHEET NO. 32 OF 79

LAST SAVED BY: tbeecher
PROJECT NO. 201447-100000 FILE NAME: 201447_E02.dwg

PLOT DATE: 3/15/2024 3:53:25 AM
USER: BEI
COLOR TABLE:CAROLLO_STD_F_V0905.CTB
PLOT SCALE:1:1
PAGE SETUP: ----
LAST SAVED BY: tbeecher

NOTES

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.

LEGEND

DISCONNECT AND REMOVE

MAIN SWITCHGEAR "MSG"
15kV
52
CT'S
12.47kV PG&E SUPPLY
PT'S
kWH
PG&E METER

SUBSTATION-MS
XFMR T1
2500/2875/3835 kVA
12.47kV-480/277V
3Ø, 4W
4000AF
4000AT
480V, 3Ø, 3W, 4000A, 65kAIC
1200AF 1200AT
1600AF 1600AT
1600AF 1600AT
1600AF 1500AT

90-E-01-FO
900kW / 1125kVA
DIESEL STANDBY
GENERATOR

90-E-02-FO
900kW / 1125kVA
DIESEL STANDBY
GENERATOR

SWITCHGEAR-GS
1600AF 1600AT
1600AF 1600AT
480V, 3Ø, 3W, 3000A, 65kAIC
1200AF 1200AT
1600AF 1600AT
1600AF 1600AT
1600AF 1500AT

1200A ATS-4
1600A ATS-3
1600A ATS-2
1600A ATS-1

SB-1
480V, 3Ø, 3W, 1200A, 65kAIC
600AF 600AT
600AF 600AT
600AF 400AT
MCC-1M
480V, 3Ø, 3W, 600A, 65kAIC
MCC-3M
480V, 3Ø, 3W, 600A, 65kAIC
MCC-2M
480V, 3Ø, 3W, 600A, 65kAIC

SB-1E
480V, 3Ø, 3W, 1600A, 65kAIC
800AF 800AT
800AF 800AT
150AF 150AT
400AF 400AT
400AF 400AT
400AF 400AT
150AF 150AT
MCC-1EM
480V, 3Ø, 3W, 800A, 65kAIC
30DP-A
480V, 3Ø, 3W, 400A, 65kAIC
30DP-C
480V, 3Ø, 3W, 400A, 65kAIC
MCC-3EM
480V, 3Ø, 3W, 800A, 65kAIC
3#2, 1#6GND
PNL-3EB
XFMR
(UV AREA)
PNL-3EB
(UV AREA)

SB-2E
480V, 3Ø, 3W, 1600A, 65kAIC
400AF 400AT
400AF 400AT
400AF 400AT
1200AF 1000AT
150AF 150AT
150AF 150AT
MCC-2EM
480V, 3Ø, 3W, 1000A, 65kAIC
30DP-D
480V, 3Ø, 3W, 400A, 65kAIC
30DP-B
480V, 3Ø, 3W, 400A, 65kAIC

250 30-B-01-A SBR AERATION BLOWER NO.1
250 30-B-02-A SBR AERATION BLOWER NO.2
250 30-B-03-A SBR AERATION BLOWER NO.3
250 30-B-04-A SBR AERATION BLOWER NO.4
250 30-B-05-A SBR AERATION BLOWER NO.5
250 30-B-06-A SBR AERATION BLOWER NO.6

ACTIVE HARMONIC FILTER
XFMR UV
1000 kVA
480-480/277V
3Ø, 4W
K-4 RATED

SB-UV
1600AF 1500AT
480/277V, 3Ø, 4W, 1600A, 65kAIC
600AF 450AT
600AF 450AT
600AF 450AT
600AF 450AT
600AF 450AT
(E) BELOW-GRADE PULLBOX PB NO.1
2 SETS (3-350kcmil, 1-500kcmil NEUTRAL, 1#1/0GND)
(TYP FOR EACH EXISTING PDC MAIN FEEDER, 4 TOTAL)
(E) OVERHEAD JUNCTION BOX (UV AREA)
PDC-1 UV PDC NO.1
PDC-2 UV PDC NO.2
PDC-3 UV PDC NO.3
PDC-4 UV PDC NO.4
SPARE

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
TODD A. BEECHER
E014712
Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
3/20/2024

carollo

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
PLANT MAIN SINGLE LINE DIAGRAM - DEMOLITION

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E11
SHEET NO. 33 OF 79

PROJECT NO. 201447
FILE NAME: 201447_E11.dwg

PLOT DATE: 3/15/2024 3:54:08 AM
USER: BEI
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PLOT SCALE:1:1
PAGE SETUP: ----
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NOTES

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.

LEGEND

DISCONNECT AND REMOVE

■ - CONDUCTOR SPLICE (EXISTING CONDUCTORS TO TEMPORARY CONDUCTORS)

MAIN SWITCHGEAR "MSG"
15kV
52
CT'S
PT'S
kWH
PG&E METER
12.47kV PG&E SUPPLY

SUBSTATION-MS
XFMR T1
2500/2875/3835 kVA
12.47kV-480/277V
3Ø, 4W
4000AF 4000AT
480V, 3Ø, 3W, 4000A, 65kAIC
1200AF 1200AT
1600AF 1600AT
1600AF 1600AT
1600AF 1500AT

90-E-01-FO
900kW / 1125kVA
DIESEL STANDBY
GENERATOR

90-E-02-FO
900kW / 1125kVA
DIESEL STANDBY
GENERATOR

SWITCHGEAR-GS
1600AF 1600AT
1600AF 1600AT
480V, 3Ø, 3W, 3000A, 65kAIC
1200AF 1200AT
1600AF 1600AT
1600AF 1600AT
1600AF 1500AT

1200A ATS-4
1600A ATS-3
1600A ATS-2
1600A ATS-1

SB-1
480V, 3Ø, 3W, 1200A, 65kAIC
600AF 600AT
600AF 600AT
600AF 400AT
MCC-1M
480V, 3Ø, 3W, 600A, 65kAIC
MCC-3M
480V, 3Ø, 3W, 600A, 65kAIC
MCC-2M
480V, 3Ø, 3W, 600A, 65kAIC

SB-1E
480V, 3Ø, 3W, 1600A, 65kAIC
800AF 800AT
800AF 800AT
150AF 150AT
400AF 400AT
400AF 400AT
400AF 400AT
150AF 150AT
MCC-1EM
480V, 3Ø, 3W, 800A, 65kAIC
30DP-A
480V, 3Ø, 3W, 400A, 65kAIC
30DP-C
480V, 3Ø, 3W, 400A, 65kAIC
MCC-3EM
480V, 3Ø, 3W, 800A, 65kAIC

SB-2E
480V, 3Ø, 3W, 1600A, 65kAIC
400AF 400AT
400AF 400AT
400AF 400AT
1200AF 1000AT
150AF 150AT
150AF 150AT
MCC-2EM
480V, 3Ø, 3W, 1000A, 65kAIC
30DP-D
480V, 3Ø, 3W, 400A, 65kAIC
30DP-B
480V, 3Ø, 3W, 400A, 65kAIC

250 30-B-01-A SBR AERATION BLOWER NO.1
250 30-B-02-A SBR AERATION BLOWER NO.2
250 30-B-03-A SBR AERATION BLOWER NO.3
250 30-B-04-A SBR AERATION BLOWER NO.4
250 30-B-05-A SBR AERATION BLOWER NO.5
250 30-B-06-A SBR AERATION BLOWER NO.6

ACTIVE HARMONIC FILTER
XFMR UV
1000 kVA
480-480/277V
3Ø, 4W
K-4 RATED

SB-UV
1600AF 1500AT
480/277V, 3Ø, 4W, 1600A, 65kAIC
600AF 450AT
600AF 450AT
600AF 450AT
600AF 450AT
600AF 450AT

(E) BELOW-GRADE PULLBOX PB NO.1
2 SETS (4#4/0 DLO CABLE, 1#4/0 DLO GND) TEMPORARY CABLES (TYP FOR 2 TEMPORARY 480V PANELBOARDS)
(E) OVERHEAD JUNCTION BOX (UV AREA)
4/C#2 TYPE W TEMPORARY CABLE
PROVIDE TEMPORARY CONDUCTORS AS REQUIRED PER ACCEPTED TEMPORARY UV AND PUMPING SYSTEM REQUIREMENTS
PNL-3EB XFMR (UV AREA)
PNL-3EB (UV AREA)
PDC-1 UV PDC NO.1
PDC-2 UV PDC NO.2
PNL-TEMP1 TEMPORARY PANELBOARD
PNL-TEMP2 TEMPORARY PANELBOARD
TEMPORARY UV SYSTEM NO.1
TEMPORARY UV SYSTEM NO.2
TEMPORARY PUMPING SYSTEM MCC

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION

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CHECKED BEI
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TODD A. BEECHER
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3/20/2024

carollo

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
PLANT MAIN SINGLE LINE DIAGRAM - INTERIM SYSTEM - 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E12
SHEET NO. 34 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E12.dwg

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USER: BEI
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LAST SAVED BY: tbeecher

MAIN SWITCHGEAR
"MSG"

15kV

52

CT'S

12.47kV PG&E SUPPLY

PT'S

kWH

PG&E METER

SUBSTATION-MS

XFMR T1
2500/2875/3835 kVA
12.47kV-480/277V
3Ø, 4W

4000AF
4000AT

480V, 3Ø, 3W, 4000A, 65kAIC

1200AF
1200AT

1600AF
1600AT

1600AF
1600AT

1600AF
1500AT

90-E-01-FO
900kW / 1125kVA
DIESEL STANDBY
GENERATOR

90-E-02-FO
900kW / 1125kVA
DIESEL STANDBY
GENERATOR

SWITCHGEAR-GS

1600AF
1600AT

1600AF
1600AT

480V, 3Ø, 3W, 3000A, 65kAIC

1200AF
1200AT

1600AF
1600AT

1600AF
1600AT

1600AF
1500AT

1200A
ATS-4

1600A
ATS-3

1600A
ATS-2

1600A
ATS-1

XFMR UV
1000 kVA
480-480/277V
3Ø, 4W
K-4 RATED

SB-1

480V, 3Ø, 3W, 1200A, 65kAIC

600AF
600AT

600AF
600AT

600AF
400AT

MCC-1M
480V, 3Ø, 3W, 600A, 65kAIC

MCC-3M
480V, 3Ø, 3W, 600A, 65kAIC

MCC-2M
480V, 3Ø, 3W, 600A, 65kAIC

SB-1E

480V, 3Ø, 3W, 1600A, 65kAIC

800AF
800AT

800AF
800AT

150AF
150AT

400AF
400AT

400AF
400AT

400AF
400AT

150AF
150AT

MCC-1EM
480V, 3Ø, 3W, 800A, 65kAIC

30DP-A
480V, 3Ø, 3W, 400A, 65kAIC

30DP-C
480V, 3Ø, 3W, 400A, 65kAIC

MCC-3EM
480V, 3Ø, 3W, 800A, 65kAIC

SB-2E

480V, 3Ø, 3W, 1600A, 65kAIC

400AF
400AT

400AF
400AT

400AF
400AT

1200AF
1000AT

150AF
150AT

150AF
150AT

MCC-2EM
480V, 3Ø, 3W, 1000A, 65kAIC

30DP-D
480V, 3Ø, 3W, 400A, 65kAIC

30DP-B
480V, 3Ø, 3W, 400A, 65kAIC

250

30-B-01-A
SBR AERATION BLOWER NO.1

250

30-B-02-A
SBR AERATION BLOWER NO.2

250

30-B-03-A
SBR AERATION BLOWER NO.3

250

30-B-04-A
SBR AERATION BLOWER NO.4

250

30-B-05-A
SBR AERATION BLOWER NO.5

250

30-B-06-A
SBR AERATION BLOWER NO.6

40-PDC-11
UV CHANNEL NO.1
PDC NO.1

40-PDC-12
UV CHANNEL NO.1
PDC NO.2

40-HSC-11
UV CHANNEL NO.1
HYDRAULIC SYSTEM
CENTER

40-G-11-FEF
UV CHANNEL NO.1
INLET GATE

40-G-12-FE
UV CHANNEL NO.1
OUTLET WEIR GATE

SB-UV

1600AF
1500AT

480/277V, 3Ø, 4W, 1600A, 65kAIC

225A

225A

600AF
450AT

600AF
450AT

600AF
450AT

(E) BELOW-GRADE PULLBOX PB NO.1

2 SETS (4#4/0 DLO CABLE, 1#4/0 DLO GND)
TEMPORARY CABLES
(TYP FOR 2 TEMPORARY 480V PANELBOARDS)

(E) OVERHEAD JUNCTION BOX (UV AREA)

4/C#2 TYPE W
TEMPORARY CABLE

PROVIDE TEMPORARY CONDUCTORS
AS REQUIRED PER ACCEPTED
TEMPORARY UV AND PUMPING
SYSTEM REQUIREMENTS

PNL-3EB
XFMR
(UV AREA)

PNL-3EB
(UV AREA)

40-PDC-21
UV CHANNEL NO.2
PDC NO.1

40-PDC-22
UV CHANNEL NO.2
PDC NO.2

40-HSC-21
UV CHANNEL NO.2
HYDRAULIC SYSTEM
CENTER

40-G-21-FEF
UV CHANNEL NO.2
INLET GATE

40-G-22-FE
UV CHANNEL NO.2
OUTLET WEIR GATE

40-PNL-11
480V
PANELBOARD
NO.1

40-PNL-21
480V
PANELBOARD
NO.2

PNL-TEMP1
TEMPORARY
PANELBOARD

PNL-TEMP2
TEMPORARY
PANELBOARD

TEMPORARY
UV SYSTEM
NO.1

TEMPORARY
UV SYSTEM
NO.2

TEMPORARY
PUMPING
SYSTEM MCC

NOTES

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.

LEGEND

■ - CONDUCTOR SPLICE
(EXISTING CONDUCTORS TO TEMPORARY CONDUCTORS)

Beecher Engineering, Inc.

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CHECKED BEI
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
TODD A. BEECHER
E014712
Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
3/20/2024

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CITY OF PACIFICA

CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

ELECTRICAL

PLANT MAIN SINGLE LINE DIAGRAM - INTERIM SYSTEM - 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

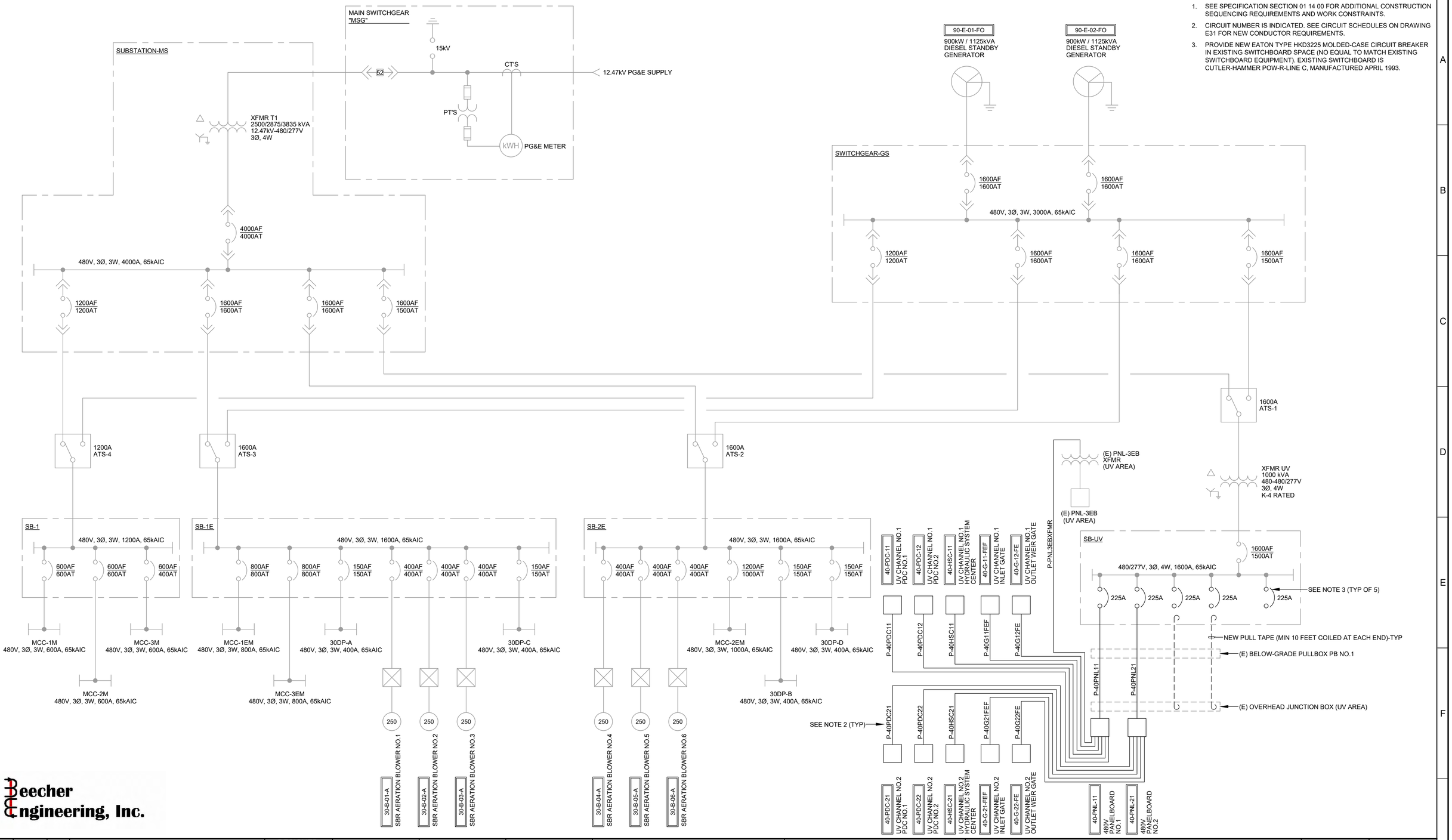
JOB NO. 201447
DRAWING NO. E13
SHEET NO. 35 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E13.dwg

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PAGE SETUP: ----
LAST SAVED BY: tbeecher

NOTES

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. CIRCUIT NUMBER IS INDICATED. SEE CIRCUIT SCHEDULES ON DRAWING E31 FOR NEW CONDUCTOR REQUIREMENTS.
3. PROVIDE NEW EATON TYPE HKD3225 MOLDED-CASE CIRCUIT BREAKER IN EXISTING SWITCHBOARD SPACE (NO EQUAL TO MATCH EXISTING SWITCHBOARD EQUIPMENT). EXISTING SWITCHBOARD IS CUTLER-HAMMER POW-R-LINE C, MANUFACTURED APRIL 1993.



Beecher Engineering, Inc.

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UV DISINFECTION SYSTEM REPLACEMENT

ELECTRICAL

PLANT MAIN SINGLE LINE DIAGRAM - MODIFICATIONS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E14
SHEET NO. 36 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E14.dwg

NOTES

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. FEEDER CIRCUIT BREAKER RATINGS AND QUANTITIES ARE ESTIMATED. CONTRACTOR SHALL PROVIDE TEMPORARY PANELBOARD FEEDER CIRCUIT BREAKER QUANTITIES AND RATINGS AS REQUIRED FOR SUPPLY OF ACCEPTED TEMPORARY UV DISINFECTION AND TEMPORARY PUMPING SYSTEMS.

SEE NOTE 2

PANEL PNL-TEMP1 — VOLTAGE/PHASE 480V, 3Ø, 4W — MOUNTING RACK-MOUNTED, OUTDOOR
LOCATION AREA 40 — MAIN 600A, 65kAIC — BUS 600A, 65kAIC, 100% RATED NEUTRAL BUS — PANEL BKR'S 65kAIC @ 480V

LOAD	kVA Ø A	kVA Ø B	kVA Ø C	TRIP	CKT.	A B C	CKT.	TRIP	kVA Ø A	kVA Ø B	kVA Ø C	LOAD
TROJAN	14				1		2		---			SPARE
TEMPORARY		14		70A	3		4	20A		---		FEEDER
UV SYSTEM			14		5		6				---	BREAKER
EXISTING PANELBOARD	22				7		8		---			
PNL-3EB		22		100A	9		10	---		---		SPACE
TRANSFORMER			22		11		12				---	
SPACE	---				13		14		---			
		---		---	15		16	---		---		SPACE
			---		17		18				---	
SPACE	---				19		20		---			
		---		---	21		22	---		---		SPACE
			---		23		24				---	
SPACE	---				25		26		---			
		---		---	27		28	---		---		SPACE
			---		29		30				---	
SPACE	---				31		32		---			
		---		---	33		34	---		---		SPACE
			---		35		36				---	
SPACE	---				37		38		---			
		---		---	39		40	---		---		SPACE
			---		41		42				---	
SPACE	---				43		44		---			
		---		---	45		46	---		---		SPACE
			---		47		48				---	
SPACE	---				49		50		---			
		---		---	51		52	---		---		SPACE
			---		53		54				---	
SPACE	---			---	55		56	---	---			SPACE
kVA / PHASE	36	36	36						0	0	0	
TOTAL kVA / PHASE	36	36	36		TOTAL: 108 kVA							

SEE NOTE 2

PANEL PNL-TEMP2 — VOLTAGE/PHASE 480V, 3Ø, 4W — MOUNTING RACK-MOUNTED, OUTDOOR
LOCATION AREA 40 — MAIN 600A, 65kAIC — BUS 600A, 65kAIC, 100% RATED NEUTRAL BUS — PANEL BKR'S 65kAIC @ 480V

LOAD	kVA Ø A	kVA Ø B	kVA Ø C	TRIP	CKT.	A B C	CKT.	TRIP	kVA Ø A	kVA Ø B	kVA Ø C	LOAD
TEMPORARY	63				1		2					
PUMPING SYSTEM		63		400A	3		4					SPACE REQUIRED FOR 400A BREAKER
MOTOR CONTROLS			63		5		6					
GLASCO	12				7		8		---			SPARE
TEMPORARY		12		70A	9		10	20A		---		FEEDER
UV SYSTEM			12		11		12				---	BREAKER
SPACE	---				13		14		---			
		---		---	15		16	---		---		SPACE
			---		17		18				---	
SPACE	---				19		20		---			
		---		---	21		22	---		---		SPACE
			---		23		24				---	
SPACE	---				25		26		---			
		---		---	27		28	---		---		SPACE
			---		29		30				---	
SPACE	---				31		32		---			
		---		---	33		34	---		---		SPACE
			---		35		36				---	
SPACE	---				37		38		---			
		---		---	39		40	---		---		SPACE
			---		41		42				---	
SPACE	---				43		44		---			
		---		---	45		46	---		---		SPACE
			---		47		48				---	
SPACE	---				49		50		---			
		---		---	51		52	---		---		SPACE
			---		53		54				---	
SPACE	---			---	55		56	---	---			SPACE
kVA / PHASE	75	75	75						0	0	0	
TOTAL kVA / PHASE	75	75	75		TOTAL: 225 kVA							

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CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
PANELBOARD SCHEDULES - PNL-TEMP1 AND PNL-TEMP2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
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JOB NO. 201447
DRAWING NO. E15
SHEET NO. 37 OF 79

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PROJECT NO. 201447 FILE NAME: 201447_E15.dwg

NOTES

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.

PANEL 40-PNL-11 | VOLTAGE/PHASE 480V, 3Ø, 4W | MOUNTING WALL-MOUNTED, INDOOR
LOCATION AREA 40 | MAIN 225A, 65kAIC | BUS 225A, 65kAIC, 100% RATED NEUTRAL BUS | PANEL BKR'S 65kAIC @ 480V

LOAD	kVA Ø A	kVA Ø B	kVA Ø C	TRIP	CKT.	A B C	CKT.	TRIP	kVA Ø A	kVA Ø B	kVA Ø C	LOAD
CHANNEL NO.1 UV SYSTEM	9				1		2		9			CHANNEL NO.1 UV SYSTEM
POWER DISTRIBUTION CENTER NO.1		9		40A	3		4	40A		9		POWER DISTRIBUTION CENTER NO.2
40-PDC-11			9		5		6				9	40-PDC-12
CHANNEL NO.1 UV SYSTEM	0.8				7		8		---			SPARE
HYDRAULIC SYSTEM CENTER		0.8		20A	9		10	40A		---		FEEDER
40-HSC-11			0.8		11		12				---	BREAKER
UV CHANNEL NO.1	0.3				13		14		0.3			UV CHANNEL NO.1
INLET GATE		0.3		20A	15		16	20A		0.3		OUTLET WEIR GATE
40-G-11-FEF			0.3		17		18				0.3	40-G-12-FE
PANELBOARD	25				19		20		---			SPARE
PNL-3EB		25		125A	21		22	20A		---		FEEDER
TRANSFORMER			25		23		24				---	BREAKER
SPACE	---				25		26		---			SPACE
		---		---	27		28	---		---		
			---		29		30				---	
SPACE	---				31		32		---			SPACE
		---		---	33		34	---		---		
			---		35		36				---	
SPACE	---				37		38		---			SPACE
		---		---	39		40	---		---		
			---		41		42				---	
SPACE	---				43		44		---			SPACE
		---		---	45		46	---		---		
			---		47		48				---	
SPACE	---				49		50		---			SPACE
		---		---	51		52	---		---		
			---		53		54				---	
SPACE	---			---	55		56	---	---			SPACE
kVA / PHASE	35.1	35.1	35.1						9.3	9.3	9.3	
TOTAL kVA / PHASE	44.4	44.4	44.4		TOTAL: 133 kVA							

PANEL 40-PNL-21 | VOLTAGE/PHASE 480V, 3Ø, 4W | MOUNTING WALL-MOUNTED, INDOOR
LOCATION AREA 40 | MAIN 225A, 65kAIC | BUS 225A, 65kAIC, 100% RATED NEUTRAL BUS | PANEL BKR'S 65kAIC @ 480V

LOAD	kVA Ø A	kVA Ø B	kVA Ø C	TRIP	CKT.	A B C	CKT.	TRIP	kVA Ø A	kVA Ø B	kVA Ø C	LOAD
CHANNEL NO.2 UV SYSTEM	9				1		2		9			CHANNEL NO.2 UV SYSTEM
POWER DISTRIBUTION CENTER NO.1		9		40A	3		4	40A		9		POWER DISTRIBUTION CENTER NO.2
40-PDC-21			9		5		6				9	40-PDC-22
CHANNEL NO.2 UV SYSTEM	0.8				7		8		---			SPARE
HYDRAULIC SYSTEM CENTER		0.8		20A	9		10	40A		---		FEEDER
40-HSC-21			0.8		11		12				---	BREAKER
UV CHANNEL NO.2	0.3				13		14		0.3			UV CHANNEL NO.2
INLET GATE		0.3		20A	15		16	20A		0.3		OUTLET WEIR GATE
40-G-21-FEF			0.3		17		18				0.3	40-G-22-FE
SPACE	---				19		20		---			SPACE
		---		---	21		22	20A		---		FEEDER
			---		23		24				---	BREAKER
SPACE	---				25		26		---			SPACE
		---		---	27		28	---		---		
			---		29		30				---	
SPACE	---				31		32		---			SPACE
		---		---	33		34	---		---		
			---		35		36				---	
SPACE	---				37		38		---			SPACE
		---		---	39		40	---		---		
			---		41		42				---	
SPACE	---				43		44		---			SPACE
		---		---	45		46	---		---		
			---		47		48				---	
SPACE	---				49		50		---			SPACE
		---		---	51		52	---		---		
			---		53		54				---	
SPACE	---			---	55		56	---	---			SPACE
kVA / PHASE	10.1	10.1	10.1						9.3	9.3	9.3	
TOTAL kVA / PHASE	19.4	19.4	19.4		TOTAL: 58 kVA							

Beecher Engineering, Inc.

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CITY OF PACIFICA

CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

ELECTRICAL

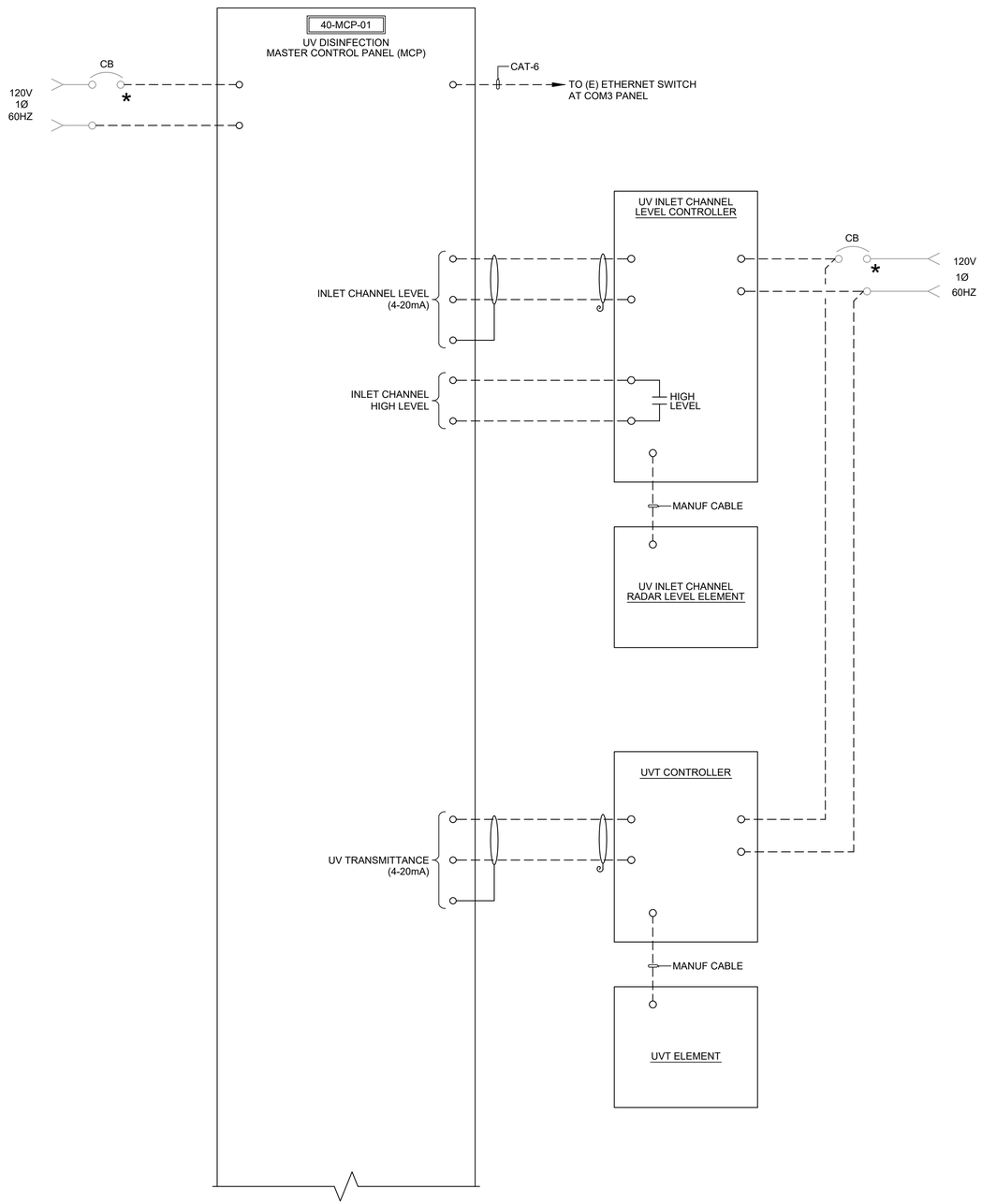
PANELBOARD SCHEDULES - 40-PNL-11 AND 40-PNL-21

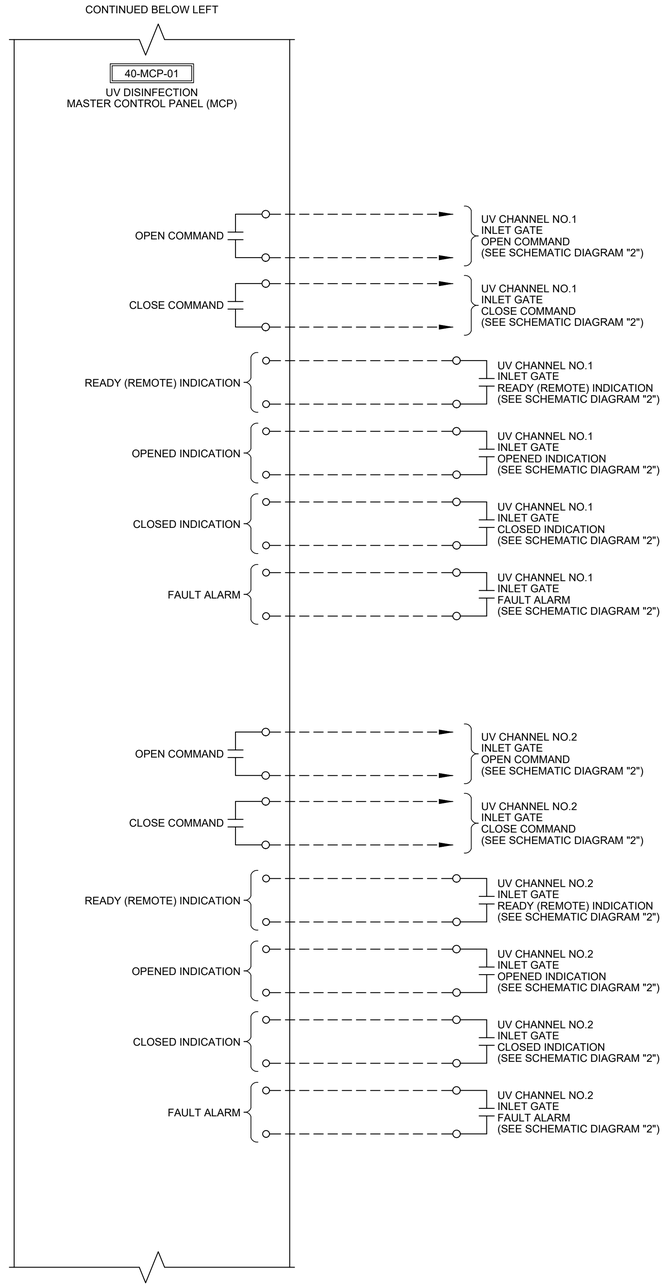
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JOB NO. 201447 | DRAWING NO. E16 | SHEET NO. 38 OF 79

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PROJECT NO. 201447 FILE NAME: 201447_E16.dwg





Beecher Engineering, Inc.

SCHEMATIC DIAGRAM 1

TYPICAL FOR:

UV DISINFECTION SYSTEM

LEGEND:

* - LOCATED AT (E) PNL-3EB

⬡ - LOCATED AT NEW 480V PANELBOARD

– – – – NEW FIELD CONDUCTOR

REV	DATE	BY	DESCRIPTION

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E014712
Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
3/20/2024

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UV DISINFECTION SYSTEM REPLACEMENT

ELECTRICAL

CONTROL SCHEMATICS - 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E21
SHEET NO. 39 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E21.dwg

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40-MCP-01
UV DISINFECTION
MASTER CONTROL PANEL (MCP)

UV CHANNEL NO.1 LEVEL (4-20mA)

UV CHANNEL NO.1
LEVEL CONTROLLER

CB
*
120V
1Ø
60HZ

LOW LEVEL
UV CHANNEL NO.1 LOW LEVEL
TO 40-PDC-11
(SEE DWG E23 FOR CONTINUATION)

LOW LEVEL
UV CHANNEL NO.1 LOW LEVEL
TO 40-PDC-12
(SEE DWG E23 FOR CONTINUATION)

MANUF CABLE

UV CHANNEL NO.1
RADAR LEVEL ELEMENT

LOWER COMMAND
UV CHANNEL NO.1
OUTLET WEIR GATE
LOWER COMMAND
(SEE SCHEMATIC DIAGRAM "3")

RAISE COMMAND
UV CHANNEL NO.1
OUTLET WEIR GATE
RAISE COMMAND
(SEE SCHEMATIC DIAGRAM "3")

READY (REMOTE) INDICATION
UV CHANNEL NO.1
OUTLET WEIR GATE
READY (REMOTE) INDICATION
(SEE SCHEMATIC DIAGRAM "3")

FAULT ALARM
UV CHANNEL NO.1
OUTLET WEIR GATE
FAULT ALARM
(SEE SCHEMATIC DIAGRAM "3")

OUTLET WEIR GATE POSITION INDICATION (4-20mA)
UV CHANNEL NO.1
OUTLET WEIR GATE
POSITION INDICATION
(SEE SCHEMATIC DIAGRAM "3")

CONTINUED ABOVE RIGHT

CONTINUED BELOW LEFT

40-MCP-01
UV DISINFECTION
MASTER CONTROL PANEL (MCP)

UV CHANNEL NO.2 LEVEL (4-20mA)

UV CHANNEL NO.2
LEVEL CONTROLLER

CB
*
120V
1Ø
60HZ

LOW LEVEL
UV CHANNEL NO.2 LOW LEVEL
TO 40-PDC-21
(SEE DWG E24 FOR CONTINUATION)

LOW LEVEL
UV CHANNEL NO.2 LOW LEVEL
TO 40-PDC-22
(SEE DWG E24 FOR CONTINUATION)

MANUF CABLE

UV CHANNEL NO.2
RADAR LEVEL ELEMENT

LOWER COMMAND
UV CHANNEL NO.2
OUTLET WEIR GATE
LOWER COMMAND
(SEE SCHEMATIC DIAGRAM "3")

RAISE COMMAND
UV CHANNEL NO.2
OUTLET WEIR GATE
RAISE COMMAND
(SEE SCHEMATIC DIAGRAM "3")

READY (REMOTE) INDICATION
UV CHANNEL NO.2
OUTLET WEIR GATE
READY (REMOTE) INDICATION
(SEE SCHEMATIC DIAGRAM "3")

FAULT ALARM
UV CHANNEL NO.2
OUTLET WEIR GATE
FAULT ALARM
(SEE SCHEMATIC DIAGRAM "3")

OUTLET WEIR GATE POSITION INDICATION (4-20mA)
UV CHANNEL NO.2
OUTLET WEIR GATE
POSITION INDICATION
(SEE SCHEMATIC DIAGRAM "3")

CONTINUED NEXT SHEET

LEGEND:

* - LOCATED AT (E) PNL-3EB

⬡ - LOCATED AT NEW 480V PANELBOARD

– – – – NEW FIELD CONDUCTOR

SCHEMATIC DIAGRAM 1 (CONTINUED)

TYPICAL FOR:

UV DISINFECTION SYSTEM

Beecher Engineering, Inc.

