LAS VIRGENES MUNICIPAL
WATER DISTRICT
LOS ANGELES COUNTY

TRIUNFO COUNTY
SANITATION DISTRICT
VENTURA COUNTY

CONTRACT DOCUMENTS
FOR CONSTRUCTION OF

FILTRATION/DISINFECTION ADDITION

PHASE II-CHEMICAL BUILDING

CONTRACT NO. C-8

CLEAN WATER GRANT
PROJECT NO. C-06-1028-630-01

LAS VIRGENES MUNICIPAL WATER DISTRICT

BOARD OF DIRECTORS
BEN DORGELO–PRESIDENT
A. MACNEIL STELLE — ANTHONY K. ELLSWORTH
HAROLD V. HELSLEY — GEORGE R. LONG
RICHARD B. BAIRD–GENERAL MANAGER

Approved by the Board of Directors
on this TENTH day of AUGUST 1981

By: Ben Dorgelo
BEN DORGELO–PRESIDENT

By: Anthony K. Ellsworth
ANTHONY K. ELLSWORTH –SECRETARY

By: H.W. Stokes
H.W. STOKES–CHIEF ENGINEER

1979 ADDITIONS-MODIFICATIONS
TAPIA WATER RECLAMATION FACILITY

VOLUME 2 OF 2—PLANS

DESIGN ENGINEERS

JMM JAMES M. MONTGOMERY, CONSULTING ENGINEERS, INC.

TRIUNFO COUNTY SANITATION DISTRICT

BOARD OF DIRECTORS
EDWIN A JONES–CHAIRMAN
JAMES DOUGHERTY — GERALDINE ANDREWS
MAGGIE ERICKSON — RONALD STARK
LAWRENCE E. HORNER — JOHN FLYNN

Approved by the Board of Directors
on this 27 day of June 1981

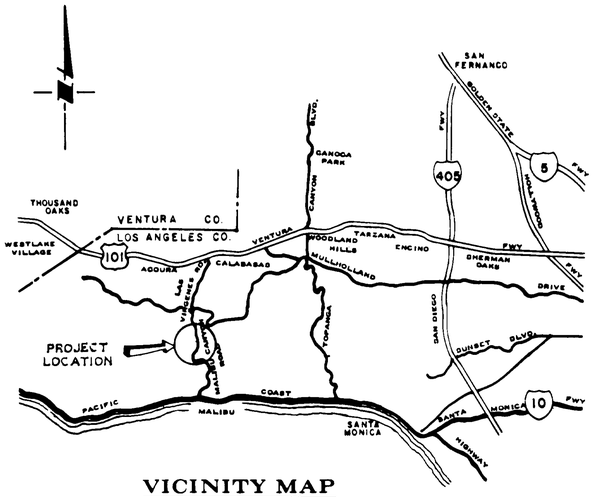
By: Ed Jones
EDWIN A. JONES–CHAIRMAN

By: John A. Lambie
JOHN A. LAMBIE–DISTRICT ENGINEER

Recommended: Eric J. Oltmann
ERIC J. OLTMANN–ADMINISTRATIVE ENGINEERING ASSOC.

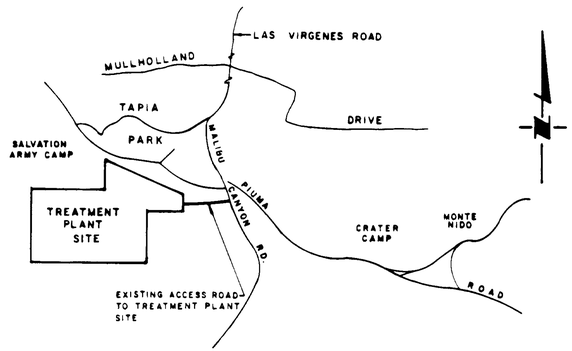
03539

RECORD DRAWING



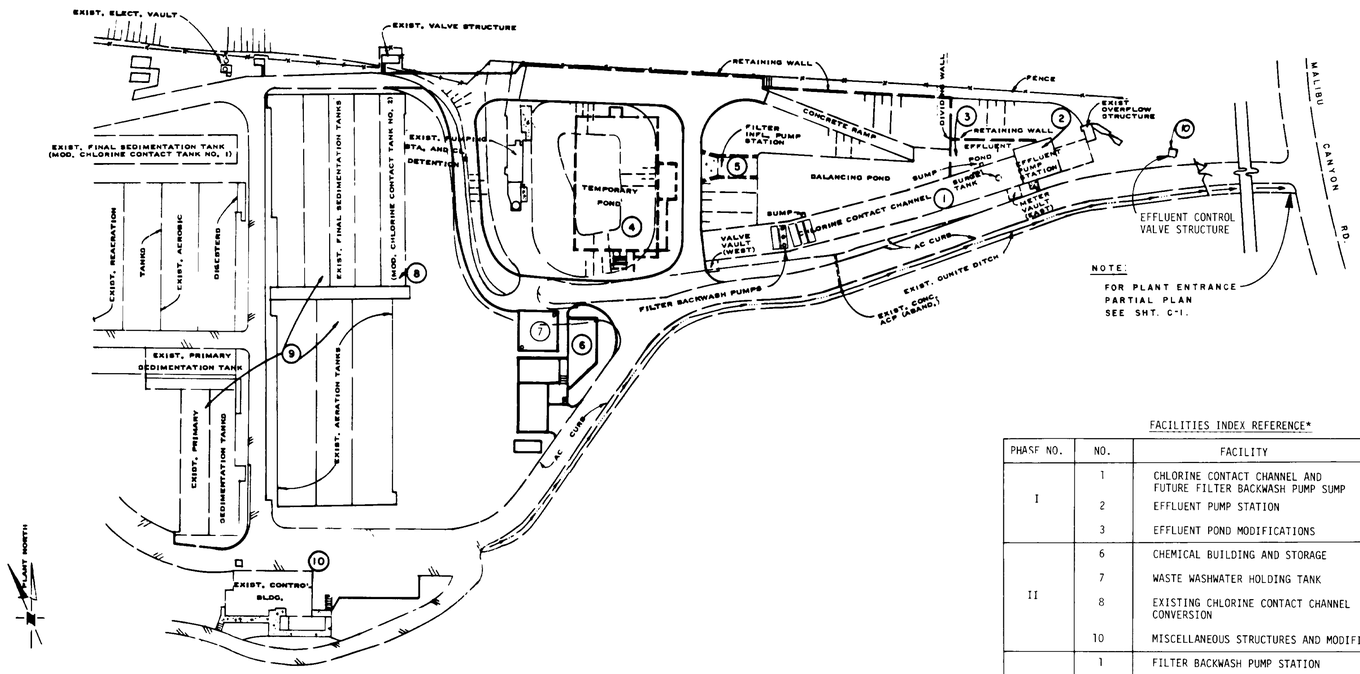
VICINITY MAP

NOT TO SCALE



LOCATION MAP

NOT TO SCALE



FACILITIES INDEX

NOT TO SCALE

FACILITIES INDEX REFERENCE*

PHASE NO.	NO.	FACILITY
I	1	CHLORINE CONTACT CHANNEL AND FUTURE FILTER BACKWASH PUMP SUMP
	2	EFFLUENT PUMP STATION
	3	EFFLUENT POND MODIFICATIONS
II	6	CHEMICAL BUILDING AND STORAGE
	7	WASTE WASHWATER HOLDING TANK
	8	EXISTING CHLORINE CONTACT CHANNEL CONVERSION
	10	MISCELLANEOUS STRUCTURES AND MODIFICATIONS
III	1	FILTER BACKWASH PUMP STATION
	4	FILTERS
	5	FUTURE FILTER INFLUENT PUMP STATION
	7	WASTE WASHWATER HOLDING TANK PUMP STATION
	9	PRIMARY AND SECONDARY MODIFICATIONS

*NOTE: FOR REFERENCE ONLY, ALL DRAWINGS CONTAINED IN THIS DOCUMENT PERTAIN TO PHASE II.

LIST OF DRAWINGS

DRAWING NO.	TITLE
GENERAL	
G-1	LOCATION AND VICINITY MAP, FACILITIES INDEX, AND LIST OF DRAWINGS
G-2	HYDRAULIC PROFILE AND DESIGN CRITERIA
G-3	SYMBOLS
G-4	ABBREVIATIONS
ARCHITECTURAL	
A-1	ARCHITECTURAL SCHEDULES, NOTES, AND DETAILS
6A-1	CHEMICAL BUILDING - PLAN
6A-2	CHEMICAL BUILDING - ELEVATIONS AND SECTIONS
6A-3	CHEMICAL BUILDING - INTERIOR ELEVATIONS AND DETAILS
LANDSCAPE	
L-1	LANDSCAPE PLAN
L-2	IRRIGATION PLAN
L-3	LEGEND AND DETAILS
L-4	ENTRANCE ROAD PLANTING AND IRRIGATION PLAN

DRAWING NO.	TITLE
CIVIL	
C-1	SITE GRADING AND PAVING PLAN
C-2	GRADING AND PAVING PLAN, SECTIONS AND DETAILS
C-3	YARD PIPING PLAN
C-4	20" RECLAIMED WATER LINE - PLAN AND DETAILS
C-5	20" RECLAIMED WATER LINE - PROFILE AND DETAILS
C-6	DETAILS AND OUTFALL STRUCTURE PLAN AND PIPING PROFILE
C-7	MISCELLANEOUS YARD PIPING DETAILS - A
C-8	MISCELLANEOUS YARD PIPING DETAILS - B
MECHANICAL	
M-1	PROCESS FLOW DIAGRAM
M-2	PIPING SCHEDULE
M-3	PUMP, FEEDER, AND TANK SCHEDULES
M-4	VALVE, GATE, AND FAN SCHEDULES
M-5	MISCELLANEOUS MECHANICAL EQUIPMENT AND METER SCHEDULES
M-6	MISCELLANEOUS MECHANICAL DETAILS - A
M-7	MISCELLANEOUS MECHANICAL DETAILS - B
M-8	MISCELLANEOUS MECHANICAL DETAILS - C
M-9	MISCELLANEOUS MECHANICAL DETAILS - D
M-10	MISCELLANEOUS MECHANICAL DETAILS - E
M-11	CHLORINATION AND DECHLORINATION SCHEMATICS

DRAWING NO.	TITLE
6M-1	CHEMICAL BUILDING AND STORAGE - PIPING PLAN
6M-2	CHEMICAL BUILDING AND STORAGE - PIPING SECTIONS, SHEET A
6M-3	CHEMICAL BUILDING AND STORAGE - PIPING SECTION, SHEET B
6M-4	CHEMICAL BUILDING AND STORAGE - HEATING, VENTILATING, AND DRAINAGE
8M-1	EXISTING CHLORINE CONTACT - CHANNEL CONVERSION - PLANS AND SECTIONS
8M-2	EXISTING CHLORINE CONTACT - CHANNEL CONVERSION - DETAILS
10M-1	MISCENNALEOUS MODIFICATIONS - RESERVOIR OUTLETS
10M-2	EFFLUENT CONTROL VALVE STRUCTURE
10M-3	EFFLUENT CONTROL VALVE STRUCTURE
STRUCTURAL	
S-1	GENERAL NOTES AND CONSTRUCTION JOINT DETAILS
S-2	MISCELLANEOUS REINFORCEMENT DETAILS
S-3	MISCELLANEOUS STRUCTURAL DETAILS
S-4	MISCELLANEOUS METALWORK DETAILS
6S-1	CHEMICAL BUILDING - FOUNDATION AND ROOF PLANS

