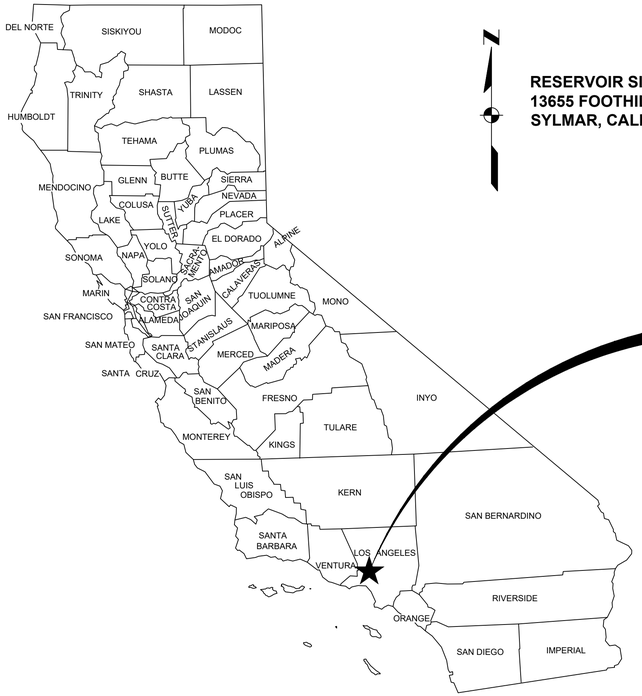
CITY OF SAN FERNANDO

SAN FERNANDO, CA

UPPER RESERVOIR REPLACEMENT

JOB NO. 7613, P-733
APRIL 2021



VICINITY MAP

N.T.S.

RESERVOIR SITE
13655 FOOTHILL BLVD
SYLMAR, CALIFORNIA

SITE A
INTERSECTION OF
DRONFIELD AND HUBBARD

LOCATION MAP

1" = 500'

SHEET	DESCRIPTION
GENERAL	
G-1	COVER SHEET, VICINITY MAP, LOCATION MAP, AND SHEET INDEX
G-2	GENERAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES
G-3	GENERAL & CIVIL SYMBOLS
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C-3	CIVIL GRADING AND DRAINAGE PLAN
C-4	CIVIL YARD PIPING PLAN
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S-8	STRUCTURAL RESERVOIR ROOF PLAN AND PIPE PENETRATION AND MANWAY HATCH DETAILS
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S-11	STRUCTURAL TYPICAL RESERVOIR REINFORCING AND HATCH AND VENT DETAILS
S-12	STRUCTURAL RESERVOIR ROOF REINFORCING PLAN
S-13	STRUCTURAL OUTLET SUMP PLAN, SECTIONS AND DETAILS
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E-4	ELECTRICAL DEMO SITE PLAN
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LC-1	CONSTRUCTION PLAN
LC-2	CONSTRUCTION DETAILS
LI-1	IRRIGATION PLAN AND NOTES
LI-2	IRRIGATION MATERIALS LEGEND AND NOTES
LI-3	IRRIGATION DETAILS
LI-4	IRRIGATION DETAILS
LI-5	IRRIGATION CALCULATIONS AND DETAILS
LI-6	IRRIGATION CALCULATIONS AND DETAILS
LP-1	PLANTING PLAN, PLANT LIST, NOTES, AND DETAILS

NO.	REVISION	DATE	BY

SCALES

0 — 1"

0 — 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — PETER DANIEL THOMAS — No. C70931 — Exp. 6/30/21 — CIVIL — STATE OF CALIFORNIA

DESIGNED	WM
DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON consulting inc.

COVER SHEET, VICINITY MAP, LOCATION MAP AND SHEET INDEX

JOB NO. 7613, P-733

FILE NAME	1944519.00-G-1.dwg
JOB NO.	1944519.00
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OF	##

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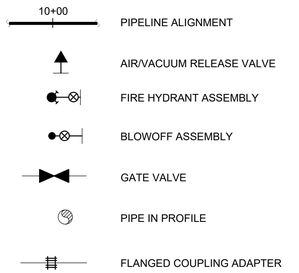
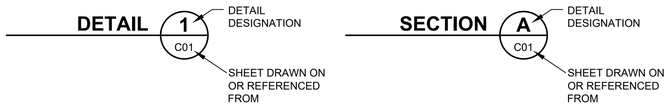
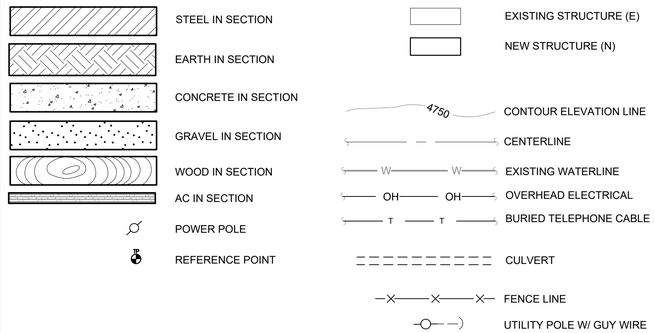
PIPING SYMBOLS



REFERENCE SYMBOLS



GENERAL LEGEND



ABBREVIATIONS

ABAND	ABANDONED
AB, A.B.	AGGREGATE BASE, ANCHOR BOLT
AC, A.C.	ASPHALT CONCRETE
ACP	ASBESTOS CEMENT PIPE
ADDIT.	ADDITIONAL
ADJ.	ADJUSTABLE
AGG	AGGREGATE
ALUM	ALUMINUM
APPRO.	APPROXIMATELY
ARCH	ARCHITECTURAL
ASPH	ASPHALT
AVG	AVERAGE
ARV	AIR RELEASE VALVE
ASSY	ASSEMBLY
AVRV	AIR/VACUUM RELIEF VALVE
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BM	BEAM, BENCH MARK
BO	BLOWOFF
BOC	BACK OF CURB
BOT, BOTT	BOTTOM
BV	BALL VALVE
C	CURVE
CALTRANS	(CALIFORNIA DEPARTMENT OF TRANSPORTATION)
CATV	CABLE TV
CATVR	CABLE TV RISER
CC, C/C	CENTER TO CENTER
CI	CAST IRON
CL, ℄	CENTERLINE
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CLR	CLEAR(ANCE)
CO	CLEANOUT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINU(ED), (OUS)
CP	CONTROL POINT, CATHODIC PROTECTION
CPLG	COUPLING
CTS	CATHODIC TEST STATION
D	DRAIN
DEFL	DEFLECTION
DEPT	DEPARTMENT
DI	DUCTILE IRON, DROP INLET
DIA, Ø	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DL	DEADLOAD
DN	DOWN
DWG(S)	DRAWING(S)
E	ELECTRICAL, EAST
EA	EACH
EF	EACH FACE
EL., ELEV	ELEVATION
ELL	ELBOW
ELEC(T)	ELECTRIC(AL)
EMG	EMERGENCY
EPB	ELECTRICAL PULL BOX
EQ	EQUAL
EQUIP	EQUIPMENT
ETS	ELECTROLYSIS TEST STATION
EXH	EXHAUST
EXIST, (E)	EXISTING
EXP	EXPANSION
EW	EACH WAY
(F)	FUTURE
FAC	FACTORY
FC	FLEXIBLE COUPLING
FCA	FLANGE COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FF	FINISH FLOOR
FH	FIRE HYDRANT
FIN	FINISH(ED)
FL	FLOW LINE
FLR	FLOOR
FLG	FLANGE
FLEX	FLEXIBLE
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FOOT
FTG	FOOTING
G	GAS
GA	GAUGE
GALV	GALVANIZED
GB	GRADE BREAK
GI	GALVANIZED IRON
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GS	GALVANIZED STEEL
GV	GATE VALVE
GYP (BD), GWB	GYPSUM (BOARD), GYPSUM WALLBOARD
H, HT	HEIGHT
HB	HOSE BIB
HDPE	HIGH DENSITY POLYETHYLENE
HM	HOLLOW METAL
HORIZ.	HORIZONTAL
H.P.	HIGH POINT, HINGE POINT
HP	HORSEPOWER
HR	HOUR
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCHES
INSUL	INSULATION
INV	INVERT
IPS	IRON PIPE SIZE
JB	JUNCTION BOX
JT	JOINT
L	LENGTH, LINE
LAB	LABORATORY
LG	LONG
LL	LIVE LOAD
LOG	LIP OF GUTTER
LR	LONG RADIUS
LT	LEFT TURN
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MET	METAL
MFR, MNFR	MANUFACTURER
MJ	MECHANICAL JOINT
MG	MILLION GALLON
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MNTD	MOUNTED
MPH	MILES PER HOUR
N	NORTH
(N)	NEW
N.F.C.	NOT FOR CONSTRUCTION
N/A	NOT APPLICABLE
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NIC	NOT IN CONTRACT
NO.	NUMBER
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OVERFLOW
OG	ORIGINAL GROUND
OPNG(S)	OPENING(S)
P	PNEUMATIC, PIPE
PACP	PERFORATED ASBESTOS CEMENT PIPE
PCCP	PRETENSIONED CONCRETE CYLINDER PIPE
PC	POINT OF CURVE (BEGIN CURVE)
PG	PRESSURE GAUGE
PI	POINT OF INTERSECTION
PL	PLATE
P/L	PROPERTY LINE
PRES(S)	PRESSURE
PRV	PRESSURE RELEASE VALVE, PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENT (END CURVE)
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RCCP	REINFORCED CONCRETE CYLINDER PIPE
REINF	REINFORCE(D), (MENT)
REQ'D	REQUIRED
RESIL	RESILIENT
RESV	RESERVOIR
RM	ROOM
RT	RIGHT TURN
R/W	RIGHT OF WAY
S	SEWER, SOUTH
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SECT	SECTION
SF	SQUARE FOOT
SHT	SHEET
SMUD	SACRAMENTO MUNICIPAL UTILITIES DISTRICT
SPEC	SPECIFICATION(S)
SQ	SQUARE
SS	STAINLESS STEEL, SANITARY SEWER
STA	STATION
STD	STANDARD
ST(L)	STEEL
STR(UCT)	STRUCTUR(E), (AL)
SV	SOLENOID VALVE
SYS	SYSTEM
T	TELEPHONE
T/	TOP
TBM	TEMPORARY BENCHMARK
T&B	TOP AND BOTTOM
T/C, TOC, TC	TOP OF CONCRETE
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
TH	THICKNESS
TOP	TOP OF PAVEMENT
TP	TEST PIT
TUD	TUOLUMNE UTILITIES DISTRICT
T/S, TOS	TOP OF STEEL
TYP	TYPICAL
T-_-P	TYPE_____PIPE
T-_-S	TYPE_____SUPPORT
UD	UNDERDRAIN
V, VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT TO ROOF
W	WATER, WELDED, WEST
WB	WATER BAR
W/	WITH
WC	WATER CLOSET
WCO	WALL CLEANOUT
WH	WATER HEATER
WMH	WATER MANHOLE
W/O	WITHOUT
WTP	WATER TREATMENT PLANT
WTR	WATER
WV	WATER VALVE
WS	WATER SURFACE
WWF	WELDED WIRE FABRIC
#	POUND, NUMBER
&	AND
@	AT

GENERAL NOTES

1. THIS PROJECT IS WITHIN CITY OF LOS ANGELES RIGHT OF WAY. CONTRACTOR SHALL CONFORM TO CITY OF LOS ANGELES ENCROACHMENT PERMIT AND REQUIREMENTS.
2. THE KNOWN EXISTING BURIED UTILITIES AND PIPELINES ARE SHOWN ON THE DRAWINGS IN THEIR APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL EXISTING PIPELINES AND OBSTRUCTIONS ARE SHOWN OR THAT LOCATIONS INDICATED ARE ACCURATE. THE CONTRACTOR SHALL "POTHOLE" TO DETERMINE THE ACTUAL LOCATION AND ELEVATION OF ALL EXISTING UTILITIES CROSSING NEW PIPELINES.
3. UNLESS OTHERWISE NOTED, ALL PIPE SHALL HAVE A MINIMUM COVER OF 3'-6". VERTICAL SEPARATION BETWEEN THE NEW PIPELINE AND THE EXISTING UTILITIES SHALL BE A MINIMUM OF 12-INCHES.
4. EXACT LOCATION AND DEPTH OF EXISTING PIPELINE IS NOT KNOWN. CONTRACTOR IS REQUIRED TO LOCATE AND EXPOSE EXISTING PIPING PRIOR TO ORDERING MATERIAL.
5. THE CONTRACTOR IS RESPONSIBLE FOR ASSURING THAT ALL PIPELINES, VALVES AND FITTINGS ARE ADEQUATELY RESTRAINED AGAINST JOINT SEPARATION. PROVIDE RESTRAINED JOINTS OR THRUST BLOCKS FOR ALL HORIZONTAL BENDS, WYES, AND BLIND FLANGES. PROVIDE RESTRAINED JOINTS FOR ALL VERTICAL BENDS.
6. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL ITEMS DISTURBED DURING CONSTRUCTION BACK TO THEIR ORIGINAL OR BETTER CONDITION.
7. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AS-BUILT PIPELINE PLANS AND PROFILES AFTER COMPLETION OF THE PROJECT. THE ENGINEER WILL PROVIDE EXISTING DESIGN DRAWING FILES IN AUTOCAD FOR CONTRACTOR TO GENERATE AS-BUILT PIPELINE PLANS AND PROFILES.
8. THE EXISTING AC PIPE SECTIONS (AT EXISTING PIPE CONNECTION) SHALL BE CAREFULLY CUT AND REMOVED BY THE CONTRACTOR.

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER — PETER DANIEL SYKOWSKI — No. 070491 Exp. 6/30/21 — CIVIL — STATE OF CALIFORNIA

DESIGNED	WM
DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

GENERAL LEGEND, ABBREVIATIONS, AND GENERAL NOTES

FILE NAME	1944519.00-G-2.dwg
JOB NO.	1944519.00
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SHEET	G-2
OF	##

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CIVIL / GENERAL SYMBOLS

	LINE TYPE
PROPOSED OUTLINE (HEAVY)	CONTINUOUS
EXISTING (LIGHT)	CONTINUOUS
PROPOSED HIDDEN OR UG (HEAVY)	HIDDEN
FUTURE (MEDIUM)	HIDDEN
EXISTING HIDDEN OR UG (LIGHT)	HIDDEN
CUTTING PLANE (SECTION)	PHANTOM (PLINE)
BREAK LINE (SHORT)	
BREAK LINE (LONG)	
SANITARY SEWER (EXISTING)	SS
STORM DRAIN (EXISTING)	SD
WATER LINE (EXISTING)	W
GAS PIPELINE (EXISTING)	G
UNDERGROUND TELEPHONE LINE (EXISTING)	T
ELECTRICAL CONDUIT (EXISTING)	E
CABLE TV (EXISTING)	CTV
FIBER OPTIC (EXISTING)	FO
AERIAL UTILITY (EXISTING)	AU
CROSSING UTILITIES (EXISTING)	
FENCE (NEW)	x
FENCE (EXISTING)	x
SEDIMENT FENCE	
PROPERTY LINE/RIGHT-OF-WAY	
CONTRACTORS WORK AREA LIMITS	WA
CENTERLINE	
CULVERT WITH END SECTIONS	
HANDRAIL OR GUARDRAIL	
WATER SURFACE	
GRADE CHANGE LINE	
RIDGE LINE	
FLOW LINE	
GRADED SLOPE	TOP / TOE
DITCH OR SWALE	
CONTOUR MAJOR (NEW)	110
CONTOUR MINOR (NEW)	108
CONTOUR MAJOR (EXIST)	110
CONTOUR MINOR (EXIST)	

PROPOSED MANHOLE (NEW)	
MANHOLE (EXISTING)	
BENCH MARK	BM
MONITORING WELL (NEW)	MW
MONITORING WELL (EXISTING)	MW
ROTARY BORING, IDENTIFICATION NUMBER	B-2
TEST PIT, IDENTIFICATION NUMBER	TP-3
HISTORIC BORING, IDENTIFICATION NUMBER	WW-B9
SPOT ELEVATION	10.35
ELECTROLYSIS TEST STATION	ETS
WATER METER	WM
FIRE DEPT CONNECTION	
FIRE HYDRANT	
UTILITY BOX (AS LABELED)	
POWER POLE	
STREET LIGHT	
STREET LIGHT AND TRAFFIC SIGNAL	
YARD LIGHT	
TRAFFIC SIGNAL	
TELEPHONE RISER	T RISER
GUY ANCHOR	
CATCH BASIN	CB
DROP INLET	DI
CLEAN OUT	CO
VALVE	
UTILITY STATION	TYPE X
DRIVEWAY	
HANDICAP ACCESS RAMP	
CURVE NO	14
SURVEY PANEL	
ELEVATION MARK (REFERENCE)	
ELEVATION MARK (DESIGN)	
FLAG NOTE	1

STRUCTURE OR PIPE (NEW)
STRUCTURE OR PIPE (EXISTING)
DEMOLITION
AC DEMOLITION IN PLAN
CONCRETE IN SECTION
STEEL IN SECTION
WOOD IN SECTION
GRATING IN PLAN
CHECKERED PLATE IN PLAN
GRAVELED AREA IN PLAN OR SECTION
RIP RAP (RIVER ROCK)
SAND
BRICK OR CONCRETE BLOCK IN SECTION
GRADE (UNDISTURBED EARTH)
STRUCTURAL FILL
ASPHALT CONCRETE (IN PLAN)
ASPHALT CONCRETE (IN SECTION)

NOTES:

1. THIS IS A GENERALIZED LEGEND SHEET. THIS CONTRACT MAY NOT USE ALL INFORMATION SHOWN.

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — PETER DANIEL STYMNESS — No. 070491 — Exp. 6/30/21 — CIVIL — STATE OF CALIFORNIA

DESIGNED	WM
DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting Inc.

GENERAL & CIVIL SYMBOLS

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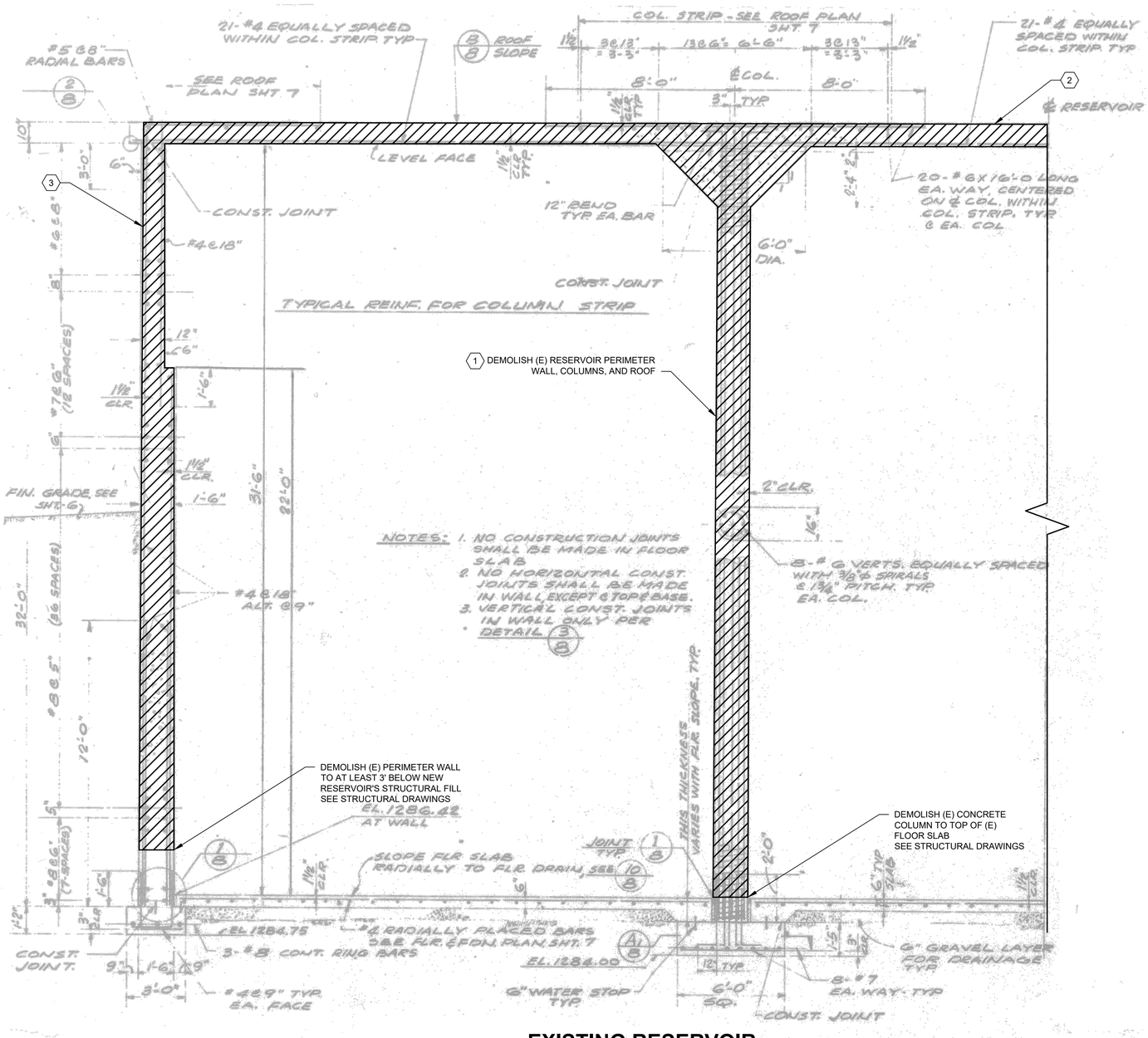

EXISTING RESERVOIR

DEMOLITION NOTES

1. TOTAL OF 4 COLUMNS WITHIN EXISTING RESERVOIR
2. APPROX ROOF AREA OF 245 SQ FT
3. APPROX WALL LENGTH OF 237 FT
4. SEE SHT C-2 FOR EXISTING RESERVOIR LOCATION

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER BILL H. MOSER No. C28129 CIVIL STATE OF CALIFORNIA

DESIGNED	WM
DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

DEMOLITION SECTION

FILE NAME	1944519.00-D-1.dwg
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CIVIL GENERAL NOTES

GENERAL

1. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
2. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL DEBRIS FROM DEMOLITION AT CONTRACTORS EXPENSE.
3. ALL BUILDING COORDINATES ARE TO OUTSIDE CORNER OF COLUMN OR BUILDING.
4. THE CONTRACTOR SHALL DISPOSE OF ALL NON-ORGANIC WASTES SUCH AS OLD GUNITE, PIPING, ROCK RUBBLE ETC. AT AN APPROVED LANDFILL OR, OTHER SUITABLE DISPOSAL SITES AT THE CONTRACTOR'S EXPENSE.
5. CONTRACTOR SHALL RESTORE ALL SURVEY MONUMENTS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION.

UTILITIES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FOR POINTS OF CONNECTIONS.
2. THE CONTRACTOR SHALL PROTECT ALL REMAINING EXISTING UTILITIES.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS AND ELEVATIONS AND SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.
4. PRIOR TO ANY CONNECTION TO AN EXISTING UTILITY, THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER.
5. PRIOR TO ANY EXCAVATION IN THE VICINITY OF ANY EXISTING UNDERGROUND FACILITIES, INCLUDING ALL WATER, SEWER, STORM DRAIN, GAS, PETROLEUM PRODUCTS, OR OTHER PIPELINES; ALL BURIED ELECTRIC POWER, COMMUNICATIONS, OR TELEVISION CABLES; ALL TRAFFIC SIGNAL AND STREET LIGHTING FACILITIES; AND ALL ROADWAY, STATE HIGHWAY, AND RAILROAD RIGHTS-OF-WAY, THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE AUTHORITIES REPRESENTING THE OWNERS OR AGENCIES RESPONSIBLE FOR SUCH FACILITIES NOT LESS THAN 3 DAYS NOR MORE THAN 7 DAYS PRIOR TO EXCAVATION SO THAT A REPRESENTATIVE OF SAID OWNERS OR AGENCIES CAN BE PRESENT DURING SUCH WORK IF THEY SO DESIRE. IN THE CASE OF THE UNDERGROUND UTILITY SERVICE ALERT CENTER, THIS NOTICE WILL GIVE THEM TIME TO MARK THE LOCATION OF THE UTILITIES. THE CONTRACTOR SHALL ALSO NOTIFY THE REGIONAL OR LOCAL UNDERGROUND SERVICE ALERT COMPANY AT LEAST 3 DAYS, BUT NO MORE THAN 7 DAYS, PRIOR TO SUCH EXCAVATION.

PIPING

1. THE CONTRACTOR SHALL COMPLY WITH THE STATE DEPARTMENT OF HEALTH SERVICES CRITERIA FOR THE SEPARATION OF WATER MAINS AND SANITARY SEWERS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 36 INCHES OF COVER ON ALL PIPELINES UNLESS OTHERWISE SHOWN OR DIRECTED.
3. STRAIGHT SLOPES SHALL BE MAINTAINED BETWEEN INVERT ELEVATIONS SHOWN OR SPECIFIED.
4. THE CONTRACTOR SHALL ADJUST ALL VALVE BOXES, PULL BOXES, AND MANHOLES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR SPECIFIED. MANHOLES IN OPEN FIELDS SHALL BE SET ONE FOOT ABOVE GRADE. APPROXIMATE RIM ELEVATIONS ARE SHOWN ON DRAWINGS.
5. ALL PIPE TRENCHING AND BACKFILL SHALL BE IN ACCORDANCE WITH DETAIL C-602 FOR RIGID PIPE AND C-601 FOR FLEXIBLE PIPE. THE PIPING SHOWN ON THESE PLANS SHALL BE RESTRAINED JOINT DESIGN AT ALL SLEEVE TYPE COUPLINGS.
6. THE CONTRACTOR SHALL PROVIDE TWO FLEXIBLE SLEEVE TYPE COUPLINGS WITH RESTRAINED JOINTS FOR EACH PIPE PENETRATING A STRUCTURE. THE COUPLINGS AND FLEXIBLE JOINTS SHALL BE 3-FEET AND 8-FEET AWAY FROM THE STRUCTURE. ALL PIPING SHALL BE RESTRAINED JOINT DESIGN UNLESS INDICATED OTHERWISE. COUPLINGS AND RESTRAINED JOINTS SHALL BE PROVIDED WHETHER SHOWN ON THE DRAWINGS OR NOT. STEEL PIPE RESTRAINED HARNESS SETS SHALL BE PROVIDED IN ACCORDANCE WITH AWWA M-11. ALL OTHER PIPES, COUPLINGS AND RESTRAINED JOINTS HALL BE APPROVED BY THE ENGINEER. ALL RESTRAINED JOINTS SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURERS' RECOMMENDATIONS.

EROSION CONTROL

1. THE CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN FOR WORK DURING THE CONSTRUCTION, SIGNED AND STAMPED BY A REGISTERED CIVIL ENGINEER PRIOR TO THE START OF CONSTRUCTION.
   a. ALL SLOPES SHALL BE PROTECTED FROM EROSION DURING ROUGH GRADING OPERATIONS AND THEREAFTER, UNTIL INSTALLATION OF FINAL GROUNDCOVER (SEE LANDSCAPE PLANS FOR FINAL GROUNDCOVER).
   b. ALL SLOPE PROTECTION SWALES SHALL BE CONSTRUCTED AT THE SAME TIME AS BANKS ARE GRADED.
   c. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF EROSION CONTROL MEASURES CONTAINED WITHIN THE CONTRACT SPECIFICATIONS OR AS REQUIRED BY THE CITY, DISTRICT, OR OTHER REGULATORY AUTHORITY. THE CONTRACTOR SHALL ALSO PROVIDE ANY ADDITIONAL EROSION CONTROL MEASURES (E.G. HYDROSEEDING, MULCHING OF STRAW, SAND BAGGING, DIVERSION DITCHES, ETC.) DICTATED BY FIELD CONDITIONS TO PREVENT EROSION OR THE INTRODUCTION OF DIRT, MUD, OR DEBRIS INTO EXISTING PUBLIC STREETS, WATERWAYS, OR ONTO ADJACENT PROPERTIES DURING ANY PHASE OF CONSTRUCTION OPERATIONS.

CIVIL GENERAL NOTES - CONTINUED

SURVEY AND CONTROL

BENCHMARK L.A. CITY NO. 03-00843 NAVD88
SPIKE EASTERLY CURB HUBBARD ST 2FT SOUTHERLY OF BEGINNING OF CURB RETURN SOUTHERLY OF FOOTHILL BLVD
ELEV = 1296.015 (2000)

GEOTECHNICAL SYMBOLS

- SOIL BORING LOCATION
- TEST PIT LOCATION
- MONITORING WELL

DRAINAGE SYMBOLS

- RIPRAP
- HAY BALE
- SILT FENCE

CORROSION CONTROL SYMBOLS

- ETS — ELECTROLYSIS TEST STATION
- T — CATHODIC TEST STATION
- CTS — CORROSION TEST STATION
- CATS — CASING TEST STATION
- IJTS — INSULATING JOINT TEST STATION
- FPTS — FOREIGN PIPELINE TEST STATION
- CSTS — CURRENT SPAN TEST STATION

GENERAL CIVIL SYMBOLS

- NEW
- EXISTING
- FUTURE
- EXISTING TO BE REMOVED OR DEMOLISHED
- CENTERLINE
- EARTH (IN SECTION)
- COMPACTED EARTH (IN SECTION)
- S=0.0123 — SLOPE ON PAVED SURFACE
- 3:1 — BERM SLOPE (HORZ TO VERT)

TOPOGRAPHY AND MAPPING SYMBOLS

- MAJOR CONTOURS
- MINOR CONTOURS
- TOP OF SLOPE
- TOE OF SLOPE
- P/L — PROPERTY LINE
- R/W — RIGHT-OF-WAY LINE
- GRADE BREAK
- R — RIDGE LINE
- ESMT — EASEMENT LINE
- ESMT — TEMPORARY EASEMENT LINE
- TRAIL OR DIRT ROAD
- FLOW LINE
- FLOOD HAZARD AREA
- EDGE OF WETLANDS
- RAILROAD
- GUARDRAIL (PERMANENT)
- GUARDRAIL (REMOVABLE)
- VEGETATION
- WELL

PIPING AND UTILITIES

UTILTIES (SINGLE LINE) SEE PIPE SCHEDULE FOR ADDITIONAL PIPING INFO

- G — UTILITIES (SIZE WHERE NOTED)
- G — UNDERGROUND

G	NATURAL GAS LINE
HPG	HIGH PRESSURE GAS LINE
LPG	LIQUID PETROLEUM GAS LINE
W	WATER
PW	POTABLE WATER
FIRE	FIRE SUPPLY WATER LINE
REW	RECLAIMED WATER
UW	UTILITY / NON-POTABLE WATER
IRRG	IRRIGATION LINE
SDR	STORM DRAIN
SS	SANITARY SEWER
STM	STEAM LINE
TEL	TELEPHONE
COMM	COMMUNICATIONS LINE
FOC	FIBER OPTIC CABLE
CATV	CABLE TV
E	POWER
UNID	UNIDENTIFIED
ABND	ABANDONED UTILITY

- BUMPED HEAD
- POWER POLE
- BURIED ACCESS MANHOLE (IN PLAN) LOCATE ON SIDE SHOWN
- BURIED ACCESS MANHOLE (IN PROFILE)
- AV/AR VALVE (IN PLAN)
- AV/AR VALVE (IN PROFILE)
- A/R VALVE (IN PLAN) LOCATE ON SIDE SHOWN
- BLOWOFF (IN PLAN) LOCATE ON SIDE SHOWN
- BLOWOFF (IN PROFILE)
- FH — FIRE HYDRANT (IN PLAN)
- FH — FIRE HYDRANT (IN PROFILE)
- MH — MANHOLE (IN PLAN)
- MH — MANHOLE (IN PROFILE)
- CLEANOUT TO GRADE (IN PLAN)
- CO — CLEANOUT TO GRADE OR PRESSURE CLEANOUT TO GRADE (IN PROFILE)

BURIED VALVES IN VALVE BOX

- GATE VALVE
- BUTTERFLY VALVE
- PLUG VALVE
- CHECK VALVE

ROAD AND PAVING SYMBOLS

- ASPHALT CEMENT (IN PLAN)
- ASPHALT CEMENT (IN SECTION)
- CONCRETE PAVING
- GRAVEL PAVING
- CONCRETE CURB
- CONCRETE CURB
- DROP INLET CATCH BASIN
- DRIVEWAY/ACCESS RAMP

CONTROL SYMBOLS

- BENCH MARK
- SITE COORDINATES (SEE TABLE ON DRAWINGS)
- N XXXXXX E XXXXXX — SITE COORDINATES
- HORIZONTAL CONTROL POINT
- VERTICAL CONTROL POINT
- HORZ AND VERT CONTROL POINT
- XXX.XX — FINISHED ELEVATION
- XXX.XX — EXISTING ELEVATION
- Δ — DELTA

STRUCTURES

- SITE OR RETAINING WALL
- x x x — FENCE (CHAINLINK)
- FENCE (WOOD)
- STRUCTURE
- STRUCTURE (BELOW GRADE)
- CATCH BASIN

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER — BILL R. MOSER — No. C28129 — CIVIL — STATE OF CALIFORNIA

DESIGNED WM
DRAWN PT
CHECKED WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting Inc.

CIVIL
ABBREVIATIONS AND LEGEND

FILE NAME 1944519.00-C-1.dwg
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DATE APRIL 2020
SHEET C-1 OF ##

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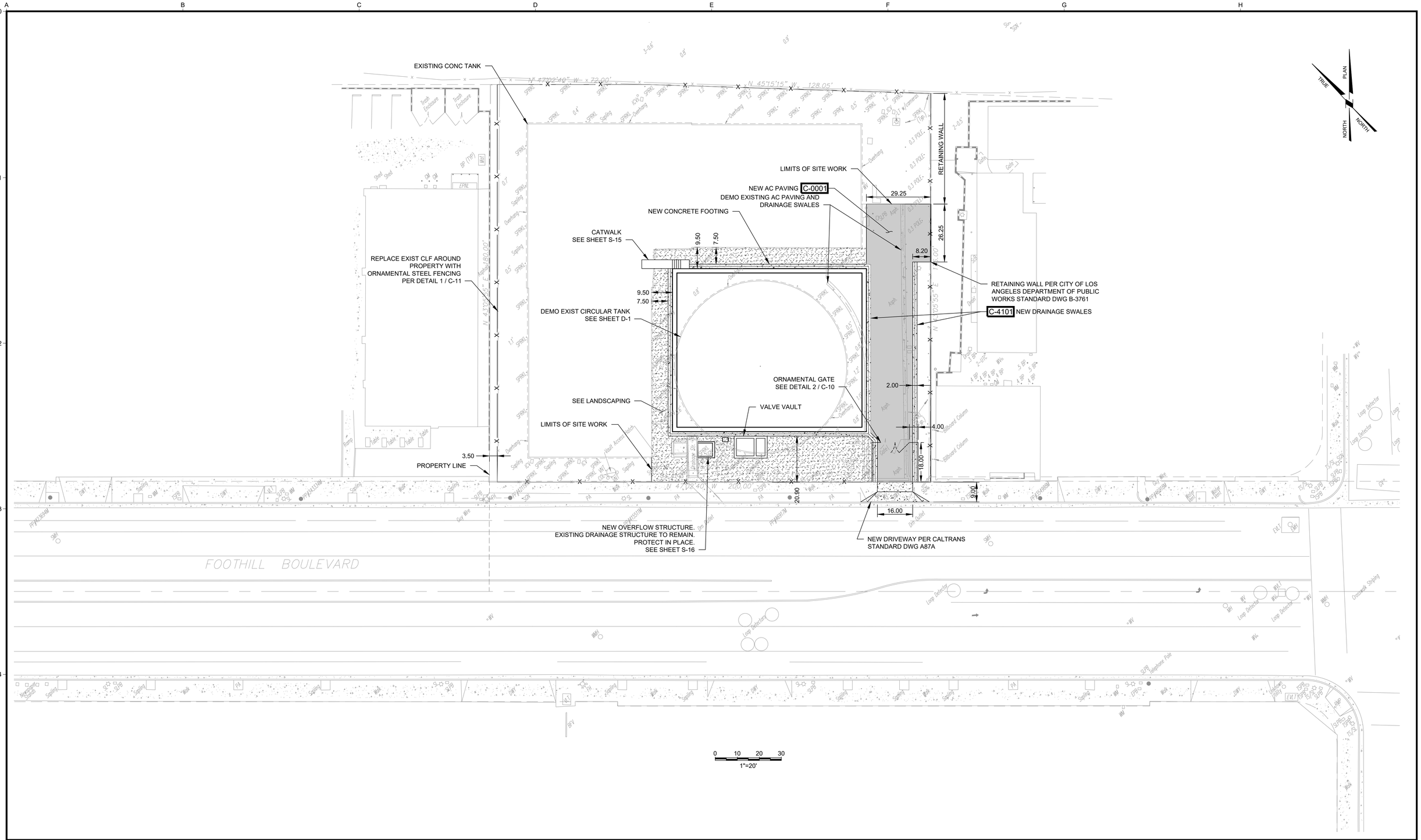

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NO.	REVISION	DATE	BY

SCALES

0 1"
0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER BILL H. MOSER No. C28129 CIVIL STATE OF CALIFORNIA

DESIGNED	WM
DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA

UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

CIVIL
SITE AND PAVING PLAN

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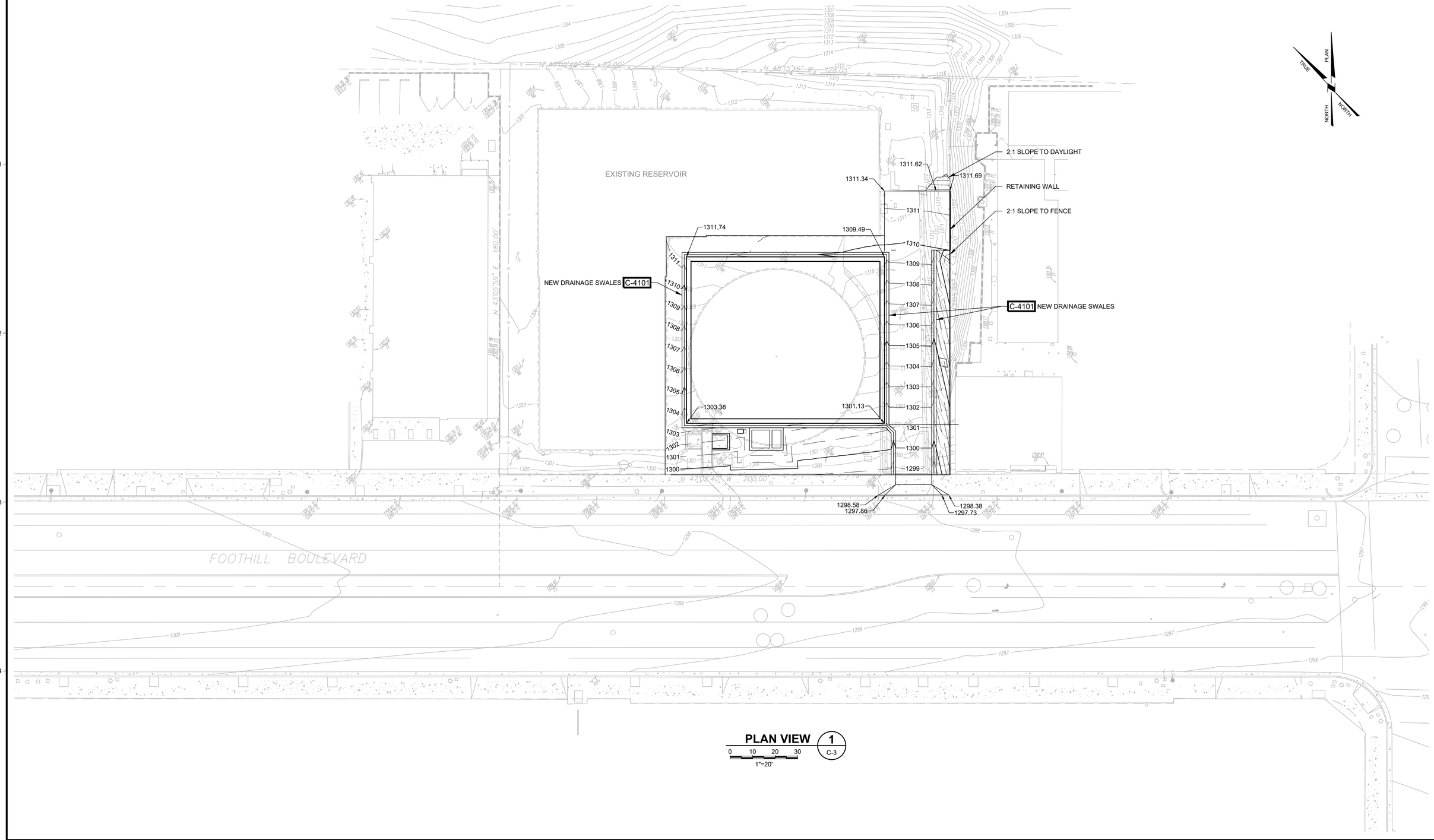

PLAN VIEW 1 (C-3)

0 10 20 30

1"=20'

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NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

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DESIGNED	WM
DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA

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CIVIL
GRADING AND DRAINAGE PLAN

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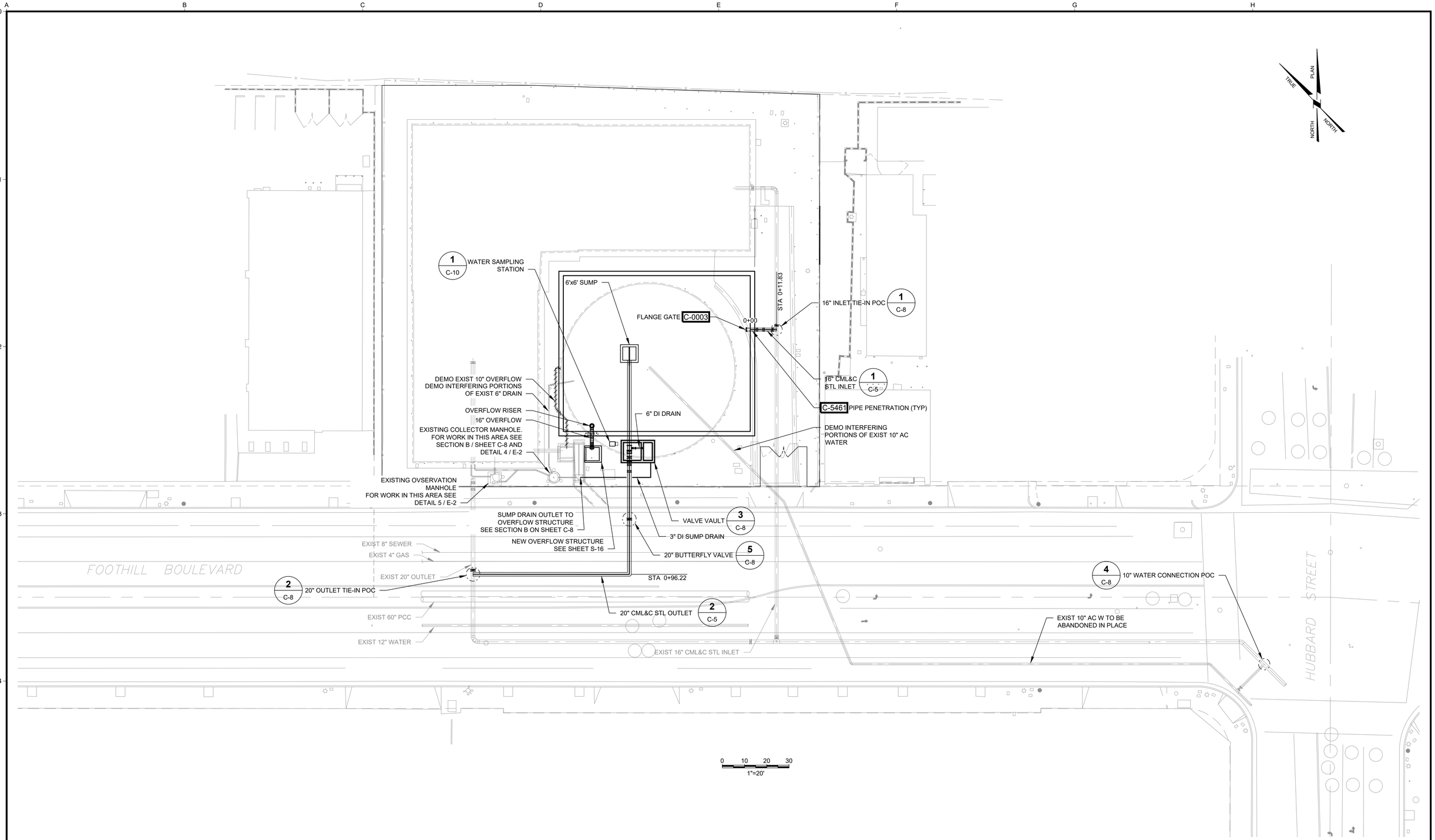
OF	##



NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER
BILL H. MOSER
No. C28129
CIVIL
STATE OF CALIFORNIA

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DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
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CIVIL
YARD PIPING PLAN

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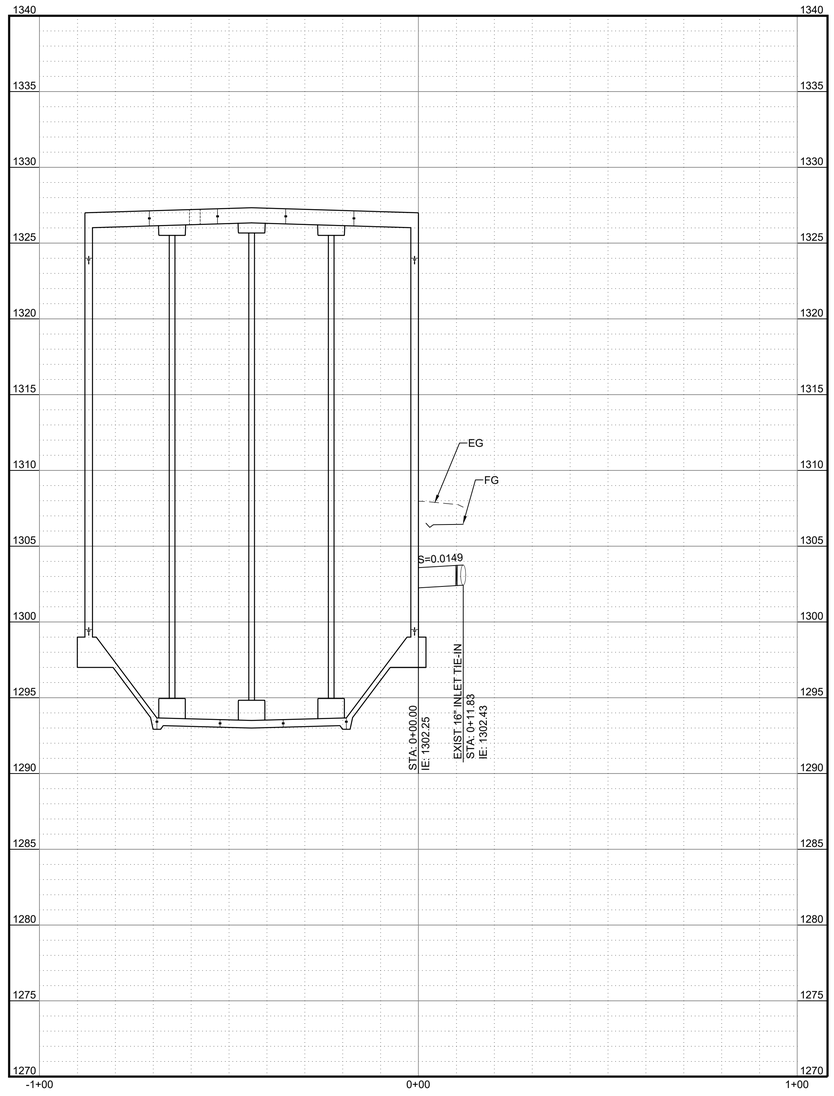
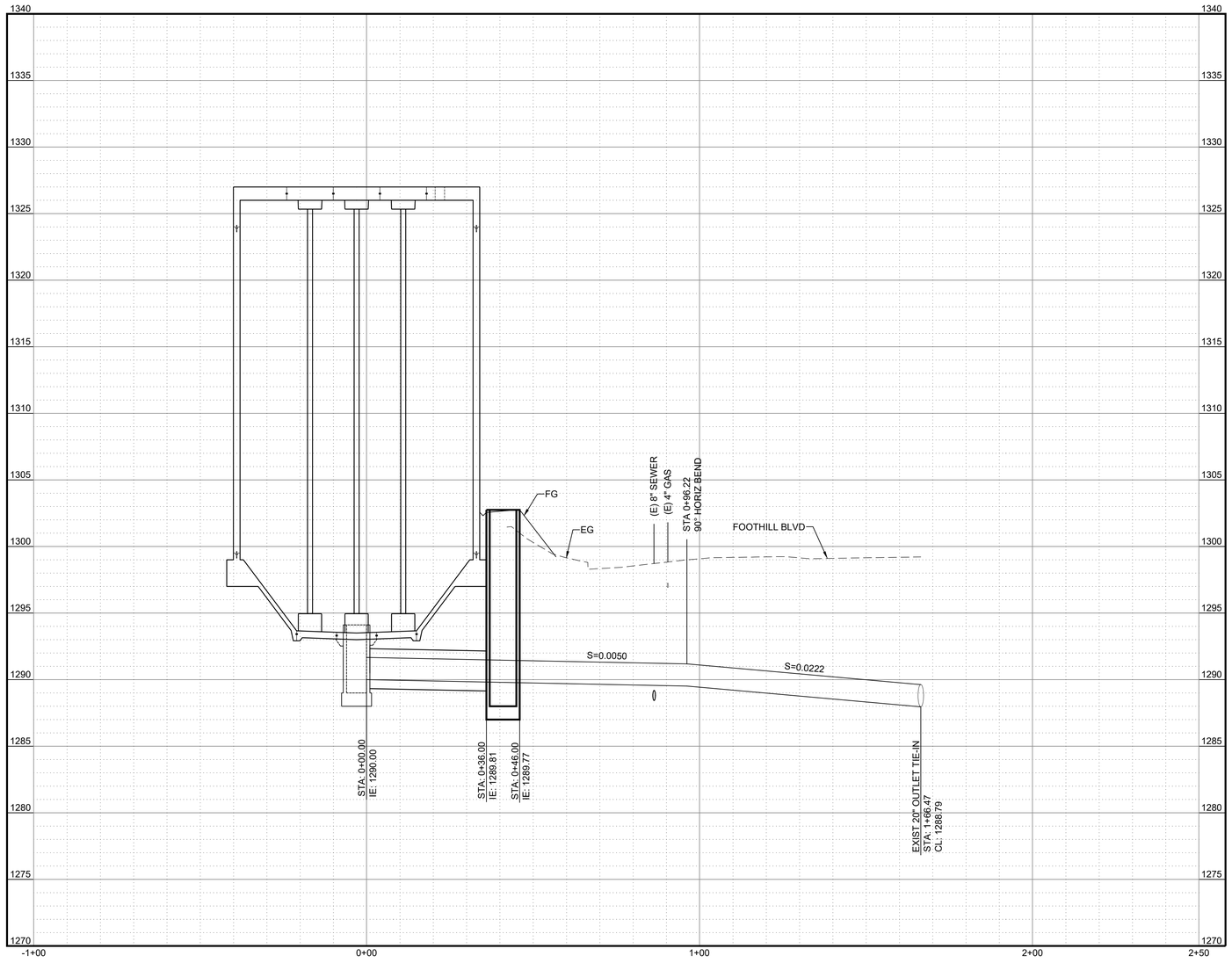
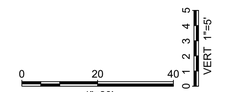


16" CML&C STL INLET 1 C-4



20" CML&C STL OUTLET 2 C-4



NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

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DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
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CIVIL
PIPE PROFILES

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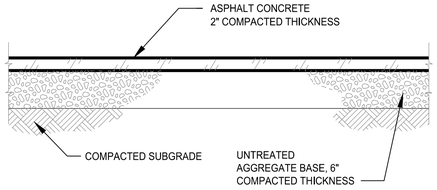
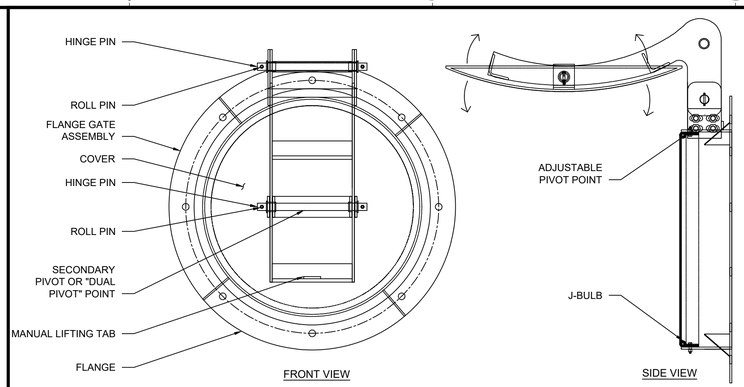


ASPHALT CONCRETE PAVING DETAIL C-0001

SCALE: NTS
REV 00



FLANGE GATE C-0003

SCALE: NTS
REV 00

A. FLEXIBLE PIPE REFERS TO ALL STEEL, DUCTILE-IRON, AND PLASTIC PIPES.

B. TYPICAL TRENCH SECTIONS (I, II AND III) ARE TO BE USED ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST. IF BOULDERS OR LARGE OBSTRUCTIONS ARE ENCOUNTERED, TRENCH SECTIONS MAY BE DEEPER OR WIDER THAN SHOWN. THE ENGINEER SHALL BE ADVISED SHOULD THIS OCCUR.

C. THE NEED FOR PROTECTIVE SYSTEMS AND EXCAVATION SLOPES SHALL BE DETERMINED CONSIDERING APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, AND GEOTECHNICAL CONSULTANTS' RECOMMENDATIONS.

D. PROTECTIVE SYSTEMS SHALL BE DESIGNED AND BUILT IN ACCORDANCE WITH THE APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS.

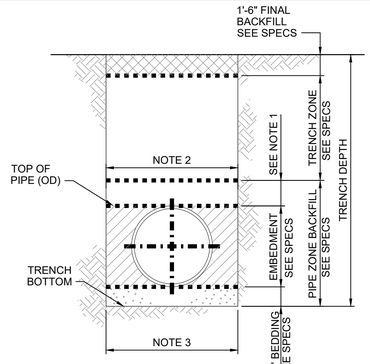
E. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING PIPE DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.

F. UNSUPPORTED VERTICAL AND/OR SLOPING TRENCH WALL SLOPES SHALL NOT BE STEEPER THAN ALLOWED BY APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, UNLESS SUPPORTING DOCUMENTATION IS SUBMITTED, ACCORDING TO AFOREMENTIONED SAFETY STANDARDS.

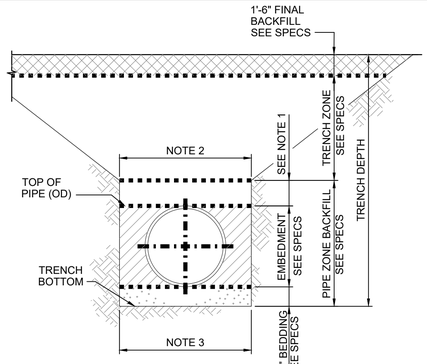
G. TRENCH SECTIONS OTHER THAN THE TYPICAL SECTIONS SHOWN MAY BE UTILIZED PROVIDED THEY COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DOCUMENTATION SUPPORTING THIS COMPLIANCE AND PIPE DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER.