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E014712
Exp. 6/30/25
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STATE OF CALIFORNIA
3/20/2024

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CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
CONTROL SCHEMATICS - 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E22
SHEET NO. 40 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E22.dwg

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COLOR TABLE:CAROLLO_STD_F_V0905.CTB
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CONTINUED FROM PREVIOUS SHEET

40-MCP-01
UV DISINFECTION
MASTER CONTROL PANEL (MCP)

MODBUS
BELDEN 3106A

40-PDC-11
UV CHANNEL NO.1
PDC NO.1

CB
480V
3Ø
60HZ
NEUTRAL

40-UV-11
UV CHANNEL NO.1
UV BANK A

BONDING CONDUCTOR
#8AWG XHHW
BANK-IN-PLACE CABLE
(BY UV SYSTEM SUPPLIER)
UV INTENSITY CABLE
(BY UV SYSTEM SUPPLIER)
UV LAMP CABLES
(BY UV SYSTEM SUPPLIER)

40-UV-12
UV CHANNEL NO.1
UV BANK B

BONDING CONDUCTOR
#8AWG XHHW
BANK-IN-PLACE CABLE
(BY UV SYSTEM SUPPLIER)
UV INTENSITY CABLE
(BY UV SYSTEM SUPPLIER)
UV LAMP CABLES
(BY UV SYSTEM SUPPLIER)

UV CHANNEL NO.1 LOW LEVEL
FROM UV CHANNEL NO.1 LEVEL CONTROLLER
(SEE DWG E22 FOR CONTINUATION)

MODBUS
BELDEN 3106A

40-PDC-12
UV CHANNEL NO.1
PDC NO.2

CB
480V
3Ø
60HZ
NEUTRAL

40-UV-13
UV CHANNEL NO.1
UV BANK C

BONDING CONDUCTOR
#8AWG XHHW
BANK-IN-PLACE CABLE
(BY UV SYSTEM SUPPLIER)
UV INTENSITY CABLE
(BY UV SYSTEM SUPPLIER)
UV LAMP CABLES
(BY UV SYSTEM SUPPLIER)

UV CHANNEL NO.1 LOW LEVEL
FROM UV CHANNEL NO.1 LEVEL CONTROLLER
(SEE DWG E22 FOR CONTINUATION)

40-HSC-11
UV CHANNEL NO.1
HYDRAULIC SYSTEM
CENTER

MODBUS
BELDEN 3106A

CB
480V
3Ø
60HZ

CONTINUED NEXT SHEET

SCHEMATIC DIAGRAM 1 (CONTINUED)
TYPICAL FOR:

UV DISINFECTION SYSTEM

LEGEND:

* - LOCATED AT (E) PNL-3EB

⬡ - LOCATED AT NEW 480V PANELBOARD

– – – – NEW FIELD CONDUCTOR

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION

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DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
TODD A. BEECHER
E014712
Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
3/20/2024

carollo®

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
CONTROL SCHEMATICS - 3

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E23
SHEET NO. 41 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E23.dwg

CONTINUED FROM PREVIOUS SHEET

40-MCP-01
UV DISINFECTION
MASTER CONTROL PANEL (MCP)

MODBUS
BELDEN 3106A

40-PDC-21
UV CHANNEL NO.2
PDC NO.1

CB
480V
3Ø
60HZ
NEUTRAL

40-UV-21
UV CHANNEL NO.2
UV BANK A

BONDING CONDUCTOR
#8AWG XHHW
BANK-IN-PLACE CABLE
(BY UV SYSTEM SUPPLIER)
UV INTENSITY CABLE
(BY UV SYSTEM SUPPLIER)
UV LAMP CABLES
(BY UV SYSTEM SUPPLIER)

40-UV-22
UV CHANNEL NO.2
UV BANK B

BONDING CONDUCTOR
#8AWG XHHW
BANK-IN-PLACE CABLE
(BY UV SYSTEM SUPPLIER)
UV INTENSITY CABLE
(BY UV SYSTEM SUPPLIER)
UV LAMP CABLES
(BY UV SYSTEM SUPPLIER)

UV CHANNEL NO.2 LOW LEVEL
FROM UV CHANNEL NO.2 LEVEL CONTROLLER
(SEE DWG E22 FOR CONTINUATION)

MODBUS
BELDEN 3106A

40-PDC-22
UV CHANNEL NO.2
PDC NO.2

CB
480V
3Ø
60HZ
NEUTRAL

40-UV-23
UV CHANNEL NO.2
UV BANK C

BONDING CONDUCTOR
#8AWG XHHW
BANK-IN-PLACE CABLE
(BY UV SYSTEM SUPPLIER)
UV INTENSITY CABLE
(BY UV SYSTEM SUPPLIER)
UV LAMP CABLES
(BY UV SYSTEM SUPPLIER)

UV CHANNEL NO.2 LOW LEVEL
FROM UV CHANNEL NO.2 LEVEL CONTROLLER
(SEE DWG E22 FOR CONTINUATION)

40-HSC-21
UV CHANNEL NO.2
HYDRAULIC SYSTEM
CENTER

MODBUS
BELDEN 3106A

CB
480V
3Ø
60HZ

SCHEMATIC DIAGRAM 1 (CONTINUED)
TYPICAL FOR:

UV DISINFECTION SYSTEM

LEGEND:

★ - LOCATED AT (E) PNL-3EB

⬡ - LOCATED AT NEW 480V PANELBOARD

– – – – NEW FIELD CONDUCTOR

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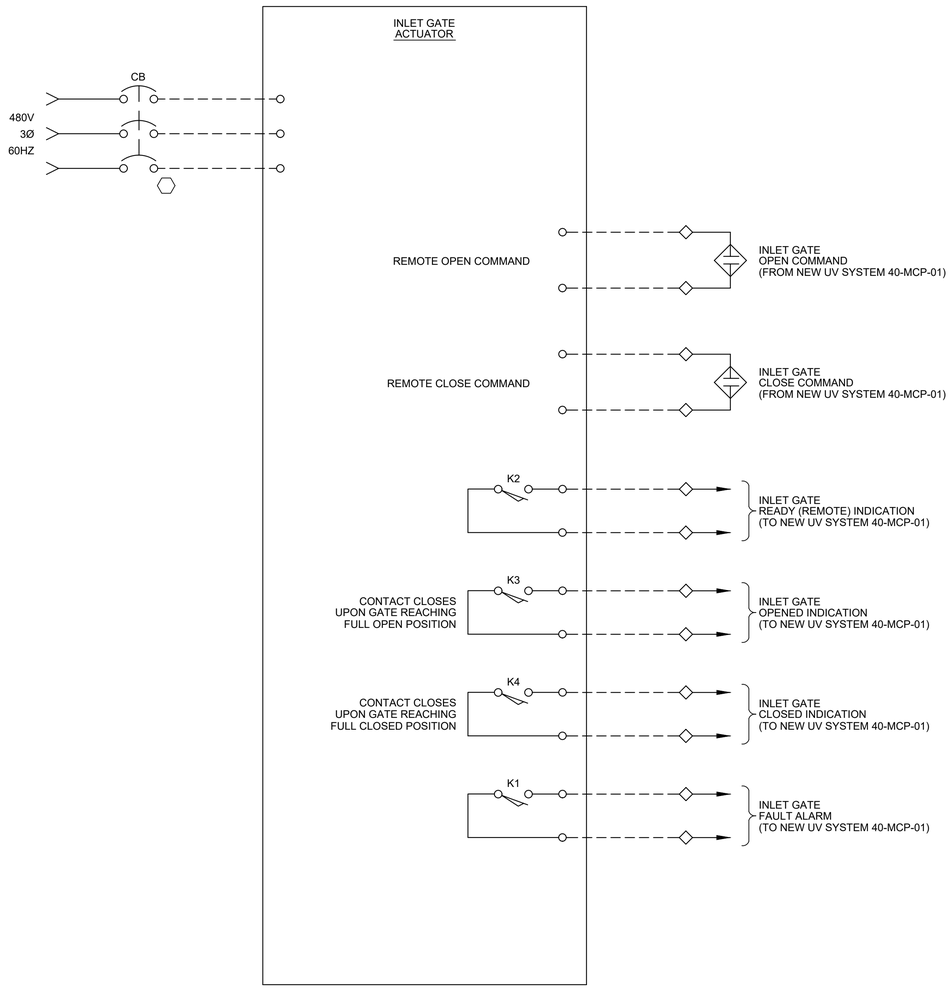
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UV DISINFECTION SYSTEM REPLACEMENT
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CONTROL SCHEMATICS - 4

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JOB NO. 201447
DRAWING NO. E24
SHEET NO. 42 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E24.dwg

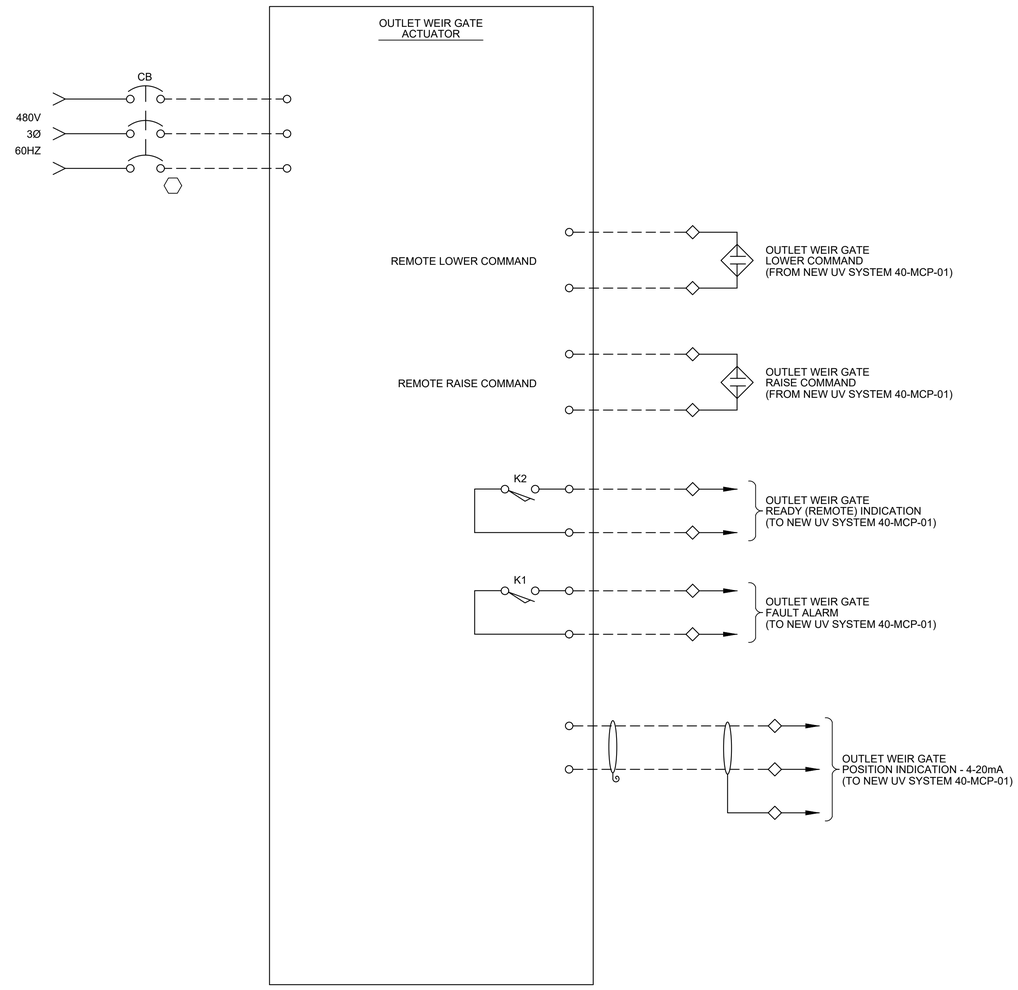
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SCHEMATIC DIAGRAM 2

TYPICAL FOR:

40-G-11-FEF	UV CHANNEL NO.1 INLET GATE
40-G-21-FEF	UV CHANNEL NO.2 INLET GATE



SCHEMATIC DIAGRAM 3

TYPICAL FOR:

40-G-12-FE	UV CHANNEL NO.1 OUTLET WEIR GATE
40-G-22-FE	UV CHANNEL NO.2 OUTLET WEIR GATE

LEGEND:

◇ - FIELD WIRING TERMINAL BLOCK (LOCATED AT NEW 40-MCP-01)

⬡ - LOCATED AT NEW 480V PANELBOARD

– – – – NEW FIELD CONDUCTOR

Beecher Engineering, Inc.

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UV DISINFECTION SYSTEM REPLACEMENT

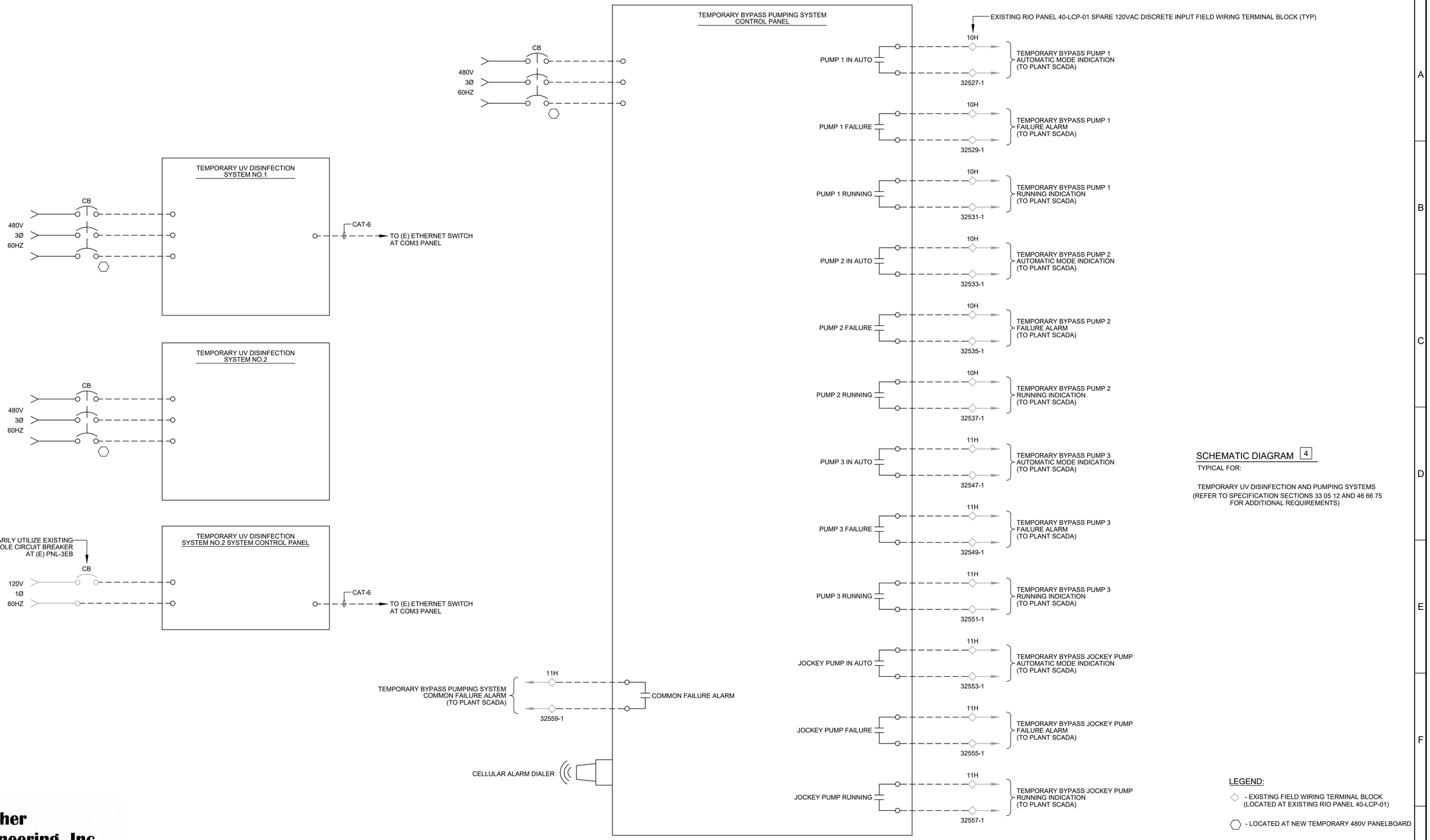
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CONTROL SCHEMATICS - 5

VERIFY SCALES
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JOB NO. 201447
DRAWING NO. E25
SHEET NO. 43 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E25.dwg



SCHEMATIC DIAGRAM 4

TYPICAL FOR:

TEMPORARY UV DISINFECTION AND PUMPING SYSTEMS
(REFER TO SPECIFICATION SECTIONS 33 05 12 AND 46 66 75 FOR ADDITIONAL REQUIREMENTS)

LEGEND:

◇ - EXISTING FIELD WIRING TERMINAL BLOCK (LOCATED AT EXISTING RIO PANEL 40-LCP-01)

⬡ - LOCATED AT NEW TEMPORARY 480V PANELBOARD

– – – – NEW TEMPORARY FIELD CONDUCTOR

Beecher Engineering, Inc.

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UV DISINFECTION SYSTEM REPLACEMENT

ELECTRICAL

CONTROL SCHEMATICS - 6

VERIFY SCALES
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JOB NO. 201447
DRAWING NO. E26
SHEET NO. 44 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E26.dwg

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POWER CIRCUITS

CIRCUIT NO.	WIRE/CABLE REQUIREMENTS	FROM:	TO:	SCHEMATIC DIAGRAM NO.	CONDUCTOR TYPE
P-40PNL11	4#4/0, 1#4GND	SB-UV	40-PNL-11	--	XHHW-2
P-40PNL21	4#4/0, 1#4GND	SB-UV	40-PNL-21	--	XHHW-2
P-PNL3EBXFMR	3#1, 1#6GND	40-PNL-11	PNL-3EB XFMR	--	XHHW-2
P-40PDC11	4/C#8 + GND	40-PNL-11	40-PDC-11	1	XHHW-2 (RATED FOR CABLE TRAY INSTALLATION)
P-40PDC12	4/C#8 + GND	40-PNL-11	40-PDC-12	1	XHHW-2 (RATED FOR CABLE TRAY INSTALLATION)
P-40HSC11	3/C#12 + GND	40-PNL-11	40-HSC-11	1	XHHW-2 (RATED FOR CABLE TRAY INSTALLATION)
P-40G11FEF	3#12, 1#12GND	40-PNL-11	40-G-11-FEF	2	XHHW-2
P-40G12FE	3#12, 1#12GND	40-PNL-11	40-G-12-FE	3	XHHW-2
P-40PDC21	4/C#8 + GND	40-PNL-21	40-PDC-21	1	XHHW-2 (RATED FOR CABLE TRAY INSTALLATION)
P-40PDC22	4/C#8 + GND	40-PNL-21	40-PDC-22	1	XHHW-2 (RATED FOR CABLE TRAY INSTALLATION)
P-40HSC21	3/C#12 + GND	40-PNL-21	40-HSC-21	1	XHHW-2 (RATED FOR CABLE TRAY INSTALLATION)
P-40G21FEF	3#12, 1#12GND	40-PNL-21	40-G-21-FEF	2	XHHW-2
P-40G22FE	3#12, 1#12GND	40-PNL-21	40-G-22-FE	3	XHHW-2
P-40MCP01	2#12, 1#12GND	PNL-3EB	40-MCP-01	1	XHHW-2
P-40AIT001	2#12, 1#12GND	PNL-3EB	40AIT001	1	XHHW-2
P-40LIT002	2#12, 1#12GND	PNL-3EB	40LIT002	1	XHHW-2
P-40LIT102	2#12, 1#12GND	PNL-3EB	40LIT102	1	XHHW-2
P-40LIT202	2#12, 1#12GND	PNL-3EB	40LIT202	1	XHHW-2
P-40UV11	1#8GND	40-PDC-11	40-UV-11	1	XHHW-2
P-40UV12	1#8GND	40-PDC-11	40-UV-12	1	XHHW-2
P-40UV13	1#8GND	40-PDC-12	40-UV-13	1	XHHW-2
P-40UV21	1#8GND	40-PDC-21	40-UV-21	1	XHHW-2
P-40UV22	1#8GND	40-PDC-21	40-UV-22	1	XHHW-2
P-40UV23	1#8GND	40-PDC-22	40-UV-23	1	XHHW-2

CONTROL / SIGNAL CIRCUITS

CIRCUIT NO.	WIRE/CABLE REQUIREMENTS	FROM:	TO:	SCHEMATIC DIAGRAM NO.	SIGNAL DESCRIPTION
S-40MCP01	CAT-6	COM3 PANEL	40-MCP-01	1	40-MCP-01 PLANT SCADA COMMUNICATION
S-40AIT001	1#16TSP	40-MCP-01	40AIT001	1	UV CHANNEL - UV TRANSMITTANCE INDICATION
S-40LIT002	1#16TSP	40-MCP-01	40LIT002	1	UV INLET CHANNEL - LEVEL INDICATION
C-40LIT002	2#14, 1#14GND	40-MCP-01	40LIT002	1	UV INLET CHANNEL - HIGH LEVEL ALARM
C-40G11FEF	12#14, 1#14GND	40-MCP-01	40-G-11-FEF	2	UV CHANNEL NO.1 INLET GATE - DISCRETE SIGNALS
C-40G21FEF	12#14, 1#14GND	40-MCP-01	40-G-21-FEF	2	UV CHANNEL NO.2 INLET GATE - DISCRETE SIGNALS
C-40G12FE	8#14, 1#14GND	40-MCP-01	40-G-12-FE	3	UV CHANNEL NO.1 OUTLET WEIR GATE - DISCRETE SIGNALS
S-40G12FE	1#16TSP	40-MCP-01	40-G-12-FE	3	UV CHANNEL NO.1 OUTLET WEIR GATE - POSITION INDICATION
C-40G22FE	8#14, 1#14GND	40-MCP-01	40-G-22-FE	3	UV CHANNEL NO.2 OUTLET WEIR GATE - DISCRETE SIGNALS
S-40G22FE	1#16TSP	40-MCP-01	40-G-22-FE	3	UV CHANNEL NO.2 OUTLET WEIR GATE - POSITION INDICATION
S-40LIT102	1#16TSP	40-MCP-01	40LIT102	1	UV CHANNEL NO.1 - LEVEL INDICATION
C-40LIT102A	2#14, 1#14GND	40LIT102	40-PDC-11	1	UV CHANNEL NO.1 - LOW LEVEL ALARM
C-40LIT102B	2#14, 1#14GND	40LIT102	40-PDC-12	1	UV CHANNEL NO.1 - LOW LEVEL ALARM
S-40LIT202	1#16TSP	40-MCP-01	40LIT202	1	UV CHANNEL NO.2 - LEVEL INDICATION
C-40LIT202A	2#14, 1#14GND	40LIT202	40-PDC-21	1	UV CHANNEL NO.2 - LOW LEVEL ALARM
C-40LIT202B	2#14, 1#14GND	40LIT202	40-PDC-22	1	UV CHANNEL NO.2 - LOW LEVEL ALARM
S-40PDC11	BELDEN 3106A	40-MCP-01	40-PDC-11	1	UV SYSTEM MODBUS COMMUNICATION - 40-MCP-01 TO 40-PDC-11
S-40PDC12	BELDEN 3106A	40-PDC-11	40-PDC-12	1	UV SYSTEM MODBUS COMMUNICATION - 40-PDC-11 TO 40-PDC-12
S-40HSC11	BELDEN 3106A	40-PDC-12	40-HSC-11	1	UV SYSTEM MODBUS COMMUNICATION - 40-PDC-12 TO 40-HSC-11
S-40PDC21	BELDEN 3106A	40-MCP-01	40-PDC-21	1	UV SYSTEM MODBUS COMMUNICATION - 40-MCP-01 TO 40-PDC-21
S-40PDC22	BELDEN 3106A	40-PDC-21	40-PDC-22	1	UV SYSTEM MODBUS COMMUNICATION - 40-PDC-21 TO 40-PDC-22
S-40HSC21	BELDEN 3106A	40-PDC-22	40-HSC-21	1	UV SYSTEM MODBUS COMMUNICATION - 40-PDC-22 TO 40-HSC-21

NOTES:

1. NEW CONDUIT REQUIREMENTS ARE NOT INCLUDED IN THE CIRCUIT SCHEDULES. REFER TO THE ELECTRICAL PLAN DRAWINGS FOR NEW CONDUIT REQUIREMENTS.
2. TEMPORARY CONDUCTOR REQUIREMENTS ARE NOT INCLUDED ON THE CIRCUIT SCHEDULES. REFER TO PLAN DRAWINGS, SINGLE LINE DIAGRAMS, CONTROL SCHEMATICS AND SPECIFICATIONS FOR TEMPORARY CONDUCTOR REQUIREMENTS.

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TODD A. BEECHER
E014712
Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
3/20/2024

CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

ELECTRICAL

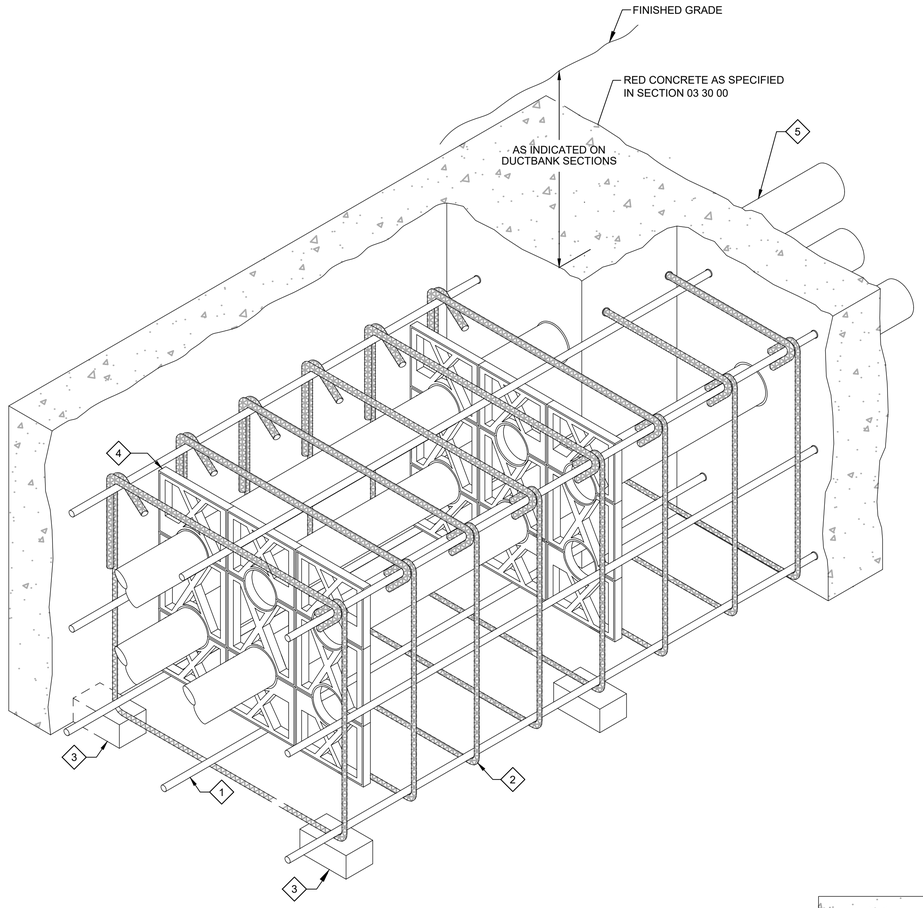
CIRCUIT SCHEDULES - 1

VERIFY SCALES
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JOB NO. 201447
DRAWING NO. E31
SHEET NO. 45 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E31.dwg

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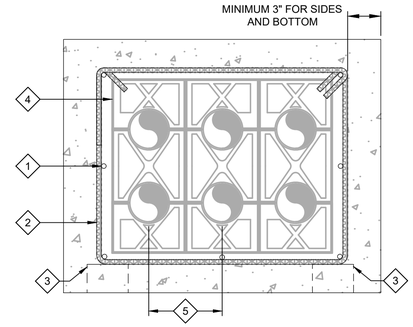


NOTES:

1. DIMENSIONS SHOWN ARE MINIMUM.
2. ADJUST SIZE OF DUCT BANK BASED UPON THESE GUIDELINES AND THE DUCT BANK SECTIONS TO ACCOMMODATE ACTUAL NUMBER OF CONDUITS WITHIN DUCT BANK. REFER TO DUCT BANK SECTIONS FOR NUMBER AND SIZE OF CONDUITS.
3. MAKE PROVISIONS TO PREVENT CONDUIT FLOTATION DURING CONCRETE PLACEMENT & CURING.

KEY NOTES:

1. REFER TO DUCTBANK SECTIONS FOR REINFORCING STEEL REQUIREMENTS.
2. REFER TO DUCTBANK SECTIONS FOR REINFORCING STEEL STIRRUP REQUIREMENTS.
3. MINIMUM OF TWO PRECAST 3" CONCRETE BAR SUPPORTS PLACED UNDER A STIRRUP AT EACH PVC CONDUIT SPACER ALONG LENGTH OF DUCT BANK.
4. PVC CONDUIT SPACERS ON 8'-0" CENTERS (MAXIMUM) LOCATE 12" FROM STIRRUPS.
5. REFER TO DUCT BANK SECTIONS ON DRAWING E02 FOR CONDUIT REQUIREMENTS.



A / E02 DETAIL - REINFORCED CONCRETE DUCTBANK
NO SCALE

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UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
ELECTRICAL DETAILS - 1

VERIFY SCALES
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JOB NO. 201447
DRAWING NO. E41
SHEET NO. 46 OF 79

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B E02 DETAIL - EXISTING TRANSFORMER RELOCATION
NO SCALE



C E02 DETAIL - EXISTING PULLBOX PB NO.1
NO SCALE

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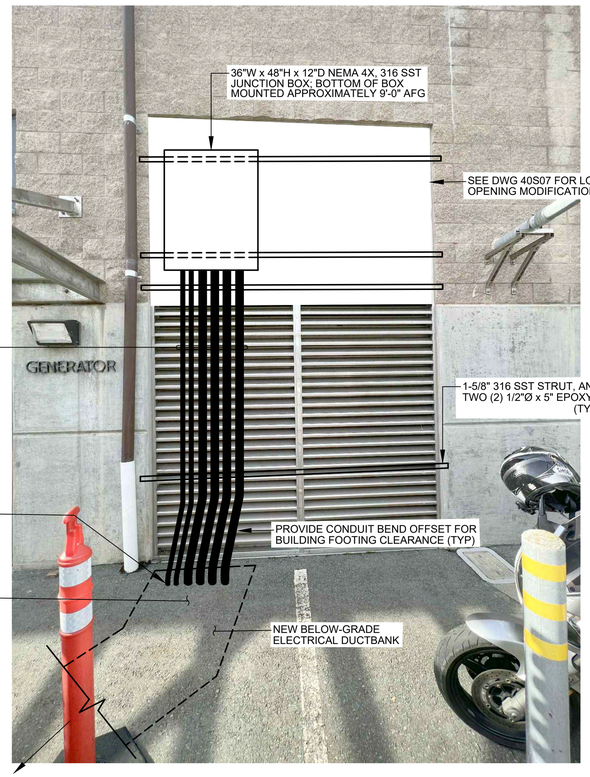
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ELECTRICAL
ELECTRICAL DETAILS - 2

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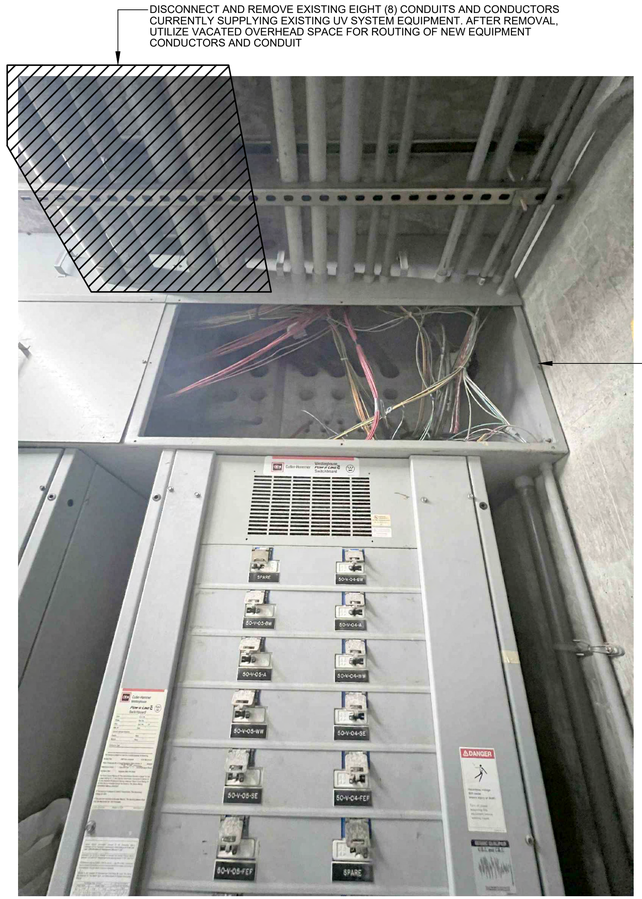
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DRAWING NO. E42
SHEET NO. 47 OF 79

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D E02 D 90E04 DETAIL - CONDUIT STUB-UP AT BUILDING
NO SCALE



E 40E01 DETAIL - UV AREA OVERHEAD CONDUITS
NO SCALE

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UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
ELECTRICAL DETAILS - 3

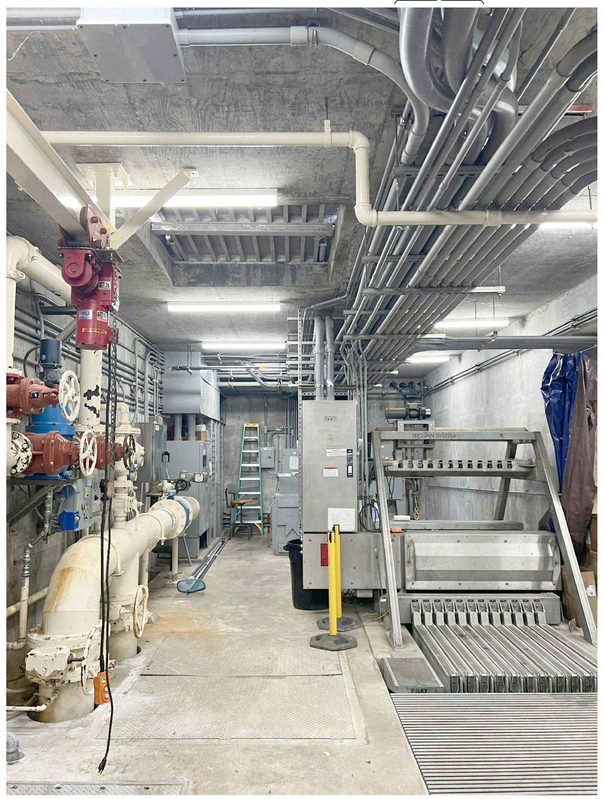
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JOB NO. 201447
DRAWING NO. E43
SHEET NO. 48 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E43.dwg



F 40E01 DETAIL - PNL-3EB TRANSFORMER SUPPLY MODIFICATIONS
NO SCALE



G 40E01 DETAIL - UV AREA OVERHEAD CONDUIT ROUTING
NO SCALE

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ELECTRICAL DETAILS - 4

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JOB NO. 201447
DRAWING NO. E44
SHEET NO. 49 OF 79

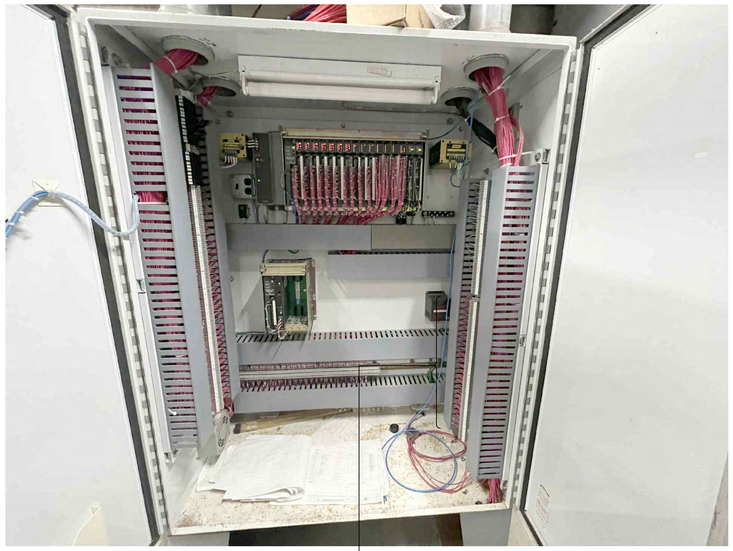
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EXISTING 40-LCP-01
(FILTER REMOTE I/O PANEL NO.5)





SPARE 120VAC DISCRETE INPUT FIELD WIRING TERMINAL BLOCKS
(FOR CONNECTION OF CONTRACTOR'S TEMPORARY BYPASS PUMPING SYSTEM SIGNALS)

H
40E01
DETAIL - EXISTING 40-LCP-01
NO SCALE

Beecher Engineering, Inc.

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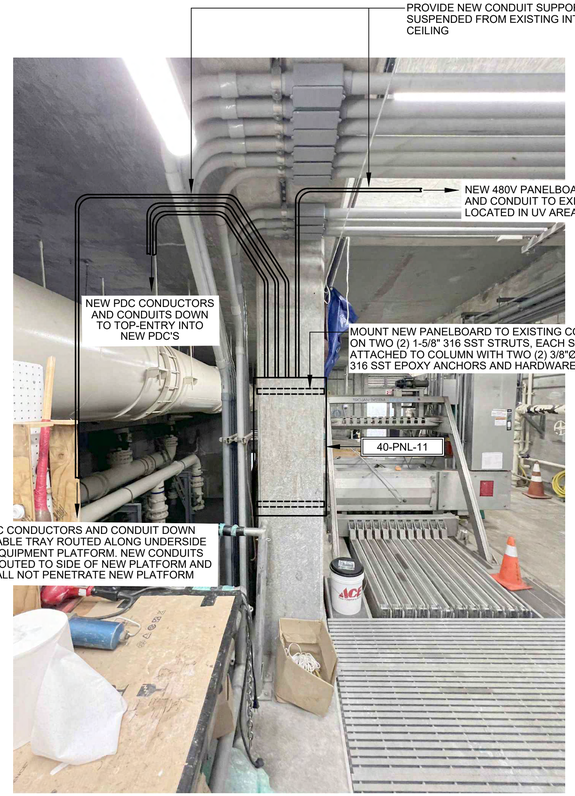
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UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
ELECTRICAL DETAILS - 5

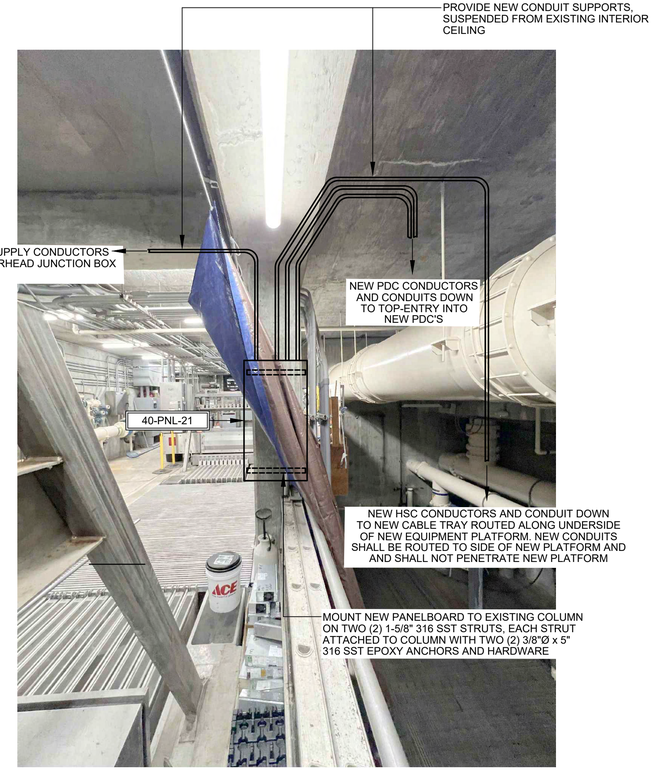
VERIFY SCALES
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0 1"
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JOB NO. 201447
DRAWING NO. E45
SHEET NO. 50 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E45.dwg



J 40E01 DETAIL - 40-PNL-11 MOUNTING
NO SCALE



K 40E01 DETAIL - 40-PNL-21 MOUNTING
NO SCALE

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
3/20/2024

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CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
ELECTRICAL DETAILS - 6

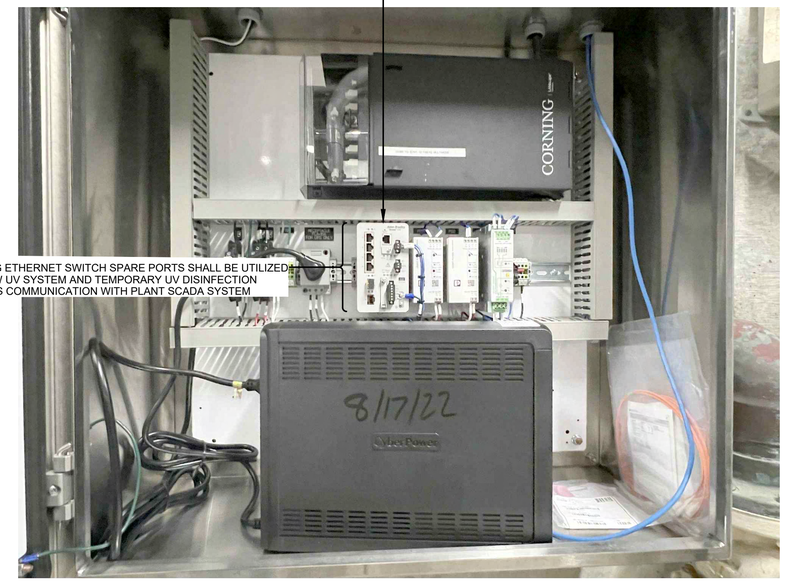
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E46
SHEET NO. 51 OF 79

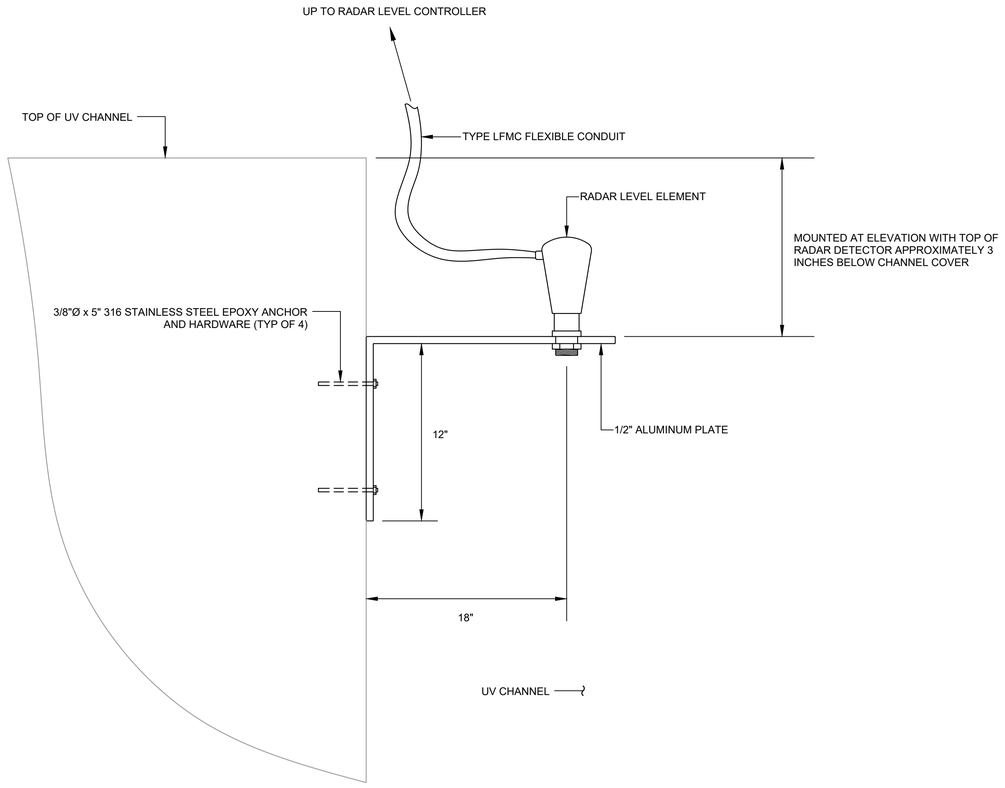
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LAST SAVED BY: tbeecher

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USER: BEI
PAGE SETUP: ---- PLOT SCALE:1:1 COLOR TABLE:CAROLLO_STD_F_V0905.CTB
LAST SAVED BY: tbeecher



L 40E01 DETAIL - COM3 NETWORK PANEL INTERIOR
NO SCALE



M 40E01 DETAIL - RADAR LEVEL ELEMENT MOUNTING
NO SCALE

Beecher Engineering, Inc.