DRAWING NO.	TITLE
6S-2	CHEMICAL BUILDING - MISCELLANEOUS WALL SECTIONS AND DETAILS
6S-3	CHEMICAL BUILDING - WALLS AND ROOF SLAB SECTIONS
6S-4	CHEMICAL BUILDING - ROOF SLAB SECTIONS AND PLATFORM FRAMING DETAILS
6S-5	CHEMICAL BUILDING - TANK SUPPORT DETAILS
6S-6	MODIFICATION OF EXISTING ELECTRICAL PULL BOXES
7S-1	WASTE WASHWATER TANK - PLANS AND SECTIONS
7S-2	WASTE WASHWATER TANK - SECTIONS AND DETAILS
8S-1	ACCESS STAIRS TO EXISTING CHLORINE CONTACT TANK
10S-1	OUTFALL STRUCTURE AND RETAINING WALL DETAILS
ELECTRICAL	
E-1	ELECTRICAL SYMBOLS AND ABBREVIATIONS
E-2	PLOT PLAN
E-3	SINGLE LINE DIAGRAM AND EQUIPMENT ELEVATIONS
E-4	SCHEMATIC DIAGRAMS
E-5	CONDUIT AND WIREFILL SCHEDULE
E-6	PANEL AND FIXTURE SCHEDULE
E-7	MISCELLANEOUS DETAILS
6E-1	CHEMICAL BUILDING - LIGHTING AND RECEPTACLE PLAN
6E-2	CHEMICAL BUILDING - POWER AND CONTROL PLAN

INSTRUMENTATION

I-1	SYMBOLS AND SYMBOL NOMENCLATURE
I-2	INSTRUMENTATION LOOP DIAGRAMS
I-3	LOCAL CONTROL BOARD (LCB-3) - ELEVATION AND DETAILS

CHANGE ORDER

1. CHEMICAL BUILDING FOOTING REVISION.

ED

03540

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
PD	10/30/80	JAN	RECORD DRAWING

SCALE: NONE

DESIGNED J. EFFORT
DRAWN A. QUINTANA
CHECKED

SUBMITTED
PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27633 R.C.E. NO. — 8/22/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

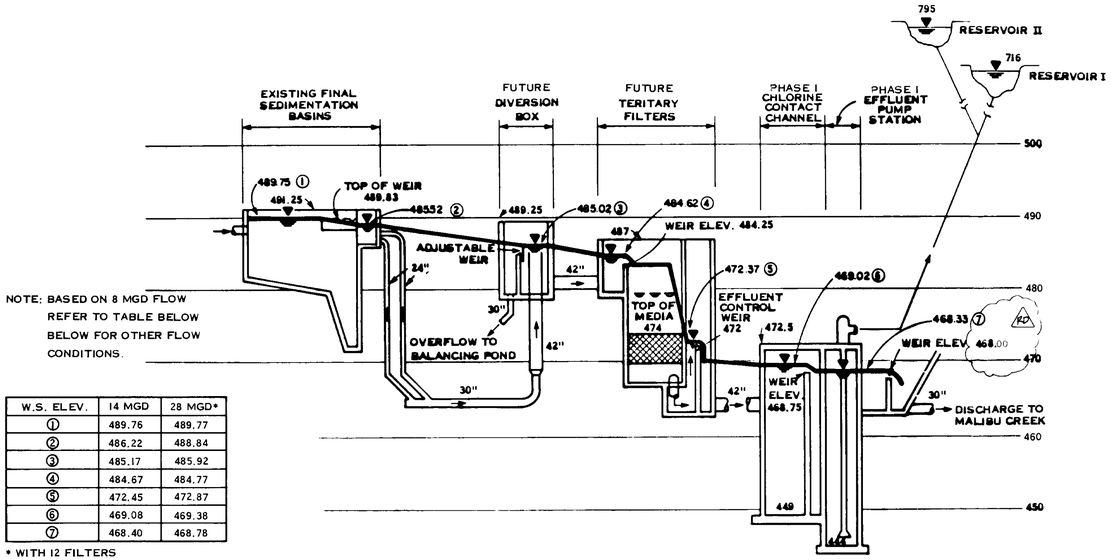
LAS VIRGENES MUNICIPAL WATER DISTRICT

TAPIA WRF – FILTRATION/DISINFECTION ADDITION

PHASE II

VICINITY AND LOCATION MAP, FACILITIES INDEX AND LIST OF DRAWINGS

SHEET G-1 OF 66 SHEETS

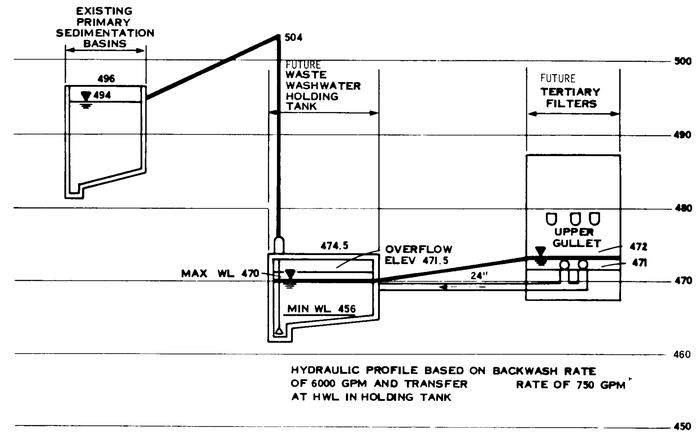


NOTE: BASED ON 8 MGD FLOW REFER TO TABLE BELOW BELOW FOR OTHER FLOW CONDITIONS.

W.S. ELEV.	14 MGD	28 MGD*
①	489.76	489.77
②	486.22	488.84
③	485.17	485.92
④	484.67	484.77
⑤	472.45	472.87
⑥	469.08	469.38
⑦	468.40	468.78

* WITH 12 FILTERS

HYDRAULIC PROFILE - FUTURE FACILITIES WITH FILTERS - PHASE III



HYDRAULIC PROFILE BASED ON BACKWASH RATE OF 6000 GPM AND TRANSFER RATE OF 750 GPM AT HWL IN HOLDING TANK

HYDRAULIC PROFILE - FUTURE BACKWASH RECOVERY SYSTEM - PHASE III

DESIGN CRITERIA

Description	Units	Average Phase II
Plant Flow	mgd	8.0
FILTRATION SYSTEM		
FILTER INFLUENT PUMPS		
Type		mixed flow
Number		2
Capacity, each	gpm	5100 @ 32' TDH
Motor horsepower	hp	75
FLASH MIXING		
Mixing pump (hydraulic pump mixing)	no.	1
Capacity	gpm	500 @ 21 TDH
Motor horsepower	hp	5
Energy input	sec^{-1}	approx. 1000
TERTIARY FILTERS		
Type: monomedia	no.	8
Filtration rate:		
1) Avg. flow (w/recycle)		
a) All filters on-line	gpm/sq ft	3.20
b) One filter in backwash	gpm/sq ft	3.65
2) Peak flow (w/recycle)		
a) All filters on-line	gpm/sq ft	5.25
b) One filter in backwash	gpm/sq ft	6.0
Media area/filter	sq ft	253
Total filter area	sq ft	2024
Anthracite:		
Depth	in	48
Effective size	mm	1.5
Uniformity coefficient		less than 1.4
Specific gravity		1.45-1.55
Gravel (5 layers - see specifications)		
Depth	in	17
Maximum backwash rate	gpm/sq ft	24
	in/min	29.4
Maximum air scour rate	scfm/sq ft	5
Filter underdrain system (see spec.)		"
FILTER BACKWASH PUMPS		
Type		constant speed vertical mixed flow
Number		3
Capacity, each	gpm	3000 @ 20' TDH
Motor horsepower	hp	25

570.0090 | 0003
J.O. NO. | DRAWING NO.
CONT. NO. | FRAME NO.

Description	Units	Average
WASTE WASHWATER HOLDING TANK		
Number	-	1
Volume:		
Total	gal	120,000
Effective	gal	100,000
Size	ft	34' x 34' x 14'
Transfer pumps:		
Number		3
Capacity, each	gpm	375 @ 35' TDH
Power	hp	7.1/2
Minimum filter run length	hr	8
Maximum washwater flow	gpm	6000
CHEMICAL SYSTEM		
CHEMICAL DOSAGES		Average Dosage / Maximum Dosage
Coagulant (alum)	mg/l	15 / 25
Polyelectrolyte - liquid	mg/l	1.0 / 2.0
Polyelectrolyte - dry	mg/l	0.05 / 0.20
Chlorine (gas)	mg/l	10 (Final) / 20 (Final)
Sulfur Dioxide (gas)	mg/l	7.5 (Final) / 15 (Final)
CHEMICAL FEEDER CAPACITY		
Coagulant (alum)	no.	2
	gal/hr	26 (max) @ 50 psi
Polyelectrolyte (cationic)	no.	2
	gal/hr	13 (max) @ 50 psi
Polyelectrolyte (nonionic)	no.	2
	gal/hr	50 (max) @ 50 psi
Dry feeder	no.	1
	lbs/day	27 (max)
Chlorine	no.	3
	lbs/day	2000
Sulfur Dioxide	no.	2
	lbs/day	1900
	No. of Tanks / Capacity / Days of Storage at Maximum Dosage	
CHEMICAL STORAGE		
Coagulant (alum)	1 / 7500 gal	21
Polyelectrolyte (cationic) 55 Gal. drums	8 / 440 gal	24+
Polyelectrolyte (nonionic) 50-lb. bags	6 / 300 lbs	19+
Chlorine (Based on final addition only)	2 / 3500 gallons each	31+ each
Sulfur Dioxide	2 / 1350 gallons each	16+ each

Description	Units	Average
DISINFECTION SYSTEM (PHASE I)		
CHLORINE CONTACT CHANNEL		
Detention time	min.	120
Volume	gal.	667,000
Number of channels	-	3
Width	ft	6
Depth	ft	20
Length	ft	250
Mixer		
Number	-	1
Horsepower	hp	15
BALANCING POND		
Volume	mil gal	1.8
EFFLUENT POND		
Volume	mil gal	0.4
EFFLUENT PUMP STATION		
Constant speed Vertical turbine		
Number		2
Capacity	gpm	4200 @ 560' TDH 5500 @ 420' TDH
Horsepower, each	hp	600

LEGEND

- Existing (Phase I)
- Proposed (Phase II)
- Future (Phase III)

03541

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD 6264		JMM	RECORD DRAWING

SCALE: NONE

DESIGNED R. SIEMAK
DRAWN L. QUAY
CHECKED

SUBMITTED
PROJECT ENGINEER — R.C.E. NO. 27304 — DATE 8/19/81

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — R.C.E. NO. 27639 — DATE 8/20/81

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
HYDRAULIC PROFILE AND DESIGN CRITERIA

SHEET G-2 OF 66 SHEETS

SYMBOLS

- CAST IRON OR MASONRY
- STEEL
- BRONZE
- GRAVEL
- INSULATION
- ALUMINUM OR METAL DECKING
- CONCRETE
- EARTH
- SAND
- PLASTIC , RUBBER OR NEOPRENE
- WOOD – (FINISH)
- WOOD – (ROUGH FRAMING)
- SUPPLY AIR DUCT
- EXHAUST OR RETURN AIR DUCT
- TURNING VANES IN DUCT
- SIZE / CFM — EXHAUST GRILLE
- SIZE / CFM — SUPPLY GRILLE
- DD — DEFLECTING DAMPER
- UNIT HEATER
- CENTERLINE
- ROUND OR DIAMETER
- @ — AT
- SQUARE
- STOP GATE
- SLIDE GATE
- SLUICE GATE
- CHANGE IN PIPING MATERIAL
- VAULT OR JUNCTION STRUCTURE
- ANGLE
- PIPE SUPPORT (IN PLAN ONLY)
- 2"UW-(2) — PIPE CALLOUT (SEE PIPING SCHEDULE)
- ME-6 — EQUIPMENT NUMBER (SEE EQUIPMENT SCHEDULE)
- 2"A CP-RS — PIPE SIZE AND TYPE/FLUID ABBREVIATION
- RAILINGS

- GATE VALVE
- GLOBE VALVE
- BALL VALVE
- DIAPHRAGM VALVE
- OR — PRESSURE REGULATING VALVE
- MOTOR OPERATED VALVE
- PLUG VALVE OR LUBRICATED PLUG VALVE
- NEEDLE VALVE
- TEMPERATURE CONTROL VALVE
- PRESSURE RELIEF VALVE
- HOSE BIBB, H/B
- FLOAT VALVE
- SOLENOID VALVE
- MULTIPORT VALVE–3 WAY
- MULTIPORT VALVE–4 WAY
- CHECK VALVE
- BUTTERFLY VALVE
- CENTRIFUGAL OR TURBINE PUMP OR FAN
- METERING PUMP
- BLOWER OR COMPRESSOR
- ORIFICE PLATE AND FLANGES
- FLOW TUBE
- DM — DENSITY METER
- MM — MAGNETIC METER
- T — CONDENSATE TRAP
- PM — PROPELLER METER
- AIR VACUUM AND AIR RELEASE ASSEMBLY
- BACKWATER VALVE
- BACKFLOW PREVENTER
- B — BUBBLER
- T — ROOM THERMOSTAT
- G — PRESSURE GAGE W/ OR W/O DIAPHRAGM SEAL
- S — PRESSURE SWITCH W/ OR W/O DIAPHRAGM SEAL
- ROTAMETER