H. IF OVER-EXCAVATION DUE TO POOR FOUNDATION MATERIAL IS ORDERED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTION OF THE SPECIFICATIONS ARTICLE ENTITLED, "FILL AND BACKFILL MATERIAL REQUIREMENTS."

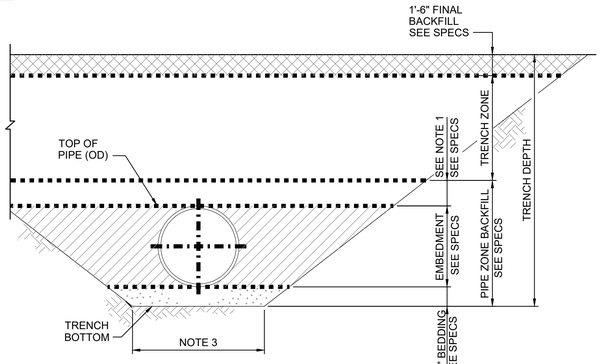
I. IF DURING CONSTRUCTION, THE WATER TABLE IS DISCOVERED TO BE ABOVE THE TRENCH BOTTOM, THE ENGINEER SHALL BE NOTIFIED, AND APPROPRIATE DEWATERING SHALL BE IMPLEMENTED TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM. THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTIONS OF THE SPECIFICATIONS, OR AS ORDERED BY THE ENGINEER.



TRENCH SECTION - TYPE I



TRENCH SECTION - TYPE II



TRENCH SECTION - TYPE III

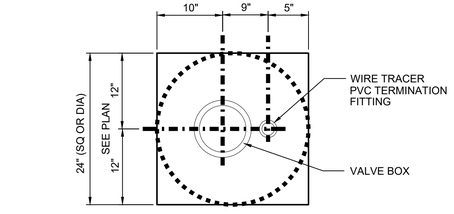
NOTES:

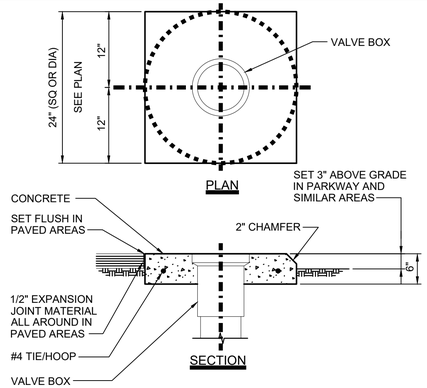
1. 6" MIN FOR PIPE DIAMETER < 24"
   12" MIN FOR PIPE DIAMETER > 24"
2. MAX TRENCH WIDTH @ TOP OF PIPE:
   OD + 36" FOR, 18" & LARGER PIPE OD
   OD + 24" FOR LESS THAN 18"
3. MIN TRENCH BOTTOM WIDTH =
   OD + 24" FOR MECHANICAL COMPACTION

TRENCH SECTION C-5021

FLEXIBLE PIPE

SCALE: NTS
REV 00

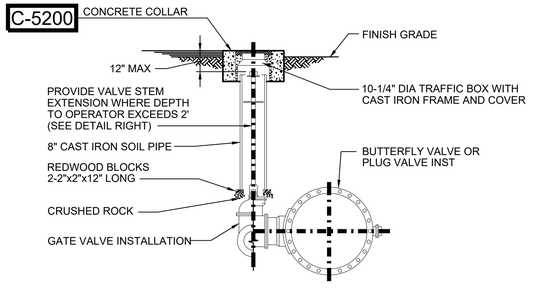




VALVE BOX COLLAR C-5200

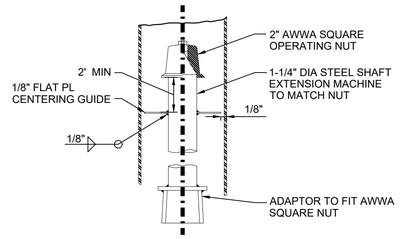
SCALE: NTS
REV 00

C-5200



NOTES:

1. PROVIDE PROTECTIVE COATING TO EXTERIOR SURFACE OF VALVE BODY IN ACCORDANCE WITH SPECS.
2. FOR LUBRICATED PLUG VALVE, EXTEND LUBRICATION LINE TO GRADE PER MANUFACTURES INSTRUCTIONS.



BURIED VALVE INSTALLATION C-5251

SCALE: NTS
REV 00

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NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER BILL H. MOSER No. C28129 CIVIL STATE OF CALIFORNIA

DESIGNED	WM
DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA

UPPER RESERVOIR REPLACEMENT

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CIVIL
DETAILS I

FILE NAME	1944519.00-C-6.dwg
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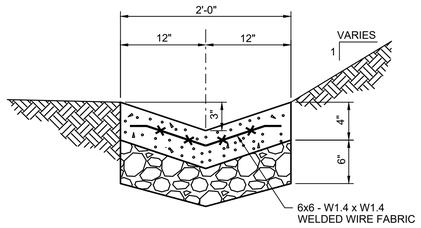
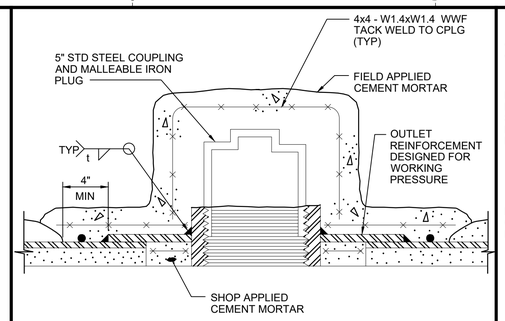


NOTES:

1. EXPANSION JOINTS OF ONE-HALF INCH BITUMINOUS MATERIAL SHALL BE PLACED AT 50-FEET SPACING AND WHERE SWALE BUTTS OTHER CONCRETE STRUCTURES.

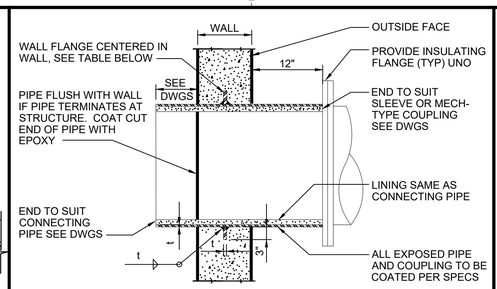
DRAINAGE SWALE — C-4101

CONCRETE LINED, SECTION — SCALE: NTS — REV 00



HANDHOLE FOR BAR WRAPPED PIPE — C-5131

WSP, CML&C, REQUIRED FOR <24" DIAMETER — SCALE: NTS — REV 00

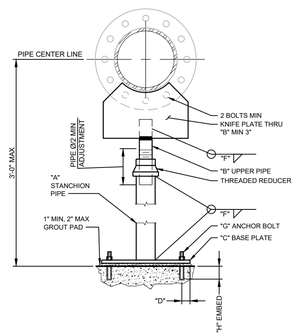


WALL FLANGE PLATE THICKNESS

PIPE SIZE	STEEL PLATE
30" & UNDER	1/4"
31" TO 60"	5/16"
61" & OVER	3/8"

STEEL PIPE THROUGH OR TERMINATING AT WALL — C-5461

SCALE: NTS — REV 00



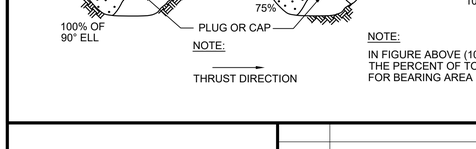
ADJUSTABLE PIPE SUPPORT							
PIPE SIZE	"A" (STANCHION PIPE)	"B" (NECK PIPE)	"C" (BASE PLATE)	"D" (EDGE DISTANCE)	"F" (WELD SIZE)	"G" (Ø ANCHOR/BOLT SIZE)	"H" MIN EMBEDMENT DEPTH
6"	3" XS	2 1/2"	14" SQ X 1/2" THK	2"	1/4"	3/4"	5"
8"	3" XS	2 1/2"	14" SQ X 1/2" THK	2"	1/4"	3/4"	5"
10"	3" XS	2 1/2"	14" SQ X 3/4" THK	1 1/2"	3/8"	7/8"	10"
12"	3" XS	2 1/2"	14" SQ X 3/4" THK	1 1/2"	3/8"	7/8"	10"
14"	3 1/2" XS	3"	20" SQ X 3/4" THK	1 1/4"	3/8"	7/8"	10"
16"	3 1/2" XS	3"	20" SQ X 3/4" THK	1 1/4"	3/8"	7/8"	10"
18"	5" STD	4"	26" SQ X 3/4" THK	1 7/8"	1/2"	1 1/4"	10"
20"	5" STD	4"	26" SQ X 3/4" THK	1 7/8"	1/2"	1 1/4"	10"
24"	5" STD	4"	26" SQ X 3/4" THK	1 7/8"	1/2"	1 1/4"	10"

NOTES:

1. IF ADJUSTMENT IS NOT REQ'D, DELETE NECK PIPE AND REDUCER AND WELD STANCHION DIRECTLY TO BOTTOM PIPE STRAP.
2. DO NOT CUT OR WELD AFTER GALVANIZING.
3. PIPE SUPPORT MAY BE ORIENTATED IN ANY DIRECTION.
4. ANCHOR BOLTS SHALL BE GALVANIZED GR 55 THREADED ROD W/ HILTI HIT-HY200 EPOXY ADHESIVE.
5. BASE PLATE SHALL HAVE CORNERS AND EDGES ROUNDED W/ 1/8" RADIUS.

ADJUSTABLE STANCHION SUPPORT — M-5201

FLANGE ATTACHMENT — SCALE: NTS — REV 00

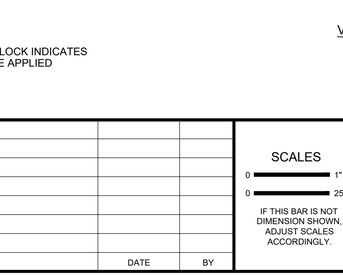


NOTES:

1. DIMENSION "A" CORRESPONDS TO THE COMPLETED JOINT OVERLAP AFTER WELDING. DIMENSION "A" SHALL BE THE GREATER OF 3" OR 5 t, MINIMUM.
2. FOR STANDARD JOINTS, THE MINIMUM DIMENSION "B" SHALL BE AS REQUIRED TO PROVIDE THE MINIMUM OVERLAP DIMENSION "A" AND MAINTAIN THE INDICATED HOLDBACK FOR THE WELD.
3. FOR SPECIAL TEMPERATURE CONTROL JOINTS, THE MINIMUM DIMENSION "B" SHALL BE INCREASED BY AT LEAST 3 INCHES. AT THE TIME OF INSTALLATION AND PRIOR TO WELDING, THE SPIGOT SHALL BE INSERTED INTO THE LENGTHENED BELL TO PROVIDE "A" +3 INCHES MINIMUM OVERLAP. SEE SPECIFICATIONS FOR SPECIAL TEMPERATURE CONTROL JOINT WELDING REQUIREMENTS.
4. FILLET WELDS FOR BELL AND SPIGOT LAP JOINTS SHOWN. FILLET WELDS ON OTHER JOINTS ARE SIMILAR.
5. CONTRACTOR MAY PUT TAP ON SPIGOT ID AT HIS DISCRETION.
6. THE JOINTS SHALL BE FABRICATED AND INSTALLED TO BE WITHIN THE TOLERANCES INDICATED. THE TOLERANCE REQUIREMENTS SHALL APPLY TO BOTH WELDS AND TO BOTH STRAIGHT AND DEFLECTED JOINTS.

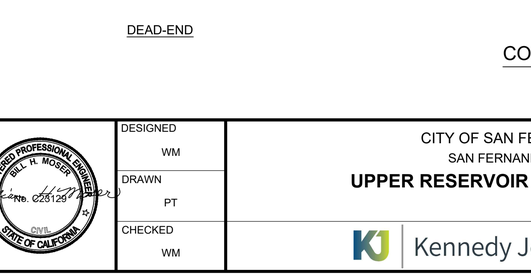
LAP JOINT WELD — C-5501

WSP — SCALE: NTS — REV 00



BUTT STRAP SPLICE — C-5502

WSP — SCALE: NTS — REV 00



NOTES:

1. CONTRACTOR SHALL CONDUCT AN AIR/SOAP SOLUTION LEAK TEST AT 40 PSI AIR PRESSURE IN ADDITION TO DYE PENETRANT OR MAGNETIC PARTICLE TESTING PERFORMED BY THE CONSTRUCTION MANAGER. IF LEAKS ARE DETECTED, REPAIR AND RETEST THE WELDS UNTIL THERE ARE NO DEFECTS. PLUG HOLES WITH A THREADED OR WELDED PLUG AT COMPLETION OF TEST AND COAT AS SHOWN. TAP HOLES MAY BE ON INSIDE OR OUTSIDE OF JOINT.
2. SHOP APPLIED CEMENT MORTAR LINING SHOWN. OMIT INSIDE JOINT MORTAR REPAIR FOR FIELD APPLIED CEMENT MORTAR LINING.
3. FOR FIELD WELDING OF INDIVIDUAL BUTT STRAP PIECES TO EACH OTHER, SEE DETAIL C-5502.
4. UNLESS OTHERWISE INDICATED, BUTT STRAP WIDTH SHALL CONFORM TO THE LIMITATIONS SHOWN FOR PIPE END SEPARATION AND OVERLAP REQUIREMENTS.

BUTT STRAP JOINT — C-5508

WSP, CML&C — SCALE: NTS — REV 00

THRUST PER PSI OF WATER PRESSURE AT VARIOUS FITTINGS				
PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22 1/2° ELBOW
4	19	27	15	7
6	39	55	30	15
8	67	94	51	26
10	109	154	84	43
12	155	218	119	61
14	210	296	161	82
16	275	383	209	106
18	351	494	269	137
20	434	611	333	169
24	623	878	478	244

EXAMPLE:

8-INCH 90° ELBOW, PRESSURE=200 PSF
FROM TABLE: THRUST = 94 X 200 = 18,800 lb
ASSUME BEARING STRENGTH OF SOIL = 2000 PSF

18,800 / 2000 =9.4 SQ FT= BEARING AREA REQUIRED FOR THRUST BLOCK

SIDE THRUST PER 100 PSI PRESSURE PER DEGREE OF DEFLECTION			
PIPE SIZE	SIDE THRUST-lb	PIPE SIZE	SIDE THRUST-lb
4	35	14	377
6	72	16	486
8	122	18	665
10	197	20	790
12	278	24	1150

MULTIPLY THRUST BY DEGREE OF DEFLECTION TO OBTAIN TOTAL THRUST

NOTES:

1. IN USING THE ABOVE TABLES, USE THE MAXIMUM INTERNAL PRESSURE ANTICIPATED (i.e. HYDROSTATIC TEST PRESSURE) POSSIBLE SURGE PRESSURE DUE TO PUMP SHUT-OFF, ETC.
2. SEE SOILS REPORT FOR BEARING STRENGTH OF SOIL IN THE ABSENCE OF A SOILS REPORT AN AVERAGE SOIL (SPADABLE MEDIUM CLAY) CAN BE ASSUMED TO HAVE A BEARING STRENGTH OF 2000 PSF
3. USE LIGHTWEIGHT CONCRETE FOR HILL THRUST BLOCK.
4. CONCRETE FOR THRUST BLOCKS TO BE 2000 PSI.

CONCRETE THRUST BLOCKS — C-5401

SCALE: NTS — REV 00

NO.	REVISION	DATE	BY

SCALES

0 1"
0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — BILL H. MOSER — No. C28129 — CIVIL — STATE OF CALIFORNIA

DESIGNED	WM
DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA

UPPER RESERVOIR REPLACEMENT

Kennedy Jenks — JOHN ROBINSON Consulting, Inc.

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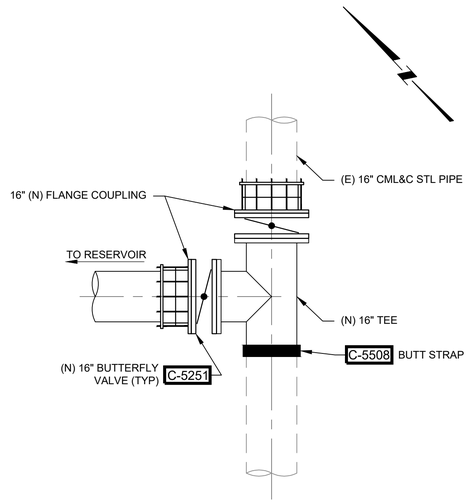
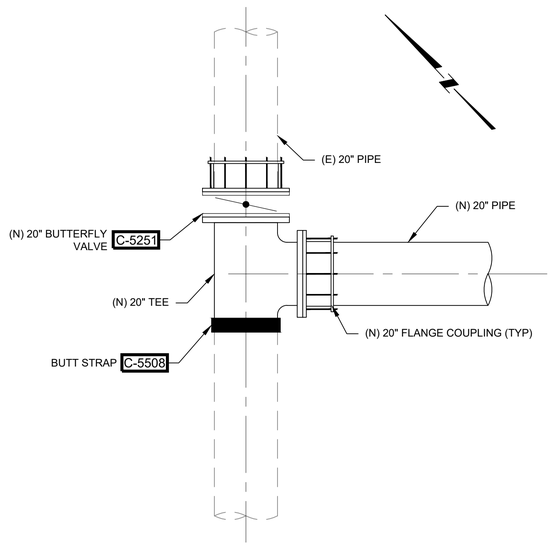
FILE NAME	1944519.00-C-7.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	C-7 ## OF



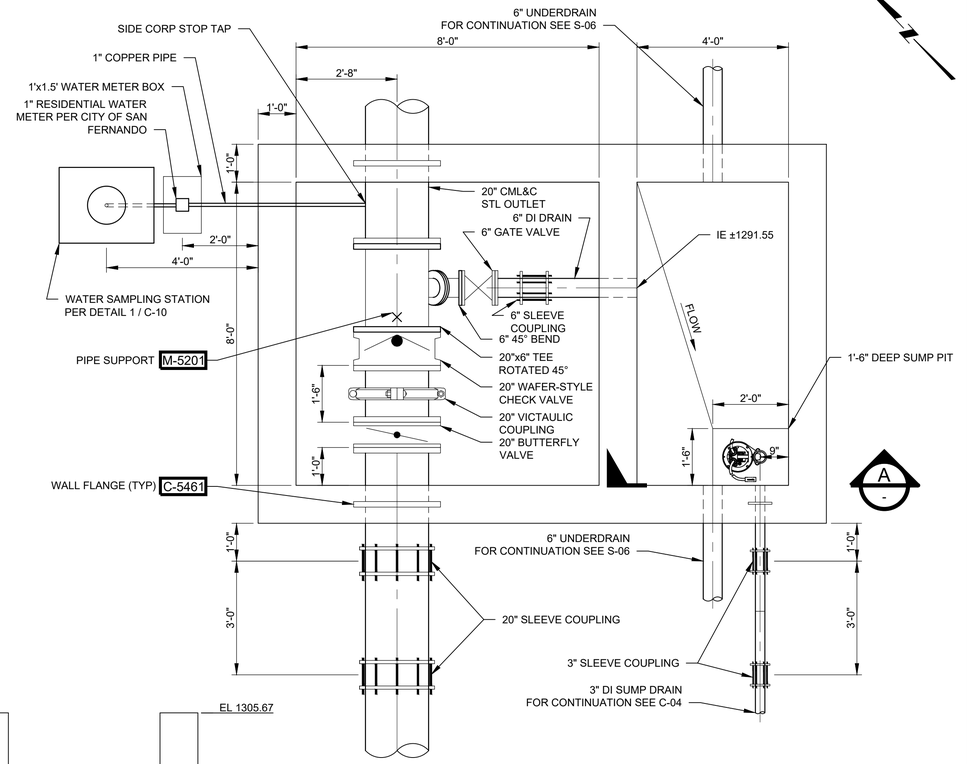
16" INLET CONNECTION 1 C-4

0 1 2 3
1/2"=1'-0"



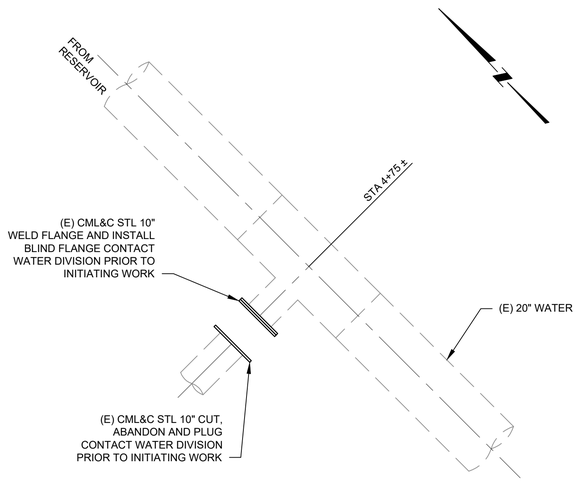
20" OUTLET CONNECTION 2 C-4

0 1 2 3
1/2"=1'-0"



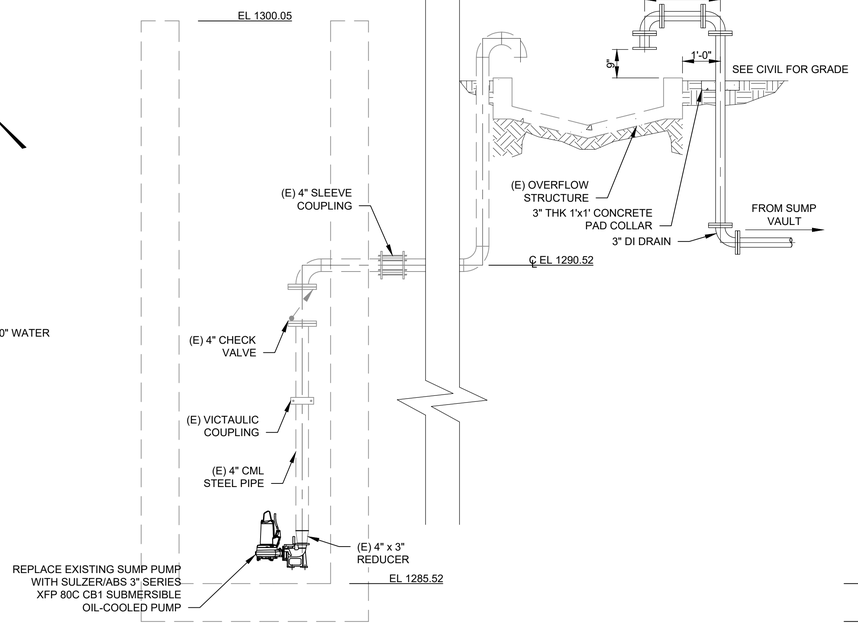
VALVE VAULT 3 C-4

0 1 2 3
1/2"=1'-0"



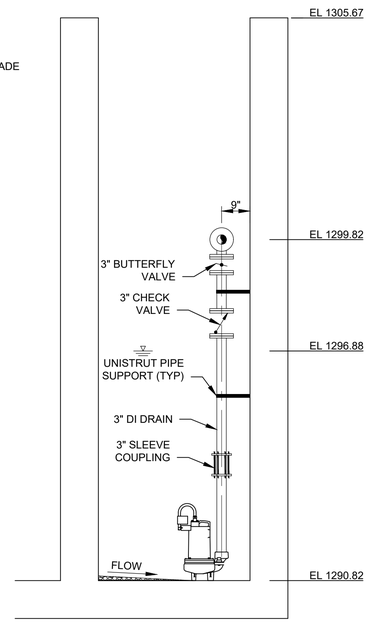
10" WATER CONNECTION 4 C-4

0 1 2 3
1/2"=1'-0"



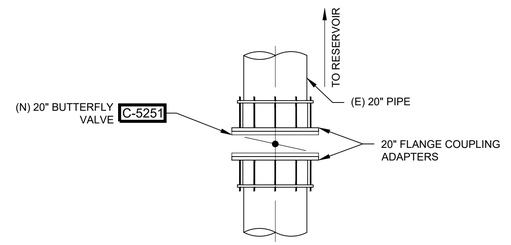
EXIST COLLECTOR MH AND OVERFLOW STRUCTURE B C-4

NTS



SUMP PUMP A -

NTS



20" OUTLET CONNECTION 5 C-4

0 1 2 3
1/2"=1'-0"

NO.	REVISION	DATE	BY

SCALES
0 1" 0 25mm
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REGISTERED PROFESSIONAL ENGINEER BILL R. MOSER No. C28129 CIVIL STATE OF CALIFORNIA

DESIGNED	WM
DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

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FILE NAME	1944519.00-C-8.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
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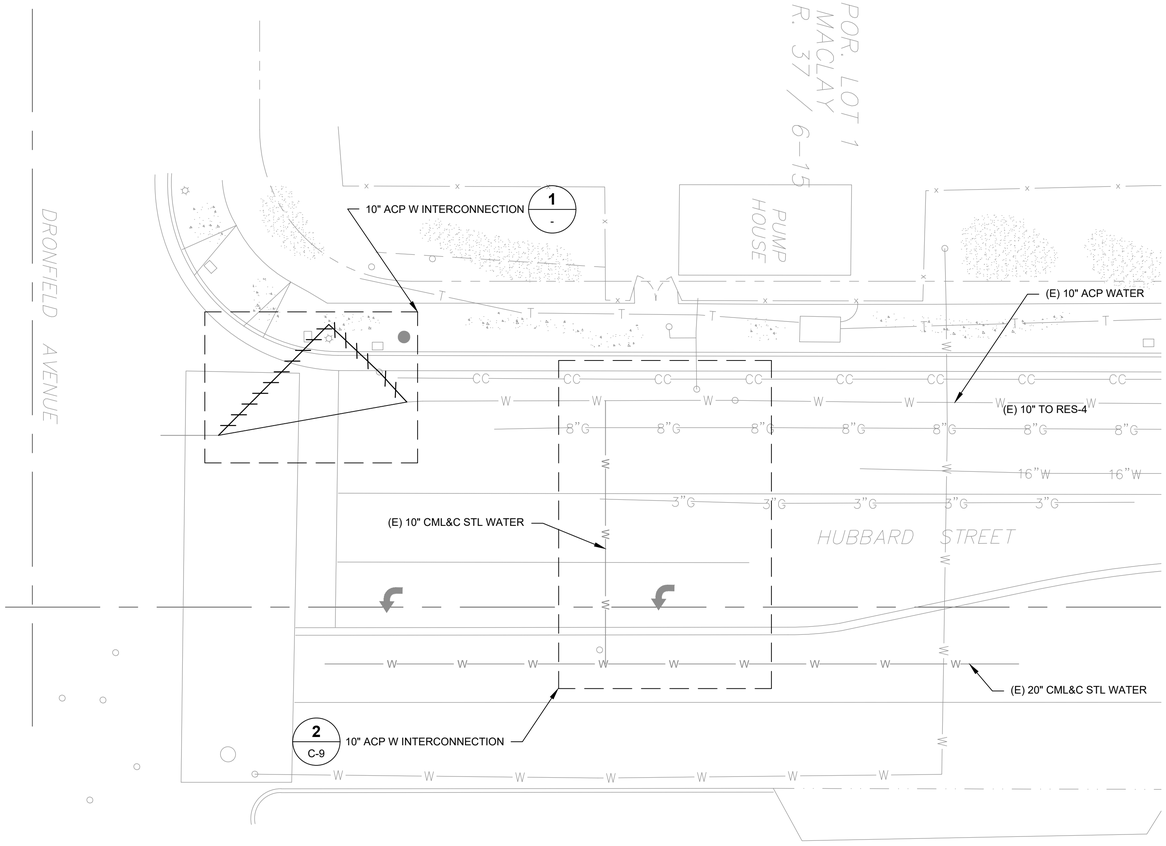
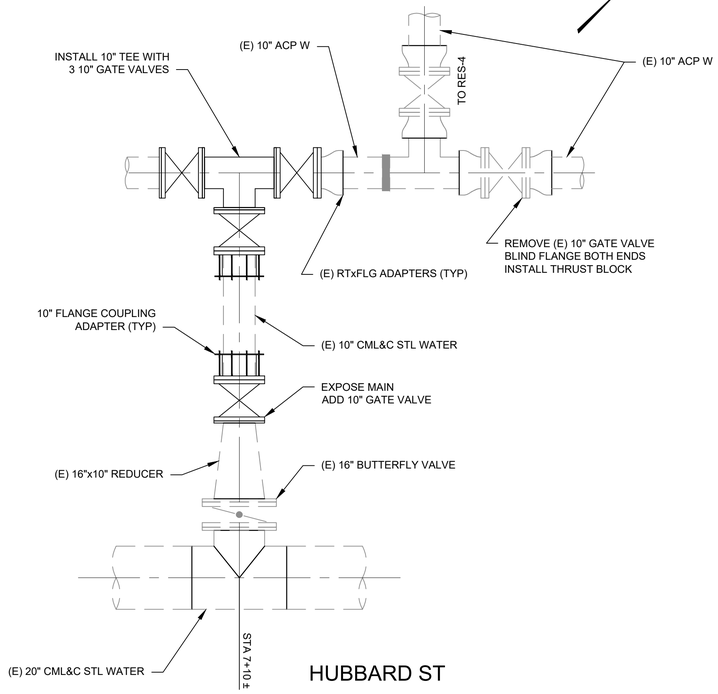


SITE A PLAN

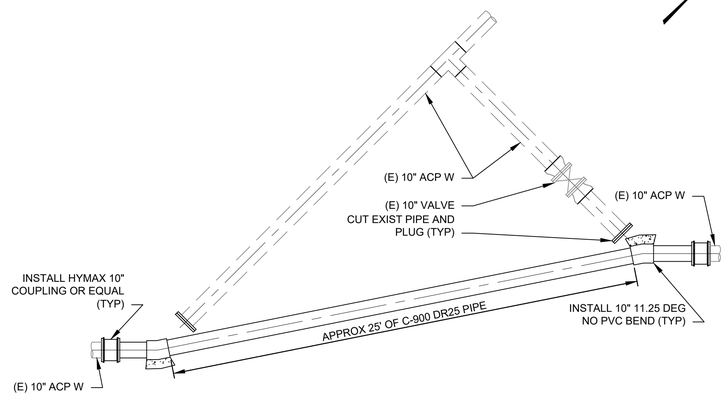
0 10 20

1"=10'



10" WATER CONNECTION 2

NOT TO SCALE



10" WATER CONNECTION 1

0 3 6

1/4"=1'-0"

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NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER
BILL H. MOSER
No. C28129
CIVIL
STATE OF CALIFORNIA

DESIGNED	WM
DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA

UPPER RESERVOIR REPLACEMENT

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FILE NAME	1944519.00-C-9.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	C-9 ##

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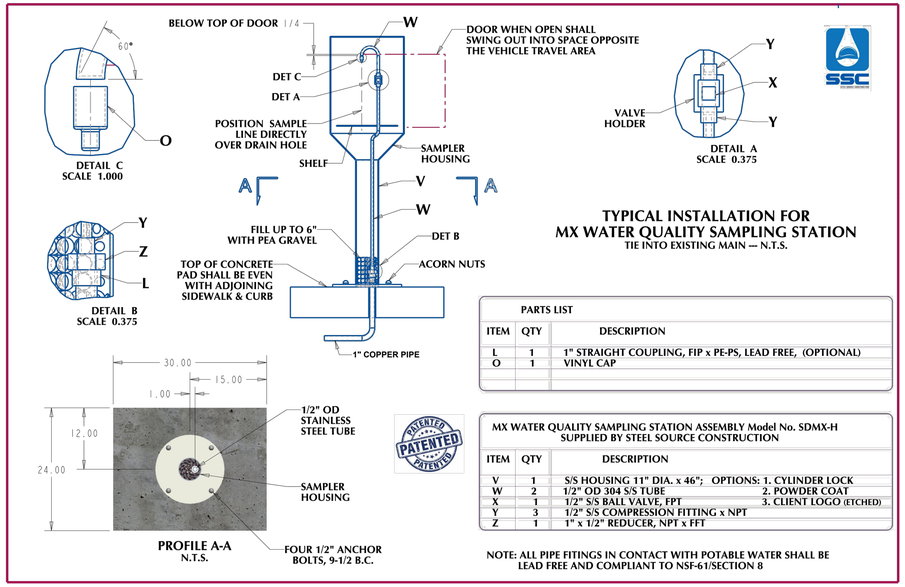


TYPICAL INSTALLATION FOR MX WATER QUALITY SAMPLING STATION

TIE INTO EXISTING MAIN — N.T.S.

PARTS LIST

ITEM	QTY	DESCRIPTION
L	1	1" STRAIGHT COUPLING, FIP x PE-PS, LEAD FREE, (OPTIONAL)
O	1	VINYL CAP

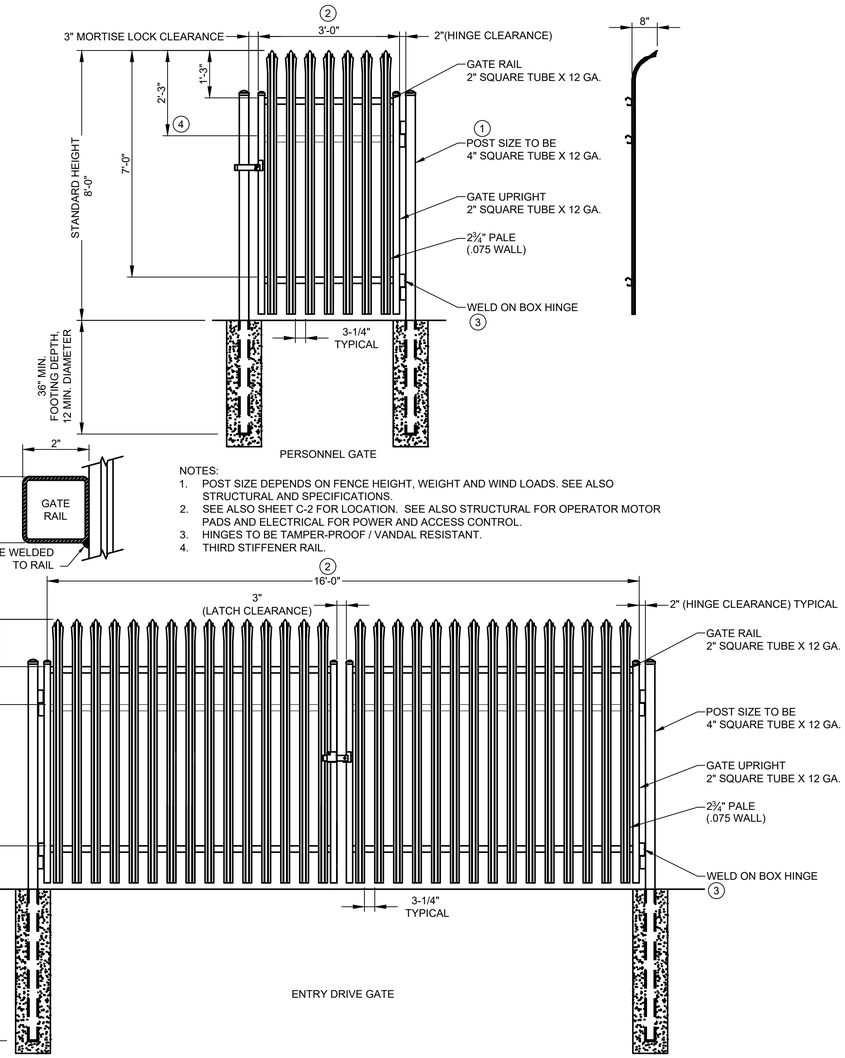
MX WATER QUALITY SAMPLING STATION ASSEMBLY Model No. SDMX-H
SUPPLIED BY STEEL SOURCE CONSTRUCTION

ITEM	QTY	DESCRIPTION
V	1	S/S HOUSING 11" DIA. x 46"; OPTIONS: 1. CYLINDER LOCK
W	2	1/2" OD 304 S/S TUBE 2. POWDER COAT
X	1	1/2" S/S BALL VALVE, FPT 3. CLIENT LOGO (ETCHED)
Y	3	1/2" S/S COMPRESSION FITTING x NPT
Z	1	1" x 1/2" REDUCER, NPT x FFT

NOTE: ALL PIPE FITINGS IN CONTACT WITH POTABLE WATER SHALL BE LEAD FREE AND COMPLIANT TO NSF-61/SECTION 8

WATER SAMPLING STATION 1

NOT TO SCALE C-8



ORNAMENTAL STEEL GATE 2

NOT TO SCALE C-2

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NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER BILL H. MOSER No. C28129 CIVIL STATE OF CALIFORNIA

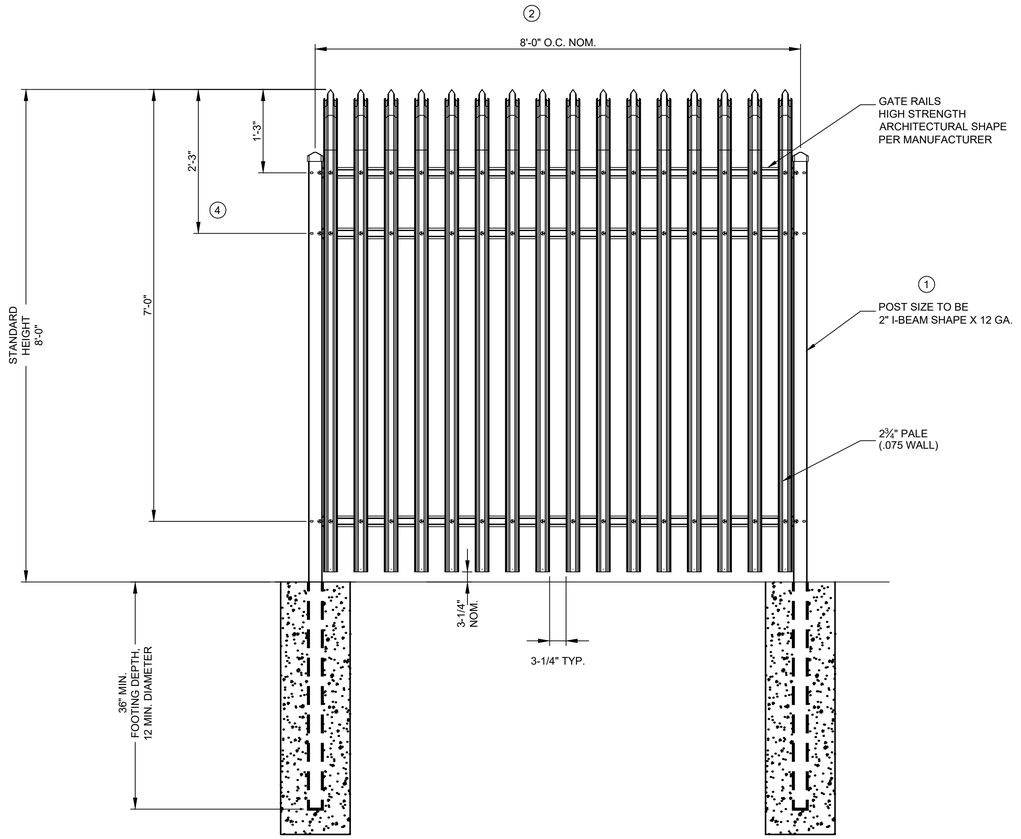
DESIGNED WM
DRAWN PT
CHECKED WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

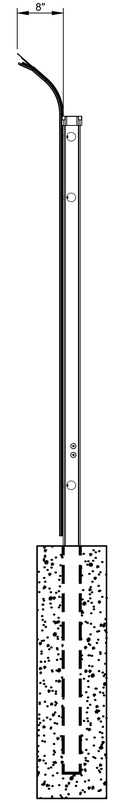
Kennedy Jenks JOHN ROBINSON Consulting, Inc.

CIVIL
DETAILS V

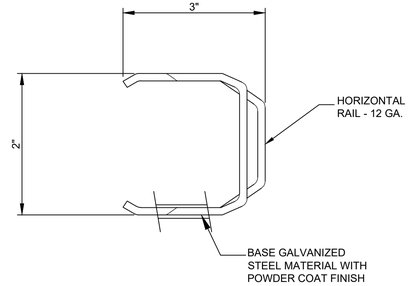
FILE NAME 1944519.00-C-10.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET C-10 OF ##

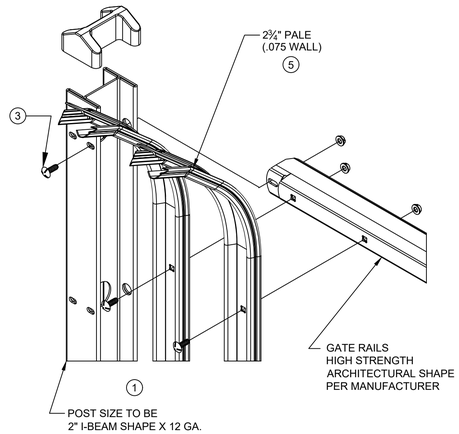


TYPICAL FENCE PANEL



TYPICAL PANEL SECTION





NOTES:
1. POST SIZE DEPENDS ON FENCE HEIGHT, WEIGHT AND WIND LOADS. SEE ALSO STRUCTURAL AND SPECIFICATIONS.
2. SEE ALSO SHEET C-2 FOR LOCATION. SEE ALSO STRUCTURAL FOR OPERATOR MOTOR PADS AND ELECTRICAL FOR POWER AND ACCESS CONTROL.
3. FASTENERS TO BE TAMPER-PROOF / VANDAL RESISTANT, TYPICAL.
4. THIRD STIFFENER RAIL.
5. BOLT HOLES TO BE RECESSED TO PREVENT CHISELING OF BOLT HEADS.

ORNAMENTAL STEEL FENCE

1 / C-2

NOT TO SCALE

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER
BILL H. MOSER
No. C28129
CIVIL
STATE OF CALIFORNIA

DESIGNED	WM
DRAWN	PT
CHECKED	WM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

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CIVIL
DETAILS VI

FILE NAME	1944519.00-C-11.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	C-11 ##

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GENERAL STRUCTURAL NOTES

GENERAL

1. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE 2019 CALIFORNIA BUILDING CODE (CBC), AND THE REFERENCED BUILDING CODE STANDARDS.
2. THESE NOTES AS WELL AS THE TYPICAL DETAILS APPLY TO ALL PARTS OF THE PROJECT, UNLESS NOTED OTHERWISE.
3. SHOP DRAWINGS FOR THIS CONTRACT SHALL BE COORDINATED WITH FAVORABLY REVIEWED EQUIPMENT MANUFACTURER'S DRAWINGS.
4. DIMENSIONS NOTED WITH AN ASTERISK, " * ", ARE TO BE COORDINATED WITH FAVORABLY REVIEWED SUBMITTAL BY THE EQUIPMENT MANUFACTURER.
5. DETAILS CALLED OUT WITH S-XXXX SHALL REFER TO THE STANDARD DETAIL FOR WHICH THEY ARE SO NAMED.

PERMITS AND INSPECTIONS

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND COORDINATING ALL INSPECTIONS REQUIRED BY THE SPECIAL INSPECTOR AND AS DESCRIBED IN THE CONTRACT DOCUMENTS.
2. THE CONTRACTOR SHALL NOTIFY THE SPECIAL INSPECTOR AT LEAST FIVE (5) WORKING DAYS PRIOR TO EACH SPECIAL INSPECTION AND TESTING REQUIRED. THE CONTRACTOR SHALL PROVIDE ACCESS TO THE WORK REQUIRED FOR SPECIAL INSPECTIONS AND TESTING.
3. THE CONTRACTOR SHALL DESIGN, DETAIL, FABRICATE, INSTALL, AND MAINTAIN SHORING, SHEETING, BRACING AND SLOPING AS NECESSARY TO MAINTAIN SAFE EXCAVATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING FULL COMPLIANCE WITH 29 CFR PART 1926 OSHA SUBPART P EXCAVATIONS AND TRENCHES REQUIREMENTS. ALL EARTHWORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LAW, INCLUDING LOCAL ORDINANCES, CALOSHA, CALIFORNIA CIVIL CODE AND CALIFORNIA DEPARTMENT OF INDUSTRIAL SAFETY REQUIREMENTS, AND APPLICABLE OSHA REQUIREMENTS. SEE EARTHWORK NOTES ON SHEET S-9.

SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS

1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48-HOURS BEFORE PLACEMENT OF REINFORCING STEEL AND CONCRETE SO THAT THE SUBGRADE OF EXCAVATIONS MAY BE INSPECTED BY THE GEOTECHNICAL ENGINEER.
2. THE GEOTECHNICAL ENGINEER SHALL VERIFY BACKFILL MATERIAL AND BACKFILLING PROCEDURES AND PROVIDE SOIL COMPACTION TESTS.
3. STRUCTURAL OBSERVATION SHALL BE PROVIDED BY THE DESIGN ENGINEER(S) OF RECORD OR THEIR AUTHORIZED REPRESENTATIVES IN ACCORDANCE WITH CBC 2019, SECTION 1710. STRUCTURAL OBSERVATION SHALL CONSIST OF SITE VISITS AT INTERVALS APPROPRIATE TO THE STAGE OF CONSTRUCTION TO OBSERVE CONSTRUCTION IN PROGRESS AND REVIEW OF TESTING AND INSPECTION REPORTS FOR GENERAL COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS RELATING TO THE STRUCTURAL WORK AND THE NONSTRUCTURAL COMPONENTS AND EQUIPMENT ANCHORAGE.
4. SPECIAL INSPECTION IN ACCORDANCE WITH CBC 2019, SECTION 1704, SHALL BE REQUIRED AS INDICATED IN THE SPECIAL INSPECTION AND TESTING SCHEDULE ON SHEET S-2.

SOIL AND FOUNDATIONS

1. GEOTECHNICAL INVESTIGATIONS FOR DESIGN PURPOSES FOR THIS PROJECT WERE MADE FOR THE CITY OF SAN FERNANDO BY CONVERSE CONSULTANTS IN A REPORT DATED 29 SEPTEMBER 2020.
2. IN ACCORDANCE WITH THE CBC CHAPTER 18, THE SOILS AT THE UPPER RESERVOIR SITE IN SYLMAR, CA ARE GENERALLY CLASSIFIED AS FILL OVERLYING SAND TO SILTY SAND WITH SOME GRAVEL AND CLAY OVERLYING SAND TO SILTY SAND WITH SOME COBBLES.
3. THE DESIGN BEARING CAPACITY OF THE SOILS IS 3,500 PSF FOR FOOTINGS. BEARING CAPACITY OF SOILS ARE FOR DEAD AND LIVE LOADS FOR FOUNDATIONS. BEARING VALUES MAY BE INCREASED BY ONE-THIRD WHEN TRANSIENT LOADS SUCH AS WIND OR SEISMIC LOADS ARE INCLUDED.
4. SOILS SHALL BE EXCAVATED TO THE ELEVATIONS INDICATED ON THE DRAWINGS FOR FOUNDATIONS. THE SUBGRADE SHALL BE PREPARED AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS AND APPROVED BY THE GEOTECHNICAL ENGINEER. EXCAVATED MATERIAL SHALL BE REPLACED WITH STRUCTURAL FILL AS SHOWN ON THE DRAWINGS. FOUNDATIONS SHALL BE CONSTRUCTED AGAINST UNDISTURBED NATIVE COMPETENT MATERIAL OR COMPACTED STRUCTURAL FILL. SEE EARTHWORK NOTES ON SHEET S-9.

LOADING CRITERIA

1. MINIMUM LOADING REQUIREMENTS PER CHAPTER 16 OF THE CALIFORNIA BUILDING CODE INCLUDING LATEST REVISION.
2. DEAD LOAD: AS CALCULATED
3. LIVE LOADS:

CATWALKS FOR MAINTENANCE ACCESS	40 PSF UNIFORM, 300 LBS POINT
ELEVATED SLABS & WALKWAYS	100 PSF UNIFORM
FIXED LADDERS	300 LBS POINT
FIXED STAIRWAYS & EXIT-WAYS	100 PSF UNIFORM, 300 LBS POINT PER TREAD
HANDRAILS, GUARDRAILS AND GRAB BARS	50 PLF AT TOP RAIL, 200 LBS POINT
ROOF (REDUCTION FOR UNIFORM LOAD)	50 PSF UNIFORM, 2,000 LBS POINT
GRATING, CHECKERED PLATE, ACCESS HATCHES	EQUAL TO FLOOR LIVE LOAD
SIDEWALKS & VEHICULAR DRIVEWAYS	250 PSF UNIFORM, 8,000 LBS POINT AASHTO
UNRESTRICTED VEHICULAR ACCESS	AASHTO HL-93
CONCRETE VAULTS AND COVERS	AASHTO HL-93

4. WIND LOAD:

BASIC WIND SPEED, V_{ULT}	105 MPH (ASCE 7-16 FIGURES 26.5-1A,B,C)
NOMINAL WIND SPEED, V_{ASD}	81 MPH (CBC EQN 16-33)
EXPOSURE	IV, UON ON STRUTURAL PLANS (ASCE 7-16 CBC TABLE 1604.5)

5. SNOW LOAD:

IMPORTANCE FACTOR, I_s	1.20
BASIC GROUND SNOW LOAD, Pg	0 PSF

6. SEISMIC LOAD:

RISK CATEGORY	IV
SEISMIC IMPORTANCE FACTOR, I_E	1.50
SEISMIC IMPORTANCE FACTOR, I_P	1.50
MAPPED RESPONSE PARAMETER, S_S	2.649
MAPPED RESPONSE PARAMETER, S_1	0.870
SITE CLASS	C
DESIGN RESPONSE PARAMETER, S_{DS}	1.695
DESIGN RESPONSE PARAMETER, S_{D1}	0.836
SEISMIC DESIGN CATEGORY	F
RESPONSE MODIFICATION FACTOR, Ri	2.5
RESPONSE MODIFICATION FACTOR, Rc	1
LONG PERIOD TRANSITION PERIOD, T_L	8

REINFORCING STEEL

1. REINFORCING BARS SHALL BE ASTM A615, GRADE 60.
2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
3. ARRANGEMENT AND DETAILING OF REINFORCING STEEL, INCLUDING BAR SUPPORTS AND SPACERS, SHALL BE IN ACCORDANCE WITH THE LATEST ACI 315 DETAILING MANUAL.
4. REINFORCING SHALL LAP IN ACCORDANCE WITH THE CONCRETE REINFORCEMENT SPLICE TABLE, UNLESS OTHERWISE SHOWN. WHEN BARS OF DIFFERENT SIZE LAP TO EACH OTHER, SPLICE LENGTH FOR THE SMALLER BAR CAN BE USED. DOWELS SHALL HAVE THE SAME SIZE AND SPACING AS THAT OF THE REINFORCING STEEL THEY ARE SPLICED AND SHALL HAVE A MINIMUM LAP AS NOTED ABOVE. BAR SPLICES SHALL BE STAGGERED.
5. HOOK REINFORCING BARS INTERRUPTED BY OPENINGS.
6. NO WELDING OF REINFORCING BARS SHALL BE PERMITTED, UNLESS APPROVAL IN WRITING IS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION.
7. DIMENSIONS TO REINFORCING ARE TO BAR CENTERLINES, UNLESS NOTED OTHERWISE BAR COVER IS CLEAR DISTANCE BETWEEN THE BAR AND THE CONCRETE SURFACE. UNLESS NOTED OR SHOWN OTHERWISE BAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS AND BASE SLABS:	
FORMED SURFACES AND BOTTOMS ON CONCRETE WORK MAT	2-INCH
TOP SURFACES EXPOSED TO EARTH, WATER, OR WEATHER	2-INCH
BOTTOMS AND SIDES IN CONTACT WITH EARTH	3-INCH
SUSPENDED SLABS:	
FORMED SURFACES EXPOSED TO EARTH, WATER, OR WEATHER	2-INCH
TOP AND BOTTOM BARS DRY CONDITION	1-INCH
BEAMS AND COLUMNS:	
DRY CONDITIONS:	
STIRRUPS, SPIRALS, AND TIES	1 1/2-INCH
PRINCIPAL REINFORCEMENT	2-INCH
EXPOSED TO EARTH, WATER, OR WEATHER:	
STIRRUPS, SPIRALS, AND TIES	2-INCH
PRINCIPAL REINFORCEMENT	2 1/2-INCH
WALLS:	
LESS THAN 12-INCHES THICK	1 1/2-INCH
12 INCHES OR OVER IN THICKNESS	2 1/2-INCH

CONCRETE

1. CEMENT SHALL BE ASTM C150 TYPE II FOR ALL STRUCTURES. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (PSI) AS NOTED IN THE TABLE BELOW AND AS FURTHER DEFINED IN THE SPECIFICATIONS:

CONCRETE STRENGTH (PSI)		
TYPE	STRENGTH	LOCATION
B	4,500	RESERVOIR ROOF, WALLS, COLUMNS AND DROP PANELS, FLOOR, FOOTINGS, AND FOUNDATIONS
E	2,500	MISCELLANEOUS STRUCTURES AND SITEWORK
G	125 (MAX)	CLSM/CDF - SEE SPECIFICATION SECTION 02065

2. CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 301-16, ACI 318-14, AND ACI 350-06, INCLUDING BAR BENDS AND HOOKS, UNLESS DETAILED OTHERWISE.
3. SUBMIT CONCRETE AND MASONRY LIFT DRAWINGS SHOWING THE LOCATION OF CONSTRUCTION JOINTS, WATERSTOPS AND OTHER TYPES OF JOINTS OTHER THAN SPECIFIED OR SHOWN ON THE DRAWINGS FOR FAVORABLE REVIEW BY THE ENGINEER BEFORE START OF WORK ON FORMS, REINFORCING STEEL OR PLACING CONCRETE. ANY ADDITIONAL VERTICAL OR HORIZONTAL CONSTRUCTION JOINTS SHALL HAVE A STANDARD KEYWAY AND SHALL BE FAVORABLY REVIEWED BY THE ENGINEER. REFER TO SPECIFICATIONS AND TYPICAL DETAILS FOR ADDITIONAL INFORMATION. CONSTRUCTION JOINTS SHALL BE ROUGHENED TO 1/4-INCH AMPLITUDE.
4. OPENINGS, PIPE SLEEVES, CONDUITS, INSERTS AND OTHER EMBEDDED ITEMS SHALL BE IN PLACE BEFORE CONCRETE IS PLACED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ARCHITECTURAL, CIVIL, MECHANICAL, ELECTRICAL, LANDSCAPING, HVAC, PLUMBING, INSTRUMENTATION AND OTHER PLANS FOR ITEMS REQUIRING SLEEVES AND EMBEDMENTS IN CONCRETE WHICH ARE NOT INDICATED OR SHOWN ON STRUCTURAL DRAWINGS. NO PIPES OR SLEEVES SHALL PASS THROUGH STRUCTURAL MEMBERS (UNLESS SHOWN ON STRUCTURAL DRAWINGS). COORDINATE WITH EQUIPMENT MANUFACTURERS DRAWINGS FOR ANCHORING DEVICES.
5. UNLESS OTHERWISE NOTED, ALL EXPOSED EDGES AND CORNERS SHALL BE CHAMFERED 3/4-INCH. INTERIOR FLOOR SLABS AND EXTERIOR SIDEWALKS SHALL HAVE TOOLED 3/8-INCH RADIUS CONSTRUCTION JOINT.
6. EACH FACE CONCRETE SHALL BE REINFORCED A MINIMUM OF NO. 5 BARS AT 12-INCHES EACH WAY.
7. CONCRETE ENCASE ALL PIPES AND CONDUITS UNDER CONCRETE SLABS AND FOOTINGS

STRUCTURAL ALUMINUM

1. UNLESS NOTED OTHERWISE, STRUCTURAL ALUMINUM SHALL BE GRADE 6061-T6.
2. THE FABRICATOR AND INSTALLER MUST BE A STATE LICENSED CONTRACTOR REGULARLY ENGAGED IN CUSTOM FABRICATION AND INSTALLATION OF WELDED AND BOLTED STRUCTURAL ALUMINUM.
3. WELD ELECTRODES SHALL CONFORM TO AWS A5.3 OR A5.10. WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS. WELDING SHALL USE ONLY APPROVED ELECTRODES. WELDING SHALL CONFORM TO THE PROVISIONS OF THE LATEST STRUCTURAL WELDING CODE (AWS D1.2).
4. CONNECTIONS SHALL USE AISI TYPE 304, STAINLESS STEEL BOLTS UNLESS NOTED OTHERWISE. PROVIDE WASHERS AT ALL BOLTED CONNECTIONS.
5. ALL ALUMINUM IN CONTACT WITH CONCRETE, PLASTER OR OTHER METALS SHALL RECEIVE AN ISOLATION COATING IN ACCORDANCE WITH THE SPECIFICATIONS.