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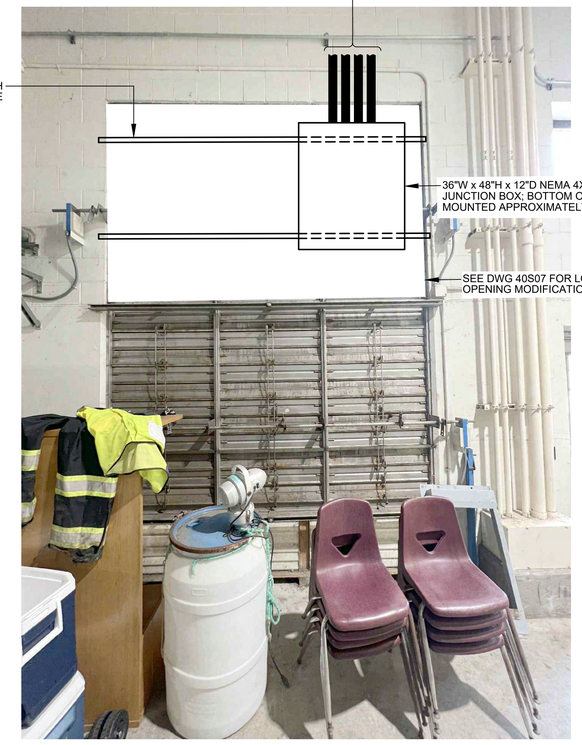
CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
ELECTRICAL DETAILS - 7

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E47
SHEET NO. 52 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E47.dwg

PLOT DATE: 3/15/2024 4:14:04 AM
USER: BEI
PAGE SETUP: ---- PLOT SCALE:1:1 COLOR TABLE:CAROLLO_STD_F_V0905.CTB
LAST SAVED BY: tbeecher



N 90E04 DETAIL - NEW JUNCTION BOX IN GENERATOR ROOM
NO SCALE



P 90E04 DETAIL - NEW OVERHEAD CONDUITS IN GENERATOR ROOM
NO SCALE

Beecher Engineering, Inc.

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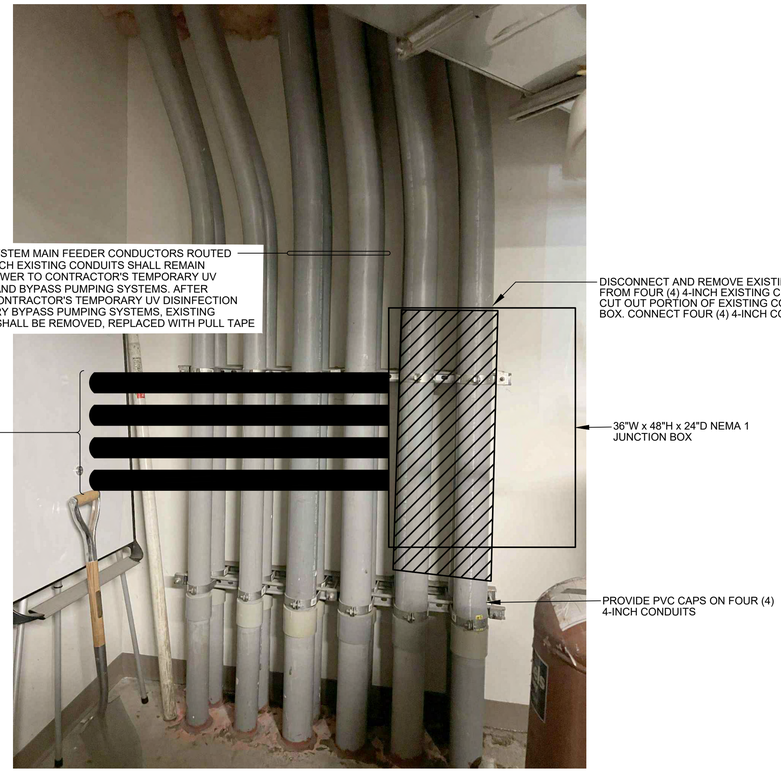
CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
ELECTRICAL DETAILS - 8

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E48
SHEET NO. 53 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E48.dwg





R 90E04 / R 90E05 DETAIL - NEW JUNCTION BOX AT GENERATOR WALL PENETRATION
NO SCALE

S 90E02 / S 90E05 DETAIL - NEW JUNCTION BOX IN MECHANICAL ROOM
NO SCALE

Beecher Engineering, Inc.

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DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
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ELECTRICAL
STATE OF CALIFORNIA
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UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
ELECTRICAL DETAILS - 9

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E49
SHEET NO. 54 OF 79

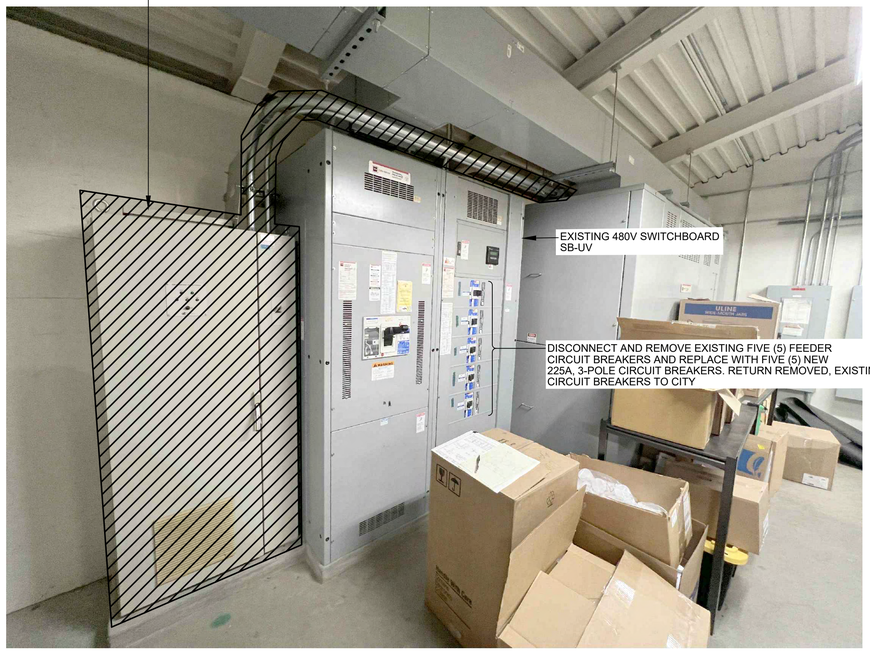
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LAST SAVED BY: tbeecher

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USER: BEI
PAGE SETUP: ----
PLOT SCALE:1:1
COLOR TABLE:CAROLLO_STD_F_V0905.CTB
LAST SAVED BY: tbeecher



T 90E03 T 90E06 DETAIL - EXISTING UV SYSTEM PANEL MODIFICATIONS
NO SCALE



U 90E03 U 90E06 DETAIL - ELECTRICAL ROOM EQUIPMENT DEMOLITION AND MODIFICATIONS
NO SCALE

Beecher Engineering, Inc.

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DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
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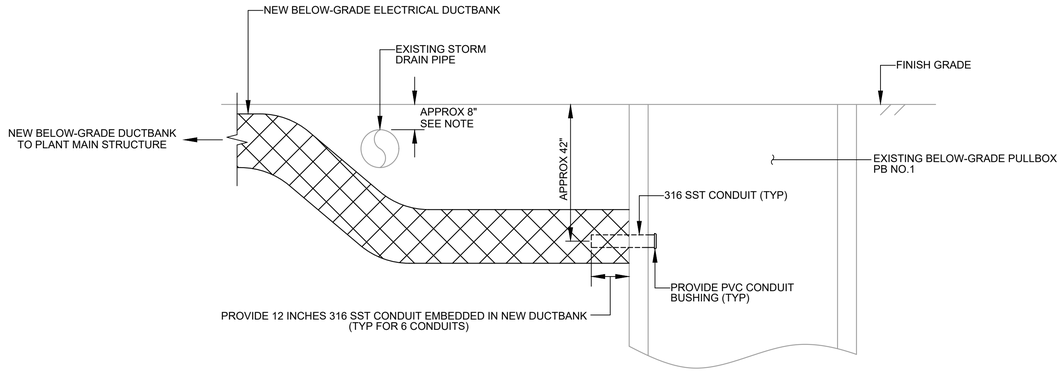
CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
ELECTRICAL DETAILS - 10

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E50
SHEET NO. 55 OF 79

PROJECT NO. 201447
FILE NAME: 201447_E50.dwg

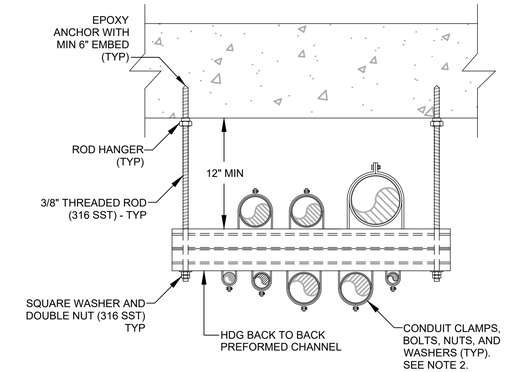


NOTE:
CONTRACTOR TO PERFORM CONFIRMATION POTHOLING ALONG PROPOSED ALIGNMENT. REFER TO DRAWING C01 FOR ADDITIONAL DETAIL.

V — DETAIL - PB NO.1 DUCTBANK ENTRY

E02

NO SCALE

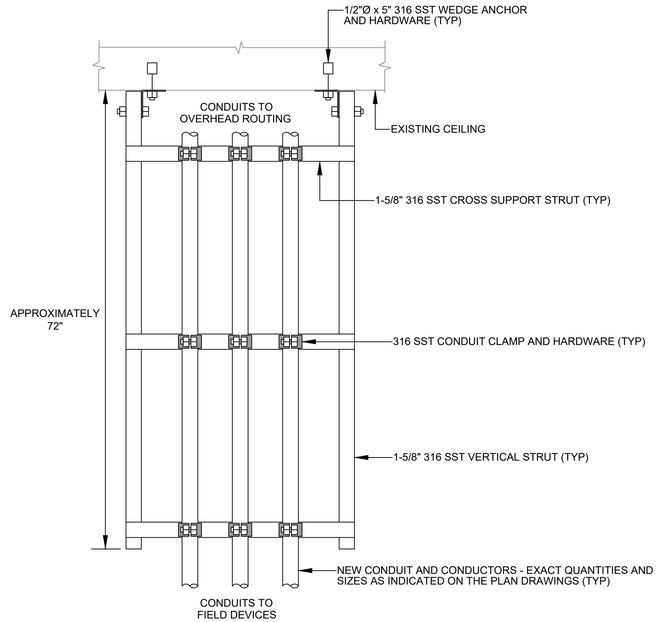


NOTES:

1. FILL UPPER LAYER BEFORE HANGING RACEWAY FROM UNDERSIDE.
2. MATERIAL CONDUIT CLAMPS AND HARDWARE SHALL BE 316 SST.

Y — DETAIL - OVERHEAD CONDUIT SUPPORT

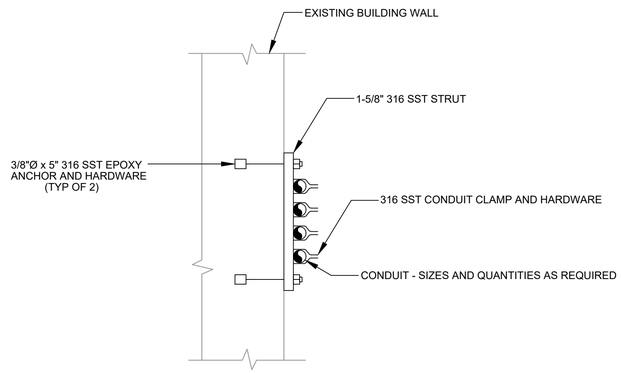
NO SCALE



W — DETAIL - CEILING CONDUIT SUPPORT

40E01

NO SCALE



NOTE: DETAIL ABOVE ALSO APPLICABLE FOR NEW CONDUIT MOUNTING TO EXISTING BUILDING CEILINGS AND FLOORS

Z — DETAIL - WALL CABLE TRAY AND CONDUIT SUPPORT

NO SCALE

Beecher Engineering, Inc.

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CITY OF PACIFICA

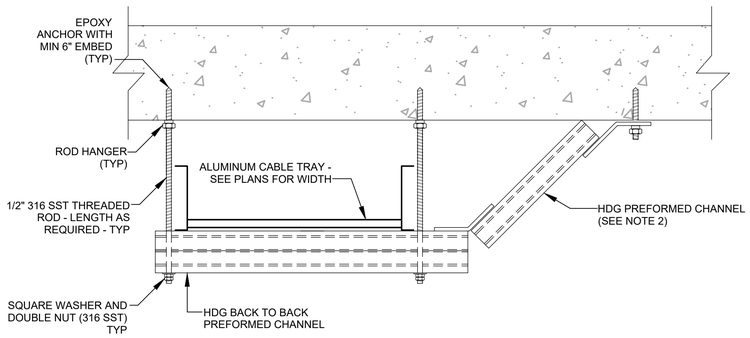
CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
ELECTRICAL DETAILS - 11

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. E51
SHEET NO. 56 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E51.dwg

PLOT DATE: 3/15/2024 4:15:10 AM
USER: BEI
COLOR TABLE:CAROLLO_STD_F_V0905.CTB
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PAGE SETUP: ----
LAST SAVED BY: tbeecher

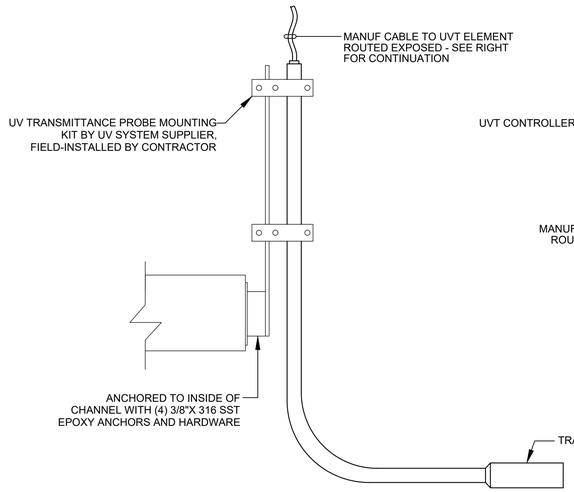


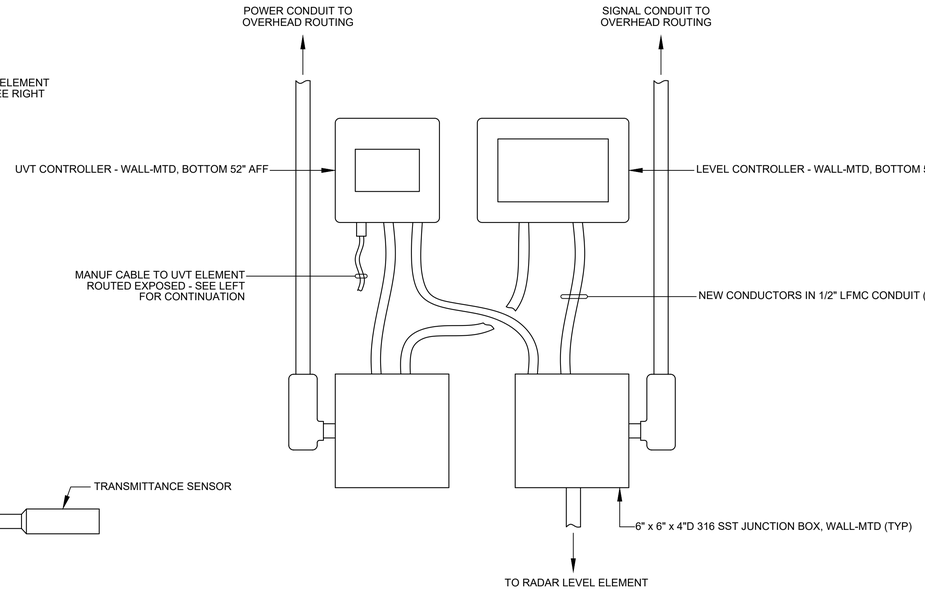
NOTES:

1. HARDWARE SHALL BE 316 SST.
2. PROVIDE MINIMUM ONE (1) ANTI-SWAY STRUT TO EACH OVERHEAD CABLE TRAY RUN WITH ADDITIONAL ANTI-SWAY STRUTS PROVIDED MINIMUM EVERY 8 FEET OF HORIZONTAL STRAIGHT RUN.

AA 40E01 DETAIL - OVERHEAD CABLE TRAY SUPPORT

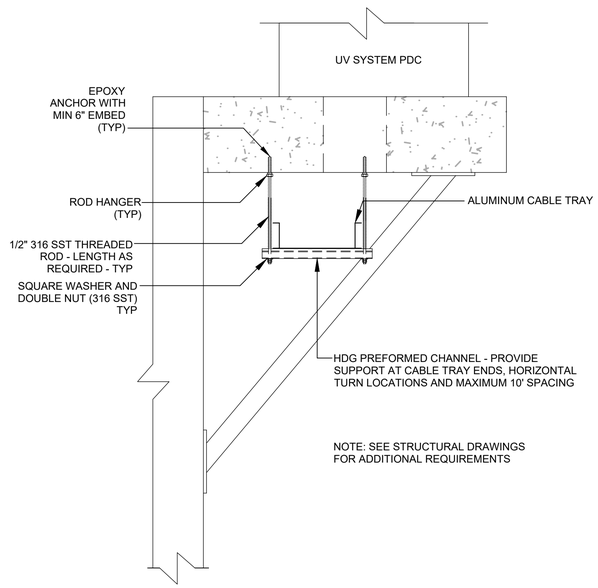
NO SCALE





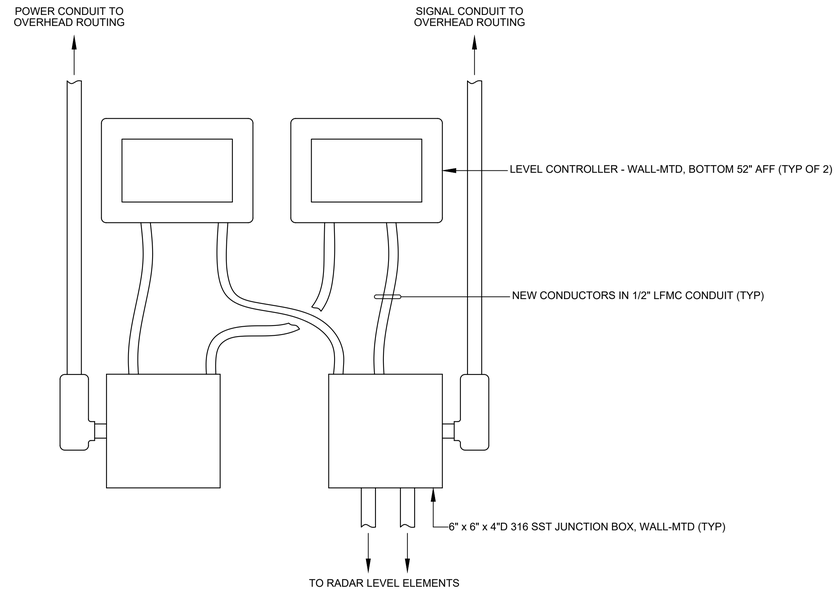
CC 40E01 DETAIL - UV INLET CHANNEL INSTRUMENTS

NO SCALE



BB 40E01 DETAIL - CABLE TRAY SUPPORT BELOW PLATFORM

NO SCALE



DD 40E01 DETAIL - UV CHANNEL LEVEL CONTROLLER

NO SCALE

Beecher Engineering, Inc.

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3/20/2024

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CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
ELECTRICAL DETAILS - 12

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

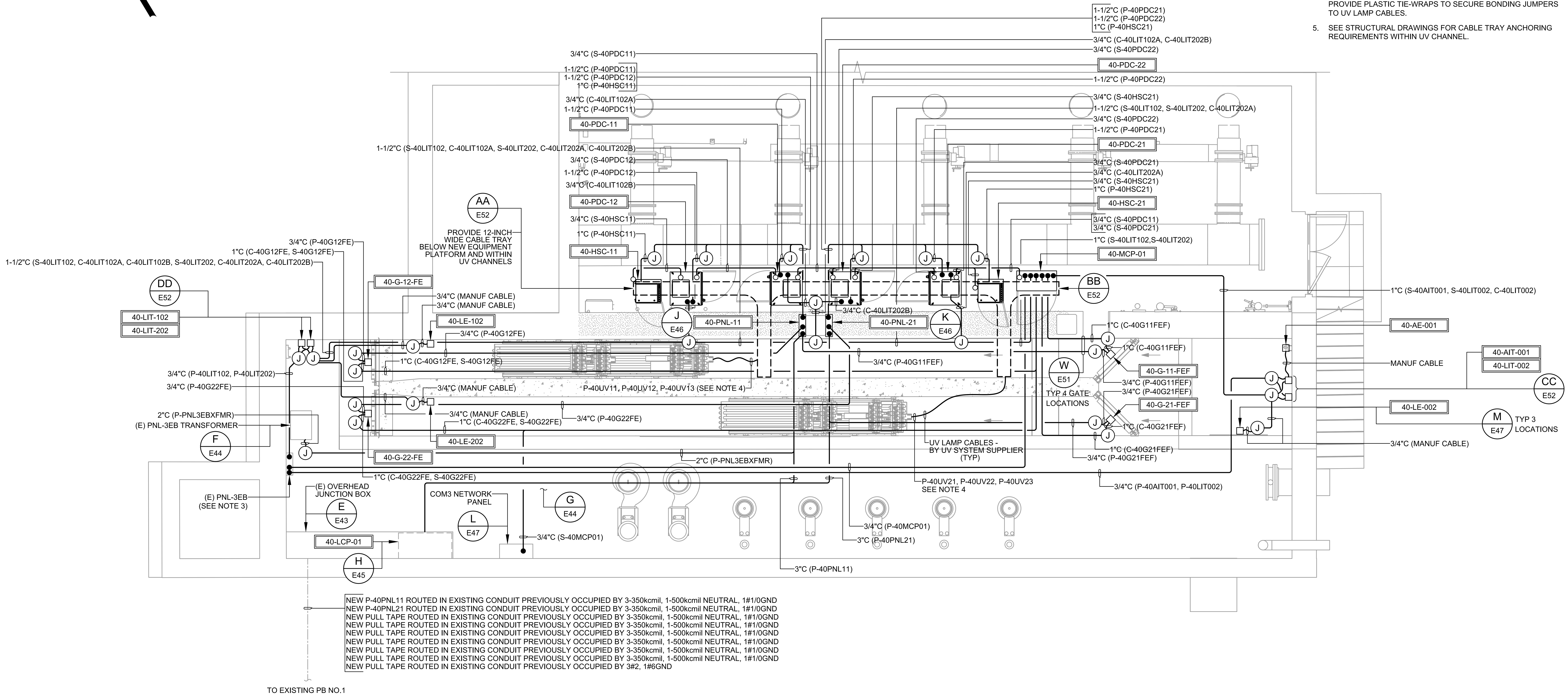
JOB NO. 201447
DRAWING NO. E52
SHEET NO. 57 OF 79

PROJECT NO. 201447 FILE NAME: 201447_E52.dwg

PLOT DATE: 3/15/2024 4:15:31 AM
USER: BEI
PAGE SETUP: ---- PLOT SCALE:1:1 COLOR TABLE:CAROLLO_STD_F_V0905.CTB
LAST SAVED BY: tbeecher

NOTES:

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. NOT ALL EXISTING ELECTRICAL EQUIPMENT SHOWN FOR CLARITY.
3. CONNECT NEW EQUIPMENT TO THE FOLLOWING SPARE 20A, 1-POLE EXISTING CIRCUIT BREAKERS WITHIN PNL-3EB:
   CIRCUIT 9: 40-MCP-01
   CIRCUIT 20: 40AIT001/40LIT002
   CIRCUIT 39: 40LIT102
   CIRCUIT 41: 40LIT202
4. ROUTE BONDING JUMPER CONDUCTORS WITH UV LAMP CABLES. PROVIDE PLASTIC TIE-WRAPS TO SECURE BONDING JUMPERS TO UV LAMP CABLES.
5. SEE STRUCTURAL DRAWINGS FOR CABLE TRAY ANCHORING REQUIREMENTS WITHIN UV CHANNEL.



A FLOOR PLAN
SCALE: 1/4" = 1'-0"
FILE: 201447_40E01

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CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
UV AREA - MODIFICATION PLAN

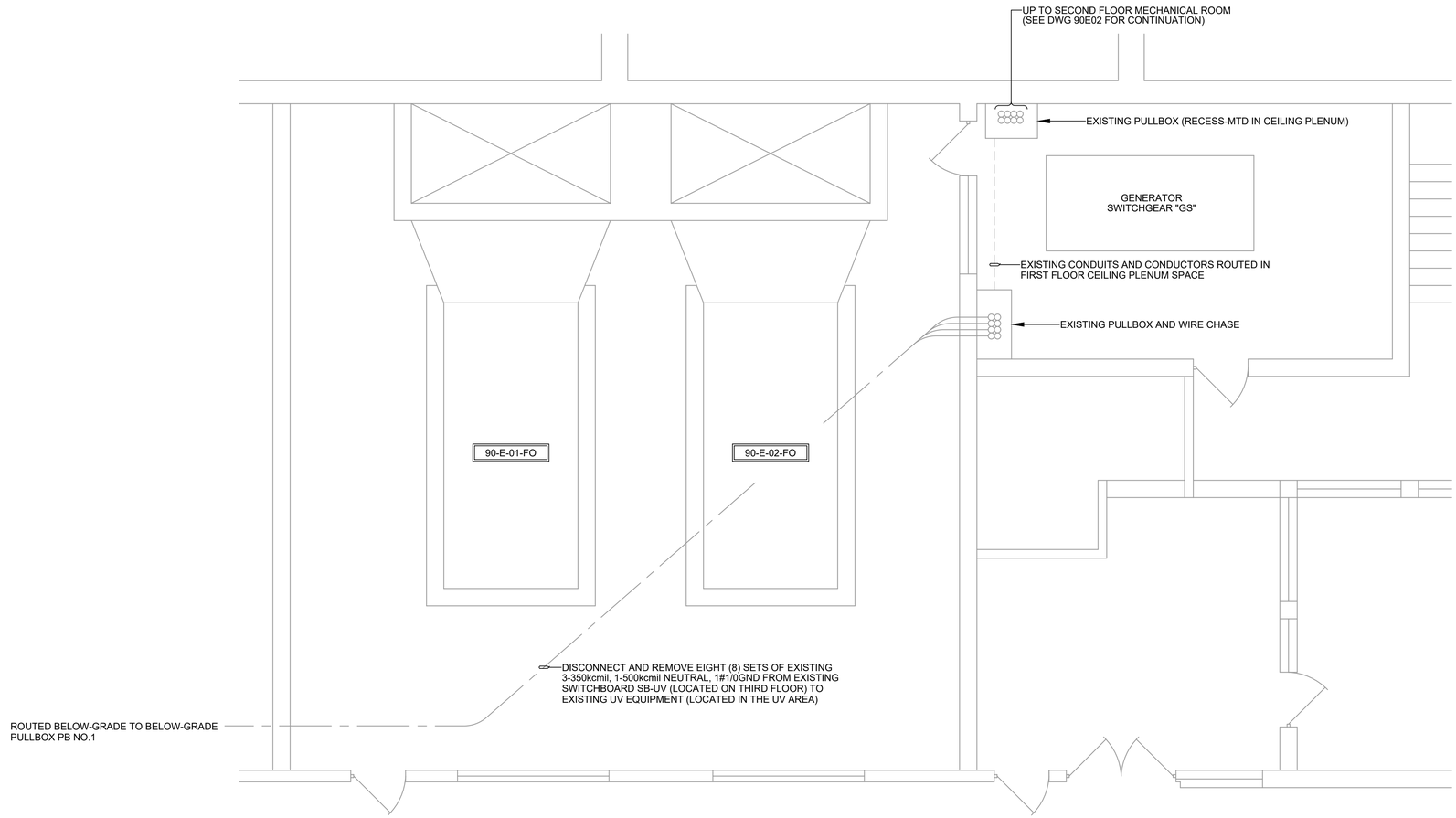
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 40E01
SHEET NO. 58 OF 79

PLOT DATE: 3/15/2024 4:23:15 AM USER: BEI COLOR TABLE:CAROLLO_STD_F_V0905.CTB PLOT SCALE:1:1 PAGE SETUP: ---- LAST SAVED BY: tbeecher

NOTES:

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.



A FLOOR PLAN
SCALE: 1/4" = 1'-0"
FILE: 201447_90E01

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION

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Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
3/20/2024

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UV DISINFECTION SYSTEM REPLACEMENT

ELECTRICAL

PLANT MAIN STRUCTURE FIRST FLOOR - DEMOLITION PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

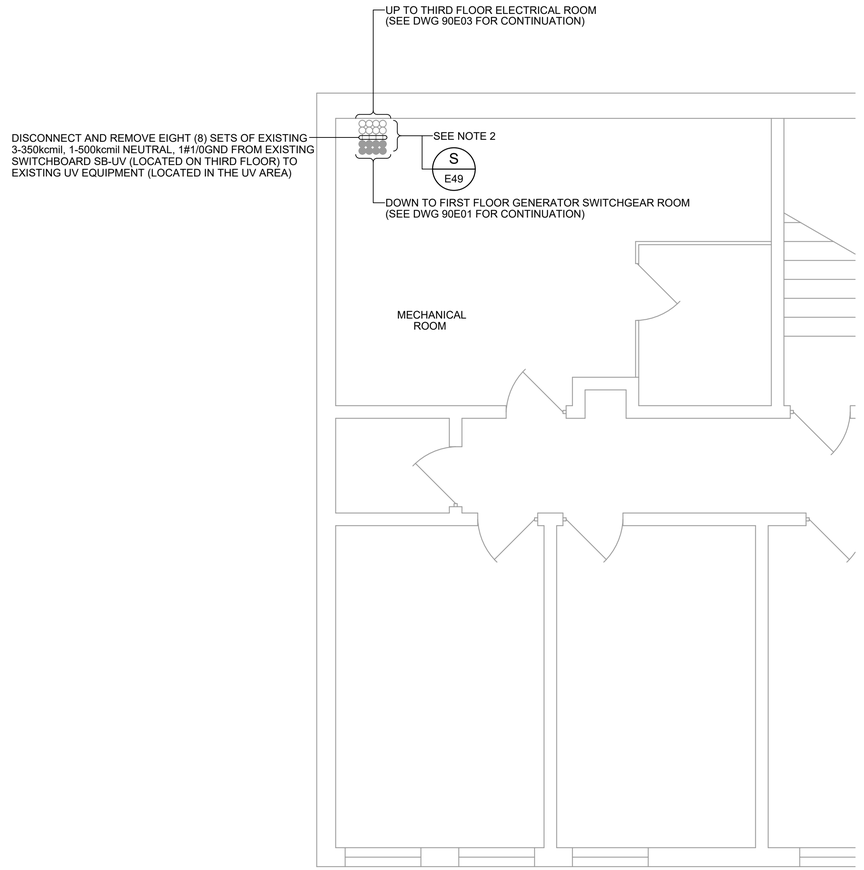
JOB NO. 201447
DRAWING NO. 90E01
SHEET NO. 59 OF 79

PROJECT NO. 201447 FILE NAME: 201447_90E01.dwg

PLOT DATE: 3/15/2024 4:23:35 AM
USER: BEI
COLOR TABLE:CAROLLO_STD_F_V0905.CTB
PAGE SETUP: ---- PLOT SCALE:1:1
LAST SAVED BY: tbeecher

NOTES:

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. AFTER REMOVAL OF EXISTING CONDUCTORS, REMOVE PORTION OF EXISTING CONDUITS FOR FOUR (4) EXISTING 4-INCH CONDUITS TO FACILITATE INSTALLATION OF A NEW JUNCTION BOX. SEE DRAWING 90E05 FOR ADDITIONAL REQUIREMENTS.



B FLOOR PLAN
SCALE: 1/4" = 1'-0"
FILE: 201447_90E02

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UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
PLANT MAIN STRUCTURE SECOND FLOOR - DEMOLITION PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 90E02
SHEET NO. 60 OF 79

PROJECT NO. 201447 FILE NAME: 201447_90E02.dwg

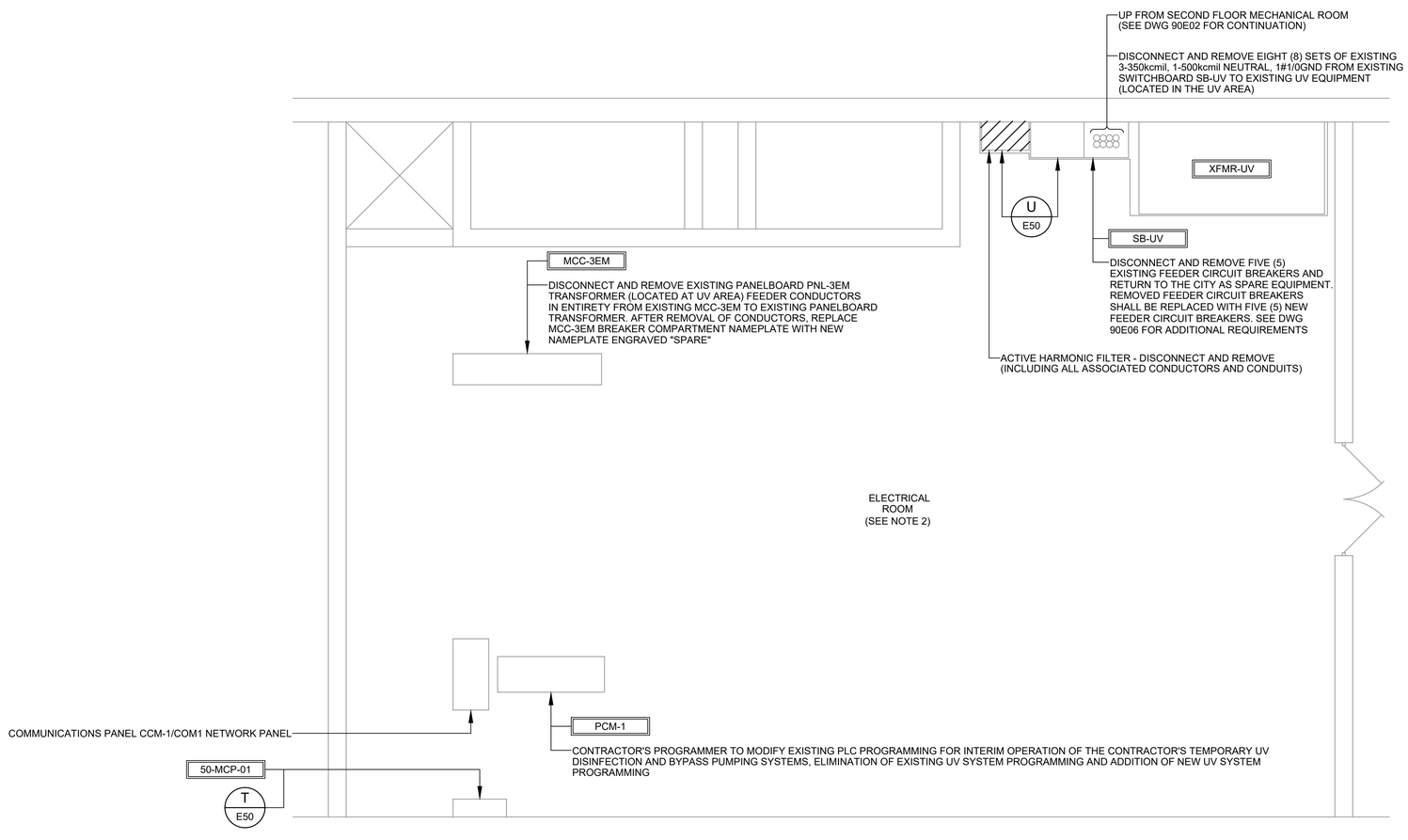
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LAST SAVED BY: tbeecher

NOTES:

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. NOT ALL EXISTING ELECTRICAL EQUIPMENT SHOWN FOR CLARITY.

LEGEND

DISCONNECT AND REMOVE



C FLOOR PLAN
SCALE: 1/4" = 1'-0"
FILE: 201447_90E03

Beecher Engineering, Inc.

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UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
PLANT MAIN STRUCTURE THIRD FLOOR - DEMOLITION PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

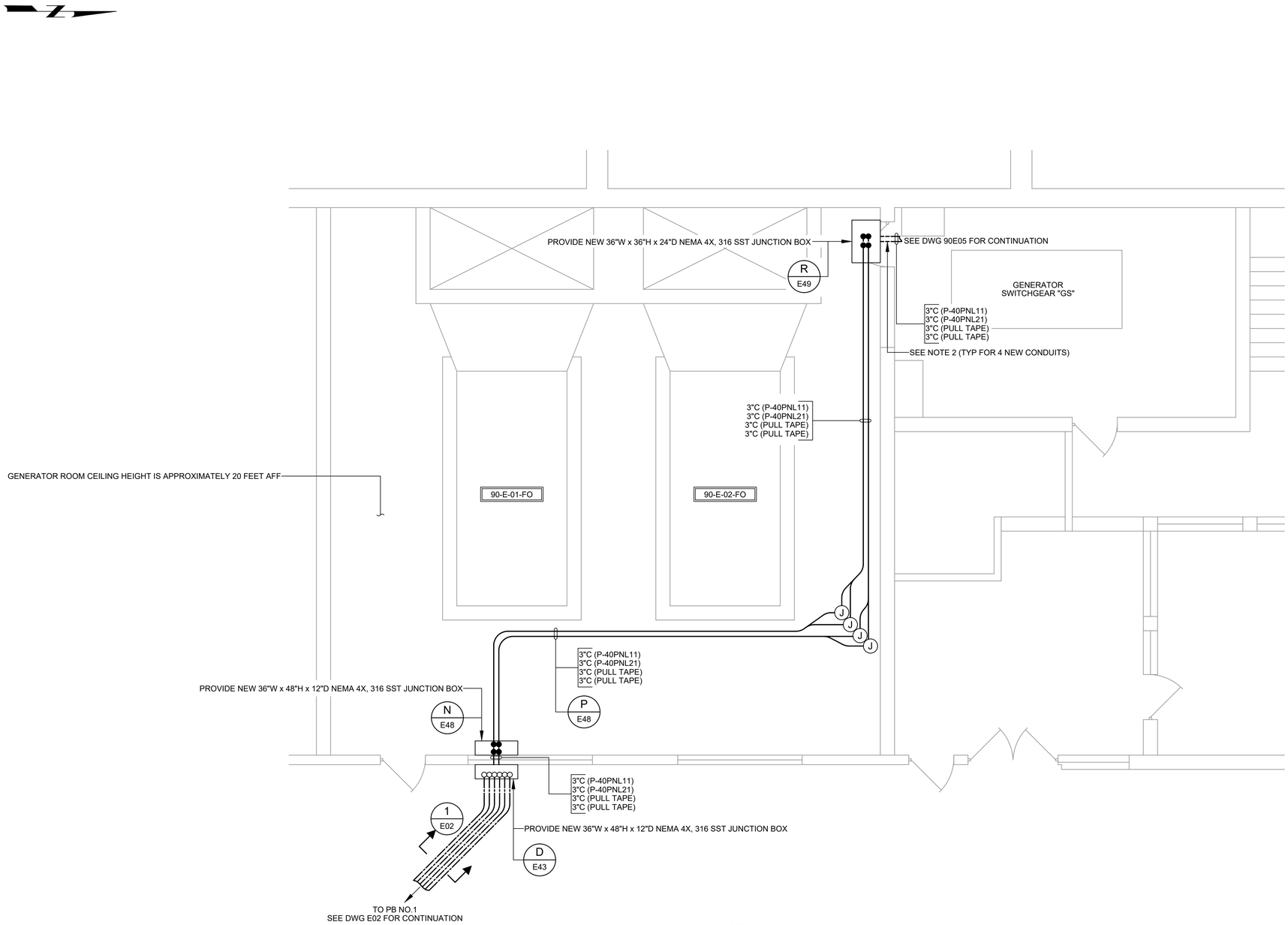
JOB NO. 201447
DRAWING NO. 90E03
SHEET NO. 61 OF 79

PROJECT NO. 201447 FILE NAME: 201447_90E03.dwg

PLOT DATE: 3/15/2024 4:24:14 AM
USER: BEI
COLOR TABLE:CAROLLO_STD_F_V0909.CTB
PAGE SETUP: ---- PLOT SCALE:1:1
LAST SAVED BY: tbeecher

NOTES:

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. CORE DRILL WALL FOR INSTALLATION OF NEW CONDUITS. AFTER INSTALLATION, SEAL AROUND CONDUITS WITH NON-SHRINK GROUT (BOTH SIDES OF WALL).