- FA — FLAME ARRESTER
- INJECTOR
- THERMOMETER
- FLANGED FITTINGS
- SCREWED OR SOCKET WELD FITTINGS
- MECHANICAL – TYPE FITTINGS (GROOVED)
- WELDED FITTINGS
- PIPE ANCHOR
- MECHANICAL JOINT FITTINGS
- BELL AND SPIGOT FITTINGS
- STRAINER
- UNION
- MECHANICAL TYPE COUPLING
- SLEEVE TYPE COUPLING
- EXPANSION JOINT
- FLEXIBLE CONN.
- CUT PIPE
- REDUCER
- DRAIN TRAP
- FLOOR DRAIN
- FLOOR SINK
- HUB DRAIN
- OR — CLEANOUT
- BLOW OFF ASSEMBLY
- QUICK CONNECT COUPLER
- FE — FIRE EXTINGUISHER
- FHC — FIRE HOSE CABINET
- CAPPED END
- PLUGGED END

- EXISTING STRUCTURE OR FACILITY
- NEW STRUCTURE OR FACILITY
- FUTURE STRUCTURE OR FACILITY
- PROPERTY LINE
- EXISTING FENCE
- NEW FENCE
- SOIL BORING
- BENCH MARK
- 123 — CONTOUR LINE, EXISTING GRADE
- 123 — CONTOUR LINE, FINISHED GRADE
- TOP / TOE — CUT OR FILL SLOPE TO BE CONSTRUCTED
- (123.21) — EXISTING ELEVATION
- 123.21 — FINISHED ELEVATION
- VALVE / REDUCER — EXISTING UNDERGROUND PIPELINES
- NEW UNDERGROUND PIPELINES
- C.O. / M.H. — MANHOLE AND CLEANOUT (SANITARY SEWER)
- C.B. — CATCH BASIN
- F.H. — FIRE HYDRANT
- EXISTING A.C. PAVEMENT
- NEW A.C. PAVEMENT

NOTES:

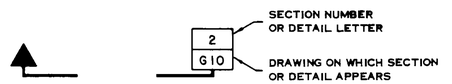
(1) ELECTRICAL SYMBOLS SHOWN ON ELECTRICAL SHEETS.

(2) FOR WELDING SYMBOLS USE AMERICAN WELDING SOCIETY STANDARD SYMBOLS: SEE AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.

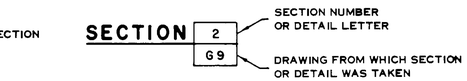
EXAMPLE OF SECTION NUMBERING SYSTEM

(FOR DETAILS SUBSTITUTE DETAIL LETTER FOR SECTION NUMBER)

(1) SECTION CUT ON DWG. G-9



(2) ON DWG G10 THIS SECTION IS IDENTIFIED AS:



03542

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

SCALE: NONE

DESIGNED L.M.
DRAWN G.M.
CHECKED H.M.

SUBMITTED Robert C. Ivank — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED Vern Bybee — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27030 R.C.E. NO. — 9/29/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
SYMBOLS

SHEET G-3 OF 66 SHEETS

AB	ANCHOR BOLT
ABBR	ABBREVIATION
AC	ACTIVATED CARBON OR ASPHALT CONCRETE
A/C	AIR CONDITIONING
ACP	ASPHALTIC CONCRETE PAVEMENT OR ASBESTOS CEMENT PIPE
AER	AERATION
AL	ALUMINUM OR ALUM
ALUM	ALUMINUM
API	AMERICAN PETROLEUM INSTITUTE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE (FORMERLY A. S. A.)
APPD	APPROVED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASA	AMERICAN STANDARDS ASSOCIATION (NOW ANSI)
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIAL
ASSY	ASSEMBLY
ATM	ATMOSPHERE
AVAR	AIR VACUUM AND AIR RELEASE VALVE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BC	BEGIN CURVE, BOLT CIRCLE OR BETWEEN CENTERS
BCR	BEGIN CURB RETURN
BD	BOARD
BF	BLIND FLANGE
BFP	BACK FLOW PREVENTER
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BLD FLG	BLIND FLANGE
BLK	BLACK OR BLOCK
BLKG	BLOCKING
BM	BEAM OR BENCH MARK
BO	BLOW-OFF ASSEMBLY
BOD	BIOCHEMICAL OXYGEN DEMAND
BPV	BACK PRESSURE VALVE
B&S	BELL AND SPIGOT
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
BV	BUTTERFLY VALVE
BVC	BEGIN VERTICAL CURVE
BWV	BACK WATER VALVE
C	CENTRIGRADE
CAP	CAPACITY
CB	CATCH BASIN, CHALK BOARD
CC	CENTER TO CENTER
CD	CEILING DIFFUSOR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHK V	CHECK VALVE
CHKD PL	CHECKERED PLATE
CI	CAST IRON
CL	CHLORINE GAS, CHLORINATOR, CHAIN LINK, CLEARANCE OR CENTERLINE
CML&C	CEMENT MORTAR LINED AND COATED
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
COL	COLUMN
CONC	CONCRETE, CONCENTRIC,
CONN	CONNECTION
CONSTR	CONSTRUCTION OR CONSTRUCT
CONT	CONTINUED OR CONTINUOUS
CONTR	CONTRACTOR
COMP	COMPRESSOR
COTG	CLEAN-OUT TO GRADE
CPLG	COUPLING
CS	CAUSTIC SODA OR CAST STEEL
CT	CERAMIC TILE
CTSK	COUNTERSUNK
CTR	CENTER
CU	COPPER OR CUBIC
CYL	CYLINDER
CHEM	CHEMICAL
CM	CENTIMETER
DET	DETAIL
DG	DOOR GRILLE
DI	DUCTILE IRON
DIA	DIAMETER
DIAPH	DIAPHRAGM
DISCH	DISCHARGE
DISP	DISPENSER
DN	DOWN OR DECANT
DO	DISSOLVED OXYGEN
DR	DOOR
DWG	DRAWING
DIFF	DIFFUSER, DIFFERENTIAL
E	EAST
EA	EACH
EC	END CURVE
ECC	ECCENTRIC
ECR	END CURB RETURN
EF	EACH FACE OR EXHAUST FAN
EFF	EFFLUENT
EG	EXHAUST GRILLE
EL/ELEV	ELEVATION
ELEC	ELECTRICAL, ELECTRONIC,
ELL	ELBOW

ENG	ENGINE
EQ	EQUAL
EQUIP	EQUIPMENT
EVAP	EVAPORATOR
EVC	END VERTICAL CURVE
EW	EACH WAY
EXH	EXHAUST
EX-HY	EXTRA HEAVY
EXIST	EXISTING
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
F	FAHRENHEIT OR FINISH
FABR	FABRICATION
FAI	FRESH AIR INTAKE
FB	FLAT BAR, FLOOR BEAM OR FIELD BOOK
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER OR FINAL EFFLUENT
FF	FLAT FACE OR FAR FACE
F TO F	FACE TO FACE
FG	FINISHED GRADE
FH	FIRE HYDRANT
FIG	FIGURE
FL	FLOWLINE
FLOCC	FLOCCULATOR OR FLOCCULATION
FLG	FLANGE
FLGD	FLANGED
FLR	FLOOR
FMH	FLEXIBLE METAL HOSE
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FOW	FACE OF WALL
FPC	FLEXIBLE PIPE COUPLING
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FARSIDE, FLOOR SINK, FINISHED SURFACE, FORGED STEEL, FROTH SPRAY
FT	FEET OR FOOT
FTG	FOOTING
FUT	FUTURE
GA	GAGE OR GAUGE
GAL	GALLON
GALV	GALVANIZED
GI	GALVANIZED IRON
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRD	GRADE OR GROUND
GR BRK	GRADE BREAK OR GRADE CHANGE
GV	GATE VALVE
GLV	GLOBE VALVE
GYP	GYPSUM
H B	HOSE BIBB
HDR	HEADER
HEX	HEXAGONAL
Hg	MERCURY
HORIZ	HORIZONTAL
HP	HORSEPOWER OR HIGH PRESSURE
HR	HEATING RETURN OR HOUR
HTG	HEATING
HTR	HEATER
H&V	HEATING AND VENTILATING
HWO	HANDWHEEL OPERATED
HYD	HYDRAULIC OR HYDRANT
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INFL	INFLUENT
INSL	INSULATION
INSTR	INSTRUMENT
INV	INVERT ELEVATION
IP	IRON PIPE
IRRG	IRRIGATION
IPS	IRON PIPE SIZE
JT	JOINT
KV	KILOVOLT
KW	KILOWATT
KWH	KILOWATT HOUR
KM	KILOMETER
KG	KILOGRAM

LAV	LAVATORY
LB	POUND
LT	LEFT
LWR	LOWER
L	LITER, LENGTH
M	METER
MAN	MANUAL
MACH	MACHINE
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MI	MALLEABLE IRON
MIN	MINIMUM OR MINUTE
MISC	MISCELLANEOUS
MK	MARK
MO	MOTOR OPERATED OR MASONRY OPENING
MOD	MODEL
MTD	MOUNTED
MTR	MOTOR
MTC	MECHANICAL TYPE COUPLING
MTL	MATERIAL OR METAL
N	NORTH
NBS	NATIONAL BUREAU OF STANDARDS
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO	NUMBER
NPT	NATIONAL PIPE THREAD
NRS	NON-RISING STEM
NS	NEAR SIDE
NTS	NOT TO SCALE
NPS	NOMINAL PIPE SIZE (FORMERLY I. P. S.)
OC	OVER-CROSSING OR ON CENTER
OD	OUTSIDE DIAMETER
OF	OVERFLOW OR OUTSIDE FACE
OH	OVER HEAD
OPER	OPERATOR OR OPERATING
OPING	OPENING
OS&Y	OUTSIDE SCREW AND YOKE
OWG	OIL, WATER, GAS
OZ	OUNCE
PP	POWER POLE
P	POLE OR PAGE
PC	PRIMARY CLARIFIER OR PORTLAND CEMENT
PE	PLANT EFFLUENT, POLYELECTROLYTE
PG	PRESSURE GAGE
PI	PLANT INFLUENT OR POINT OF INTERSECTION
PL	PLATE, PROPERTY LINE OR PLACE
PLAS	PLASTER OR PLASTIC
PLT	PLANT
PPD	POUNDS PER DAY
PPH	POUNDS PER HOUR
PPM	PARTS PER MILLION
PR	PAIR
PRESS	PRESSURE
PRV	PRESSURE REGULATING, RELIEF OR REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PTDF	PRESSURE TREATED DOUGLAS FIR
PS	PRESSURE SWITCH
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
pH	HYDROGEN ION CONCENTRATION
PAVMT	PAVEMENT
R	RADIUS, RISER OR RETURN, RATE OF SLOPE
RAG	RETURN AIR GRILLE
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN, ROUND, OR ROAD
RDWD	REDWOOD
RED	REDUCER, REDUCING
REF	REFERENCE, REFER
REIN	REINFORCE OR REINFORCED
RE-STL	REINFORCING STEEL
REQD	REQUIRED
REV	REVISION
RM	ROOM
RPM	REVOLUTIONS PER MINUTE OR REINFORCED PLASTIC MORTAR PIPE
RT	RIGHT
R/W	RIGHT OF WAY
REG	REGULATING
RWL	RAINWATER LEADER