STRUCTURAL STEEL

1. ALL STEEL CONSTRUCTION SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE 15TH EDITION OF THE AISC STEEL CONSTRUCTION MANUAL.
2. UNLESS OTHERWISE NOTED, STRUCTURAL STEEL SHAPES SHALL CONFORM TO THE FOLLOWING:

STRUCTURAL STEEL SPECIFICATION TABLE			
STEEL TYPE	SHAPE SERIES	ASTM DESIGNATION	MINIMUM YIELD STRENGTH
HIGH-STRENGTH LOW-ALLOY	Wx AND WTx	ASTM A992	Fy = 50 KSI
	PLATES CONNECTING TO Wx AND WTx SHAPES	ASTM A572	Fy = 50 KSI
CARBON STEEL	ANGLES, CHANNELS, PLATES, OTHER SHAPES	ASTM A36	Fy = 36 KSI
	STRUCTURAL PIPES	ASTM A53, GRADE B (TYPE E OR S)	Fy = 35 KSI
	ROUND HSS	ASTM A500, GRADE C	Fy = 46 KSI
	RECTANGULAR HSS	ASTM A500, GRADE C	Fy = 50 KSI

3. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED BY AN AISC CERTIFIED FABRICATOR IN CONFORMANCE WITH THE LATEST AISC SPECIFICATION PARTS 1 THRU 4 AND AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.
4. STEEL BEAMS, JOISTS, GIRDERS, TRUSSES, AND OTHER STRUCTURAL STEEL MEMBERS SHALL NOT BE RELOCATED WITHOUT APPROVAL FROM THE ENGINEER OF RECORD.
5. CONNECTIONS AND BOLTS:
   - 5.1. STRUCTURAL BOLTS FOR STEEL FRAMING SHALL BE GALVANIZED AND CONFORM TO ASTM A325-N (TYPE 1), UON. NUTS SHALL BE LUBRICATED. FULLY TENSION HIGH STRENGTH BOLTS UNLESS CONNECTING HSS SHAPES OR OTHERWISE NOTED.
   - 5.2. STRUCTURAL BOLTS FOR STEEL FRAMING WITH SHORT-SLOTTED HOLES SHALL BE A325-SC. PROVIDE WASHERS AT ALL CONNECTIONS WITH OVERSIZED OR SHORT-SLOTTED HOLES.
   - 5.3. USE STAINLESS STEEL TYPE 316 BOLTS FOR CONNECTIONS OF STAINLESS STEEL AND ALUMINUM FRAMING.
6. WELD ELECTRODES SHALL CONFORM TO AWS A5.1 OR A5.5 E70XX ELECTRODES. WELDING SHALL BE DONE BY CERTIFIED WELDERS. WELDING SHALL USE ONLY APPROVED ELECTRODES. WELDING SHALL CONFORM TO THE PROVISIONS OF THE LATEST STRUCTURAL WELDING CODE (AWS D1.1).
7. UNLESS NOTED OTHERWISE, STRUCTURAL STEEL COMPONENTS AND CONNECTIONS SHALL BE PAINTED OR PROTECTIVE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.

DEFERRED SUBMITTALS

IN ACCORDANCE WITH THE 2019 CBC, SECTION 107.3.4.1 SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD WHO SHALL REVIEW THEM AND FORWARD THEM TO THE AUTHORITY HAVING JURISDICTION WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL OR AUTHORITY HAVING JURISDICTION.

PRIOR TO ORDERING OR FABRICATION OF ANY MATERIALS, AND PRIOR TO THE INSTALLATION OF THE INDICATED STRUCTURAL ELEMENTS, EQUIPMENT DISTRIBUTIONS SYSTEM, OR COMPONENT AND IT'S ANCHORAGE. THE CONTRACTOR SHALL SUBMIT THE REQUIRED CALCULATIONS, SUPPORTING INFORMATION, AND DRAWINGS FOR REVIEW AND ACCEPTANCE BY THE ENGINEER. ALL DEFERRED SUBMITTALS AND CALCULATIONS SHALL BE IN ACCORDANCE WITH THE 2019 CALIFORNIA BUILDING CODE, INCLUDING THE DESIGN CRITERIA AND SPECIFICATIONS WITHIN THESE CONSTRUCTION DOCUMENTS. ALL DEFERRED SUBMITTAL CALCULATIONS AND DRAWINGS SHALL BE SEALED AND SIGNED BY A REGISTERED PROFESSIONAL CIVIL ENGINEER OR STRUCTURAL ENGINEER LICENSED IN THE STATE OF CALIFORNIA. THE FOLLOWING IS A LIST OF DEFERRED SUBMITTALS THAT ARE EXPECTED TO CONTAIN STRUCTURAL CALCULATIONS OR SAFETY RELATED SYSTEM INFORMATION FOR REVIEW TO MEET THE PROJECT REQUIREMENTS:

DEFERRED SUBMITTAL ITEMS
ANCHORAGE FOR ELECTRICAL AND MECHANICAL EQUIPMENT AND ENCLOSURES
PIPE SUPPORTS AND ANCHORAGE (AS IDENTIFIED ON THE CONTRACT DOCUMENTS)

STRUCTURAL ABBREVIATIONS

&	AND	JT	JOINT
@	AT		
#	NUMBER	KIP	1,000 POUNDS
Ø	DIAMETER	KSI	KIPS PER SQUARE INCH
ℓ_d	DEVELOPMENT LENGTH		
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIAL	L,∠	ANGLE
		LB(S)	POUNDS
		LB/SF	POUND(S) PER SQUARE FOOT
AB	AGGREGATE BASE, ANCHOR BOLT	LL	LIVE LOAD
ACI	AMERICAN CONCRETE INSTITUTE	LLH	LONG LEG HORIZONTAL
		LLV	LONG LEG VERTICAL
ADDIT	ADDITIONAL	LLBB	LONG LEG BACK-TO-BACK
ADJ	ADJACENT	LONGIT	LONGITUDINAL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	LT	LIGHT
		LW	LIGHT WEIGHT
AISI	AMERICAN IRON AND STEEL INSTITUTE	MATL	MATERIAL
AITC	AMERICAN INSTITUTE OF TIMBER CONSTRUCTION	MAX	MAXIMUM
		MB	MACHINE BOLT
ALUM	ALUMINUM	MC	MOISTURE CONTENT
ALT	ALTERNATE	MC	MISCELLANEOUS CHANNEL
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MECH	MECHANICAL
		MIN	MINIMUM
APA	AMERICAN PLYWOOD ASSOCIATION	MISC	MISCELLANEOUS
		MSE	MECHANICALLY STABILIZED EARTH
APROX	APPROXIMATE		
ARCH	ARCHITECTURAL		
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	N/A	NOT APPLICABLE
		(N)	NEW
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	NDT	NON-DESTRUCTIVE TEST(ING)
		NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
AWS	AMERICAN WELDING SOCIETY		
AWWA	AMERICAN WATER WORKS ASSOCIATION	NIC	NOT IN CONTACT
		NO.	NUMBER
		NOM	NOMINAL
B/	BOTTOM OF	NS	NEAR SIDE
BB(S)	BEARING BAR(S)	NSG	NON-SHRINK GROUT
BLKG	BLOCKING	NTS	NOT TO SCALE
BLDG	BUILDING		
BM	BEAM	OC	ON CENTERS
BM-1	BEAM MEMBER 1	OD	OUTSIDE DIAMETER
BN	BOUNDARY NAILING	OH	OPPOSITE HAND, OVERHEAD
BOT	BOTTOM	OPNG(S)	OPENING(S)
BP	BASE PLATE	OPP	OPPOSITE
BS	BOTH SIDES	OSHA	OCCUPATIONAL SAFETY AND HEALTH ASSOCIATION
BTWN	BETWEEN		
C	CHANNEL	PAF	POWDER/POWER ACTUATED FASTENER
CALC'S	CALCULATIONS		
CC,C/C	CENTER-TO-CENTER	PER	PERIODIC
CBC	CALIFORNIA BUILDING CODE	PEMB	PRE-ENGINEERED METAL BUILDING
CIP	CAST IN PLACE		
CJ	CONSTRUCTION JOINT	PL	PLATE
CJP	COMPLETE JOINT PENETRATION	PLF	POUND PER LINEAL FOOT
℄	CENTERLINE	PP	PARTIAL PENETRATION
CLSM	CONTROLLED LOW STRENGTH MATERIAL	PSF	POUND PER SQUARE FOOT
		PSI	POUND PER SQUARE INCH
CLR	CLEAR	PT(S)	POINT(S)
CNJ	CONTROL JOINT	PT	PRESSURE TREATED
COL	COLUMN		
CONC	CONCRETE	R, RAD	RADIUS
CONN	CONNECTION	RECT	RECTANGLE, RECTANGULAR
CONST	CONSTRUCTION	REINF	REINFORCING, -MENT
CONT	CONTINUOUS	REQ'D	REQUIRED
DBL	DOUBLE	SCH	SCHEDULE
DIA	DIAMETER	SF	SQUARE FOOT
DIAG	DIAGONAL	SHT	SHEET
DIM	DIMENSION	SIM	SIMILAR
DL	DEAD LOAD	SLBB	SHORT LEGS BACK-TO-BACK
DN	DOWN	SLH	SHORT LEG HORIZONTAL
DWG(S)	DRAWINGS	SLV	SHORT LEG VERTICAL
		SMS	SHEET METAL SCREW
(E)	EXISTING	SPEC(S)	SPECIFICATION(S)
EA	EACH	SQ	SQUARE
EF	EACH FACE	SS	STAINLESS STEEL
EL	ELEVATION	SSD	SATURATED SURFACE DRY
ELEC	ELECTRICAL	STAG	STAGGER
EMBED	EMBEDMENT	STD	STANDARD
EQ	EQUAL	STIFF	STIFFENER
EQUIP	EQUIPMENT	STL	STEEL
ES	EACH SIDE	STRUC	STRUCTURE
EW	EACH WAY	SUSP	SUSPENDED
EXP	EXPANSION	SYM	SYMMETRICAL
EXT	EXTERIOR		
		T/	TOP OF
(F)	FUTURE	T&B	TOP AND BOTTOM
FD	FLOOR DRAIN	TS	STRUCTURAL TUBING
FF	FINISH FLOOR	TYP	TYPICAL
FIN	FINISH		
FLR	FLOOR	UON	UNLESS OTHERWISE NOTED
FN	FIELD NAILING	UT	ULTRASONIC TESTING
FNDN	FOUNDATION		
FRP	FIBERGLASS REINFORCED PLASTIC	VERT	VERTICAL
		VIF	VERIFY IN FIELD
FS	FAR SIDE		
FT	FOOT/FEET	W/	WITH
FTG	FOOTING	W/O	WITHOUT
		W, WF	WIDE FLANGE
GALV	GALVANIZED	WCLIB	WEST COAST LUMBER INSPECTION BUREAU
GLB	GLULAM BEAM		
		WP	WORK POINT
HDG	HOT DIP GALVANIZE(D)	WSTP	WATERSTOP
HORIZ	HORIZONTAL	WT	WEIGHT, STRUCTURAL TEE WALL THICKNESS
HSS	HOLLOW STRUCTURAL SECTION		
HT	HEIGHT	WWF	WELDED WIRE FABRIC
HWL	HIGH WATER LEVEL		
		YD	YARD
IBC	INTERNATIONAL BUILDING CODE		
ICC	INTERNATIONAL CODE COUNCIL		
IN	INCH		
INT	INTERIOR		

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — DONALD BARRETT — No. C48483 — Exp. 12/31/22 — CIVIL — STATE OF CALIFORNIA

DESIGNED	MEJ
DRAWN	NEB
CHECKED	DLB

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting Inc.

STRUCTURAL
GENERAL NOTES AND ABBREVIATIONS

FILE NAME	1944519.00-S-1.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	S-1
OF	##

pw:\\kjce-pw.bentley.com:kjce-pw\Documents\Clients\San Fernando, City of CA\Projects\Upper Reservoir Replacement _ 1944519.00\10-Design\10.06-Drawings\Structural\1944519.00-S-1.dwg

SPECIAL INSPECTIONS AND TESTS - GENERAL

1. THE OWNER OR THE OWNER'S AUTHORIZED AGENT, OTHER THAN THE CONTRACTOR, SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PROVIDE SPECIAL INSPECTIONS AND TESTS IN ACCORDANCE WITH CHAPTER 17 OF THE 2019 CALIFORNIA BUILDING CODE DURING. CONSTRUCTION ON THE TYPES OF WORK SPECIFIED AND IDENTIFY THE APPROVED AGENCIES TO THE BUILDING OFFICIAL. STRUCTURAL SPECIAL INSPECTIONS AND TESTS SHALL GOVERN THE QUALITY, WORKMANSHIP AND REQUIREMENTS FOR MATERIALS COVERED. MATERIALS OF CONSTRUCTION AND TESTS SHALL CONFORM TO THE APPLICABLE STANDARDS LISTED IN THE REFERENCED BUILDING CODE.

2. APPROVED AGENCY: AN ESTABLISHED AND RECOGNIZED AGENCY THAT IS REGULARLY ENGAGED IN CONDUCTING TESTS OR FURNISHING INSPECTION SERVICES, WHERE SUCH AGENCY HAS BEEN APPROVED BY THE BUILDING OFFICIAL. THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY.

3. ACCESS FOR SPECIAL INSPECTION: THE CONSTRUCTION OR WORK FOR WHICH SPECIAL INSPECTION OR TESTING IS REQUIRED SHALL REMAIN ACCESSIBLE AND EXPOSED FOR SPECIAL INSPECTION OR TESTING PURPOSES UNTIL COMPLETION OF THE REQUIRED SPECIAL INSPECTIONS OR TESTS.

4. REPORT REQUIREMENT: APPROVED AGENCIES SHALL KEEP RECORDS OF SPECIAL INSPECTIONS AND TESTS. THE APPROVED AGENCY SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TESTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND TESTS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS OR TESTS SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF WORK BY THE OWNER OR THE OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL.

5. SPECIAL INSPECTIONS OF FABRICATED ITEMS: WHERE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTIONS OF THE FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION.

6. STATEMENT OF SPECIAL INSPECTIONS: THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE SHALL PREPARE A STATEMENT OF SPECIAL INSPECTIONS.

7. MATERIAL TESTS: IN THE ABSENCE OF SUFFICIENT DATA OR DOCUMENTATION PROVIDING EVIDENCE OF CONFORMANCE TO QUALITY STANDARDS FOR MATERIALS IN CHAPTERS 19 AND 20 OF ACI 318, THE BUILDING OFFICIAL SHALL REQUIRE TESTING OF MATERIALS IN ACCORDANCE WITH THE APPROPRIATE STANDARDS AND CRITERIA FOR THE MATERIAL IN CHAPTERS 19 AND 20 OF ACI 318.

8. SEISMIC REQUIREMENTS IN THE STATEMENT OF SPECIAL INSPECTIONS: WHERE SPECIAL INSPECTIONS OR TESTS FOR SEISMIC RESISTANCE ARE REQUIRED, THE STATEMENT OF SPECIAL INSPECTIONS SHALL IDENTIFY THE DESIGNATED SEISMIC SYSTEMS AND SEISMIC FORCE-RESISTING SYSTEMS THAT ARE SUBJECT TO THE SPECIAL INSPECTIONS OR TESTS.

9. DESIGNATED SEISMIC SYSTEMS: SPECIAL INSPECTOR SHALL EXAMINE DESIGNATED SEISMIC SYSTEMS REQUIRING SEISMIC QUALIFICATION IN ACCORDANCE WITH SECTION 13.2.2 OF ASCE 7 AND VERIFY THAT THE LABEL, ANCHORAGE AND MOUNTING CONFORM TO THE CERTIFICATE OF COMPLIANCE.

10. CONTRACTOR RESPONSIBILITY: CORRECT DISCREPANCIES IDENTIFIED IN THE SPECIAL INSPECTIONS AND TESTS WHERE WORK WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS.

SOIL & FOUNDATIONS

1. SPECIAL INSPECTIONS AND TESTS OF EXISTING SITE SOIL CONDITIONS, FILL PLACEMENT AND LOAD-BEARING REQUIREMENTS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING TABLES. THE APPROVED GEOTECHNICAL REPORT AND THE CONSTRUCTION DOCUMENTS PREPARED BY THE REGISTERED DESIGN PROFESSIONALS SHALL BE USED TO DETERMINE COMPLIANCE. DURING FILL PLACEMENT, THE SPECIAL INSPECTOR SHALL VERIFY THAT PROPER MATERIALS AND PROCEDURES ARE USED IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT.

CONCRETE

1. SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING TABLES.
   1.1. WELDING OF REINFORCING BARS: SPECIAL INSPECTIONS OF WELDING AND QUALIFICATIONS OF SPECIAL INSPECTORS FOR REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AWS D1.4 FOR SPECIAL INSPECTION AND OF AWS D1.4 FOR SPECIAL INSPECTOR QUALIFICATION.

HOT-ROLLED STEEL & WELDING & BOLTING

1. SPECIAL INSPECTIONS AND NONDESTRUCTIVE TESTING OF STRUCTURAL STEEL ELEMENTS IN BUILDINGS, STRUCTURES AND PORTIONS THEREOF SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF AISC 360.

NON-STRUCTURAL

1. PLUMBING, MECHANICAL AND ELECTRICAL COMPONENTS: PERIODIC SPECIAL INSPECTION OF PLUMBING, MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE REQUIRED FOR THE FOLLOWING:

   ANCHORAGE OF ELECTRICAL EQUIPMENT FOR EMERGENCY AND STANDBY POWER SYSTEMS IN STRUCTURES.

   ANCHORAGE OF OTHER ELECTRICAL EQUIPMENT IN STRUCTURES.

   INSTALLATION AND ANCHORAGE OF PIPING SYSTEMS DESIGNED TO CARRY HAZARDOUS MATERIALS AND THEIR ASSOCIATED MECHANICAL UNITS IN STRUCTURES.

STRUCTURAL OBSERVATIONS:

STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM, STRUCTURAL ELEMENTS, AND THEIR CONNECTIONS FOR GENERAL CONFORMANCE TO THE CONTRACT DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES AND AT THE COMPLETION OF THE STRUCTURAL SYSTEMS. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR INSPECTIONS REQUIRED BY CHAPTER 17 OF THE 2019 CALIFORNIA BUILDING CODE OR THE CONTRACT DOCUMENTS. ALL STRUCTURAL OBSERVATIONS SHALL BE IN ACCORDANCE WITH CHAPTER 1704.6 OF THE 2019 CALIFORNIA BUILDING CODE. THE OWNER SHALL RETAIN A REGISTERED DESIGN PROFESSIONAL (LICENSED IN CALIFORNIA) OR THE ENGINEER OF RECORD TO PERFORM ALL THE STRUCTURAL OBSERVATIONS REQUIRED.

THE CONTRACTOR OR CONSTRUCTION MANAGER SHALL NOTIFY THE ENGINEER OF RECORD AND PERSONS PERFORMING THE STRUCTURAL OBSERVATION AT LEAST (5) FIVE WORKING DAYS (FOR EACH OBSERVATION) PRIOR TO THE WORK THAT IS REQUIRED TO BE OBSERVED IS COVERED. DEFICIENCIES FOUND DURING THE STRUCTURAL OBSERVATIONS SHALL BE CORRECTED BY THE CONTRACTOR. AT A MINIMUM, STRUCTURAL OBSERVATIONS SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

STRUCTURAL OBSERVATION TABLE	
CONSTRUCTION SEQUENCE	**ITEMS TO OBSERVE**
SUBGRADE AND SOIL PREPARATION	STRUCTURAL FILL AND SUBGRADE
	VERIFY THE MATERIALS BELOW THE FOUNDATION HAVE BEEN INSTALLED IN CONFORMANCE WITH THE CONTRACT DOCUMENTS
FOUNDATION	REINFORCEMENT FOR BAR SIZES, SPACING, CLEARANCES, DEPTH OF REINFORCEMENT TO TOP OF FORMS, FORMWORK. OBSERVE PRIOR TO CONCRETE PLACEMENT
	PLACEMENT OF WALL DOWELS, LAPS, ANCHOR BOLTS, STEEL EMBEDS, HOLD DOWNS
CONCRETE CONSTRUCTION	REINFORCEMENT FOR AR SIZES, SPACING, CLEARANCE, OBSERVE PRIOR TO CONCRETE PLACEMENT
	PLACEMENT OF WALL DOWELS, LAPS, ANCHOR BOLTS, HOLD DOWNS, STEEL EMBEDS
STRUCTURAL STEEL	OBSERVE WORK IN PROGRESS FOR STRUCTURAL SHAPES AND SIZES, COLUMN AND FRAMING LOCATIONS, BOLTS, AND WELDING.

CONCRETE TESTING SCHEDULE:

[X] (6) 6"Ø CYLINDERS PER 100 CUBIC YARDS*
2 @ 7 DAYS, 2 @ 28 DAYS, HOLD 2 IN RESERVE. EACH MIX PLACED, EACH DAY PLACED
[X] SLUMP TEST - PER 50 CY & AT STRENGTH SAMPLE
[X] AIR TEST - PER STRENGTH SAMPLES SCHEDULE
[X] UNIT WEIGHT TEST - PER STRENGTH SAMPLES

CONCRETE					
REQUIRED SPECIAL INSPECTIONS AND TESTS					
SPECIAL INSPECTION REQUIRED	TYPE	CONT	PERIODIC	REFERENCED STANDARD	IBC REF
YES	1. INSPECT REINFORCEMENT, INCLUDING PRE-STRESSING TENDONS, AND VERIFY PLACEMENT.	--	X	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1 - 26.6.3	1908.4
YES	2. REINFORCING BAR WELDING:				
YES	a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706.	--	X	AWS D1.4, ACI 318 26.6.4	--
YES	b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16".	--	X		
YES	c. INSPECT ALL OTHER WELDS.	X	--		
YES	3. INSPECT ANCHORS CAST IN CONCRETE.	--	X	ACI 318 17.8.2	--
YES	4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.				
YES	a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	--	ACI 318 17.8.2.4	--
YES	b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	--	X	ACI 318 17.8.2	
YES	5. VERIFY USE OF REQUIRED DESIGN MIX.	--	X	ACI 318 Ch. 19, 26.4.3, 26.4.4	1904.1 1904.2 1908.2 1908.3
YES	6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	--	ASTM C172, ASTM C31, ACI 318 26.4, 26.12	1908.10
YES	7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	--	ACI 318 26.5	1908.6, 1908.7, 1908.8
YES	8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	--	X	ACI 318 26.5.3 - 26.5.5	1908.9
YES	9. INSPECT PRESTRESSED CONCRETE FOR:				
YES	a. APPLICATION OF PRE-STRESSING FORCES.	X	--	ACI 318 26.10	--
YES	b. GROUTING OF BONDED PRE-STRESSING TENDONS.	X	--		
YES	10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	--	X	ACI 318 26.8	--
YES	11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	--	X	ACI 318 26.11.2	--
YES	12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED,	--	X	ACI 318 26.11.1.2(b)	--

SOILS			
REQUIRED SPECIAL INSPECTIONS AND TESTS			
SPECIAL INSPECTION REQUIRED	TYPE	CONT	PERIODIC
YES	1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	--	X
YES	2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	--	X
YES	3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	--	X
YES	4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	--
YES	5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	--	X

GOVERNING CODES	
GENERAL	IBC 2018/CBC 2019
CONCRETE	ACI 318-14
STEEL	ANSI/AISC 360-16
MASONRY	TMS 402 / 602-16
WELDING	AWS D1.1-16

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER
DONALD BARRETT
No. C48483
Exp. 12/31/22
CIVIL
STATE OF CALIFORNIA

DESIGNED MEJ
DRAWN NEB
CHECKED DLB

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON consulting inc

STRUCTURAL SPECIAL INSPECTION

FILE NAME 1944519.00-S-2.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET S-2 OF ##

LAP SPLICE LENGTH FOR REINFORCING BARS IN WALLS, SLABS & FTNGS (INCHES)

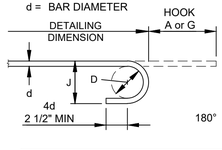
CONCRETE COMPRESSIVE STRENGTH, f'c ≥ 3,000 PSI						
BAR SIZE	COVER=1.00 IN.		COVER=1.50 IN.		COVER=2.00 IN.	
IMPERIAL [SOFT METRIC]	TOP[4]	OTHER	TOP [4]	OTHER	TOP [4]	OTHER
#3 [#10]	17	13	17	13	17	13
#4 [#13]	23	17	23	17	23	17
#5 [#16]	33	26	28	22	28	22
#6 [#19]	46	35	34	26	34	26
#7 [#22]	74	57	55	43	49	38
#8 [#25]	93	72	70	54	56	43
#9 [#29]	113	87	86	66	69	53
#10 [#32]	137	106	105	81	85	66
#11 [#36]	162	125	125	97	102	79

NOTES:
1. THE SPLICE LENGTH TABLE IS SPECIFIC TO TENSION DEVELOPMENT AND TENSION LAP SPLICE LENGTHS FOR WALLS, SLABS AND FOOTINGS DETERMINED IN ACCORDANCE WITH ACI 318-14 CHAPTER 25, ACI 350-06 CHAPTER 12, AND THE CRITERIA IN THIS DETAIL. CONTACT THE EOR FOR ANY DISCREPANCIES TO THE CRITERIA IN THIS DETAIL.
2. LAP SPLICE LENGTHS ARE CLASS B LAPS, IN INCHES, FOR GRADE 60 REINF IN NORMAL-WEIGHT CONC WITH f'c ≥ 3,000 PSI.
3. OC SPACING OF REINF SHALL BE > TWICE THE CONC COVER PLUS ONE BAR DIA.
4. TOP BARS ARE HORIZ BARS WITH > 12" OF CONC CAST BELOW BARS.
5. FOR EPOXY-COATED REINF OR LIGHTWEIGHT CONC, CONTACT THE EOR FOR LAP SPLICE LENGTHS.
6. FOR BARS OF DIFFERENT SIZES, THE LAP SPLICE LENGTHS OF THE SMALLER BAR SHALL BE USED.
7. STAGGER LAPS A DISTANCE OF ONE-HALF THE SPLICE LENGTH, UON.

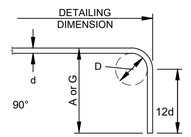
CONCRETE REBAR LAP SPLICE — S-3010
SCALE: NTS
REV 00

D = FINISHED INSIDE BEND DIAMETER (INCLUDES SPRINGBACK)

d = BAR DIAMETER



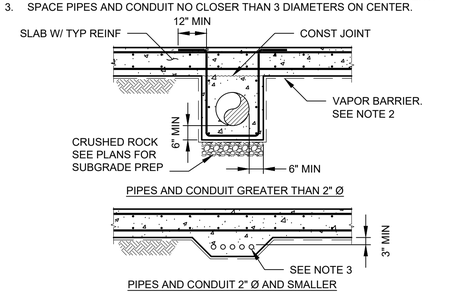
ACI 318-14 MIN BEND DIAMETER:
6d FOR #3 THROUGH #8
8d FOR #9, #10 & #11
10d FOR #14 AND #18



RECOMMENDED END HOOK DIMENSIONS				
BAR SIZE	D	180 ° HOOKS		90° HOOKS
		A or G	J	A or G
#3	0'-2 1/4"	0'-5"	0'-3"	0'-6"
#4	0'-3"	0'-6"	0'-4"	0'-8"
#5	0'-3 3/4"	0'-7"	0'-5"	0'-10"
#6	0'-4 1/2"	0'-8"	0'-6"	1'-0"
#7	0'-5 1/4"	0'-10"	0'-7"	1'-2"
#8	0'-6"	0'-11"	0'-8"	1'-4"
#9	0'-9 1/2"	1'-3"	0'-11 3/4"	1'-7"
#10	0'-10 3/4"	1'-5"	1'-1 1/4"	1'-10"
#11	1'-0"	1'-7"	1'-2 3/4"	2'-0"

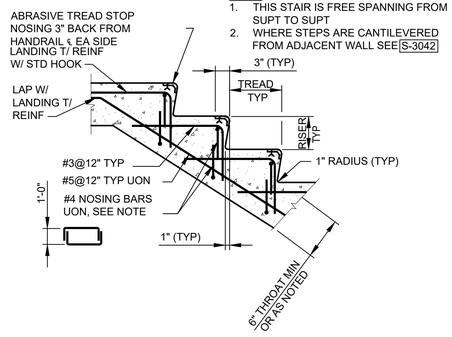
REINFORCING HOOKS — S-3020
SCALE: NTS
REV 00

NOTES:
1. ENCASEMENT REINFORCING SHALL BE #4@12" UON. PROVIDE A MINIMUM 3 INCHES CLEAR COVER.
2. WHERE VAPOR BARRIER IS SHOWN IN PLANS OR SECTIONS THE VAPOR BARRIER SHALL BE PLACED CONTINUOUSLY UNDER SLAB AND ENCASEMENT.
3. SPACE PIPES AND CONDUIT NO CLOSER THAN 3 DIAMETERS ON CENTER.



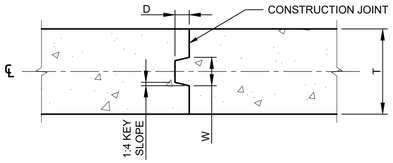
PIPE AND CONDUIT ENCASEMENT — S-3030
SCALE: 3/8" = 1'-0"
REV 00

NOTE:
1. THIS STAIR IS FREE SPANNING FROM SUPT TO SUPT
2. WHERE STEPS ARE CANTILEVERED FROM ADJACENT WALL SEE S-3042



CONCRETE STAIR — S-3040
SCALE: 3/4" = 1'-0"
REV 00

NOTES:
1. KEYS REQUIRED AT ALL CONCRETE CONSTRUCTION JOINTS (UON).
2. CLEAN AND LIGHTLY ROUGHEN FORMED SURFACE WITH WATER OR LIGHT ABRASIVE BLAST PRIOR TO PLACEMENT OF NEW CONCRETE.
3. SEE PLANS FOR REINFORCING NOT SHOWN.



THICKNESS OF SLAB OR WALL "T"	NOMINAL KEY SIZE D x W (SAWN LUMBER)
9" AND UNDER	2x3
10" TO 12"	2x4
13" TO 18"	2x6
19" TO 24"	2x8
MORE THAN 24"	2x12

CONSTRUCTION JOINT — S-3110
KEYWAY
SCALE: 3/4" = 1'-0"
REV 00

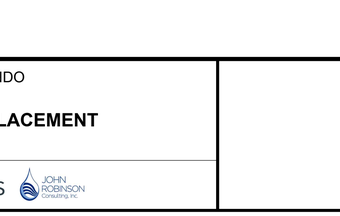
PVC WATERSTOP — S-3111
SCALE: NTS
REV 00

WATERSTOP FABRICATED JOINTS — S-3112
SCALE: NTS
REV 00

NOTES:
1. LOCATE WATERSTOP WITH WIRE TIES OR LONGIT KEY BLOCKING BETWEEN TWO CURTAINS OF REINFORCING.
2. AT INTERSECTIONS OF CONST JOINTS, CONNECT WATERSTOP WITH FACTORY MITERED ELLS AND TEES TO FORM CONTINUOUS WATER BARRIER.
3. REFER TO SPECS FOR INSTALLATION & DETAILED PRODUCT REQ'S.
4. EXTEND BAR HOOKED ENDS TO BOTTOM OF SLAB.

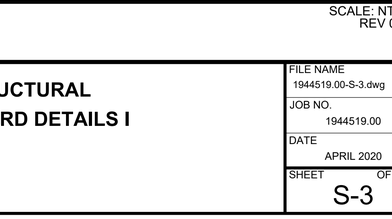
WALL-TO-SLAB JOINT — S-3122
WITH WATERSTOP
SCALE: 1" = 1'-0"
REV 00

NOTES:
1. ALL FLOOR AND WALL JOINTS OF HYDRAULIC STRUCTURES SHALL HAVE A SEALANT GROOVE.
2. WHERE FACE OF JOINT IS TO BE COATED W/ BOND BREAKER, AVOID COATING SEALANT GROOVE.



TYPICAL SEALANT GROOVE — S-3130
SCALE: NTS
REV 00

NOTES:
1. PRIOR TO FILLING, ALL STRUCTURES TO CONTAIN WATER SHALL HAVE ALL CRACKS REPAIRED AS SHOWN IN THIS DETAIL.



CRACK REPAIR — S-3131
SCALE: NTS
REV 00

WALL CONSTRUCTION JOINT — S-3132
SCALE: NTS
REV 00

ROOF SUSPENDED SLAB CONSTRUCTION JOINT — S-3142
SCALE: NTS
REV 00

FLOOR SLAB CONSTRUCTION JOINT — S-3151
SCALE: NTS
REV 00

PLAN

SECTION

REINFORCEMENT IN FLOOR SLAB VALLEY AT CORNERS — S-3151
SCALE: NTS
REV 00

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER — DONALD BARRETT — No. C48483 Exp. 12/31/22 — CIVIL — STATE OF CALIFORNIA

DESIGNED	MEJ
DRAWN	NEB
CHECKED	DLB

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

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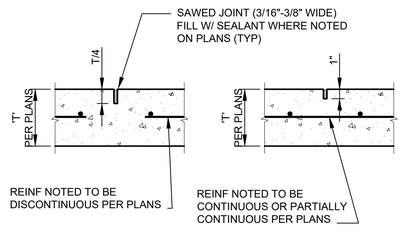
STRUCTURAL
STANDARD DETAILS I

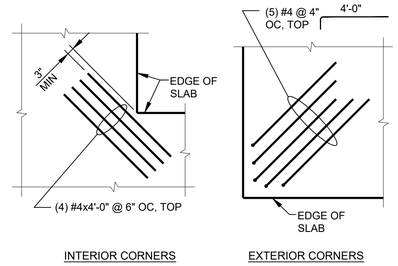
FILE NAME	1944519.00-S-3.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	S-3 ##

NOTES:
1. JOINT FORMED WITH TOOL OR INSERT STRIP MAY BE SUBSTITUTED FOR SAWED TYPE WITH PRIOR ACCEPTANCE BY THE ENGINEER.
2. SAWED JOINT MUST BE CONSTRUCTED WITHIN 12 HOURS OF CONCRETE PLACEMENT.
3. THIS DETAIL DOES NOT APPLY TO SUSPENDED SLABS OR LIQUID CONTAINING BASINS UNLESS SPECIFICALLY NOTED.



CONTROL JOINT — S-3170

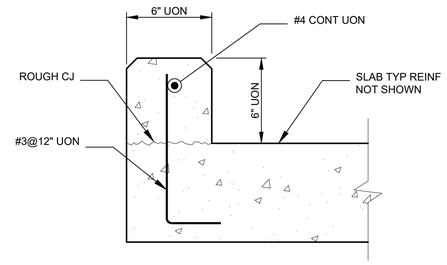
SCALE: 1-1/2" = 1'-0"
REV 00



ADDITIONAL REINF AT SLAB CORNERS — S-3180

SCALE: 1" = 1'-0"
REV 00

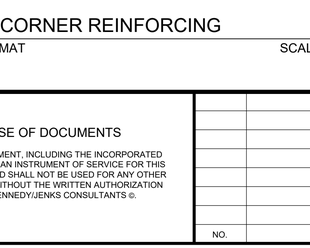
NOTES:
1. SEE PLANS FOR CURB LOCATION AND DIMENSIONS.



CURB — S-3320

SCALE: 1-1/2" = 1'-0"
REV 00

NOTES:
1. VERTICAL REINFORCING NOT SHOWN.
2. THESE DETAILS SHALL BE APPLICABLE TO ALL WALL CORNERS UNLESS NOTED OTHERWISE ON THE PLANS.
3. ALL SPLICES ARE IN THE VERTICAL PLANE.



PLAN AT CORNER

PLAN AT INTERSECTION

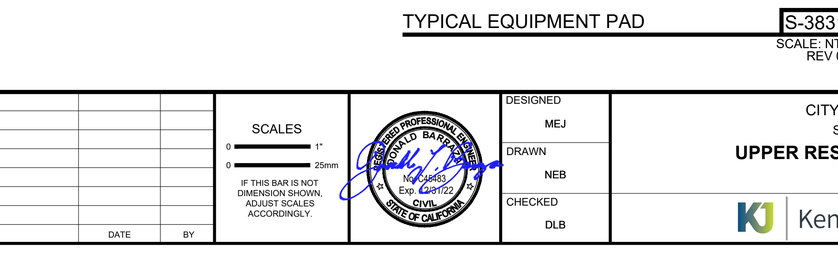
A = VERTICAL CONSTRUCTION JOINT NEAREST TO WALL CORNER. WITH WATERSTOP AT CONTAINMENT STRUCTURES.
A^x = DISTANCE FROM INSIDE CORNER FACE TO NEAREST VERTICAL CONSTRUCTION JOINT IN SIMILARLY NUMBERED WALL. "A" SHALL NOT BE LESS THAN DIMENSIONS INDICATED BY THESE DETAILS; NOR GREATER THAN INDICATED ON PLAN DRAWINGS; BUT IN ANY CASE THE SUM OF TWO ADJACENT "A" DIMENSIONS SHALL NOT EXCEED 30 FEET.
B = STANDARD LAP SPLICE LENGTH. USE SPLICE LENGTH FOR THE SMALLER OF THE TWO BARS BEING SPLICED.
C = STANDARD HOOK
D = TYPICAL CORNER REINFORCEMENT. SIZE SHALL MATCH LARGEST ADJACENT WALL HORIZONTAL REINFORCEMENT; SPACING SHALL MATCH MINIMUM ADJACENT WALL HORIZONTAL REINFORCEMENT SPACING.

WALL CORNER REINFORCING — S-3412

DOUBLE MAT

SCALE: 3/8" = 1'-0"
REV 00

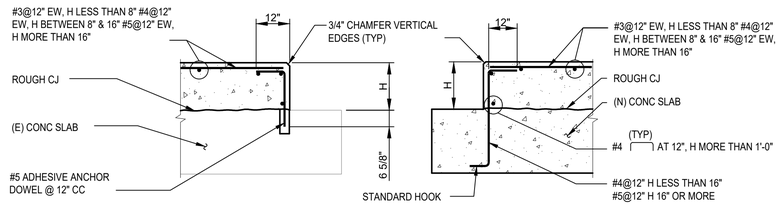
NOTES:
1. PROVIDE ADDITIONAL VERTICAL REINF EQUAL IN LENGTH TO THE UNINTERRUPTED BARS.
2. EXTEND ADDITIONAL HORIZONTAL REINF 5'-0" MIN BEYOND EITHER SIDE OF OPENING (HOOK BARS IF 5'-0" NOT AVAILABLE).
3. THIS DETAIL APPLIES TO ALL WALLS AND SLABS USED FOR RETAINING LIQUIDS AND SOIL.



ADDIT REINF AT OPENINGS — S-3421

PRESSURE WALLS AND SLABS

SCALE: 1" = 1'-0"
REV 00



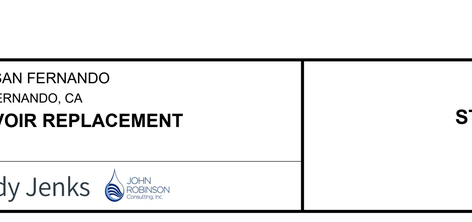
ON EXISTING CONCRETE SLAB

ON NEW CONCRETE SLAB

NOTES:
1. PLACE ALL EQUIPMENT ON CONCRETE BASES.
2. SEPARATE ALL STEEL SURFACES BEARING ON CONC BY A GROUT LAYER.
3. FOR INSTALLATION AT EXISTING SLABS, THE CONTRACTOR SHALL LOCATE AND AVOID DRILLING THRU EXISTING REINFORCING STEEL.

TYPICAL EQUIPMENT PAD — S-3831

SCALE: NTS
REV 00

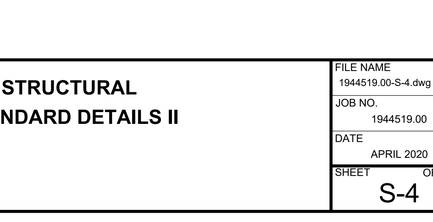


SUPPORT MATERIAL SCHEDULE		
GRATING	FRAME ANGLE	ANCHOR STRAPS
GALV STEEL	GALV STEEL	STEEL
STAINLESS	STAINLESS	STEEL
ALUMINUM	STAINLESS	STEEL

FLOOR PLATE SUPPORT — S-3550

EMBEDDED ANGLE

SCALE: 3" = 1'-0"
REV 00



SUPPORT MATERIAL SCHEDULE		
GRATING	FRAME ANGLE	ANCHOR STRAPS
GALV STEEL	GALV STEEL	STEEL
STAINLESS	STAINLESS	STEEL
ALUMINUM	STAINLESS	STEEL
FIBERGLASS	STAINLESS	STEEL

GRATING SUPPORT — S-3560

EMBEDDED ANGLE

SCALE: 3" = 1'-0"
REV 00

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER — RONALD BARRETT — No. C48183 Exp. 12/31/22 — CIVIL — STATE OF CALIFORNIA

DESIGNED MEJ
DRAWN NEB
CHECKED DLB

CITY OF SAN FERNANDO
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UPPER RESERVOIR REPLACEMENT

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STRUCTURAL
STANDARD DETAILS II

FILE NAME 1944519.00-S-4.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET S-4 OF ##

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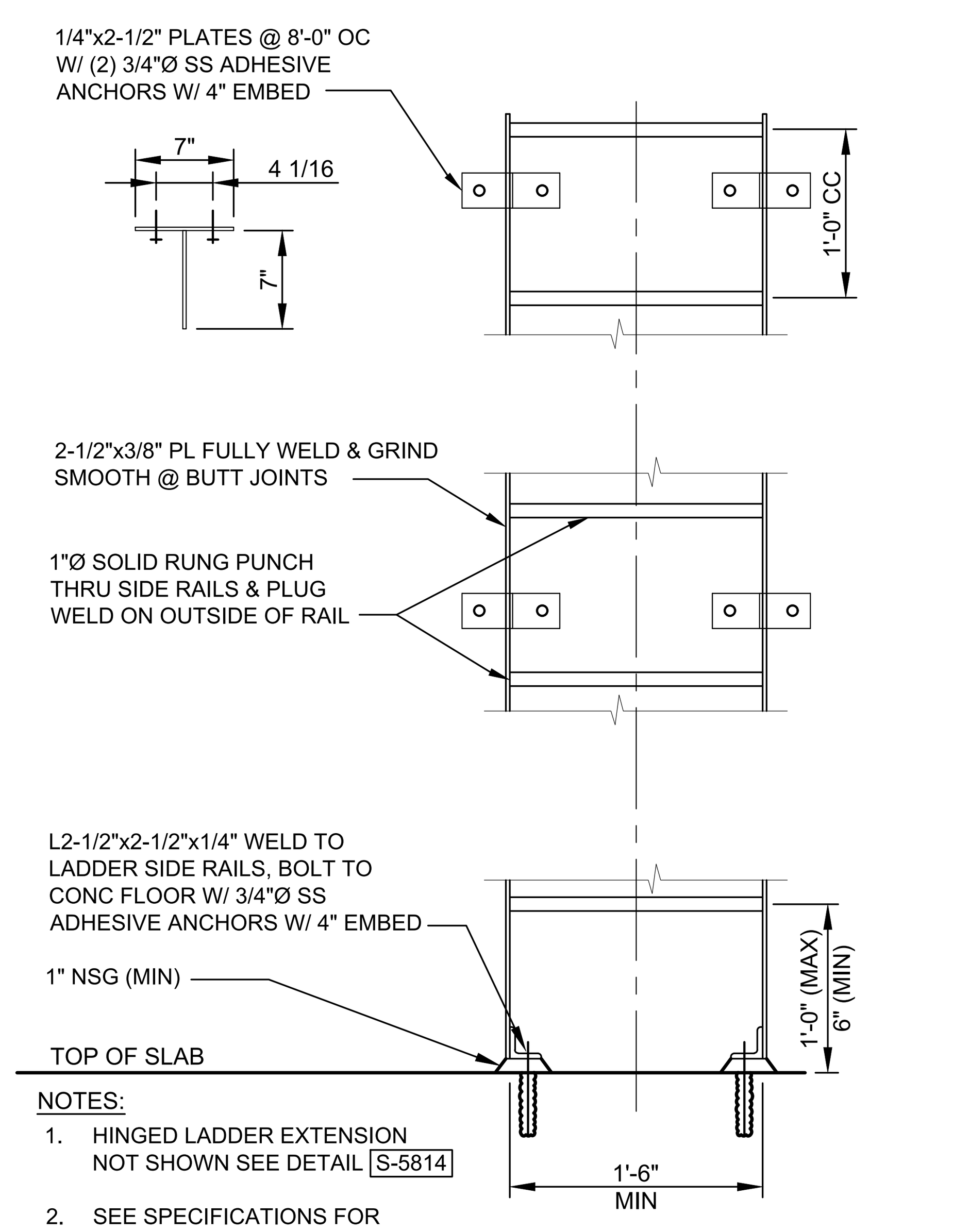
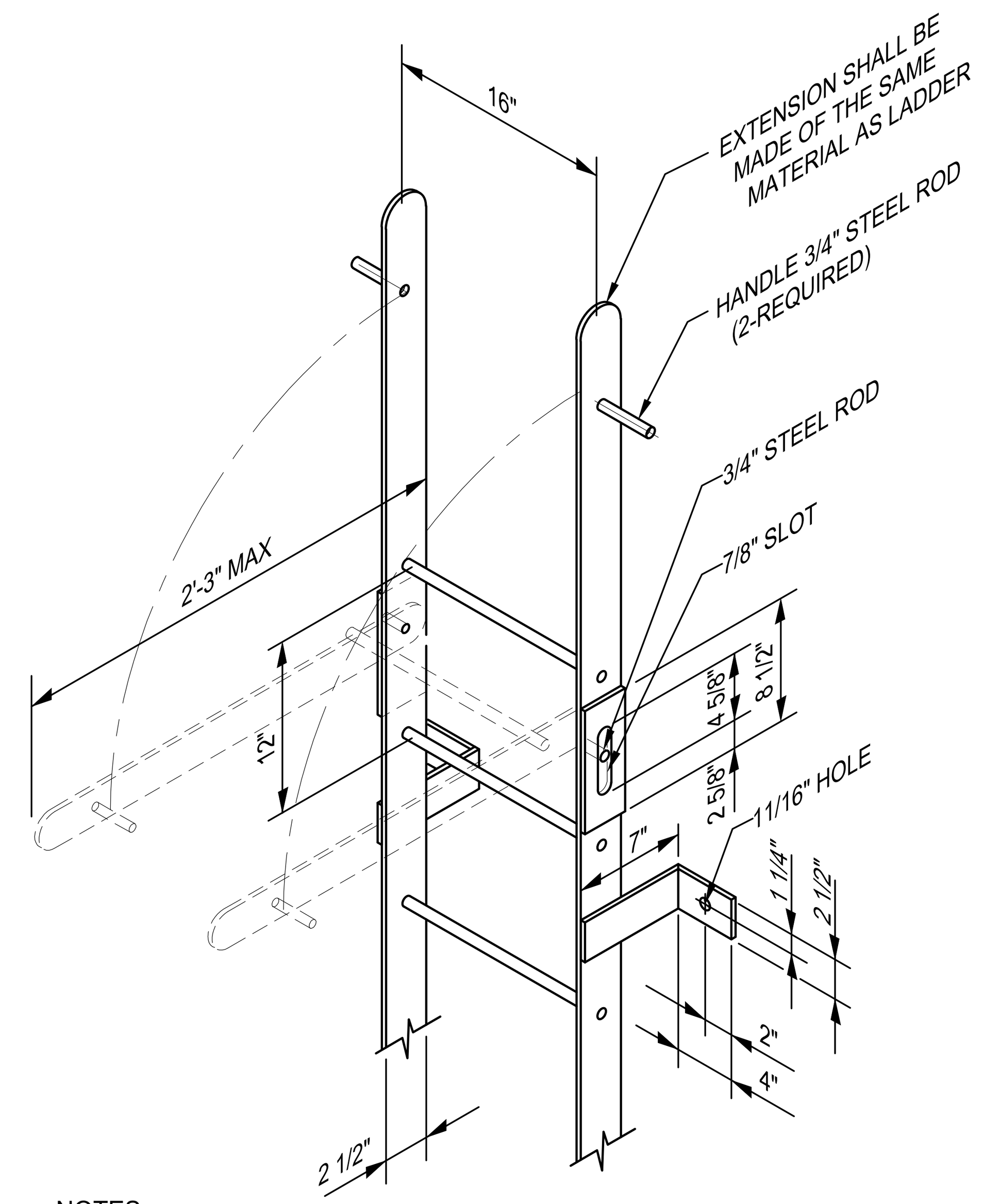


NOTES:
1. HINGED LADDER EXTENSION NOT SHOWN SEE DETAIL S-5814
2. SEE SPECIFICATIONS FOR OTHER REQUIREMENTS

MAN LADDER S-5813

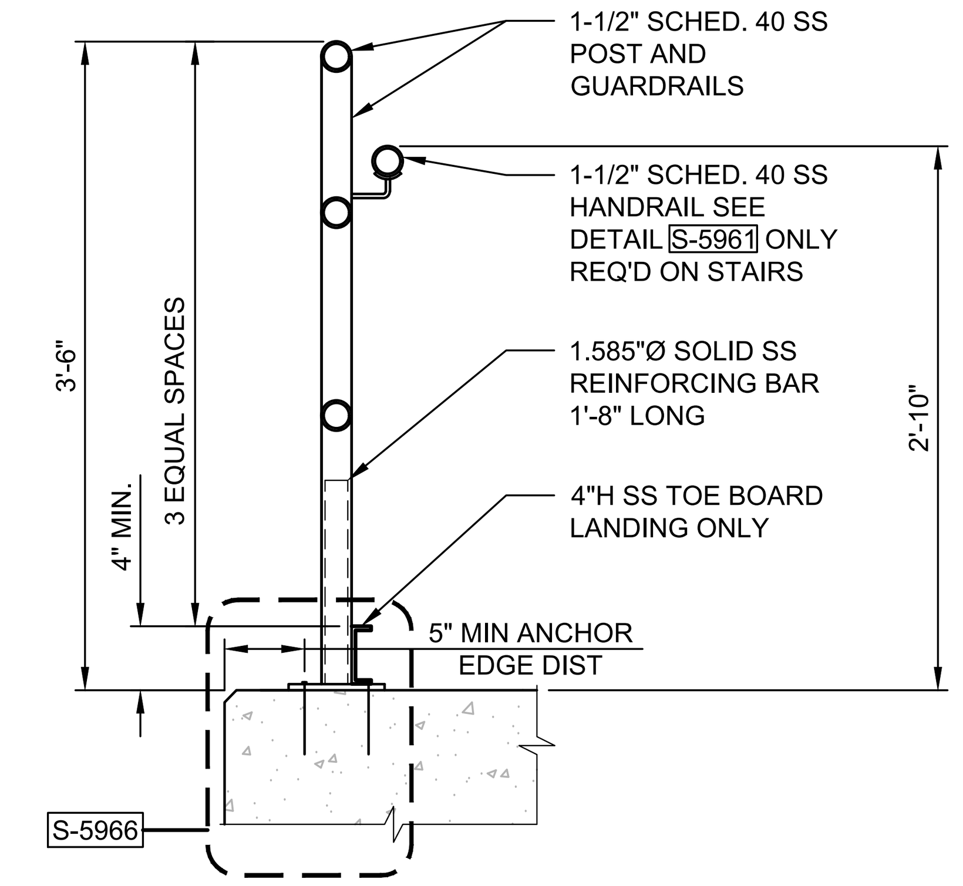
SCALE: 1" = 1'-0"
REV 00



NOTES:
1. ALL SURFACES SHALL BE SMOOTH
2. ALL JOINTS SHALL BE WELDED PER XXXXXX WITH LATEST REVISION.
3. AFTER FABRICATION GRIND AS REQUIRED AND CLEAN

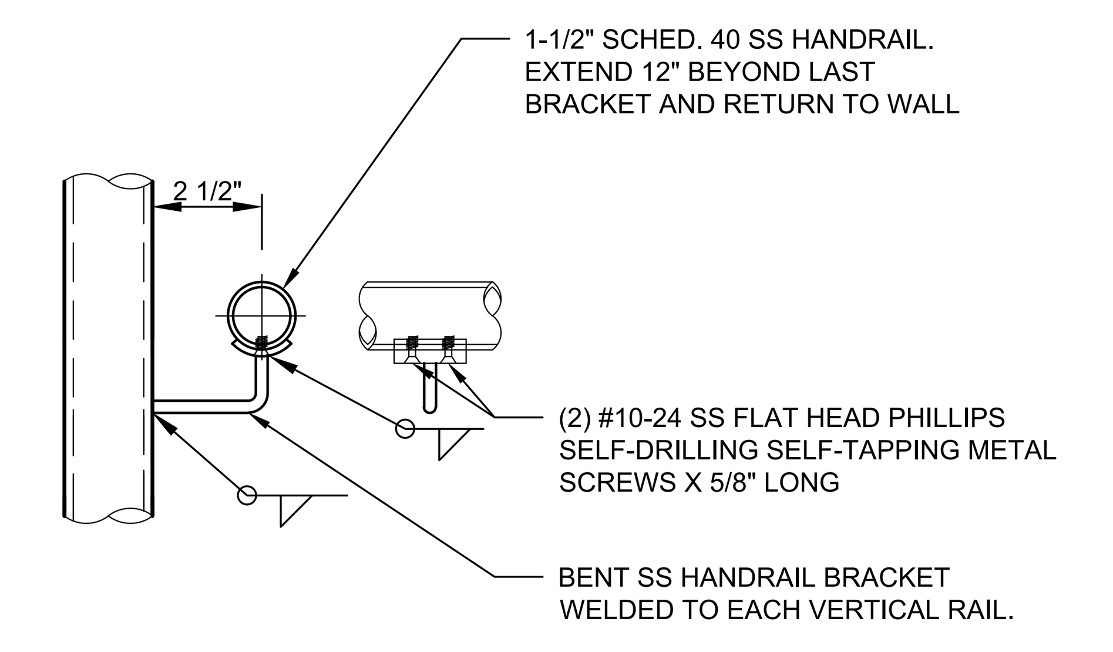
HINGED LADDER EXTENSION S-5814

SCALE: NTS
REV 00



SS GUARDRAIL AT CONC BASE MOUNT S-5960

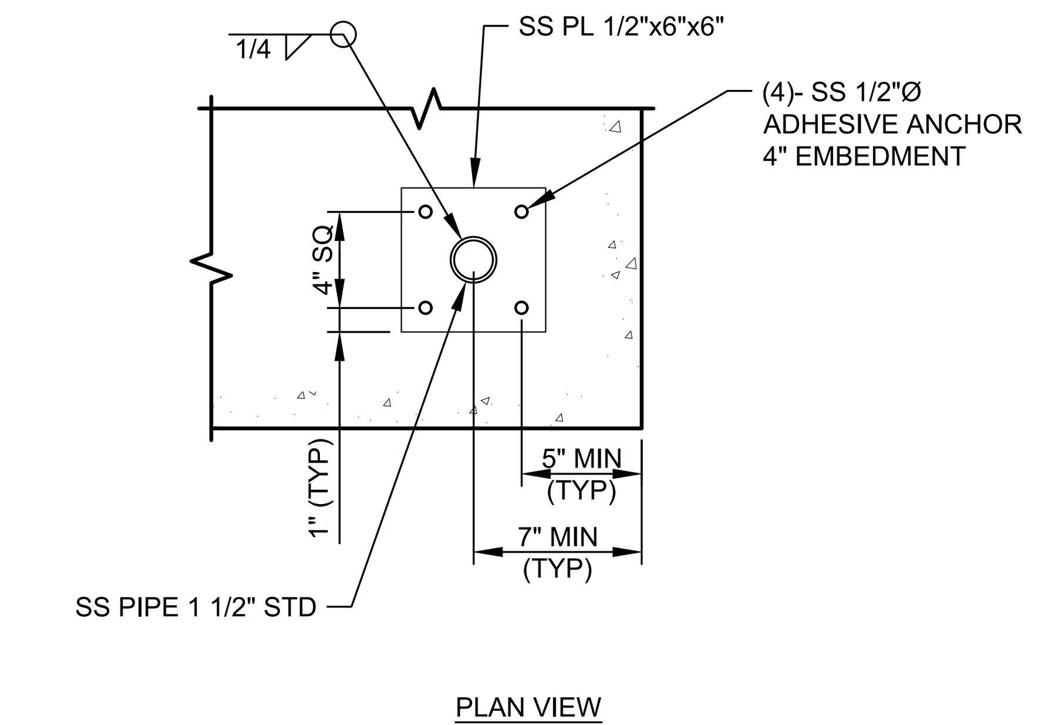
SCALE: NTS
REV 00



NOTES:
1. PROVIDE BITUMINOUS COATING BETWEEN SS AND DISSIMILAR MATERIALS.
2. ALL STAINLESS STEEL SHALL BE SS316.