D FLOOR PLAN

SCALE: 1/4" = 1'-0"
FILE: 201447_90E01

Beecher Engineering, Inc.

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DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER TODD A. BEECHER E014712 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
3/20/2024

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UV DISINFECTION SYSTEM REPLACEMENT

ELECTRICAL

PLANT MAIN STRUCTURE FIRST FLOOR - MODIFICATION PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

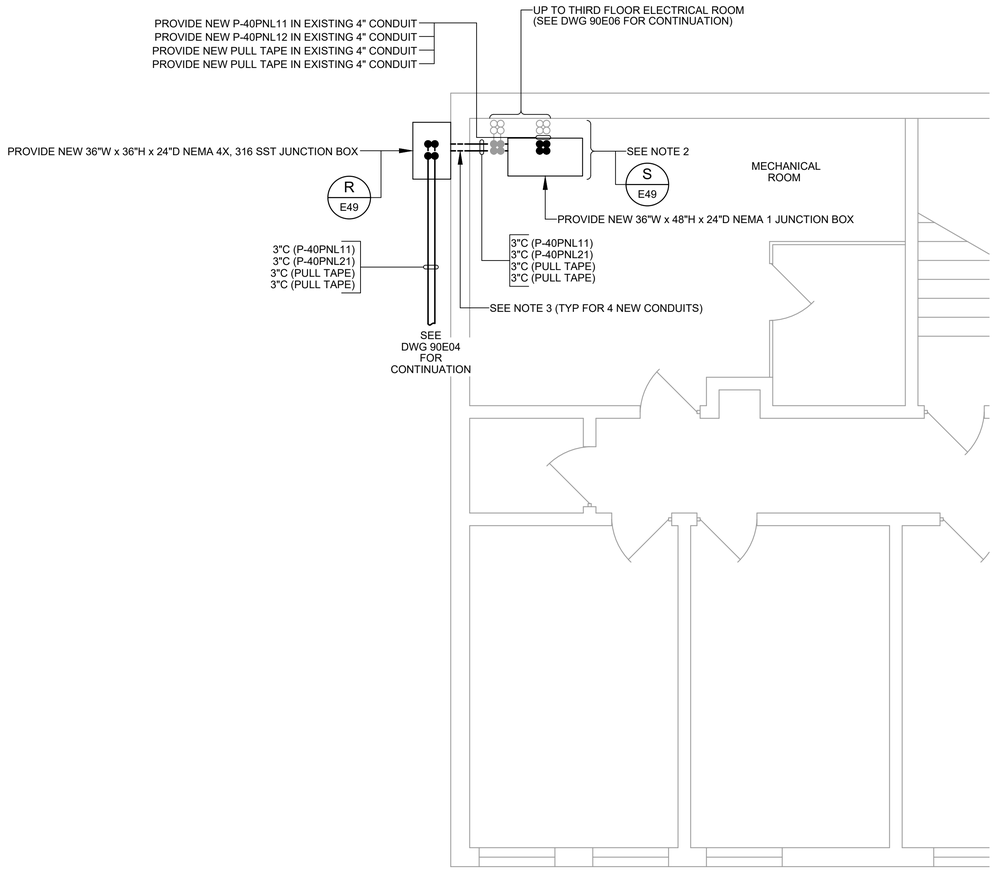
JOB NO. 201447
DRAWING NO. 90E04
SHEET NO. 62 OF 79

PROJECT NO. 201447 FILE NAME: 201447_90E04.dwg

PLOT DATE: 3/15/2024 4:24:33 AM
USER: BEI
COLOR TABLE:CAROLLO_STD_F_V0905.CTB
PLOT SCALE:1:1
PAGE SETUP: ----
LAST SAVED BY: tbeecher

NOTES:

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. CONNECT FOUR (4) 4-INCH CONDUITS (FROM SB-UV ABOVE) TO TOP OF NEW JUNCTION BOX FOR ROUTING OF NEW CONDUCTORS AND PULL TAPE.
3. CORE DRILL WALL FOR INSTALLATION OF NEW CONDUITS. AFTER INSTALLATION, SEAL AROUND CONDUITS WITH NON-SHRINK GROUT (BOTH SIDES OF WALL).



E FLOOR PLAN
SCALE: 1/4" = 1'-0"
FILE: 201447_90E02

Beecher Engineering, Inc.

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DATE MARCH 2024

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E014712
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UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
PLANT MAIN STRUCTURE SECOND FLOOR - MODIFICATION PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

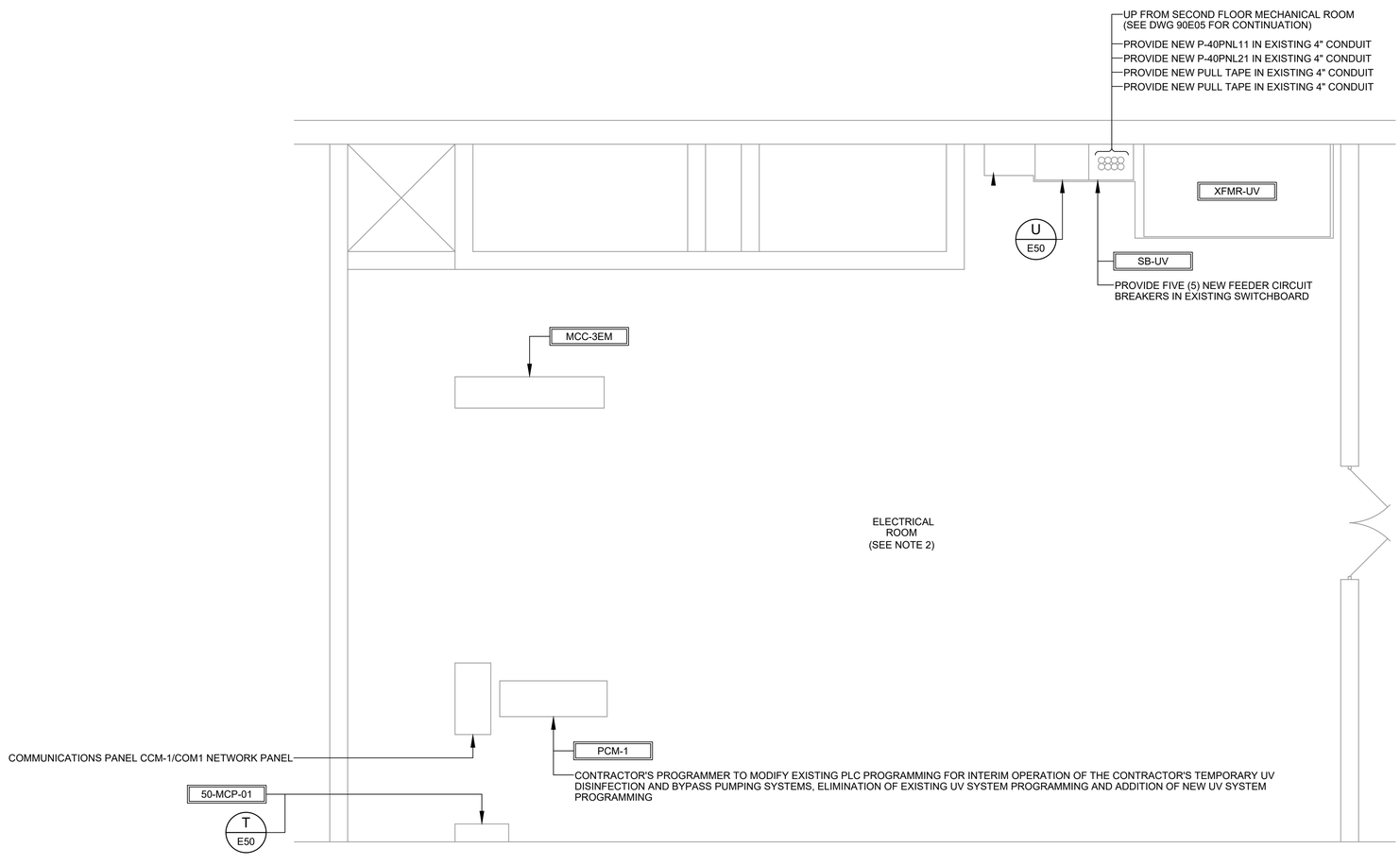
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DRAWING NO. 90E05
SHEET NO. 63 OF 79

PROJECT NO. 201447 FILE NAME: 201447_90E05.dwg

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LAST SAVED BY: tbeecher

NOTES:

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. NOT ALL EXISTING ELECTRICAL EQUIPMENT SHOWN FOR CLARITY.



F FLOOR PLAN

SCALE: 1/4" = 1'-0"
FILE: 201447_90E06

Beecher Engineering, Inc.

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DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
TODD A. BEECHER
E014712
Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
3/20/2024

carollo®

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
ELECTRICAL
PLANT MAIN STRUCTURE THIRD FLOOR - MODIFICATION PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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JOB NO. 201447
DRAWING NO. 90E06
SHEET NO. 64 OF 79

PROJECT NO. 201447 FILE NAME: 201447_90E06.dwg

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PAGE SETUP: ----
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FLOW PRIMARY ELEMENTS

- ORIFICE PLATE
- SINGLE PORT PITOT TUBE OR PITOT-VENTURI TUBE
- VENTURI TUBE
- AVERAGING PITOT TUBE
- FLUME
- WEIR
- TURBINE OR PROPELLER-TYPE PRIMARY ELEMENT
- THERMAL MASS FLOWMETER (TH)
- POSITIVE DISPLACEMENT TYPE FLOW TOTALIZING INDICATOR
- VORTEX SENSOR
- TARGET TYPE SENSOR
- FLOW NOZZLE
- MAGNETIC FLOWMETER (M)
- SONIC FLOWMETER
- ROTAMETER (FE, -)
- EDUCTOR
- FLAME ARRESTOR (F)

LINES

- MAIN PROCESS, NEW
- MAIN PROCESS, EXISTING
- SECONDARY PROCESS
- 40N01 (A) — LINE CONTINUATION REFERENCE; DRAWING DESTINATION REFERENCE
- 20" MS — PIPE SYSTEM; PIPE SIZE IN INCHES
- HARDWIRED ELECTRICAL SIGNAL
- SOFTWARE OR DATALINK
- PNEUMATIC
- HYDRAULIC
- CAPILLARY TUBE
- ELECTROMAGNETIC OR SONIC (GUIDED)

INSTRUMENT SERVICES

AS	INSTRUMENT AIR SUPPLY
120V	POWER SUPPLY (VOLTAGE INDICATED)

VALVES

- GATE VALVE
- GLOBE VALVE
- PLUG VALVE
- CHECK VALVE
- PINCH VALVE
- DIAPHRAGM VALVE
- BUTTERFLY VALVE
- BALL VALVE
- NEEDLE VALVE
- PLUG (COCK)
- PRESSURE REDUCING REGULATING VALVE, SELF-CONTAINED
- BACK PRESSURE REGULATING VALVE, SELF-CONTAINED
- PRESSURE REDUCING REGULATOR WITH EXTERNAL PRESSURE TAP
- 3-WAY VALVE
- 4-WAY VALVE
- ANGLE VALVE
- PRESSURE RELIEF VALVE
- FC = FAIL CLOSED; FO = FAIL OPEN; LC = LOCKED CLOSED; LO = LOCKED OPEN
- CLOSED DURING NORMAL OPERATION
- AV — AIR RELIEF VALVE
- TEMPERATURE CONTROL VALVE
- DUCKBILL VALVE
- BALL CHECK VALVE

VALVE OPERATORS

- DIAPHRAGM
- DIAPHRAGM PRESSURE BALANCED
- M — MOTOR
- CYLINDER OPERATOR
- SV — SOLENOID VALVE

MISCELLANEOUS

- FLANGE
- UNION
- Y STRAINER
- FLOW STRAIGHTENING VANE
- TEE
- SCREWED CAP
- WELDED CAP
- BLIND FLANGE
- REDUCER
- EXPANSION JOINT
- FLEXIBLE COUPLING
- FLANGED COUPLING ADAPTER
- SLUICE GATE OR SLIDE GATE
- DRAIN
- DIAPHRAGM SEAL
- RUPTURE DISK, PRESSURE
- RUPTURE DISK, VACUUM
- THERMOMETER WELL
- CALIBRATION CYLINDER
- PULSATION DAMPER
- AIR RELIEF VALVE
- AIR RELEASE
- CAP
- HOSE QUICK DISCONNECT FITTING
- DUPLEX BASKET STRAINER

EQUIPMENT

- ULTRAVIOLET DISINFECTION SYSTEM LAMP BANK
- LE — RADAR LEVEL ELEMENT

P&ID INSTRUMENT IDENTIFICATION

	FIRST-LETTER: MEASURED OR INITIATING VARIABLE	FIRST-LETTER: MODIFIER	SUCCEEDING-LETTERS: READOUT OR PASSIVE FUNCTION	SUCCEEDING-LETTERS: OUTPUT FUNCTION	SUCCEEDING-LETTERS: MODIFIER
A	ANALYSIS/ANALOG		ALARM		
B	BURNER, COMBUSTION SMOKE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONTROL			COMMAND/ CONTROLLER	CLOSED
D	DENSITY/DIGITAL	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIM ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELEC)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE	MOMENTARY			MIDDLE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION/RATIO		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (COMMON)		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECH ANALYSIS			VALVE, DAMPER LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR	

P&ID SYMBOLS

- FIELD-MOUNTED DEVICE OR INSTRUMENT
- DEVICE LOCATED AT CONTROL PANEL
- CONTROL FUNCTION OR DISPLAY AT MOTOR CONTROL CENTER
- GRAPHICAL FUNCTION OR DISPLAY AT SCADA HMI OR OIS
- I — HARDWIRED LOGIC INTERLOCK
- I — PROGRAMMED SOFTWARE LOGIC INTERLOCK
- △ DISCRETE SIGNAL INPUT
- ▽ DISCRETE SIGNAL OUTPUT
- ▲ 4-20mA ANALOG SIGNAL INPUT
- ▼ 4-20mA ANALOG SIGNAL OUTPUT

ABBREVIATIONS

(E)	EXISTING
FTS	FAIL TO START
GPM	GALLONS PER MINUTE
HIM	HUMAN INTERFACE MODULE
HMI	HUMAN-MACHINE INTERFACE SCREEN
HOA	HAND-OFF-AUTO
LOC	LOCAL
LOR	LOCAL-OFF-REMOTE
LOS	LOCKOUT STOP
LR	LOCAL-REMOTE
MCC	MOTOR CONTROL CENTER
MGD	MILLIONS OF GALLONS PER DAY
(N)	NEW
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	OPEN/CLOSE
OIS	OPERATOR INTERFACE STATION
OL	OVERLOAD
PLC	PROGRAMMABLE LOGIC CONTROLLER
RST	RESET
RTU	REMOTE TERMINAL UNIT
SD	SMOKE DETECTOR
SS	START/STOP
SV	SOLENOID VALVE
TEMP	TEMPERATURE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
VCP	VENDOR CONTROL PANEL
VFD	VARIABLE FREQUENCY DRIVE

GENERAL NOTES:

1. A "FAIL TO START" ALARM SHALL BE PROGRAMMED AT SCADA TO BE ACTIVATED AFTER AN ADJUSTABLE TIME DELAY (INITIALLY SET AT 5 SECONDS) FOLLOWING A SCADA "START" COMMAND HAS BEEN ISSUED AND A "RUNNING" FEEDBACK SIGNAL HAS NOT BEEN RECEIVED.
2. SEE ELECTRICAL SCHEMATIC DIAGRAMS AND SPECIFICATIONS FOR ADDITIONAL CONTROL SYSTEM REQUIREMENTS.

Beecher Engineering, Inc.

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3/20/2024

carollo®

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
INSTRUMENTATION
LEGEND AND GENERAL NOTES

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JOB NO. 201447
DRAWING NO. N01
SHEET NO. 65 OF 79

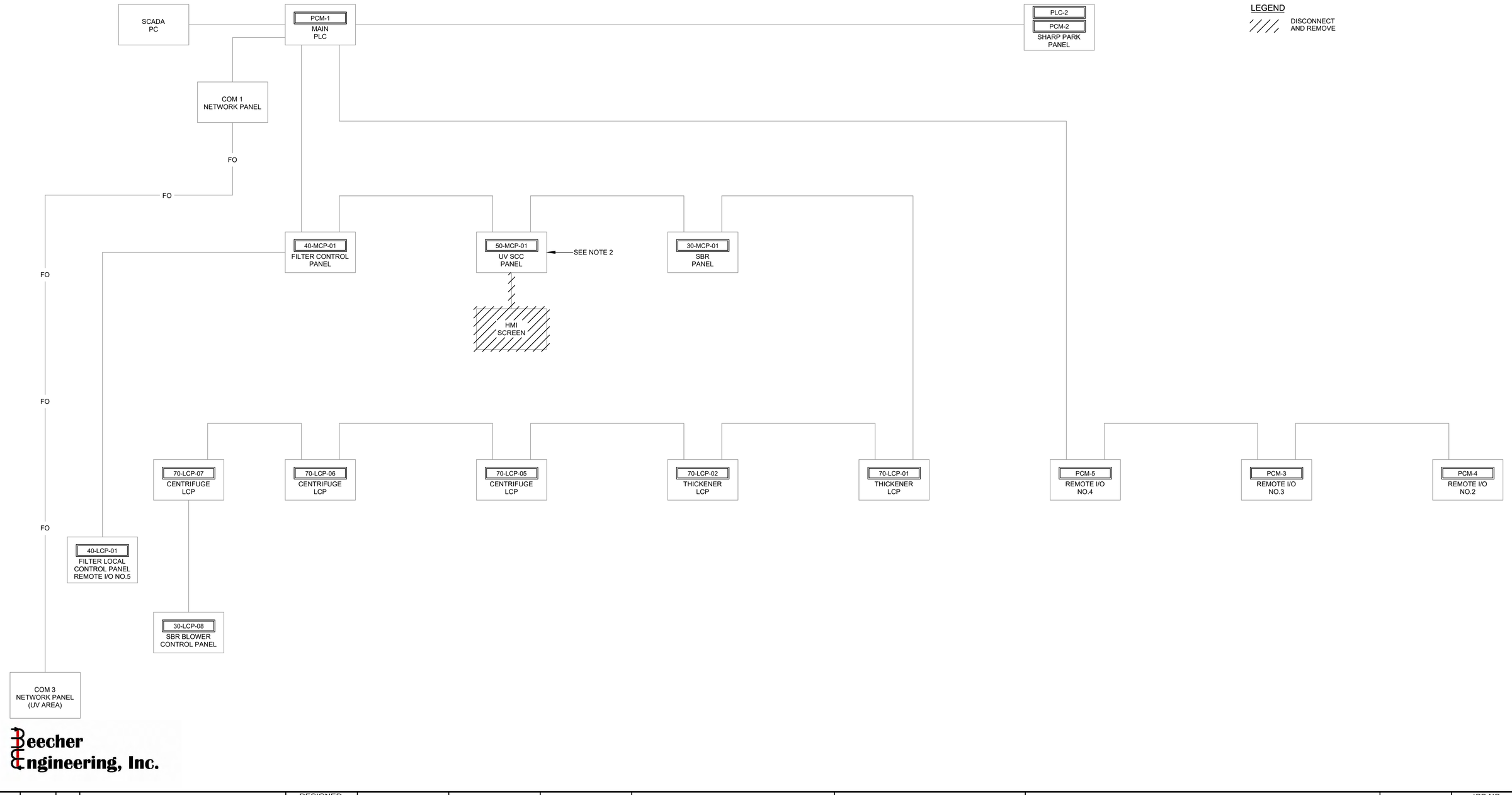
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NOTES

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. EXISTING 50-MCP-01 PANEL AND INTERNAL PLC EQUIPMENT SHALL REMAIN. CONTRACTOR'S PROGRAMMER SHALL MODIFY EXISTING PLC PROGRAMMING AND EXISTING PLANT SCADA PROGRAMMING TO REFLECT ELIMINATION OF EXISTING UV DISINFECTION EQUIPMENT, 50-MCP-01 HMI AND ASSOCIATED EXISTING EQUIPMENT CONTROL SYSTEM.

LEGEND

DISCONNECT AND REMOVE



Beecher Engineering, Inc.

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CITY OF PACIFICA

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UV DISINFECTION SYSTEM REPLACEMENT

INSTRUMENTATION

PLANT SCADA COMMUNICATION - DEMOLITION

VERIFY SCALES
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JOB NO. 201447
DRAWING NO. N11
SHEET NO. 66 OF 79

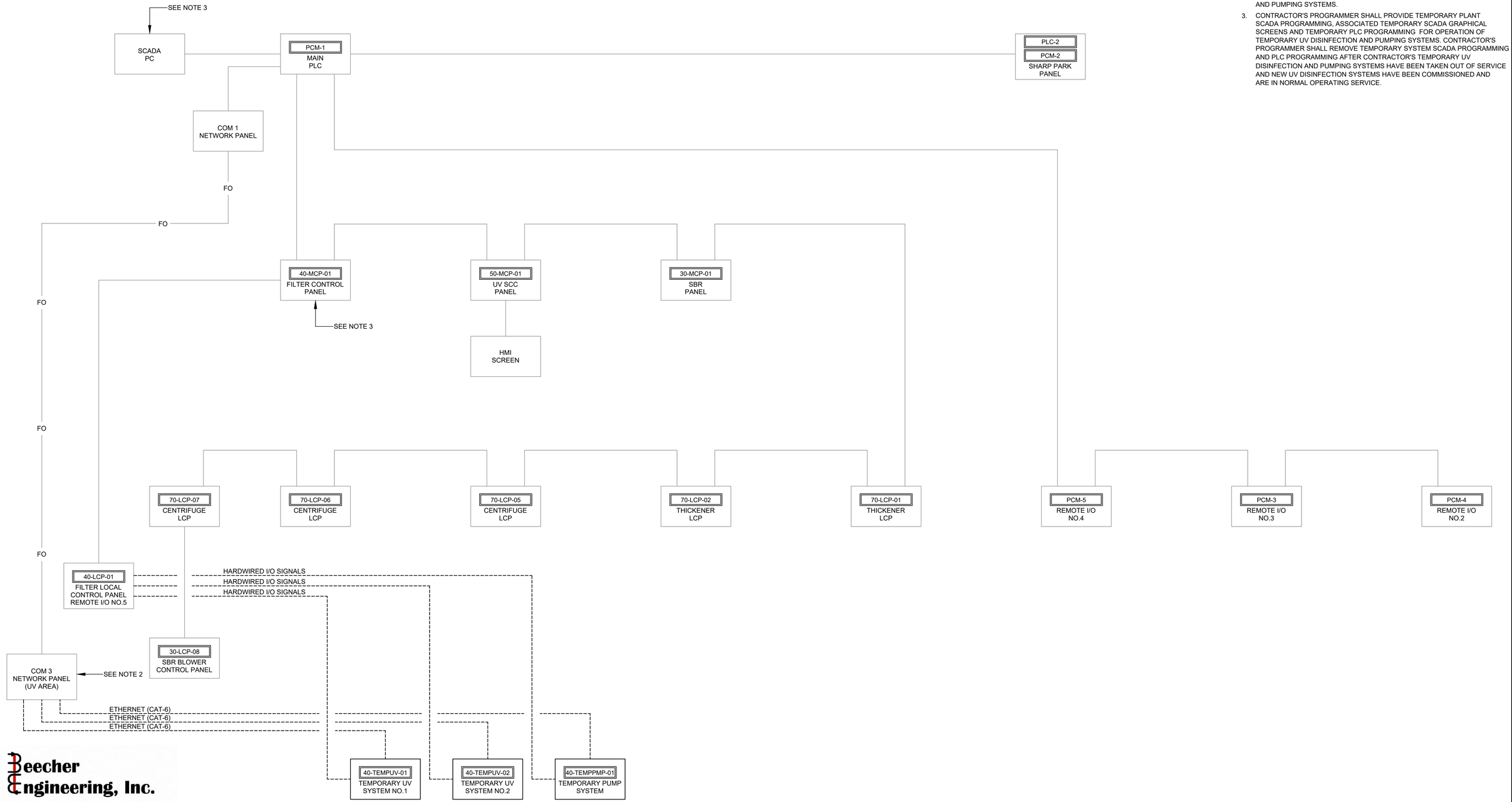
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LAST SAVED BY: tbeecher

NOTES

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. EXISTING ALLEN-BRADLEY STRATIX ETHERNET SWITCH (LOCATED INSIDE OF EXISTING COM3 PANEL) IS NOT CONFIGURED. CONTRACTOR'S PROGRAMMER SHALL CONFIGURE SWITCH FOR OPERATION AND AND COMMUNICATION WITH EXISTING PLANT SCADA SYSTEM PRIOR TO START-UP AND COMMISSIONING OF TEMPORARY UV DISINFECTION AND PUMPING SYSTEMS.
3. CONTRACTOR'S PROGRAMMER SHALL PROVIDE TEMPORARY PLANT SCADA PROGRAMMING, ASSOCIATED TEMPORARY SCADA GRAPHICAL SCREENS AND TEMPORARY PLC PROGRAMMING FOR OPERATION OF TEMPORARY UV DISINFECTION AND PUMPING SYSTEMS. CONTRACTOR'S PROGRAMMER SHALL REMOVE TEMPORARY SYSTEM SCADA PROGRAMMING AND PLC PROGRAMMING AFTER CONTRACTOR'S TEMPORARY UV DISINFECTION AND PUMPING SYSTEMS HAVE BEEN TAKEN OUT OF SERVICE AND NEW UV DISINFECTION SYSTEMS HAVE BEEN COMMISSIONED AND ARE IN NORMAL OPERATING SERVICE.



Beecher Engineering, Inc.

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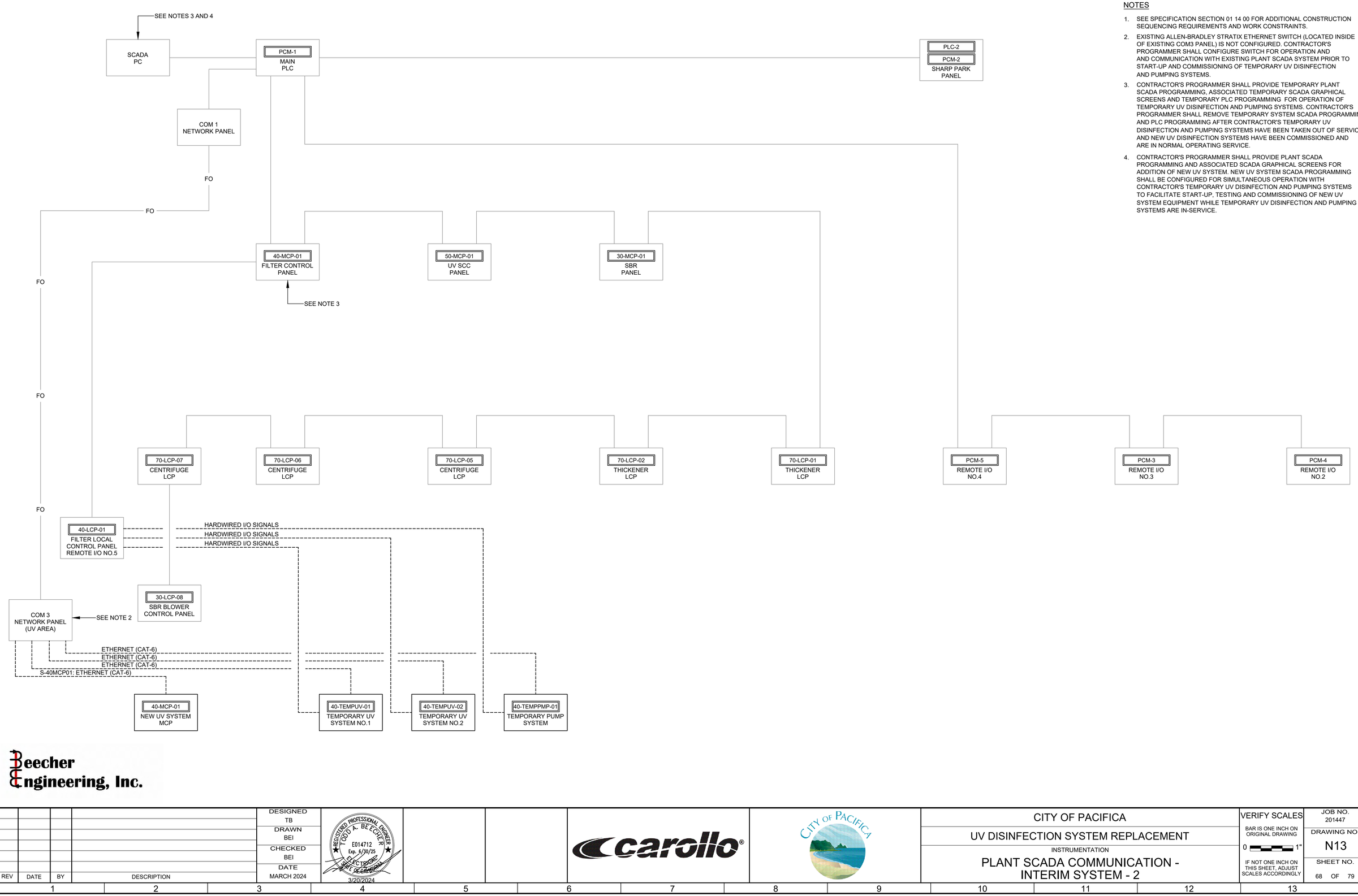
CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
INSTRUMENTATION
PLANT SCADA COMMUNICATION - INTERIM SYSTEM - 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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JOB NO. 201447
DRAWING NO. N12
SHEET NO. 67 OF 79

PROJECT NO. 201447 FILE NAME: 201447_N12.dwg



NOTES

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. EXISTING ALLEN-BRADLEY STRATIX ETHERNET SWITCH (LOCATED INSIDE OF EXISTING COM3 PANEL) IS NOT CONFIGURED. CONTRACTOR'S PROGRAMMER SHALL CONFIGURE SWITCH FOR OPERATION AND AND COMMUNICATION WITH EXISTING PLANT SCADA SYSTEM PRIOR TO START-UP AND COMMISSIONING OF TEMPORARY UV DISINFECTION AND PUMPING SYSTEMS.
3. CONTRACTOR'S PROGRAMMER SHALL PROVIDE TEMPORARY PLANT SCADA PROGRAMMING, ASSOCIATED TEMPORARY SCADA GRAPHICAL SCREENS AND TEMPORARY PLC PROGRAMMING FOR OPERATION OF TEMPORARY UV DISINFECTION AND PUMPING SYSTEMS. CONTRACTOR'S PROGRAMMER SHALL REMOVE TEMPORARY SYSTEM SCADA PROGRAMMING AND PLC PROGRAMMING AFTER CONTRACTOR'S TEMPORARY UV DISINFECTION AND PUMPING SYSTEMS HAVE BEEN TAKEN OUT OF SERVICE AND NEW UV DISINFECTION SYSTEMS HAVE BEEN COMMISSIONED AND ARE IN NORMAL OPERATING SERVICE.
4. CONTRACTOR'S PROGRAMMER SHALL PROVIDE PLANT SCADA PROGRAMMING AND ASSOCIATED SCADA GRAPHICAL SCREENS FOR ADDITION OF NEW UV SYSTEM. NEW UV SYSTEM SCADA PROGRAMMING SHALL BE CONFIGURED FOR SIMULTANEOUS OPERATION WITH CONTRACTOR'S TEMPORARY UV DISINFECTION AND PUMPING SYSTEMS TO FACILITATE START-UP, TESTING AND COMMISSIONING OF NEW UV SYSTEM EQUIPMENT WHILE TEMPORARY UV DISINFECTION AND PUMPING SYSTEMS ARE IN-SERVICE.

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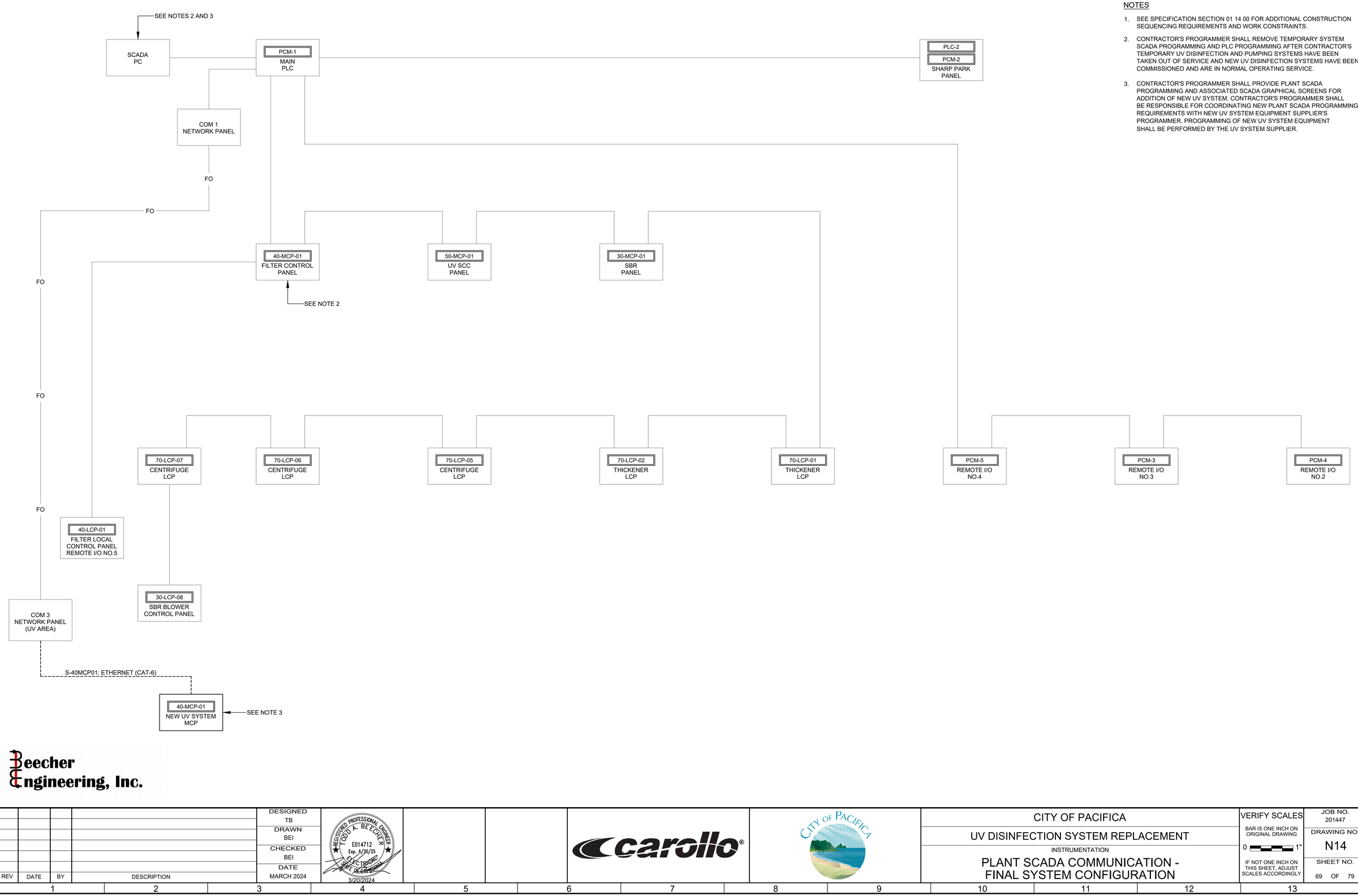
CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
INSTRUMENTATION
PLANT SCADA COMMUNICATION - INTERIM SYSTEM - 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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JOB NO. 201447
DRAWING NO. N13
SHEET NO. 68 OF 79

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NOTES

1. SEE SPECIFICATION SECTION 01 14 00 FOR ADDITIONAL CONSTRUCTION SEQUENCING REQUIREMENTS AND WORK CONSTRAINTS.
2. CONTRACTOR'S PROGRAMMER SHALL REMOVE TEMPORARY SYSTEM SCADA PROGRAMMING AND PLC PROGRAMMING AFTER CONTRACTOR'S TEMPORARY UV DISINFECTION AND PUMPING SYSTEMS HAVE BEEN TAKEN OUT OF SERVICE AND NEW UV DISINFECTION SYSTEMS HAVE BEEN COMMISSIONED AND ARE IN NORMAL OPERATING SERVICE.
3. CONTRACTOR'S PROGRAMMER SHALL PROVIDE PLANT SCADA PROGRAMMING AND ASSOCIATED SCADA GRAPHICAL SCREENS FOR ADDITION OF NEW UV SYSTEM. CONTRACTOR'S PROGRAMMER SHALL BE RESPONSIBLE FOR COORDINATING NEW PLANT SCADA PROGRAMMING REQUIREMENTS WITH NEW UV SYSTEM EQUIPMENT SUPPLIER'S PROGRAMMER. PROGRAMMING OF NEW UV SYSTEM EQUIPMENT SHALL BE PERFORMED BY THE UV SYSTEM SUPPLIER.

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CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
INSTRUMENTATION
PLANT SCADA COMMUNICATION - FINAL SYSTEM CONFIGURATION

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. N14
SHEET NO. 69 OF 79

PROJECT NO. 201447 FILE NAME: 201447_N14.dwg

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LAST SAVED BY: tbeecher

COM3 NETWORK PANEL/PLANT SCADA

(E) ETHERNET SWITCH

NOTES:

1. CITY-FURNISHED UV SYSTEM PACKAGE IS TROJAN UV SIGNA..

LEGEND:

*** VENDOR PACKAGE EQUIPMENT FURNISHED BY THE CITY FOR INSTALLATION BY THE CONTRACTOR

120V

VCP

40-MCP-01 ***
UV MASTER CONTROL PANEL

AIT 001 *** 120V
LYH 002
LIT 002 *** 120V

ZSO 101 ZLO 101 HS 101 LOR
ZSC 101 ZLC 101 HS 101 OSC
HS 101 RESET

ZSO 201 ZLO 201 HS 201 LOR
ZSC 201 ZLC 201 HS 201 OSC
HS 201 RESET

LOW LEVEL TO 40-PDC-21 (SEE DWG 40N03 FOR CONT)
LOW LEVEL TO 40-PDC-22 (SEE DWG 40N03 FOR CONT)
LYL 202 LIT 202 120V ***

LOW LEVEL TO 40-PDC-11 (SEE DWG 40N02 FOR CONT)
LOW LEVEL TO 40-PDC-12 (SEE DWG 40N02 FOR CONT)
LYL 102 LIT 102 120V ***

0-100% ZIC 103 ZSO 103 ZLO 103 HS 103 LOR
ZSC 103 ZLC 103 HS 103 OSC
HS 103 RESET

0-100% ZIC 203 ZSO 203 ZLO 203 HS 203 LOR
ZSC 203 ZLC 203 HS 203 OSC
HS 203 RESET

FIELD

UVT
AE 001 ***
LE 002 ***

M 480V
40-G-11-FEF ***
UV CHANNEL NO.1 INLET GATE

INLET BAFFLE PLATE

UV CHANNEL NO.1
(SEE DWG 40N02)

LE 102 ***
480V M
40-G-12-FE ***
UV CHANNEL NO.1 OUTLET WEIR GATE

FROM FILTERS
36" FEF

CLEARWELL
(TO REUSE AND DISCHARGE)

40-UV-11 UV CHANNEL NO.1 UV BANK A ***
40-UV-12 UV CHANNEL NO.1 UV BANK B ***
40-UV-13 UV CHANNEL NO.1 UV BANK C ***
40-UV-14 UV CHANNEL NO.1 UV BANK D (FUTURE)

M 480V
40-G-21-FEF ***
UV CHANNEL NO.2 INLET GATE

INLET BAFFLE PLATE

UV CHANNEL NO.2
(SEE DWG 40N03)

480V M
40-G-22-FE ***
UV CHANNEL NO.2 OUTLET WEIR GATE

LE 202 ***

40-UV-21 UV CHANNEL NO.2 UV BANK A ***
40-UV-22 UV CHANNEL NO.2 UV BANK B ***
40-UV-23 UV CHANNEL NO.2 UV BANK C ***
40-UV-24 UV CHANNEL NO.2 UV BANK D (FUTURE)

Beecher Engineering, Inc.