S	SOUTH, SCUM, SINK, SECOND, SLOPE
SA	SAMPLE
SC	SPARE CHEMICAL OR SECONDARY CLARIFIER, SCUM
SCD	SCREWED
SCH	SCHEDULE
SCHED	SCHEDULE
SDR	STORM DRAINS
SEC	SECONDARY
SECT	SECTION
SER	SERIES
SETT	SETTLING
SHT	SHEET
SIM	SIMILAR
SL	SLUDGE OR SLOPE
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	SANITARY SEWER, STAINLESS STEEL OR SERVICE SINK
SSK	SERVICE SINK
SSU	SECONDS SAYBOLT UNIVERSAL
STA	STATION
STD	STANDARD
STL	STEEL
STN	STAINLESS
STN STL	STAINLESS STEEL
STRUCT	STRUCTURAL OR STRUCTURE
SUCT	SUCTION
SV	SOLENOID VALVE
SWR	SIDEWALL REGISTER
SYM	SYMMETRICAL OR SYMBOL
STC	SLEEVE TYPE COUPLING
T	THERMOSTAT, TREAD OF STAIR OR TOP, TANGENT
TB	TACK BOARD
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB
THR'D	THREADED
TK	TANK
TP	TELEPHONE POLE OR TELEGRAPH POLE
TRANS	TRANSITION, TRANSMITTER
TV	THERMOSTATIC VALVE
TW	TOP OF WALL
TYP	TYPICAL
T B E	THREAD BOTH ENDS
T O E	THREAD ONE END
T&G	TONGUE AND GROOVE
UR	URINAL
UC	UNDER-CROSSING
UG	UNDERGROUND
UGC	UNDERGROUND CONDUIT
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
V	VACUUM, VALVE, VERTICAL, VENT, VOLT OR VOLUME
VAR	VARIES OR VARIABLE
VC	VICTAULIC COUPLING
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VTC	VENT TO CEILING
VTR	VENT THROUGH ROOF
W	WEST OR WASTE
W/	WITH
WC	WATER COLUMN OR WATER CLOSET
WCO	WALL CLEANOUT
WD	WOOD
WS	WATER SURFACE
WSTP	WATER STOP
WT	WEIGHT
WWM	WELDED WIRE MESH
XS	EXTRA STRONG
YD	YARD

NOTES:

PIPING ABBREVIATIONS SHOWN ON PIPING SCHEDULE SHEET:

ELECTRICAL ABBREVIATIONS SHOWN ON ELECTRICAL SHEETS.

ADDITIONAL ABBREVIATIONS CONFORM TO ASA STANDARD ABBREVIATIONS Z 32.13

03543

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

SCALE: NONE

DESIGNED L.M.
DRAWN G.M.
CHECKED J.S.

SUBMITTED
PROJECT ENGINEER — R.C.E. NO. 27704 — DATE 8/19/81

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — R.C.E. NO. 27633 — DATE 8/20/81

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
ABBREVIATIONS

SHEET G-4 OF 66 SHEETS

EXTERIOR FINISH SCHEDULE

LOCATION	MATERIAL	FINISH	REMARKS
ROOFS	BUT-UP	—	
METALWORK @ ROOF	MET.	PAINT "A"	
WALLS & RAILS	CONC.	SMOOTH (22) "B"	W/ LIQUID WATERPROOFER
DOORS & FRAMES	MET.	PAINT "B"	
LOUVERS	ALUM.	ANODIZED	CLEAR
WALKWAYS & PAVINGS	CONC.	BRUSH (22) BROOM	
DOWNSPOUTS & OVERFLOWS	MET.	PAINT "B" & "A"	
MISC. METALWORK	MET.	PAINT "A" & "B"	
HANDRAILING	ALUM	ANODIZED *	CLEAR

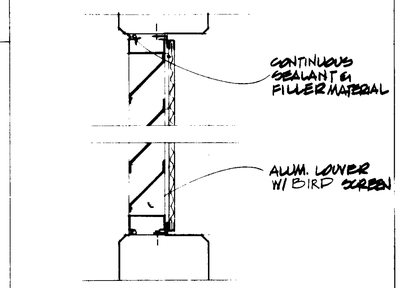
INTERIOR FINISH SCHEDULE

AREA		FLOOR MATERIAL	FLOOR FINISH	BASE MATERIAL	BASE FINISH	WALL MATERIAL	WALL FINISH	CEILING MATERIAL	CEILING FINISH	TRIM MATERIAL	TRIM FINISH	MISCELLANEOUS ITEM	MISCELLANEOUS MATERIAL	MISCELLANEOUS FINISH	REMARKS
01	CHLORINE STOR.	CONC.	HRDN "C"	CONC.	—	CONC.	* —	CONC.	—	—	—	—	—	—	* - LIQUID WATERPROOFER
02	CHLORINATOR	CONC.	HRDN "C"	CONC.	—	WD.	*STAIN "AA"	WD.	STAIN AA	WD	STAIN "AA"	—	—	—	*
03	SULFONATOR	CONC.	HRDN "C"	CONC.	—	WD.	*STAIN "AA"	WD.	STAIN AA	WD	STAIN "AA"	—	—	—	*
04	SULFUR DIOXIDE STOR.	CONC.	HRDN "C"	CONC.	—	CONC.	* —	CONC.	—	—	—	—	—	—	*
05	BREEZEWAY	CONC.	BROOM	CONC.	—	CONC.	* —	WD.	STAIN AA	—	—	—	—	—	*
06	ELECTRICAL/STOR.	CONC.	HRDN "C"	CONC/CMU	—	CONC/CMU	* —	CONC.	—	—	—	—	—	—	*
07	CHEMICAL FEED	CONC.	HRDN "C"	CONC/CMU	—	WD.	*STAIN AA	WD	STAIN AA	WD	STAIN "AA"	—	—	—	*
	MISC. METALWORK	—	—	—	—	—	—	—	—	—	—	—	METAL	PAINT "A" & "B"	

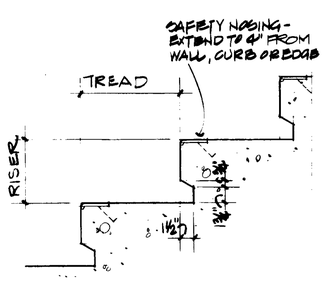
GENERAL NOTES

1. PLAN DIMENSIONS ARE TO FACE OF CONCRETE OR CONCRETE BLOCK UNLESS OTHERWISE NOTED.
2. FIGURE DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
3. REPETITIVE FEATURES ARE NOT DRAWN IN THEIR ENTIRETY AND SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL.
4. REFER TO CIVIL, STRUCTURAL, MECHANICAL, ELECTRICAL, AND OTHER CATEGORIES OF DRAWINGS FOR DIMENSIONS, DETAILS, EQUIPMENT AND OTHER INFORMATION.
5. VERIFY SIZE AND LOCATION OF AND PROVIDE: ALL OPENINGS THROUGH FLOORS AND WALLS, FURRING, CURBS, ANCHORS AND INSERTS. PROVIDE ALL BASES, BLOCKING REQUIRED FOR ACCESSORIES, MECHANICAL, ELECTRICAL AND OTHER EQUIPMENT.
6. BITUMINOUS MEMBRANE WATERPROOFING AND PROTECTION BOARD TYPICAL BELOW GRADE ON EXTERIOR CONCRETE WALLS AT CHEMICAL BLDG. AND OTHER SPACES AS NOTED.

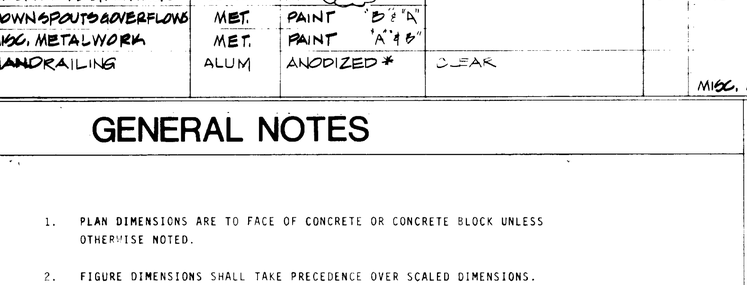
T PAINT SYSTEMS SEE SPECIFICATIONS. LETTER INDICATION IN THE "FINISH" COLUMN INDICATES PAINT SYSTEM



TYP. LOUVER — H GA-2

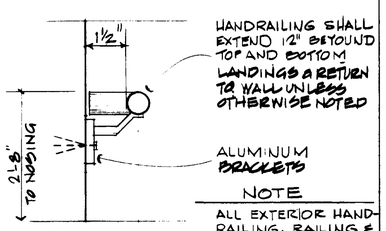


TYP. TREAD & RISER. — I GA-2



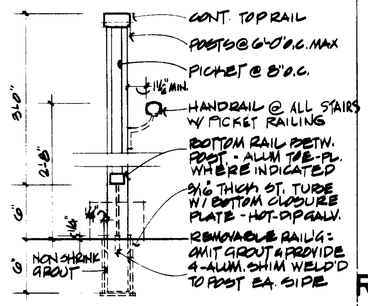
DOOR SCHEDULE
1. DIM. ARE ± 1/4"
2. HARDWARE, SEE SPECS.
3. ALL DOORS 1¾" THICK H.M. WITH HOLLOW METAL FRAME

WINDOW SCHEDULE
1. DIM. TO FACE OF CONC. 1/4"
@ ±

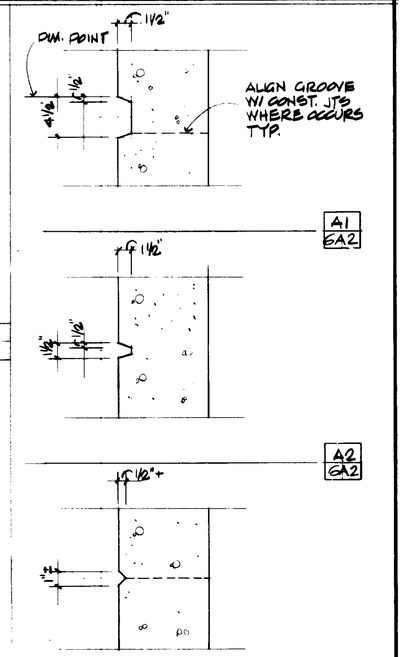


NOTE
ALL EXTERIOR HANDRAILING, RAILING & BRACKETS SHALL BE CLEAR ANODIZED ALUM. THE SAME AS PICKET RAILING.

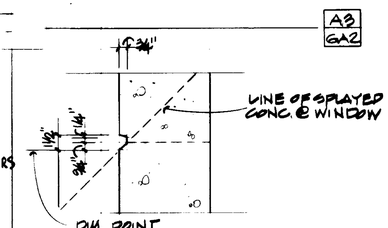
HANDRAIL — G GA-2



TYP. PICKET RAILING — D GA-2



CONC. GROOVES — A GA-2



03544

RECORD DRAWING

Hardison Komatsu Ivelich & Tucker

REV	DATE	BY	DESCRIPTION
RD	4/1/84	MDU	RECORD DRAWINGS

SCALE: 1½" = 1'-0" OR AS NOTED

DESIGNED H/K
DRAWN H/K
CHECKED WHB

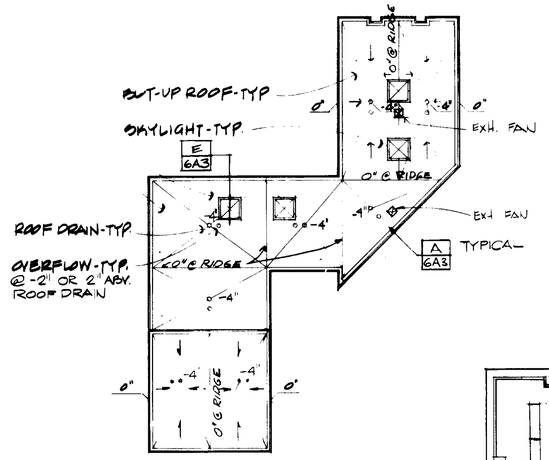
SUBMITTED
PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27688 R.C.E. NO. — 9/22/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