HANDRAIL MOUNTING DETAIL S-5961

SCALE: NTS
REV 00

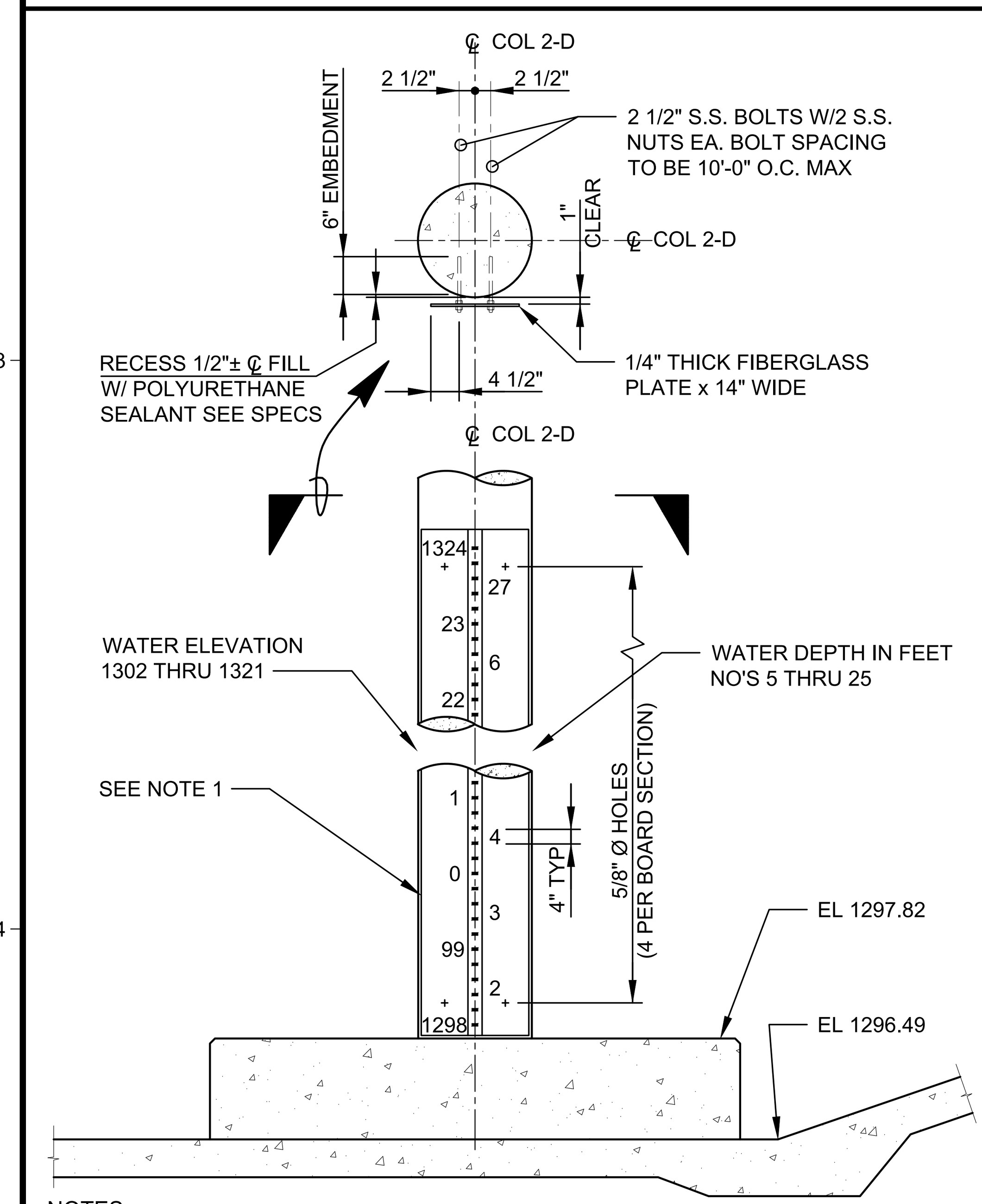


NOTES:
1. SEE PLANS FOR POST LAYOUT. POST SPACING SHALL NOT EXCEED 5'-0" ON CENTER.
2. CONCRETE THICKNESS = 7" MIN.

SS GUARDRAIL POST ANCHORAGE S-5966

TOP-MOUNT

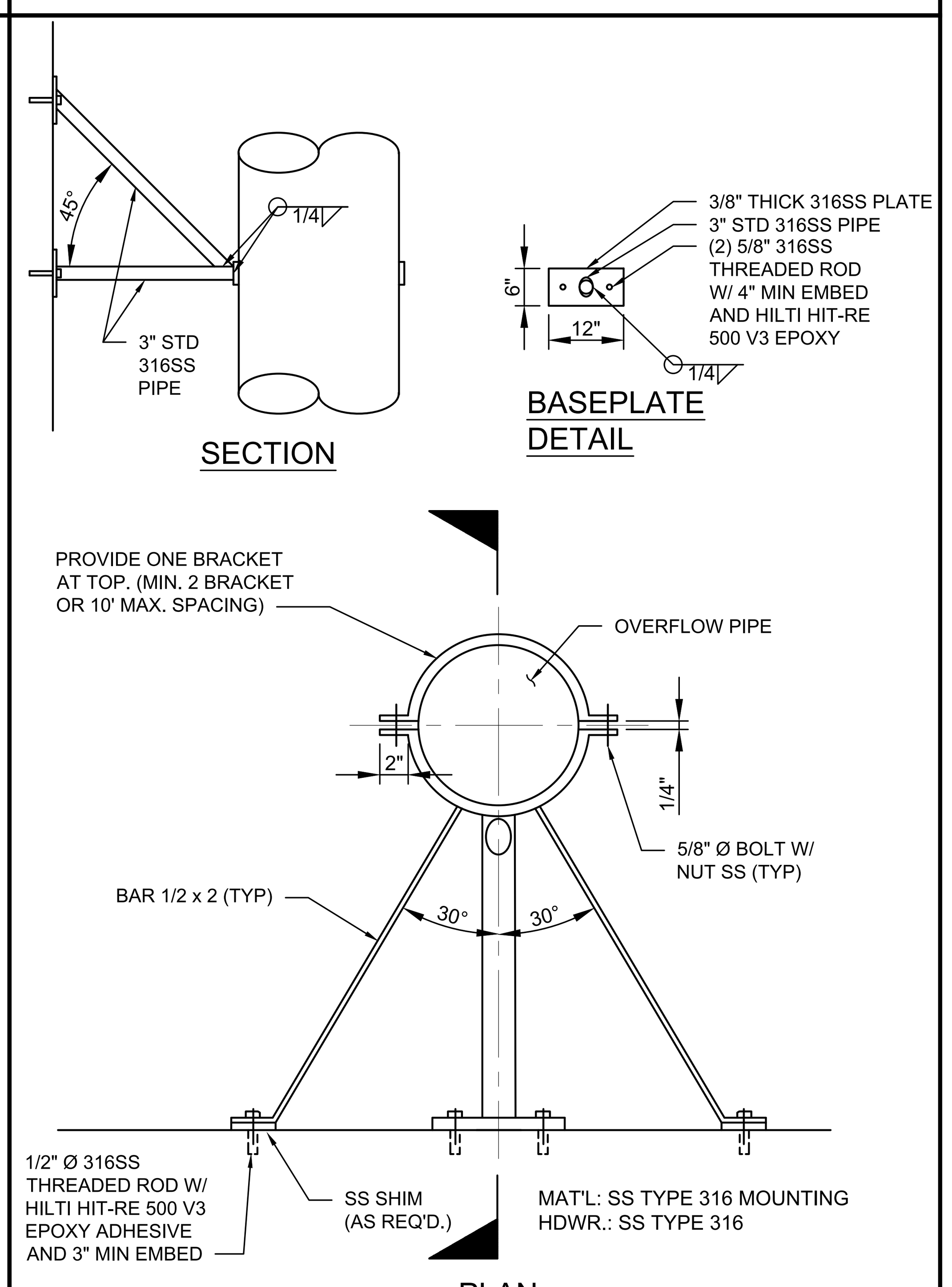
SCALE: 1-1/2" = 1'-0"
REV 00



NOTES:
1. STEVENS WATER STAFF GAGE STYLE "E" W/ PORCELAIN IRON NUMBERS. PROVIDE FULL NUMBERS OR ELEVATIONS AT TOP & BOTTOM OF GAGE BOARDS AS SHOWN, AND AT 5'-0" INTERVALS FROM TOP DOWN. PLACE SINGLE NUMBERS AT EACH FOOT MARK. ATTACHMENTS TO GAGE BOARDS SHALL BE MADE WITH ROUND HEAD SS SHEET SCREWS WITH FELT WASHERS, TYPICAL.

WATER LEVEL STAFF GAGE DETAIL S-5970

SCALE: NTS
REV 00



PIPE BRACKET S-5990

SCALE: NTS
REV 00

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NO.	REVISION	DATE	BY

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

DESIGNED MEJ
DRAWN NEB
CHECKED DLB

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

STRUCTURAL STANDARD DETAILS III

FILE NAME 1944519.00-S-5.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET S-5 OF ##

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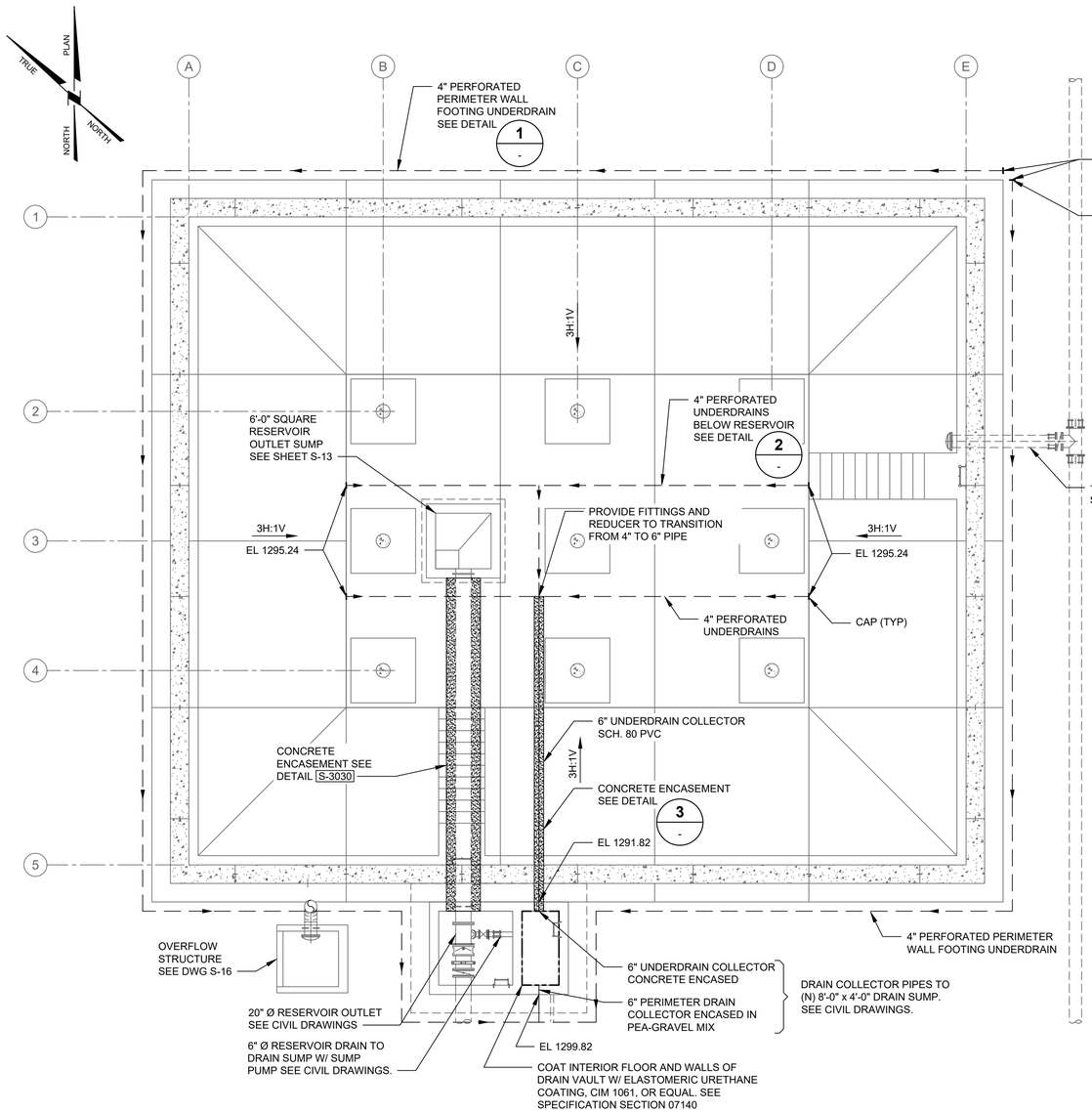


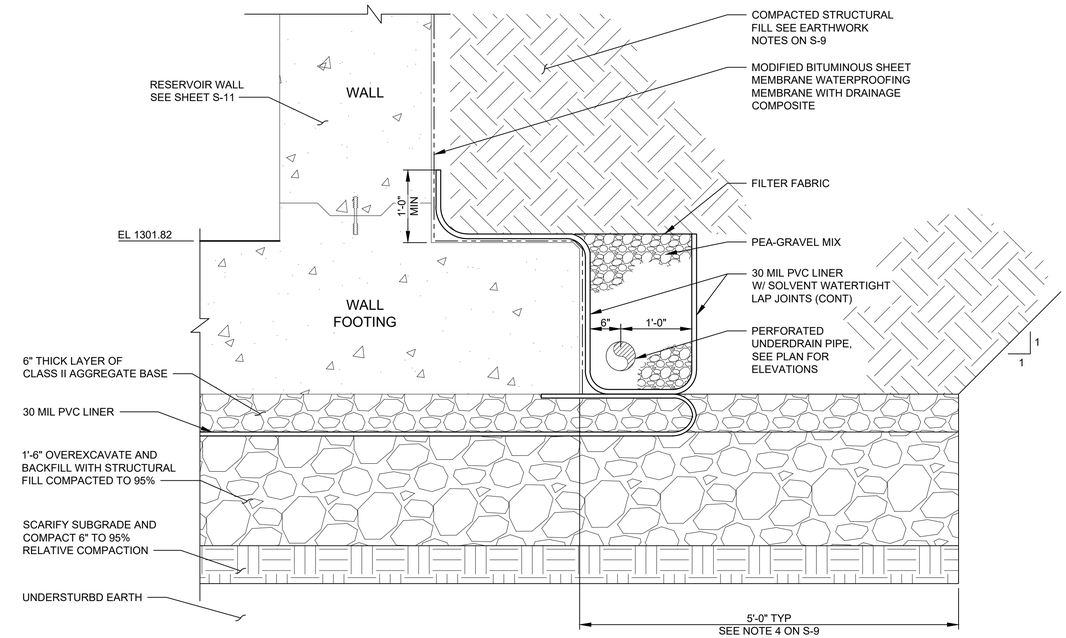
UNDERDRAIN PLAN

0 5 10

1/8"=1'-0"

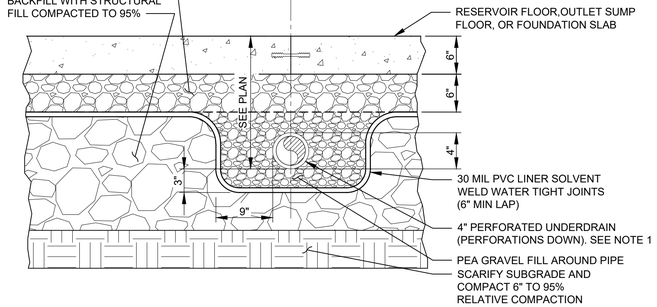
LEGEND

- SDR-35 OR SCH 40 PVC PIPE
- PERFORATED UNDERDRAIN PIPE (SEE NOTE 1)
- ENCASEMENT FOR PIPE (SEE NOTE 2)



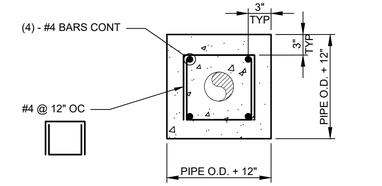
PERIMETER UNDERDRAIN

SCALE: NTS



UNDERDRAIN BELOW RESERVOIR

SCALE: NTS



PROVIDE ENCASEMENT WHERE INDICATED ON UNDERDRAIN PLAN

UNDERDRAIN ENCASEMENT

SCALE: NTS

NOTES

1. PERFORATED UNDERDRAIN PIPE AND FITTING MATERIAL SHALL MEET THE REQUIREMENTS OF ASTM D1784 FOR CLASS 12454-B OR 12454-C AS DEFINED THEREIN AND CONFORM TO THE REQUIREMENTS OF ASTM D3032, CLASS SDR 35 OR AASHTO M278. UNDERDRAIN PIPE SHALL HAVE TWO ROWS OF 1/2-INCH DIAMETER HOLES WITH HOLE SPACING 5-INCH CENTER TO CENTER. ROWS SHALL BE 120 DEGREES APART WITH PERFORATIONS ORIENTED DOWN. SEE NOTE 9 ON S-9.
2. 6" CONCRETE ENCASEMENT SHALL BE PROVIDED FOR EACH RUN OF PIPE (UNPERFORATED) PER DETAIL 3 ON THIS DRAWING AND TO THE EXTENTS SHOWN ON THE PLAN. THE CONTRACTOR CAN ENCASE MULTIPLE PIPES IN ONE ENCASEMENT WHERE FEASIBLE.

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER DONALD BARRETT KIRBY No. C48183 Exp. 12/31/22 CIVIL STATE OF CALIFORNIA

DESIGNED MEJ

DRAWN NEB

CHECKED DLB

CITY OF SAN FERNANDO

SAN FERNANDO, CA

UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

STRUCTURAL

RESERVOIR UNDERDRAIN PLAN AND DETAILS

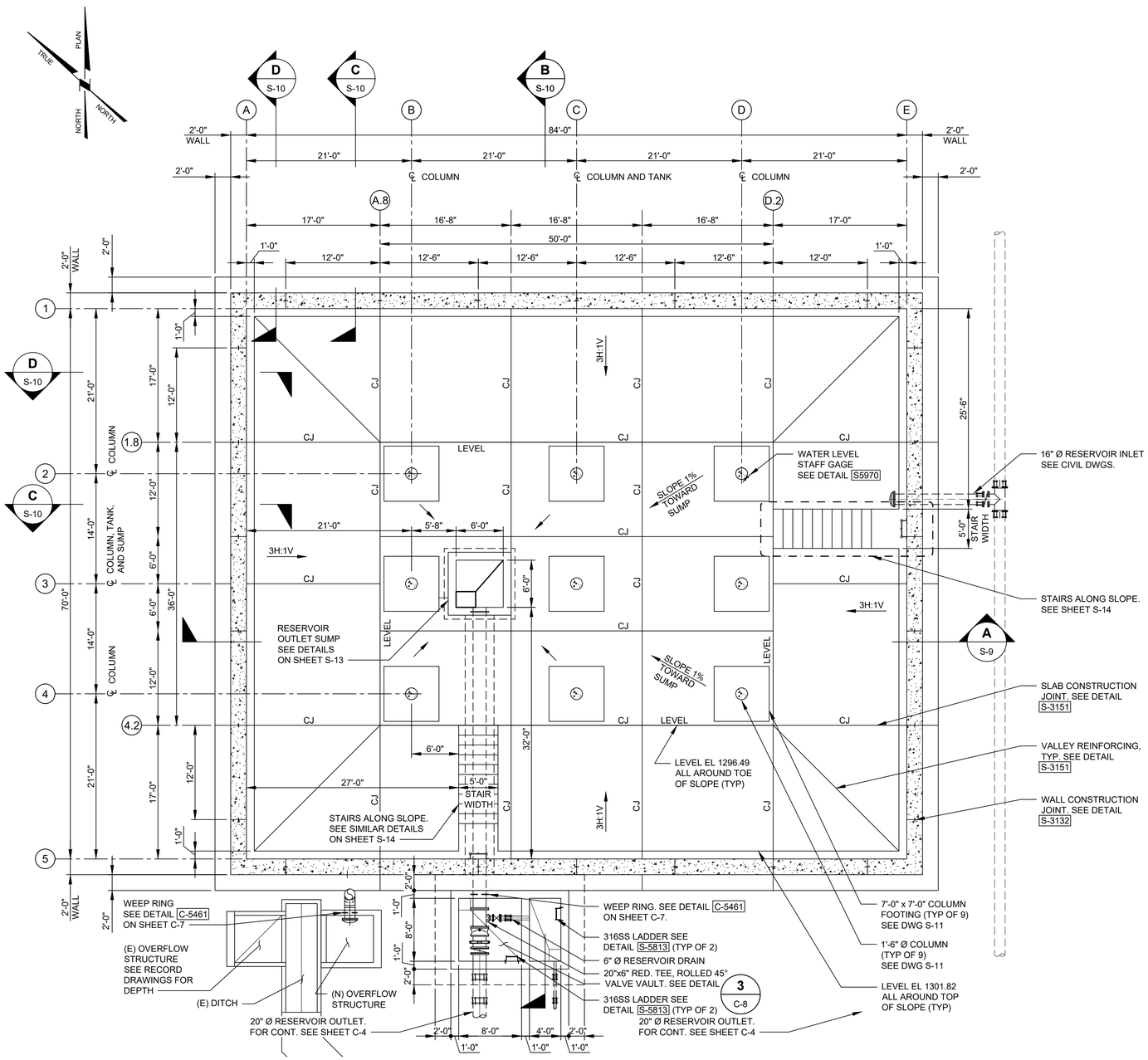
FILE NAME 1944519.00-S-6.dwg

JOB NO. 1944519.00

DATE APRIL 2020

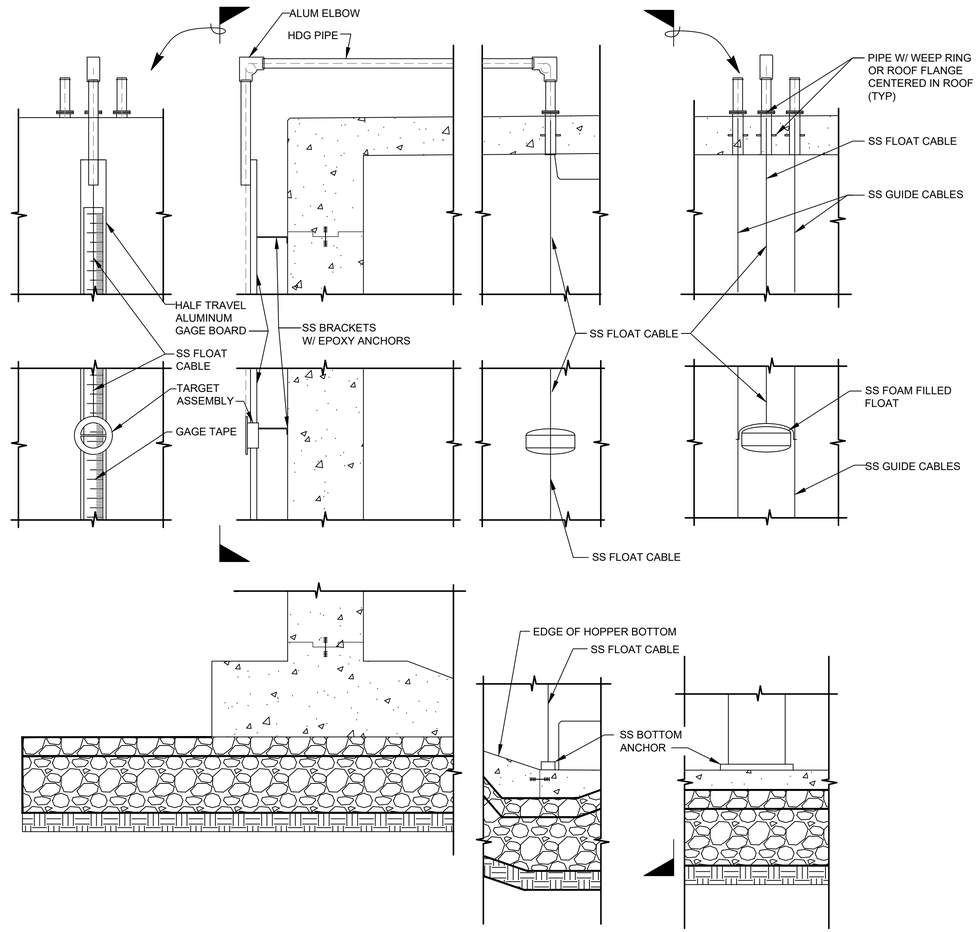
SHEET S-6 OF ##

pw:\\kjce-pw.bentley.com:kjce-pw\Documents\Clients\San Fernando, City of CA\Projects\Upper Reservoir Replacement _ 1944519.00\10-Design\10.06-Drawings\Structural\1944519.00-S-6.dwg



FOUNDATION PLAN

0 5 10
1/8"=1'-0"



LEVEL INDICATOR DETAIL

4 S-8

0 1 2 3
1/2"=1'-0"

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER DONALD BARNARD No. C48183 Exp. 12/31/22 CIVIL STATE OF CALIFORNIA

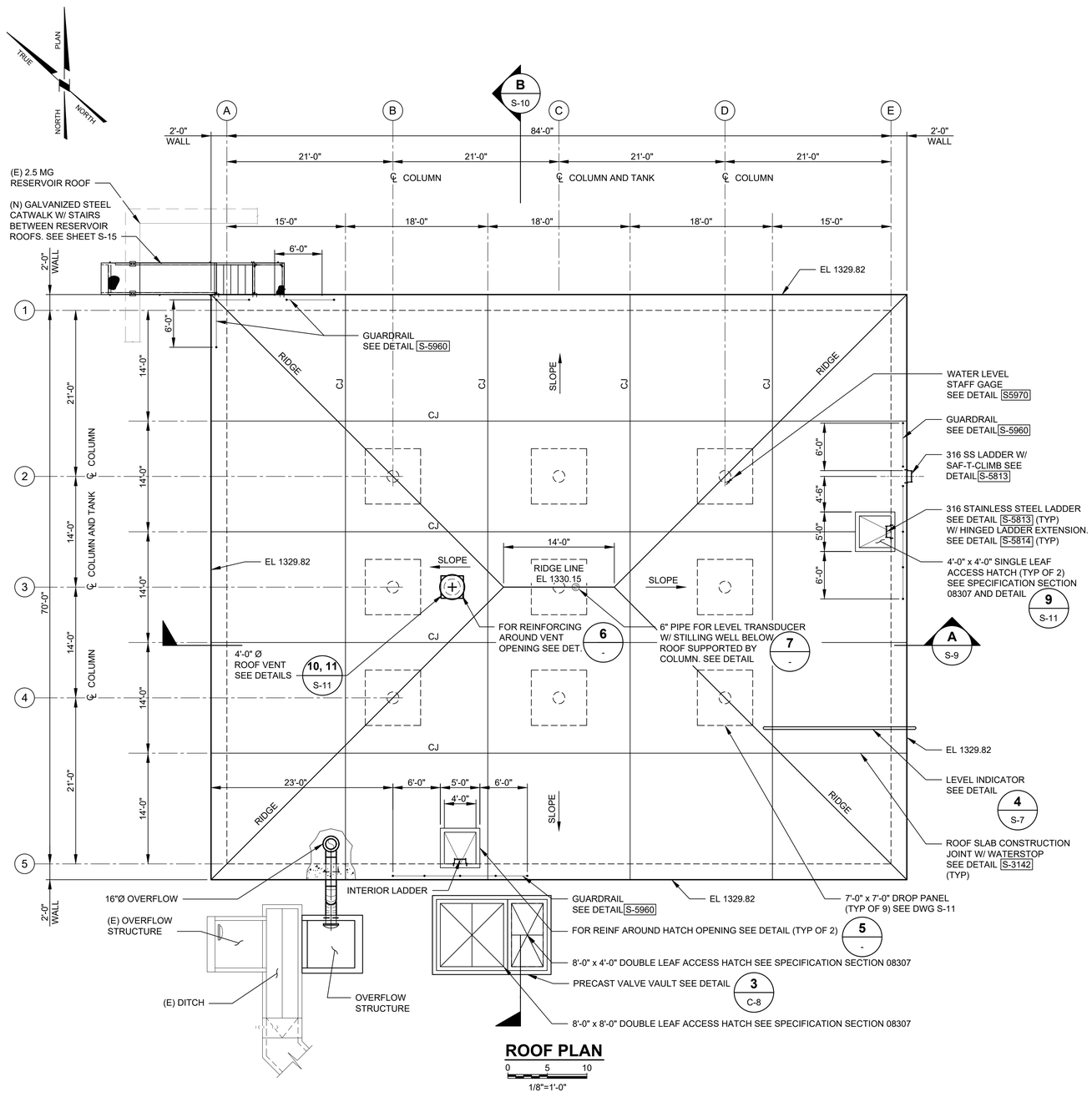
DESIGNED MEJ
DRAWN NEB
CHECKED DLB

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

STRUCTURAL
RESERVOIR FOUNDATION PLAN AND COLUMN DETAIL

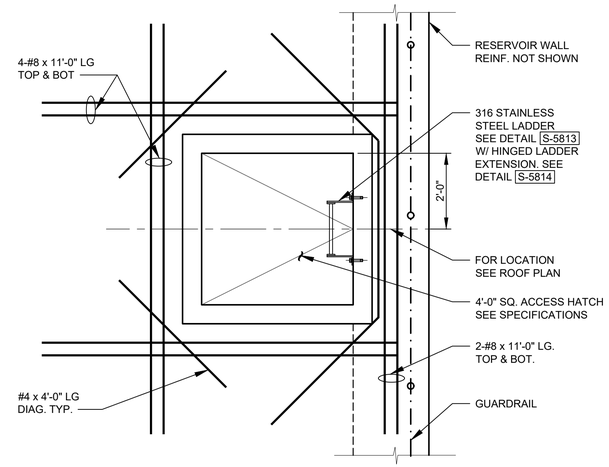
FILE NAME 1944519.00-S-7.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET S-7 OF ##



ROOF PLAN

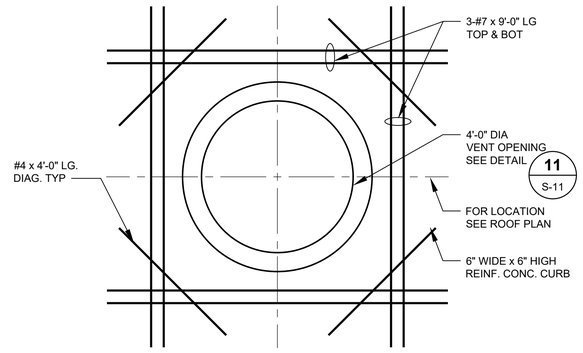
0 5 10

1/8"=1'-0"



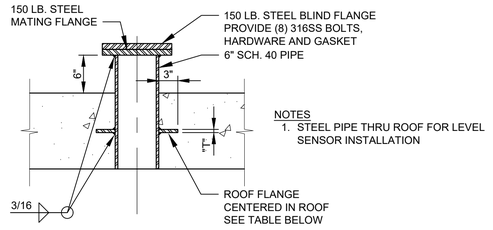
REINFORCING AROUND HATCH OPENING 5 -

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



REINFORCING AROUND VENT OPENING 6 -

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



ROOF FLANGE PLATE THICKNESS "T"	
PIPE SIZE	STEEL PLATE
30" & UNDER	1/4"
31" TO 60"	5/16"

DETAIL 7 -

SCALE: NTS

USE OF DOCUMENTS

THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS ©.

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER DONALD BARRETT No. C48583 Exp. 12/31/22 CIVIL STATE OF CALIFORNIA

DESIGNED MEJ

DRAWN NEB

CHECKED DLB

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

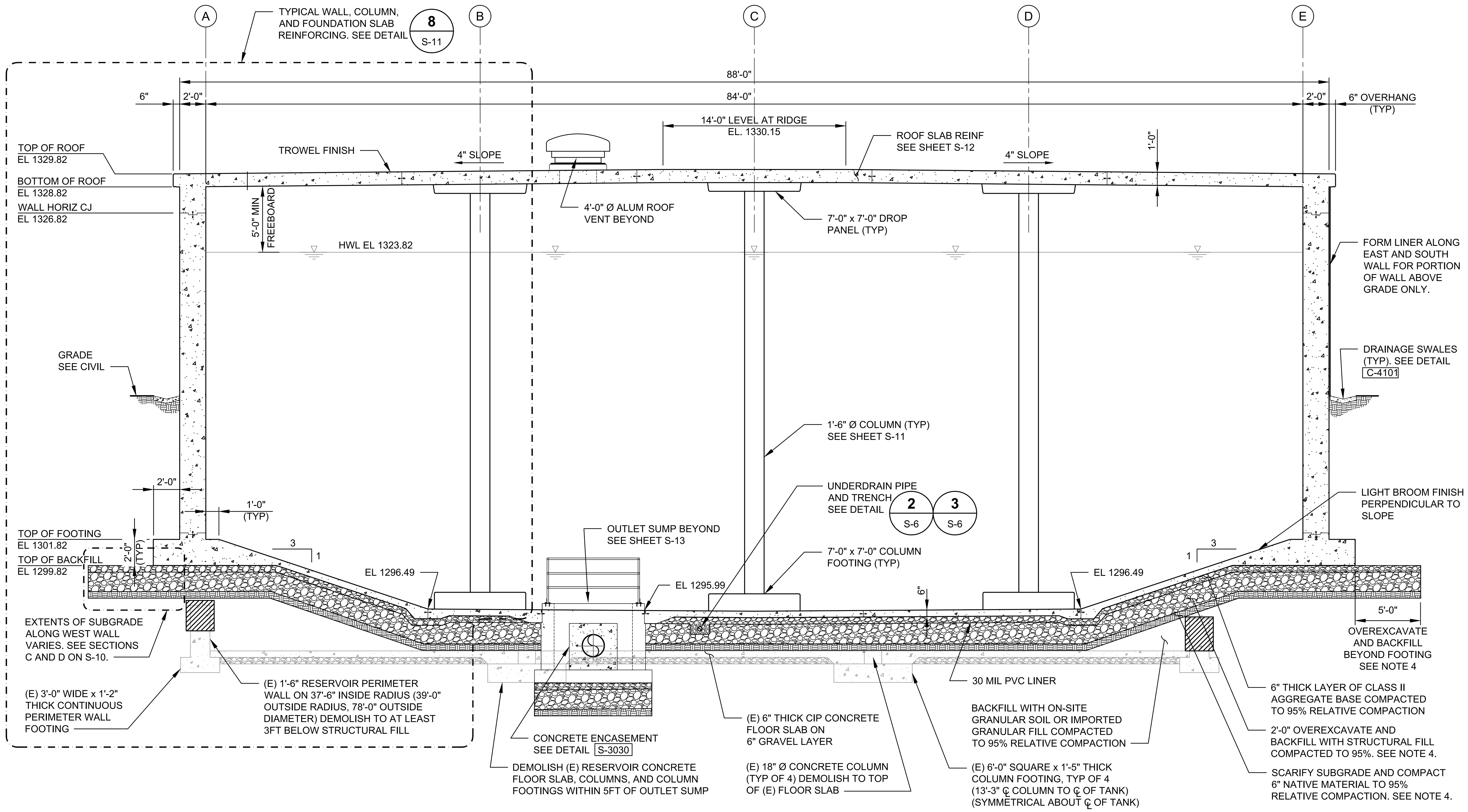
STRUCTURAL
RESERVOIR ROOF PLAN AND PIPE PENETRATION AND MANWAY HATCH DETAILS

FILE NAME 1944519.00-S-8.dwg

JOB NO. 1944519.00

DATE APRIL 2020

SHEET S-8 OF ##



NOTES
1. CATWALK AND GUARDRAIL NOT SHOWN. SEE SHEET S-15.

RESERVOIR SECTION A (S-7)

0 4 8
3/16"=1'-0"

HYDROSTATIC TESTING

ROOF CONSTRUCTION SHALL BE COMPLETED PRIOR TO HYDROSTATIC TESTING OF THE STRUCTURE AND SHALL NOT COMMENCE BEFORE A MINIMUM OF 28 DAYS AFTER THE LAST ROOF CONCRETE PLACEMENT. HYDROSTATIC TESTING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 03340. STRUCTURAL BACKFILL OF WALLS BELOW GRADE WALLS SHALL NOT COMMENCE UNTIL THE QUALITATIVE AND QUANTITATIVE RESERVOIR HYDROSTATIC TESTS HAVE BEEN SUCCESSFULLY COMPLETED AND REPAIRS HAVE BEEN COMPLETED AND ARE FAVORABLY REVIEWED BY THE ENGINEER.

EARTHWORK NOTES:

1. **GROUNDWATER:** GROUNDWATER LEVELS FLUCTUATE WITH THE SEASONS AND LOCAL ZONES OF PERCHED GROUNDWATER MAY BE PRESENT WITHIN THE NEAR-SURFACE DEPOSITS DUE TO LOCAL CONDITIONS OR DURING RAINY SEASONS.
2. **SUBSURFACE CONDITIONS:** REFER TO ALL THE PREVIOUS BORING LOGS FOR SUBSURFACE CONDITIONS. SOME VARIATIONS IN THE CONTINUITY AND NATURE OF SUBSURFACE CONDITIONS WITHIN THE PROJECT SITE SHOULD BE ANTICIPATED.
3. **FILL:** THE THICKNESS OF COMPACTED FILL PLACED UNDERNEATH THE SHALLOW FOOTINGS SHALL BE KEPT UNIFORM. ROCKS LARGER THAN TWO (2.0) INCHES IN THE LARGEST DIMENSION SHALL NOT BE PLACED AS FILL. ON-SITE FINE-GRAINED SOILS (CLAYS AND SILTS) SHALL NOT BE RE-USED AS FILL. SOILS CONTAINING ORGANIC MATERIALS (ROOTS, GRASS, PLANTS, ETC.) SHALL NOT BE USED AS FILL.
4. **OVEREXCAVATION AND RECOMPACTION FOR RESERVOIR FOOTINGS AND FLOOR SLAB:** REMOVE ALL LOOSE SOILS, FILLS AND SOILS DISTURBED DURING DEMOLITION TO FIRM AND UNYIELDING COMPACTED FILL SOILS OR TO ACCEPTABLE NATIVE MATERIALS. THE MINIMUM DEPTH OF OVER-EXCAVATION SHALL BE AT LEAST 5 FEET BELOW THE GROUND SURFACE, OR 2 FEET BELOW BOTTOM OF PROPOSED SHALLOW FOUNDATIONS, WHICHEVER IS DEEPER. OVER-EXCAVATION SHALL EXTEND AT LEAST 5 FEET LATERALLY BEYOND THE LIMITS OF FOOTINGS OR AS LIMITED BY THE EXISTING STRUCTURES AND IMPROVEMENTS TO REMAIN IN PLACE. SCARIFY THE EXPOSED BOTTOM OF THE OVER-EXCAVATION AREA AT LEAST 6.0 INCHES, MOISTURE CONDITION AS NEEDED TO NEAR-OPTIMUM MOISTURE CONTENT AND COMPACT TO NINETY FIVE PERCENT (95%) RELATIVE COMPACTION.
5. **OVEREXCAVATION AND RECOMPACTION FOR RETAINING WALLS:** OVER-EXCAVATE AND RE-COMPACT TWO (2) FEET BELOW BOTTOM OF FOOTINGS AND EXTEND TWO (2) FEET LATERALLY BEYOND THE RETAINING WALL AREA. SCARIFY THE EXPOSED BOTTOM OF THE OVER-EXCAVATION AREA AT LEAST 6.0 INCHES, MOISTURE CONDITION AS NEEDED TO NEAR-OPTIMUM MOISTURE CONTENT AND COMPACT TO NINETY FIVE PERCENT (95%) RELATIVE COMPACTION.
6. **OVEREXCAVATION AND RECOMPACTION FOR SIDEWALKS AND PARKING AREAS:** REMOVE AND RECOMPACT THE UPPER 24-INCHES OF SITE SOILS. EXTEND THE OVER-EXCAVATION TWO (2) FEET LATERALLY BEYOND THE SIDEWALK AND SURFACE PARKING AREAS. COMPACT THE UPPER 12- INCHES OF SUBGRADE BELOW NEW PAVEMENT TO 95 PERCENT RELATIVE COMPACTION.
7. **PROTECTION OF ADJACENT IMPROVEMENTS (UTILITIES AND STRUCTURES):** OVEREXCAVATION SHALL NOT UNDERMINE ADJACENT IMPROVEMENTS. REMEDIAL GRADING SHALL NOT EXTEND WITHIN A PROJECTED 1:1 (HORIZONTAL TO VERTICAL) PLANE PROJECTED DOWN FROM THE OUTER EDGE OF ADJACENT IMPROVEMENTS. EXCAVATION SHALL NOT DISTURB ADJACENT UTILITIES OR UNDERMINE ANY ADJACENT STRUCTURES TO REMAIN. EXISTING UTILITIES SHALL BE REMOVED AND ADEQUATELY CAPPED AT THE PROJECT BOUNDARY LINE OR SALVAGED/REROUTED AS DESIGNED.
8. **UNSUITABLE BEARING MATERIALS ON EXCAVATION BOTTOMS:** IF LOOSE, YIELDING SOIL CONDITIONS ARE ENCOUNTERED AT EXCAVATION BOTTOMS, NOTIFY THE OWNER AND DEPENDING ON INPUT FROM THE GEOTECHNICAL ENGINEER OVER-EXCAVATE AND PREPARE AS NOTED BELOW:
   a. OVER-EXCAVATE UNTIL A FIRM BOTTOM IS REACHED.
   b. SCARIFY OR OVER-EXCAVATE AN ADDITIONAL 18 INCHES DEEP, AND THEN PLACE AT LEAST 18-INCH-THICK LAYER OF COMPACTED BASE MATERIAL (CAB OR EQUIVALENT) TO BRIDGE THE SOFT BOTTOM. BASE MATERIALS SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.
   c. OVER-EXCAVATE AN ADDITIONAL 18 INCHES DEEP, AND THEN PLACE A LAYER OF GEOTEXTILE REINFORCEMENT (MIRAFI HP570, OR EQUIVALENT), THEN PLACE AN 18-INCH-THICK LAYER OF COMPACTED BASE MATERIAL (CAB OR EQUIVALENT) TO BRIDGE THE SOFT BOTTOM. BASE MATERIAL SHALL BE COMPACTED TO 95% RELATIVE COMPACTION. AN ADDITIONAL LAYER OF GEOTEXTILE REINFORCEMENT MAY BE NEEDED ON TOP OF BASE MATERIAL DEPENDING ON THE ACTUAL SITE CONDITIONS.
9. **FOUNDATION BOTTOM SUBDRAINS, UNDERDRAINS, WALL DRAINS:** CONSTRUCT SUBDRAIN SYSTEMS OF A MINIMUM 4-INCH DIAMETER, RIGID ABS (SDR-35) OR SCHEDULE 40 PVC PIPE WITH GLUED MANUFACTURED PIPE FITTING AND CAPS. SLOPE THE DRAINPIPE AT A MINIMUM 2% GRADIENT TO PROVIDE GRAVITY FLOW. PERFORATED PIPES SHALL BE LAID WITH PERFORATIONS DOWN. DO NOT CONNECT SURFACE DRAIN SYSTEMS TO THE SUBDRAIN SYSTEM.
10. **SUBGRADE PREPARATION BENEATH RESERVOIR FLOOR SLAB:** FINAL SUBGRADE SOILS FOR RESERVOIR FLOOR SLAB SHALL BE UNIFORM AND NON-YIELDING. TO OBTAIN A UNIFORM SUBGRADE, SOILS SHALL BE WELL MIXED AND UNIFORMLY COMPACTED. THE SUBGRADE SOILS SHALL BE NON-EXPANSIVE AND WELL-DRAINED. THE NEAR-SURFACE SITE SOILS SHALL BE FREE DRAINING. AT LEAST THE UPPER 4.0 INCHES OF SUBGRADE SOILS UNDERNEATH THE RESERVOIR SHALL BE COMPRISED OF WELL-DRAINED GRANULAR SOILS SUCH AS SANDS, GRAVEL OR CRUSHED AGGREGATE SATISFYING THE FOLLOWING CRITERIA:
    a. MAXIMUM SIZE ≤ 1.5 INCHES
    b. PERCENT PASSING U.S. #200 SIEVE ≤ TWELVE PERCENT (12%)
    c. SAND EQUIVALENT ≥ 30
    d. MOISTURE CONDITION THE SUBGRADE SOILS BEFORE PLACING CONCRETE.
11. **SITE DRAINAGE:** PROVIDE POSITIVE DRAINAGE AWAY FROM THE RESERVOIR STRUCTURE TO PREVENT PONDING AND TO REDUCE PERCOLATION OF WATER INTO STRUCTURAL BACKFILL. ANY LANDSCAPE AREAS IMMEDIATELY ADJACENT TO THE RESERVOIR FOUNDATIONS SHALL SLOPE AWAY WITH A MINIMUM FIVE PERCENT (5%) SLOPE GRADIENT FOR AT LEAST 10 FEET MEASURED PERPENDICULAR TO THE FACE OF THE STRUCTURE WALLS. IMPERVIOUS SURFACES WITHIN 10 FEET OF THE FOUNDATIONS SHALL HAVE A MINIMUM TWO PERCENT (2%) SLOPE AWAY FROM THE STRUCTURE. PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE STRUCTURE PERIMETER SHALL MINIMIZE WATER INFILTRATION INTO THE SUBGRADE SOILS. GUTTERS AND DOWNSPOUTS SHALL BE INSTALLED ON THE ROOF, AND RUNOFF SHALL BE DIRECTED TO THE STORM DRAIN THROUGH NON-EROSIVE DEVICES. PROVIDE SUITABLE DRAINAGE PROVISIONS TO LOWER LEVEL AREAS.
12. **TEMPORARY EXCAVATIONS:** KEEP SURFACES EXPOSED IN SLOPE EXCAVATIONS MOIST BUT NOT SATURATED TO MINIMIZE RAVELING AND SLOUGHING DURING CONSTRUCTION. MAKE ADEQUATE PROVISIONS TO PROTECT THE SLOPES FROM EROSION DURING PERIODS OF RAINFALL. SURCHARGE LOADS, INCLUDING CONSTRUCTION, SHALL NOT BE PLACED WITHIN 5 FEET OF THE UNSUPPORTED TRENCH EDGE. COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE CALIFORNIA CONSTRUCTION AND GENERAL INDUSTRY SAFETY ORDERS, THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1987 AND CURRENT AMENDMENTS, AND THE CONSTRUCTION SAFETY ACT. IF POTENTIALLY UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, MODIFICATIONS OF SLOPE RATIOS FOR TEMPORARY CUTS WILL BE REQUIRED. IF THE EXCAVATION OCCURS NEAR EXISTING STRUCTURES, SPECIAL CONSTRUCTION CONSIDERATIONS WILL BE REQUIRED DURING EXCAVATION TO PROTECT THESE EXISTING STRUCTURES DURING CONSTRUCTION. THE PROPOSED EXCAVATION SHALL NOT CAUSE LOSS OF BEARING AND/OR LATERAL SUPPORT OF THE EXISTING STRUCTURES.
13. **TEMPORARY EXCAVATION SUPPORT (SHORING):** DESIGN AND PROVIDE ALL TEMPORARY SHORING REQUIRED FOR THE EXCAVATIONS FOR ALL CONSTRUCTION SHOWN ON THE CONTRACT DOCUMENTS DUE TO SPACE LIMITATIONS, PROPERTY LINE BOUNDARIES, BECAUSE OF NEARBY EXISTING STRUCTURES OR FACILITIES AND TRAFFIC LOADING. TEMPORARY SHORING MAY CONSIST OF THE USE OF CONVENTIONAL SOLDIER PILES AND LAGGING OR DESIGNED AS CANTILEVER OR TIE-BACK SHORING OR OTHER SYSTEMS. SHORING SHALL BE DESIGNED BY AN EXPERIENCED STRUCTURAL OR CIVIL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA. LIMITED SOIL INFORMATION FOR THE DESIGN OF EXCAVATION SUPPORT SYSTEMS IS CONTAINED IN THE GEOTECHNICAL INVESTIGATION PREPARED BY CONVERSE CONSULTANTS IN THE REPORT DATED 29 SEPTEMBER 2020. CONTRACTOR'S SHALL RETAIN GEOTECHNICAL CONSULTANTS IF ADDITIONAL INFORMATION IS REQUIRED FOR THE DESIGN OF SHORING. DRILLED EXCAVATIONS FOR SOLDIER PILES MAY REQUIRE THE USE OF DRILLING FLUIDS OR TEMPORARY CASING TO PREVENT CAVING AND TO MAINTAIN AN OPENED HOLE FOR PILE INSTALLATION. DUE TO SANDY NATURE OF ON-SITE SOILS, SOME CAVING DURING THE DRILLING OF SOLDIER-PILE BORINGS SHOULD BE ANTICIPATED. A SOLDIER PILE SYSTEM WILL REQUIRE CONTINUOUS LAGGING OR GUNITING TO CONTROL CAVING AND SLOUGHING IN THE EXCAVATION BETWEEN SOLDIER PILES. AT A MINIMUM, DESIGN TEMPORARY SHORING TO RESIST LATERAL EARTH PRESSURE, SURCHARGE PRESSURES DUE TO MISCELLANEOUS LOADS, SUCH AS SOIL STOCKPILES, EXISTING STRUCTURES, VEHICULAR TRAFFIC OR CONSTRUCTION EQUIPMENT LOCATED ADJACENT TO THE SHORING, SURCHARGE PRESSURES FROM THE EXISTING STRUCTURES. ALL SHORING SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH STATE AND FEDERAL SAFETY REGULATIONS.
14. **EXCAVATION SUPPORT SYSTEM MONITORING AND REPORTING:** EXISTING STRUCTURES ADJACENT TO EXCAVATION SHALL BE MONITORED FOR DISTRESS OR EXCESSIVE VIBRATION DURING EXCAVATION. A LICENSED SURVEYOR SHALL BE RETAINED TO ESTABLISH MONUMENTS ON SHORING AND THE SURROUNDING GROUND PRIOR TO EXCAVATION. SUCH MONUMENTS SHALL BE MONITORED FOR HORIZONTAL AND VERTICAL MOVEMENT DURING CONSTRUCTION. RESULTS OF THE MONITORING PROGRAM SHALL BE PROVIDED IMMEDIATELY TO THE CONTRACTOR'S ENGINEER RESPONSIBLE FOR THE DESIGN OF THE SHORING AND THE OWNER'S REPRESENTATIVE FOR REVIEW AND EVALUATION. ADJACENT BUILDING ELEMENTS SHALL BE PHOTO-DOCUMENTED PRIOR TO BEGINNING CONSTRUCTION.
15. **SPECIAL INSPECTION OF SOILS:** THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE WHEN EXCAVATION BOTTOMS HAVE BEEN REACHED PRIOR TO THE PLACEMENT OF COMPACTED FILL FOR OBSERVATION BY THE GEOTECHNICAL ENGINEER OF RECORD. STRUCTURAL FILL AND BACKFILL SHALL BE PLACED AND COMPACTED DURING CONTINUOUS OBSERVATION AND TESTING. FOOTING EXCAVATIONS SHALL BE OBSERVED PRIOR TO PLACEMENT OF STEEL AND CONCRETE. SEE THE SPECIAL INSPECTION AND TESTING SCHEDULE FOR SOILS ON SHEET S-2 FOR ADDITIONAL REQUIREMENTS.