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3/20/2024

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CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
INSTRUMENTATION
P&ID: UV DISINFECTION OVERVIEW

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 40N01
SHEET NO. 70 OF 79

PROJECT NO. 201447 FILE NAME: 201447_40N01.dwg

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LAST SAVED BY: tbeecher

COM3 NETWORK PANEL/PLANT SCADA

NOTES:

1. CITY-FURNISHED UV SYSTEM PACKAGE IS TROJAN UV SIGNA.

LEGEND:

*** VENDOR PACKAGE EQUIPMENT FURNISHED BY THE CITY FOR INSTALLATION BY THE CONTRACTOR

VCP

40-MCP-01 ***
UV MASTER CONTROL PANEL

MODBUS 485

MODBUS 485

40-HSC-11
UV CHANNEL NO.1
HYDRAULIC
SYSTEM CENTER
***
480V

LOW LEVEL FROM LEVEL CONTROLLER
(SEE DWG 40N01 FOR CONT)

40-PDC-11
UV CHANNEL NO.1
PDC NO.1
***
480V

MODBUS 485

LOW LEVEL FROM LEVEL CONTROLLER
(SEE DWG 40N01 FOR CONT)

40-PDC-12
UV CHANNEL NO.1
PDC NO.2
***
480V

FIELD

AIT 111 ***
AIT 121 ***
AIT 131 ***
AIT 141

UV INT
AE 111 ***
UV INT
AE 121 ***
UV INT
AE 131 ***
UV INT
AE 141

BANK IN-PLACE
ZSC 112 ***
BANK IN-PLACE
ZSC 122 ***
BANK IN-PLACE
ZSC 132 ***
BANK IN-PLACE
ZSC 142

M
INLET BAFFLE PLATE
M

40-G-11-FEF
UV CHANNEL NO.1
INLET GATE
***

40-UV-11
UV CHANNEL NO.1
UV BANK A
***

40-UV-12
UV CHANNEL NO.1
UV BANK B
***

40-UV-13
UV CHANNEL NO.1
UV BANK C
***

40-UV-14
UV CHANNEL NO.1
UV BANK D
(FUTURE)

40-G-12-FE
UV CHANNEL NO.1
OUTLET WEIR GATE
***

4" D
4" D
4" D
4" D
4" D

TO
PLANT DRAIN

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION

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DRAWN BEI
CHECKED BEI
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
TODD A. BEECHER
E014712
Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
3/20/2024

carollo®

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
INSTRUMENTATION
P&ID: UV CHANNEL NO.1

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 40N02
SHEET NO. 71 OF 79

PROJECT NO. 201447 FILE NAME: 201447_40N02.dwg

PLOT DATE: 3/15/2024 4:35:04 AM
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PAGE SETUP: ----
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COM3 NETWORK PANEL/PLANT SCADA

NOTES:

1. CITY-FURNISHED UV SYSTEM PACKAGE IS TROJAN UV SIGNA.

LEGEND:

*** VENDOR PACKAGE EQUIPMENT FURNISHED BY THE CITY FOR INSTALLATION BY THE CONTRACTOR

VCP

40-MCP-01 ***
UV MASTER CONTROL PANEL

MODBUS 485

MODBUS 485

40-HSC-21
UV CHANNEL NO.2
HYDRAULIC
SYSTEM CENTER
480V
***

LOW LEVEL FROM LEVEL CONTROLLER
(SEE DWG 40N01 FOR CONT)

40-PDC-21
UV CHANNEL NO.2
PDC NO.1
480V
***

MODBUS 485

LOW LEVEL FROM LEVEL CONTROLLER
(SEE DWG 40N01 FOR CONT)

40-PDC-22
UV CHANNEL NO.2
PDC NO.2
480V
***

FIELD

AIT 211 ***
AE 211 ***
UV INT
ZSC 212 ***
BANK IN-PLACE

AIT 221 ***
AE 221 ***
UV INT
ZSC 222 ***
BANK IN-PLACE

AIT 231 ***
AE 231 ***
UV INT
ZSC 232 ***
BANK IN-PLACE

AIT 241
AE 241
UV INT
ZSC 242
BANK IN-PLACE

M
INLET BAFFLE PLATE
M

40-G-21-FEF
UV CHANNEL NO.2
INLET GATE
***

40-UV-21
UV CHANNEL NO.2
UV BANK A
***

40-UV-22
UV CHANNEL NO.2
UV BANK B
***

40-UV-23
UV CHANNEL NO.2
UV BANK C
***

40-UV-24
UV CHANNEL NO.2
UV BANK D
(FUTURE)

40-G-22-FE
UV CHANNEL NO.2
OUTLET WEIR GATE
***

4" D
4" D
4" D
4" D
4" D

TO
PLANT DRAIN

Beecher Engineering, Inc.

REV	DATE	BY	DESCRIPTION

DESIGNED TB
DRAWN BEI
CHECKED BEI
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER
TODD A. BEECHER
E014712
Exp. 6/30/25
ELECTRICAL
STATE OF CALIFORNIA
3/20/2024

carollo®

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
INSTRUMENTATION
P&ID: UV CHANNEL NO.2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. 40N03
SHEET NO. 72 OF 79

PROJECT NO. 201447 FILE NAME: 201447_40N03.dwg

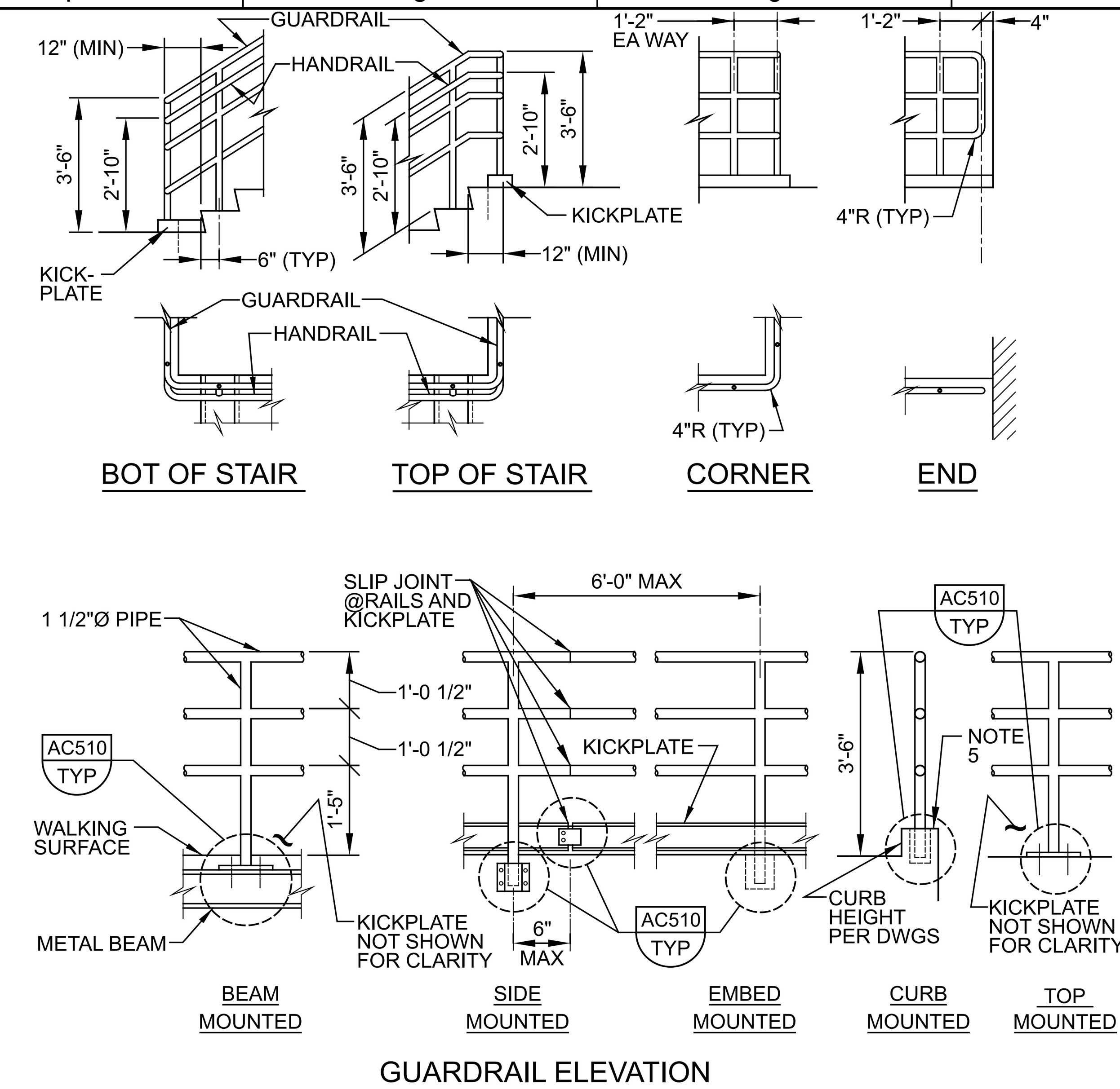
Plot Date: 13-MAR-2024 11:03:36 AM User: svcPW PlotScale: 1:1 DesignScript: Carollo_Std_Pen_v0905.pen ColorTable: gshade.ctb Model: Layout1

NOTES:

1. PROVIDE GUARDRAILS AT STAIRS AND AT OPEN SIDED WALKING SURFACES THAT ARE ELEVATED MORE THAN 30" ABOVE GRADE OR ADJACENT CONSTRUCTION.
2. WHERE EQUIPMENT IS LOCATED LESS THAN 10' FROM EDGE OF ROOF AND ELEVATED MORE THAN 30" ABOVE GRADE OR ADJACENT CONSTRUCTION, PROVIDE 42" HIGH GUARDRAIL FORMING A PROTECTIVE BARRIER. PARAPET WALL 42" OR MORE IN HEIGHT MAY BE THE GUARDRAIL AT ROOF LOCATIONS.
3. SEE DRAWINGS AND SPECIFICATIONS FOR GUARDRAIL MATERIAL TYPE(S).
4. PROVIDE HANDRAIL AT BOTH SIDES OF EVERY STAIR HAVING 2 OR MORE RISERS.
5. PROVIDE CONTINUOUS HANDRAIL GRIPPING SURFACES FOR THE FULL LENGTH OF THE STAIR.
6. PROVIDE HANDRAIL EXTENSIONS AT BOTH SIDES OF STAIRS AT TOP AND BOTTOM. HANDRAIL EXTENSION ON STAIR MOUNTED GUARDRAIL MAY BE OMITTED WHERE IT IS PERPENDICULAR TO AND IMPEDES EXIT FLOW.
7. MAKE INSIDE HANDRAIL ON SWITCHBACK STAIRS CONTINUOUS.
8. FOR WALL MOUNTED HANDRAILS, PROVIDE SINGLE RAIL WITH TOP OF RAIL AT 2'-10" HEIGHT ABOVE LANDINGS OR TREAD NOSINGS. PROVIDE MATCHING HANDRAIL ON OPPOSITE SIDE.
9. GUARDRAIL SHALL BE FIXED UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
10. PLACE CENTER OF EMBEDDED POSTS 6" FROM EDGE OF CONCRETE AND 6" FROM FRONT EDGE OF CONCRETE STAIR NOSINGS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
11. PLACE GUARDRAIL POSTS OPPOSITE EACH OTHER WHERE RAILINGS ARE PARALLEL.
12. FOR GUARDRAIL POSTS MOUNTED TO BEAM OR STAIR CHANNEL, PROVIDE MANUFACTURERS REINFORCED CONNECTION FROM POST TO PLATE. PLATE AND REINFORCED INSERTS SHALL BE ALUMINUM OR STAINLESS STEEL.
13. PROVIDE SLIDING JOINTS AT 24' MAX SPACING FOR EXPANSION OF RAIL AND KICKPLATE. LOCATE SLIDING JOINTS NEAR FACE OF POST. GAP AT TIME OF INSTALLATION SHALL BE BASED ON TEMPERATURE OF GUARDRAIL. PROVIDE 1/4" GAP AT 100°F AND 5/8" GAP AT 0°F. INTERPOLATE GAP FOR OTHER INSTALLATION TEMPERATURES. AT CONCRETE EXPANSION JOINTS, PROVIDE MINIMUM 1" GAP IN SLIDING JOINTS BUT NOT LESS THAN WIDTH OF CONCRETE EXPANSION JOINT. MAKE INSERT SLEEVES IN RAILS LONG ENOUGH TO ALLOW FOR THE FULL RANGE OF MOVEMENT.
14. MATERIAL FOR KICKPLATE CHANNEL SLIDING JOINT PLATES, SHALL BE OF THE SAME MATERIAL AS THE GUARDRAIL.
15. JOINTS FOR STAINLESS STEEL GUARDRAIL AND HANDRAIL SHALL BE COPED, WELDED, AND GROUND SMOOTH.
16. PROVIDE KICKPLATE AT ALL LOCATIONS EXCEPT AT SLOPING GUARDRAIL ON STAIRS AND WHERE GUARDRAIL IS MOUNTED ON A 4" MIN CURB. KICKPLATE MAY BE EXTRUDED OR BENT PLATE AND SHALL BE ATTACHED WITH SST BOLTS IN 5/16" x 3/4" SLOTTED HOLES. BOLT KICKPLATE TO POST WITH BOTTOM 1/4" CLEAR ABOVE FLOOR. FOR SIDE MOUNTED GUARDRAIL, PROVIDE STANDARD SPACER BLOCK BETWEEN POST AND KICKPLATE TO MAINTAIN 1/4" MAX CLEAR SPACING. HAND TIGHTEN AND CENTER PUNCH BOLT THREADS TO LOCK.
17. COAT SURFACES OF ALUMINUM IN CONTACT WITH CONCRETE AS SPECIFIED. PROVIDE NEOPRENE GASKET BETWEEN ALUMINUM AND STEEL.

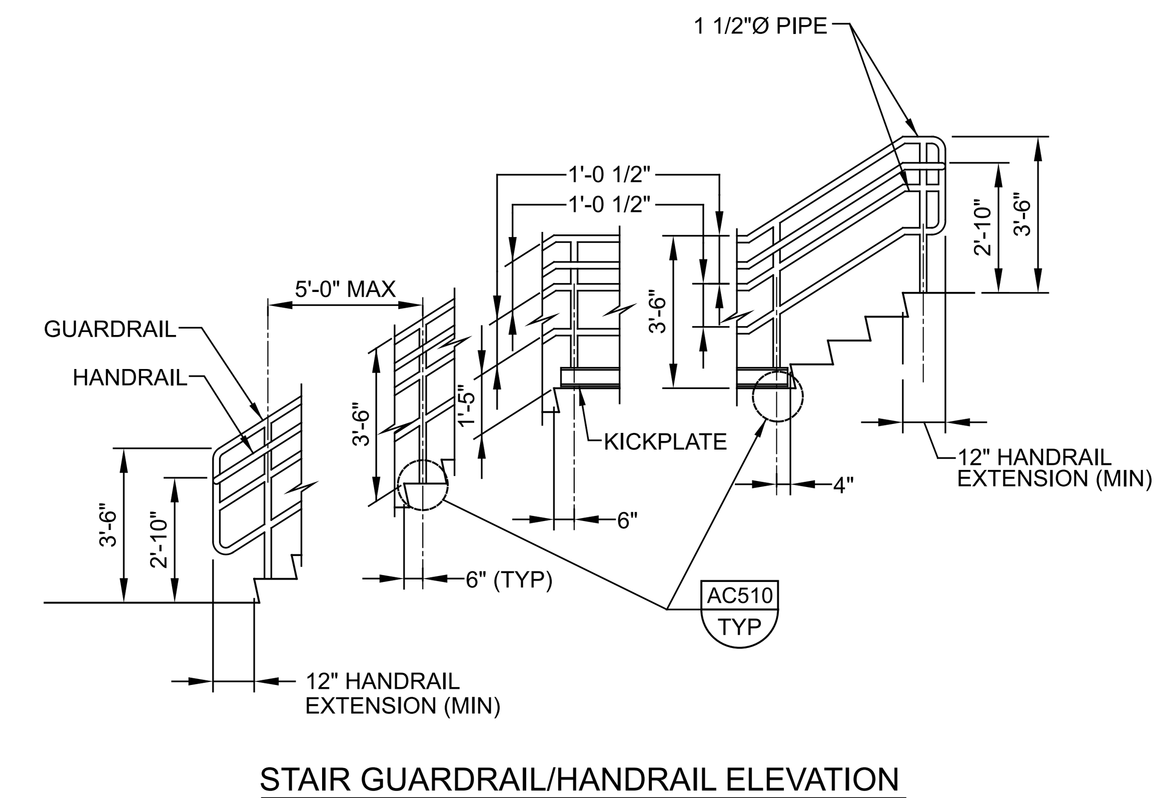
AC500 TYP GUARDRAIL - HANDRAIL - NOTES

NS 06/21/19



AC504 TYP GUARDRAIL - THREE RAIL

NS SHEET 1 OF 3 06/21/19

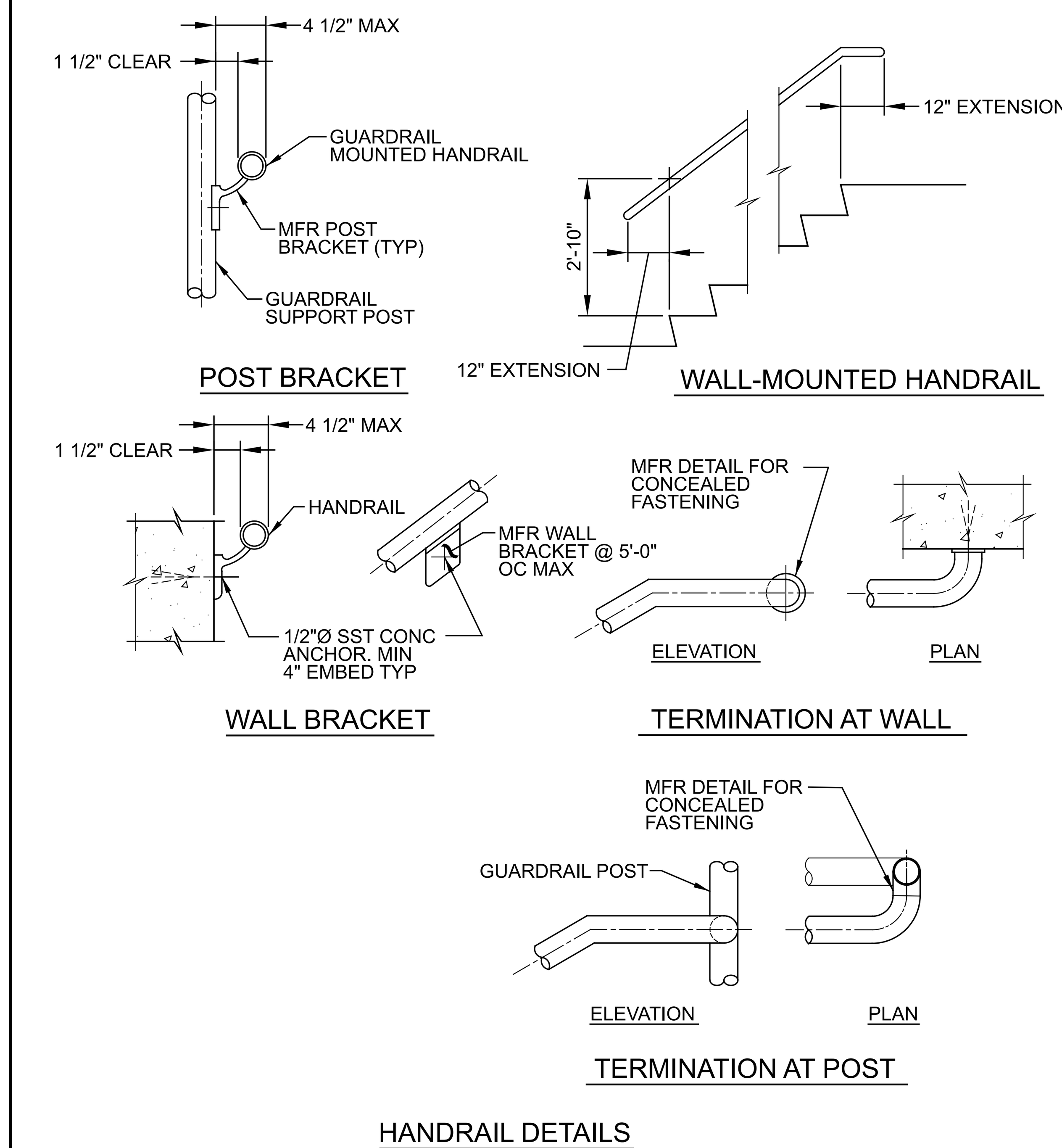


NOTES:

1. THIS DETAIL IS APPLICABLE AT PRIVATE STAIRS IN F, H, AND S OCCUPANCIES WHERE OPERATOR ONLY ACCESS IS REQUIRED. DETAILS AND INSTALLATION SHALL COMPLY WITH THE BUILDING CODE.
2. SEE SPECIFICATIONS AND DETAIL AC500/TYP FOR ADDITIONAL REQUIREMENTS.
3. VARIOUS POST MOUNTING DETAILS ARE ILLUSTRATED. SEE DRAWINGS AND DETAIL AC510/TYP FOR SPECIFIC MOUNTING REQUIREMENTS.
4. HANDRAIL EXTENSIONS ARE REQUIRED ON BOTH SIDES OF STAIR, EXCEPT WHERE INSIDE HANDRAIL IS CONTINUOUS AT SWITCHBACK STAIR.
5. AT CURB, USE EMBEDDED OR TOP MOUNTED POST AS INDICATED ON THE DRAWINGS.

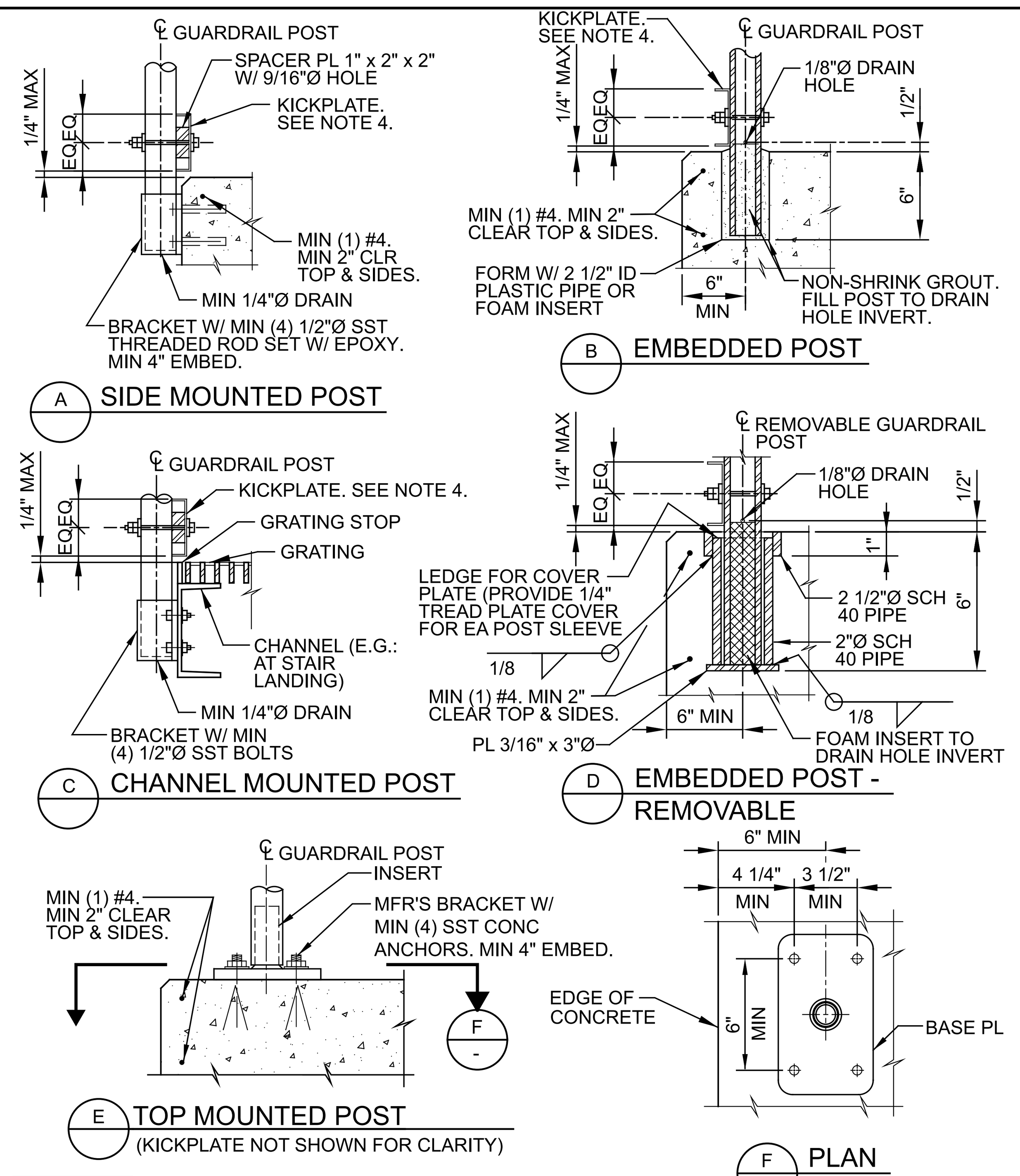
AC504 TYP GUARDRAIL - THREE RAIL

NS SHEET 2 OF 3 06/21/19



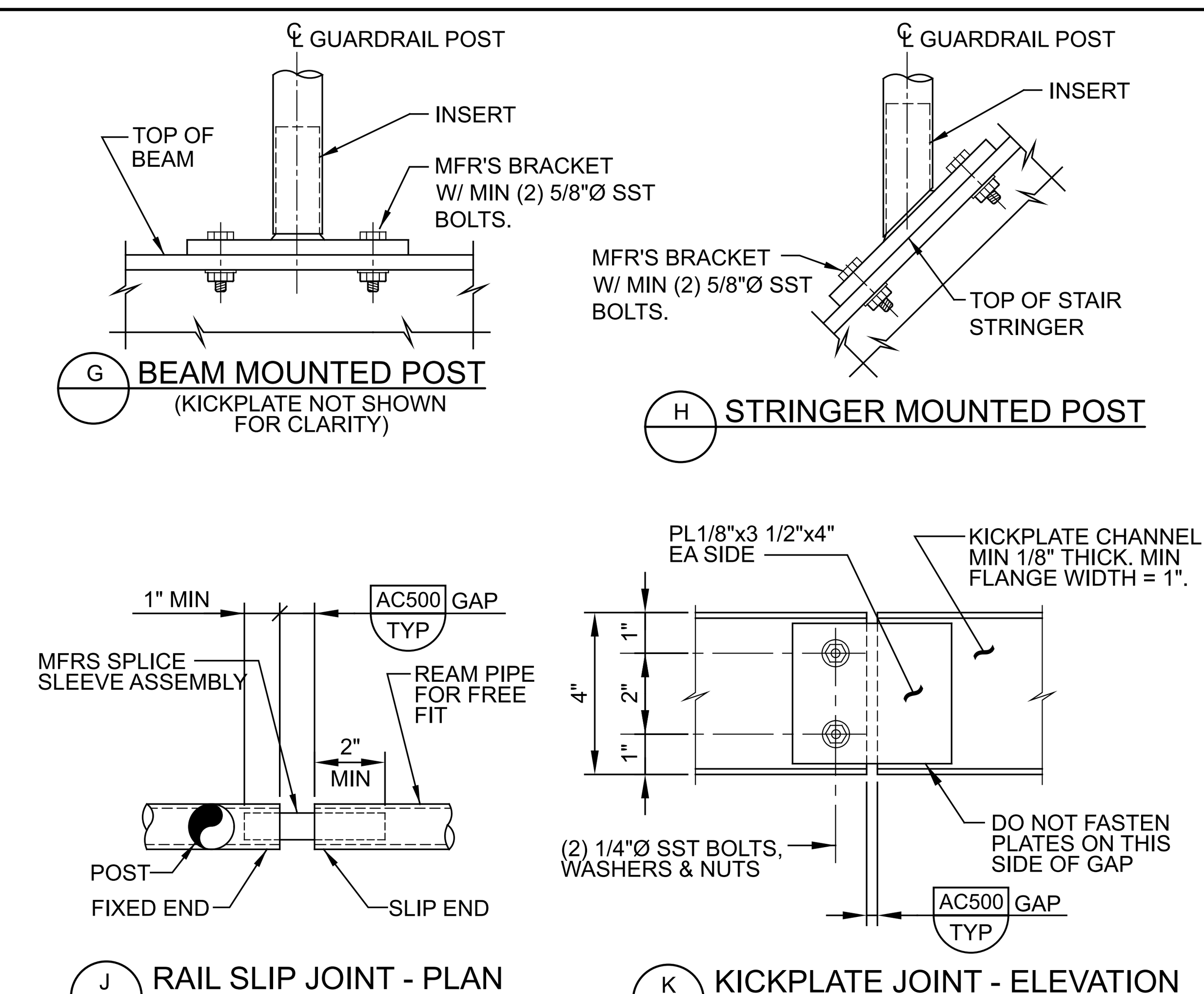
AC504 TYP GUARDRAIL - THREE RAIL

NS SHEET 3 OF 3 06/21/19



AC510 TYP GUARDRAIL - MOUNTING

NS SHEET 1 OF 2 06/21/19



NOTES:

1. FOR ADDITIONAL REQUIREMENTS, SEE DETAIL AC500/TYP.
2. SEE DRAWINGS FOR MATERIAL TYPES.
3. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR DISSIMILAR METALS AS SPECIFIED.
4. KICKPLATE CONNECTION AT POST: MIN 3/4" HORIZONTAL SLOTTED HOLE IN CHANNEL W/ MIN 1/4"Ø BOLT. PROVIDE WASHER AND DOUBLE NUTS. INSIDE NUT FINGER-TIGHT TO PERMIT EXPANSION AND CONTRACTION.

AC510 TYP GUARDRAIL - MOUNTING

NS SHEET 2 OF 2 06/21/19

REV	DATE	BY	DESCRIPTION

DESIGNED CE
DRAWN CE
CHECKED MED
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER ALEXANDER R. LAMB No. 92482 CIVIL STATE OF CALIFORNIA

Digitally signed by Alexander R. Lamb
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 09:46:44-05'00'

carollo®

CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
TYPICAL DETAILS
ARCHITECTURAL 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. TA01
SHEET NO. 73 OF 79

LAST SAVED BY: gleal

PROJECT NO. 201447-100000 FILE NAME: 201447TA01.dgn

S101 REINFORCED CONCRETE NOTES (TYP) — SHEET 1 OF 3 — 03/12/19

1. SEE DIVISION 03 SPECIFICATION FOR REQUIREMENTS FOR CONCRETE CONSTRUCTION.
2. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, MINIMUM REINFORCEMENT OF CONCRETE WALLS OR SLABS SHALL BE AS FOLLOWS. CONTACT ENGINEER FOR LOCATIONS INSIDE CONCRETE.
   - 10" THICK OR LESS: ....#5 @ 12" EACH WAY.
   - MORE THAN 10" THICK: ....#5 @ 12" EACH WAY, EACH FACE.
3. WALL REINFORCEMENT AT CORNERS OR JUNCTIONS OF WALLS SHALL BE CONTINUOUS, LAP SPLICED, OR TERMINATED IN AN ACI STANDARD 90 DEGREE HOOK. SEE DETAIL S144/TYP.
4. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, DOWELS BETWEEN ADJACENT CONCRETE PLACEMENTS SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCEMENT WHICH IS SPLICED TO THE DOWELS.
5. SLAB, BEAM AND COLUMN REINFORCING BARS SHALL HAVE A MINIMUM EXTENSION OR ANCHORAGE INTO SUPPORTS IN ACCORDANCE WITH ACI 318 AND ACI 350.
6. PROVIDE STIRRUP SUPPORT BARS SHALL BE TO SECURE TOP BARS AGAINST DISPLACEMENT AS REQUIRED.
7. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, CONCRETE COVER OVER #11 AND SMALLER REINFORCING BARS SHALL BE AS FOLLOWS:
   - A. SLABS AND JOISTS:
     - FORMED CONCRETE SURFACES AND UNFORMED TOP SURFACES FOR DRY CONDITIONS
       - #7 BARS AND SMALLER..1"
       - #8 BARS AND LARGER..1 1/2"
     - FORMED CONCRETE SURFACES AND UNFORMED TOP SURFACES EXPOSED TO WEATHER, IN CONTACT WITH SOIL OR FLUIDS, OR LOCATED OVER FLUIDS..2"
   - B. BEAMS AND COLUMNS:
     - FORMED CONCRETE SURFACES FOR DRY CONDITIONS:
       - STIRRUPS, SPIRALS, AND TIES..............................1 1/2"
       - PRINCIPAL REINFORCEMENT................................2"
     - FORMED CONCRETE SURFACES EXPOSED TO WEATHER, IN CONTACT WITH SOIL OR FLUIDS, OR IN BEAMS LOCATED OVER FLUIDS:
       - STIRRUPS AND TIES...2"
       - PRINCIPAL REINFORCEMENT................................2 1/2"
   - C. WALLS:
     - FORMED CONCRETE SURFACES FOR DRY CONDITIONS:
       - #7 BARS AND SMALLER..1"
       - #8 BARS AND LARGER..1 1/2"
     - FORMED CONCRETE SURFACES EXPOSED TO WEATHER, OR IN CONTACT WITH SOIL OR FLUIDS.......................2"

S101 REINFORCED CONCRETE NOTES (TYP) — SHEET 2 OF 3 — 03/12/19

   - D. FOOTINGS AND SLABS ON GRADE:
     - FORMED VERTICAL CONCRETE SURFACES............................2"
     - AT UNFORMED CONCRETE SURFACES CAST AGAINST SOIL, ROCK, OR CONCRETE WORK MATS..3"
     - TOP SURFACE OF FOOTINGS AND SLABS...............................SAME AS SLABS

8. WATERSTOPS:
   - A. PROVIDE WATERSTOPS AT JOINTS IN SLABS AND WALLS OF LIQUID-CONTAINING STRUCTURES, AND PORTIONS OF STRUCTURES BELOW THE DESIGN GROUNDWATER LEVEL. MAKE WATERSTOPS CONTINUOUS THROUGH STRUCTURE, SPLICING WATERSTOPS IN SLABS WITH WATERSTOPS IN WALLS.
   - B. END WATERSTOPS 3" BELOW TOP OF WALLS. WHERE TOP OF WALL IS COVERED BY A SLAB WITHOUT WATERSTOPS, CONTINUE WATERSTOP TO WALL/SLAB JOINT. WHERE TOP OF WALL IS COVERED BY A SLAB WITH WATERSTOPS, MAKE WATERSTOPS CONTINUOUS, SPLICING WATERSTOPS IN WALLS WITH WATERSTOPS IN SLAB.
9. CURE CONCRETE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. WHERE WATER CURING IS SPECIFIED, MEMBRANE CURING IS NOT ALLOWED.
   - A. THE CONTRACTOR IS WARNED THAT WATER CURING IS DIFFICULT AT TIMES DUE TO WIND AND DRY CONDITIONS. STUDY SPECIFICATION REQUIREMENTS AND FURNISH ADEQUATE SYSTEMS TO PROVIDE WATER CURING WHERE REQUIRED.
   - B. KEEP WATER CURED SURFACES VISIBLY MOIST AT ALL TIMES. FLOOD TOPS OF WALLS NOT LESS THEN 3 TIMES DAILY.
10. DO NOT PLACE BACKFILL AGAINST WALLS UNTIL:
    - A. WALLS HAVE BEEN CAST TO FULL HEIGHT OF STRUCTURE AND CONCRETE HAS REACHED THE MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'c).
    - B. CONNECTING SLABS AND BEAMS HAVE BEEN CAST AND CONCRETE IN THOSE ELEMENTS HAS REACHED THE MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'c).
11. LAP SPLICES:
    - A. SEE TABLE 1 OF THIS DETAIL FOR LAP SPLICE LENGTHS.
    - B. WHEN MULTIPLE BARS ARE SPLICED AT THE SAME SECTION, THE "CLEAR BAR SPACING" IS DEFINED AS THE MINIMUM CLEAR DISTANCE BETWEEN THE BARS OUTSIDE THE SPLICE LENGTH MINUS ONE BAR DIAMETER.
    - C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, BARS AT A LAP SPLICE SHALL BE IN CONTACT WITH EACH OTHER.
    - D. "TOP BARS" ARE HORIZONTAL REINFORCEMENT AT LOCATIONS WHERE MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
12. FORM EXPOSED CONCRETE CORNERS AND EDGES WITH 3/4" CHAMFER UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

S101 REINFORCED CONCRETE NOTES (TYP) — SHEET 3 OF 3 — 03/12/19

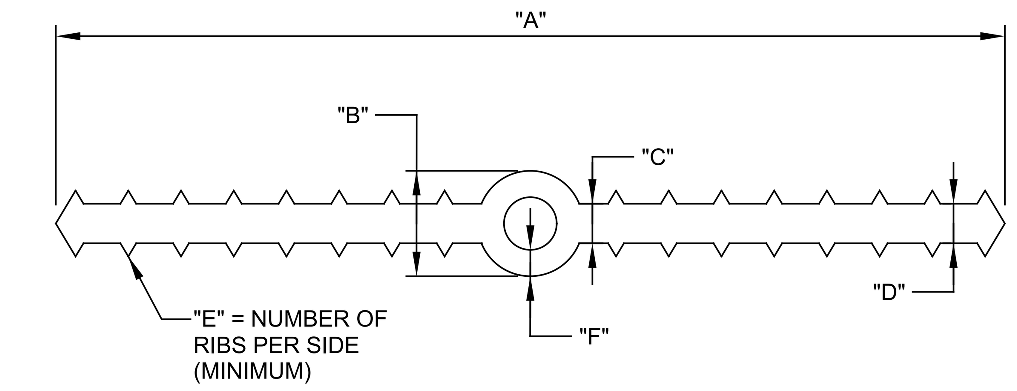
TABLE 1: REINFORCING BAR LAP SPLICES: f'c = 4000 PSI, Fy = 60,000 PSI

BAR SIZE	MINIMUM COVER (BAR DIA)	MINIMUM CLEAR BAR SPACING (BAR DIA)	LAP SPLICE LENGTH (INCHES)	
			TOP BARS	OTHER BARS
#4	MORE THAN 1	MORE THAN 2	32 *	25 *
	MORE THAN 2	MORE THAN 4	20	16
#5	MORE THAN 1	MORE THAN 2	40 *	31 *
	MORE THAN 2	MORE THAN 4	26	20
#6	MORE THAN 1	MORE THAN 2	48 *	37 *
	MORE THAN 2	MORE THAN 4	30	24
#7	MORE THAN 1	MORE THAN 2	70 *	54 *
	MORE THAN 2	MORE THAN 4	43	33
#8	MORE THAN 1	MORE THAN 2	81 *	62 *
	MORE THAN 2	MORE THAN 4	50	38
#9	MORE THAN 1	MORE THAN 2	90 *	70 *
	MORE THAN 2	MORE THAN 4	56	42
#10	MORE THAN 1	MORE THAN 2	104 *	81 *
	MORE THAN 2	MORE THAN 4	62	48
#11	MORE THAN 1	MORE THAN 2	114 *	88 *
	MORE THAN 2	MORE THAN 4	69	54

REINFORCING BAR LAP SPLICE TABLE NOTES:

1. TABULATED SPLICE LENGTHS ARE APPLICABLE ONLY WHEN BOTH REQUIREMENTS FOR MINIMUM COVER AND FOR MINIMUM CLEAR BAR SPACING ARE SATISFIED.
2. * = IF THE CLEAR BAR SPACING IS LESS THAN OR EQUAL TO TWO BAR DIAMETERS, OR THE COVER IS LESS THAN OR EQUAL TO ONE BAR DIAMETER, THE LAP SPLICE LENGTH SHALL BE INCREASED BY 50 PERCENT.