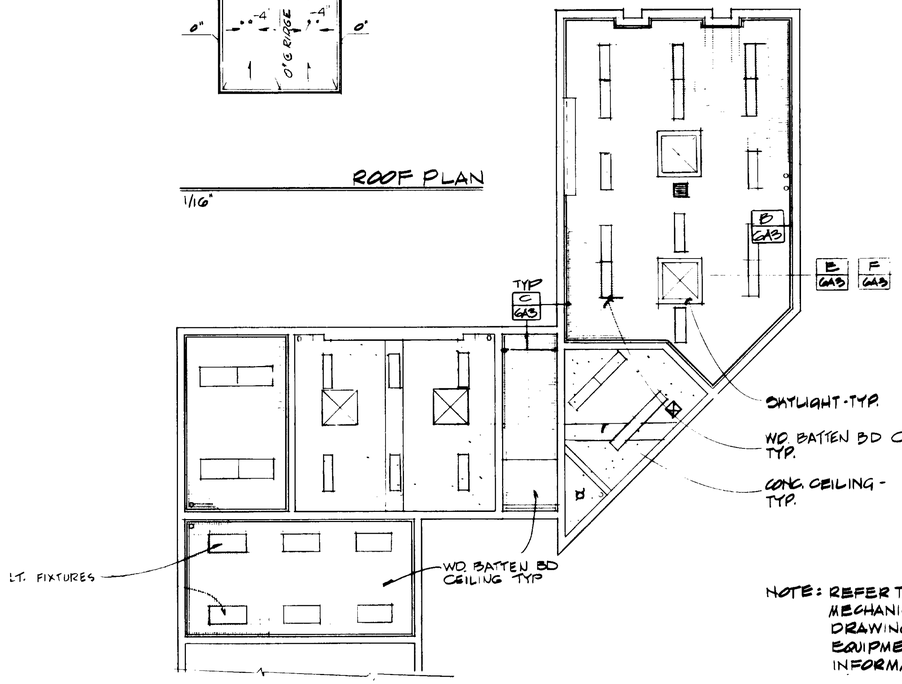
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
ARCHITECTURAL SCHEDULES, NOTES, AND DETAILS

SHEET A-1 OF 66 SHEETS



ROOF PLAN

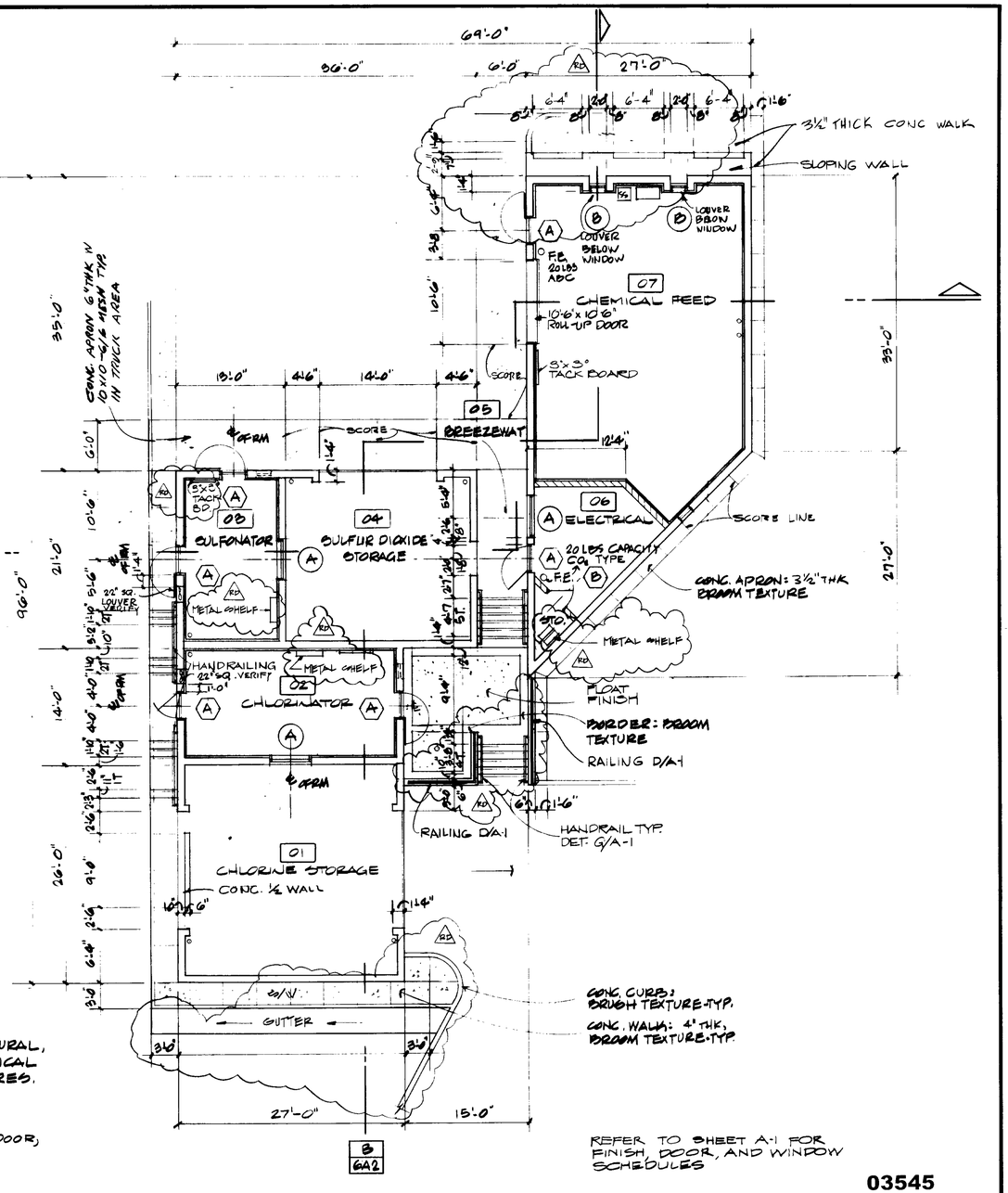
1/16"



PARTIAL REFLECTED CEILING PLAN

1/8"

A 6A2



NOTE: REFER TO CIVIL, STRUCTURAL, MECHANICAL & ELECTRICAL DRAWINGS FOR FIXTURES, EQUIPMENTS & OTHER INFORMATION.

SEE SHEET A-1 FOR DOOR, WINDOW AND ROOM FINISH SCHEDULES

REFER TO SHEET A-1 FOR FINISH, DOOR, AND WINDOW SCHEDULES

03545

FLOOR PLAN

1/8"