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER — DONALD BARRAZA — No. C45483 — Exp. 12/31/22 — CIVIL — STATE OF CALIFORNIA

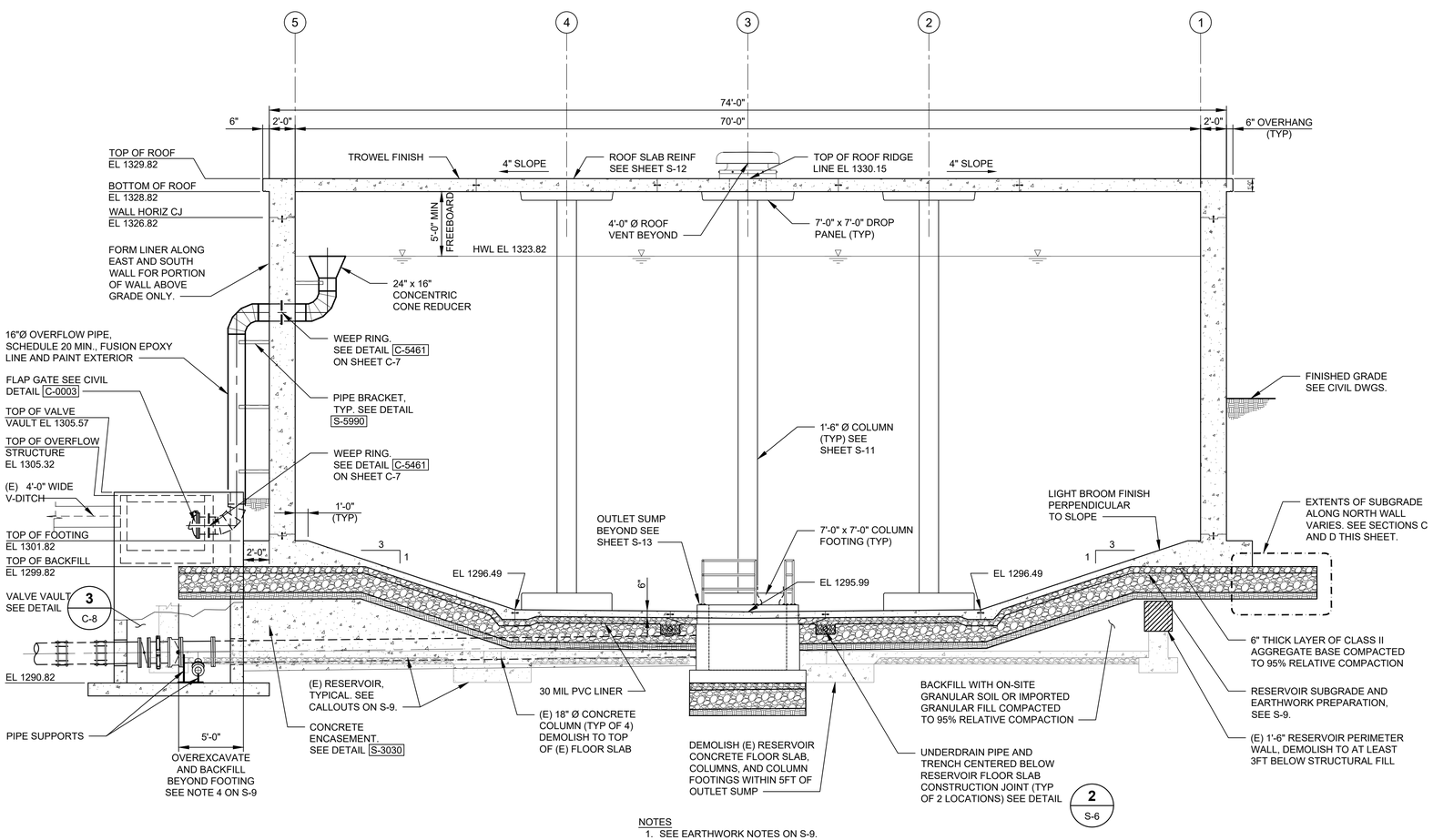
DESIGNED MEJ
DRAWN NEB
CHECKED DLB

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks — JOHN ROBINSON Consulting, Inc.

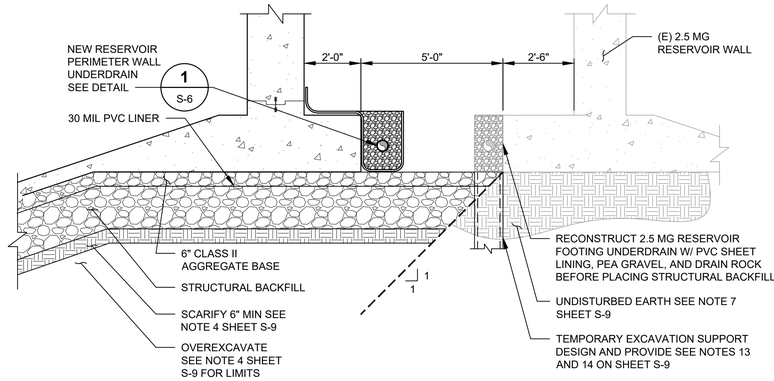
STRUCTURAL
RESERVOIR SECTION I

FILE NAME 1944519.00-S-9.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET S-9 OF ##

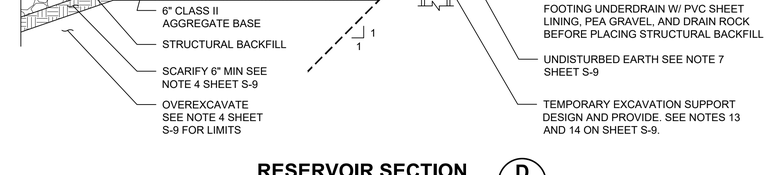


NOTES
1. SEE EARTHWORK NOTES ON S-9.
2. CATWALK AND GUARDRAIL NOT SHOWN. SEE SHEET S-15.

RESERVOIR SECTION B
S-7
0 4 8
3/16"=1'-0"



RESERVOIR SECTION C
S-7
0 2 4
3/8"=1'-0"



RESERVOIR SECTION D
S-7
0 2 4
3/8"=1'-0"

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER DONALD BARRETT No. C48483 Exp. 12/31/22 CIVIL STATE OF CALIFORNIA

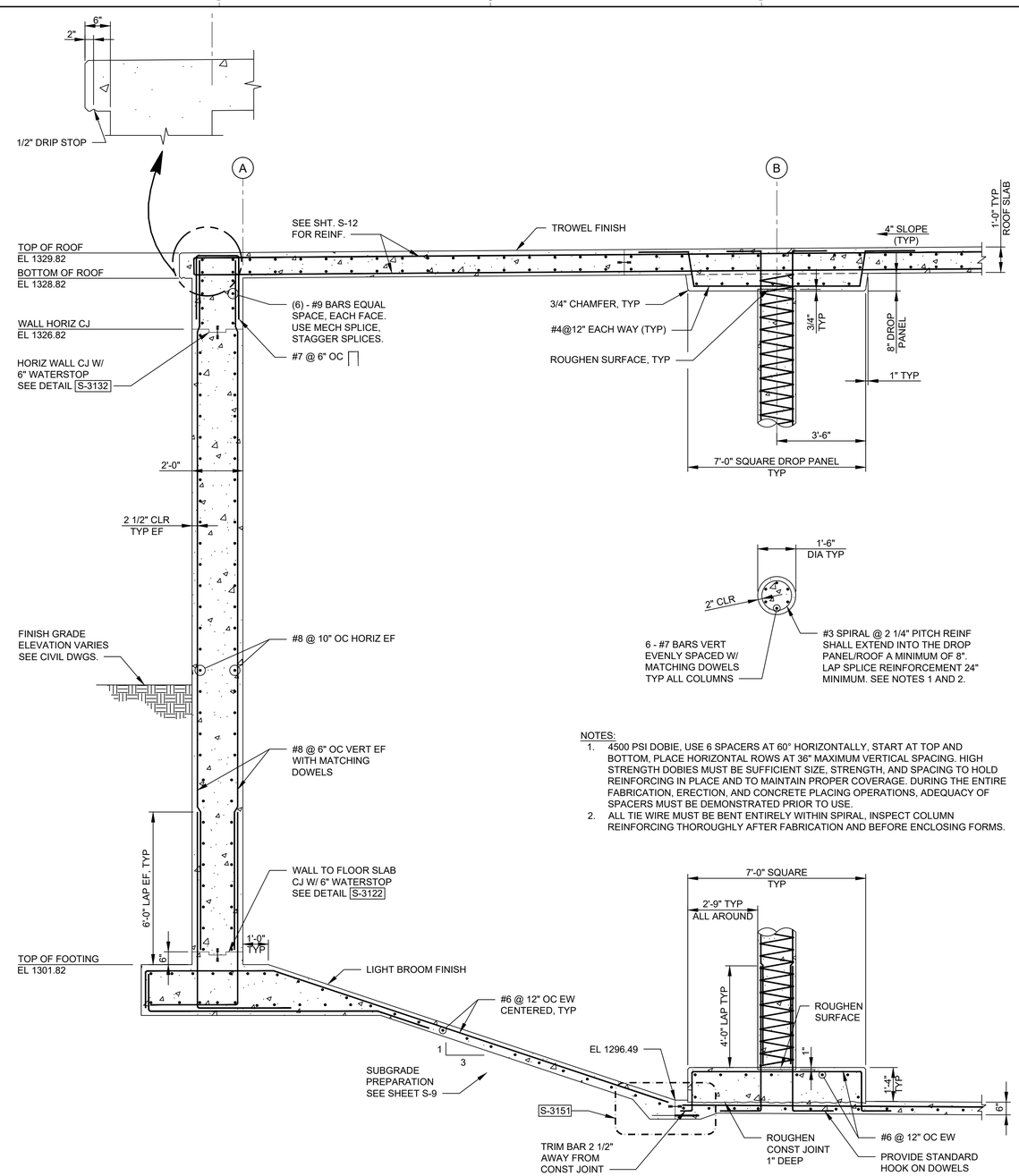
DESIGNED MEJ
DRAWN NEB
CHECKED DLB

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting Inc.

STRUCTURAL
RESERVOIR SECTION II

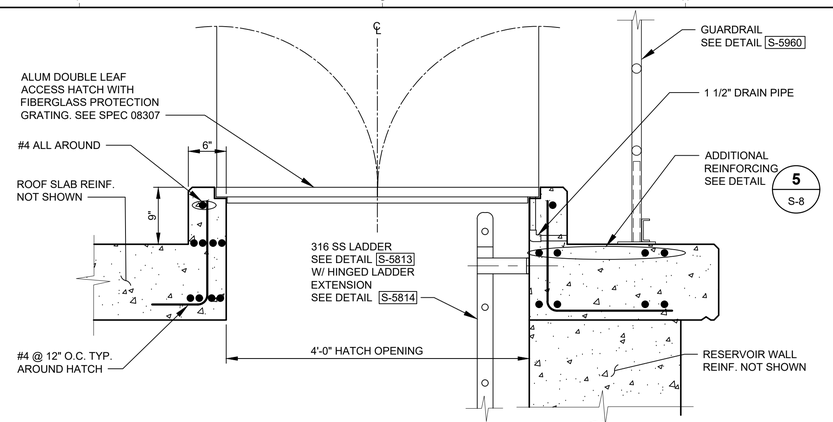
FILE NAME 1944519.00-S-10.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET S-10 OF ##



NOTES:
1. 4500 PSI DOBIE, USE 6 SPACERS AT 60° HORIZONTALLY, START AT TOP AND BOTTOM, PLACE HORIZONTAL ROWS AT 36" MAXIMUM VERTICAL SPACING. HIGH STRENGTH DOBIES MUST BE SUFFICIENT SIZE, STRENGTH, AND SPACING TO HOLD REINFORCING IN PLACE AND TO MAINTAIN PROPER COVERAGE. DURING THE ENTIRE FABRICATION, ERECTION, AND CONCRETE PLACING OPERATIONS, ADEQUACY OF SPACERS MUST BE DEMONSTRATED PRIOR TO USE.
2. ALL TIE WIRE MUST BE BENT ENTIRELY WITHIN SPIRAL, INSPECT COLUMN REINFORCING THOROUGHLY AFTER FABRICATION AND BEFORE ENCLOSING FORMS.

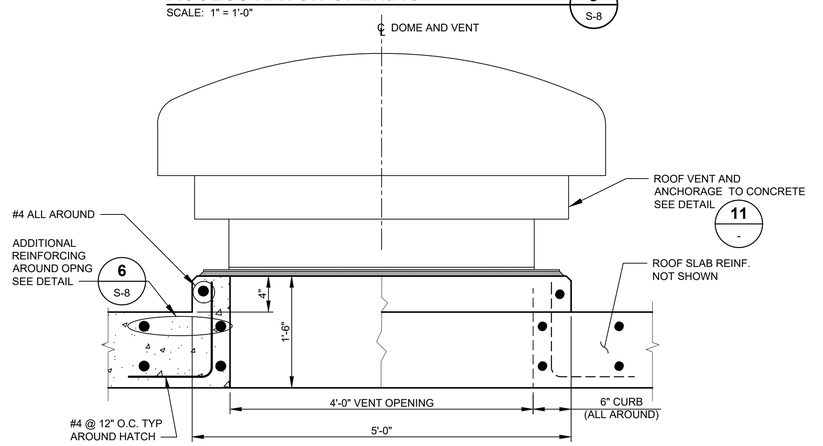
TYPICAL RESERVOIR REINFORCING

SCALE: 3/8"=1'-0" — 8 / S-9



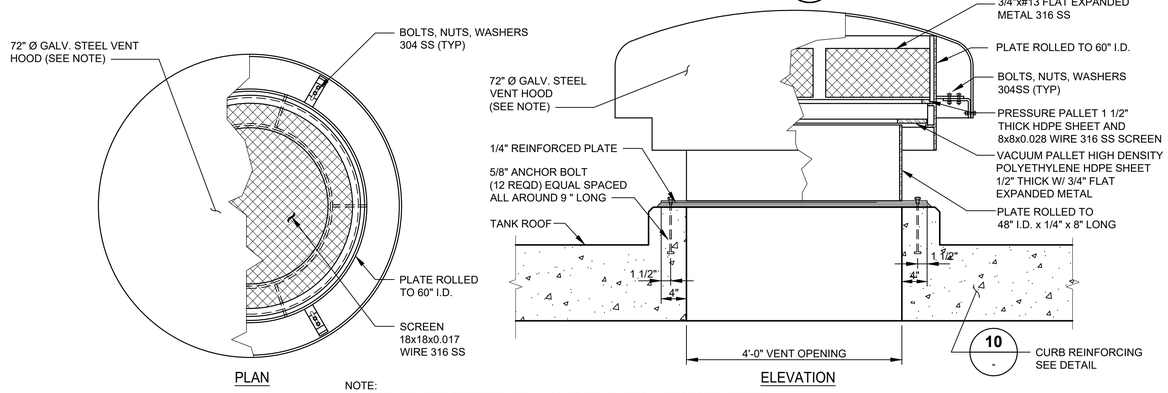
ACCESS HATCH OPENING

SCALE: 1" = 1'-0" — 9 / S-8



ROOF VENT OPENING CURB REINFORCING

SCALE: 1" = 1'-0" — 10 / S-8



NOTE:
1. PROVIDE VENT DESIGNED WITH A REMOVABLE HOOD IN ORDER TO ACCEPT A HIGH VOLUME AIR VENTILATOR WHICH RESTS ON THE OPEN TOP OF THE VENT.
2. ALL FERROUS METAL PARTS GALV. AFTER FABRICATION AND COAT PER SECTION 09960

ROOF VENT AND ANCHORAGE

SCALE: NTS — 11 / S-8

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER — RONALD BARRETT — No. 48483 — Exp. 12/31/22 — CIVIL — STATE OF CALIFORNIA

DESIGNED MEJ
DRAWN NEB
CHECKED DLB

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

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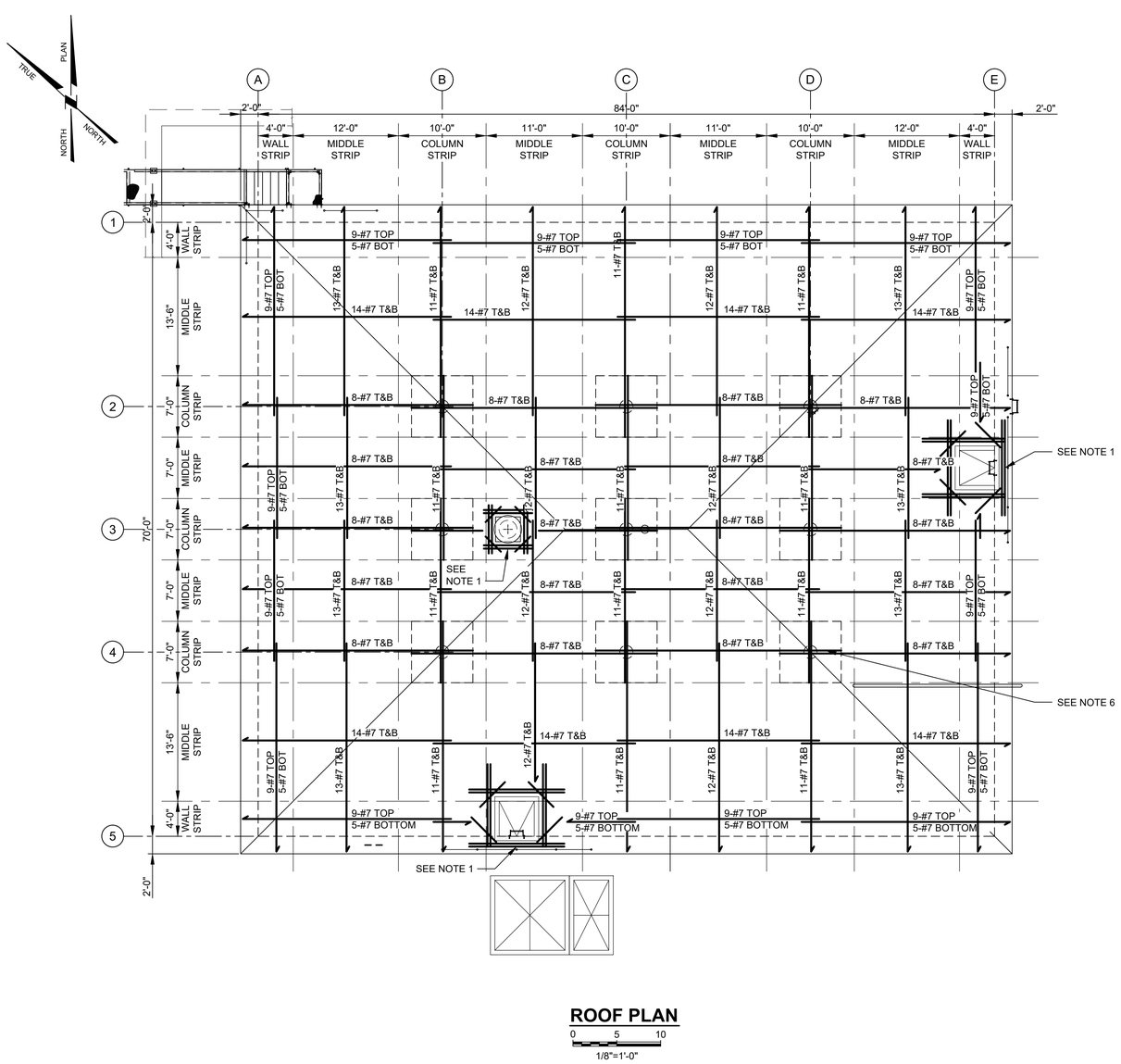
STRUCTURAL
TYPICAL RESERVOIR REINFORCING AND HATCH AND VENT DETAILS

FILE NAME 1944519.00-S-11.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET S-11 OF ##



ROOF PLAN

0 5 10

1/8"=1'-0"

NOTES:

1. SEE S-8 FOR ADDITIONAL REINFORCING AROUND ACCESS HATCH AND ROOF VENT OPENINGS.
2. ROOF SLAB CONSTRUCTION JOINTS NOT SHOWN FOR CLARITY. SEE S-8 FOR CONSTRUCTION JOINT LOCATIONS.
3. SEE DETAIL S-3142 FOR ROOF SLAB CONSTRUCTION JOINT DETAIL.
4. SEE DETAIL S-3180 FOR ADDITIONAL REINFORCING AT ROOF SLAB CORNERS.
5. SEE DETAIL S-3010 FOR CONCRETE REBAR LAP SPLICE LENGTHS AND STAGGER. ALL TOP REINFORCING SHALL HAVE CLASS B TOP BAR LAP SPLICE LENGTHS MINIMUM UNLESS OTHERWISE NOTED OR SHOWN ON ROOF PLAN.
6. EXTEND TOP BAR LAPS FOR FULL LENGTH OF DROP PANEL, EACH WAY. NOT REQUIRED ON BOTTOM BARS.

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

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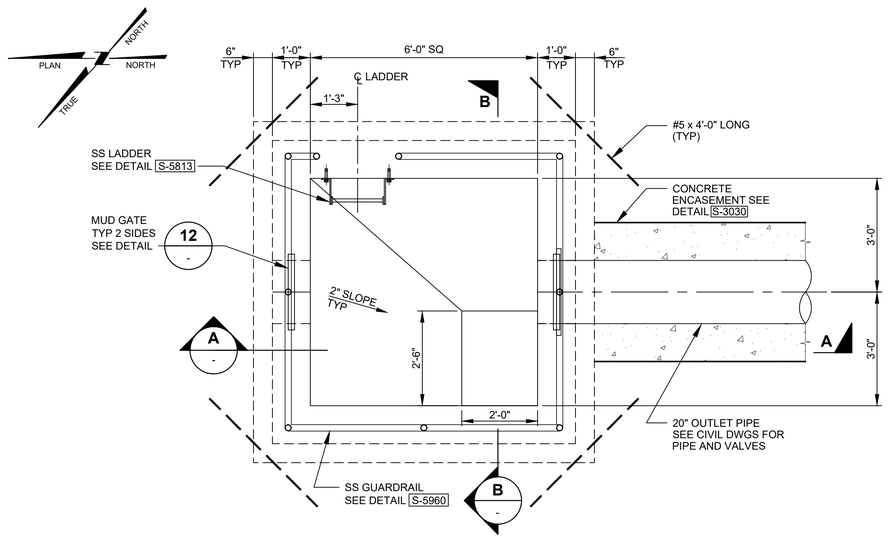
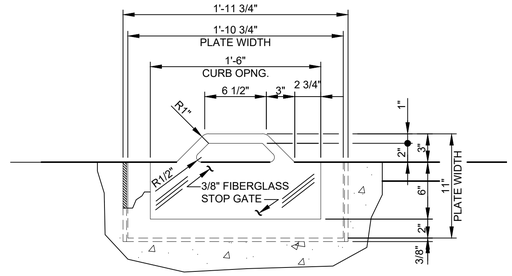
STRUCTURAL
RESERVOIR ROOF REINFORCING PLAN

FILE NAME	1944519.00-S-12.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	S-12 ##



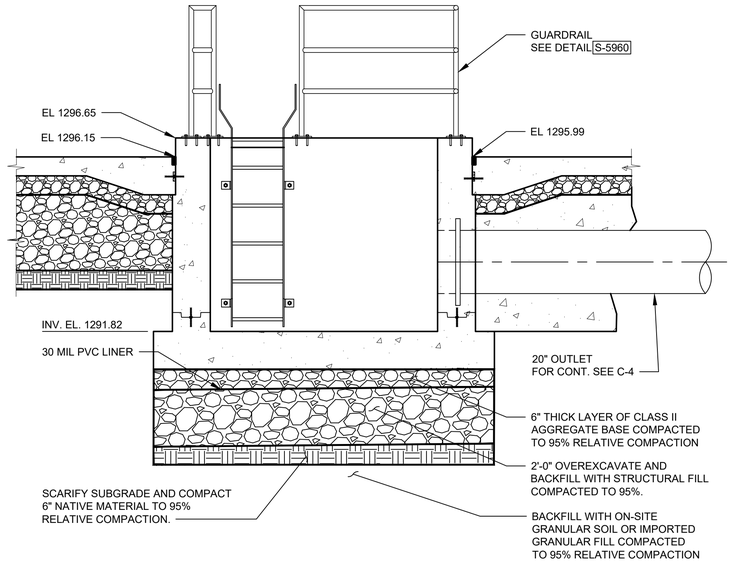
OUTLET SUMP PLAN

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



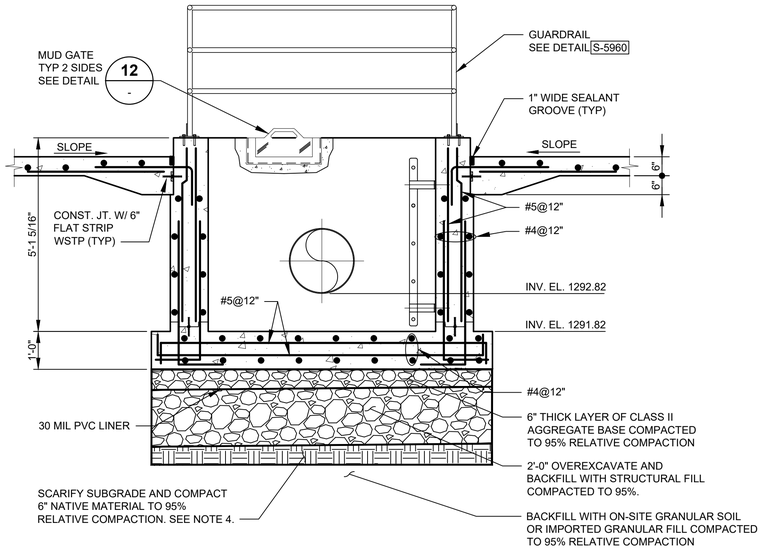
MUD GATE DETAIL 12

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



SECTION A

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



SECTION B

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

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SCALES

0 1"

0 25mm

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DRAWN	NEB
CHECKED	DLB

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

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STRUCTURAL
OUTLET SUMP PLAN, SECTIONS AND DETAILS

FILE NAME	1944519.00-S-13.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	S-13 ##

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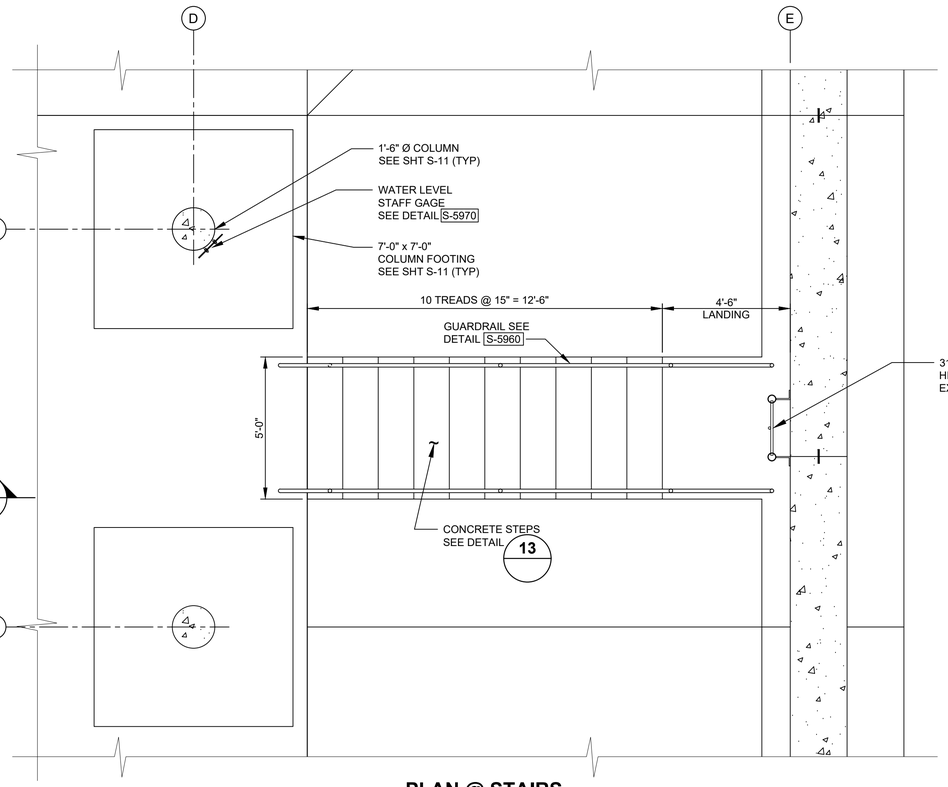
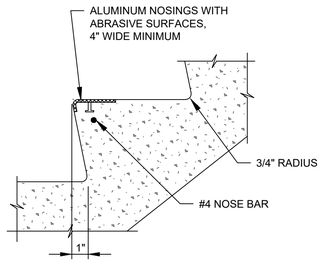


PLAN @ STAIRS

SCALE: 3/8" = 1'-0"

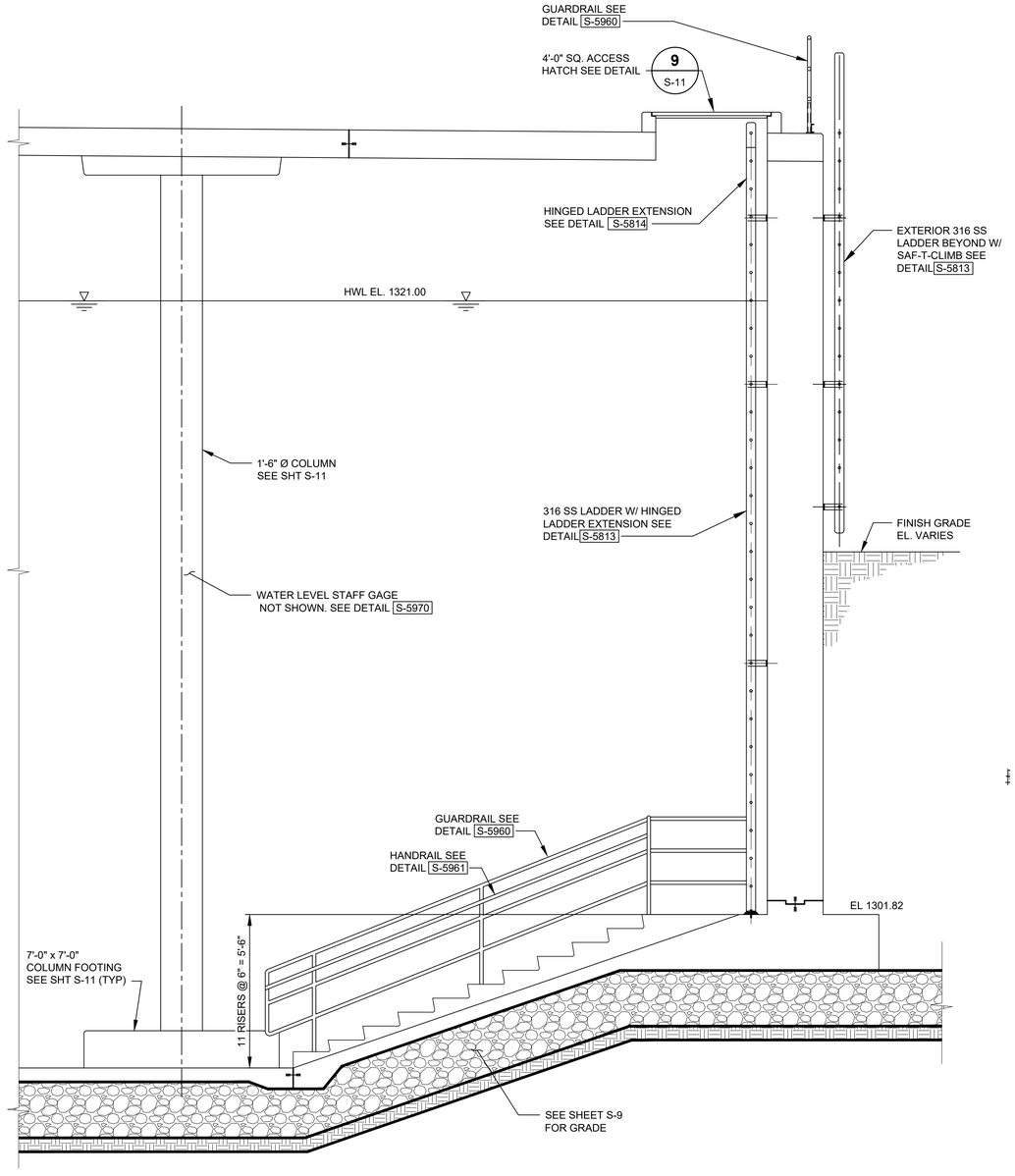


NOTE:

1. TREAD SHALL RECEIVE A STEEL TROWEL FINISH. IMMEDIATELY THEREAFTER. THE SURFACE SHALL BE SLIGHTLY ROUGHENED BY DRAWING A HAIRBRUSH LIGHTLY OVER THE SURFACE AT A RIGHT ANGLE TO THE DIRECTION OF TRAFFIC TO PRODUCE A NON-SKID SURFACE.

DETAIL 13

SCALE: NONE



SECTION A

SCALE: 3/8"=1'-0"

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

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DONALD B. ROBINSON
No. C 48183
Exp. 12/31/22
CIVIL
STATE OF CALIFORNIA

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UPPER RESERVOIR REPLACEMENT

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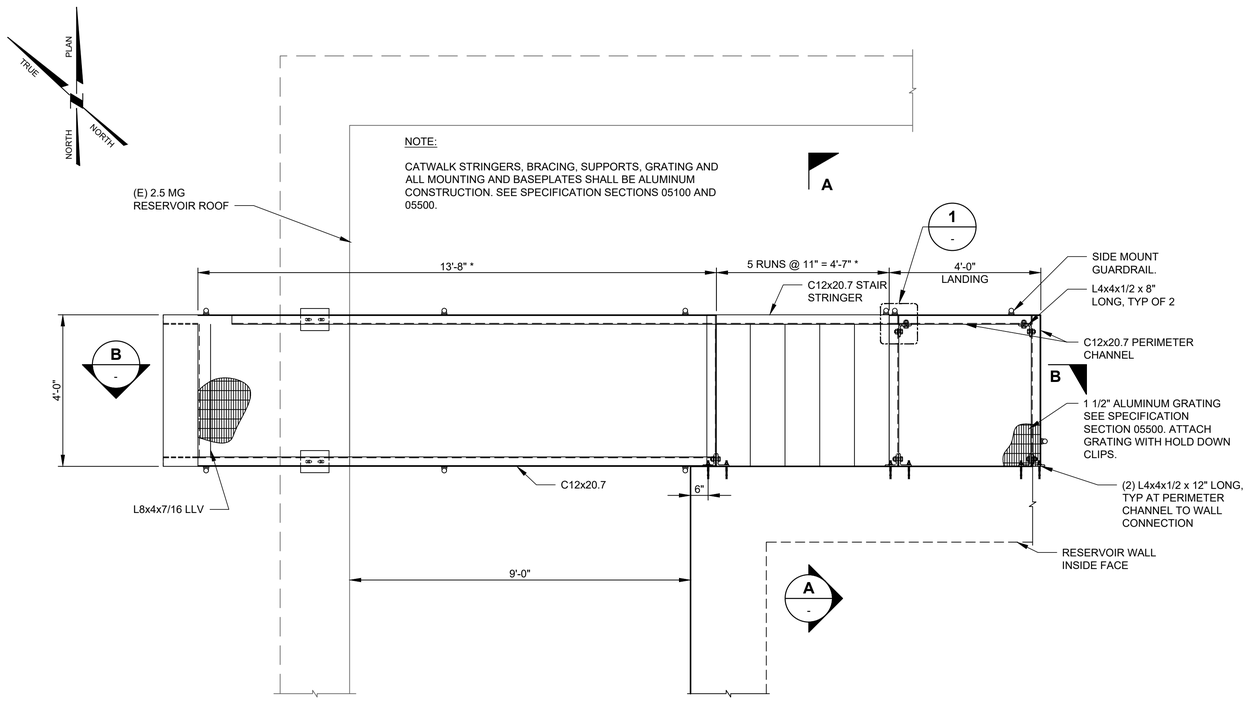
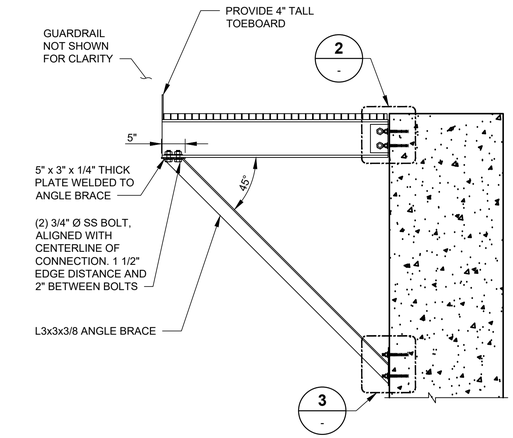
STRUCTURAL
RESERVOIR STAIRS PLAN, SECTIONS AND DETAILS

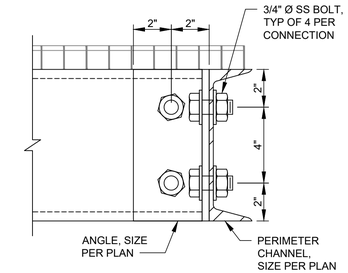
FILE NAME	1944519.00-S-14.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	S-14 ##



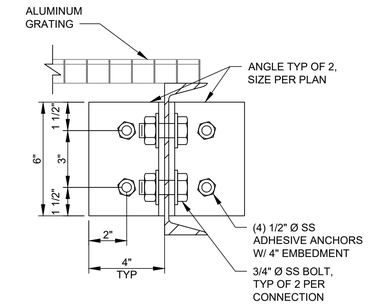
CATWALK PLAN
SCALE: 1/2" = 1'-0"



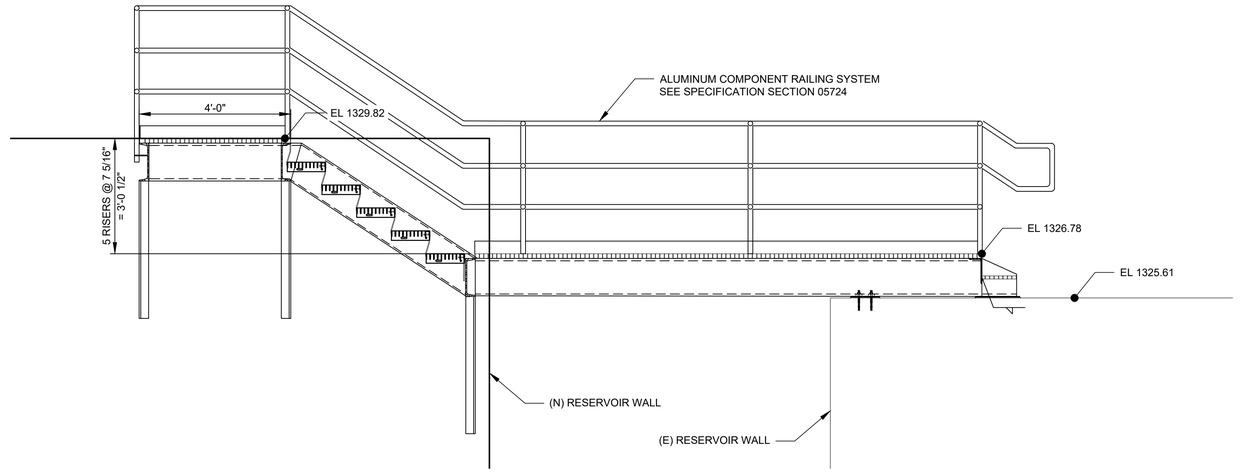
SECTION A
SCALE: 3/4" = 1'-0"



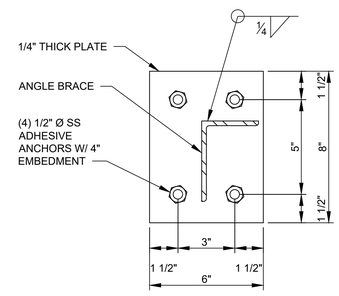
DETAIL 1
SCALE: 3" = 1'-0"



DETAIL 2
SCALE: 3" = 1'-0"



SECTION B
SCALE: 1/2" = 1'-0"



DETAIL 3
SCALE: 3" = 1'-0"

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SCALES
0 1"
0 25mm
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CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

STRUCTURAL
CATWALK PLAN, SECTIONS AND DETAILS

FILE NAME	1944519.00-S-15.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	S-15 ##

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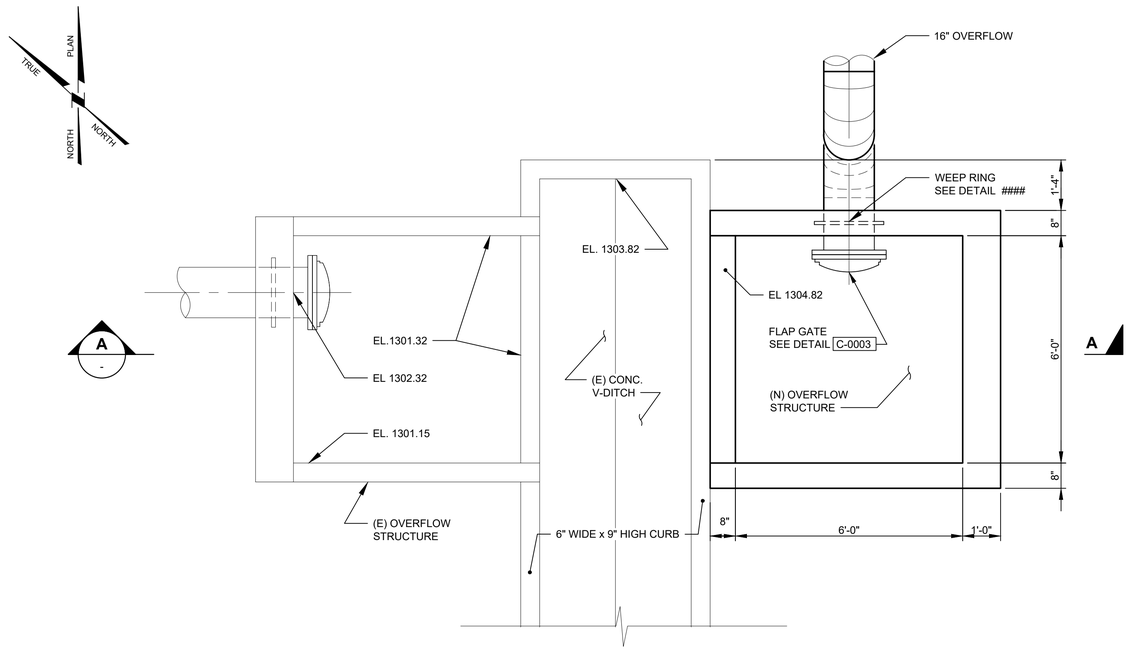
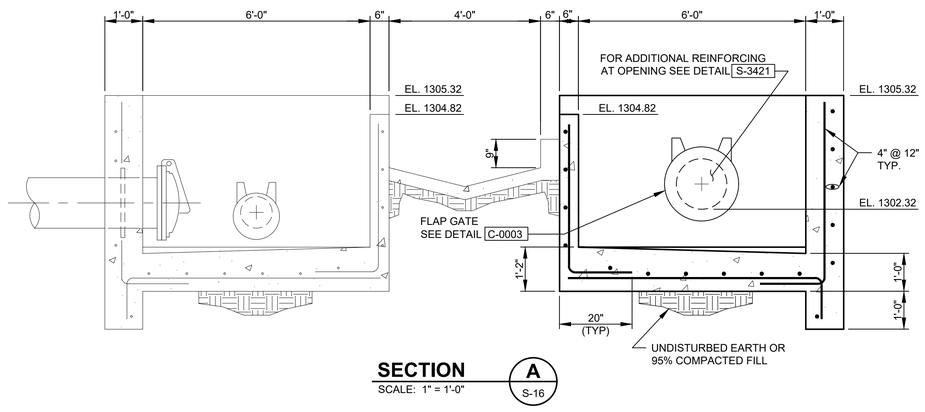


OVERFLOW STRUCTURE - PLAN

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



SECTION A

SCALE: 1" = 1'-0"

S-16

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER
DONALD L. BARRETT
No. C48183
Exp. 12/31/22
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STRUCTURAL
OVERFLOW STRUCTURE PLAN, SECTIONS AND DETAILS

FILE NAME 1944519.00-S-16.dwg

JOB NO. 1944519.00

DATE APRIL 2020

SHEET S-16 OF ##

ABBREVIATIONS

a	CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS CLOSED
A	AMMETER, AMPERES
AC	ALTERNATING CURRENT
A/D	ANALOG TO DIGITAL
ADJ	ADJUSTABLE
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AIC	AMPERES INTERRUPTING CAPACITY
AL	ALUMINUM
ALT	ALTERNATOR
A/M	AUTO/MANUAL CONTROLLER
ANN	ANNUNCIATOR
APPROX	APPROXIMATE
AS	AMMETER SWITCH
ASD	ADJUSTABLE SPEED DRIVE (DC)
AT	AMMETER TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAGE
b	CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS OPEN
BCG	BARE COPPER GROUND
BLDG	BUILDING
C	CONDUIT, CONTACTOR
CAB	CABINET
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CC	CONTROL CABLE, CLOSING COIL
CHH	COMMUNICATION HANDHOLE
CL	CHLORINE
CKT	CIRCUIT
CMH	COMMUNICATION MANHOLE
CO	CONDUIT ONLY
COMM	COMMUNICATION
COND	CONDUCTOR
CONT	CONTINUED, CONTINUATION
CPT	CONTROL POWER TRANSFORMER
CP	CONTROL PANEL
CR	CONTROL RELAY
CS	CONTROL SWITCH
CT	CURRENT TRANSFORMER
CWP	COLD WATER PIPE
DC	DIRECT CURRENT
DIA	DIAMETER
DIAG	DIAGRAM
DISC	DISCONNECT
DISTR	DISTRIBUTION
DN	DOWN
DP	DISTRIBUTION PANEL
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
DWG	DRAWING
(E)	EXISTING
EA	EACH
EF	EXHAUST FAN
EHH	ELECTRICAL HANDHOLE
EL, ELEV	ELEVATION
ELEC	ELECTRIC, ELECTRICAL
ELEM	ELEMENTARY
EMERG	EMERGENCY
ENCL	ENCLOSURE
EFFL	EFFLUENT
EQ	EQUAL
EQPT	EQUIPMENT
ETM	ELAPSED TIME METER
FACP	FIRE ALARM CONTROL PANEL
FDR	FEEDER
FF	FINISHED FLOOR
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FO	FIBER OPTIC
FREQ	FREQUENCY
FT	FEET, FOOT
FU	FUSE
(F)	FUTURE
FVNR	FULL VOLTAGE, NON REVERSING
FVR	FULL VOLTAGE, REVERSING
FWD	FORWARD
GA	GAUGE
GALV	GALVANIZED
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
H_2O_2	HYDROGEN PEROXIDE
HH	HANDHOLE
HMI	HUMAN MACHINE INTERFACE
HOA	HAND-OFF-AUTOMATIC
HOR	HAND-OFF-REMOTE
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HV	HIGH VOLTAGE
HZ	HERTZ (CYCLES PER SECOND)
IND LT	INDICATING LIGHT
INCAND	INCANDESCENT
INSTR	INSTRUMENT, INSTRUMENTATION
I/O	INPUT/OUTPUT
JB	JUNCTION BOX
KA	KILOAMPERES
KCMIL	THOUSANDS OF CIRCULAR MILS
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KVARH	KILOVOLT AMPERES REACTIVE HOURS
KW	KILOWATTS
KWH	KILOWATT HOURS
LCP	LOCAL CONTROL PANEL
LOR	LOCAL-OFF-REMOTE
LP	LIGHTING PANEL
LPS	LOW PRESSURE SODIUM
LTG	LIGHTING
LT(S)	LIGHT(S)
(M)	MODIFIED
mA	MILLIAMPERES
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUG ONLY
MOV	MOTOR OPERATED VALVE
MS	MOTOR STARTER
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
(N)	NEW
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOC.
NEUT	NEUTRAL
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN, NUMBER
NTS	NOT TO SCALE
OH	OVERHEAD
OT	OVER TEMPERATURE
OL	THERMAL OVERLOAD RELAY
PB	PULLBOX, PUSHBUTTON
PD	POSITIVE DISPLACEMENT
PE	PHOTOELECTRIC
PEC	PHOTOELECTRIC CELL
PF	POWER FACTOR
PFR	POWER FACTOR RELAY
pH	MEASURE OF ACIDITY OR ALKALINITY
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PNLBD	PANELBOARD
PRI	PRIMARY
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PWR	POWER
(RL)	RELOCATE
(RLD)	RELOCATED
RCPT	RECEPTACLE
RCT	REPEAT CYCLE TIMER
REQD	REQUIRED
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RT	RESET TIMER
RVSS	REDUCED VOLTAGE SELF STARTER
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR
SEC	SECONDS, SECONDARY
SECT	SECTION
SF	SUPPLY FAN
SHH	SIGNAL HANDHOLE
SHT	SHEET
SIG	SIGNAL
SPECS	SPECIFICATIONS
SPD	SURGE PROTECTIVE DEVICE
SPDT	SINGLE POLE, DOUBLE THROW
SS	STAINLESS STEEL, SOLID STATE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYNC	SYNCHRONIZING
TB	TERMINAL BLOCK
TC	TELEPHONE CABINET
TEL	TELEPHONE
TEMP	TEMPERATURE
TSP	TWISTED SHIELDED PAIR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UV	ULTRA VIOLET
V	VOLTS
VA	VOLT-AMPERES
VFD	VARIABLE FREQUENCY DRIVE (AC)
VAR	VOLT AMPERES REACTIVE
VERT	VERTICAL
VH	VAR-HOUR
VS	VOLTMETER SWITCH
W	WIRE, WATTS
WHM	WATTHOUR METER
WHDM	WATTHOUR DEMAND METER
WR	WEATHER RESISTANT
WT	WATERTIGHT
WTP	WATER TREATMENT PLANT
XFMR	TRANSFORMER

NOTE: ADDITIONAL ABBREVIATIONS ARE PROVIDED ON SHEET G-5

GENERAL NOTES:

G1. THESE DRAWINGS ARE DIAGRAMMATIC ONLY; EXACT LOCATIONS OF ELECTRICAL EQUIPMENT SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. THE INSTALLATION OF ALL EQUIPMENT SHOWN ON THESE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE LATEST EDITIONS OF ALL APPLICABLE CODES AND UTILITY COMPANY STANDARDS. CONTACT THE UTILITY COMPANY REPRESENTATIVES AND VERIFY THEIR REQUIREMENTS.

G2. THIS IS A GENERALIZED LEGEND SHEET. THIS CONTRACT MAY NOT USE ALL INFORMATION SHOWN.

G3. NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS IN EQUIPMENT LOCATIONS ARE DISCOVERED OR IF PROBLEMS ARISE DUE TO FIELD CONDITIONS, LACK OF INFORMATION OR ANY OTHER REASON. NO PAYMENT WILL BE MADE FOR CHANGES WHICH HAVE NOT BEEN FAVORABLY REVIEWED BY THE ENGINEER.

G4. INFORMATION SHOWN MAY NOT BE ALL INCLUSIVE. SEE ALSO ANSI C37.2, Y1.1, Y32.2, AND Y32.9.

G5. VERIFY ALL COLOR REQUIREMENTS BEFORE ORDERING MATERIALS.

G6. REFER TO THE MECHANICAL DRAWINGS FOR CERTAIN CONTROL DIAGRAMS AND EXACT LOCATIONS OF MECHANICAL EQUIPMENT AND FOR CERTAIN CONNECTIONS TO BE MADE TO ELECTRICAL CIRCUITS.

PLAN NOTES:

P1. CONDUIT SIZE AND FILL SHALL BE AS INDICATED. WHERE NO SIZE IS SHOWN, THE CONDUIT SHALL BE SIZED IN ACCORDANCE WITH THE EDITION OF THE NATIONAL ELECTRICAL CODE ADOPTED BY THE AUTHORITY HAVING CODE ENFORCEMENT JURISDICTION. WHERE NO FILL IS INDICATED, THE FILL SHALL BE 2#12. PROVIDE 3/16 INCH NYLON PULL ROPE IN EACH EMPTY CONDUIT.

P2. LOWER CASE LETTERS ADJACENT TO A SWITCH OR LIGHT FIXTURE INDICATE A SWITCHED CIRCUIT. FOR FOUR LAMP FIXTURES WIRED IN PAIRS WITHIN EACH FIXTURE, THE "a" SWITCH CONTROLS THE OUTER LAMPS AND THE "b" SWITCH CONTROLS THE INNER LAMPS; WIRE 3 LAMP FIXTURES SIMILARLY.

P3. CONDUIT AND WIRE LAYOUT FOR LIGHTING AND RECEPTACLES NOT SHOWN. PROVIDE PER NEC.

P4. ONLY MAJOR DUCTBANK ROUNTING IS SHOWN ON PLANS. REFER TO CONDUIT DEVELOPMENT/SCHEDULE SHEETS FOR COMPLETE INFORMATION ON REQUIRED CONDUITS. DETERMINE ROUTING PER SPECIFICATION SECTION 16010 1.01.A.5.

PLAN SYMBOLS

- OVERHEAD POWER LINE (OH)
- UNDERGROUND CONDUIT
- MULTIPLE CONDUIT RUN
- CONDUIT ENCASED BELOW SLAB
- CONDUIT CONCEALED IN WALL OR CEILING
- CONDUIT EXPOSED
- 3/4"C-3#12 — CALLOUT INDICATING CONDUIT SIZE, NUMBER OF WIRES AND WIRE SIZE
- 135 — CALLOUT INDICATING CONDUIT PER SCHEDULE
- CONDUIT RUN, HATCH MARKS INDICATE NO. OF #12 CONDUCTORS NO HATCH MARKS IS 2#12 UNLESS OTHERWISE NOTED
- HOME RUN TO PANELBOARD OR AS INDICATED
- FLEXIBLE CONDUIT
- CONDUIT RUN, BROKEN AND CONTINUED ON SAME SHEET OR AS NOTED
- CAP ON CONDUIT STUB
- OPEN CIRCLE DENOTES UPWARD CONDUIT RISER
- SEMI CIRCLE DENOTES DOWNWARD CONDUIT RISER
- INDICATES REMOVAL
- FA — FIRE ALARM CONDUIT
- T — TELEPHONE CONDUIT
- S — SECURITY SYSTEM CONDUIT
- 120V SURFACE MOUNTED PANELBOARD
- 120V FLUSH MOUNTED PANELBOARD
- 480V SURFACE MOUNTED PANELBOARD
- 480V FLUSH MOUNTED PANELBOARD
- M — MOTOR
- DISCONNECT SAFETY SWITCH
- COMBINATION MOTOR STARTER
- S_{MS} — MANUAL MOTOR STARTER
- CONTROL STATION
- EQUIPMENT MOUNTING STAND
- GROUND ROD AND BOX
- INSTRUMENT
- EMH EHH SHH — ELECTRIC MANHOLE / POWER HANDHOLE / SIGNAL HANDHOLE
- K — INTRUSION REMOTE KEY PAD
- D — INTRUSION DOOR SWITCH
- SAP — SECURITY ALARM PANEL
- EQUIPMENT CONNECTION
- S_* — SINGLE POLE SWITCH
  2 = 2 POLE, 3 = 3 WAY, 4 = 4 WAY, K = KEY OPERATED
  WR = WEATHER RESISTANT
  D = DIMMER
  P = SWITCH WITH PILOT LIGHT
- S^{ab} — SINGLE POLE SWITCH (NOTE P2)
- FIXTURE (NOTE P2) SEE FIXTURE SCHEDULE
- FIXTURE WITH NIGHT LIGHTING (UNSWITCHED) OR FIXTURE WITH SELF-CONTAINED EMERGENCY BALLAST/BATTERY
- WALL/CEILING MOUNTED FIXTURE
- WALL/CEILING MOUNTED FIXTURE NIGHT LIGHTING (UNSWITCHED)
- POLE MOUNTED FIXTURE
- WALL/CEILING MOUNTED EXIT LIGHT - DIRECTIONAL ARROW WHERE INDICATED, SHADED AREA INDICATES ILLUMINATED FACE
- EMERGENCY LIGHT WITH SELF CONTAINED BATTERY
- A ELEV CTK # — LIGHT FIXTURE IDENTIFICATION
- SINGLE RECEPTACLE, 120V
- SINGLE RECEPTACLE, 240V
- DUPLEX WALL RECEPTACLE, 120V
  WR = WEATHER RESISTANT
  G = GROUNDED
  IG = ISOLATED GROUND
  GF = GROUND FAULT INTERRUPTER
- DOUBLE DUPLEX WALL RECEPTACLE, 120V
- DUPLEX FLOOR RECEPTACLE, 120V
- X" — MULTI-OUTLET ASSEMBLY WITH SINGLE RECEPTACLE, 120V SPACING (X INCHES) AS NOTED, MOUNTING HEIGHT AS NOTED
- RECEPTACLE, 480V
- WALL/CEILING MOUNTED JUNCTION BOX
- FLOOR RECESS MOUNTED JUNCTION BOX
- THERMOSTAT, WALL MOUNTED
- WALL TELEPHONE OUTLET (+12")
- DATA WALL OUTLET
- TELE-DATA WALL OUTLET
- FLOOR OUTLETS
- FIRE ALARM PULL STATION
- FIRE ALARM FLASHING LIGHT
- FIRE ALARM HORN
- BELL
- BUZZER
- HEAT DETECTOR
- SMOKE DETECTOR
- FACP — FIRE ALARM CONTROL PANEL
- PROXIMITY SENSOR
- WALL SENSOR
- ANTENNA
- CAMERA

SINGLE LINE SYMBOLS

- GROUND CONNECTION
- SWITCH, 3 POLE EXCEPT WHERE NOTED. RATING IN AMPERES AS NOTED
- AUTOMATIC TRANSFER SWITCH 3 POLE, RATING AS NOTED
- ST — SHUNT TRIP
- TB-# #A 1 — FUSE
- FUSE CUTOUT
- 100AF/100AT — CIRCUIT BREAKER, 3-POLE EXCEPT WHERE NOTED. RATING IN AMPERES AS NOTED. TOP INDICATION IS FRAME SIZE, BOTTOM IS TRIP RATING.
- 100A MCP — MCP CIRCUIT BREAKER, 3-POLE EXCEPT WHERE NOTED. RATING IN AMPERES AS NOTED. TOP INDICATION IS CONTINUOUS CURRENT RATING.
- TM 100AT — THERMAL-MAGNETIC CIRCUIT BREAKER, 3-POLE EXCEPT WHERE NOTED. RATING IN AMPERES AS NOTED. BOTTOM INDICATION IS INSTANTANEOUS TRIP RATING.
- POWER CIRCUIT BREAKER DRAWOUT ABOVE 1500V RATING AS NOTED
- CURRENT TRANSFORMER
- VOLTAGE TRANSFORMER
- POWER OR DISTRIBUTION TRANSFORMER RATING AS NOTED
- 100 — MOTOR. NUMBER INDICATES HORSEPOWER
- GEN — GENERATOR
- CONTROL PACKAGE PROVIDED WITH THE DRIVEN EQUIPMENT
- BUS STAB ON MCC OR SWITCHGEAR, CORD & PLUG CONNECTION FOR MOTORS
- OL — THERMAL OVERLOAD
- * A - AMMETER
  V - VOLTMETER
  WH - WATTHOUR METER
  GS - GROUND FAULT SENSOR
- AS — AMMETER SWITCH
- VS — VOLTMETER SWITCH
- 2 — ELEMENTARY DIAGRAM REFERENCE NUMBER
- K — KIRK KEY INTERLOCK
- POWER RECEPTACLE FOR PORTABLE EQUIPMENT
- # — RELAY DEVICE FUNCTION, # PER ANSI NUMBER C37.2
- TERMINATOR / POTHEAD
- SPLICE, TERMINATION
- 1 — MOTOR STARTER NUMBER INDICATES NEMA SIZE
- 5 — CAPACITOR - KVAR INDICATED
- VFD — VFD - VARIABLE FREQUENCY DRIVE
  SS - SOLID STATE STARTER
- VFD 5 — VFD WITH BYPASS CONTACTOR, CONTACTOR NEMA SIZE AS INDICATED
- SS — SS STARTER WITH BUILT-IN FULL SPEED CONTACTOR
- SPD — SURGE PROTECTIVE DEVICE
- MOTOR HEATER — MOTOR HEATER

ELEMENTARY DIAGRAM SYMBOLS

- FUSE. RATING IN AMPERES
- M — MOTOR
- ETM — ELAPSED TIME METER
- ** — CONTROL DEVICE COIL. PREFIX NUMBER, WHEN USED, DISTINGUISHES BETWEEN DEVICES OF THE SAME TYPE.