S106 PVC WATERSTOP SCHEDULE (TYP) — 12/15/20

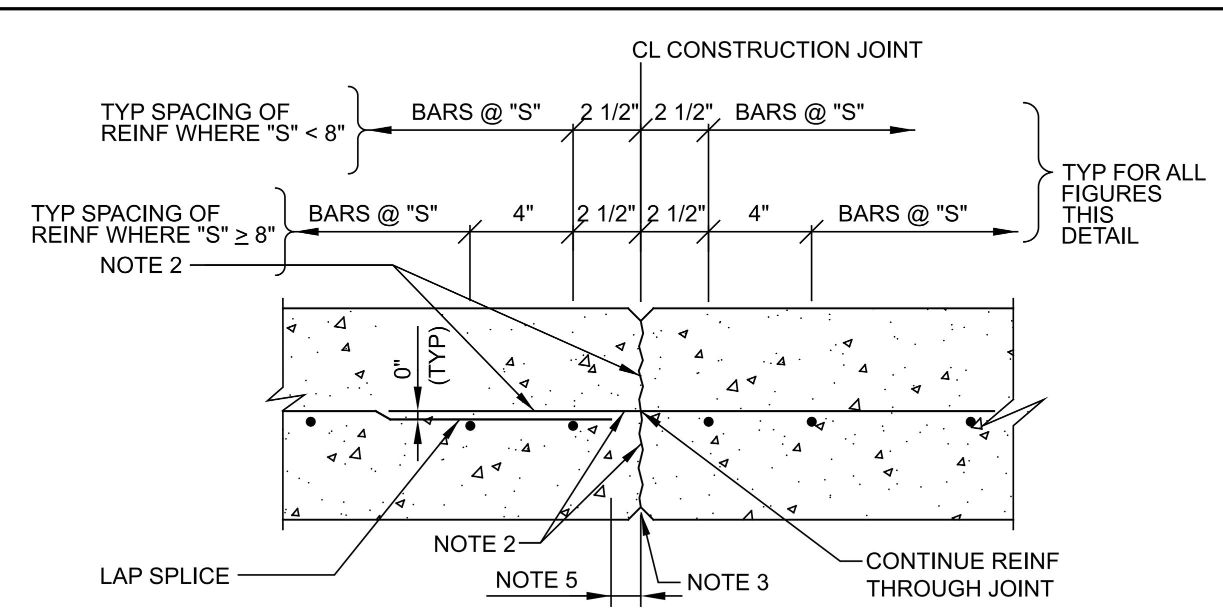


TYPE	"A"	"B"	"C"	"D"	"E"	"F"	APPLICATION
W/O CENTER BULB	6"	-	3/8"	3/8"	7	-	CONSTRUCTION AND CONTROL JOINTS
CENTER BULB	6"	7/8"	3/8"	3/8"	7	9/32"	
CENTER BULB	9"	1"	3/8"	3/8"	7	1/4"	EXPANSION JOINTS 1" AND NARROWER
CENTER BULB	9"	2"	3/8"	3/8"	7	1/4"	EXPANSION JOINTS WIDER THAN 1" AND TENSION/COMPRESSION RING BEAM AT DIGESTERS

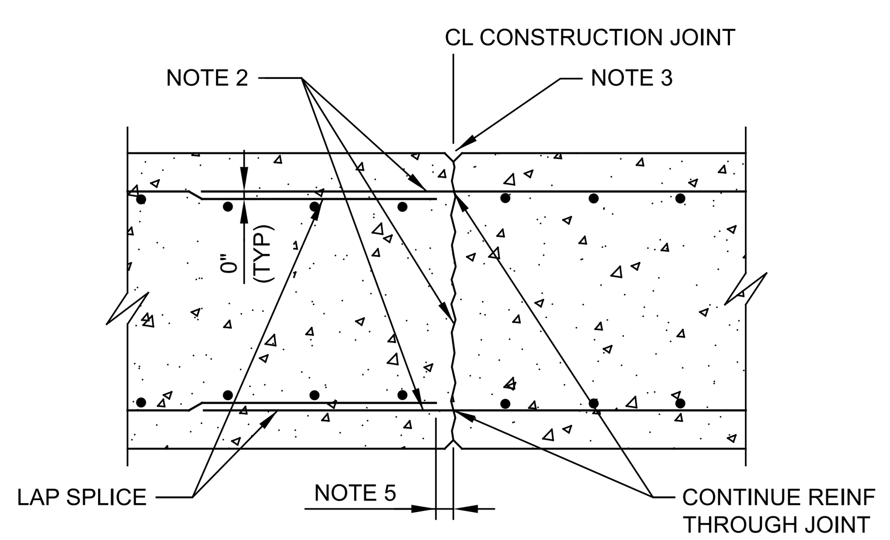
NOTES:

1. SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
2. DIMENSIONS ARE MINIMUM, UNLESS OTHERWISE NOTED.

S110 CONSTRUCTION JOINT (TYP) — SHEET 1 OF 2 — 07/11/16

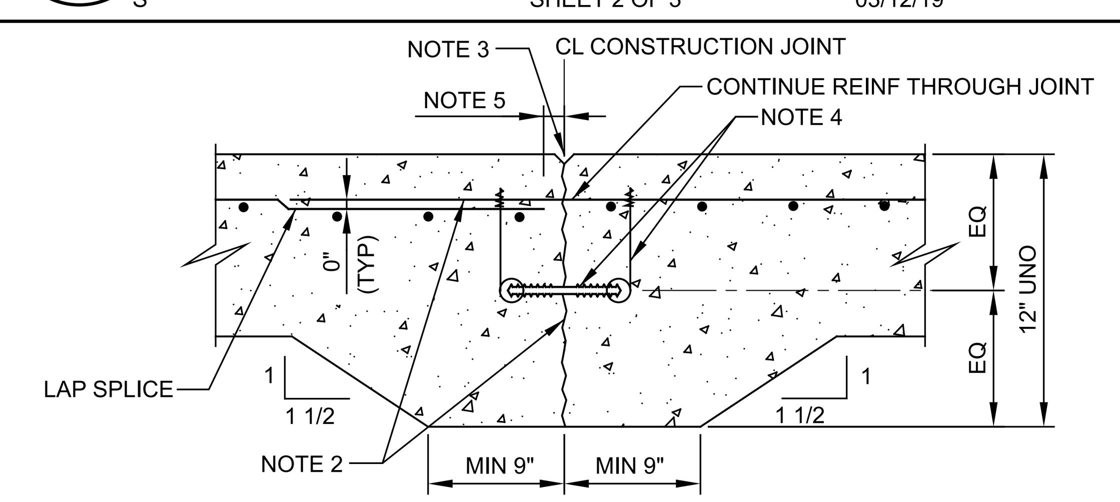


NON-WATER BEARING WALL OR SLAB
SINGLE LAYER REINFORCEMENT

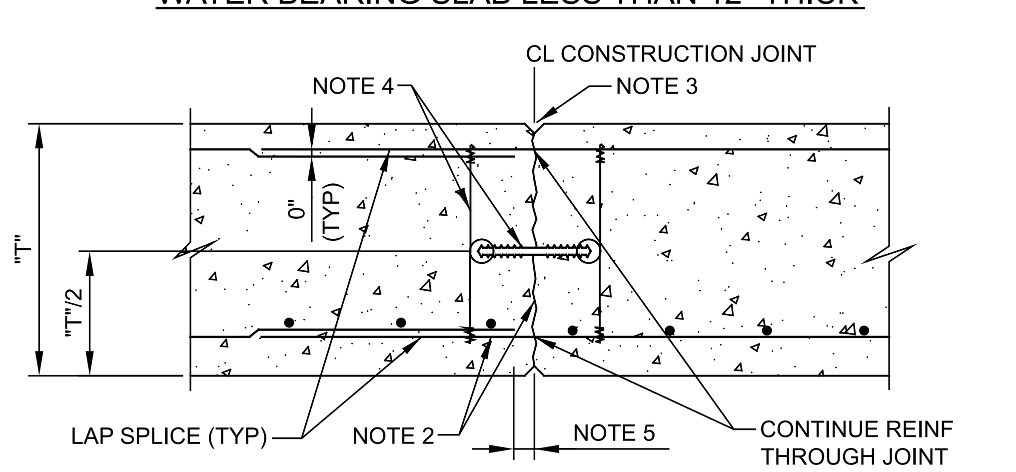


NON-WATER BEARING WALL OR SLAB
DOUBLE LAYER REINFORCEMENT

S110 CONSTRUCTION JOINT (TYP) — SHEET 2 OF 2 — 07/11/16



WATER BEARING SLAB LESS THAN 12" THICK

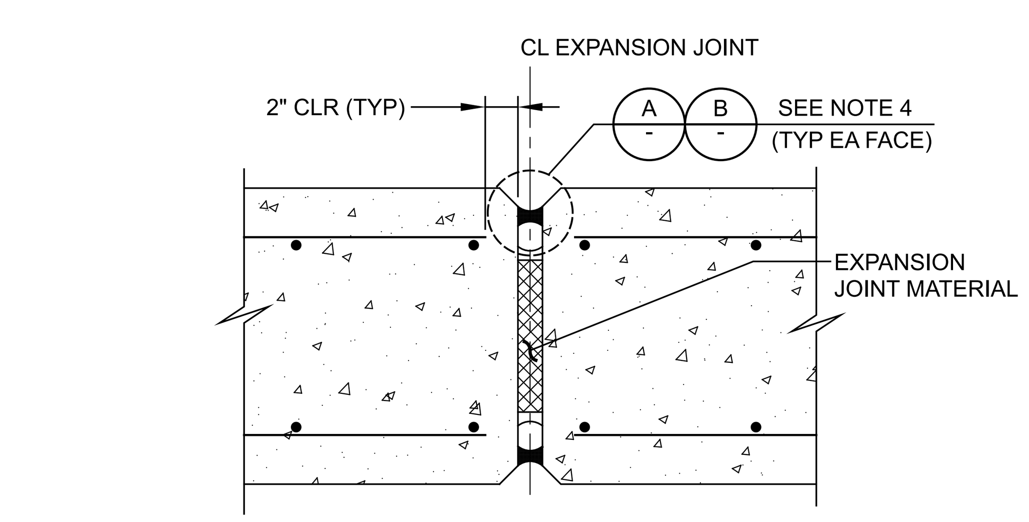


WATER BEARING SLAB OR WALL

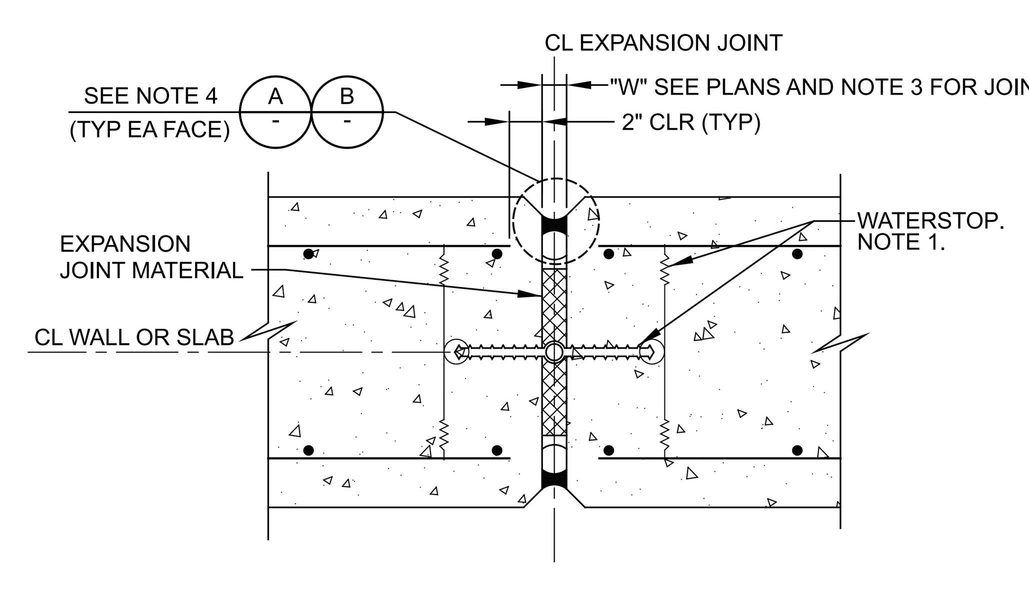
NOTES:

1. "S" EQUALS TYPICAL BAR SPACING INDICATED ON THE DRAWINGS. "T" EQUALS SLAB OR WALL THICKNESS.
2. WATER-BLAST EXPOSED JOINT FACE AND PROJECTING REINFORCEMENT BEFORE PLACING CONCRETE.
3. JOINT EDGES:
   - A. FOR WALLS AND BOTTOM OF EXPOSED SLABS: FORM EDGES WITH 1/2" CHAMFER.
   - B. FOR SLABS: EDGE TOP AND ENDS WITH 1/4" RADIUS.
4. 6" WATERSTOP CENTERED ON JOINT - SEE DETAIL S106/TYP. PROVIDE WIRE TIES MAX 2'-0" OC. HOG RINGS MAY BE USED IN LIEU OF WIRE LOOPS. THOROUGHLY CLEAN WATERSTOP BEFORE PLACING CONCRETE IN SECOND POUR.
5. STOP REINFORCING 2" CLEAR OF JOINT.

S130 EXPANSION JOINT (TYP) — SHEET 1 OF 2 — 07/22/16

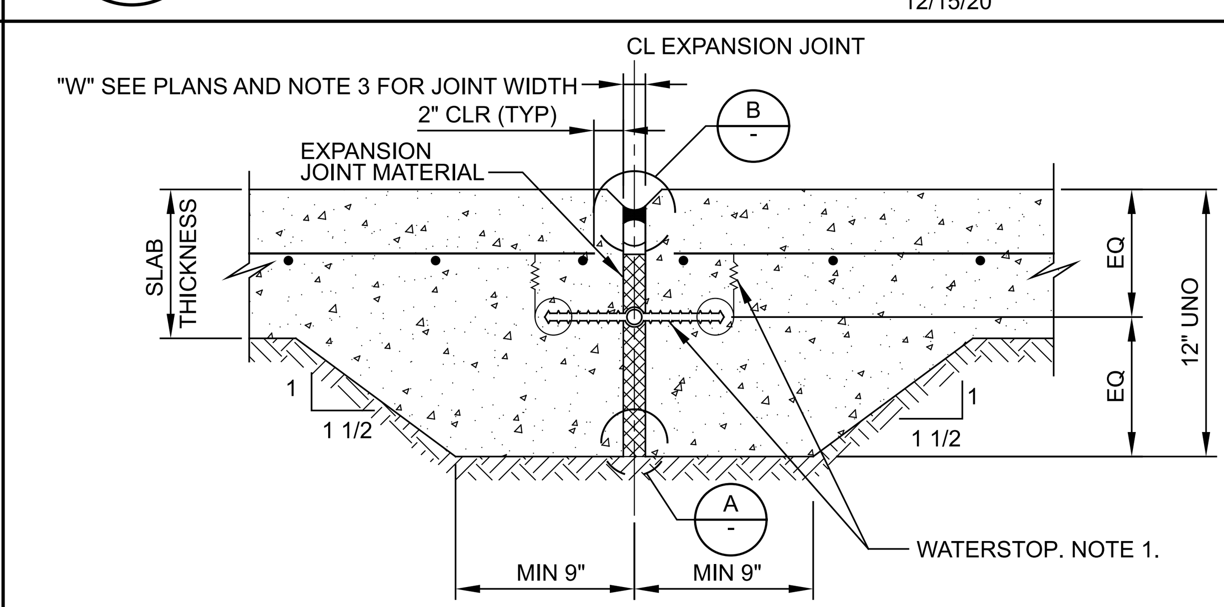


NON-WATER BEARING SLAB OR WALL

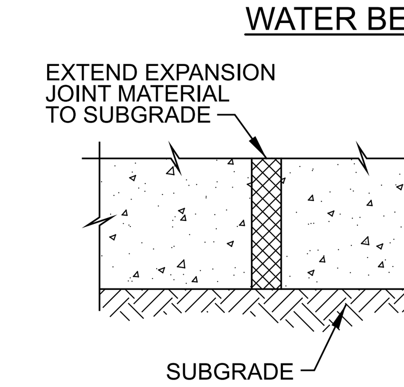


WATER BEARING SLAB OR WALL

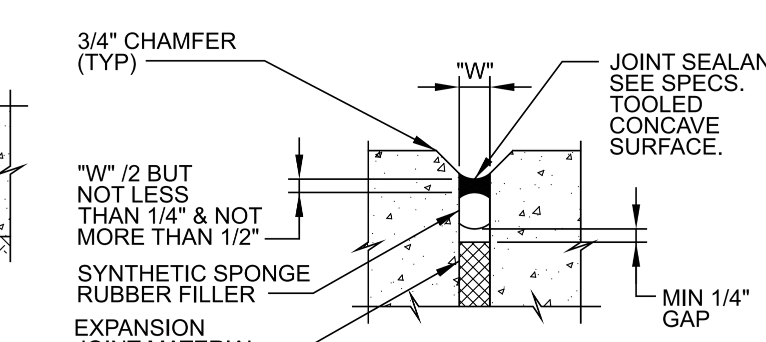
S130 EXPANSION JOINT (TYP) — SHEET 2 OF 2 — 07/22/16



WATER BEARING SLAB LESS THAN 12" THICK



A DETAIL



B DETAIL

NOTES:

1. 9" WATERSTOP WITH CENTER BULB CENTERED ON JOINT - SEE DETAIL S106/TYP. PROVIDE WIRE TIES MAX 2'-0" OC. HOG RINGS MAY BE USED IN LIEU OF WIRE LOOPS. THOROUGHLY CLEAN WATERSTOP BEFORE PLACING CONCRETE IN SECOND POUR.
2. JOINT EDGES:
   - A. FOR WALLS AND BOTTOM OF EXPOSED SLABS: FORM EDGES WITH 3/4" CHAMFER.
   - B. FOR SLABS: EDGE TOP AND ENDS WITH 1/4" RADIUS.
3. "W"=1" UNLESS OTHERWISE INDICATED ON PLANS. (MIN JOINT WIDTH = 3/8". MAX JOINT WIDTH = 2")
4. USE DETAIL A ONLY AT SOIL SIDE OF SLABS ON GRADE. USE DETAIL B AT ALL OTHER LOCATIONS.

REV	DATE	BY	DESCRIPTION

DESIGNED: CE
DRAWN: CE
CHECKED: MED
DATE: MARCH 2024



Digitally signed by Nivedithaa Venkatanarayanasami
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 11:11:53-05'00'

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CITY OF PACIFICA

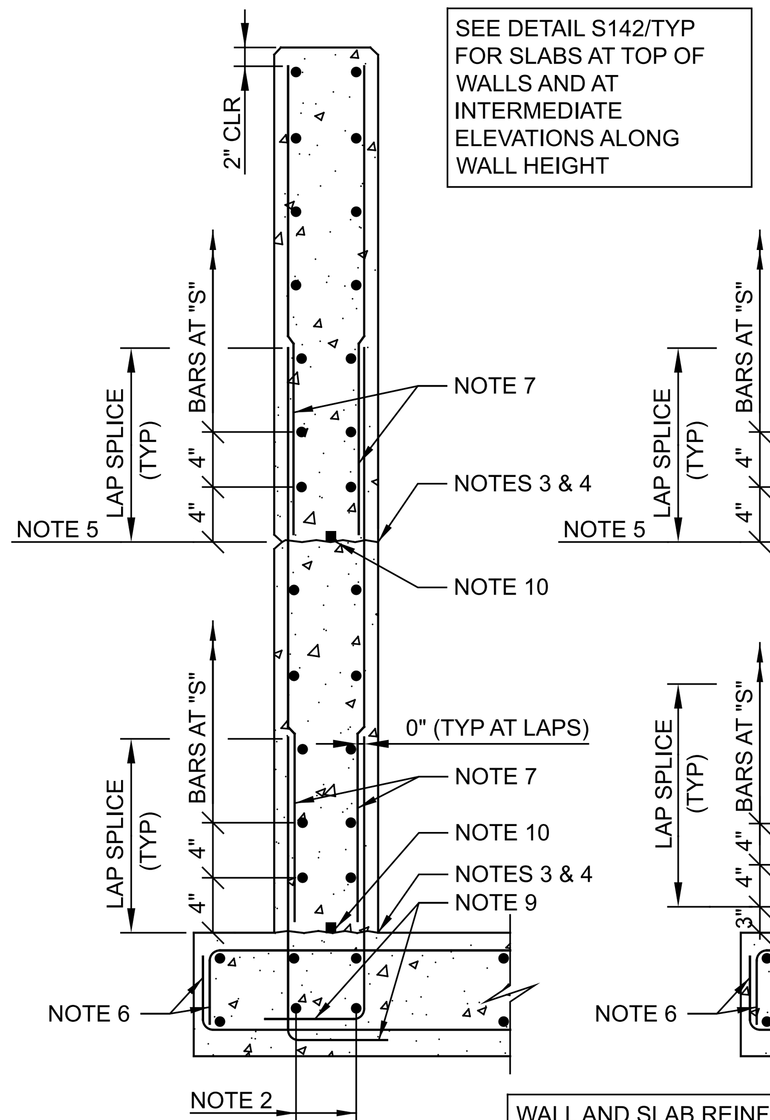
CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
TYPICAL DETAILS
STRUCTURAL 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. TS01
SHEET NO. 74 OF 79

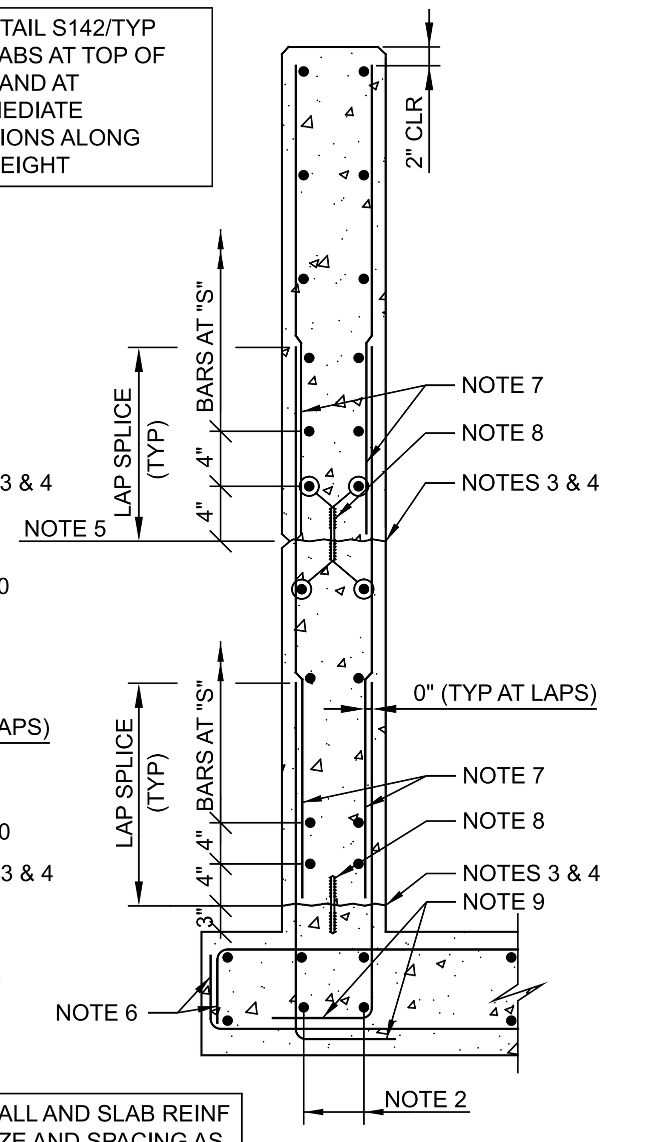
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Plot Date: 13-MAR-2024 11:03:45 AM User: svcPW PlotScale: 1:1 DesignScript: Carollo_Std_Pen_v0905.pen ColorTable: gshade.ctb Model: Layout1 LAST SAVED BY: gleal



SEE DETAIL S142/TYP FOR SLABS AT TOP OF WALLS AND AT INTERMEDIATE ELEVATIONS ALONG WALL HEIGHT

A - SECTION



WALL AND SLAB REINF SIZE AND SPACING AS INDICATED ON THE DRAWINGS

B - SECTION - "W/ WSTP"

S140 TYP CONSTRUCTION JOINT - WALLS

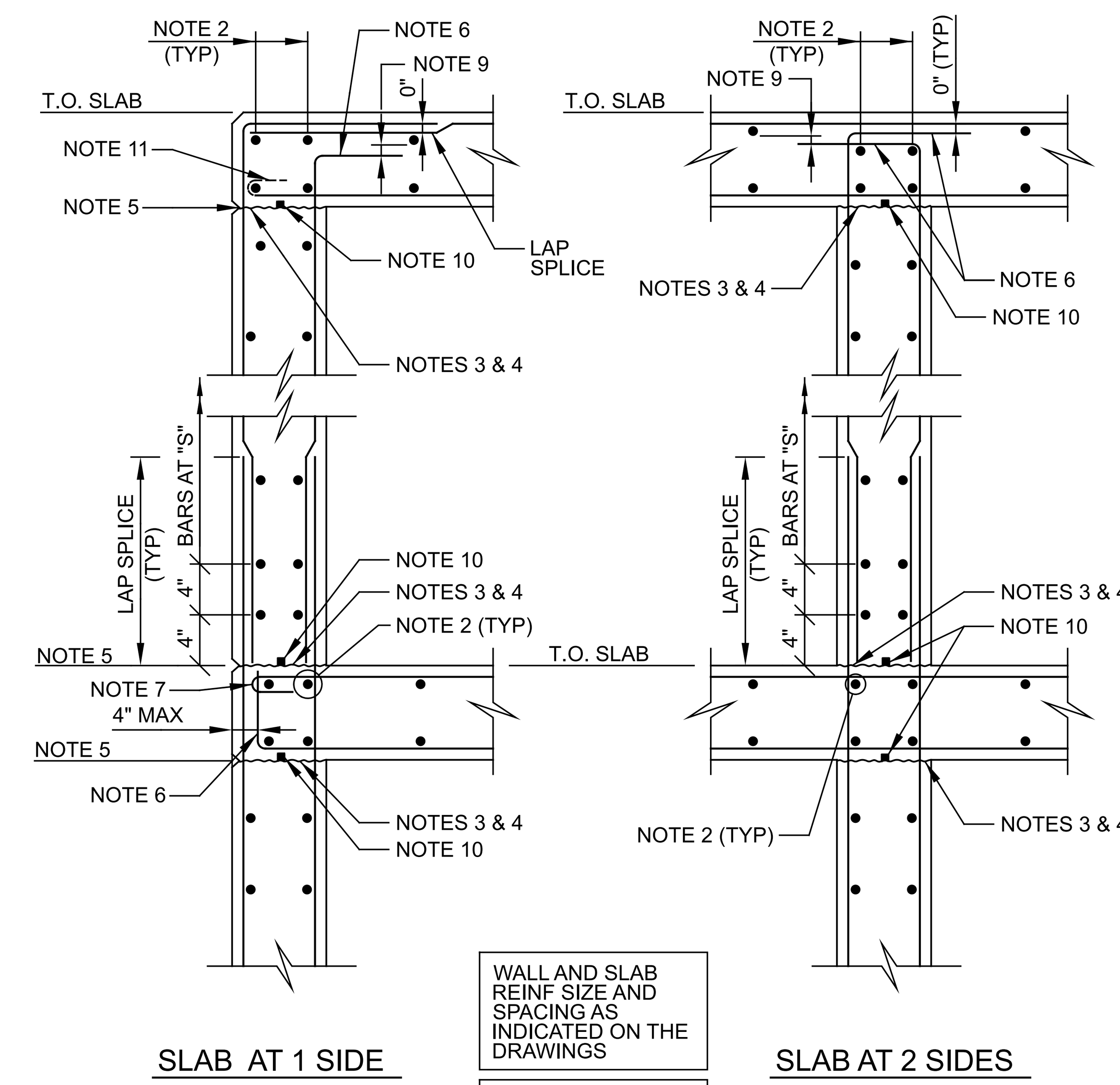
S, N SHEET 1 OF 2 03/12/19

NOTES:

1. "S" EQUALS TYPICAL BAR SPACING INDICATED ON THE DRAWINGS.
2. PLACE AND ALIGN BARS BEFORE PLACING DOWELS. BAR SIZE TO MATCH SLAB BARS.
3. WATER-BLAST JOINT FACE AND PROJECTING REINFORCEMENT BEFORE PLACING CONCRETE.
4. PLACE CEMENT GROUT OVER JOINT FACE IMMEDIATELY BEFORE PLACING CONCRETE. (SEE SPECIFICATIONS.)
5. CONSTRUCTION JOINT WHERE INDICATED ON THE DRAWINGS. WHERE WALL SURFACE IS EXPOSED TO VIEW IN THE FINISHED WORK, PROVIDE V-GROOVE PER DETAIL S162/TYP.
6. STANDARD 90° HOOK WHERE INDICATED ON THE DRAWINGS. (ALTERNATE: PROVIDE 180° HOOK WHERE REQUIRED BY SLAB THICKNESS.)
7. DOWELS: SAME SIZE AND SPACING AS VERTICAL WALL BARS, UNLESS OTHERWISE NOTED.
8. 6" PVC WATERSTOP CENTERED VERTICALLY ON JOINT. PROVIDE WIRE TIES MAX 2'-0" OC. HOG RINGS MAY BE USED IN LIEU OF WIRE LOOPS. THOROUGHLY CLEAN WATERSTOP BEFORE PLACING CONCRETE.
9. STANDARD 90° HOOK UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
10. WHERE DRAWINGS INDICATE "W/ STRIP WSTP" PROVIDE LOW EXPANSION HYDROPHILIC WATERSTOP AT TOP SURFACE OF JOINT AND CENTERED BETWEEN VERTICAL BARS.

S140 TYP CONSTRUCTION JOINT - WALLS

S, N SHEET 2 OF 2 03/12/19



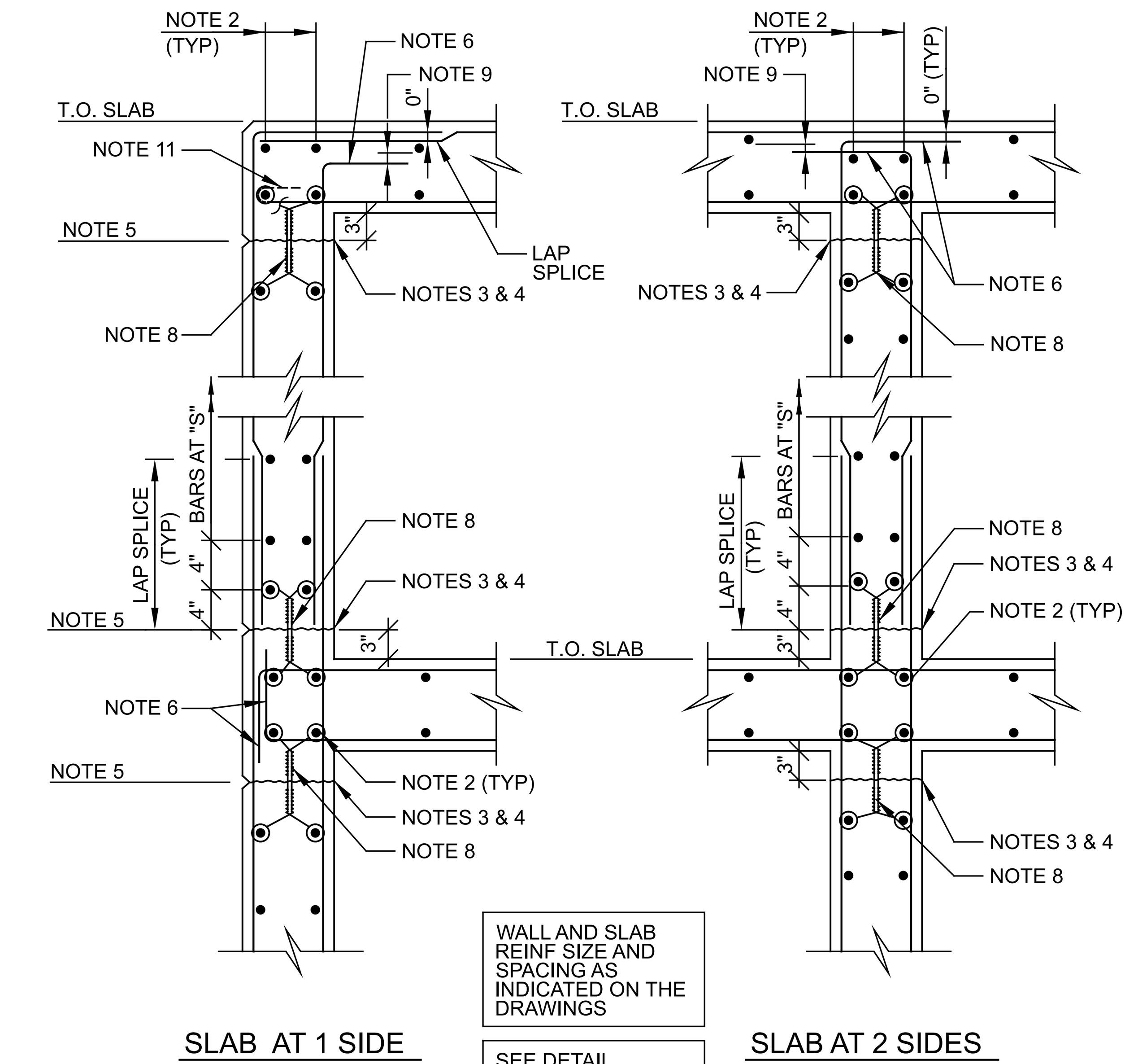
WALL AND SLAB REINF SIZE AND SPACING AS INDICATED ON THE DRAWINGS

SEE DETAIL S140/TYP FOR SLABS AT BOTTOM OF WALL

A - SECTION

S142 TYP CONSTRUCTION JOINT - WALLS AT ELEVATED SLABS

S, N SHEET 1 OF 3 03/12/19



WALL AND SLAB REINF SIZE AND SPACING AS INDICATED ON THE DRAWINGS

SEE DETAIL S140/TYP FOR SLABS AT BOTTOM OF WALL

B - SECTION - "W/ WSTP"

S142 TYP CONSTRUCTION JOINT - WALLS AT ELEVATED SLABS

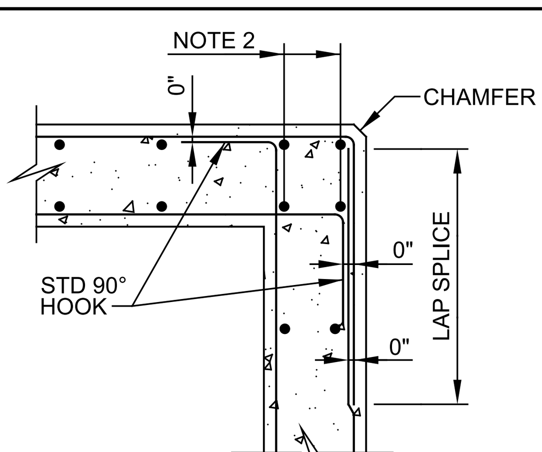
S,N SHEET 2 OF 3 03/12/19

NOTES:

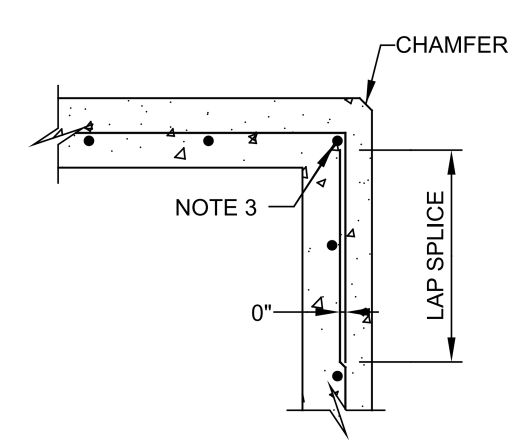
1. "S" EQUALS TYPICAL BAR SPACING INDICATED ON THE DRAWINGS.
2. AT INTERSECTION, MAKE BAR SIZE THE LARGER OF BAR SIZES IN ADJACENT SLAB OR WALL. PLACE BARS AT SAME LAYERS AS IN ADJACENT SLAB OR WALL.
3. WATER-BLAST JOINT FACE AND PROJECTING REINFORCEMENT BEFORE PLACING CONCRETE.
4. PLACE CEMENT GROUT OVER JOINT FACE IMMEDIATELY BEFORE PLACING CONCRETE. (SEE SPECIFICATIONS)
5. CONSTRUCTION JOINT WHERE INDICATED ON THE DRAWINGS. WHERE WALL SURFACE IS EXPOSED TO VIEW IN THE FINISHED WORK, PROVIDE V-GROOVE PER DETAIL S162/TYP.
6. STANDARD 90° HOOK UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
7. STANDARD 180° HOOK (ALTERNATE: 90° HOOK ROTATED OUT OF VERTICAL PLANE IF APPROVED BY ENGINEER.)
8. 6" PVC WATERSTOP CENTERED VERTICALLY ON JOINT. PROVIDE WIRE TIES MAX 2'-0" OC. HOG RINGS MAY BE USED IN LIEU OF WIRE LOOPS. THOROUGHLY CLEAN WATERSTOP BEFORE PLACING CONCRETE.
9. 1 BAR DIAMETER CLEAR.
10. WHERE DRAWINGS INDICATE "W/ STRIP WSTP" PROVIDE LOW EXPANSION HYDROPHILIC WATERSTOP AT TOP SURFACE OF JOINT AND CENTERED BETWEEN VERTICAL BARS.
11. STANDARD 180° HOOK WHERE INDICATED ON THE DRAWINGS.

S142 TYP CONSTRUCTION JOINT - WALLS AT ELEVATED SLABS

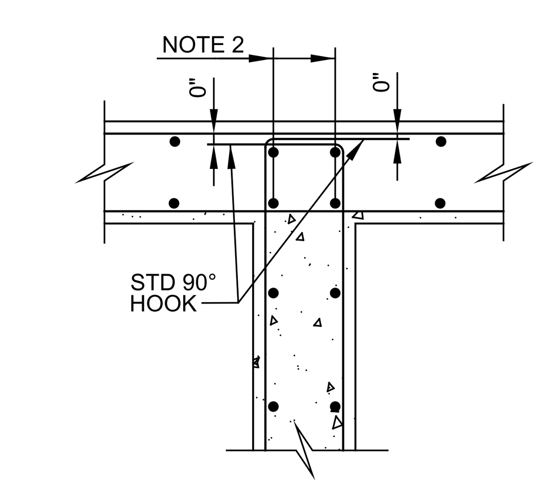
S,N SHEET 3 OF 3 03/12/19



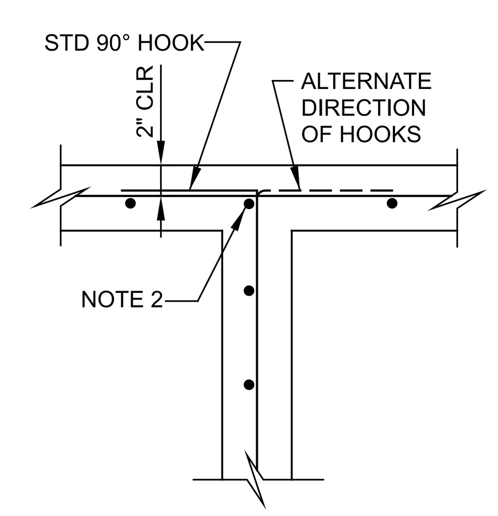
A - DETAIL - CORNER: DOUBLE MAT



B - DETAIL - CORNER: SINGLE MAT



C - DETAIL - INTERSECTION: DOUBLE MAT



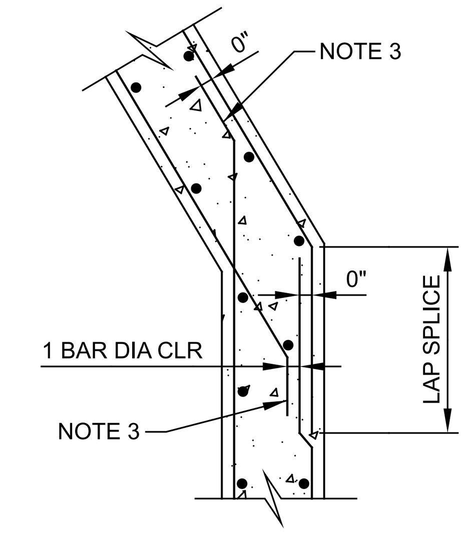
D - DETAIL - INTERSECTION: SINGLE MAT

NOTES:

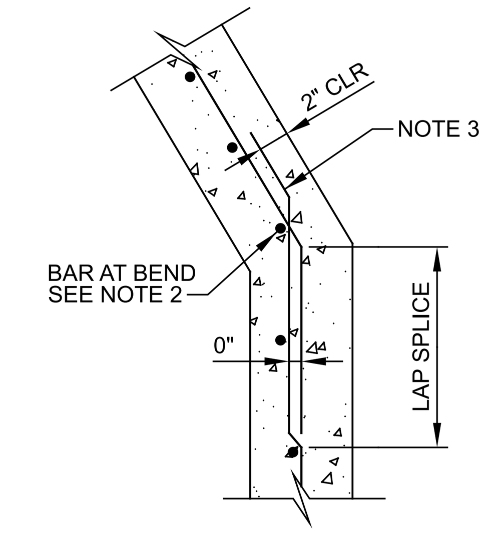
1. BAR SIZE, SPACING, AND ORIENTATION OF BAR LAYERS SHALL BE AS INDICATED ON THE DRAWINGS.
2. AT INTERSECTION, MAKE BAR SIZE THE LARGER OF BAR SIZES IN CONNECTING WALLS. PLACE BARS IN SAME LAYERS AS AT CONNECTING WALLS (TYP).
3. BAR TAILS: 12 BAR DIAMETERS PLUS 12".