NORTH

RECORD DRAWING

Hardison Komatsu Ivelich & Tucker

RD	4/11/84	MDU	RECORD DRAWINGS
REV	DATE	BY	DESCRIPTION

SCALE: AS NOTED

DESIGNED H/K
DRAWN H/K
CHECKED WHB

SUBMITTED
PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD

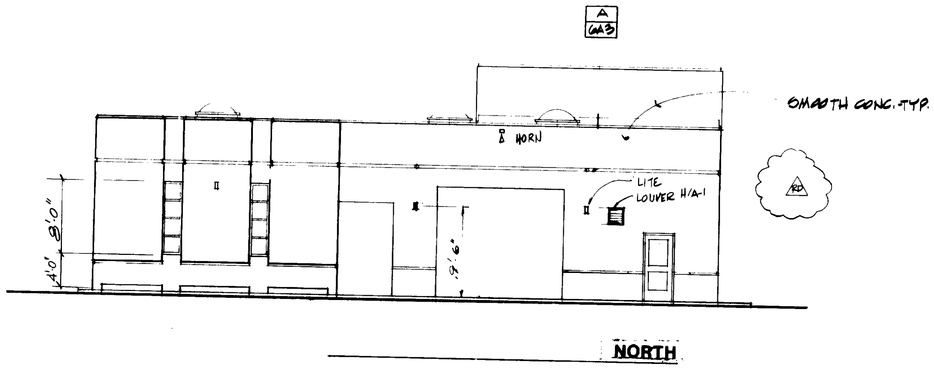
TAPIA WRF — FILTRATION/DISINFECTION ADDITION

PHASE II

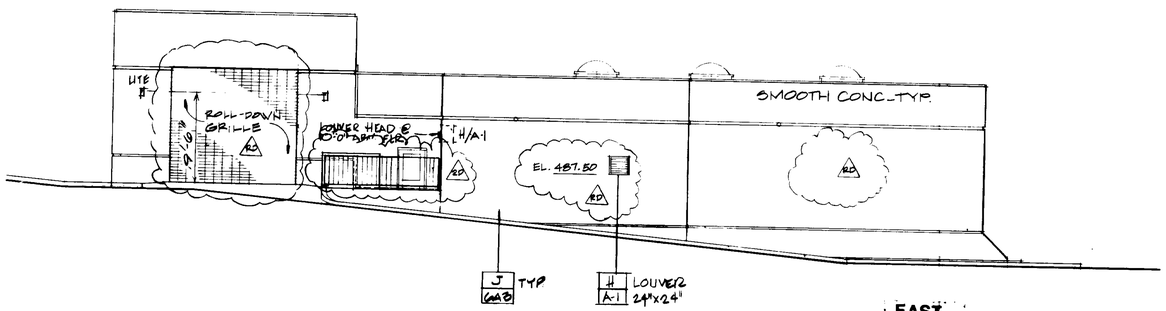
CHEMICAL BUILDING — PLAN

SHEET 6A-1 OF 66 SHEETS

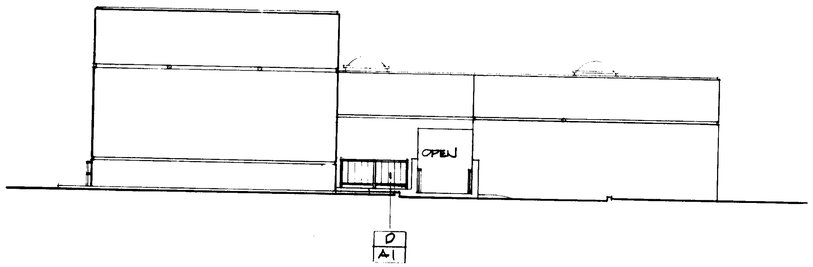
NOTE: EXPOSED CONCRETE TEXTURE: SMOOTH WHERE SHOWN



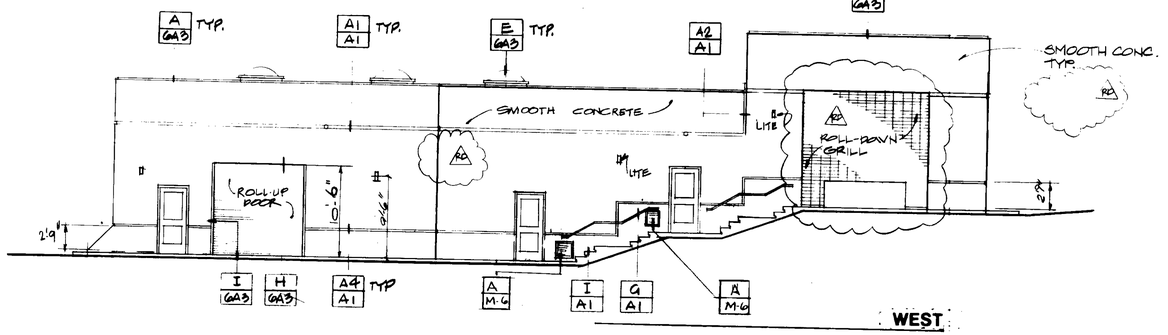
NORTH



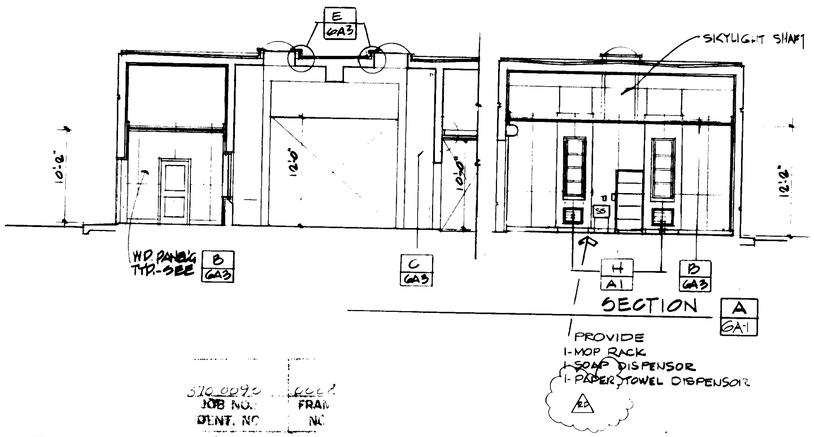
EAST



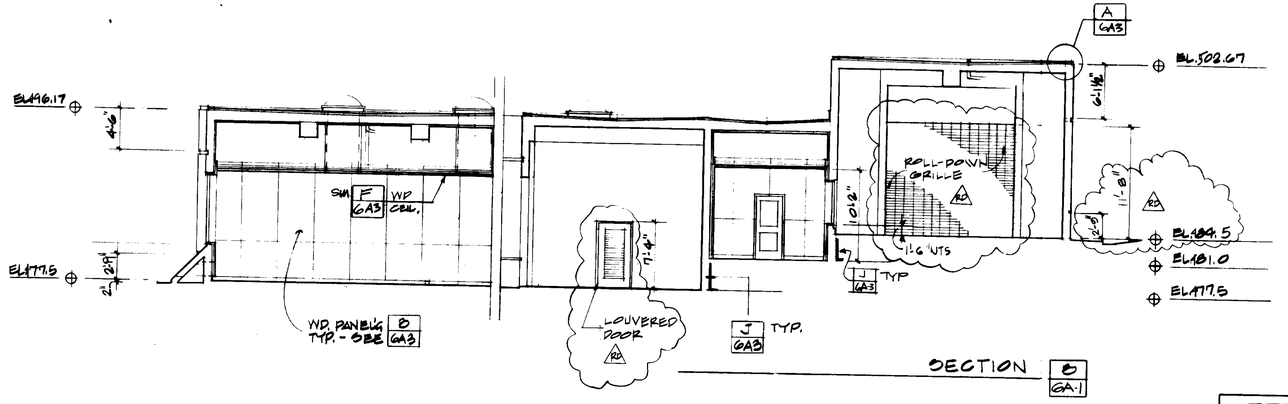
SOUTH



WEST



SECTION



SECTION B GA-1

SIG. 0070 JOB NO. DENT. NO

FRAM NO

03546

RECORD DRAWING

Hardison Komatsu Ivelich & Tucker

REV	DATE	BY	DESCRIPTION
RD	4/1/81	MDJ	RECORD DRAWINGS
	6/26/81	JMH	

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

DESIGNED H/K
DRAWN H/K
CHECKED WHB

SUBMITTED Robert C. Jemek PROJECT ENGINEER 27304 R.C.E. NO. 3/19/81 DATE

RECOMMENDED JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. 27638 R.C.E. NO. 3/23/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