**	
ALT - ALTERNATOR	LR - LATCH RELAY
CR - CONTROL RELAY	PR - PROBE RELAY
GR - GENERAL RELAY	SV - SOLENOID VALVE
ISR - INTRINSICALLY SAFE RELAY	TD - TIME DELAY RELAY
	TR - TIMING RELAY

1 CR 2-2, 3, 0, 0
- CROSS REFERENCE TO ANOTHER DIAGRAM
- NORMALLY OPEN CONTACT ON THE OTHER DIAGRAM
- SPARE CONTACTS ON RELAY. IF OMITTED, THEN THE SPEC. REQUIREMENTS REGARDING SPARE CONTACTS APPLY.
- NORMALLY CLOSED CONTACT ON THIS DIAGRAM

- INDICATING LIGHT
- PUSH-TO-TEST INDICATING LIGHT
  * COLORS:

A - AMBER	R - RED
B - BLUE	N - NEON
C - CLEAR	W - WHITE
G - GREEN	Y - YELLOW

- ON OFF — SINGLE POLE SWITCH NORMALLY OPEN / CLOSED
- START STOP — EMERGENCY PUSHBUTTON NORMALLY OPEN / CLOSED
- START STOP — PUSHBUTTON NORMALLY OPEN / CLOSED
- SWITCH 1-POLE / 3-POLE
- MULTI-POSITION SELECTOR SWITCH
- H O A — HAND-OFF-AUTOMATIC SWITCH X-INDICATES CONTACTS CLOSED
- H O R — HAND-OFF-REMOTE SWITCH X-INDICATES CONTACTS CLOSED
- TERMINAL
- H1 H3 H2 H4 X1 X2 — CONTROL POWER TRANSFORMER
- AMP/FRAME, AMPS, POLES — CIRCUIT BREAKER, MCP 1-POLE / 3-POLE
- GROUND CONNECTION
- INSTRUMENT
- NO CR, NC CR — CONTACT NORMALLY OPEN / CLOSED
- BUS STAB ON MCC; CORD & PLUG CONNECTION FOR MOTORS
- SCR

SENSING SWITCHES		
CLOSE ON		SENSED VARIABLE
RISING	FALLING	
FS	FS	FLOW
LS	LS	LEVEL
PS	PS	PRESSURE
TS	TS	TEMPERATURE

LIMIT SWITCHES	
ZS	CLOSE ON REACHING LIMIT
ZS	CLOSE ON LEAVING LIMIT

TIMED CONTACTS			
SYMBOL	NORMAL	OPEN TO CLOSED	CLOSED TO OPEN
TR	OPEN	DELAYED	INSTANTANEOUS
TR	CLOSED	INSTANTANEOUS	DELAYED
TR	OPEN	INSTANTANEOUS	DELAYED
TR	CLOSED	DELAYED	INSTANTANEOUS

BUZZER BELL HORN

OL — THERMAL OVERLOAD

ELEMENTARY DIAGRAMS

E1 UNDERLINED WORDS SHOWN AT A PUSHBUTTON, LIGHT, SELECTOR SWITCH, ETC. INDICATE THE LEGEND PLATE REQUIREMENT FOR THAT PARTICULAR DEVICE. ANY ADDITIONAL NAMEPLATES ARE INDICATED ON ELEVATIONS WITH THE REQUIRED NAMEPLATE INSCRIPTIONS.

E2 "NORMAL" STATUS OF SWITCHES OR CONTACTS IS THE SHELF POSITION.

E3 NUMBERS AND LETTERS IDENTIFY DEVICE.

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER — ZACHARY C. DEVLIN — No. E21170 — ELECTRICAL — STATE OF CALIFORNIA — 04/23/21

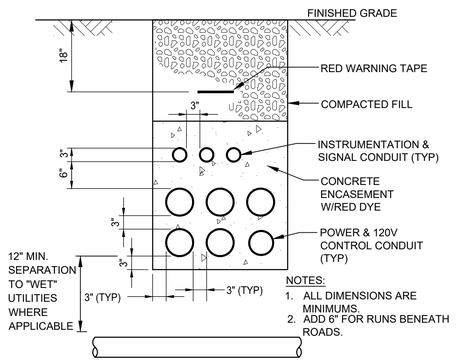
DESIGNED ZCD
DRAWN RM
CHECKED JRM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks — JOHN ROBINSON Consulting inc.

ELECTRICAL ABBREVIATIONS AND GENERAL NOTES

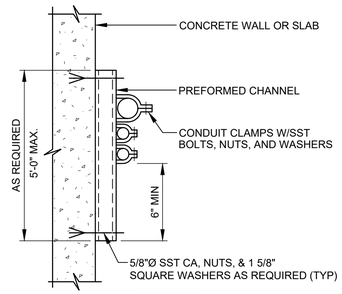
FILE NAME 1944519.00-E-1.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET E-1 OF ##



TYPICAL UNREINFORCED DUCT BANK

1

SUB-TITLE
SCALE: NTS

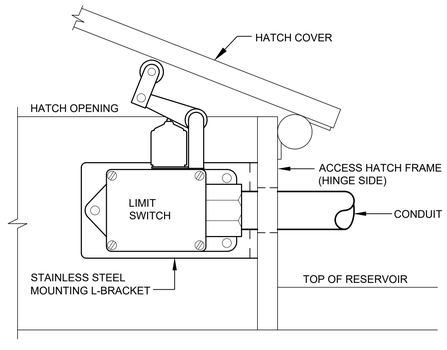


NOTES:
1. THIS DETAIL TYPICAL FOR BOTH VERTICAL AND HORIZONTAL MOUNTING.
2. PREFORMED CHANNEL, FITTINGS AND CLAMPS SHALL BE HOT-DIP GALVANIZED STEEL. FIELD COAT ALL CUTS PER SPECIFICATIONS.
3. CHANNELS TO BE SPACED AT 5'-0" OC MAXIMUM.

CONDUIT SUPPORT

2

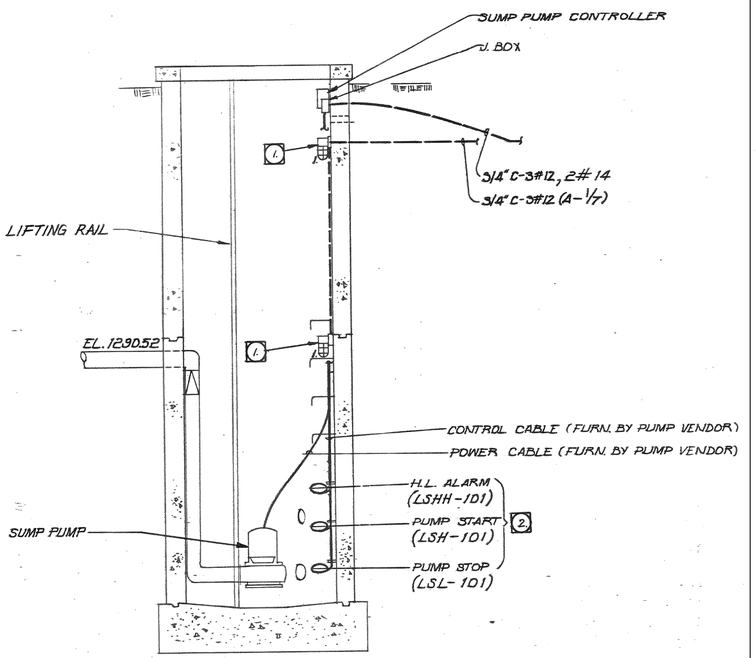
SUB-TITLE
SCALE: NTS



HATCH LIMIT SWITCH DETAIL 2

3

SUB-TITLE
SCALE: NTS

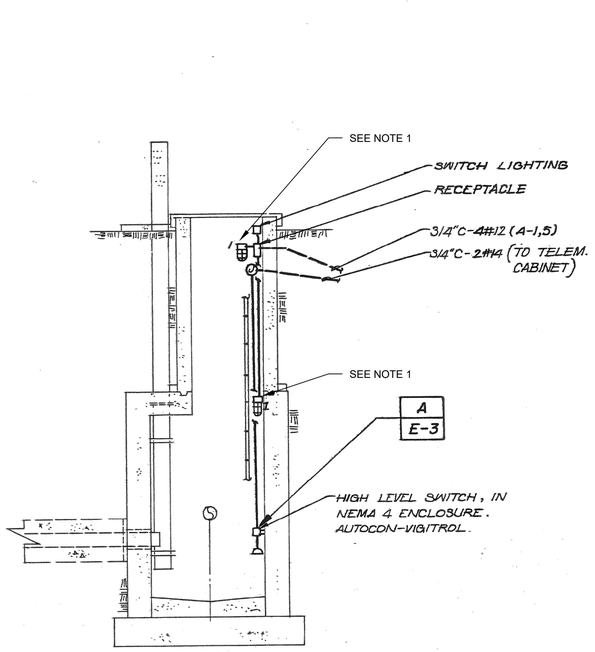


NOTES:
1. THIS DETAIL IS A REPRODUCTION OF THE ORIGINAL CONSTRUCTION DOCUMENT AND SHOWS THE EXISTING EQUIPMENT CONFIGURATION.
2. DISCONNECT AND REMOVE ALL EXISTING LIGHTS, RECEPTACLE, SUMP PUMP, CONDUITS, CONDUCTORS AND APPURTENANCES LOCATED ON AND AROUND MANHOLE.
3. PROVIDE TWO NEW TYPE B FIXTURES AT SAME HEIGHTS AS EXISTING FIXTURES. PROVIDE NEW SUMP PUMP AND LEVEL SWITCHES. PROVIDE NEW EXHAUST FAN RECEPTACLE. PROVIDE NEW CONDUITS AND CONDUCTORS REQUIRED TO SERVE ALL NEW EQUIPMENT AS SHOWN ON SHEET E-7.

EXISTING COLLECTOR MANHOLE

4

SUB-TITLE
SCALE: NTS

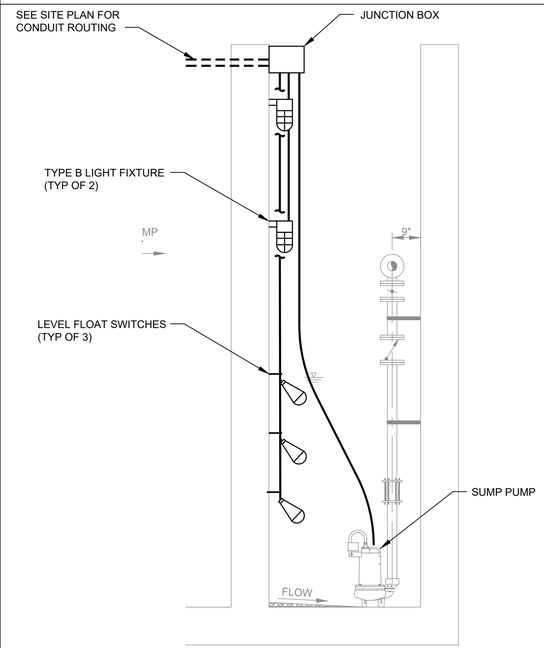


NOTES:
1. THIS DETAIL IS A REPRODUCTION OF THE ORIGINAL CONSTRUCTION DOCUMENT AND SHOWS THE EXISTING EQUIPMENT CONFIGURATION.
2. DISCONNECT AND REMOVE ALL EXISTING CONDUITS, CONDUCTORS AND APPURTENANCES LOCATED ON AND AROUND MANHOLE.
3. PROVIDE TWO NEW TYPE B FIXTURES AT SAME HEIGHTS AS EXISTING FIXTURES. PROVIDE NEW EXHAUST FAN RECEPTACLE. PROVIDE NEW LEVEL SWITCH. PROVIDE NEW CONDUITS AND CONDUCTORS REQUIRED TO SERVE ALL NEW EQUIPMENT AS SHOWN ON SHEET E-7.

EXISTING OBSERVATION MANHOLE

5

SUB-TITLE
SCALE: NTS



NOTES:
1. PROVIDE TWO NEW TYPE B FIXTURES (COORDINATE WITH OWNER FOR HEIGHTS), PROVIDE SUMP PUMP AND LEVEL SWITCHES, AND PROVIDE NEW CONDUITS AND CONDUCTORS REQUIRED TO SERVE ALL NEW EQUIPMENT AS SHOWN ON SHEET E-7.

DRAIN SUMP

6

SUB-TITLE
SCALE: NTS

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER
ZACHARY C. DEVLIN
No. E21170
ELECTRICAL
STATE OF CALIFORNIA
04/23/21

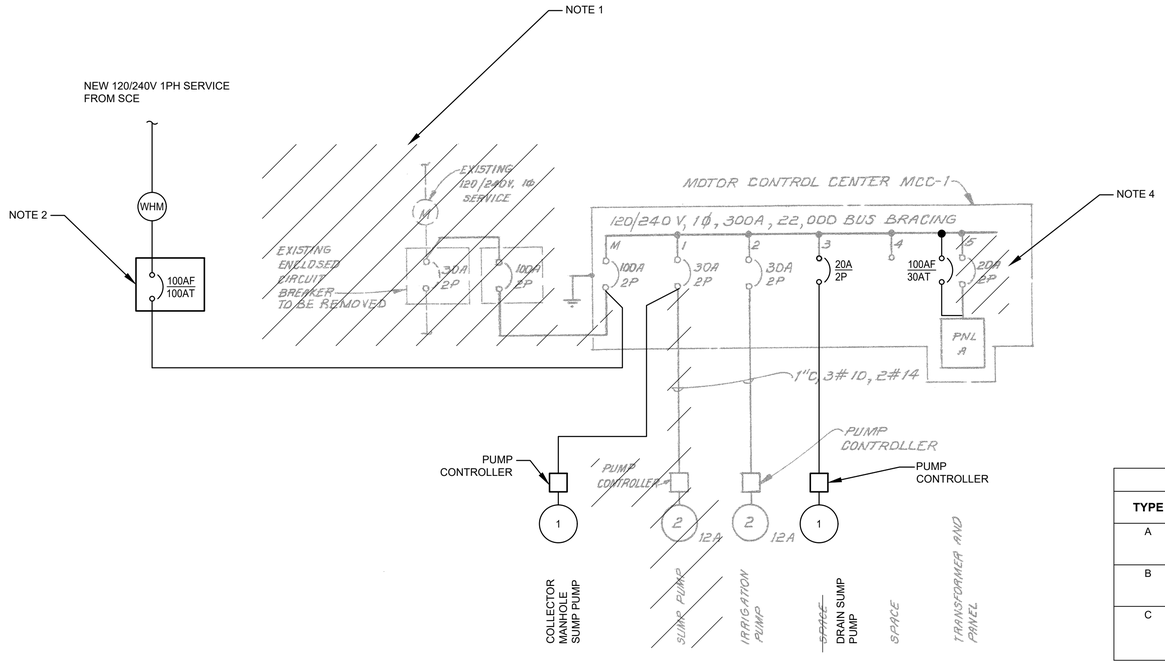
DESIGNED	ZCD
DRAWN	RM
CHECKED	JRM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting Inc

ELECTRICAL DETAILS

FILE NAME	1944519.00-E-2.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	E-2
OF	##



NOTES

1. DISCONNECT AND REMOVE EXISTING SERVICE ENTRANCE EQUIPMENT.
2. PROVIDE NEW SERVICE ENTRANCE EQUIPMENT (METER SOCKET AND SERVICE DISCONNECT) IN ACCORDANCE WITH SCE REQUIREMENTS.
3. PROVIDE NEW 20A SINGLE POLE BREAKER IN EXISTING SPACE.
4. REPLACE EXISTING 20A PANEL A MAIN BREAKER WITH NEW 30A BREAKER. PROVIDE NEW 3-#10AWG, 1-#10G MAIN FEEDER CONDUCTORS.

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	LAMPS	WATTS /FIXTURE	MANUFACTURER CATALOG NUMBER	MOUNTING
A	WALLPACK, LED WITH INTEGRAL PHOTOELECTRIC CELL AND TAMPER PROOF SCREWS	LED	45	LITHONIA #TWP LED 20C 700 40K T3M 120 PE TP DBLXD OR EQUAL	SURFACE WALL
B	WALL-MOUNTED LED, GASKETED VAPORTIGHT, CAST ALUMINUM CORROSION-RESISTANT HOUSING	LED	15	LITHONIA #OLTWM	SURFACE WALL
C	SURFAcE-MOUNTED LED FLOOD, GASKETED VAPORTIGHT, CAST ALUMINIUM CORROSION RESISTANT HOUSING	LED	200	HOLOPHANE PSLED P5 40K MVOLT 45	SURFACE CEILING

NOTE 3

(E) PANEL A					FED FROM: MCC				
240	/120 VOLTS, SINGLE PHASE, 3 WIRE	BUS: 100A		AIC: 10KA		MAIN: 30A/2P	MOUNTING: MCC		
CKT. NO.	DESCRIPTION	CONNECTED KVA		TRIP AMPS/ POLES	CKT. NO.	DESCRIPTION	CONNECTED KVA		TRIP AMPS/ POLES
		A	B				A	B	
1	LIGHTS	0.6		20/1	2	MCC SPACE HEATER	0.2		20/1
3	FLOODLIGHTS		1.0	20/1	4	MCC RECEPT		0.2	20/1
5	PORTABLE EXH FAN RECEPT	0.7		20/1	6	TELEMETRY	0.5		20/1
7	PORTABLE EXH FAN RECEPT		0.7	20/1	8	CONTROL POWER		0.3	20/1
9	GATE OPERATOR	1.4		20/1	10	RESERVOIR NO. 3 SITE LIGHTING	0.4		20/1
11	SPACE		0.0	-	12	RESERVOIR NO. 4 SITE LIGHTING		0.8	20/1
13	SPACE	0.0		-	14	SPACE	0.0		-
15	SPACE		0.0	-	16	SPACE		0.0	-
PHASE SUBTOTALS (KVA):		2.7	1.7				1.1	1.3	
PHASE TOTALS (KVA):							**3.8**	**2.9**	
TOTAL KVA:								**6.7**	KVA
TOTAL AMPERES:								**28**	A

NOTE 3

NO.	REVISION	DATE	BY

SCALES

0 1"
0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER ZACHARY C. DEVLIN No. E21170 ELECTRICAL STATE OF CALIFORNIA

04/23/21

DESIGNED ZCD
DRAWN RM
CHECKED JRM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

ELECTRICAL ONE LINE DIAGRAM AND PANELBOARD SCHEDULE

FILE NAME 1944519.00-E-3.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET E-3 OF ##

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NOTES

1. DISCONNECT AND REMOVE ALL EXISTING CONDUITS, CONDUCTORS AND APPURTENANCES LOCATED ON AND AROUND RESERVOIR 4. PROTECT IN PLACE ALL OTHER CONDUIT, CONDUCTORS, AND EQUIPMENT TO REMAIN.
2. PROVIDE NEW WORK AS SHOWN ON SHEET E-5. DEMOLITION SHALL NOT BEGIN UNTIL NEW ELECTRIC AND TELEPHONE SERVICES ARE ESTABLISHED AND ALL RESERVOIR 3 EQUIPMENT HAS BEEN RE-FED TO ALLOW RESERVOIR 3 TO REMAIN IN SERVICE THROUGHOUT THE DURATION OF CONSTRUCTION.

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER ZACHARY C. DEVLIN No. E21170 ELECTRICAL STATE OF CALIFORNIA
04/23/21

DESIGNED	ZCD
DRAWN	RM
CHECKED	JRM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

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ELECTRICAL
DEMO SITE PLAN

FILE NAME	1944519.00-E-4.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	E-4 OF ##

(E) RESERVOIR NO. 3

(E) POLE
NOTE 5

S-005

(E) SERVICE AND MOTOR CONTROL CENTER & TELEMETRY

S-001

P-001

S-004

P-012

P-013

C-015

B
S-10

SIGNAL JUNCTION BOX

S-002

S-003

(E) LE-104

(E) LIT-104

LIT-105

P-010

C-013

POWER/CONTROL JUNCTION BOX

P-011

C-014

(E) POWER/CONTROL JUNCTION BOX

ZS-107B

ACCESS HATCH 2 INTRUSION SWITCH JUNCTION BOX

P-015

(E) ZS-106

ACCESS HATCH 1 INTRUSION SWITCH JUNCTION BOX

ZS-107A

C-012

GATE OPERATOR KEYPAD 2

C-017

GATE OPERATOR 2
NOTE 2

P-008

C-010

P-009

C-011

DRAIN SUMP PUMP CONTROL PANEL

P-014

C-005

(E) LSHH-103

LSH-101

LSHH-101

LSL-101

DRAIN SUMP

6
E-2

COLLECTOR MANHOLE SUMP PUMP CONTROL PANEL

P-006

C-006

P-016

C-018

C-016

GATE OPERATOR 1
NOTE 2

LSH-102

LSH-108

LSHH-108

LSL-108

(E) OVERFLOW STRUCTURE

DRAIN SUMP PUMP

RESERVOIR NO. 4

GATE OPERATOR KEYPAD 1

NEW HIGH-SPEED DATA SERVICE TO BE DETERMINED BY OWNER

P-005

P-017

C-004

C-019

(E) COLLECTOR MANHOLE
SEE NOTE 3

(E) OBSERVATION MANHOLE
SEE NOTE 4

MAN HOLE JUNCTION BOX

COLLECTOR MANHOLE SUMP PUMP

4
E-2

5
E-2

NEW ELECTRIC SERVICE METER AND DISCONNECT

PLAN VIEW 1 E-5

0 10 20

1"=10'

NOTES

1. ALL CONDUITS SHOWN AS EXPOSED SHALL BE SURFACE-MOUNTED ON EXTERIOR FACE OF RESERVOIR ROOF AND WALLS.
2. PROVIDE DUAL SWING GATE OPERATORS, LIFTMASTER CSW200UL WITH MK500GS KEYPAD OR EQUAL. CONFIGURE TO BE CONTROLLED BY HARDWIRED KEYPADS AS WELL AS WIRELESS REMOTE CONTROL. INSTALL COMPLETE WITH ALL APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
3. PROVIDE SUMP PUMP WITH ASSOCIATED CONTROLLER AND FLOAT SWITCHES. PROVIDE TWO TYPE B LIGHT FIXTURES, MOUNTED AT SAME HEIGHTS AS EXISTING FIXTURES, AND RECEPTACLE FOR PORTABLE EXHAUST FAN.
4. PROVIDE NEW RECEPTACLE, LEVEL SWITCH, AND TWO TYPE B LIGHT FIXTURES, MOUNTED AT SAME HEIGHTS AS EXISTING FIXTURES. PROVIDE NEW CONDUITS AS SHOWN TO RE-FEED EQUIPMENT.
5. PROVIDE TWO CAMERAS. MOUNT ON EXISTING POLE. AIM ONE CAMERA TO COVER NORTH PROPERTY LINE, AND ONE CAMERA TO COVER ENTRANCE GATE. COORDINATE WITH OWNER FOR CAMERA MODEL AND MOUNTING HEIGHT.

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER
ZACHARY C. DEVLIN
No. E21170
ELECTRICAL
STATE OF CALIFORNIA
04/23/21

DESIGNED ZCD

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CITY OF SAN FERNANDO
SAN FERNANDO, CA
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Kennedy Jenks | JOHN ROBINSON CONSULTING, INC.

ELECTRICAL SITE PLAN

FILE NAME 1944519.00-E-5.dwg

JOB NO. 1944519.00

DATE APRIL 2020

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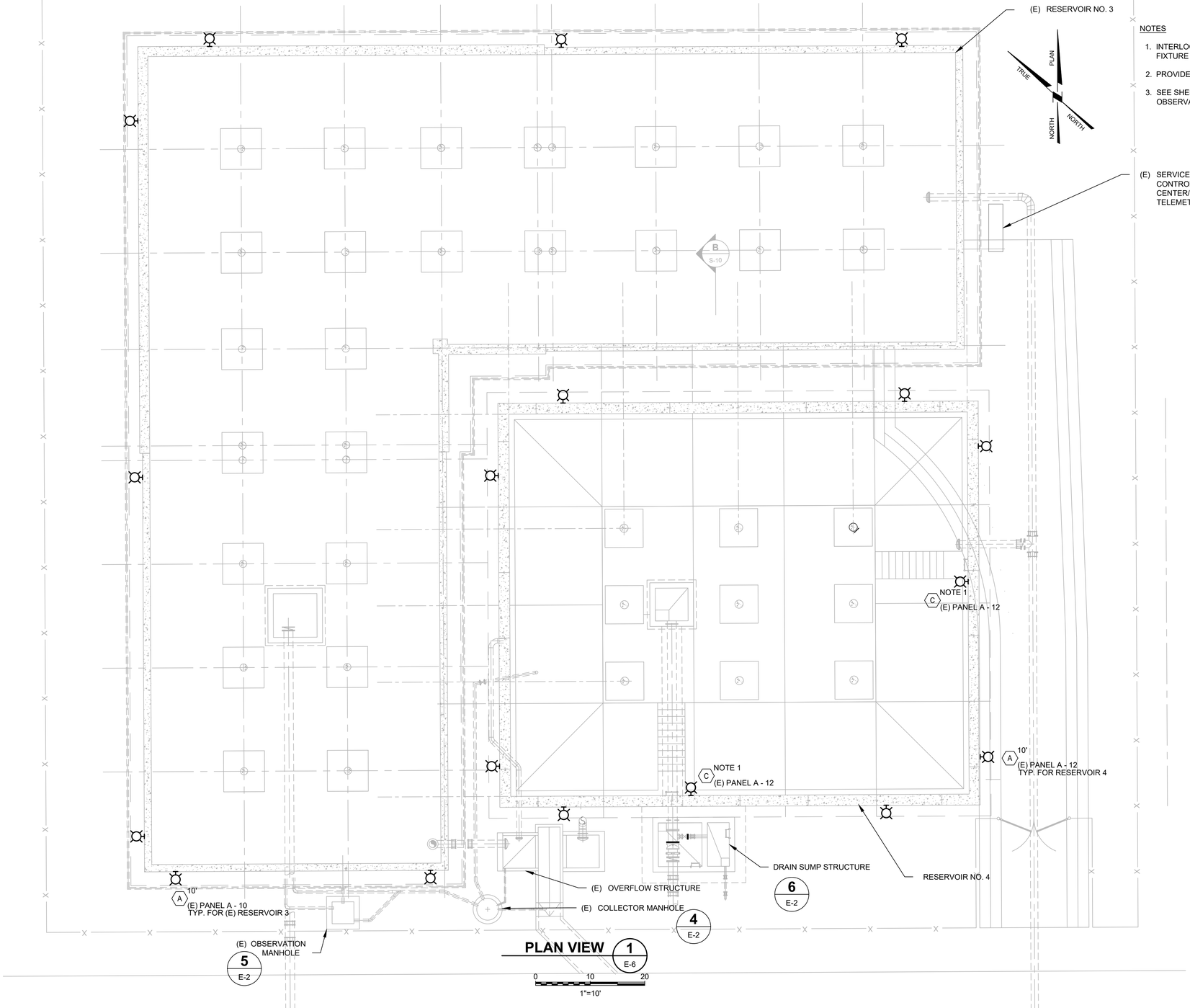

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER
ZACHARY C. DEVLIN
No. E21170
ELECTRICAL
STATE OF CALIFORNIA
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CITY OF SAN FERNANDO
SAN FERNANDO, CA
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ELECTRICAL LIGHTING PLAN

FILE NAME	1944519.00-E-6.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
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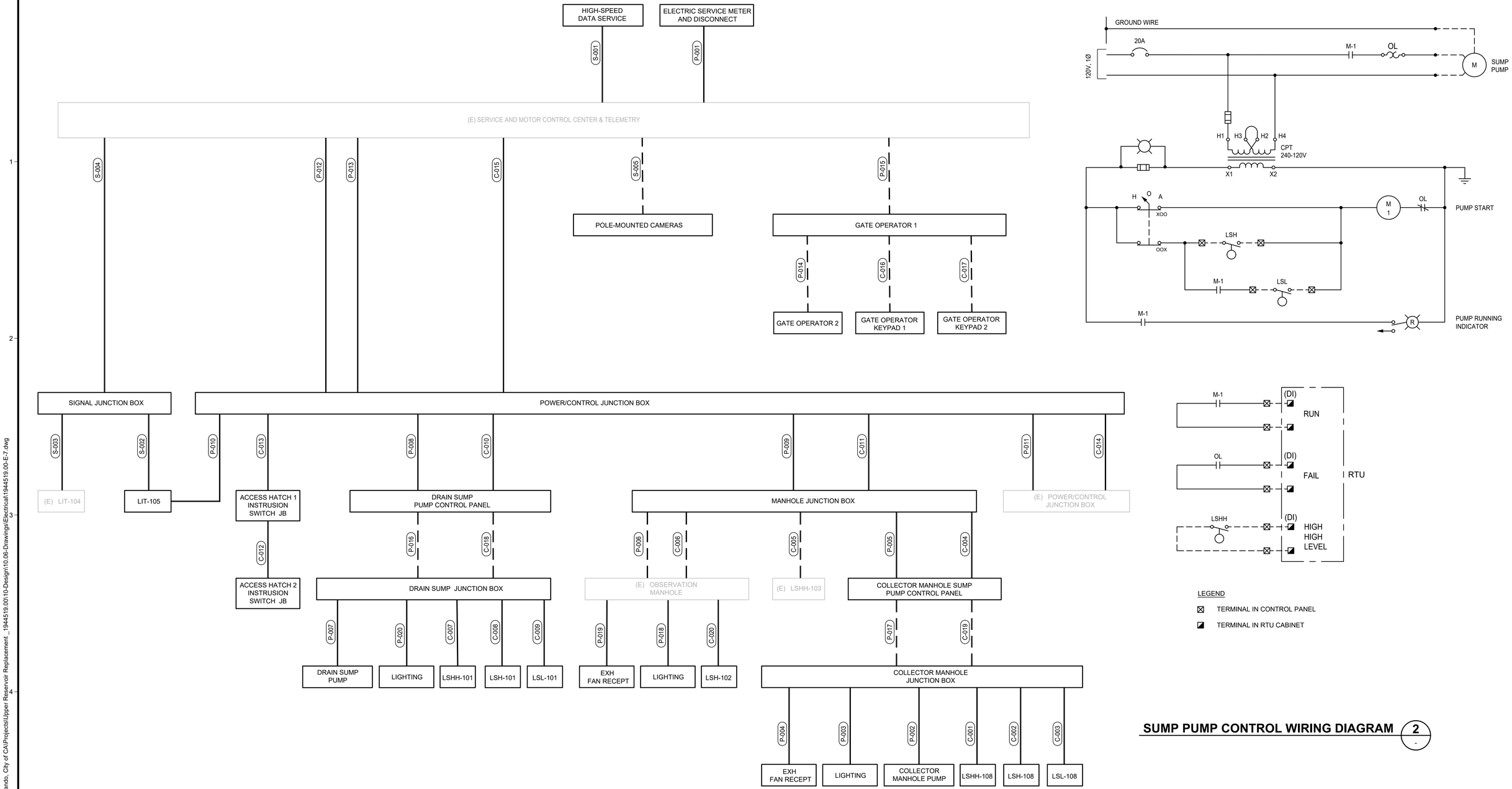

CONDUIT BLOCK DIAGRAM 1

SUMP PUMP CONTROL WIRING DIAGRAM 2

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER ZACHARY C. DEVLIN No. E21170 ELECTRICAL STATE OF CALIFORNIA

04/23/21

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ELECTRICAL
CONDUIT BLOCK DIAGRAM

FILE NAME	1944519.00-E-7.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	E-7 ##

CONDUIT AND WIRE SCHEDULE

NUMBER	FROM	TO	SIZE (")	POWER	CONTROL	SIGNAL	COMMENTS
P-001	(E) SERVICE AND MOTOR CONTROL CENTER & TELEMETRY	ELETRICAL SERVICE METER AND DISCONNECT	1-1/2"	3#1, 1#6G			
P-002	COLLECTOR MANHOLE JUNCTION BOX	COLLECTOR MANHOLE PUMP	3/4"	2#10, 1#10G			
P-003	COLLECTOR MANHOLE JUNCTION BOX	LIGHTING	3/4"	2#12, 1#12G			
P-004	COLLECTOR MANHOLE JUNCTION BOX	EXH FAN RECEPT	3/4"	2#12, 1#12G			
P-005	COLLECTOR MANHOLE JUNCTION BOX	COLLECTOR MANHOLE SUMP PUMP CONTROL PANEL	1"	4#12, 2#10, 1#10G			
P-006	MANHOLE JUNCTION BOX	(E) OBSERVATION MANHOLE	1"	4#12, 1#12G			
P-007	DRAIN SUMP JUNCTION BOX	DRAIN SUMP PUMP	3/4"	2#12, 1#12G			
P-008	POWER/CONTROL JUNCTION BOX	DRAIN SUMP PUMP CONTROL PANEL	1"	4#12, 1#12G			
P-009	POWER/CONTROL JUNCTION BOX	MANHOLE JUNCTION BOX	1"	8#12, 2#10, 1#10G			
P-010	POWER/CONTROL JUNCTION BOX	LIT-105	3/4"	2#12, 1#12G			
P-011	POWER/CONTROL JUNCTION BOX	(E) POWER/CONTROL JUNCTION BOX	3/4"	4#12, 1#12G			
P-012	POWER/CONTROL JUNCTION BOX	(E) SERVICE AND MOTOR CONTROL CENTER & TELEMETRY	1-1/2"	18#12, 1#12G			
P-013	POWER/CONTROL JUNCTION BOX	(E) SERVICE AND MOTOR CONTROL CENTER & TELEMETRY	1"	2#10, 1#10G			
P-014	GATE OPERATOR 1	GATE OPERATOR 2	1"	2#12, 1#12G			
P-015	GATE OPERATOR 1	(E) SERVICE AND MOTOR CONTROL CENTER & TELEMETRY	1"	2#12, 1#12G			
P-016	DRAIN SUMP PUMP CONTROL PANEL	DRAIN SUMP PUMPJUNCTION BOX	1"	2#12, 1#12G			
P-017	COLLECTOR MANHOLE SUMP PUMP CONTROL PANEL	COLLECTOR MANHOLE JUNCTION BOX	1"	4#12, 2#10, 1#10G			
P-018	(E) OBSERVATION MANHOLE	LIGHTING	3/4"	2#12, 1#12G			
P-019	(E) OBSERVATION MANHOLE	EXH FAN RECEPT	3/4"	2#12, 1#12G			
P-020	DRAIN SUMP JUNCTION BOX	LIGHTING	3/4"	2#12, 1#12G			
P-021	POWER/CONTROL JUNCTION BOX	(E) SERVICE AND MOTOR CONTROL CENTER & TELEMETRY	1"	2#12, 1#12G			
C-001	COLLECTOR MANHOLE JUNCTION BOX	LSHH-108	3/4"		2#14, 1#14G		
C-002	COLLECTOR MANHOLE JUNCTION BOX	LSH-108	3/4"		2#14, 1#14G		
C-003	COLLECTOR MANHOLE JUNCTION BOX	LSL-108	3/4"		2#14, 1#14G		
C-004	COLLECTOR MANHOLE JUNCTION BOX	COLLECTOR MANHOLE SUMP PUMP CONTROL PANEL	1"		6#14, 1#14G		
C-005	MANHOLE JUNCTION BOX	(E) LSHH-103	3/4"		2#14, 1#14G		
C-006	MANHOLE JUNCTION BOX	(E) OBSERVATION MANHOLE	3/4"		2#14, 1#14G		
C-007	DRAIN SUMPJUNCTION BOX	LSHH-101	3/4"		2#14, 1#14G		
C-008	DRAIN SUMPJUNCTION BOX	LSL-101	3/4"		2#14, 1#14G		
C-009	DRAIN SUMPJUNCTION BOX	LSH-101	3/4"		2#14, 1#14G		
C-010	POWER/CONTROL JUNCTION BOX	DRAIN SUMP PUMP CONTROL PANEL	1"		6#14, 1#14G		
C-011	POWER/CONTROL JUNCTION BOX	MANHOLE JUNCTION BOX	1"		10#14, 1#14G		
C-012	ACCESS HATCH 2 INTRUSION SWITCH JB	ACCESS HATCH 1 INTRUSION SWITCH JB	3/4"		2#14, 1#14G		
C-013	ACCESS HATCH 1 INTRUSION SWITCH JB	POWER/CONTROL JUNCTION BOX	3/4"		4#14, 1#14G		
C-014	POWER/CONTROL JUNCTION BOX	(E) POWER/CONTROL JUNCTION BOX	3/4"		4#14, 1#14G		
C-015	(E) SERVICE AND MOTOR CONTROL CENTER & TELEMETRY	POWER/CONTROL JUNCTION BOX	1"		24#14, 1#14G		
C-016	GATE OPERATOR 1	GATE OPERATOR KEYPAD 1	3/4"				MFR CABLE
C-017	GATE OPERATOR 1	GATE OPERATOR KEYPAD 2	3/4"				MFR CABLE
C-018	DRAIN SUMP PUMP CONTROL PANEL	DRAIN SUMP JUNCTION BOX	1"		6#14, 1#14G		
C-019	COLLECTOR MANHOLE SUMP PUMP CONTROL PANEL	COLLECTOR MANHOLE JUNCTION BOX	1"		6#14, 1#14G		
C-020	(E) OBSERVATION MANHOLE	LSH	3/4"		2#14, 1#14G		
S-001	(E) SERVICE AND MOTOR CONTROL CENTER & TELEMETRY	HIGH SPEED DATA SERVICE	1"			1-CAT6	
S-002	SIGNAL JUNCTION BOX	LIT-105	1"			1-PR#16(SH)	
S-003	SIGNAL JUNCTION BOX	(E) LIT-104	1"			1-PR#16(SH)	
S-004	SIGNAL JUNCTION BOX	(E) SERVICE AND MOTOR CONTROL CENTER & TELEMETRY	1"			2-PR#16(SH)	
S-005	(E) SERVICE AND MOTOR CONTROL CENTER & TELEMETRY	POLE-MOUNTED CAMERAS	1"			2-CAT6	

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER
ZACHARY C. DEVLIN
No. E21170
ELECTRICAL
STATE OF CALIFORNIA
04/23/21

DESIGNED ZCD

DRAWN RM

CHECKED JRM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

ELECTRICAL
CONDUIT AND WIRE SCHEDULE

FILE NAME 1944519.00-E-8.dwg

JOB NO. 1944519.00

DATE APRIL 2020

SHEET E-8 OF ##

VALVES

- GATE VALVE
- GLOBE VALVE
- PLUG VALVE
- CHECK VALVE
- DUCKBILL CHECK VALVE
- BALL CHECK VALVE
- PINCH VALVE
- DIAPHRAGM VALVE
- BUTTERFLY VALVE
- BALL VALVE
- BALL VALVE CLOSED
- 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
- FOOT VALVE
- * FC = FAIL CLOSED LC = LOCKED CLOSED
  FO = FAIL OPEN LO = LOCKED OPEN
- CLOSED DURING NORMAL OPERATION
- SHADING INDICATES PORT TO BE CLOSED DURING NORMAL OPERATION. DOT INDICATES PORT TO BE CLOSED DURING ALTERNATE OPERATION.

VALVE OPERATORS

- DIAPHRAGM
- DIAPHRAGM PRESSURE BALANCED
- DIAPHRAGM
- MOTOR
- CYLINDER OPERATOR
- S SOLENOID
- SV SOLENOID VALVE

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
- POSITIVE DISPLACEMENT TYPE FLOW TOTALIZING INDICATOR
- VORTEX SENSOR
- TARGET TYPE SENSOR
- FLOW NOZZLE
- M MAGNETIC FLOWMETER
- SONIC FLOWMETER
- X X ROTAMETER
- X X ROTAMETER WITH INTEGRAL VALVE

LINES

- MAIN PROCESS
- SECONDARY PROCESS
- INSTRUMENT CONNECTION
- EQUIPMENT ENCLOSURE
- EQUIP ID — EQUIPMENT TO/FROM IDENTIFIER
- SH (#) — REFERENCE SHEET/GRID NUMBER
- SYSTEM — SYSTEM DESCRIPTOR
- 24" BW — PIPE SYSTEM / PIPE SIZE IN INCHES
- TOP / MIDDLE / BOTTOM — AAABBBCCCDDD — EQUIPMENT TAG (SEE EQUIPMENT ASSET TAGGING STANDARD)
  - THREE DIGIT ITEM NUMBER
  - THREE DIGIT EQUIPMENT CODE
  - THREE DIGIT SYSTEM SERVICE CODE
  - THREE DIGIT PLANT ZONE NUMBER
- MECHANICAL
- OR
- CONNECTED
- NOT CONNECTED

MISCELLANEOUS

- FLANGE
- UNION
- Y STRAINER
- FLOW STRAIGHTENING VANE
- TEE
- SCREWED CAP
- WELDED CAP
- BLIND FLANGE
- REDUCER
- HB HOSE BIBB CONNECTION
- CHEMICAL PIPING FLEXIBLE CONNECTION/ FLEXIBLE HOSE
- FLEXIBLE TANK CONNECTION
- BRAIDED METAL HOSE
- METAL BELLOWS
- EXPANSION JOINT
- FLEXIBLE COUPLING
- FLANGED COUPLING ADAPTER
- SLUICE GATE OR SLIDE GATE
- DRAIN
- SPRAY NOZZLE
- DIAPHRAGM SEAL
- ANNULAR SEAL
- RUPTURE DISK, PRESSURE
- RUPTURE DISK, VACUUM
- P PURGE
- SIGHT GLASS
- THERMOMETER WELL
- CALIBRATION CYLINDER
- PULSATION DAMPER
- AIR RELIEF VALVE
- AIR RELEASE
- LEVEL PROBE
- CHEMICAL DIFFUSER
- INJECTION MIXER
- STATIC MIXER
- EDUCTOR/INJECTOR
- * AV - AIR VALVE T - TRAP
  F - FILTER FH - FIRE HYDRANT
- WATER LINE
- GRAVITY FLOW

MISCELLANEOUS

- VENT
- FLAME ARRESTOR
- BUBBLER
- HEAT TRACE
- SILENCER — SILENCER
- SNUBBER
- SONIC SENSOR — RF ADMITTANCE ANTENNA
- DISCONNECT'
- 55 GAL DRUM
- * DENOTES SUPPLIED BY MFR
- STEEL TANK
- PLASTIC TANK
- FLAT TOP TANK
- OPEN TOP TANK
- PRESSURE VESSLES (VERTICAL AND HORIZONTAL)
- HORIZONTAL HEAT EXCHANGER
- VERTICAL HEAT EXCHANGER

EQUIPMENT

- M MIXER
- M VERTICAL TURBINE PUMP
- M SUBMERSIBLE PUMP
- PUMP BLOWER
- PUMP
- METERING PUMP
- PUMP PROGRESSIVE CAVITY
- ROTARY PUMP
- PERISTALTIC PUMP
- TURBINE PUMP
- HORIZONTAL SCREW CONVEYOR
- INCLIINED SCREW CONVEYOR
- BELT CONVEYOR
- VERTICAL TURBINE PUMP HEAD
- VERTICAL TURBINE PUMP T-HEAD
- VERTICAL TURBINE PUMP CAN
- VERTICAL TURBINE PUMP INTAKE

NOTES:

1. THIS IS A GENERALIZED LEGEND SHEET.
2. SEE ALSO ISA S5.1, S5.3 AND S7.3.
3. INSTRUMENTS MARKED WITH AN ASTERISK ARE FURNISHED WITH THE EQUIPMENT.
4. REFER TO ISA RP7.7 FOR INSTRUMENT AIR QUALITY STANDARDS.

TYPICAL CONNECTION

- X X IN-LINE DEVICE
- X X DIRECT CONNECTION TO PROCESS
- X X TEMPERATURE ELEMENT WITH WELL
- X X RADIATION OR SONIC SENSING
- X X FILLED SYSTEM, DIAPHRAGM SEAL CONNECTION

EQUIPMENT CONTINUED

- M SUBMERSIBLE PUMP
- DU DRIVE UNIT
- GATE - NORMALLY CLOSED
- GATE - NORMALLY OPEN
- EYE WASH
- EYE WASH/SHOWER
- FAN

NO.	REVISION	DATE	BY

SCALES

0 1" 0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — JEFFREY R. MOORE — No. E 18977 Exp. 12/31/21 — STATE OF CALIFORNIA

DESIGNED	LR
DRAWN	RM
CHECKED	JRM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

I&C
PROCESS LEGEND

FILE NAME	1944519.00-I-1.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	I-1
OF	##

INSTRUMENT SYMBOL IDENTIFIERS

	FIRST LETTER (1)		SUCCEEDING LETTERS (15)		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (2)(3)(4)		ALARM		
B	BURNER, COMBUSTION (2)		USER'S CHOICE (5)	USER'S CHOICE (5)	USER'S CHOICE (5)
C	USER'S CHOICE (3a)(5)			CONTROL (23a)(23e)	CLOSED (27b)
D	DENSITY	DIFFERENTIAL	DAMPER		
E	VOLTAGE (2)		SENSOR (PRIMARY ELEMENT)		
F	FLOW, FLOW RATE (2)	RATIO (FRACTION) (2b)			
G	USER'S CHOICE		GLASS, VIEWING DEVICE (16)		
H	HAND (2)				HIGH (27A)(28A)(29)
I	CURRENT (ELECTRICAL)(2)		INDICATE (17)		
J	POWER (2)		SCAN (18)	SCAN (18)	
K	TIME, TIME SCHEDULE (2)	TIME RATE OF CHANGE (12c)(13)		CONTROL STATION (24)	
L	LEVEL (2)		LIGHT (19)		LOW (27b)(28)(29)
M	MOISTURE	MOMENTARY	MOTION	MOTOR	MIDDLE, INTERMEDIATE
N	USER'S CHOICE (5)		USER'S CHOICE (5)	USER'S CHOICE (5)	USER'S CHOICE (5)
O	USER'S CHOICE (5)		ORIFICE, RESTRICTION		OPEN (27a)
P	PRESSURE, VACUUM (2)		POINT (TEST) CONNECTION		
Q	QUANTITY (2)	INTEGRATE, TOTALIZE	INTEGRATE, TOTALIZE		
R	RADIATION (2)		RECORD (20)		RUN
S	SPEED, FREQUENCY (2)	SAFETY (14)		SWITCH (23b)	STOP
T	TEMPERATURE (2)			TRANSMIT	
U	MULTI VARIABLE (2)(6)		MULTIFUNCTION (21)	MULTIFUNCTION (21)	MULTIFUNCTION (21)
V	VIBRATION, MECHANICAL ANALYSIS (2)(4)(7)			VALVE, DAMPER, OR LOUVER (23c)(23e)	
W	WEIGHT, FORCE (2)		WELL, PROBE		
X	UNCLASSIFIED (8)	X AXIS (11c)	ACCESSORY DEVICES (22) UNCLASSIFIED (8)	UNCLASSIFIED (8)	UNCLASSIFIED (8)
Y	EVENT, STATE, PRESENCE (2)(9)	Y AXIS (11c)		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION (2)	Z AXIS (11c), SAFETY INSTRUMENTED SYSTEM (30)		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

NOTE: NUMBERS IN PARANTHESES REFER TO EXPLANATORY NOTES IN ANSI/ISA-5.1-2009, SECTION 4.2

GENERAL INSTRUMENT OR FUNCTION SYMBOLS	FIELD MOUNTED	PRIMARY LOCATION ACCESSIBLE TO OPERATOR	AUXILIARY LOCATION ACCESSIBLE TO OPERATOR	NORMALLY INACCESSIBLE OR BEHIND THE PANEL
DISCRETE INSTRUMENTS				
SHARED DISPLAY, SHARED CONTROL				
COMPUTER FUNCTION				
PROGRAMMABLE LOGIC CONTROL				

A: ISA IDENTIFICATION LETTERS (SEE TABLE OR REFER TO ANSI/ISA-5.1-2009; TABLE 4.1)
B: LOOP NUMBER, MINIMUM OF FOUR CHARACTERS (####)
C: USER DESCRIPTOR
D: MEASUREMENT (REFER TO ANSI/ISA-5.1-2009; TABLE 5.2.2)
E & F: PROCESS CONTROL DESCRIPTORS

J-4 FUNCTION BLOCK DESIGNATORS

- SUMMING
- DIFFERENCE
- INTEGRAL
- DERIVATIVE
- MULTIPLYING
- DIVIDING
- CONVERT:
- ROOT EXTRACTION
- SQUARE ROOT
- EXPONENTIAL
- HIGH SELECTING
- LOW SELECTING
- BIAS
- NONLINEAR OR UNSPECIFIED FUNCTION

* E - VOLTAGE
I - CURRENT
P - PNEUMATIC
A - ANALOG
B - BINARY
H - HYDRAULIC
O - ELECTROMAGNETIC, SONIC
R - RESISTANCE (ELECT)
D - DIGITAL

J-6 HANDSWITCH DESIGNATORS

HOA	HAND-OFF-AUTO	LR	LOCAL-REMOTE
HOR	HAND-OFF-REMOTE	OC	OPEN-CLOSE
F-R	FORWARD-REVERSE	OCA	OPEN-CLOSE-AUTO
1-0	ON-OFF	A/M	AUTO-MANUAL

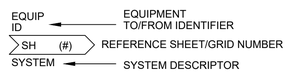
INSTRUMENT SERVICES

- AS — INSTRUMENT AIR SUPPLY (NOTE 4)
- ES — 120 VAC ELECTRICAL SERVICE (DIFFERENT VOLTAGES ARE SPECIFICALLY NOTED)

PLC INPUT/OUTPUT

- DISCRETE INPUT
- ANALOG INPUT
- DISCRETE OUTPUT
- ANALOG OUTPUT

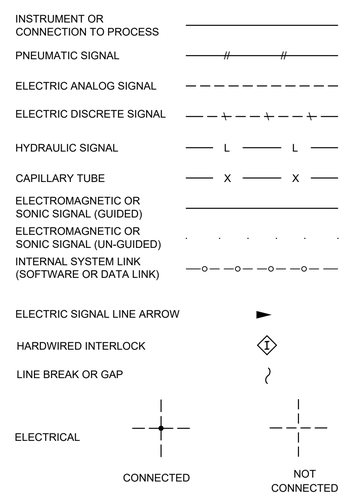
MISCELLANEOUS

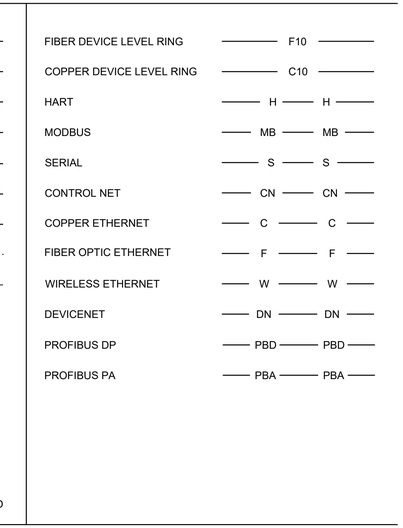


INTERLOCK. NUMBER IS THE CROSS REFERENCE TO A SPECIFIC ELEMENTARY DIAGRAM OR TO A SPECIFIC CONTROL STRATEGY DESCRIBED IN THE SPECS

PILOT LIGHT

INSTRUMENT LINE SYMBOLS





NOTES:

1. THIS IS A GENERALIZED LEGEND SHEET.
2. SEE ALSO ISA S5.1, S5.3 AND S7.3.
3. INSTRUMENTS MARKED WITH AN ASTERISK ARE FURNISHED WITH THE EQUIPMENT.
4. REFER TO ISA RP7.7 FOR INSTRUMENT AIR QUALITY STANDARDS.
5. REFER TO DIVISION 17, ABBREVIATION APPENDIX FOR SPECIFIC NOMENCLATURE.