S144 TYP WALL REINFORCEMENT AT CORNERS & INTERSECTIONS

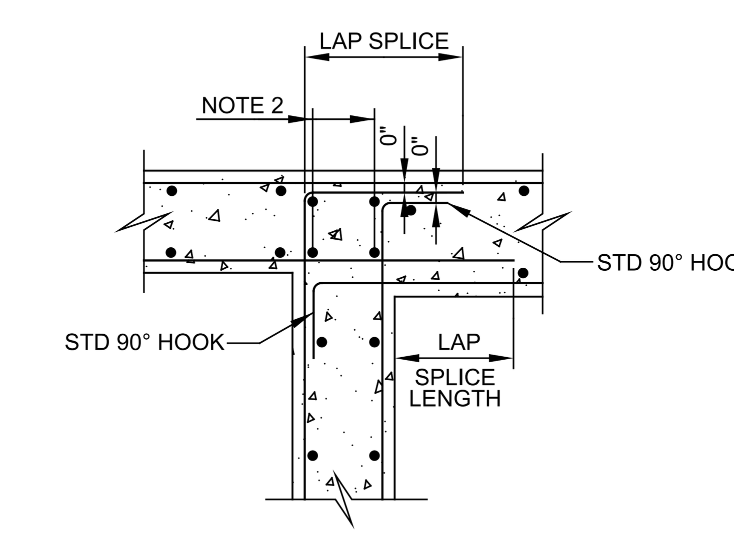
S SHEET 1 OF 2 05/31/16



E - DETAIL - INTERSECTION: DOUBLE MAT



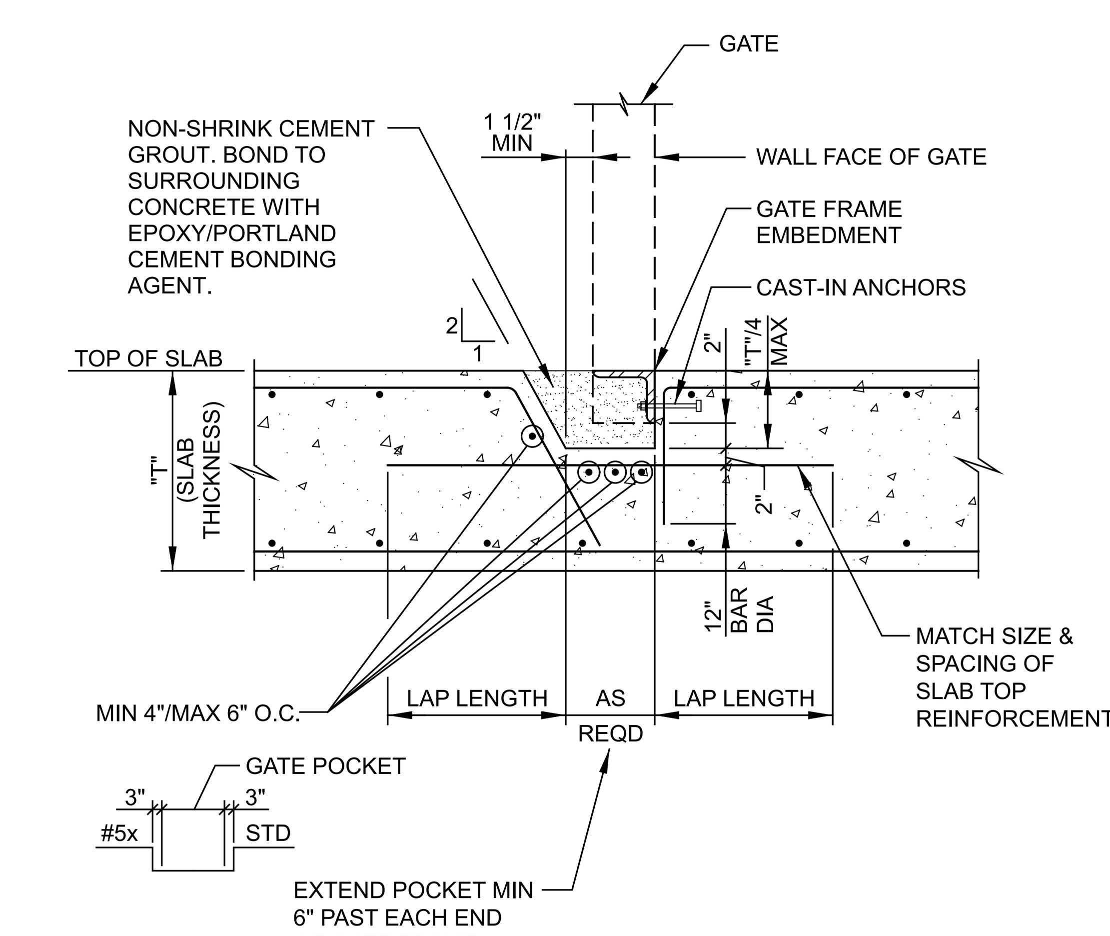
F - DETAIL - INTERSECTION: SINGLE MAT



G - DETAIL - INTERSECTION: CHANGE IN WALL THICKNESS

S144 TYP WALL REINFORCEMENT AT CORNERS & INTERSECTIONS

S SHEET 2 OF 2 05/31/16



S158 TYP GATE FLUSH INVERT

S 04/07/17

REV	DATE	BY	DESCRIPTION

DESIGNED CE
DRAWN CE
CHECKED MED
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER NIVEDITHAA VENKATANARAYANASAMI No. 92381 CIVIL STATE OF CALIFORNIA

Digitally signed by Nivedithaa Venkatanarayanasami
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 11:11:35-05'00'

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CITY OF PACIFICA

CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

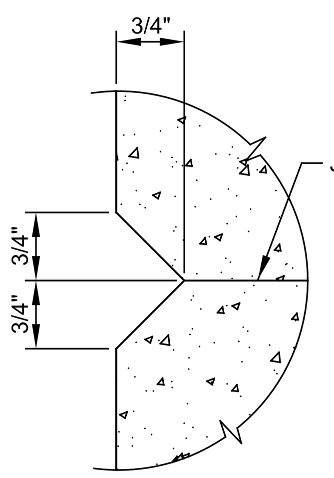
TYPICAL DETAILS

STRUCTURAL 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

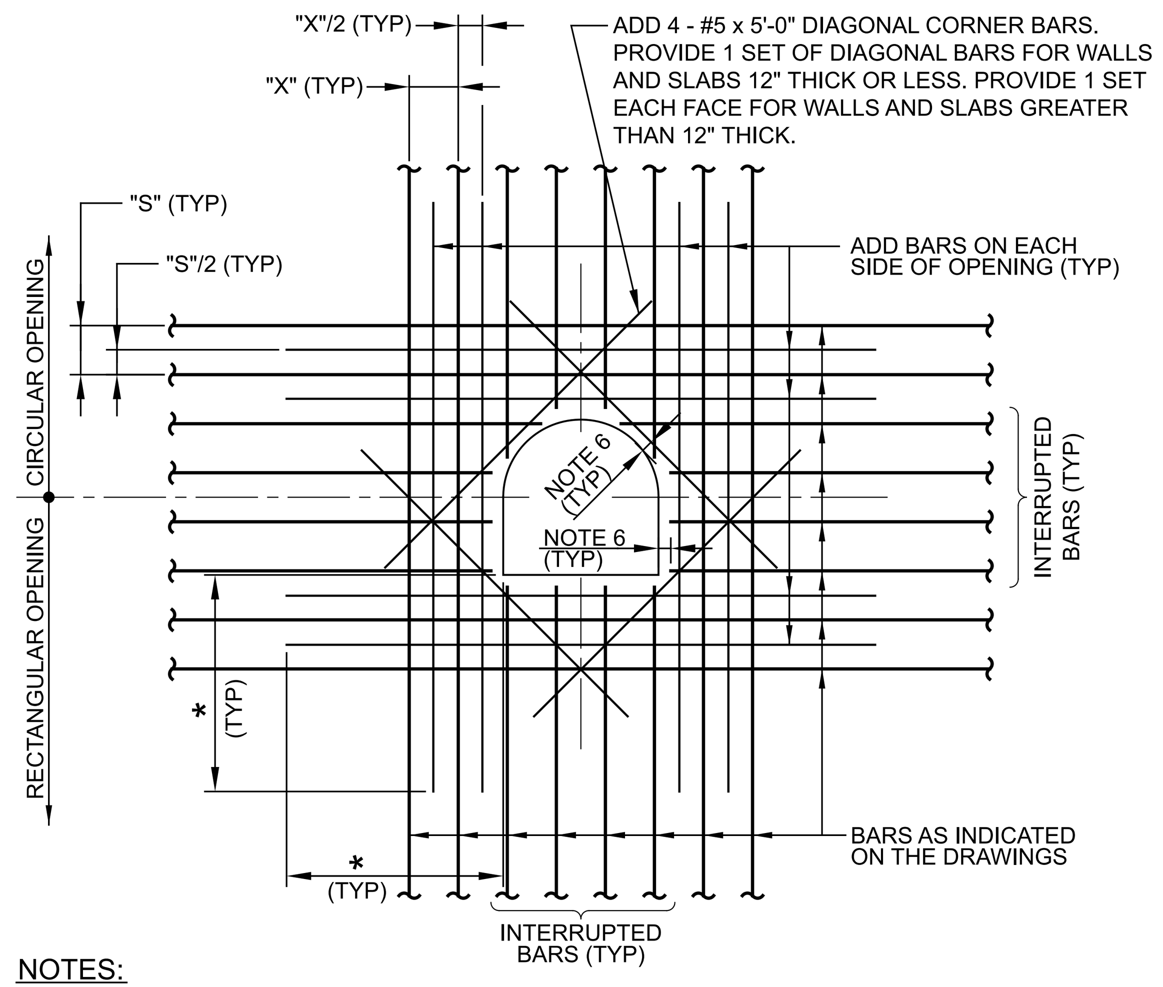
JOB NO. 201447
DRAWING NO. TS02
SHEET NO. 75 OF 79

Plot Date: 13-MAR-2024 11:03:57 AM User: svcPW PlotScale: 1:1 DesignScript: Carollo_Std_Pen_v0905.pen ColorTable: gshade.ctb Model: Layout1 LAST SAVED BY: gleal



S162 TYP N — V-GROOVE JOINT

07/21/16

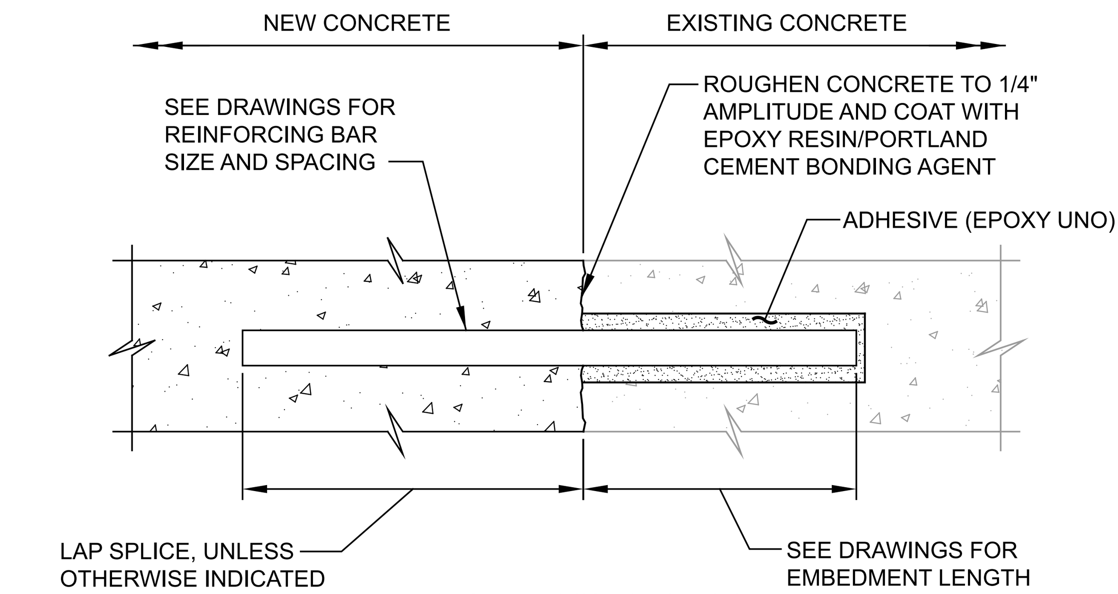


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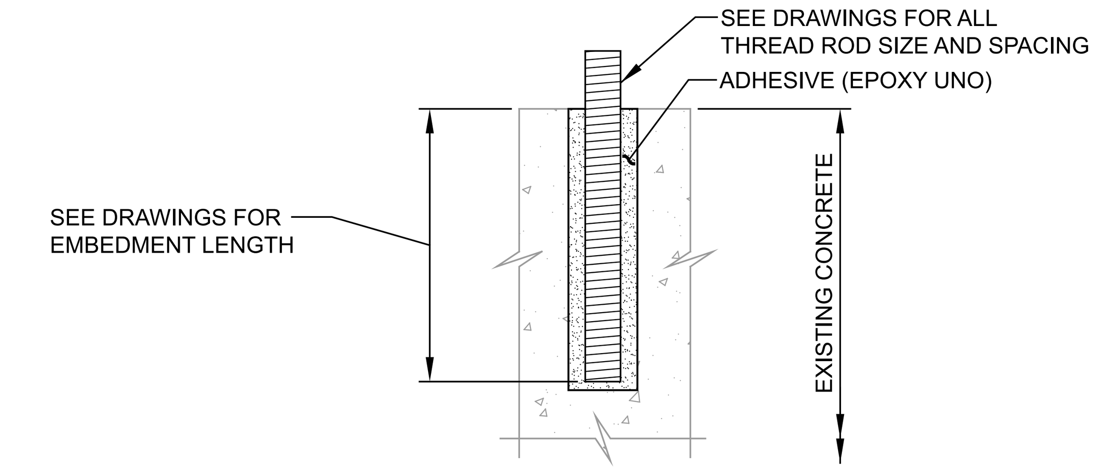
1. AREA OF ADD BARS AT EACH EDGE OF OPENING IN EACH DIRECTION SHALL BE EQUAL TO OR GREATER THAN 1/2 THE CROSS SECTIONAL AREA OF THE INTERRUPTED BARS.
2. PROVIDE STANDARD ACI HOOKS ON BARS IF STRAIGHT EXTENSION PAST THE OPENING, CANNOT BE ACHIEVED.
3. PLACE ADD BARS IN SAME PLANES AS INTERRUPTED REINFORCING.
4. PLACE #5 DIAGONAL BARS ON INSIDE OF INTERRUPTED REINFORCING.
5. * DIMENSION EQUALS OPENING DIMENSION MEASURED PERPENDICULAR TO ADD BARS PLUS LAP SPLICE LENGTH.
6. 2" CLEAR TO CONCRETE OPENINGS OR OUTSIDE FACE OF PIPES AND PIPE SLEEVES. DO NOT OVERCUT REINFORCEMENT FOR EASIER PLACEMENT OF WEEP RINGS AND FLANGES.
7. ADD BARS ARE NOT REQUIRED AT SIDES OF OPENINGS PARALLEL TO AND WITHIN 6" OF A WALL OR BEAM.

S180 TYP S, N — ADDITIONAL REINFORCING AT OPENINGS IN CONCRETE SLABS OR WALLS

03/12/19



REINFORCING BARS



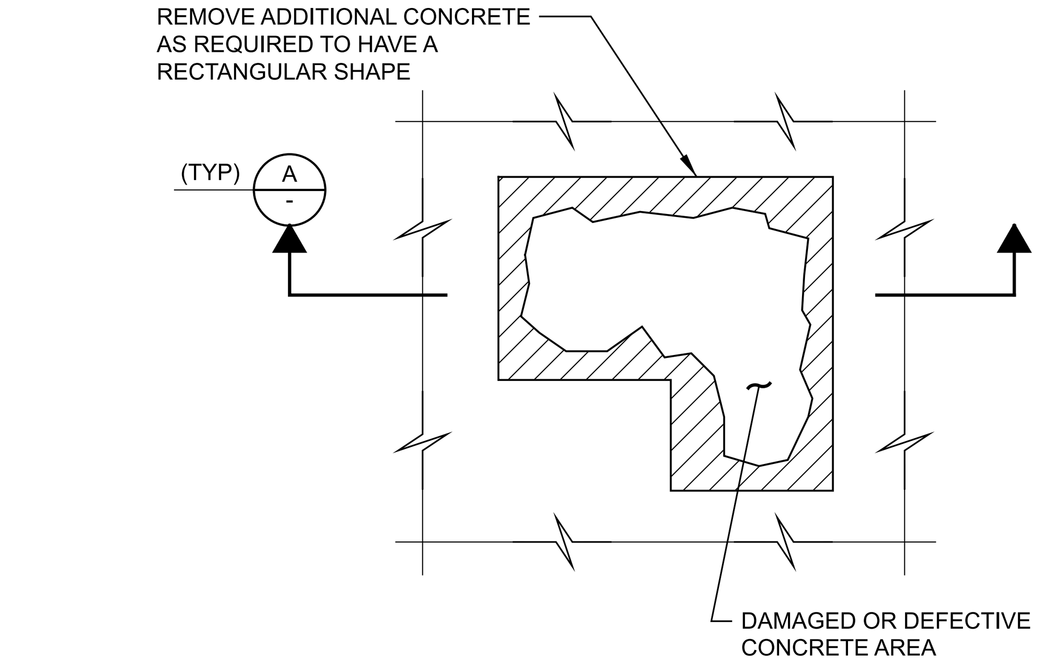
ALL-THREAD RODS

NOTE:

1. INSTALLATION OF REINFORCING BARS AND ALL THREAD RODS AS INDICATED IN THE SPECIFICATIONS.

S194 TYP S — ADHESIVE BONDED REINFORCING BARS OR ALL THREAD RODS

04/18/17



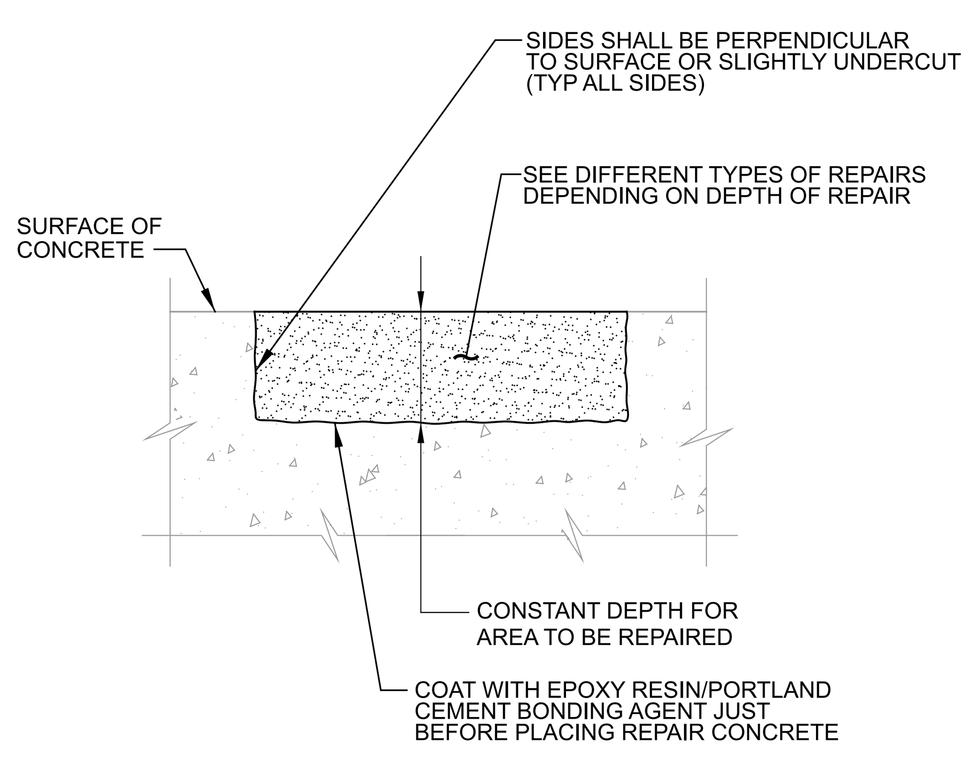
PLAN

NOTES:

1. SAW CUT EDGES OF AREA WHERE CONCRETE WILL BE REMOVED A MINIMUM OF 1/2" DEEP. DO NOT CUT REINFORCING BARS. DO NOT SAW CUT PAST OUTSIDE CORNERS.
2. CHIP OUT DAMAGED OR DEFECTIVE CONCRETE PER SECTION 03_01_02. DO NOT CUT OR DAMAGE REINFORCING BARS.
3. IF MORE THAN 1/3 OF BAR DIAMETER IS EXPOSED REMOVING DAMAGED OR DEFECTIVE CONCRETE, REMOVE ADDITIONAL CONCRETE TO A MINIMUM 1" BEHIND THE BARS.
4. CONCRETE SURFACES TO BE REPAIRED SHALL BE CLEANED AND ROUGHENED TO 1/8" AMPLITUDE.
5. SOAK CONCRETE IN REPAIR AREA WITH WATER FOR MIN 24 HOURS JUST BEFORE PLACING REPAIR CONCRETE. CONCRETE IN REPAIR AREA TO BE REPAIRED SHALL BE SATURATED AND SURFACE DAMP WHEN REPAIR CONCRETE IS PLACED.
6. FOR THE REPAIR OF VERTICAL CONCRETE SURFACES, SLOPE TOP SURFACE OF CHIPPED OUT AREA SLIGHTLY TOWARD FORMS TO ALLOW AIR TO ESCAPE DURING PLACEMENT OF REPAIR CONCRETE.
7. WATER CURE REPAIRED CONCRETE FOR MINIMUM OF 7 DAYS. KEEP REPAIRED AREA CONTINUOUSLY MOIST.

S204 TYP R — CONCRETE REPAIR - SURFACE

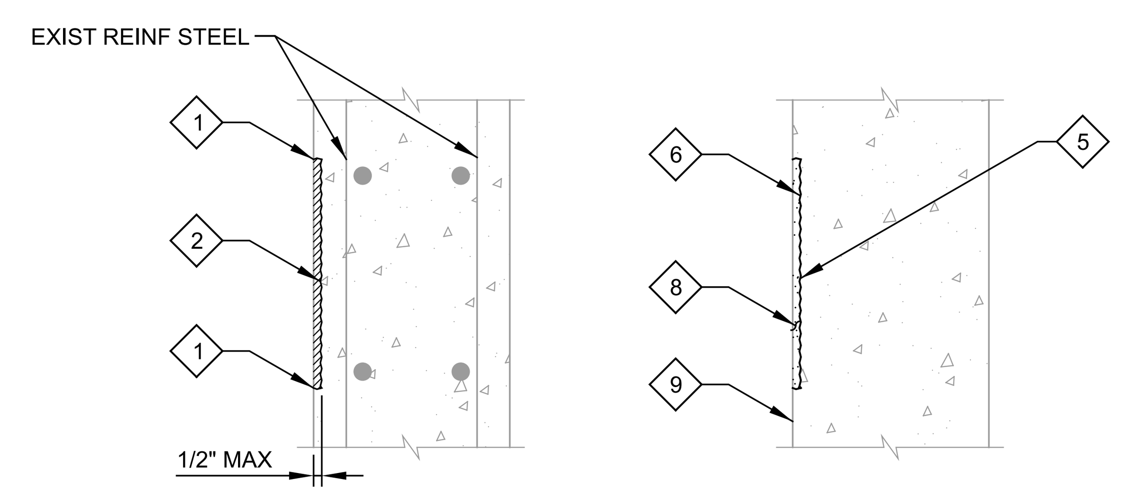
SHEET 1 OF 4 04/01/16



A - SECTION

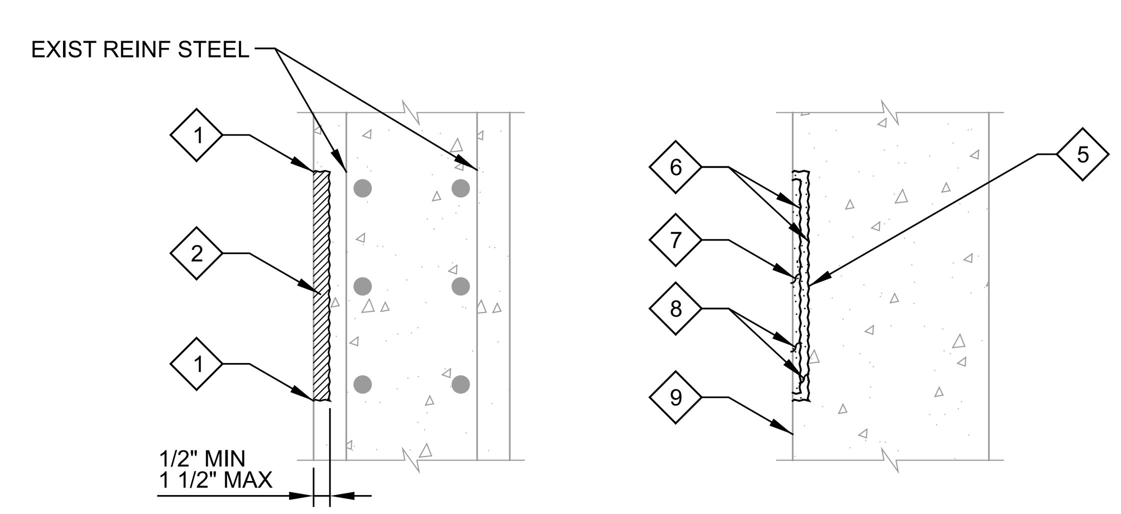
S204 TYP R — CONCRETE REPAIR - SURFACE

SHEET 2 OF 4 04/01/16



SURFACE PREPARATION REPAIR

TYPE 1 - CONCRETE REPAIR DETAIL

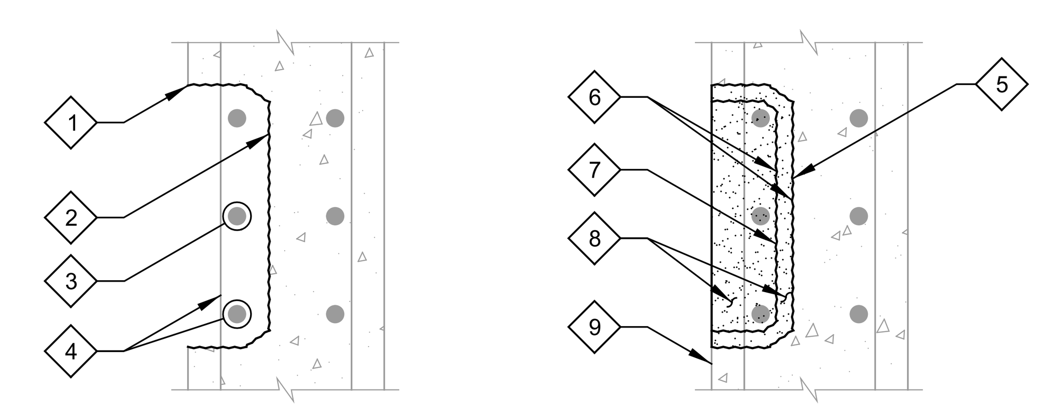


SURFACE PREPARATION REPAIR

TYPE 2 - CONCRETE REPAIR DETAIL

S204 TYP R — CONCRETE REPAIR - SURFACE

SHEET 3 OF 4 04/01/16



SURFACE PREPARATION REPAIR

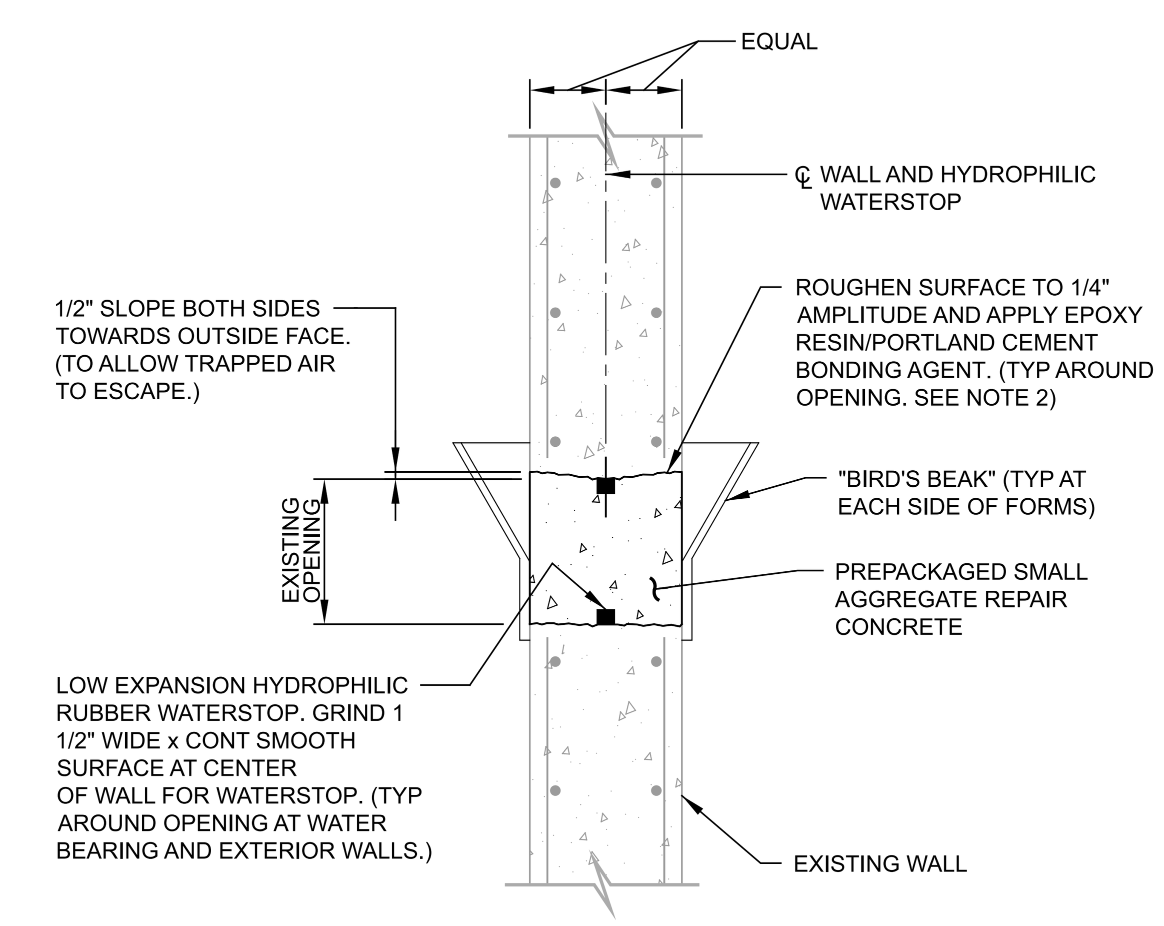
TYPE 3 - CONCRETE REPAIR DETAIL

KEY NOTES:

1. SAWCUT 1/2" DEEP OR AS INDICATED ON DETAIL.
2. REMOVE DAMAGED OR DEFECTIVE CONCRETE IN ACCORDANCE WITH SECTION 03_01_02.
3. REMOVE 3/4" INCH BEHIND STEEL FOR MORTAR.
4. CLEAN STEEL TO REMOVE CORROSION. REPAIR OR REPLACE REINFORCING STEEL AS SPECIFIED IN SECTION 03_01_02 AS DIRECTED BY THE ENGINEER.
5. CONCRETE SURFACE SHOULD BE SATURATED SURFACE DRIED.
6. APPLY A SCRUB COAT, FILLING ALL PORES AND VOIDS.
7. SCORE THE TOP OF EACH LIFTS TO PRODUCE A ROUGHENED SURFACE FOR THE NEXT LIFT.
8. WHILE SCRUB COAT IS STILL WET APPLY REPAIR MORTAR IN LIFTS NOT EXCEEDING 1 1/2 INCH THICKNESS.
9. COAT SURFACES AS SHOWN ON THE DRAWINGS AND AS SPECIFIED IN SECTION 09_96_01.

S204 TYP R — CONCRETE REPAIR - SURFACE

SHEET 4 OF 4 04/01/16



NOTES:

1. PLACE CONCRETE THROUGH "BIRD'S BEAK" ON FORM. REMOVE EXCESS CONCRETE AND FINISH TO MATCH EXISTING SURFACE.
2. REMOVE ANY LOOSE OR FRACTURED AGGREGATE OR CONCRETE ON SURFACE OF ROUGHED CONCRETE.

S221 TYP N — FILL OPENING: CONCRETE WALL WITH 2 MATS OF REINFORCING

12/15/20

REV	DATE	BY	DESCRIPTION

DESIGNED: CE
DRAWN: CE
CHECKED: MED
DATE: MARCH 2024

REGISTERED PROFESSIONAL ENGINEER — NIVEDITHAA VENKATANARAYANASAMI — No. 92381 — CIVIL — STATE OF CALIFORNIA

Digitally signed by Nivedithaa Venkatanarayanasami
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 11:11:18-05'00'

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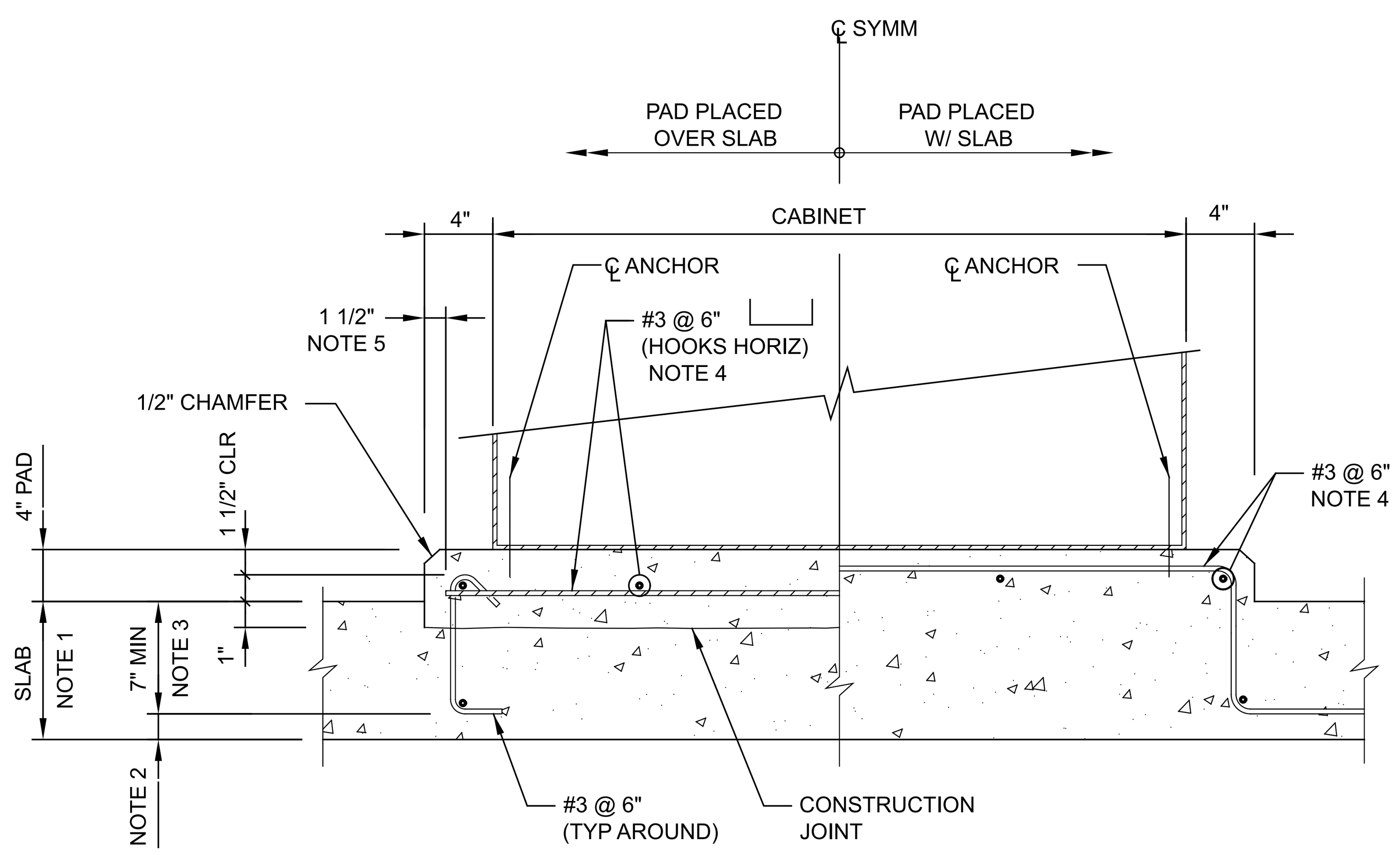
UV DISINFECTION SYSTEM REPLACEMENT

TYPICAL DETAILS

STRUCTURAL 3

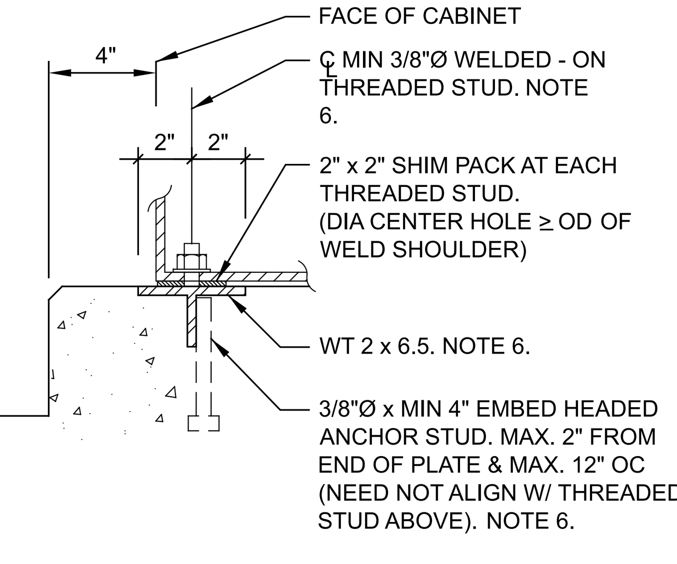
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. TS03
SHEET NO. 76 OF 79

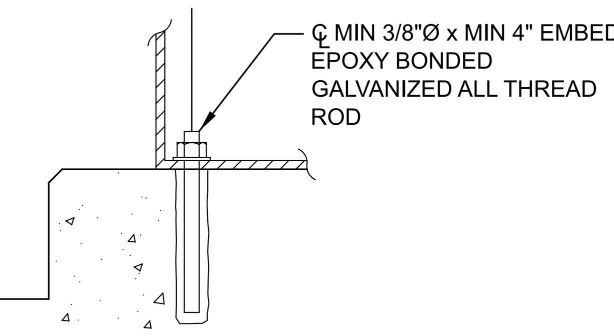


NOTES:

1. SEE STRUCTURAL DRAWINGS FOR THICKNESS OF SLAB BELOW PAD. SLAB REINFORCEMENT NOT SHOWN.
2. SEE S101/ TYP FOR MIN CONCRETE COVER REQUIREMENTS.
3. CONTACT ENGINEER FOR INSTRUCTIONS WHERE HOOK EMBEDMENT IS LESS THAN DIMENSION SHOWN.
4. FOR EQUIPMENT WITH CONDUIT WINDOWS BELOW, ADJUST BAR LOCATIONS TO FIT BETWEEN WINDOWS.
5. LOCATE VERTICAL EDGE OF PAD AND VERTICAL FACE OF #3s USING VERTICAL 2x FORM DURING SLAB PLACEMENT.
6. HOT DIP GALVANIZE WT AND HEADED ANCHOR STUD ASSEMBLY. TOUCH UP GALVANIZING AFTER FIELD WELDING THREADED STUDS.