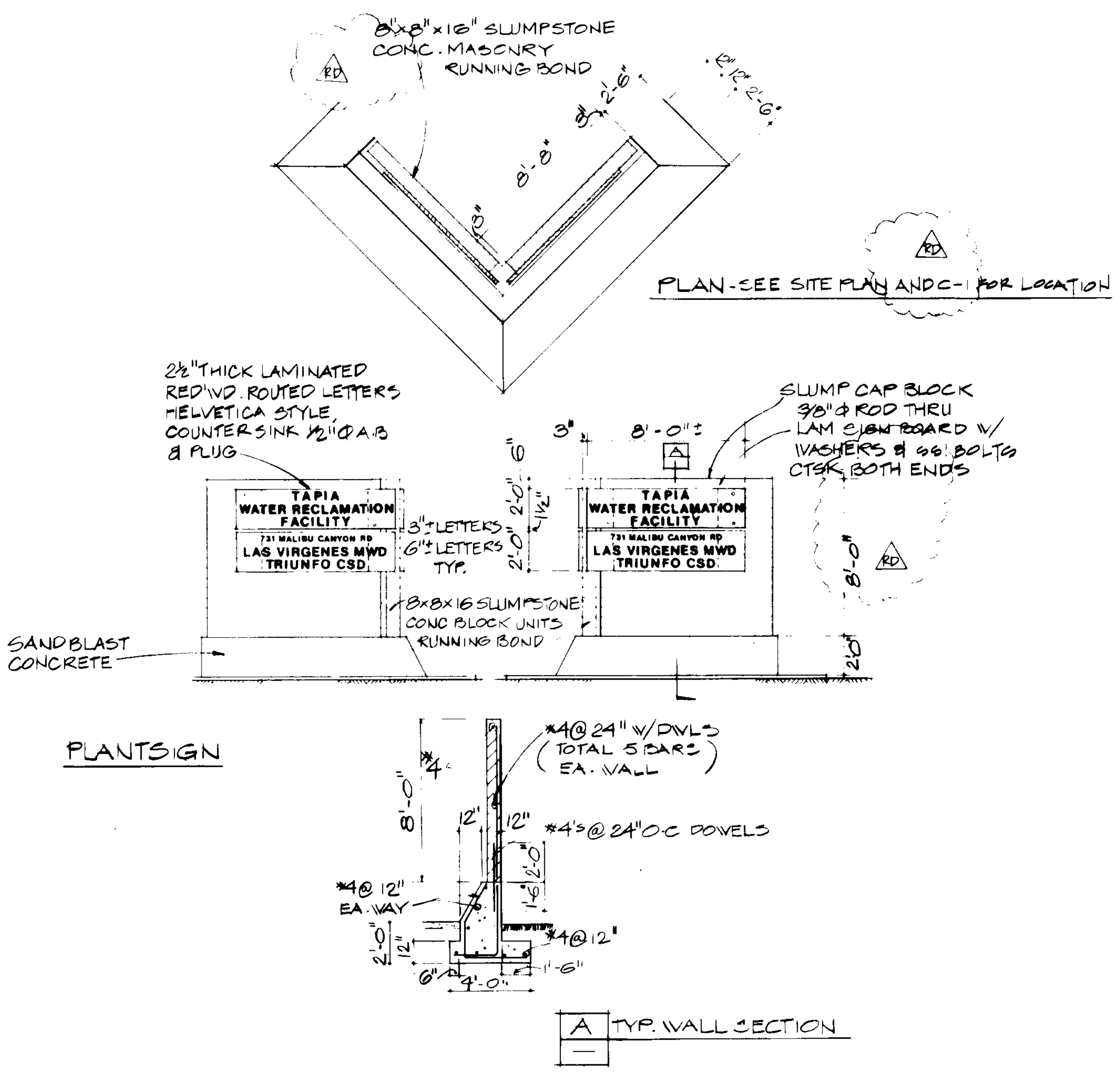
LAS VIRGENES MWD/TRIUNFO CSD

TAPIA WRF – FILTRATION/DISINFECTION ADDITION

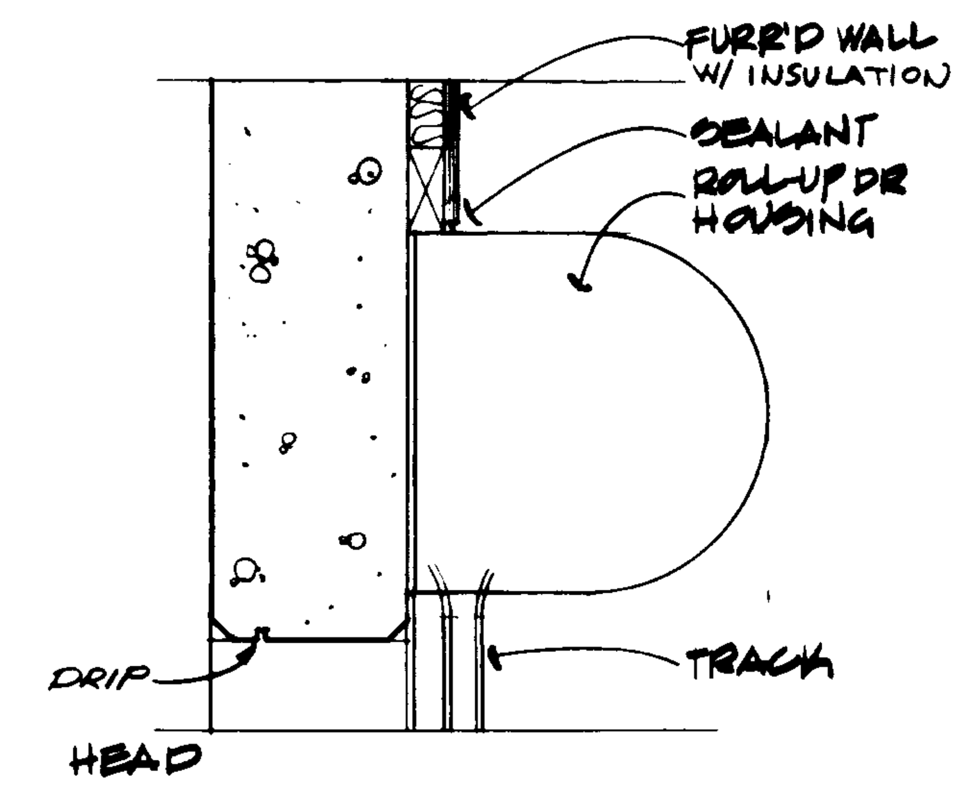
PHASE II

CHEMICAL BUILDING – ELEVATIONS AND SECTIONS

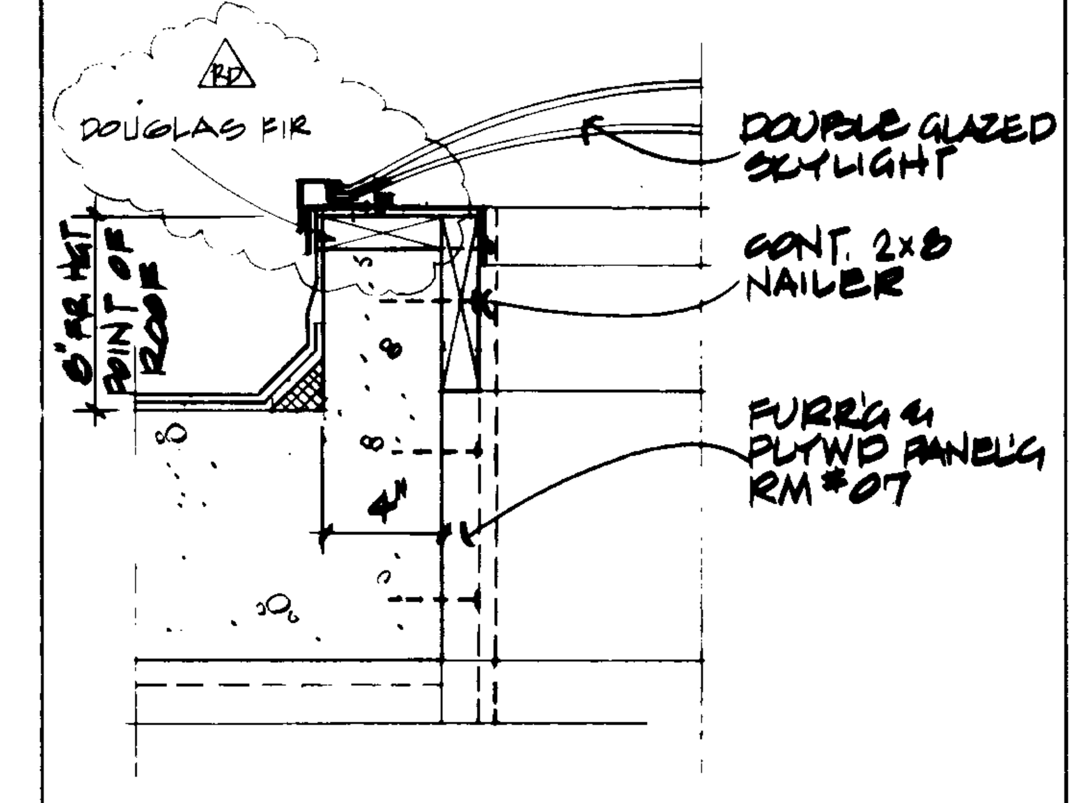
SHEET 6A-2 OF 66 SHEETS



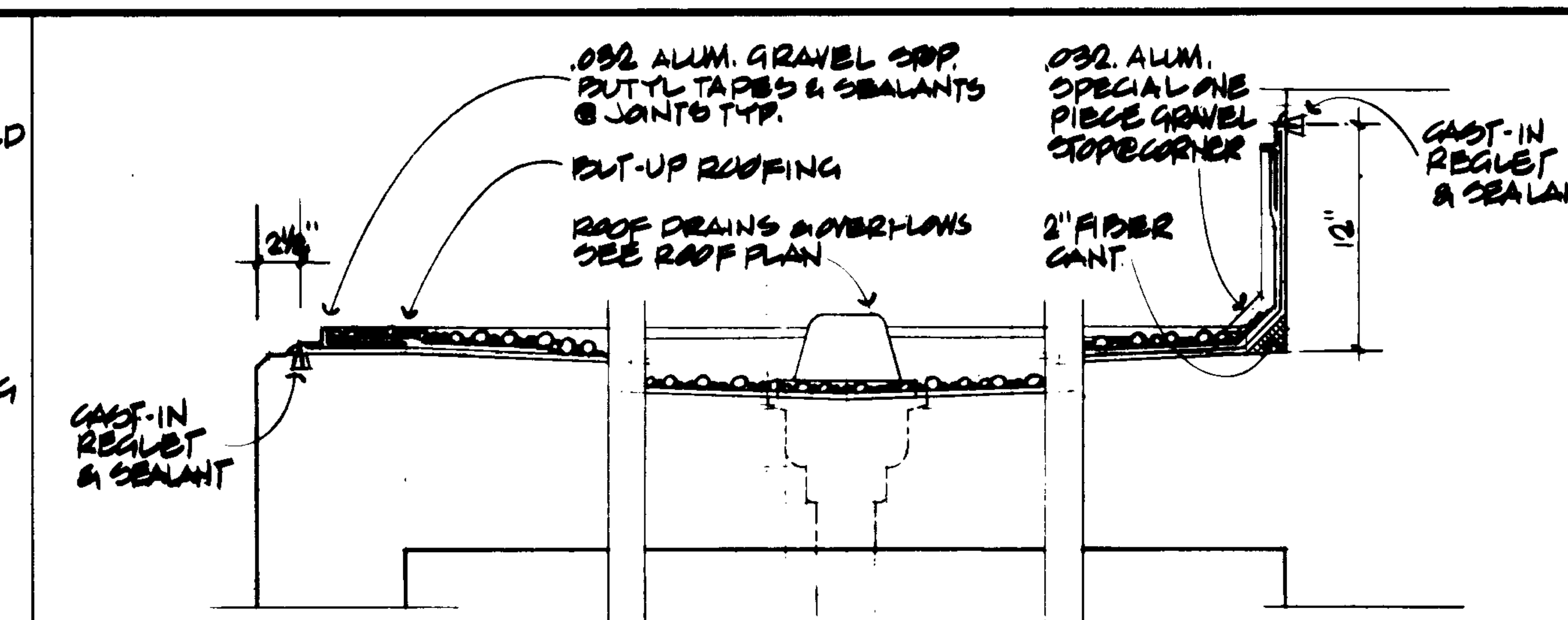
PLANT SIGN | I L-4



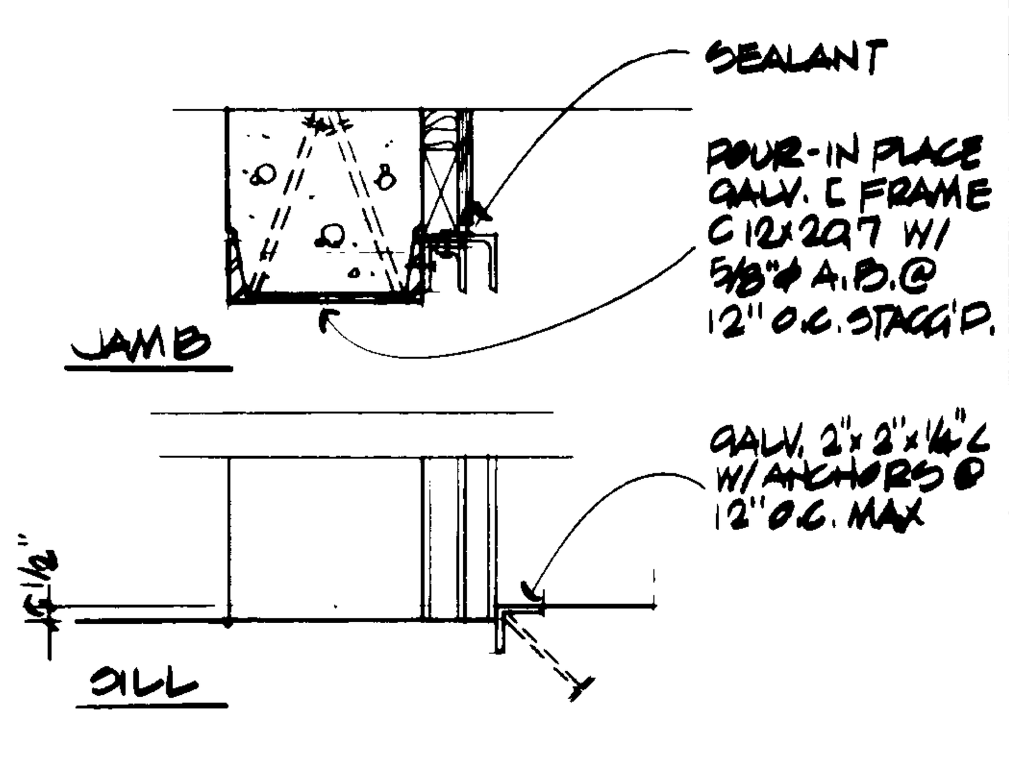
ROLL-UP DOOR | H 6A-2



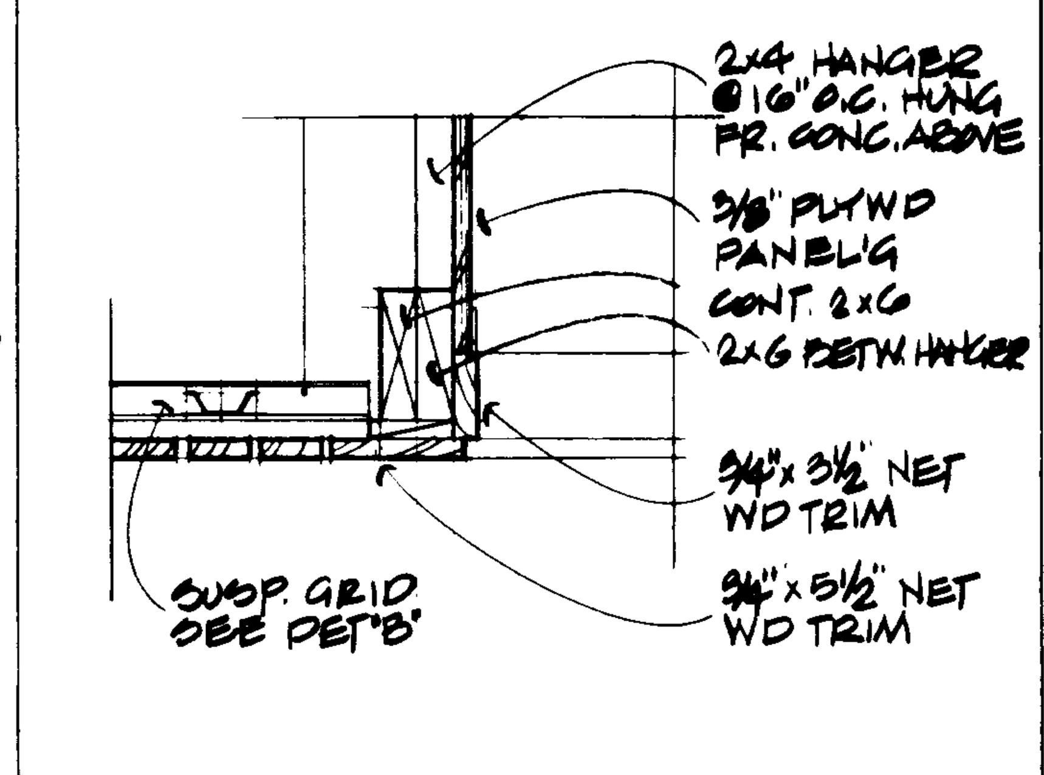
TYP. SKYLIGHT | E 6A-1



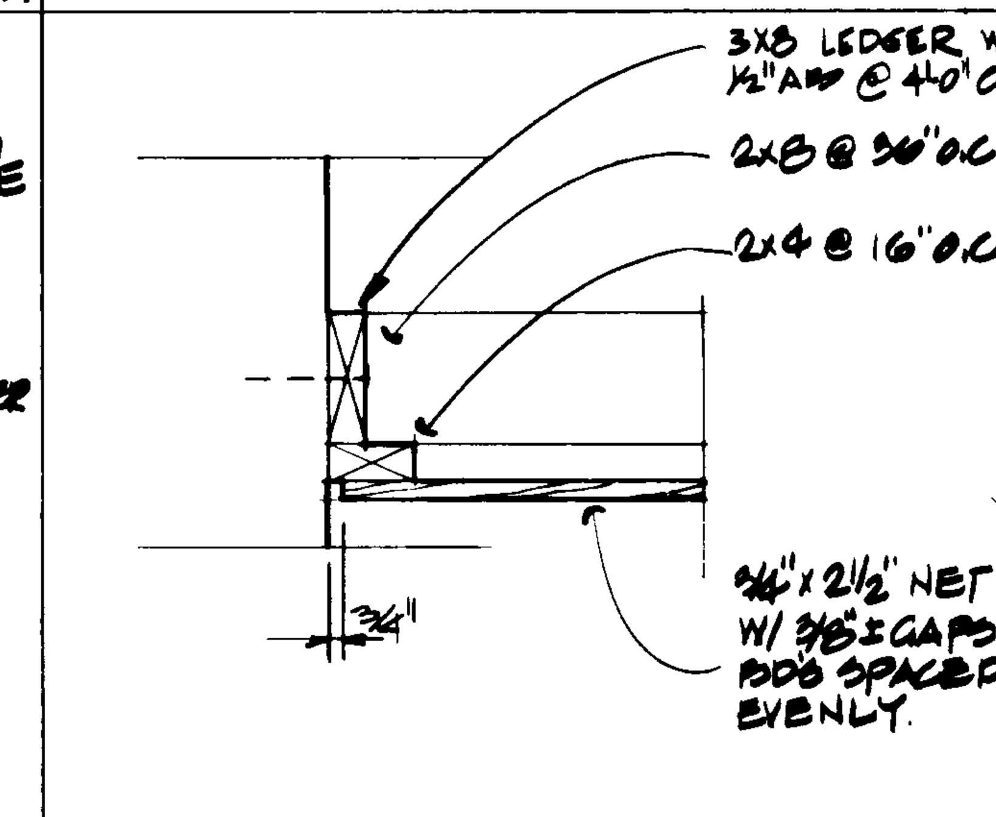
TYP. ROOF | A 6A 2



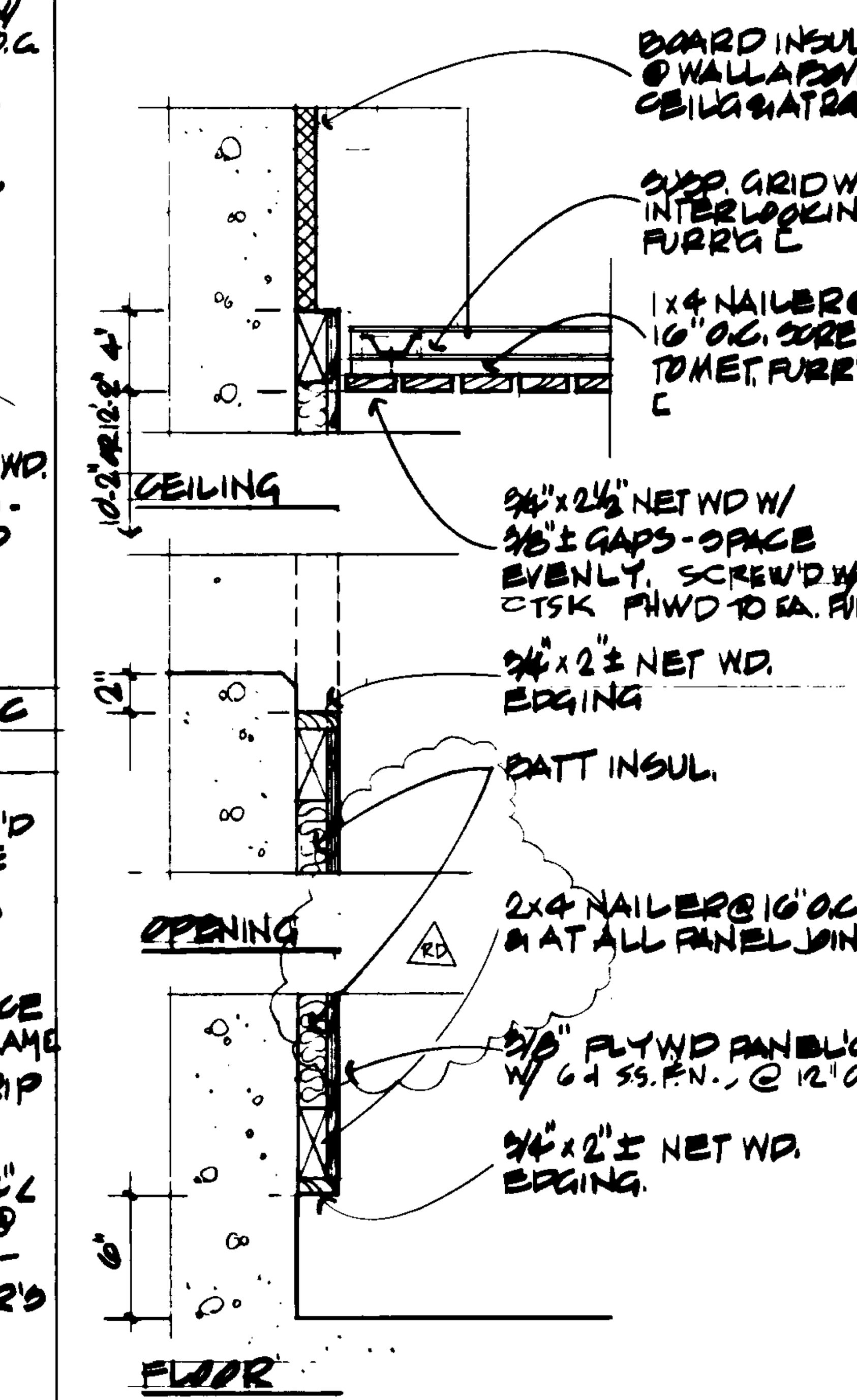
ROLL-UP DOOR | I 6A-2

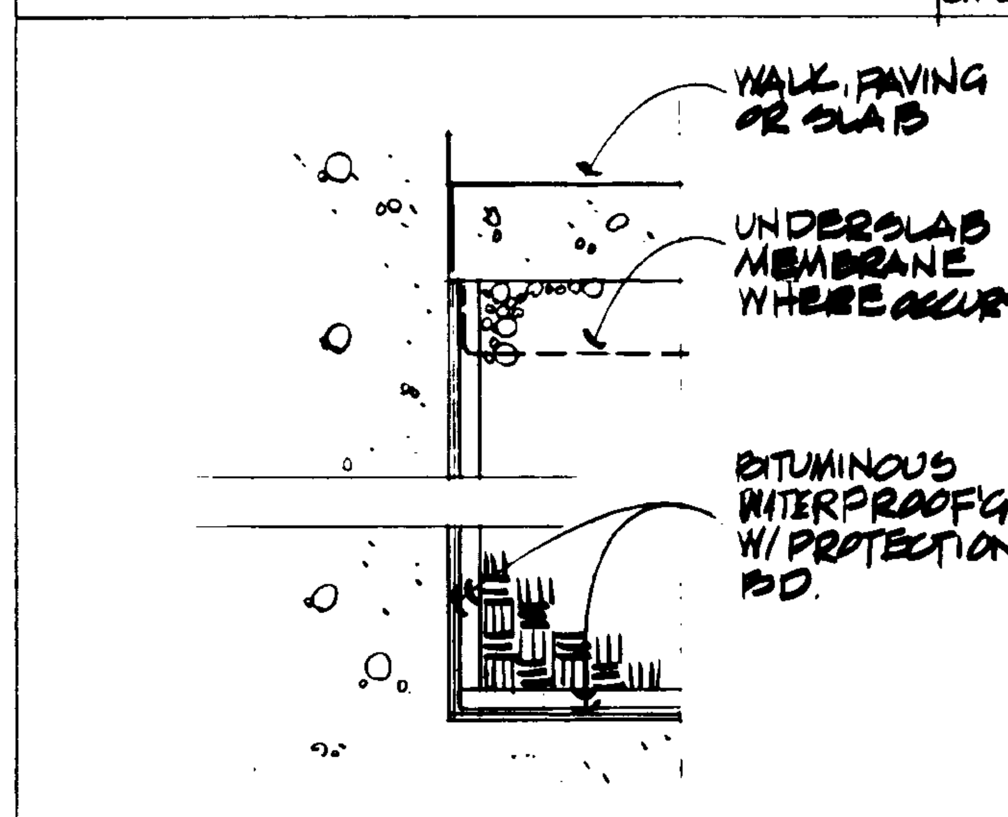