NO.	REVISION	DATE	BY

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

DESIGNED LR
DRAWN RM
CHECKED JRM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

I&C
INSTRUMENTATION LEGEND

FILE NAME 1944519.00-I-2.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET I-2 OF ##

SCADA

RTU

SITE POWER
EA 100
ES 100

RES 4 LEVEL
LI 105
LIT 105

DS HI-HI LEVEL
LAHH 101
LSHH 101

PUMP FAIL
YAF 101

PUMP RUN
YI 101

MH HI-HI LEVEL
LAHH 108
LSHH 108

PUMP FAIL
YAF 108

PUMP RUN
YI 108

O'FLOW BOX HI-HI
LAHH 103
LSHH 103

RES 3 LEVEL
LI 104
LIT 104

INTRUSION
ZA 106
ZS 106

OBS MH HIGH LEV
LAH 102
LSH 102

LCP-101
240VAC
HS 101
HOA
YC 101
YL 101

LCP-108
HS 108
HOA
YC 108
YL 108
240VAC

LIT 105
LI 109
ZS 107A
ZS 107B

BOOSTER PUMP STATION NO. 2 AT WATER DISTRICT YARD

RESERVOIR NO.4

VALVE VAULT
20"
1"
6"
OUTLET TIE-IN

FQI 110
1"
SAMPLE STATION

HOA
HS 108B
HOA
HS 108C
BOOSTER NO. 1 & 2 PUMP STATION

LSH 101
LSL 101

FROM OBSERVATION MANHOLE
LSH 108
LSL 108

DRAIN SUMP
COLLECTOR MANHOLE

OVERFLOW BOX

LIT 104
ZS 106
LE 104
RESERVOIR NO. 3

LSH 102
TO COLLECTOR MANHOLE

M

pw:\\kjce-pw.bentley.com:kjce-pw\Documents\Clients\San Fernando, City of CA\Projects\Upper Reservoir Replacement _ 1944519.00\10-Design\10.06-Drawings\Instrumentation\1944519.00-I-3.dwg

USE OF DOCUMENTS

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER
JEFFREY R. MEYERS
No. E 18977
Exp. 12/31/21
STATE OF CALIFORNIA

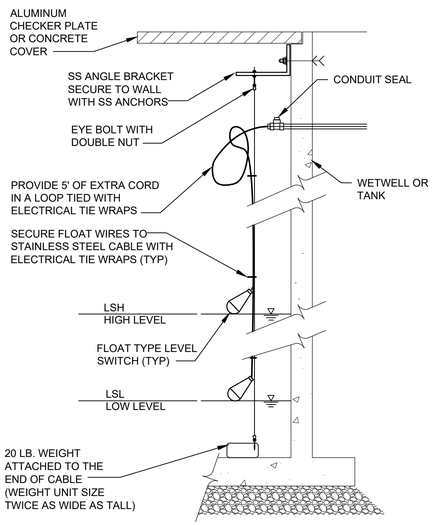
DESIGNED	LR
DRAWN	RM
CHECKED	JRM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

P&I D

FILE NAME	1944519.00-I-3.dwg
JOB NO.	1944519.00
DATE	APRIL 2020
SHEET	I-3
OF	##

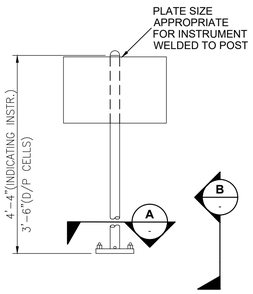


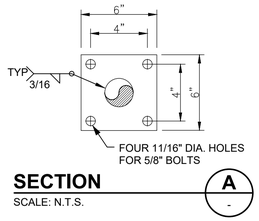
NOTES:
1. LENGTH OF CABLE SHALL NOT BE EXCESSIVE CAUSING SIGNIFICANT SLACK.

FLOAT TYPE LEVEL SWITCH INSTALLATION DETAIL

1

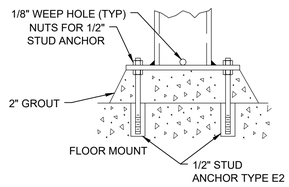
SUB-TITLE
SCALE: NTS





SECTION A

SCALE: N.T.S.



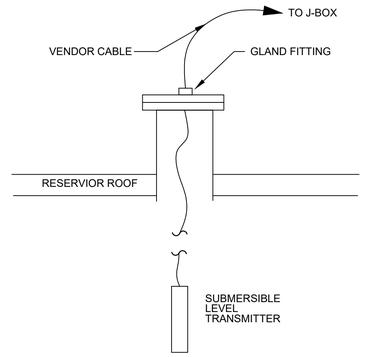
VIEW B

SCALE: N.T.S.

INSTRUMENT MOUNTING STAND

2

SUB-TITLE
SCALE: NTS



LEVEL INSTRUMENT DETAIL

3

SUB-TITLE
SCALE: NTS

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL ENGINEER
JEFFREY R. MOTT
No. E 18977
Exp. 12/31/21
STATE OF CALIFORNIA

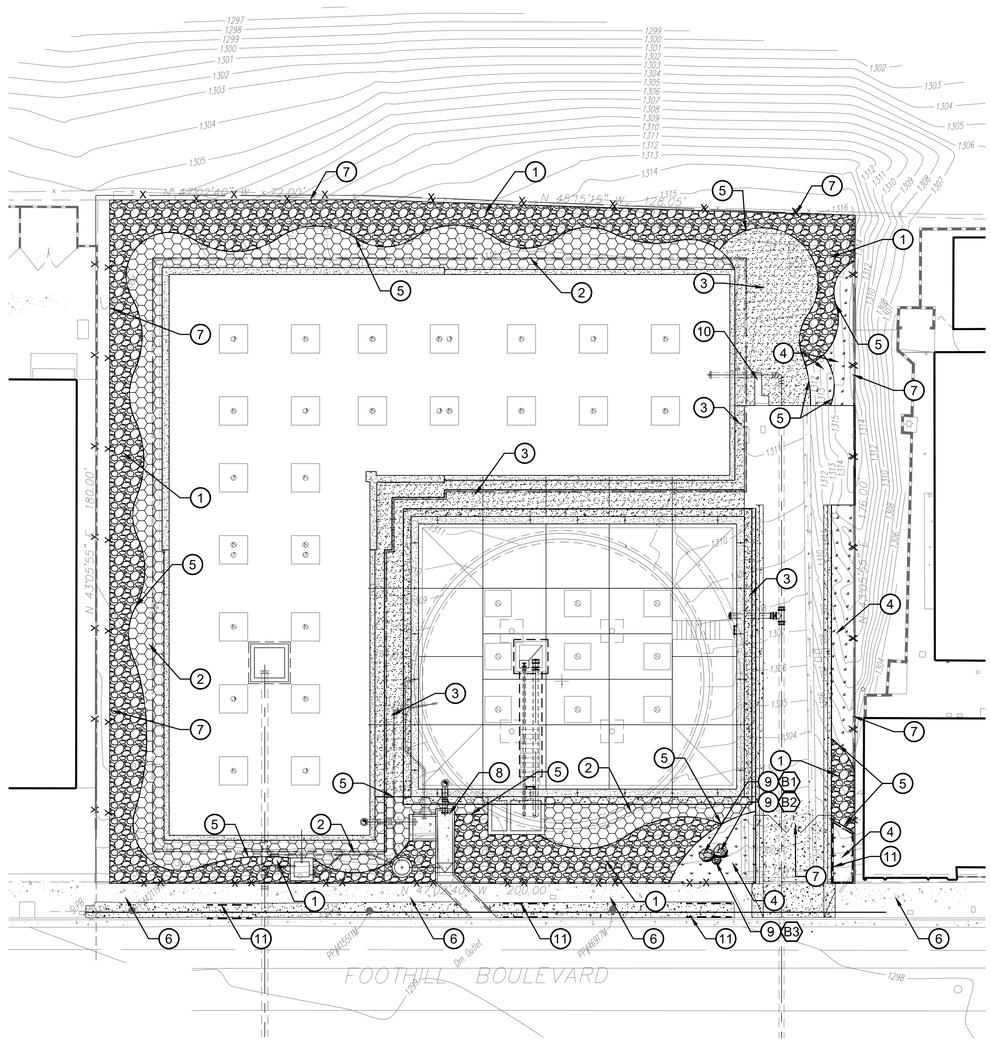
DESIGNED LR
DRAWN RM
CHECKED JRM

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting Inc.

INSTRUMENTATION DETAILS

FILE NAME 1944519.00-I-4.dwg
JOB NO. 1944519.00
DATE APRIL 2020
SHEET I-4 OF ##



CONSTRUCTION LEGEND

1. GRAVEL PAVING - REFER TO DETAIL '3', SHEET 'LC-2'
2. STABILIZED DECOMPOSED GRANITE - REFER TO DETAIL '1', SHEET 'LC-2' COLOR: INDIAN RED DECOMPOSED GRANITE
3. STABILIZED DECOMPOSED GRANITE - REFER TO DETAIL '1', SHEET 'LC-2' COLOR: CALIFORNIA GOLD DECOMPOSED GRANITE
4. PLANTING - REFER TO PLANTING PLAN
5. HEADER BOARD - REFER TO DETAIL '4', SHEET 'LC-2'
6. EXISTING CONCRETE SIDEWALK, SHALL REMAIN AND BE PROTECTED
7. REFER TO THE CIVIL PLANS FOR FENCING AND GATES
8. EXISTING CONCRETE SITE FEATURE SHALL REMAIN AND BE PROTECTED
9. BOULDERS - REFER BOULDER LEGEND THIS SHEET
10. EXISTING BACKFLOW DEVICE SHALL REMAIN AND BE PROTECTED DURING ALL PHASES OF CONSTRUCTION
11. ROOT BARRIER - REFER TO DETAIL '5', SHEET 'LC-2'

BOULDER LEGEND

- B1 — 6'X6'X6' BOULDERS
- B2 — 4'X4'X4' BOULDERS
- B3 — 2'X2'X2' BOULDERS

LANDSCAPE BOULDERS AVAILABLE FROM SOUTHWEST BOULDER AND STONE (714) 882-1010

INSTALL PER DETAIL '2', SHEET 'LC-2'. FINAL LOCATION OF BOULDERS TO BE APPROVED BY ENGINEER.

PLANTING PLAN NOTES

1. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO FURNISH AND INSTALL PLANT MATERIAL AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.
2. UNLESS DESIGNATED ON THE DRAWINGS OTHERWISE, STRUCTURAL IMPROVEMENTS AND HARDSCAPE SHALL BE INSTALLED PRIOR TO PLANTING OPERATIONS.
3. ALL WORK ON THE IRRIGATION SYSTEM, INCLUDING HYDROSTATIC, COVERAGE, AND OPERATIONAL TESTS AND THE BACKFILLING AND COMPACTION OF TRENCHES SHALL BE PERFORMED PRIOR TO PLANTING OPERATIONS.
4. PLANT LIST ON THE DRAWINGS SHALL BE USED AS A GUIDE ONLY. CONTRACTOR SHALL TAKEOFF AND VERIFY SIZES AND QUANTITIES BY PLAN CHECK.
5. SAMPLES OF FERTILIZERS, ORGANIC AMENDMENT, SOIL CONDITIONERS, AND SEED, IF APPLICABLE, SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL, PRIOR TO INCORPORATION. CONTRACTOR SHALL FURNISH TO THE ENGINEER A CERTIFICATE OF COMPLIANCE FOR SUCH FURNISHED MATERIALS.
6. LOCATIONS OF PLANT MATERIAL SHALL BE REVIEWED AND APPROVED ON SITE BY THE ENGINEER PRIOR TO INSTALLATION.
7. CONTRACTOR SHALL PROPOSE ON AMENDMENTS AS STATED IN THE SPECIFICATIONS. CONTRACTOR SHALL OBTAIN AGRICULTURAL SOILS TESTING AND RECOMMENDATIONS AFTER GRADING OPERATIONS AND PRIOR TO PLANT INSTALLATION. CONTRACTOR SHALL ALLOW FOR SOIL TESTING IN THEIR BID.
8. IF, DURING PLANTING OPERATIONS THERE SEEMS TO BE MINIMAL OR NO PERCOLATION IN PLANTING PITS, CONTRACTOR SHALL CEASE PLANTING OPERATIONS AND IMMEDIATELY NOTIFY THE ENGINEER TO DISCUSS ALTERNATIVE TO MAINTAINING POSITIVE ROOTBALL DRAINAGE MEASURES.
9. TREES PLANTED WITHIN FIVE FEET (5') OF HARDSCAPE OR STRUCTURES SHALL BE INSTALLED WITH A ROOT BARRIER AS APPROVED BY THE CITY/OWNER'S AUTHORIZED REPRESENTATIVE.
10. SHRUB AREAS SHALL RECEIVE A 3" THICK LAYER OF FOREST FLOOR COMPOSTED WOOD MULCH $\frac{1}{2}$"- 1 $\frac{1}{2}$" SIZE. OR EQUAL. MULCH SHALL HAVE A MINIMUM 80% RECYCLED CONTENT.
11. REFER TO SHEET, 'LP-1' FOR THE PLANT LIST, NOTES AND DETAILS.

CONSTRUCTION PLAN NOTES

1. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT FOR THE INSTALLATION OF ALL IMPROVEMENTS AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.
2. CONTRACTOR SHALL REVIEW ALL EXISTING SITE CONDITIONS PRIOR TO SUBMITTING BID AND PRIOR TO COMMENCING INSTALLATION. IF ANY DISCREPANCIES EXIST, THEY SHOULD BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CITY'S/OWNER'S AUTHORIZED REPRESENTATIVE.
3. DEVIATIONS BETWEEN THE DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CITY'S/OWNER'S AUTHORIZED REPRESENTATIVE.
4. COSTS INCURRED DUE TO REPAIR, RESTORATION, OR REPLACEMENT OF EXISTING IMPROVEMENTS WHICH ARE DESIGNATED "TO BE PROTECTED" OR "TO REMAIN" WHICH ARE DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. UNLESS DESIGNATED ON THE DRAWINGS OTHERWISE, ALL MATERIALS DESIGNATED FOR REMOVAL SHALL BE DISPOSED OF OFF-SITE IN A LEGAL MANNER.
6. HARDSCAPE AND STRUCTURAL ELEMENTS SHALL BE PLACED PER GEOTECHNICAL SOILS REPORT. IF SUCH REPORT IS UNAVAILABLE, CONTRACTOR SHALL DISCUSS PLACEMENT ON SUITABLE GRADE WITH THE CITY'S/OWNER'S AUTHORIZED REPRESENTATIVE.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND STAKING ALL SEWER, WATER AND UTILITY LINES ABOVE OR BELOW GRADE THAT MIGHT BE DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS. CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR ANY COST INCURRED FOR REPAIR, RESTORATION, OR REPLACEMENT OF AFOREMENTIONED UTILITIES DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS.
8. ABANDONED PIPES SHALL BE CAPPED OR PLUGGED IN A MANNER APPROVED BY THE CITY'S/OWNER'S AUTHORIZED REPRESENTATIVE.
9. IF APPLICABLE CONCRETE INDICATED FOR SAWCUTTING AND REMOVAL SHALL BE CUT TO A TRUE LINE WITH NEATLY SAWED EDGES. IF A SAWCUT IS WITHIN THREE FEET (3') OF AN EXISTING EXPANSION OR CONTROL JOINT, CONCRETE SHALL BE REMOVED TO THAT NEAREST JOINT.
10. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, MANUFACTURER'S CUT OR DATA SHEETS FOR APPROVAL PRIOR TO ORDERING MATERIALS. CONTRACTOR SHALL FURNISH TO THE CITY'S/OWNER'S AUTHORIZED REPRESENTATIVE A CERTIFICATE OF COMPLIANCE FOR SUCH FURNISHED MATERIALS.
11. UNLESS DESIGNATED ON THE DRAWINGS OTHERWISE, MATERIALS TO BE PURCHASED AND FURNISHED BY THE CONTRACTOR SHALL BE NEW.
12. PROJECT GEOTECHNICAL REPORT OR RECOMMENDATIONS BY A STRUCTURAL ENGINEER SHALL TAKE PRECEDENCE FOR ALL SOIL CONDITIONS, MATERIALS, REINFORCEMENT, DIMENSIONS, AND SUBBASE.
13. CONTRACTOR SHALL REMOVE ALL THE ON-SITE EXISTING TREES. IN ADDITION, ALL STUMPS SHALL BE REMOVED TO 24" BELOW GRADE. CONTRACTOR SHALL REVIEW THE SIZE WITH THE ENGINEER, PRIOR TO CONSTRUCTION, FOR REVIEW AND APPROVAL.
14. REFER TO THE CIVIL PLANS FOR ELECTRICAL.

NOTES:

1. REFER TO SHEET 'LC-2' FOR GENERAL CONSTRUCTION DETAIL NOTES
2. REFER TO SHEET 'LC-2' FOR CONSTRUCTION DETAILS
3. REFER TO SHEET 'LI-1' FOR IRRIGATION PLAN REFER TO SHEET 'LP-1' FOR PLANTING PLAN
4. CAD FILES SHALL BE PROVIDED UPON REQUEST FOR LAYOUT AND DELINEATION OF GRAVEL AND COBBLESTONE HEADER BOARD.

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SCALE: 1"=20'

0' 10' 20' 40' 80'

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LANDSCAPE ARCHITECTURE
20250 SW ACACA ST., SUITE 260
NEWPORT BEACH, CA
U.S.A. 92660
PH: 714.754.7311

NO.	REVISION	DATE	BY

SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED LANDSCAPE ARCHITECT — T. STONE No. 4787 — Signature — SEPTEMBER 30, 2021 Expiration Date — 04/26/2021 Date — STATE OF CALIFORNIA

DESIGNED	T.MUNOZ
DRAWN	J.GUADARRAMA
CHECKED	T.MUNOZ

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON consulting inc.

CONSTRUCTION PLAN

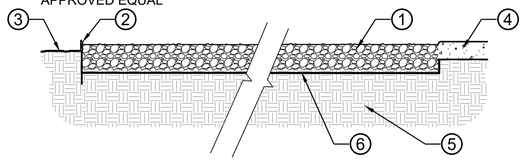
FILE NAME	
JOB NO.	1944519.00
DATE	04-26-2021
SHEET	LC-1 ##
OF	

GENERAL CONSTRUCTION DETAIL NOTES

1. THE FOLLOWING NOTES APPLY TO ALL DETAILS AS SHOWN IN THIS SET OF DOCUMENTS, UNLESS OTHERWISE NOTED.
2. FOR ADDITIONAL INFORMATION REFER TO CONSTRUCTION NOTES ON SHEET 'LC-1'.
3. REFER TO CONSTRUCTION LEGEND FOR INFORMATION RELATIVE TO COLOR, TYPE AND FINISH ON SHEET 'LC-1'.
4. UNLESS OTHERWISE NOTED, NEW FINISH SURFACE SHALL BE FLUSH WITH ADJACENT EXISTING SURFACES.
5. FINISH GRADE: 2" BELOW ADJACENT TO NON-TURF AREAS.
6. FINAL LOCATION OF CONSTRUCTION ELEMENTS, DRAINAGE DEVICES, SITE AMENITIES, IRRIGATION EQUIPMENT, AND PLANT MATERIAL MAY REQUIRE ADJUSTMENT DUE TO FIELD CONDITIONS AND SHALL BE APPROVED PRIOR TO CONSTRUCTION.
7. CONTRACTOR SHALL VERIFY ALL MATCHING MATERIALS AND COLORS PRIOR TO INSTALLATION. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO INSTALLATION.
8. UNLESS OTHERWISE NOTED, ALL REVIEWS AND APPROVALS SHALL OCCUR PRIOR TO CONSTRUCTION, AND PRIOR TO PURCHASE OF MATERIAL PER SPECIFICATIONS.

NOTES:
1. CONTRACTOR SHALL SUBMIT 'CALIFORNIA GOLD CRUSH STONE' COLOR & SIZE SAMPLES TO ENGINEER FOR REVIEW & APPROVAL PRIOR TO PURCHASE
2. CALIFORNIA GOLD CRUSH STONE SHALL BE 1"-3" DIA.
3. AVAILABLE FROM SOUTHWEST BOULDER AND STONE, (714) 882-1010 OR AN APPROVED EQUAL.

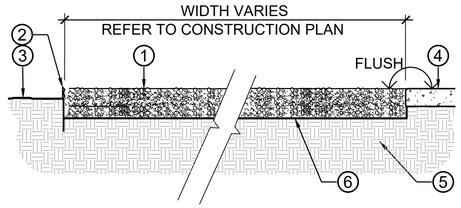
1. 3" THICK GRAVEL. INSTALL FLUSH W/ PAVING.
2. METAL HEADER - REFER TO DETAIL '4', THIS SHEET
3. FINISH GRADE- 1/2" BELOW METAL HEADER FOR SHRUB/GROUNDCOVER AREAS; FLUSH AT CONCRETE PAVING SURFACE.
4. EXISTING PAVING
5. 95% COMPACTED SUBGRADE
6. WEED FABRIC BARRIER BENEATH GRAVEL - MIRAFI MSCAPE WEED FABRIC OR AN APPROVED EQUAL



3 GRAVEL PAVING
SCALE: NTS

NOTES:
1. STABILIZED DECOMPOSED GRANITE PAVING SHALL BE INSTALLED BY A MANUFACTURER'S APPROVED PAVING INSTALLER.

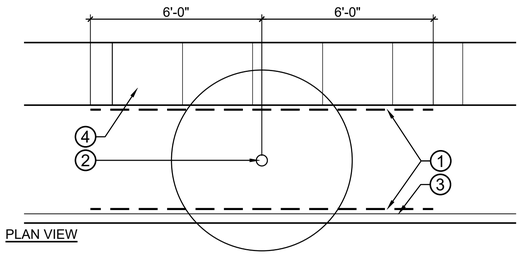
1. 4" THICK STABILIZED DECOMPOSED GRANITE (D.G.). INSTALL FLUSH W/ PAVING. COLOR SHALL BE PER CONSTRUCTION PLAN. SUBMIT SAMPLE FOR APPROVAL PRIOR TO ORDER & INSTALLATION. INSTALL STABILIZED DECOMPOSED GRANITE PER MANUFACTURER'S SPECIFICATION. AVAILABLE AT SOUTHWEST BOULDER AND STONE,PHONE: (714)882-1010 WWW.SOUTHWESTBOULDER.COM OR AN APPROVED EQUAL
2. METAL HEADER - REFER TO DETAIL '4', THIS SHEET
3. FINISH GRADE-2" BELOW HEADER FOR SHRUB/GROUNDCOVER AREAS
4. EXISTING PAVING
5. 95% COMPACTED SUBGRADE
5. WEED FABRIC BARRIER BENEATH DECOMPOSED GRANITE - MIRAFI MSCAPE WEED FABRIC OR AN APPROVED EQUAL



1 STABILIZED DECOMPOSED GRANITE PAVING
SCALE: NTS

NOTES:
1. CONTRACTOR SHALL PROVIDE A ROOT BARRIER FOR ALL TREES LOCATED WITHIN 5'-0" OF PAVING. ROOT BARRIER SHALL BE DEEP ROOT CORP. #UB24-2. ROOT BARRIER SHALL EXTEND 6'-0" IN EACH DIRECTION FROM THE CENTER OF THE TREE TRUNK. ROOT BARRIER TO BE INSTALLED PER MANUFACTURES RECOMMENDTIONS.

1. ROOT BARRIER
2. TREE TRUNK
3. BACK OF CURB / WALL
4. SIDEWALK / PAVING

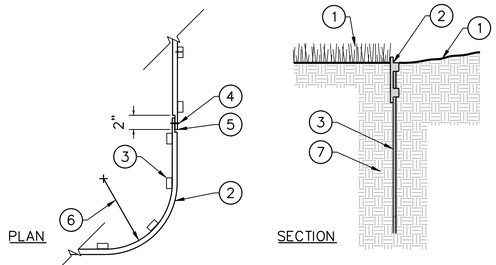


PLAN VIEW

5 ROOT BARRIER
SCALE: NTS

NOTES:
1. EDGING PRODUCT & ACCESSORIES ARE AVAILABLE FROM PERMALOC (800) 356-9660, OR AN APPROVED EQUAL.
2. INSTALL EDGING PER MANUFACTURER'S DETAILS & SPECS.
3. ALL METAL SHALL BE BR-BRONZE DURAFLEX FINISH

1. SHRUB PLANTING BED
2. PERMALOC PROSLIDE ALUMINUM EDGING- 3/16"X 4"OR EQUAL.
3. 12" ALUMNUM STAKE- TOP LOCK INTO PERFORMED LOOPS ON THE EDGING.
4. TOP OF EDGING TO BE MAXIMUM OF ½" ABOVE SURFACE MATERIAL.
5. INSTALL MIRAFI MSCAPE WEED FABRIC BARRIER FABRIC PER MANUFACTURER'S SPECIFICATIONS
6. REFER TO MANUFACTURER'S RECOMMENDATION FOR MINIMUM RADIUS
7. UNDISTURBED NATIVE GRADE OR CERTIFIED COMPACTED SUBGRADE



PLAN SECTION

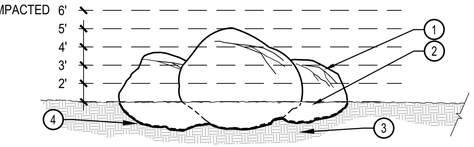
4 METAL HEADER
NTS

NOTES:
1. ALL BOULDERS SHALL BE BURIED 30% OF OVERALL HEIGHT, WIDTH AND LENGTH.
2. FINAL LOCATION OF ALL BOULDERS SHALL BE PER THE ENGINEER.
3. CONTRACTOR TO PROVIDE SAMPLE BOULDER FOR REVIEW AND APPROVAL BY ENGINEER PRIOR TO PURCHASE.
4. BOULDERS SHALL BE NATIVE GRAY GRANITE BOULDERS

BOULDER MEASUREMENT CHART:
APPROX. SIZE:
A: 6'x6'x6'
B: 4'x4'x4'
C. 2'X2'X2'

BOULDER TYPE: AVAILABLE AT SOUTHWEST BOULDER AND STONE PHONE: (714)882-1010 OR APPROVED EQUAL.

1. REFER TO NOTES FOR SIZES
2. FINISH GRADE
3. UNDISTURBED NATIVE GRADE OR 95% CERTIFIED COMPACTED SUBGRADE.
4. WEED FABRIC BARRIER BENEATH BOULDER - MIRAFI MSCAPE WEED FABRIC OR AN APPROVED EQUAL



2 BOULDER INSTALLATION
SCALE: NTS

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SCALES
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REGISTERED LANDSCAPE ARCHITECT — No. 4787 — STATE OF CALIFORNIA
Signature
SEPTEMBER 30, 2021
Expiration Date
04/26/2021
Date

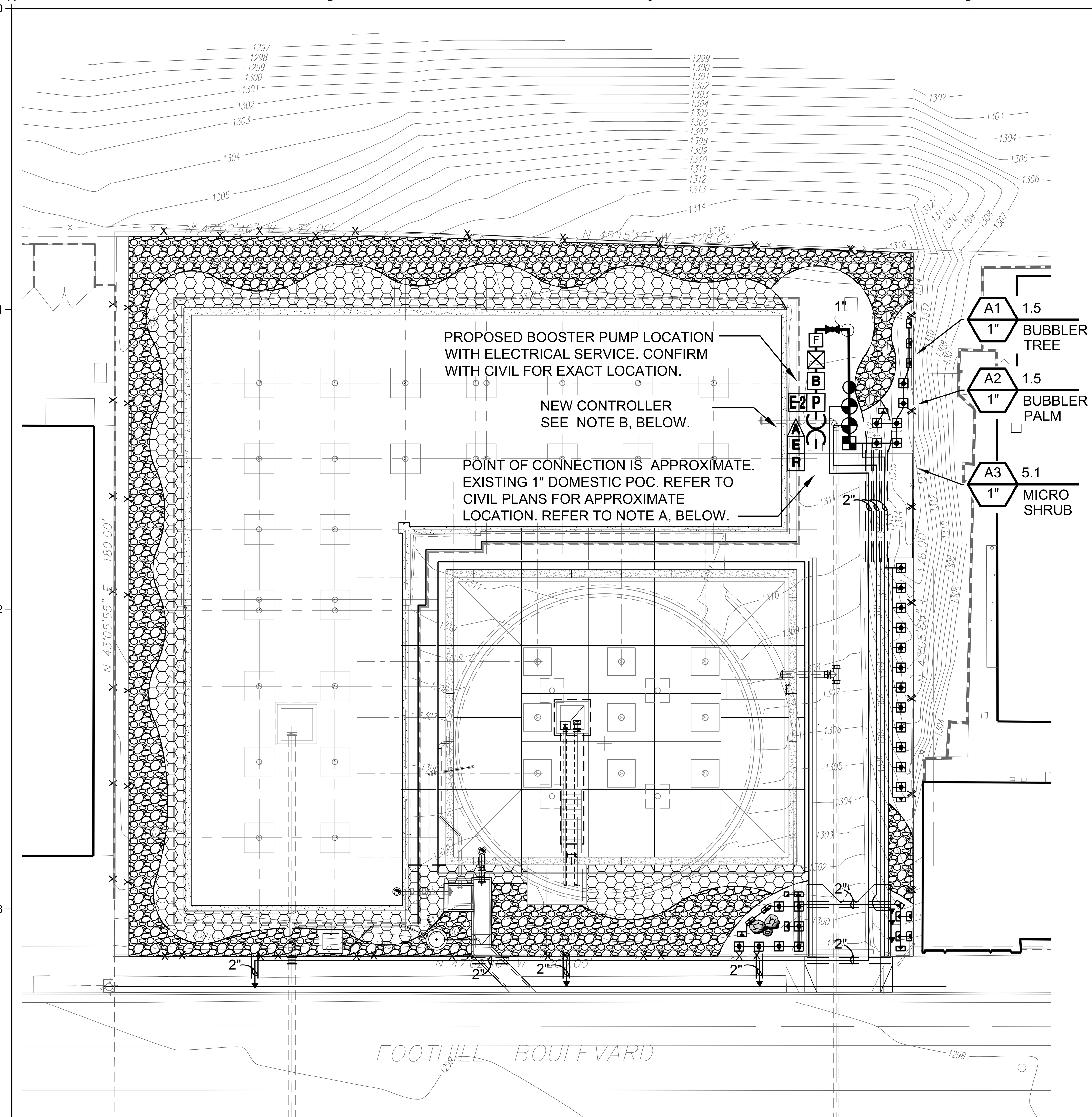
DESIGNED	T.MUNOZ
DRAWN	J.GUADARRAMA
CHECKED	T.MUNOZ

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

CONSTRUCTION DETAILS

FILE NAME	
JOB NO.	1944519.00
DATE	04-26-2021
SHEET	OF LC-2 ##



IRRIGATION LOCATION NOTES:

1. BACKFLOW PREVENTER LOCATION SHOWN ON THESE DRAWINGS IS APPROXIMATE. THE CONTRACTOR SHALL STAKE OUT THE BACKFLOW PREVENTER, AND IRRIGATION APPURTENANCE LOCATION FOR REVIEW AND APPROVAL BY ENGINEER PRIOR TO INSTALLATION OF THIS EQUIPMENT. FINAL LOCATION AND EXACT POSITIONING OF BACKFLOW PREVENTER AND ALL IRRIGATION APPURTENANCE SHALL BE DETERMINED BY THE ENGINEER. MODIFICATIONS OF THE BACKFLOW PREVENTER AND ALL IRRIGATION APPURTENANCE AS REQUESTED BY THE ENGINEER SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNERS/OWNER'S AUTHORIZED REPRESENTATIVE. FAILURE TO OBTAIN ENGINEER'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE OWNERS/OWNER'S AUTHORIZED REPRESENTATIVE DIRECTED REVISION AT NO CHARGE. CONTRACTOR SHALL NOTIFY ALL LOCAL JURISDICTIONS FOR INSPECTION AND TESTING OF INSTALLED BACKFLOW PREVENTION DEVICE.
2. CONTROLLER LOCATION SHOWN ON THESE DRAWINGS IS APPROXIMATE. THE LANDSCAPE CONTRACTOR SHALL STAKE OUT THE CONTROLLER LOCATION FOR REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO INSTALLATION OF THIS EQUIPMENT. THE CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL CONNECTION FROM 120 VOLT POWER SOURCE TO THE CONTROLLER AND ALL WIRE CONNECTIONS FROM ALL VALVES AND APPURTENANCE VALVES TO TERMINAL STRIP. REFER TO ENGINEER'S DRAWING'S FOR POWER SOURCE. ALL ELECTRICAL WORK SHALL CONFORM TO ALL LOCAL STATE AND NATIONAL ELECTRICAL CODES AND REGULATIONS. FINAL LOCATION AND EXACT POSITIONING OF THE CONTROLLER SHALL BE DETERMINED BY THE ENGINEER. MINOR MODIFICATIONS OF CONTROLLER REQUESTED BY THE ENGINEER SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNERS/OWNER'S AUTHORIZED REPRESENTATIVE. FAILURE TO OBTAIN ENGINEER'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE ENGINEER DIRECTED REVISIONS AT NO ADDITIONAL COST TO THE OWNERS/OWNER'S AUTHORIZED REPRESENTATIVE.
3. ELECTRIC CONTROL VALVES AND ISOLATION VALVE LOCATIONS ON THESE DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL STAKE OUT EACH ELECTRICAL CONTROL VALVE AND ISOLATION VALVE LOCATION FOR REVIEW AND APPROVAL BY ENGINEER PRIOR TO INSTALLATION OF ALL VALVES. FINAL LOCATION AND EXACT POSITIONING FOR ELECTRIC CONTROL VALVES AND ISOLATION VALVES SHALL BE DETERMINED BY ENGINEER. MINOR MODIFICATIONS OF ELECTRIC CONTROL VALVES AND ISOLATION VALVE LOCATIONS AS REQUESTED BY THE ENGINEER SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNERS/OWNER'S AUTHORIZED REPRESENTATIVE. FAILURE TO OBTAIN ENGINEER'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE ENGINEER DIRECTED REVISIONS AT NO ADDITIONAL COST TO THE OWNERS/OWNER'S AUTHORIZED REPRESENTATIVE. IN GENERAL UNLESS OTHERWISE DIRECTED BY ENGINEER, ALL VALVES SHALL BE INSTALLED ONE FOOT FROM EDGE OF HARDSCAPE, WALK OR CURB IN SHRUB PLANTING AREAS.
4. ELECTRICAL CONTRACTOR TO SUPPLY 120 VAC (2.5 AMP) SERVICE TO CONTROLLER LOCATION. IRRIGATION CONTRACTOR TO MAKE FINAL CONNECTION FROM ELECTRICAL STUB-OUT TO CONTROLLER. IRRIGATION CONTROL WIRE SHALL BE #14, U.L. APPROVED FOR DIRECT BURIAL. COMMON WIRE SHALL BE #12 U.L. APPROVED AND SHALL BE WHITE IN COLOR. WIRING TO INDIVIDUAL REMOTE CONTROL VALVES SHALL BE COLOR OTHER THAN WHITE.
5. THESE PLANS ARE DIAGRAMMATIC, THE MAINLINE AND RELATED IRRIGATION EQUIPMENT IS SHOWN WITHIN THE PAVING FOR CLARITY ONLY. THE ACTUAL LOCATION OF MAINLINE AND RELATED IRRIGATION EQUIPMENT SHALL BE WITHIN PLANTER AND A MINIMUM OF 24" OFF ADJACENT HARDSCAPE AND OTHER OBSTACLES, TYPICAL.

MWELO

THE IRRIGATION IS SUPPLIED BY A POTABLE WATER CONNECTION.

THERE IS NO SPECIAL LANDSCAPE AREA (SLA) AS PART OF THESE PLANS.

PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER PRESSURE IS BELOW OR EXCEEDS THE RECOMMENDED PRESSURE OF THE SPECIFIED IRRIGATION DEVICES.

CHECK VALVES OR ANTI-DRAIN VALVES ARE REQUIRED ON ALL SPRINKLER HEADS WHERE LOW POINT DRAINAGE COULD OCCUR.

A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES.

A CERTIFICATE OF COMPLETION SHALL BE FILLED OUT AND CERTIFIED BY EITHER THE SIGNER OF THE LANDSCAPE PLANS, THE SIGNER OF THE IRRIGATION PLANS, OR THE LICENSED LANDSCAPE CONTRACTOR FOR THE PROJECT.

A FINAL REPORT FOR THE TESTING AND ADJUSTING OF ALL NEW SYSTEMS SHALL BE COMPLETED PRIOR TO FINAL APPROVAL BY THE FIELD INSPECTOR. THIS REPORT SHALL BE SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THESE SERVICES.

AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED AT THE TIME OF FINAL INSPECTION.

AT THE TIME OF FINAL INSPECTION, THE PERMIT APPLICANT MUST PROVIDE THE ARCHITECT, IOR, AND OAR OF THE PROPERTY WITH A CERTIFICATE OF COMPLETION, CERTIFICATE OF INSTALLATION IRRIGATION SCHEDULE AND A SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE.

AN OPERATIONS AND SYSTEMS MANUAL SHALL BE PROVIDED TO THE OWNER OR REPRESENTATIVE AND TO THE FIELD INSPECTOR AT THE TIME OF FINAL INSPECTION.

SYSTEM DESIGN IS BASED ON A MINIMUM OPERATING PRESSURE 45.0 (P.S.I.) AND A MAXIMUM DEMAND 30.0 (G.P.M.) AS SHOWN AT EACH POINT OF CONNECTION ON THE DRAWINGS. CONTRACTOR SHALL VERIFY PRESSURE AND DEMAND AT EACH POINT OF CONNECTION PRIOR TO COMMENCING INSTALLATION AND SUBMIT SUCH IN WRITING TO THE ARCHITECT, IOR, AND OAR. IF ANY DISCREPANCIES EXIST, THEY SHOULD BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT, IOR, AND OAR.

NOTES

1. REFER TO CIVIL SHEETS FOR CONNECTIONS FROM THE WATER TANKS AND THE IRRIGATION SYSTEM. ALSO SEE DETAILS ON LI-5.
2. REFER TO DARYL GREEN, OF GREEN PRODUCTS 949-584-7311 FOR PUMP AND INTEGRATED PIPING SYSTEM. SEE DETAILS ON LI-5.

SLEEVING LEGEND

SYMBOL	SLEEVING TYPE
⊠	MAINLINEE SLEEVING
◈	LATERAL AND WIRE SLEEVING

SCH 40 PVC SLEEVING CHART

1 1/4" SLEEVE	1-4 WIRES	1/2" PIPE
1 1/2" SLEEVE	5-10 WIRES	3/4" PIPE
2" SLEEVE	11-20 WIRES	1" PIPE
2 1/2" SLEEVE	21-30 WIRES	1 1/4" PIPE
3" SLEEVE	31-40 WIRES	1 1/2" PIPE
4" SLEEVE	41-60 WIRES	2" PIPE
6" SLEEVE	61-99 WIRES	2 1/2"/3" PIPE
8" SLEEVE	100+ WIRES	4" PIPE
10" SLEEVE	N/A	6" PIPE

NOTE

REFER TO SHEET LI-2 FOR IRRIGATION LEGEND AND NOTES LI-3, LI-4, AND LI-5 FOR DETAILS. LI-6 FOR CALCULATIONS.

NOTE

ALL IRRIGATION EQUIPMENT ARE SHOWN DIAGRAMMATICAL, INSTALL ALL IRRIGATION EQUIPMENT IN PLANTING AREAS, TYPICAL.

VALVE IDENTIFICATION

CONTROLLER DESIGNATION
VALVE STATION NUMBER
VALVE SIZE
VALVE G.P.M.
HYDROZONE
A1 3/4" 9.2

LATERAL LINE SIZING CHART

SPRINKLER TYPE	GALLONS PER MINUTE	PIPE SIZE
ROTORS	1-8 9-18 19-28 29-55	1" 1 1/4" 1 1/2" 2"
SPRAYS & BUBBLERS AND SUBSURFACE	1-5 6-10 11-20 21-28 29-55	3/4" 1" 1 1/4" 1 1/2" 2"

NOTE A:
POINT OF CONNECTION (P.O.C.) SHALL BE TO THE EXISTING DOMESTIC WATER IRRIGATION MAINLINE. POINT OF CONNECTION ARE AT THE APPROXIMATE LOCATION SHOWN ON THE PLAN. CONNECT TO EXISTING 1" POC AND INSTALL AND PRESSURE REGULATOR.

STATIC WATER PRESSURE	45 PSI
DESIGN WATER PRESSURE	30 PSI
MAXIMUM SYSTEM DEMAND	5 GPM
RESDIUAL WATER PRESSURE	10 PSI

NOTE B:
CONTROLLER "A" SHALL BE A RAIN BIRD ESP-ME3 MODULAR W/ 4 STATION CAPACITY. INSTALL CONTROLLER IN VIT STRONG BOX STAINLESS STEEL TOP MOUNT CONTROLLER MODEL SB-18SS. WIRE ALL NEW VALVES IN LIMITS OF CONSTRUCTION WORK FOR THIS PROJECT TO CONTROLLER "A". 120 VOLT A.C. ELECTRICAL TO CONTROLLER "A" LOCATION SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR. IRRIGATION CONTRACTOR TO MAKE FINAL CONNECTION TO THE CONTROLLER.

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0' 10' 20' 40' 80'

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NO.	REVISION	DATE	BY

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

REGISTERED LANDSCAPE ARCHITECT M. STONE No. … STATE OF CALIFORNIA
Signature SEPTEMBER 30, 2021 Expiration Date 04/26/2021 Date

DESIGNED T.MORITA
DRAWN T.MORITA
CHECKED T.MUNOZ

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks
JOHN ROBINSON Consulting, Inc.

IRRIGATION PLAN AND NOTES

FILE NAME
JOB NO. 1944519.00
DATE 04-26-2021
SHEET LI-1 OF ##

IRRIGATION PLAN NOTES

1. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO FURNISH AND INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE DRAWINGS, AS DESCRIBED IN THE SPECIFICATIONS, AND IN ACCORDANCE WITH APPLICABLE CODES AND ORDINANCES
2. DRAWINGS ARE DIAGRAMMATIC. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTMENTS NECESSARY TO CONFORM TO ACTUAL FIELD CONDITIONS.
3. CONTRACTOR SHALL FLUSH ALL LINES AND ADJUST ALL HEADS FOR OPTIMUM PERFORMANCE IN ACCORDANCE WITH THE SPECIFICATIONS AND TO PREVENT OVERSPRAY ONTO HARDSCAPE AREAS OR STRUCTURAL ELEMENTS. THIS SHALL INCLUDE SELECTING THE BEST DEGREE OF ARC TO FIT ACTUAL SITE CONDITIONS AND TO THROTTLE THE FLOW CONTROL AT EACH VALVE TO OBTAIN THE OPTIMUM OPERATING PRESSURE FOR EACH SYSTEM. COSTS INCURRED DUE TO ANY ADJUSTMENTS FOR 100% COVERAGE, INCLUDING THOSE REQUESTED BY THE CITY'S AUTHORIZED REPRESENTATIVE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. SYSTEM DESIGN IS BASED ON A MINIMUM OPERATING PRESSURE (P.S.I.) AND A MAXIMUM DEMAND (G.P.M.) AS SHOWN AT EACH POINT OF CONNECTION ON THE DRAWINGS. CONTRACTOR SHALL VERIFY PRESSURE AND DEMAND AT EACH POINT OF CONNECTION PRIOR TO COMMENCING INSTALLATION AND SUBMIT SUCH IN WRITING TO THE CITY'S AUTHORIZED REPRESENTATIVE. IF ANY DISCREPANCIES EXIST, THEY SHOULD BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CITY'S AUTHORIZED REPRESENTATIVE.
5. EQUIPMENT SHOWN IN HARDSCAPE AREAS ARE FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED WHENEVER POSSIBLE WITHIN PLANTED AREAS A REASONABLE, REACHABLE DISTANCE FROM HARDSCAPE OR PLANTING AREAS
6. UNLESS OTHERWISE NOTED ON THE DRAWINGS, CONTRACTOR SHALL INSTALL WIRE AND PIPE UNDER HARDSCAPE AREAS IN P.V.C. SCHEDULE 40 SLEEVES PLACED PRIOR TO INSTALLING HARDSCAPE IN ACCORDANCE WITH APPLICABLE CODES.
7. WHEREVER POSSIBLE, CONTROL WIRES SHALL OCCUPY THE SAME TRENCH AS PIPES.
8. EACH CONTROLLER SHALL HAVE ITS OWN INDEPENDENT GROUND WIRE.
9. SPLICING OF 24 VOLT WIRES WILL NOT BE PERMITTED EXCEPT IN VALVE BOXES. CONTRACTOR TO LEAVE A 24" COIL OF EXCESS WIRE AT EACH SPLICE AND EVERY 100' ON CENTER ALONG WIRE RUN. TAPE WIRE BUNDLES 10' ON CENTER. NO TAPING WILL BE PERMITTED INSIDE SLEEVES.
10. CONTROL VALVES SHALL BE SIZED AS DESIGNATED ON THE DRAWINGS AND SHALL BE INSTALLED IN VALVE BOXES AS INDICATED IN THE DETAILS. BOXES SHALL BE SET FLUSH WITH THE FINISH GRADE OR SURFACE AND PERMANENTLY MARKED WITH THE LETTERS R.C.V.
11. CONTRACTOR SHALL INSTALL ANTI-DRAIN CHECK VALVES AS NECESSARY TO PREVENT LOW HEAD DRAINAGE.
12. ALL IRRIGATION HEADS ADJACENT TO HARDSCAPE SHALL BE POP-UP STYLE.
13. IRRIGATION HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE OF THE AREA TO BE IRRIGATED UNLESS OTHERWISE DESIGNATED ON THE PLANS.
14. TREE EMITTERS HEADS SHALL BE LOCATED ON THE UPHILL SIDE OF TREES.
15. PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER PRESSURE IS BELOW OR EXCEEDS THE RECOMMENDED PRESSURE OF THE SPECIFIED IRRIGATION DEVICES.
16. A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONE'S SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES.
17. A CERTIFICATE OF COMPLETION SHALL BE FILLED OUT BY THE CONTRACTOR AND CERTIFIED BY DESIGNER OF THE LANDSCAPE PLANS.
18. AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED AT THE TIME OF FINAL INSPECTION, BY THE CONTRACTOR.
19. IRRIGATION SLEEVES SHOWN FOR MAJOR STREET AND DRIVEWAY CROSSINGS FOR CLARITY ONLY. ALL SLEEVES TO BE MINIMUM 2X DIAMETER OF PIPE SLEEVES. SLEEVING TO EXTEND MINIMUM 12 INCHES BEYOND PAVING OR AS NECESSARY TO ACCESS. CONTRACTOR SHALL INSTALL SLEEVING BELOW ALL PAVING, HARDSCAPE, ETC. AS SHOWN AND AS DIRECTED BY ENGINEER.

IRRIGATION MATERIALS LEGEND

SYMBOL	MANUFACTURER	MODEL NO. / DESCRIPTION	GPM	PSI	RADIUS	P/R (TRI.)	SHEET / DETAIL
▼	RAIN BIRD	RWS-B-C-1401 ROOT WATERING SYSTEM WITH 36" TUBE, .50 GPM BUBBLER AND CHECK VALVE ON RISER. INSTALL WITH SAND SOCK. INSTALL TWO PER TREES AND PALMS, KEEP TREES AND PALMS ON SEPARATE VALVES.	.5 (1.0 TOTAL)	30	NA	NA	LI-3, 8
	RAIN BIRD	1800-SAM-PRS 6" POP-UP SHRUB HEAD WITH SQ 2.5' RADIUS MPR SPRAY NOZZLE.	.12, .20, .40	30	2.5"	1.90, 1.57, 1.55	LI-4, 3
	MATCO-NORCA	MODEL 759 BRASS BALL VALVE - LINE SIZE OR APPROVED EQUAL. INSTALL WITHIN CARSON 910 PLASTIC ROUND GREEN VALVE BOX.					LI-3, 4
	BUCKNER/SUPERIOR	MODEL 3200 NORMALLY CLOSED, LINE SIZED, BRASS MASTER CONTROL VALVE. VALVE BOXES SHALL HAVE HDPE BODY AND LIDS.					LI-3, 2
F	RAIN BIRD	BRASS TEE, NYLON IMPELLER TYPE FLOW SENSOR MODEL OR APPROVED EQUAL. WIRE TO CONTROLLER PER MANUFACTURER'S RECOMMENDATIONS.					LI-3, 3
B	FEBCO/WILKINS	FEBCO 1" MODEL LF825Y BACKFLOW PREVENTER WITH WYE FILTER AND WILKENS 600/650 REDUCED PRESSURE VALVE, SEE PLANS FOR ADDITIONAL INFORMATION. INSTALL WITHIN V.I.T. SMOOTH TOUCH BACKFLOW ENCLOSURE MODEL NUMBER SBBC-45SS.					LI-3, 1
E	N/A	120 VOLT ELECTRICAL POWER, PROVIDED BY ELECTRICIAN, VERIFY ACTUAL LOCATION IN FIELD.					N/A
	SMARTLINE	SL 4800 12 STATION CONTROLLER INSTALL IN A V.I.T./STRONG BOX STAINLESS STEEL ENCLOSURE SB-18SS STRONG BOX ENCLOSURE. CONNECT FLOW SENSOR AND MASTER VALVE TO CONTROLLER IN SEPARATE SCH. 40 PVC CONDUIT WITH 14 AWG WIRE. WITH RSD-BE RAIN SENSOR. SEE PLANS FOR ADDITIONAL INFORMATION AND APPROXIMATE LOCATION.					LI-4, 5,7
R	RAIN BIRD	RSD-BE WIRED RAIN SENSOR, MOUNT IN RGVRSS ENCLOSURE ON THE SIDE OF THE SIDE OF THE CONTROLLER ENCLOSURE, WIRE TO THE CONTROLLER.					LI-5, 5
	N/A	POINT OF CONNECTION AT EXISTING 1" MAINLINE LOCATIONS PER PLANS. FOR REFERENCE ONLY. VERIFY SIZE & LOCATION IN FIELD PRIOR TO START OF WORK. SEE PLAN NOTES FOR ADDITIONAL INFORMATION.					N/A
P	SITE ONE	BOOSTER PUMP SYSTEM. PUMP ASSEMBLY INCLUDES FLOW CONTROL AND MAINLINE VALVE SWITCH. SEE CIVIL ENGINEERS PLANS FOR ADDITIONAL INFORMATION. REFER TO DARYL GREEN, OF GREEN PRODUCTS 949-584-7311 FOR PUMP AND INTEGRATED PIPING SYSTEM. SEE DETAILS ON L-5.					LI-5, 1,2
E2	N/A	460 VOLT (SINGLE/THREE) PHASE ELECTRICAL POWER FOR BOOSTER PUMP SYSTEM PROVIDED BY ELECTRICIAN, VERIFY ACTUAL LOCATION IN FIELD.					N/A
	RAIN BIRD	PESB SERIES PLASTIC REMOTE CONTROL VALVE, SIZE AS SHOWN. SIZE PER PLANS. INSTALL WITHIN CARSON 1419-12 PLASTIC GREEN VALVE BOX.					LI-3, 6
	RAIN BIRD	XCZ-100-PRB-COM SERIES REMOTE CONTROL VALVE WITH PRESSURE REGULATION. THE 1" DRIP RCV ASSEMBLY INSIDE A JUMBO RECTANGULAR VALVE BOX. INSTALL WITHIN CARSON 1730-12 PLASTIC GREEN VALVE BOX.					LI-3, 5
	RAIN BIRD	44LRC 1" QUICK COUPLER VALVE WITH LOCKING VINYL COVER AND A LASCO G13S-218 SWING JOINT. INSTALL INSIDE A 10" ROUND VALVE BOX.					LI-3, 7
	AS APPROVED	PVC PIPE 2" AND LARGER, CL. 315 PVC, SOLVENT WELD WITH SCH. 80 PVC FITTINGS, SCHEDULE 40 PVC MAINLINE PIPE - 1 1/2" AND SMALLER WITH SCHEDULE 40 PVC FITTINGS SOLVENT WIELD. 18" MIN. COVER. ALL MAINLINE TO BE INSTALLED WITH TRACER WIRE. 24" MIN. COVER. AS MAINLINES INSTALLED 18" BELOW FINISHED GRADE.					LI-4, 4
	AS APPROVED	PVC PIPE 3/4" - 1-1/2" SCH. 40, SOLVENT WELD WITH SCH. 40 PVC FITTINGS, AS LATERAL LINES INSTALLED 12" BELOW FINISHED GRADE.					LI-4, 4
	AS APPROVED	PVC PIPE SCH. 40 AS SLEEVING, 2 TIMES THE DIAMETER OF PIPE OR WIRE BUNDLE CARRIED (2" MINIMUM SIZE) INSTALL ALL PIPE AND WIRE UNDER PAVING, HARDSCAPE, ETC. (OR AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE) INSIDE SLEEVES. SLEEVES UNDER PEDESTRIAN PAVING SHALL BE INSTALLED 24" BELOW FINISHED GRADE. ALL MAINLINE SLEEVES ARE TO BE CONSIDERED EXISTING VERIFY LOCATION IN FIELD. INSTALL MAINLINE SLEEVES 18" AWAY FROM EACH SIDE OF QUICK COUPLER VALVE.					LI-4, 6
NO SYMBOL	AS APPROVED	ALL SOLVENT WELD CONNECTIONS FOR BOTH MAINLINE AND LATERAL LINE SHALL BE MADE USING THE TWO-STEP PROCESS OF PRIMER AND SOLVENT CEMENT. PRIMER SHALL BE LOW VOC "PURPLE PRIMER". MAINLINE SOLVENT CEMENT SHALL BE WELD-ON 711 PVC INDUSTRIAL GRADE CEMENT. LATERAL LINE SOLVENT CEMENT SHALL BE WELD-ON 711 PVC INDUSTRIAL GRADE CEMENT. USE DAUBERS SIZED AT LEAST ONE-HALF THE SIZE OF THE LARGEST PIPE BEING JOINED. ALL SOLVENT CEMENTED JOINTS SHALL BE MADE PER THE PIPE AND FITTING MANUFACTURER'S RECOMMENDATIONS.					N/A
NO SYMBOL	3M	3M DIRECT BURY SPLICE KIT DBR/Y-6. DIRECT BURIAL (I.L. APPROVED) WATER-PROOF WIRE CONNECTORS FOR USE ON ALL WIRE SPLICES AND CONNECTIONS.					LI-4, 1
NO SYMBOL	CARSON	VALVE BOXES, SIZE PER EQUIPMENT LEGEND, WITH T-COVER LIDS AND CAPTIVE BOLT AND LOC-KIT. FOR ROUND AIR RELIEF VALVES USE MODEL 708, 10" ROUND SHALL BE MODEL 910, 12" STANDARD RECTANGULAR. SHALL BE MODEL 1419, 12" JUMBO RECT. SHALL BE MODEL 1220, SUPER JUMBO SHALL BE MODEL 1324, AND SUPER JUMBO XL SHALL BE MODEL 1730. FOR USE IN NON-VEHICULAR TRAFFIC SITUATIONS ONLY. DO NOT INSTALL IN CONCRETE, ASPHALT OR D.G.. VALVE BOX COVERS SHALL BE MARKED "RCV" WITH THE VALVE IDENTIFICATION NUMBER OR MV, FS,GV,BV HEAT BRANDED ONTO THE COVER IN 1-1/4" HIGH LETTERS / NUMBERS.					LI-4, 2
NO SYMBOL	CARSON	SPLICE BOX AS NECESSARY WITH T-COVER LIDS AND CAPTIVE BOLT AND LOC-KIT. 10" ROUND. SHALL BE MODEL 910. FOR USE IN NON-VEHICULAR TRAFFIC SITUATIONS ONLY. DO NOT INSTALL IN CONCRETE OR ASPHALT. SPLICE BOX COVERS SHALL BE MARKED "SB" HEAT BRANDED ONTO THE COVER IN 1-1/4" HIGH LETTERS / NUMBERS.					LI-4, 2
NO SYMBOL	PAIGE ELECTRIC	P7079D POLYETHYLENE INSULATED, SOLID COPPER CONDUCTOR IRRIGATION CONTROL WIRE #14UF AWG DIRECT BURIAL (U.L. APPROVED). PILOT WIRES SHALL BE RED IN COLOR, COMMON GROUND WIRE SHALL BE WHITE IN COLOR, SPARE WIRES SHALL BE YELLOW IN COLOR. WHERE MULTIPLE CONTROLLERS ARE USED ON THE PROJECT, EACH CONTROLLER SHALL HAVE A DIFFERENT COLOR FOR PILOT WIRES. THE CONTRACTOR SHALL ROUTE TWO (2) SPARE CONTROL WIRES (YELLOW) FROM THE CONTROLLER ALONG THE MAINLINE IN ALL DIRECTIONS AWAY FROM THE CONTROLLER. LOOP SPARE WIRES UP AND INTO EACH VALVE BOX ALONG THE MAINLINE, PROVIDING A 3 FOOT MINIMUM LOOP.					N/A

THE PORTIONS OF THE PLANS REGARDING IRRIGATION DESIGN ASPECTS OF THE PROJECT HAVE BEEN REVIEWED AND APPEAR TO BE IN SUBSTANTIAL CONFORMANCE WITH THE RECOMMENDATIONS CONTAINED IN THE CITY OF LOS ANGELES MODEL WATER EFFICIENT LANDSCAPE ORDINANCE, DATE: 02-29-2016. WE MAKE NO REPRESENTATIONS OF THE ACCURACY OF THE DIMENSIONS, MEASUREMENTS, CALCULATIONS OR ANY PORTION OF THE DESIGN.