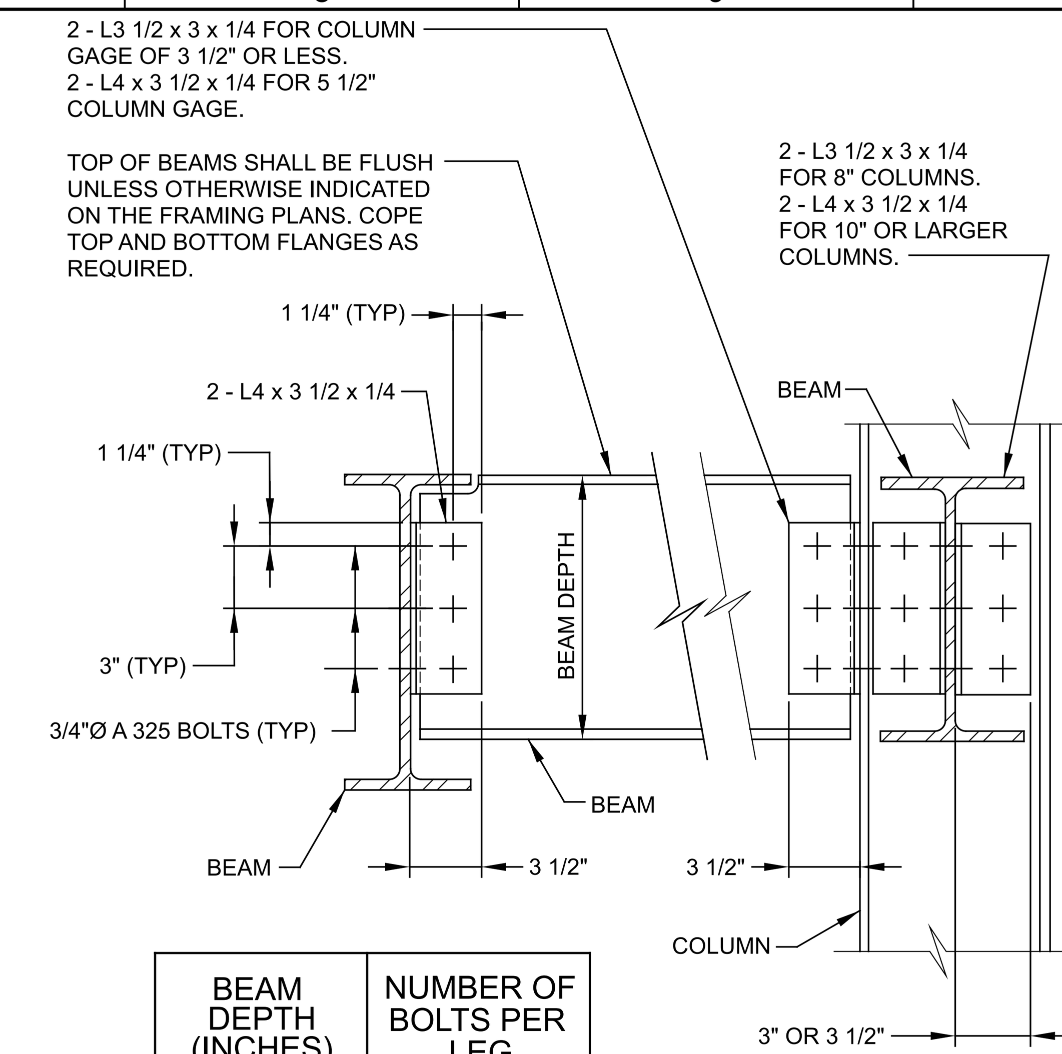
A/- CAST-IN-ANCHOR



B/- POST-INSTALLED ANCHOR

S350 TYP S — ELECTRICAL EQUIPMENT HOUSEKEEPING PAD

02/21/14



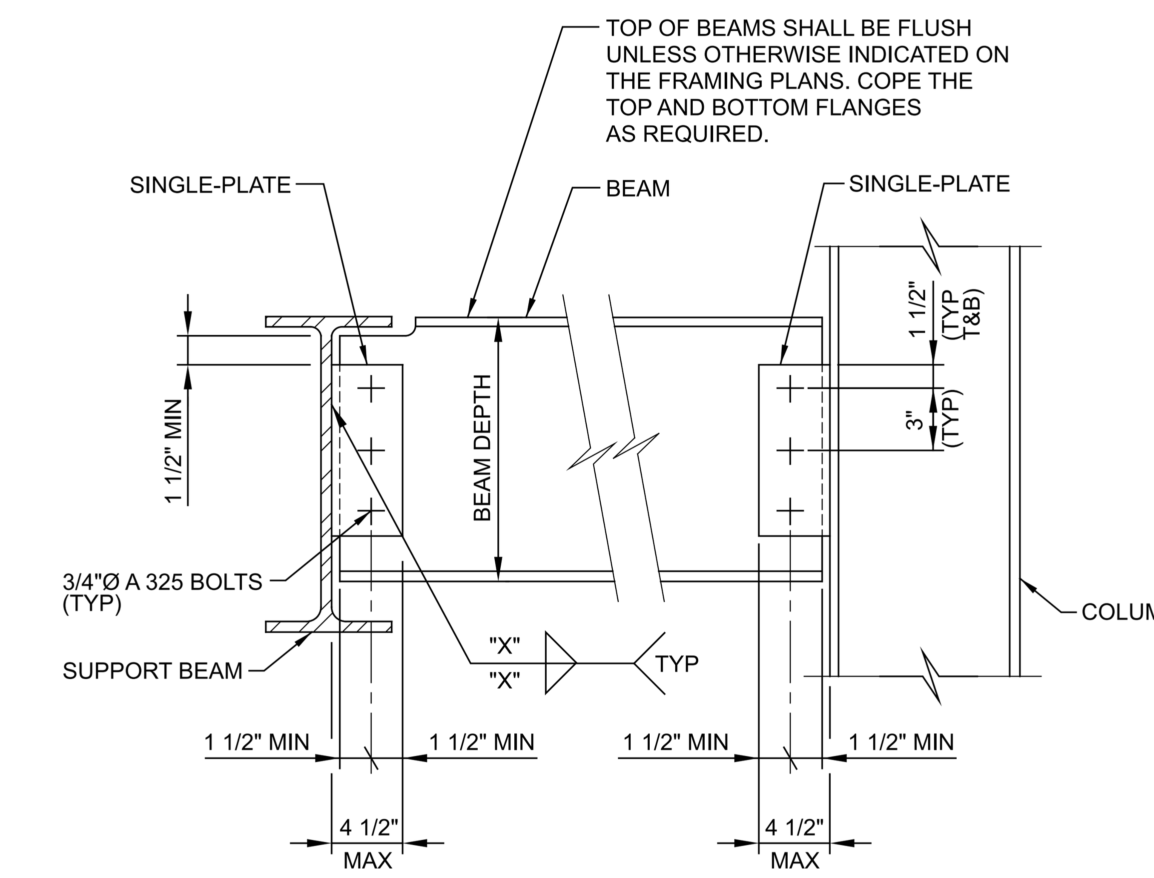
BEAM DEPTH (INCHES)	NUMBER OF BOLTS PER LEG
8 - 10	2
12 - 16	3
18 - 21	4
24 - 30	6

NOTE:

1. SCHEDULE APPLIES TO ALL BEAMS UNLESS NUMBER OF BOLTS PER LEG IS OTHERWISE INDICATED ON THE FRAMING PLAN BY ⬡ .

S502 TYP — STEEL DOUBLE ANGLE BOLTED CONNECTION VERTICAL BOLT LINES

4/30/07



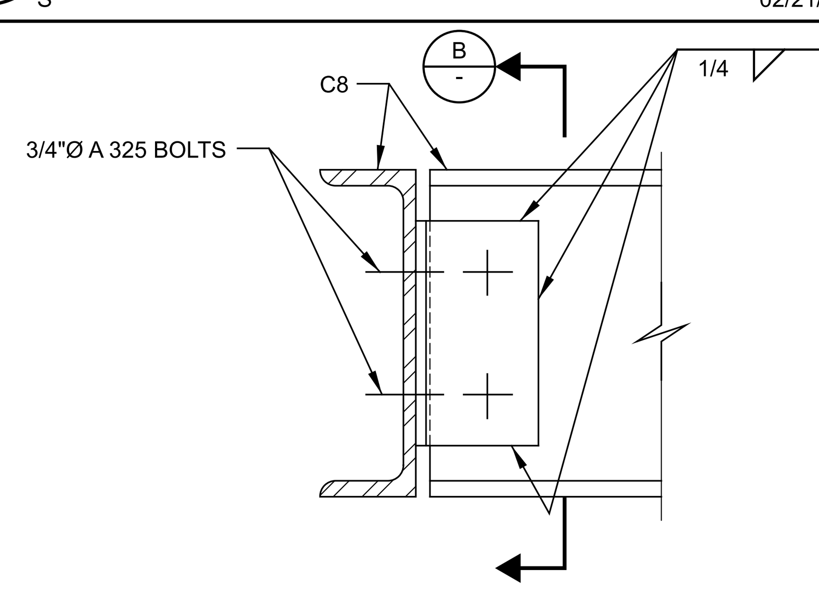
BEAM DEPTH (INCHES)	NUMBER OF BOLTS PER PLATE	PLATE THICKNESS (INCHES)	FILLET WELD SIZE "X" (INCHES)
8-10	2	1/4	3/16
12-16	3	1/4	3/16
18-21	5	3/8	5/16
24-30	7	3/8	5/16

NOTE:

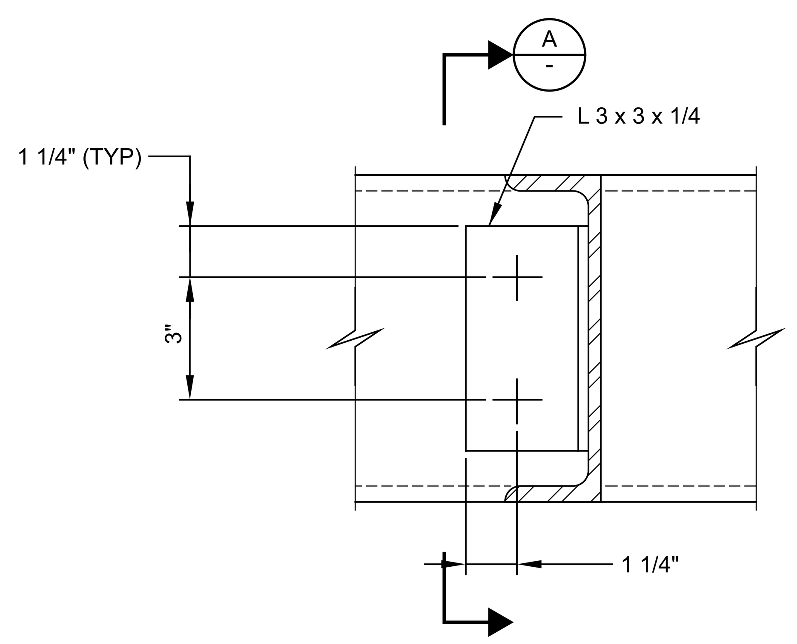
1. SCHEDULE APPLIES TO ALL BEAMS UNLESS NUMBER OF BOLTS PER LEG IS OTHERWISE INDICATED ON THE FRAMING PLAN BY ⬡# WHERE NUMBER INSIDE SYMBOL = NUMBER OF BOLTS.

S506 TYP N — STEEL SINGLE PLATE SHEAR CONNECTION 3/4" DIA BOLTS; ASTM A36 PLATES

03/27/19



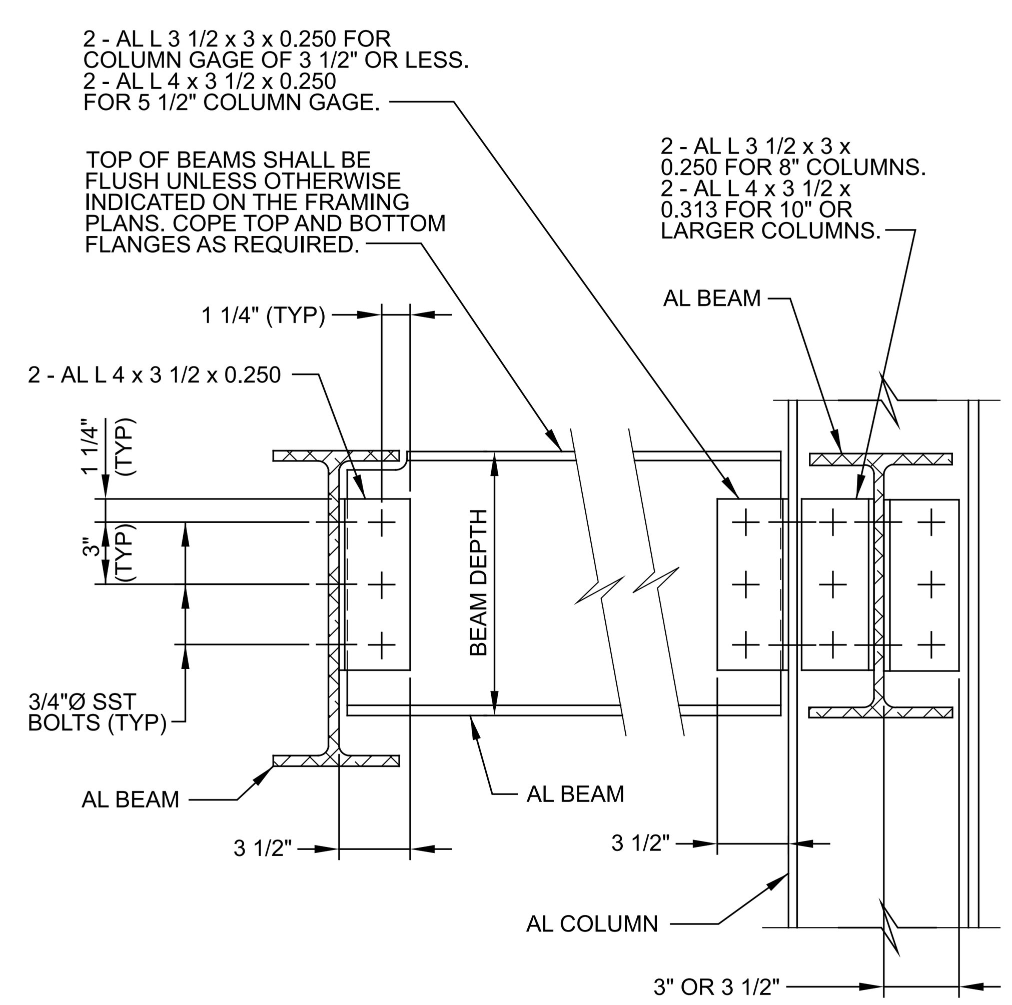
A/- SECTION



B/- SECTION

S508 TYP S — STEEL BOLTED CONNECTION

11/16/22



BEAM DEPTH (INCHES)	NUMBER OF BOLTS PER LEG
8 AND 10	2
12	3

NOTE:

1. SCHEDULE APPLIES TO ALL BEAMS UNLESS NUMBER OF BOLTS PER LEG IS OTHERWISE INDICATED ON THE FRAMING PLAN BY ⬡ .

S510 TYP — ALUMINUM DOUBLE ANGLE BOLTED CONNECTION VERTICAL BOLT LINES

08/01/05

REV	DATE	BY	DESCRIPTION

DESIGNED CE
DRAWN CE
CHECKED MED
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER — NIVEDITHAA VENKATANARAYANASAMI — No. 92381 — CIVIL — STATE OF CALIFORNIA

Digitally signed by Nivedithaa Venkatanarayanasami
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 11:11:01-05'00'

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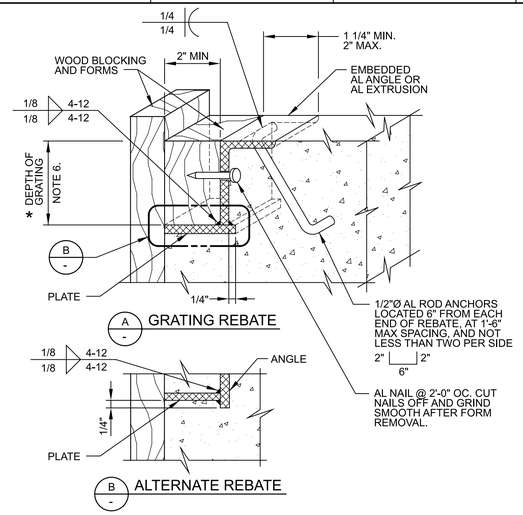
CITY OF PACIFICA

CITY OF PACIFICA
UV DISINFECTION SYSTEM REPLACEMENT
TYPICAL DETAILS
STRUCTURAL 4

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. TS04
SHEET NO. 77 OF 79

Plot Date: 13-MAR-2024 11:04:16 AM User: svcPW PlotScale: 1:1 DesignScript: Carollo_Std_Pen_v0905.pen ColorTable: gshade.ctb Model: Layout1 LAST SAVED BY: gleal

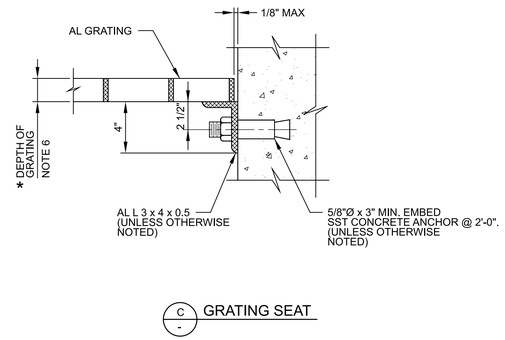


NOTES:

1. SEE SPECIFICATIONS FOR ALUMINUM GRATING.
2. MAKE REBATE AND/OR SEAT CONTINUOUS AROUND OPENING.
3. EMBEDDED REBATE ANGLE AND PLATE SHALL BE 1/4" MINIMUM THICKNESS.
4. REBATE MAY BE EXTRUDED, SUBJECT TO ENGINEER'S ACCEPTANCE.
5. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE AS SPECIFIED.
6. * = DIMENSION AS REQUIRED BY GRATING MANUFACTURER. SEE SPECIFICATIONS.

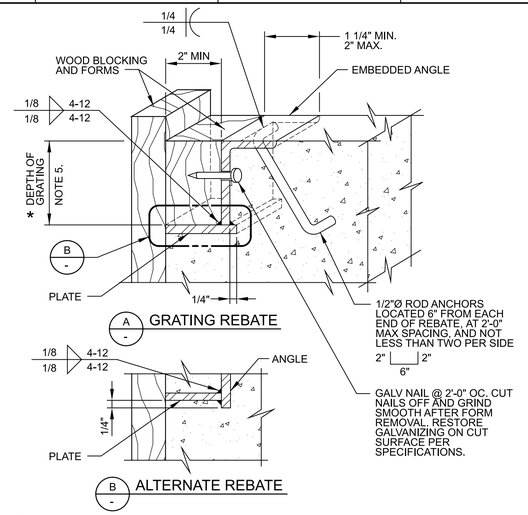
S542 TYP NS — GRATING - REBATE AND SEAT
ALUMINUM

SHEET 1 OF 2 06/21/19



S542 TYP NS — GRATING - REBATE AND SEAT
ALUMINUM

SHEET 2 OF 2 06/21/19

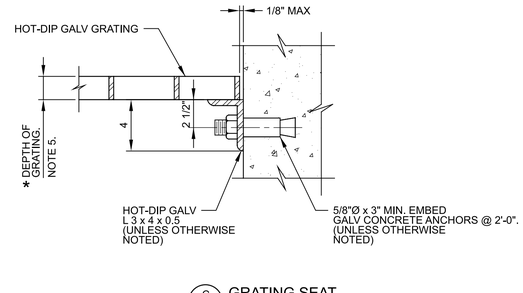


NOTES:

1. SEE SPECIFICATIONS FOR HOT-DIP GALVANIZED STEEL GRATING.
2. MAKE REBATE AND/OR SEAT CONTINUOUS AROUND OPENING.
3. EMBEDDED REBATE ANGLE AND PLATE SHALL BE 1/4" MINIMUM THICKNESS.
4. HOT-DIP GALVANIZED AFTER FABRICATION.
5. * = DIMENSION AS REQUIRED BY GRATING MANUFACTURER. SEE SPECIFICATIONS.

S544 TYP S — GRATING - REBATE AND SEAT
HOT-DIP GALVANIZED

SHEET 1 OF 2 06/21/19



S544 TYP S — GRATING - REBATE AND SEAT
HOT-DIP GALVANIZED

SHEET 2 OF 2 06/21/19

REV	DATE	BY	DESCRIPTION

DESIGNED CE
DRAWN CE
CHECKED MED
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER — VEDITHA VENKATANARAYANASAMI — No. 92381 — CIVIL — STATE OF CALIFORNIA

Digitally signed by Nivedithaa Venkatanarayanasami
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 11:10:45-05'00'

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CITY OF PACIFICA

UV DISINFECTION SYSTEM REPLACEMENT

TYPICAL DETAILS

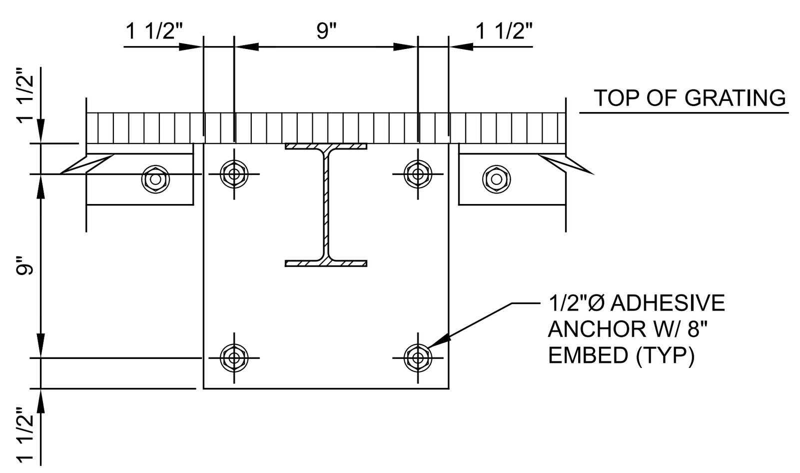
STRUCTURAL 5

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. TS05
SHEET NO. 78 OF 79

PROJECT NO. 201447-100000 FILE NAME: 201447TS05.dgn

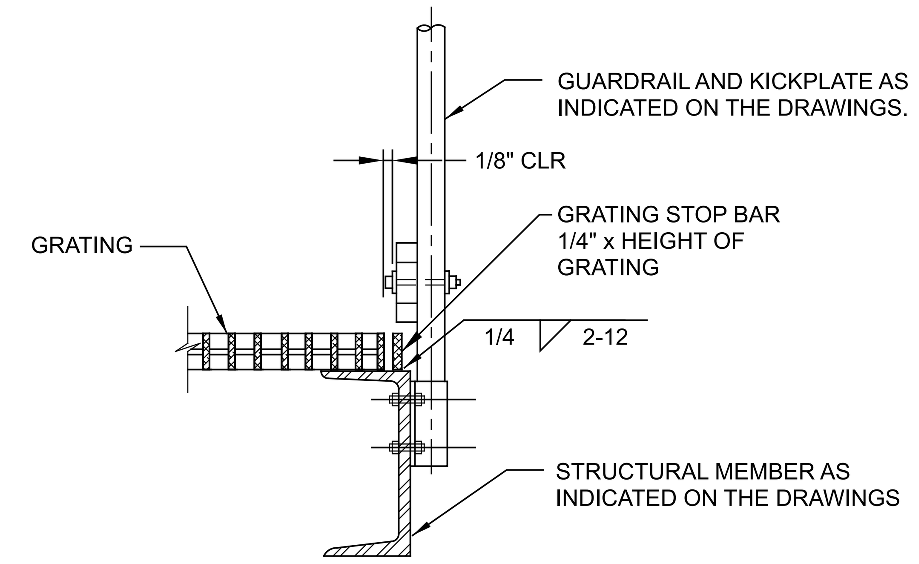
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B / 1 SECTION

S554 TYP — GRATING - ALUMINUM SUPPORT BRACKET

R SHEET 3 OF 3 04/25/23

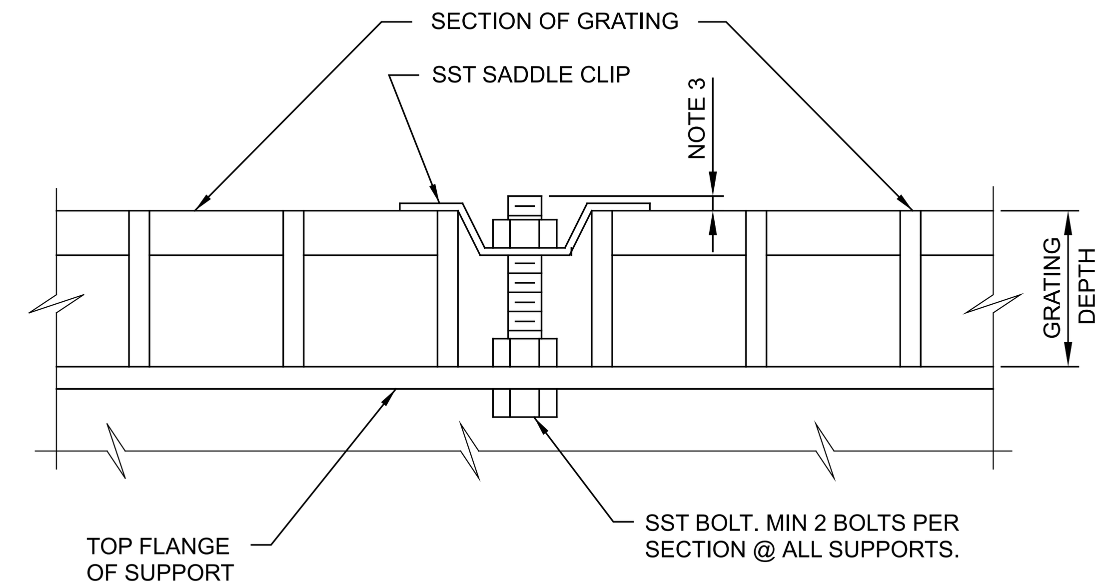


NOTES:

1. GRATING STOP SHALL BE INSTALLED ON ALL GRATING PLATFORMS AND LANDINGS SHALL BE CONTINUOUS ON ALL SIDES OF PLATFORMS NOT OTHERWISE COVERED BY A REBATE, SEAT, OR OTHER SIMILAR DETAIL. GRATING STOPS SHALL BE DISCONTINUOUS AT STAIRS BUT SHALL SERVE TO HOLD LANDING PANEL AT STAIRWAYS IN PLACE.
2. GRATING STOP SHALL BE OF THE SAME MATERIAL AS THE STRUCTURAL MEMBER.

S557 TYP — GRATING - EDGE STOP (ALL MATERIALS)

06/21/19

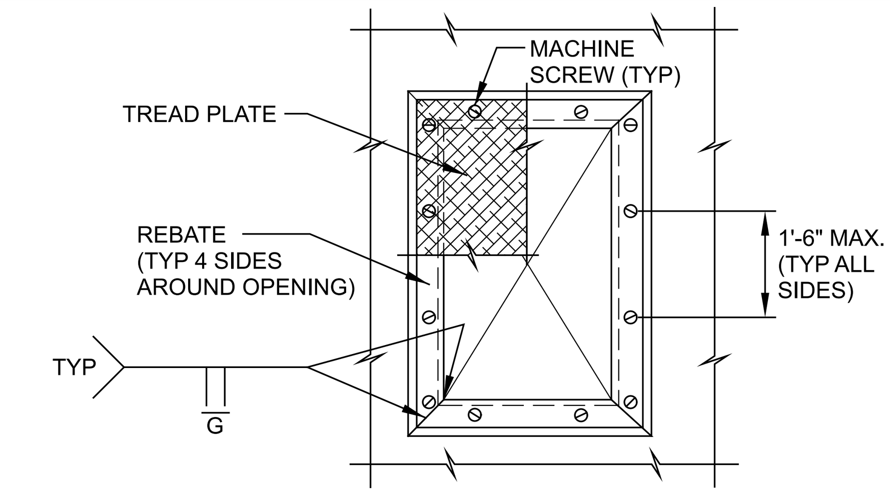


NOTES:

1. GRATING FASTENERS SHALL BE INSTALLED WHERE INDICATED ON THE DRAWINGS.
2. GRATING FASTENERS SHALL BE INSTALLED AT EACH CORNER OF EACH PANEL AND AT SPACING NOT TO EXCEED 8'-0".
3. RECESS THE GRATING CLIP WITHIN THE DEPTH OF THE GRATING TO AVOID A TRIPPING HAZARD.

S559 TYP — GRATING - FASTENERS (ALL MATERIALS)

03/16/21



A / - PLAN-TREAD PLATE AND REBATE (WITHOUT HINGES OR HANDLE)

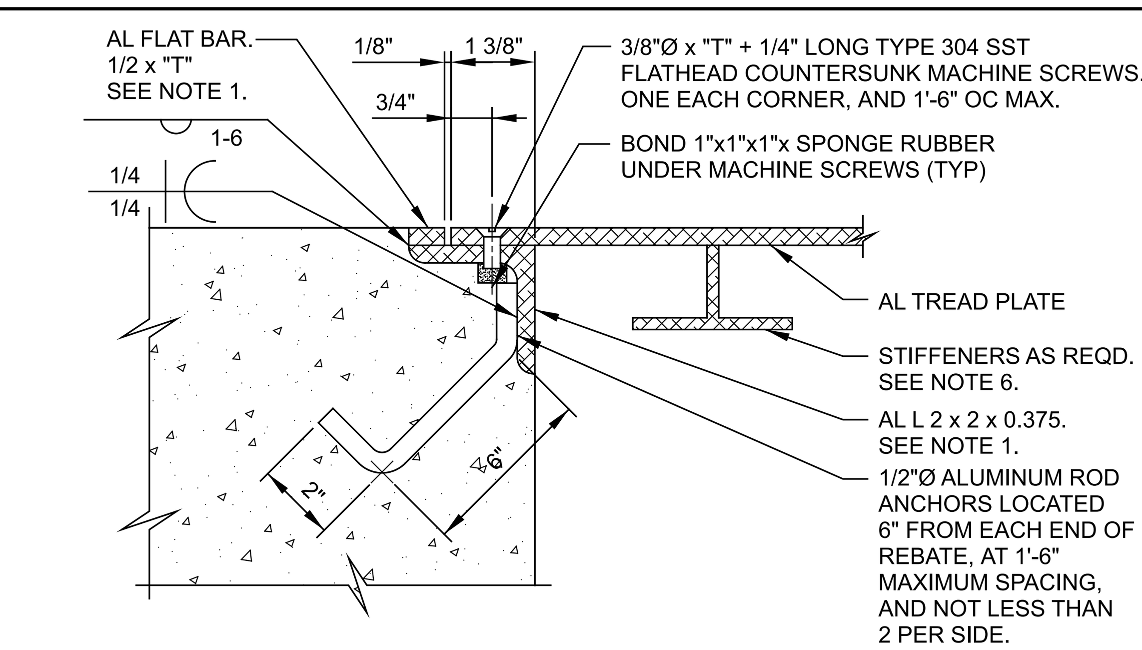
NOTES:

1. REBATE MAY BE EXTRUDED SUBJECT TO ENGINEER'S ACCEPTANCE.
2. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE AS SPECIFIED.
3. OMIT PERIMETER MACHINE SCREWS WHERE HINGE IS INDICATED ON THE DRAWINGS.
4. PROVIDE HINGE AND HANDLE WHERE INDICATED ON THE DRAWINGS.
5. TREAD PLATE SHALL BE FABRICATED IN UNITS THAT DO NOT WEIGH MORE THAN 75 POUNDS.
6. "T" = TREAD PLATE THICKNESS IN INCHES. AS SCHEDULED IN TABLE BELOW: TREAD PLATE LIVE LOAD SHALL BE SAME AS FLOOR LIVE LOAD.
   ★ 3/8" PLATE WITH AL T 3.00 x 3.00 x 2.72 STIFFENERS. SEE SECTIONS F, G, AND H ON SHEET 3 OF 3.

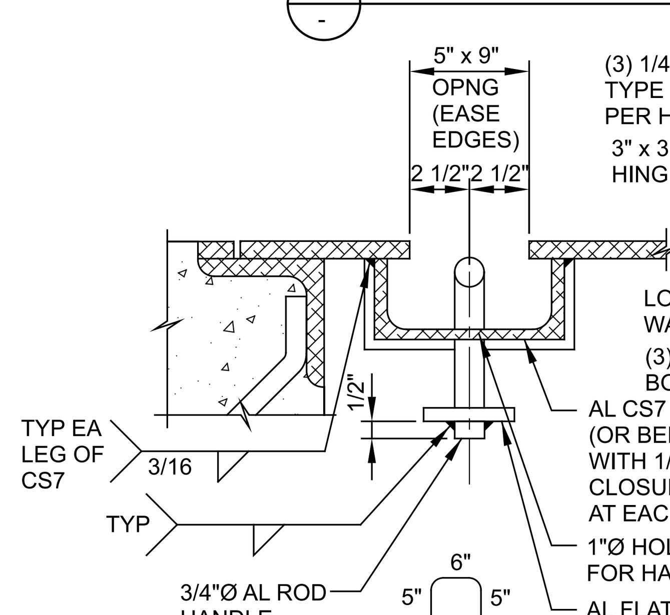
LIVE LOAD (PSF)	SHORTER SPAN "L" (FT-IN)					
	12"	1'-6"	2'-0"	2'-6"	3'-0"	4'-0"
100	3/16	1/4	3/8	1/2	1/2	3/8 ★
150	1/4	3/8	1/2	1/2	3/8 ★	3/8 ★
200	1/4	3/8	1/2	3/8 ★	3/8 ★	3/8 ★
250	1/4	3/8	1/2	3/8 ★	3/8 ★	3/8 ★
300	1/4	3/8	1/2	3/8 ★	3/8 ★	3/8 ★
350	3/8	1/2	3/8 ★	3/8 ★	3/8 ★	3/8 ★
400	3/8	1/2	3/8 ★	3/8 ★	3/8 ★	3/8 ★

S562 TYP — COVER - TREAD PLATE, SINGLE - ALUMINUM

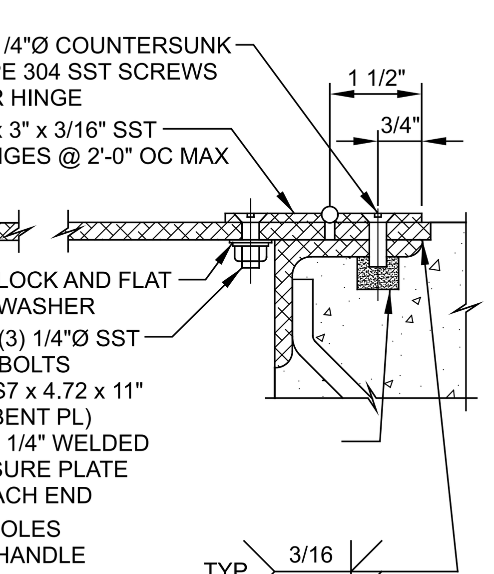
NS SHEET 1 OF 3 06/21/19



A / - REBATE DETAIL - WITHOUT HINGE



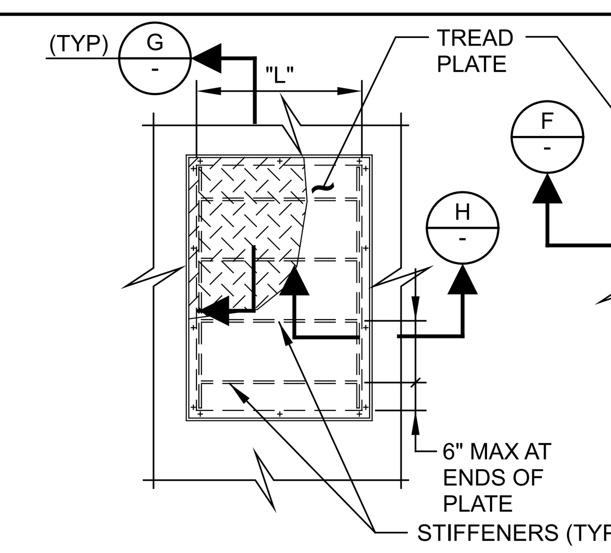
B / - HANDLE DETAIL



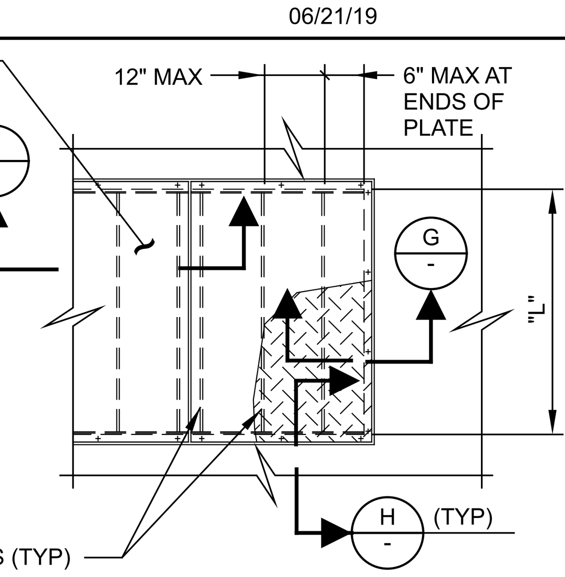
C / - HINGE DETAIL

S562 TYP — COVER - TREAD PLATE, SINGLE - ALUMINUM

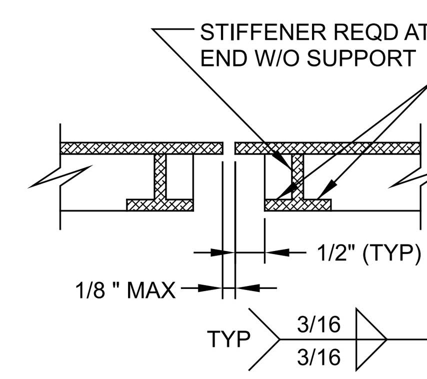
NS SHEET 2 OF 3 06/21/19



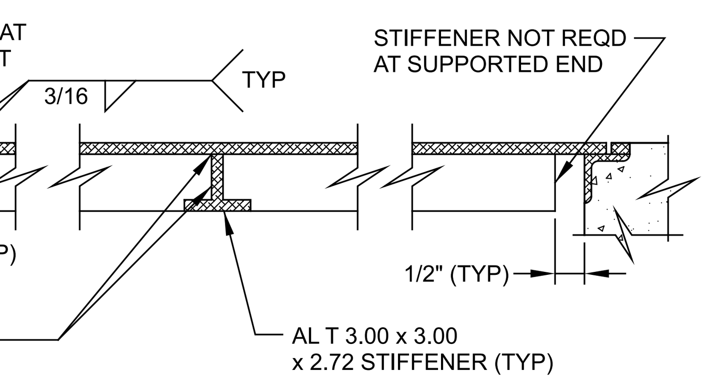
D / - PLAN - PLATE SUPPORTED ON 4 SIDES



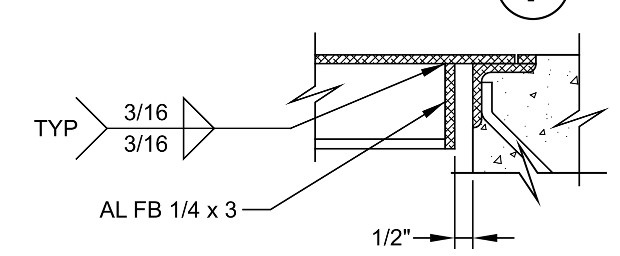
E / - PLAN - PLATE SUPPORTED ON 2 SIDES



F / - SECTION



G / - SECTION



H / - DETAIL

S562 TYP — COVER - TREAD PLATE, SINGLE - ALUMINUM

NS SHEET 3 OF 3 06/21/19

REV	DATE	BY	DESCRIPTION

DESIGNED CE
DRAWN CE
CHECKED MED
DATE MARCH 2024

REGISTERED PROFESSIONAL ENGINEER — NIVEDITHAA VENKATANARAYANASAMI — No. 92381 — CIVIL — STATE OF CALIFORNIA

Digitally signed by Niveditthaa Venkatanarayanasami
Contact Info: Carollo Engineers, Inc.
Date: 2024.03.22 11:10:25-05'00'

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UV DISINFECTION SYSTEM REPLACEMENT

TYPICAL DETAILS

STRUCTURAL 6

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 201447
DRAWING NO. TS06
SHEET NO. 79 OF 79

Plot Date: 13-MAR-2024 11:04:23 AM User: svcPW
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