"I HAVE COMPLIED WITH THE CRITERIA OF THE ORDINANCE AND APPLIED THEM ACCORDINGLY FOR THE EFFICIENT USE OF WATER IN THE IRRIGATION DESIGN PLAN."

BY: [signature]
NUVIS

DATE: 04/26/2021
RLA # 1891
EXP. 9/30/21

I AGREE TO COMPLY WITH THE REQUIREMENTS OF THE WATER EFFICIENT LANDSCAPE ORDINANCE AND SUBMIT A COMPLETE LANDSCAPE DOCUMENT PACKAGE.

BY: [signature]
NUVIS

DATE: 04/26/2021
RLA # 1891
EXP. 9/30/21

LOW WATER USE LANDSCAPE AREA (DRIP IRRIGATION):	1,012 S.F.(92%)
LOW WATER USE LANDSCAPE AREA (TREE BUBBLER IRRIGATION):	96 S.F. (08%)
MEDIUM WATER USE LANDSCAPE AREA (TREE BUBBLER IRRIGATION):	000 S.F. (0%)
MEDIUM WATER USE LANDSCAPE AREA (TREE DRIP IRRIGATION):	000 S.F. (0%)
HIGH WATER USE LANDSCAPE AREA (TURF IRRIGATION):	000 S.F. (0%)
TOTAL:	1,108 S.F. (100%)

NUVIS
LANDSCAPE ARCHITECTURE
20250 SW ACACA ST., SUITE 260
NEWPORT BEACH, CA
U. S. A. 92660
PH: 714.754.7311

USE OF DOCUMENTS

NO.	REVISION	DATE	BY

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

REGISTERED LANDSCAPE ARCHITECT
ROBERT W. STONE No. 1891
Signature
SEPTEMBER 30, 2021
Expiration Date
04/26/2021
Date
STATE OF CALIFORNIA

DESIGNED T.MORITA
DRAWN T.MORITA
CHECKED T.MUNOZ

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

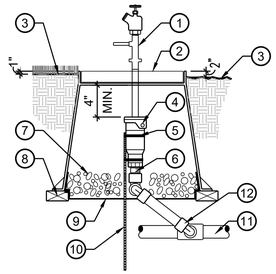
Kennedy Jenks
JOHN ROBINSON Consulting Inc.

IRRIGATION MATERIALS LEGEND AND NOTES

FILE NAME
JOB NO. 1944519.00
DATE 04-26-2021
SHEET LI-2 OF ##

NOTES:
1. TOP OF BOX: 1" ABOVE FINISH GRADE IN TURF AND 2" IN NON-TURF AREAS.
2. USE TEFLON TAPE ON ALL THREADED FITTINGS.

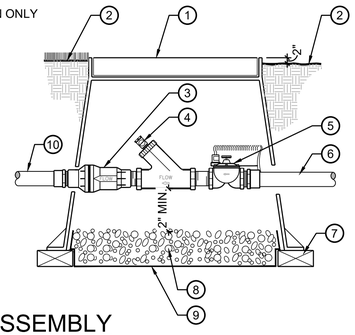
1. QUICK COUPLER KEY WITH MALE HOSE BIB CONNECTION AS SHOWN, KEY MUST CLEAR VALVE BOX
2. ROUND PLASTIC VALVE BOX WITH BOLT DOWN COVER USE STAINLESS BLOT NUT AND WASHER LABEL "QCV" ONTO LID
3. FINISH GRADE
4. QUICK COUPLER VALVE REFER TO LEGEND FOR SPECIFICATION
5. GALVANIZED PUNCH LOC (2 REQUIRED)
6. BRASS NIPPLE (LENGTH AS REQUIRED)
7. 3/4" CRUSHED GRAVEL, 2 CUBIC FEET
8. BRICK SUPPORT
9. LANDSCAPE FABRIC TO COVER BOTTOM AND ALL SIDES OF VALVE BOX
10. #4x36" REBAR STAKE
11. MAINLINE, SEE SPECIFICATIONS
12. PRE-ASSEMBLED TRIPLE SWING ARM (REFER TO LEGEND)



7 QUICK COUPLING VALVE ASSEMBLY
NO SCALE

NOTES:
1. FINISH GRADE: 1" BELOW FINISH SURFACE ADJACENT TO TURF AND 2" BELOW ADJACENT TO NON-TURF AREAS.

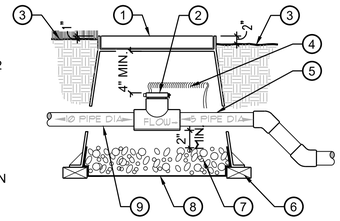
1. PLASTIC RECTANGULAR 'JUMBO' VALVE BOX WITH BOLT DOWN COVER, USE STAINLESS BOLT, NUT, AND WASHER BOX TO BE PLACED AT RIGHT ANGLE TO HARDSCAPE EDGE. BRAND "RCV" AND CONTROL STATION # ONTO LID, 1 1/2"-2" HIGH LETTERING
2. FINISH GRADE, 2" DIMENSION ONLY
3. PRESSURE REGULATOR, REFER TO LEGEND
4. WYE FILTER, REFER TO LEGEND
5. R.C.V., REFER TO LEGEND
6. PVC MAINLINE
7. BRICK SUPPORTS
8. 3/4" WASHED CRUSHED GRAVEL
9. LANDSCAPE FABRIC TO COVER BOTTOM AND ALL SIDES OF VALVE BOX
10. PVC TO DRIP SYSTEM



5 DRIP RCV ASSEMBLY
SCALE: NTS

NOTES:
1. TOP OF BOX: 1" ABOVE FINISH SURFACE IN TURF AND 2" IN NON-TURF AREAS.
2. INSTALL FLOW SENSOR AS PER THE MANUFACTURER'S RECOMMENDATIONS, WIRE TO IRRIGATION CONTROLLER.
3. USE 45 DEGREE ELLS TO ACHIEVE MAINLINE DEPTH ON THE DOWN STREAM SIDE OF THE FLOW SENSOR.

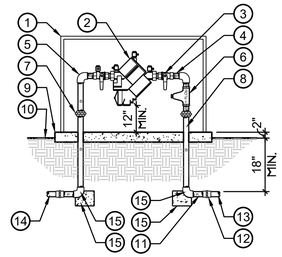
1. PLASTIC RECTANGULAR VALVE BOX WITH BOLT DOWN COVER, USE STAINLESS BOLT, NUT, AND WASHER. BOX TO BE PLACED AT RIGHT ANGLE TO HARDSCAPE EDGE. BRAND 'FS' ONTO LID, 1 1/2"-2" HIGH LETTERING
2. FLOW SENSOR, SEE LEGEND FOR SPECIFICATION
3. FINISH GRADE
4. 24" WIRE LOOP
5. PVC MAINLINE PIPE
6. BRICK SUPPORTS
7. 3/4" WASHED CRUSHED GRAVEL, 2 CUBIC FT.
8. LANDSCAPE FABRIC TO COVER BOTTOM AND ALL SIDES OF FLOW SENSOR BOX
9. PVC MAINLINE PIPE TO MASTER VALVE (NOT LESS THAN 10 PIPE DIAMETERS) PER SPECS AND PLAN



3 FLOW SENSOR
NO SCALE

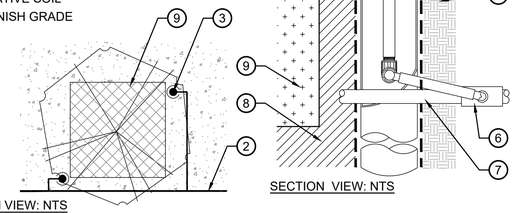
NOTES:
1. IF WYE STRAINER OR PRESSURE REGULATOR IS SPECIFIED, INSTALL ON EITHER THE HORIZONTAL PIPING OR ON THE DOWNSTREAM LEG AS SPACE PERMITS.
2. CONCRETE SLAB SHALL BE MINIMUM 4" THICK, 18" WIDE AND EXTEND AT LEAST 8" PAST THE BACKFLOW ASSEMBLY PIPING. IF BACKFLOW ENCLOSURE IS SPECIFIED IN THE LEGEND, THE CONCRETE SLAB SHALL BE THE SIZE REQUIRED BY THE MANUFACTURER.

1. BACKFLOW ENCLOSURE
2. R/P DEVICE SEE LEGEND FOR SPECIFICATIONS
3. BRASS BALL VALVE (TYP.)
4. BRASS NIPPLES MINIMUM 4"
5. BRASS ELL, 4 REQUIRED
6. PRESSURE REGULATOR OR WYE STRAINER
7. BRASS UNION, 2 REQUIRED
8. BRASS RISERS. LENGTH AS REQUIRED
9. CONCRETE SLAB, SEE NOTES
10. FINISH GRADE
11. SCH 80 PVC NIPPLE 6" MINIMUM
12. SCH 80 PVC FEMALE ADAPTER
13. PVC MAINLINE TO MASTER VALVE
14. PVC MAINLINE FROM METER
15. 12"x12"x12"x CONCRETE THRUST BLOCK FOR 3" DIA. PIPE OR SMALLER



1 3" AND SMALLER REDUCED PRESSURE BACKFLOW
NO SCALE

1. ROOT WATERING SYSTEM ASSEMBLY: RAINBIRD RWS-B-C-1402 4" DIA. X 36" LENGTH (INCLUDES 1402 0.50GPM BUBBLER W/ RISER, CHECK VALVE, GRATE, SWING ASSEMBLY, 1/2" MALE NPT INLET AND BASKET CANISTER)
2. PVC LATERAL LINE PIPE. SEE SPECIFICATIONS FOR TYPE AND DEPTH REQUIREMENTS
3. ROOT WATERING SYSTEM PER LEGEND
4. ROOT BALL OF TREE
5. RWS SAND SOCK (RWS-SOCK)
6. PVC SCH. 40 TEE OR ELL
7. PVC LATERAL LINE
8. AMENDED BACKFILL
9. ROOT BALL OF TREE
10. NATIVE SOIL
11. FINISH GRADE



PLAN VIEW: NTS

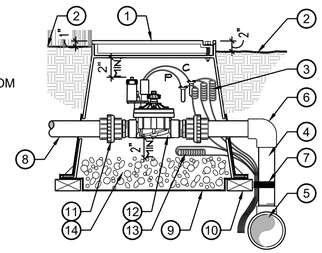
SECTION VIEW: NTS

8 TREE BUBBLER
SCALE: NTS

NOTES:
1. 2 BUBBLERS MIN. PER TREE

NOTES:
1. TOP OF BOX: 1" ABOVE FINISH SURFACE IN TURF AND 2" IN NON-TURF AREAS.

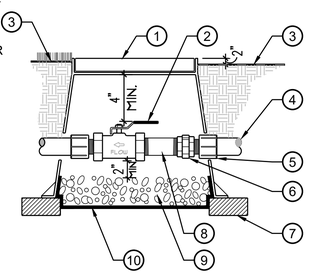
1. PLASTIC RECTANGULAR VALVE BOX WITH T-COVER AND CAPTIVE STAINLESS STEEL BOLT AND LOC-KIT. INSTALL BOX AT RIGHT ANGLE TO ADJACENT HARDSCAPE EDGE. LABEL "RCV" AND CONTROL STATION NUMBER ONTO LID
2. FINISH SURFACE
3. 24" WIRE LOOPS WITH WATERPROOF WIRE CONNECTORS
4. SCH.40 PVC PIPE OR SCH.80 T.O.E. NIPPLE WITH D.I. SERVICE TEE
5. SCH.80 PVC SLIP TEE OR LEEMCO DUCTILE IRON BBT SERVICE TEE FOR USE ON BELL AND GASKET MAINLINE PIPER
6. SCH.80 PVC SLIP 90° ELL
7. TAPE WIRES TO PIPE
8. SCH.40 PVC PIPE, SIZE PER RCV, TYP.
9. LANDSCAPE FABRIC TO COVER BOTTOM AND ALL SIDES OF VALVE BOX
10. BRICK SUPPORTS (4 TOTAL)
11. LASCO #896 PVC UNION SLIP X MIPT, SIZE PER RCV, TWO (2) REQUIRED FOR ASSEMBLY
12. ELECTRIC REMOTE CONTROL VALVE
13. SPARE CONTROL WIRE LOOP 48" LENGTH INTO EACH RCV BOX
14. 3/4" CRUSHED GRAVEL, 2 CUBIC FEET



6 REMOTE CONTROL VALVE ASSEMBLY
NO SCALE

NOTES:
1. BOX TO BE INSTALLED TO ALLOW FOR PROPER OPERATION OF BALL VALVE.
2. INSTALL BOX AT RIGHT ANGLE TO HARDSCAPE EDGE, INSTALL VALVE OFF-CENTER IN BOX TO ALLOW FOR HANDLE MOVEMENT.
3. INSTALL VALVE BOX EXTENSIONS AS REQUIRED TO ACHIEVE PROPER VALVE INSTALLATION AT MAINLINE DEPTH.
4. FINISH GRADE: 1" BELOW FINISH SURFACE ADJACENT TO TURF AND 2" BELOW ADJACENT TO NON-TURF AREAS.

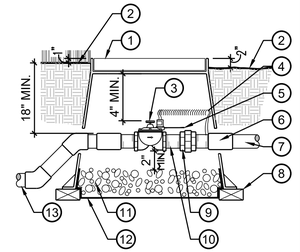
1. PLASTIC RECTANGULAR VALVE BOX WITH BOLT DOWN COVER, USE STAINLESS BOLT, NUT, AND WASHER BRAND "BV" ONTO LID, 1 1/2"-2" HIGH LETTERING
2. BALL VALVE, REFER TO LEGEND FOR SPECIFICATIONS
3. FINISH GRADE
4. PRESSURE SUPPLY LINE, DEPTH PER SPECIFICATIONS
5. PVC MALE ADAPTER
6. BRASS UNION
7. BRICK SUPPORTS (4 TOTAL)
8. BRASS NIPPLE
9. 3/4" WASHED CRUSHED GRAVEL, 2 CUBIC FEET
10. LANDSCAPE FABRIC TO COVER BOTTOM AND ALL SIDES OF VALVE BOX



4 BALL VALVE
NO SCALE

NOTES:
1. USE 45 DEGREE ELLS TO ACHIEVE MAINLINE DEPTH FROM UP-STREAM SIDE OF THE MASTER VALVE ASSEMBLY.
2. TOP OF BOX: 1" ABOVE FINISH SURFACE IN TURF AND 2" IN NON-TURF AREAS.
3. REFER TO LEGEND FOR MORE INFORMATION

1. PLASTIC RECTANGULAR VALVE BOX WITH BOLT DOWN COVER, USE STAINLESS BOLT, NUT, AND WASHER BOX TO BE PLACED AT RIGHT ANGLE TO HARDSCAPE EDGE. LABEL "MV" ONTO LID
2. FINISH GRADE
3. MASTER CONTROL VALVE
4. 24" WIRE LOOPS WITH WATERPROOF WIRE CONNECTORS
5. VALVE ID TAG
6. PVC SCH 40 FEMALE ADAPTER, 2 REQUIRED
7. PVC MAINLINE TO FLOW SENSOR, PIPE PER SPECS
8. BRICK SUPPORTS (4 TOTAL)
9. BRASS UNION
10. BRASS NIPPLE TYP.
11. 3/4" CRUSHED GRAVEL, 2 CUBIC FEET
12. LANDSCAPE FABRIC TO COVER BOTTOM AND ALL SIDES OF VALVE BOX
13. PVC MAINLINE PIPE FROM BASKET STRAINER PER SPECS



2 MASTER CONTROL VALVE
NO SCALE

nuvis
LANDSCAPE ARCHITECTURE
20250 SW ACACA ST., SUITE 260
NEWPORT BEACH, C A
U. S. A. 92660
PH: 714.754.7311

NO.	REVISION	DATE	BY

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

REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT — M. STONE — No. 5891 — STATE OF CALIFORNIA
Signature
SEPTEMBER 30, 2021
Expiration Date
04/26/2021
Date

DESIGNED T.MORITA
DRAWN T.MORITA
CHECKED T.MUNOZ

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

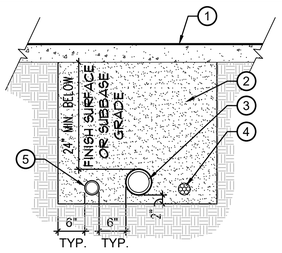
Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

IRRIGATION DETAILS

FILE NAME
JOB NO. 1944519.00
DATE 04-26-2021
SHEET LI-3 OF ##

NOTES:
1. PVC SLEEVES TO BE TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE CARRIED.
2. DETAIL ALSO FOR PIPE INSTALLED IN ROCK SOIL.
3. ALL SLEEVES TO BE SCHEDULE 40 PVC.
4. EXTEND ALL SLEEVES 12" BEYOND EDGE OF HARDSCAPING AT BOTH ENDS.
5. 24" MINIMUM COVER ON MAINLINE 3" AND LARGER.

1. FINISH SURFACE
2. CLEAN SAND BACKFILL MINIMUM 90% COMPACTION
3. PRESSURE MAINLINE IN SCHEDULE 40 SLEEVE - SIZE SLEEVE TWICE DIAMETER OF PRESSURE SUPPLY LINE
4. CONTROL WIRES IN SLEEVE - SIZE PER PLAN. INSTALL ADJACENT TO PRESSURE SUPPLY LINE
5. NON-PRESSURE LATERAL LINE IN SLEEVE TWICE DIAMETER OF LATERAL LINE

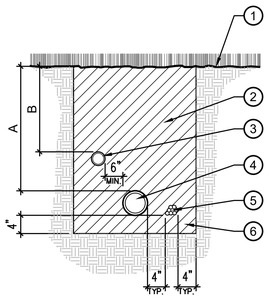


6 TYPICAL SLEEVING
NO SCALE

NOTES:
1. PIGTAIL AND LOOP CONTROL WIRE AT ALL 90° CHANGES IN DIRECTION.
2. PROVIDE A MINIMUM 10 FEET SEPARATION BETWEEN POTABLE AND RECLAIMED MAINLINE PIPING.
3. 24" MINIMUM COVER ON 3" MAINLINE AND LARGER.

1. FINISH GRADE
2. CLEAN BACKFILL - 90% COMPACTION REQUIRED
3. NON-PRESSURE LATERAL LINE. SNAKE PIPE IN TRENCH
4. PRESSURE SUPPLY LINE SNAKE PIPE IN TRENCH
5. CONTROL WIRES - BUNDLE AND TAPE AT 10' O.C. AND INSTALL ADJACENT TO PRESSURE SUPPLY LINE

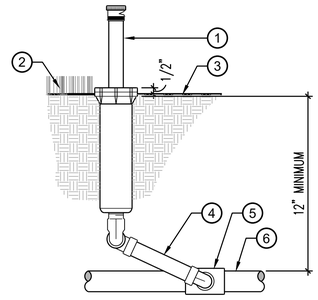
DIMENSION	A	B
1/2" TO 2-1/2" IN SIZE	18"	12"
3" TO 6" IN SIZE	24"	



4 TYPICAL TRENCHING
NO SCALE

NOTES:
1. LOCATE SPRINKLER HEADS 24" FROM WALKS, CURBS, MOWSTRIP AND HEADER BOARDS EDGE IN TURF AND GROUNDCOVER AREAS.
2. INSTALL SPRINKLER HEADS PLUMB. ADJUST SPRAYS OR NOZZLE STREAM TO COVER LANDSCAPE AREA WITHOUT OVERSPRAY ONTO PAVING, FENCES, WALLS OR BUILDINGS.

1. POP-UP SPRINKLER HEAD, SPRAY OR ROTOR REFER TO LEGEND FOR SPECIFICATIONS
2. INSTALL SPRINKLER HEAD FLUSH WITH FINISHED GRADE IN TURF AREAS
3. INSTALL SPRINKLER HEAD 1/2" ABOVE FINISHED GRADE IN SHRUB AREAS
4. PRE-ASSEMBLED TRIPLE SWING ARM (REFER TO LEGEND), LAY LENGTH TO BE 6" MINIMUM SIZE AS PER SPRINKLER OUTLET
5. SCH 40 PVC SxSxT TEE FITTING LATERAL x SPRINKLER INLET SIZE
6. LATERAL LINE, REFER TO SPECIFICATIONS FOR TYPE AND DEPTH REQUIRED

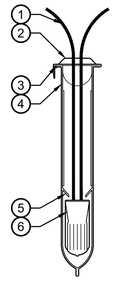


SECTION

3 POP-UP SPRAY HEAD
NO SCALE

NOTES:
1. KIT SHALL INCLUDE A SCOTCHLOK Y SPRING CONNECTOR, A POLYPROPYLENE TUBE AND A WATERPROOF SEALING GEL. TUBE SHALL BE SUPPLIED PRE-FILLED WITH GEL.
2. DIRECT BURY SPLICE KIT SHALL BE USED TO ELECTRICALLY CONNECT 2-3 #14 OR TWO (2) #12 PRE-STRIPPED COPPER WIRES. LARGER WIRES OR GREATER QUANTITIES OF WIRES SHALL REQUIRE A LARGER APPROVED WIRE CONNECTION.

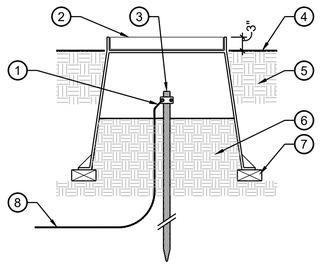
1. LOW VOLTAGE WIRES, THREE (3) MAXIMUM
2. WIRES PASS THROUGH GROOVES IN TUBE LID TO ALLOW LID TO CLOSE
3. CLOSE TUBE LID AFTER WIRE IS INSERTED INTO TUBE
4. POLY TUBE PRE-FILLED WITH WATERPROOF GEL
5. LOCK TABS PREVENTS WIRE REMOVAL ONCE CONNECTOR IS INSERTED
6. SCOTCHLOK ELECTRICAL SPRING CONNECTOR WIRES SHALL BE PRE-STRIPPED OF 1/2" OF THE INSULATION PRIOR TO INSERTION INTO THE CONNECTOR. TWIST CONNECTOR ONTO WIRES TO SEAT FIRMLY. SCOTCHLOK CONNECTOR AND WIRES INSERTED INTO TUBE UNTIL THE CONNECTOR PASSES LOCK TABS



1 TYP. WIRE CONNECTION
SCALE: NTS

NOTES:
1. FINISH GRADE: 2" BELOW FINISH SURFACE ADJACENT TO TURF AND 3" BELOW ADJACENT TO NON-TURF AREAS.

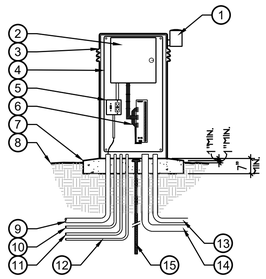
1. BARE COPPER GROUND WIRE (#6) CONNECT TO ROD W/ BRASS CLAMP
2. PLASTIC RECTANGULAR VALVE BOX HEAT BRAND "GR" ONTO LID
3. 5/8"x8' COPPER CLAD GROUND ROD
4. FINISH GRADE
5. NATIVE OR UNDISTURBED SOIL
6. FILL 1/2 OF BOX WITH COMPACTED SIT SOIL
7. BRICK SUPPORTS (4 REQ.)
8. BARE COPPER GROUND WIRE (#6) FROM CONTROLLER



7 GROUNDING ROD INSTALLATION
SCALE: NTS

NOTES:
1. PILOT WIRES SHALL BE ONE COLOR FOR EACH CONTROLLER. COMMON WIRES SHALL BE WHITE WITH DIFFERENT COLOR STRIPES FOR EACH AUTOMATIC CONTROLLER.
2. NO SPLICES SHALL BE MADE BETWEEN CONTROLLER AND REMOTE CONTROL VALVE UNDER 500 LINEAL FEET.
3. CONTROL WIRING SEQUENCE CORRESPONDS TO OPERATING SEQUENCE OF REMOTE CONTROL VALVES AND AUTOMATIC SPRINKLER CONTROL UNIT STATION CONNECTION SEQUENCE. SEQUENCE SHOWN ON DETAIL IS FOR REFERENCE ONLY. SEE IRRIGATION PLAN FOR CORRECT VALVE SEQUENCE.

1. RAIN SENSOR ATTACHED TO ENCLOSURE PER MANUFACTURERS RECOMMENDATIONS
2. CONTROLLER - REFER TO LEGEND FOR MAUFACTURER AND MODEL
3. STAINLESS STEEL, 18" OR 24" WIDE FRONT ENTRY CONTROLLER ENCLOSURE NEMA 3R RAINPROOF RATED
4. STAINLESS STEEL, U.L. LISTED. PREDRILLED, REMOVABLE BACKBOARD
5. POWER SWITCH AND RECEPTACLE
6. TERMINAL STRIP FOR REMOTE CONTROL VALVE WIRE CONNECTIONS
6. CONCRETE PAD - CL 520-C-2500. CONCRETE PAD MUST BE CONSTRUTED TO ENSURE 6" CLEARANCE AROUND THE ENCLOSURE. INSTALL A MINIMUM OF 3" ABOVE GRADE AND SLOPE TOP TO DRAIN AT A MINIMUM OF 2%
8. FINISH GRADE
9. 1 1/4" PVC CONDUIT FOR ELECTRIC SERVICE
10. 1" PVC CONDUIT FOR ET GAUGE WIRES (IF REQUIRED)
11. 1" PVC CONDUIT FOR TELEPHONE CONNECTION (IF REQUIRED)
12. 1" PVC CONDUIT FOR FLOW SENSOR / MCV WIRES (IF REQUIRED)
13. 1 1/4" PVC CONDUIT FOR COMMUNICATION CABLE TO OTHER CONTROLLERS (IF REQUIRED)
14. 3" PVC CONDUIT FOR CONTROL WIRES TO VALVES
15. 5/8"~ x 8' COPPER GROUND ROD W/ #10 GROUND WIRE AND CLAMP

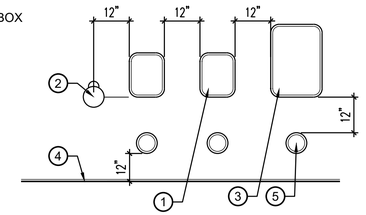


SECTION

5 PEDESTAL MOUNTED CONTROLLER
NO SCALE

NOTES:
1. CENTER VALVE BOX OVER REMOTE CONTROL VALVE TO FACILITATE SERVICING VALVE.
2. SET BOXES 2" ABOVE FINISH GRADE OR MULCH COVER IN GROUNDCOVER/SHRUB AREA AND 1" ABOVE FINISH GRADE IN TURF AREA.
3. SET RVC AND VALVE BOX ASSEMBLY IN GROUNDCOVER/SHRUB AREA WHERE POSSIBLE. INSTALL IN LAWN ONLY IF GROUNDCOVER DOES NOT EXIST ADJACENT TO LAWN.
4. SET BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO EDGE.
5. AVOID HEAVILY COMPACTING SOIL AROUND VALVE BOXES TO PREVENT COLLAPSE AND DEFORMATION OF VALVE BOX SIDES.
6. BRAND VALVE BOX WITH CONTROLLER LETTER AND VALVE NUMBER USING 1 1/2 -2" LETTERING

1. TYPICAL 16"x21" RECTANGULAR VALVE BOX
2. TYPICAL QUICK COUPLING VALVE
3. TYPICAL 19"x26" OR LARGER VALVE BOX
4. EDGE OF LAWN, WALK, FENCE, CURB, ETC.
5. TYPICAL ROUND BALL VALVE BOX



2 VALVE BOX INSTALLATION
NO SCALE

nuvis
LANDSCAPE ARCHITECTURE
20250 SW ACACA ST., SUITE 260
NEWPORT BEACH, CA
U.S.A. 92660
PH: 714.754.7311

NO.	REVISION	DATE	BY

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

REGISTERED LANDSCAPE ARCHITECT — No. 4787 — STATE OF CALIFORNIA
Signature
SEPTEMBER 30, 2021
Expiration Date
04/26/2021
Date

DESIGNED	T.MORITA
DRAWN	T.MORITA
CHECKED	T.MUNOZ

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

IRRIGATION DETAILS

FILE NAME	
JOB NO.	1944519.00
DATE	04-26-2021
SHEET	LI-4 ##
OF	

BARRETT ENGINEERED PUMPS

SPECIALISTS IN PUMPS AND PUMPING SYSTEMS

PROJECT: SAN FERNANDO – UPPER RESERVOIR **December 2, 2020**

SYSTEM DESIGN PARAMETERS

IBCM1-.5-2-1.5/VFD-F/QP System Model Number	5 GPM System Design Flow Rate	45 PSI System Design Pressure	1 ½ INCH System Piping Size
0 PSI (flooded – reservoir) Minimum Suction Pressure	208/230 or 460 VAC System Electrical Voltage	1 or 3 PHASE 60 Hz System Electrical Phase and Frequency	
CM1-3 Pump Model Number	5 GPM Pump Capacity (GPM)	110 FEET Pump Total Head (Feet)	
1/2 HP Pump Horsepower	3500 RPM Pump RPM	System Full Load Amperage	

BOOSTER PUMP ASSEMBLY

1.1 Simplex water pressure booster system as designed and fabricated by Barrett Engineered Pumps. The system shall be a completely prefabricated system with pump, piping, electrical and structural elements.

1.2 Pump shall be:

1.2.1 Horizontal multi-stage centrifugal. Pump construction shall be stainless fitted with stainless steel casing, stainless steel impellers and bowls. Pump shall be equipped with mechanical seal. Pump shall be directly coupled to a C-face electric motor.

1.3 Electric motor shall be of the squirrel cage induction type suitable for full voltage starting. Motor shall be ODP to aid in cooling. Electric motor shall be rated for continuous service. The motor shall conform to the latest NEMA Standards for motor design and construction.

1.4 Pump Control Panel shall have a NEMA 4X plain front non-metallic enclosure with padlock latches. The Control Panel shall include power and control reset-able thermal circuit breakers, heavy duty magnetic starter with adjustable overload protection, Hand-Off-Auto switch to select mode of operation, and heavy duty numbered terminal strips for power and control wiring lead terminations.

1.5 Metal oxide varistor protected pump start relay(s) incorporated in panel to start pump with signal from each irrigation controller.

1.6 All system piping shall be type304 stainless steel. All fittings shall be stainless, with unions or flanges to allow for system disassembly or major component removal.

1.7 Isolation valves shall be all brass quarter turn ball valves with hard chrome ball.

1.8 Gauges shall be 2½" diameter face, glycerin filled with stainless casing and brass internals.

1.9 Flow switch shall be a 316 stainless steel and solid state thermal sensor designed to measure change in flow velocity and in temperature. The flow switch shall include an integrated bar graph with 10 LED lights and shall be capable of providing indication of flow (green), closed (orange), and open (red) conditions.

1695 National Ave. San Diego CA 92113
Phone (619) 232-7867 • FAX (619) 232-3029
Represented by: Green Product Sales • (949) 584-7311 • gps10@earthlink.net

1.10 Pump system shall be mounted on a mounting pad assembly consisting of a reinforced plastic support base, a three sixteenth inch thick 5052 H32 Marine Grade Aluminum mounting pad and 304 grade stainless steel fastening brackets. The support base shall be installed and compacted in earth allowing the top two inches of the support base to be exposed above the earth. The 5052 H32 Marine Grade Aluminum mounting pad shall be clamped to the support base with the stainless steel fastening brackets.

1.11 The system enclosure shall be of a vandal and weather resistant nature manufactured entirely of marine grade aluminum alloy 5052-H32, with a wall thickness of one eighth inch. The mounting base shall be manufactured entirely of stainless steel. The main housing shall be of solid sheet construction punched on the sides with a rectangular pattern for viewing backflow operation. The length of the enclosure shall be expandable to allow for site adjustment. The enclosure shall have a mounting lip on one end and a locking mechanism on the other end. The mounting base shall be submerged into the concrete a minimum of two inches, positioning the enclosure 2 ½ inches above the concrete for drainage purposes. The locking mechanism shall be of the full release type, which allows for complete removal of the enclosure from its mounting base without the use of tools. The handle controlling the locking mechanism shall be concealed within the surface of the enclosure and provide for a padlock.

1.12 Pump Assembly shall include the following option(s):

- ❑ **(VFD-F)** Where specified by the System Design Parameters, a **Fuji Variable Frequency Drive** system to receive feedback signal from system mounted stainless steel pressure transducer, and in conjunction with internal software driven PID control loop maintain customer adjustable constant system discharge pressure by varying the speed of the pump in response to varying system load.

1.13 The services of a factory representative or trained service professional shall be made available on the job site to check installation and perform the startup and instruct operating personnel. A startup report containing voltage and amperage readings, suction and discharge pressure readings, estimated flow conditions, and general operating characteristics shall be submitted to the Owner.

1.14 One electronic set of operating and maintenance manual shall be provided to the owner after startup and shall include parts manuals for major components, performance curve for pump, general sequence of operation, and electrical schematic for control panel.

1.14 The warranty period shall be a non-prorated period of 36 months from date of purchase.

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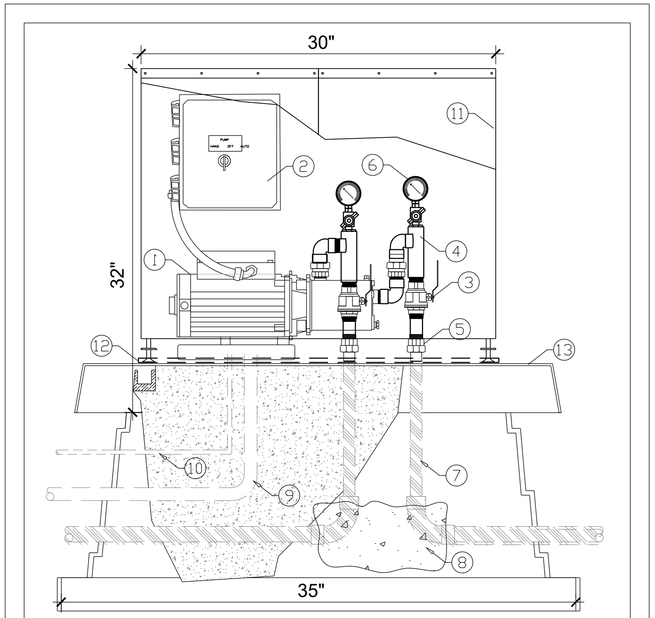
Phone (619) 232-7867 • FAX (619) 232-3029
Represented by: Green Product Sales • (949) 584-7311 • gps10@earthlink.net

2 ENGINEERED PUMP

NOT TO SCALE



KEYNOTE LEGEND

1. CLOSE-COUPLED CENTRIFUGAL PUMP, STAINLESS STEEL FITTED.
2. NEMA 4X SIMPLEX CONTROL PANEL FOR AUTOMATIC OPERATION.
3. STAINLESS 1/4 TURN BALL VALVE
4. 1.5 INCH TYPE 304 STAINLESS STEEL.
5. STAINLESS UNION ADAPTER.
6. PRESSURE GAUGE, 2 1/2" DIAL, LIQUID FILLED, STAINLESS CASE, 0 - 200 PSI.
7. CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL INLET AND OUTLET PIPING; BRASS OR CAST IRON. WRAP WITH 20 MIL TAPE; DOUBLE WRAP
8. CONCRETE THRUST BLOCKS WHERE APPLICABLE
9. MAIN POWER CONDUIT.
10. IRRIGATION CONTROLLER SIGNAL CONDUIT.
11. MARINE GRADE ALUMINUM ENCLOSURE. MEASURES 20"D X 30"L X 32"H
12. STRUCTURAL ALUMINUM BASEPLATE.
13. QUICK PAD SUPPORT PAD - MEASURES 35' X 22"

BARRETT ENGINEERED PUMPS

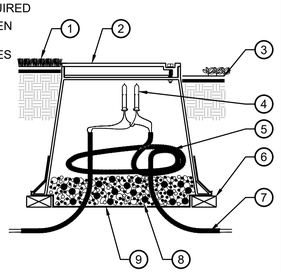
SIZE	DWG NO.	REV
	SAN FERNANDO UPPER RESERVOIR	
SCALE		SHEET

1 ENGINEERED PUMP DETAIL

NOT TO SCALE

NOTES:
1. TWO-WIRE PATH IN CONDUIT ONLY IF SPECIFIED ON LEGEND, SEE LEGEND.

1. FINISHED GRADE IN TURF AREA
2. PLASTIC RECTANGULAR VALVE BOX WITH A TAN COLORED LID AND LOCK KIT. INSTALL BOX AT RIGHT ANGLE TO THE ADJACENT HARDSCAPE EDGE. HEAT BRAND "PB" ONTO LID
3. FINISHED GRADE IN SHRUB AREA
4. 3M DBR/Y-6 WATERPROOF WIRE CONNECTORS
5. PROVIDE A 48" LONG COIL OF THE TWO WIRE PATH (FOR CONTROL VALVES, MASTER VALVE/FLOW SENSOR OR COMMUNICATION CABLE) IN EACH PULL BOX USED. PULL BOXES FOR SLEEVE CROSSING DO NOT REQUIRE WATERPROOF CONNECTORS UNLESS SPLICES ARE REQUIRE
6. BRICK SUPPORTS, FOUR (4) REQUIRED
7. TWO-WIRE PATH (CABLE) BETWEEN THE CONTROLLER AND ALL FIELD EQUIPMENT AND CONTROL VALVES
8. 3/4" CRUSHED GRAVEL, 4" MINIMUM DEPTH
9. LANDSCAPE FABRIC TO COVER BOTTOM AND ALL SIDES OF VALVE BOX



3 PULL BOX

SCALE: NTS

NUVIS
LANDSCAPE ARCHITECTURE
20250 SW ACACA ST., SUITE 260
NEWPORT BEACH, C A
U. S. A. 92660
PH: 714.754.7311

NO.	REVISION	DATE	BY

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

REGISTERED LANDSCAPE ARCHITECT — STONE No. 4971 — Signature — SEPTEMBER 30, 2021 Expiration Date — 04/26/2021 Date — STATE OF CALIFORNIA

DESIGNED	T.MORITA
DRAWN	T.MORITA
CHECKED	T.MUNOZ

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

IRRIGATION CALCULATIONS AND DETAILS

FILE NAME	
JOB NO.	1944519.00
DATE	04-26-2021
SHEET	LI-5 ##
OF	

Estimated Total Water Use

Equation: $ETWU = ET_o \times 0.62 \times [((PF \times HA)/IE) + SLA]$; Considering precipitation $ETWA = (ETo-Eppt) \times 0.62 \times [((PF \times HA)/IE) + SLA]$

Enter values in Pale Blue Cells

Tan Cells Show Results

Messages and Warnings

Irrigation Efficiency Default Value for overhead 0.75 and drip 0.81.

Plant Water Use Type	Plant Factor
Very Low	0 - 0.1
Low	0.2 - 0.3
Medium	0.4 - 0.6
High	0.7 - 1.0
SLA	1.0

Hydrozone	Select System From the Dropdown List click on cell below	Plant Water Use Type (s) (low, medium, high)	Plant Factor (PF)	Hydrozone Area (HA) (ft^2) Without SLA	Irrigation Efficiency (IE)	(PF x HA (ft^2))/IE
Zone 1	Overhead Spray	Low	0.30	48	0.75	19
Zone 2	Overhead Spray	Low	0.30	48	0.75	19
Zone 3	Drip	Low	0.30	1,012	0.81	375
Zone 4						
Zone 5						
Zone 6						
Zone 7						
Zone 8						
Zone 9						
Zone 10						
Zone 11						
Zone 12						
Zone 13						
Zone 14						
Zone 15						
Zone 16						
Zone 17						
Zone 18						
Zone 19						
Zone 20						
Zone 21						
Zone 22						
Zone 23						
Zone 24						
Zone 25						
Zone 26						
Zone 27						
Zone 28						
Zone 29						
Zone 30						
Zone 31						
Zone 32						
Zone 33						
Zone 34						
Zone 35						
						413
		SLA		0		0
			Sum	1,108		

Total Landscape Area including Special Landscape

Results

MAWA = 15,332

ETWU =	
12,706	Gallons
1,699	Cubic Feet
16.99	HCF
0.04	Acre-feet
0.01	Millions of Gallons

ETWU complies with MAWA

C WATER EFFICIENT LANDSCAPE WORKSHEET

WATER PRESSURE CALCULATIONS			
POC NUMBER	A	POC SIZE	1"
HYDRAULIC GRADE LINE	-	POC ELEVATION	-
ELEVATION DIFFERENCE	-	MINIMUM STATIC WATER PRESSURE	45
REMOTE CONTROL VALVE #	A3	REMOTE CONTROL VALVE SIZE	1"
R.C.V. DEMAND (GPM)	5.1	TOTAL DEMAND (GPM)	30
HIGHEST HEAD ELEVATION	-	STATIC PRESSURE AT R.C.V.	-

SIZE	DESCRIPTION		PSI LOSS	
1"	SERVICE LINE	1	0.0	PSI
1"	WATER METER	2	1.0	PSI
1"	BACKFLOW	3	12.0	PSI
1"	GATE VALVES	4	0.5	PSI
1"	MASTER CONTROL VALVE	5	0.5	PSI
1"	50 FEET OF MAINLINE: TYPE CLASS 200	6	2.0	PSI
-	FEET OF MAINLINE: TYPE	7	-	PSI
1"	REMOTE CONTROL VALVE	8	2.0	PSI
10%	LATERAL LINE LOSS	9	1.6	PSI
10%	FITTING LOSS	10	1.8	PSI
0	FT. OF ELEVATION CHANGE (P.O.C. TO HIGHEST HEAD)	11	0.0	PSI
TOTAL SYSTEM PRESSURE LOSS (SUM OF #1 THRU #11)		12	21.4	PSI
PRESSURE REQUIRED AT HEAD		13	30.0	PSI
TOTAL PRESSURE REQUIRED (SUM OF #12 AND # 13)		14	51.4	PSI
STATIC WATER PRESSURE (FROM ABOVE)		15	45.0	PSI
RESIDUAL PRESSURE (SUBTRACT # 14 FROM # 15)		16	-6.4	PSI
SET PRV OR MCV AT (# 14 PLUS 10 PSI)		17	0.0	PSI
PRESSURE BOOST, IF REQUIRED (#14-#15 + 20 PSI)		18	0.0	PSI

A PRESSURE LOSS CALCULATIONS

Maximum Applied Water Allowance Calculations for New and Rehabilitated Non-Residential Landscapes

Enter value in Pale Blue Cells

Tan Cells Show Results

Messages and Warnings

Click on the blue cell on right to Pick City Name	San Fernando	City of San Fernando
ET_o of City from Appendix A	52.00	ET_o (inches/year)
	96	Overhead Landscape Area (ft^2)
	1012	Drip Landscape Area (ft^2)
	0	SLA (ft^2)
Total Landscape Area	1,108	
Results:		
$(ET_o) \times (0.62) \times [(0.45 \times LA) + (1.0 - 0.45) X\ SLA)]$	16,075	Gallons
	2,149	Cubic Feet
	21	HCF
	0	Acre-feet
	0	Millions of Gallons
MAWA calculation incorporating Effective Precipitation (Optional) **Precipitation (Optional)**		
ET_o of City from Appendix A	52	ET_o (inches/year)
Total Landscape Area	1,108	LA (ft^2)
Special Landscape Area	0	SLA (ft^2)
		Total annual precipitation (inches/year)
Enter Effective Precipitation	0.00	Eppt (in/yr)(25% of total annual precipitation)
Results:		
$MAWA = [(ET_o - Eppt) \times (0.62)] \times [(0.45 \times LA) + ((1.0 - 0.45) \times SLA)]$	-	Gallons
	-	Cubic Feet
	-	HCF
	-	Acre-feet
	-	Millions of Gallons

B WATER EFFICIENT LANDSCAPE WORKSHEET

NUVIS
LANDSCAPE ARCHITECTURE
20250 SW ACACA ST., SUITE 260
NEWPORT BEACH, CA
U. S. A. 92660
PH: 714.754.7311

NO.	REVISION	DATE	BY

SCALES

0 — 1"

0 — 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED LANDSCAPE ARCHITECT — W. STONE — Signature — SEPTEMBER 30, 2021 — Expiration Date — 04/26/2021 — Date — STATE OF CALIFORNIA

DESIGNED T.MORITA

DRAWN T.MORITA

CHECKED T.MUNOZ

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks — John Robinson Consulting Inc.

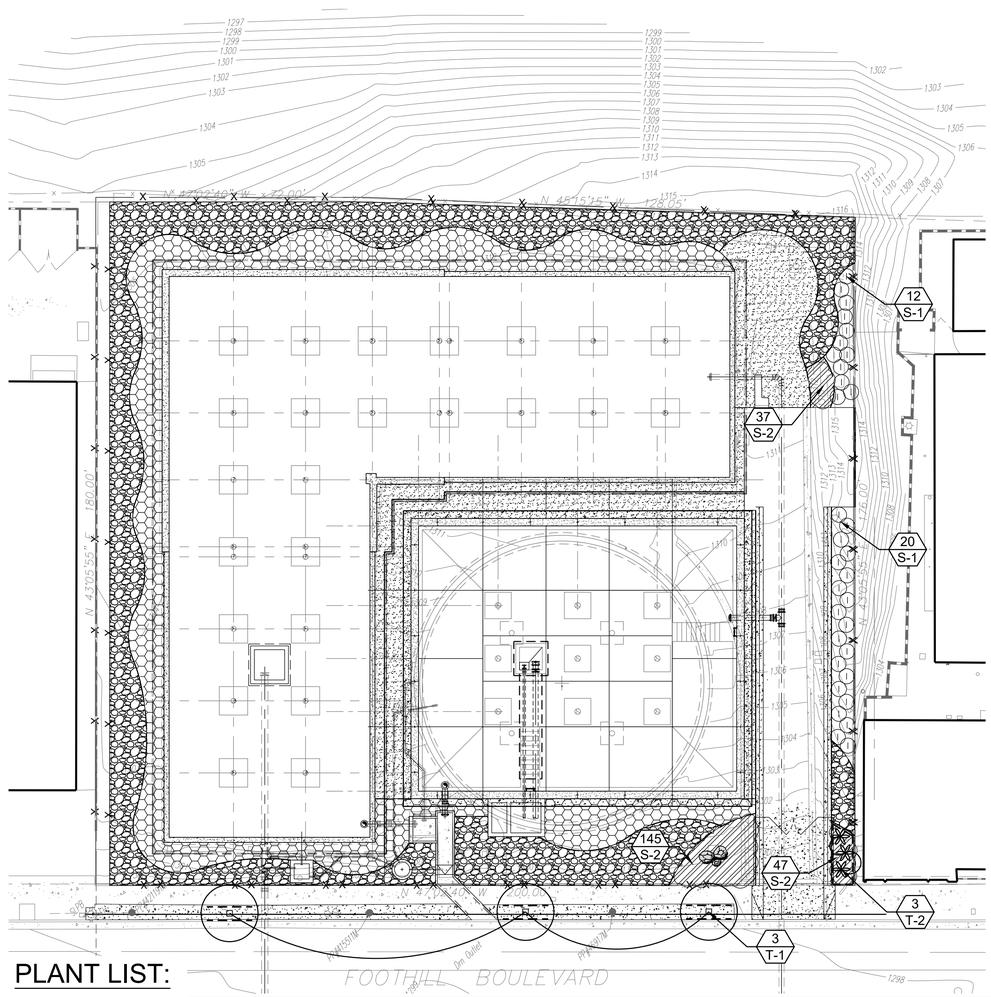
IRRIGATION CALCULATIONS AND DETAILS

FILE NAME

JOB NO. 1944519.00

DATE 04-26-2021

SHEET LI-6 OF ##

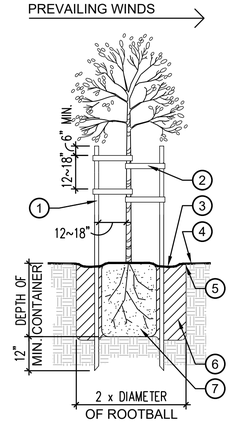


PLANT LIST:

CODE	SYMBOL	SCIENTIFIC NAME	COMMON NAME	SPACING	QTY	WUCOLS (WATER USE)	SIZE
	TREES						
T-1		LAGERSTROEMIA X FAURIEI 'TUSCARORA'	TUSCARORA CRAPE MYRTLE	PER PLAN	3	MOD	24" BOX STD.
T-2		TRACHYCARPUS FORTUNEI	CHINESE WINDMILL PALM	PER PLAN	3	LOW	24" BOX
	SHRUBS						
S-1		AGAVE ATTENUATA 'VARIEGATA'	VARIEGATED FOX TAIL AGAVE	48" O.C	32	LOW	5 GAL
S-3		SENECIO MANDRALISCAE	KLEINIA	18" O.C.	229	LOW	1 GAL

NOTES:
1. CROWN OF ROOTBALL TO BE 1" ABOVE FINISH GRADE.
2. FOR ADDITIONAL INFORMATION REFER TO PLANTING NOTES AND SPECIFICATIONS.

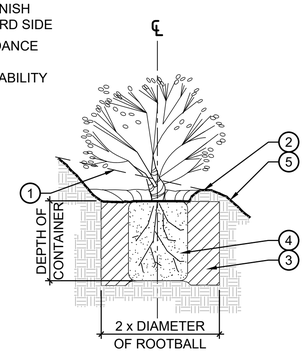
1. 2"Ø MINIMUM X 10' LODGE POLE STAKE BOTH SIDES, OR 'TOMAHAWK TREE STABILIZER SYSTEM' (800) 845-3343, OR APPROVED EQUAL
2. CINCH TIE, ARBOR TIE, OR APPROVED EQUAL
3. A SHALLOW BASIN 2" DEEP SHALL BE FORMED AROUND BALL BELOW FINISH GRADE. TREES PLANTED IN TURF AREAS SHALL NOT HAVE BASINS.
4. FINISH GRADE
5. TREES INSTALLED WITHIN TURF AREAS SHALL BE INSTALLED WITH 'ARBOR-GARD' OR APPROVED EQUAL AT BASE OF TRUNK.
6. BACKFILL IN ACCORDANCE WITH PROJECT AGRICULTURAL SUITABILITY SOILS REPORT
7. ROOTBALL



(DOUBLE STAKE 24" BOX)
3 TREE PLANTING
SCALE: NTS

NOTES:
1. CROWN OF ROOTBALL TO BE 1/2"-1" ABOVE FINISH GRADE.
2. FOR ADDITIONAL INFORMATION REFER TO PLANTING NOTES AND SPECIFICATIONS.

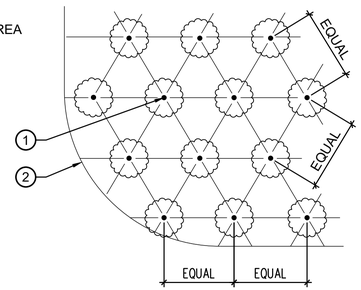
1. EDGE OF SLOPE BEYOND
2. A SHALLOW BASIN 2" DEEP SHALL BE FORMED AROUND ROOTBALL BELOW FINISH GRADE ON DOWNWARD SIDE
3. BACKFILL IN ACCORDANCE WITH PROJECT AGRICULTURAL SUITABILITY SOILS REPORT
4. ROOTBALL
5. FINISH GRADE



1 SHRUB PLANTING - SLOPE
SCALE: NTS

NOTES:
1. ALL PLANTS SHALL BE PLANTED AT EQUAL SPACING (TRIANGULAR UNLESS OTHERWISE INDICATED ON PLANS.
2. AS APPROPRIATE, CENTERLINE OF PLANTS SHALL BE 1/2 OF EQUAL SPACING MINIMUM FROM EDGE OF PLANTING AREA.
3. INFILL PLANTS AS REQUIRED TO MAINTAIN SPACING AT IRREGULAR EDGES.
4. FOR ADDITIONAL INFORMATION REFER TO PLANTING NOTES AND SPECIFICATIONS.

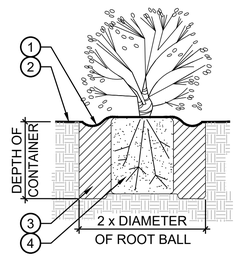
1. TYPICAL PLANT SPACING VARIES - SEE PLANT LEGEND AND/OR PLANS
2. EDGE OF PLANTING AREA



4 SHRUB SPACING
SCALE: NTS

NOTES:
1. CROWN OF ROOTBALL TO BE 1/2" - 1" ABOVE FINISH GRADE.
2. FOR ADDITIONAL INFORMATION REFER TO PLANTING NOTES AND SPECIFICATIONS.

1. A SHALLOW BASIN 2" DEEP SHALL BE FORMED AROUND ROOTBALL BELOW FINISH GRADE
2. FINISH GRADE
3. BACKFILL IN ACCORDANCE WITH PROJECT AGRICULTURAL SUITABILITY SOILS REPORT
4. ROOTBALL



2 SHRUB PLANTING
SCALE: NTS

NOTE:
1. REFER TO SHEET 'LC-1' FOR PLANTING PLAN NOTES

PLANT CALL-OUT
QUANTITY
PLANT SYMBOL CODE ##/X-#

CALL TOLL FREE 811
Know what's below. Call two working before you dig.
Underground Service Alert

SCALE: 1"=20'
0' 10' 20' 40' 80'

nuvis
LANDSCAPE ARCHITECTURE
20250 SW ACACA ST., SUITE 260
NEWPORT BEACH, CA
U.S.A. 92660
PH: 714.754.7311

NO.	REVISION	DATE	BY

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

REGISTERED LANDSCAPE ARCHITECT
CHRISTOPHER R. STONE No. 6187
Signature
SEPTEMBER 30, 2021
Expiration Date
04/26/2021
Date
STATE OF CALIFORNIA

DESIGNED	T.MUNOZ
DRAWN	J.GUADARRAMA
CHECKED	T.MUNOZ

CITY OF SAN FERNANDO
SAN FERNANDO, CA
UPPER RESERVOIR REPLACEMENT

Kennedy Jenks | JOHN ROBINSON Consulting, Inc.

PLANTING PLAN, PLANT LIST, NOTES, AND DETAILS

FILE NAME	
JOB NO.	1944519.00
DATE	04-26-2021
SHEET	LP-1 ##