WD. CEILING @ SKYLIGHT | F 6A-1

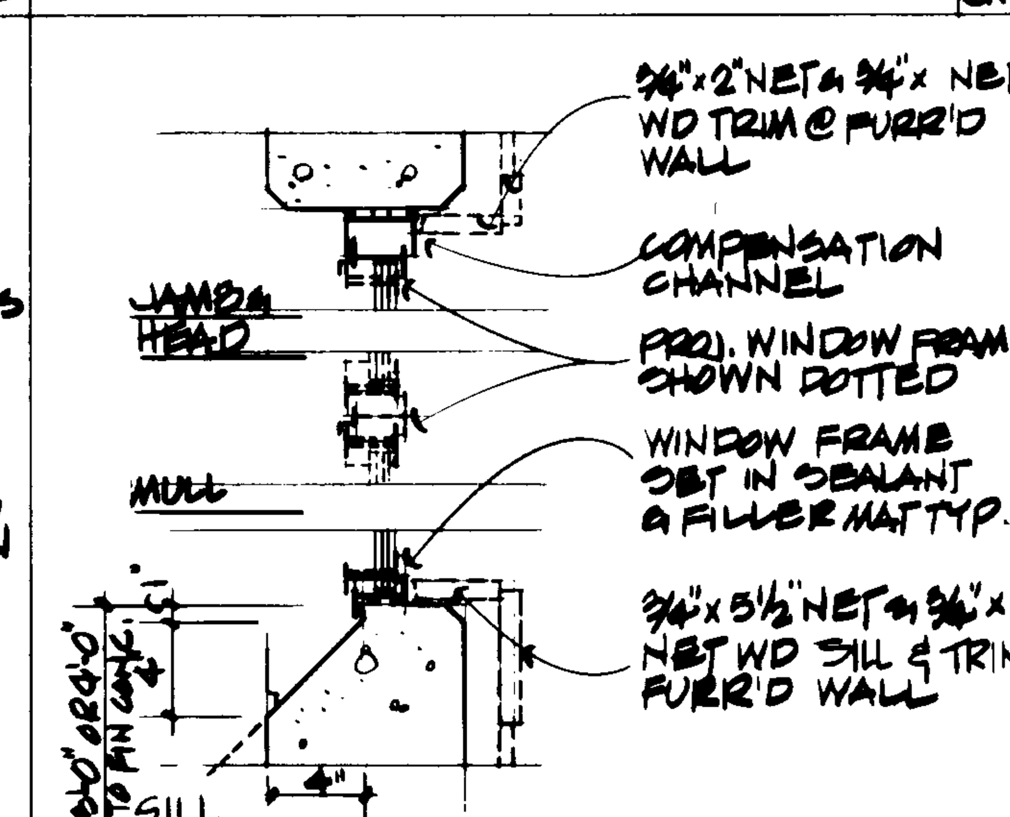


WD. CEILING @ BREEZEWAY | C

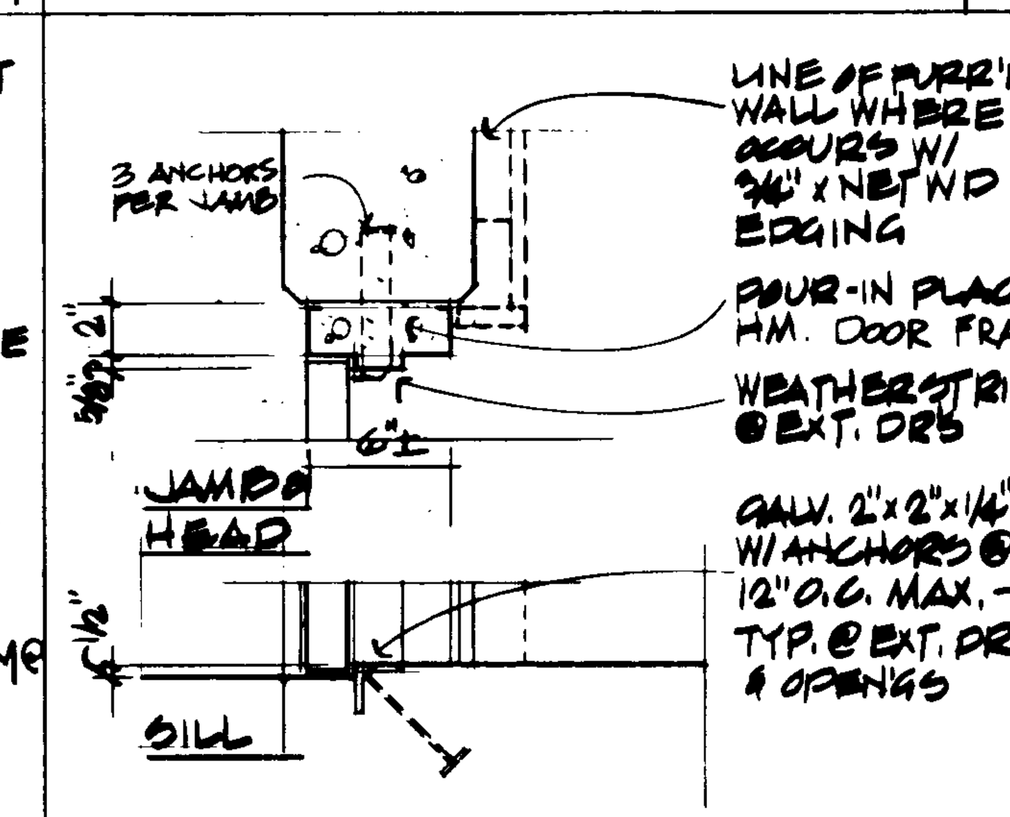




DAMPPROOFING | J 6A-2

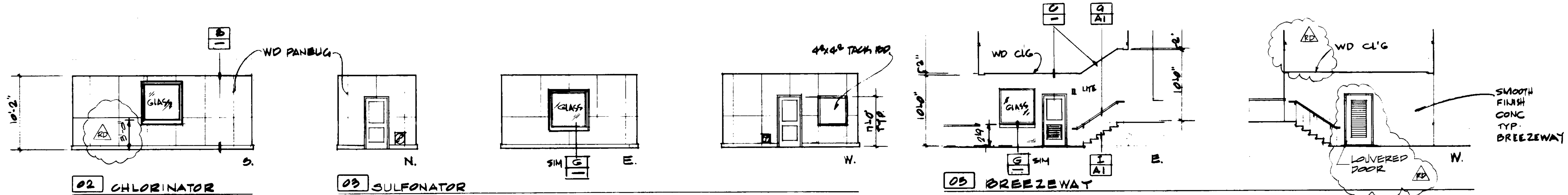


TYP. PROJECTING & FIXED WINDOW | G A-1



TYP HM DOOR & FRAME | D A-1

TYP. FURRED WALL & SUSP. CEIL'G. | B 6A-2



02 CHLORINATOR

03 SULFONATOR

05 BREEZEWAY

JOB NO. IDENT. NO. | FRAME NO.

03547

INTERIOR ELEVATIONS

1/8"

RECORD DRAWING

Hardison Komatsu Ivelich & Tucker

REV	DATE	BY	DESCRIPTION
RD	4/1/84	MDU	RECORD DRAWINGS
	6/26/84	JMH	

SCALE: 1½"=1'-0" OR AS NOTED

DESIGNED H/K
DRAWN H/K
CHECKED WHB

SUBMITTED [illegible] 27304 8/19/81
PROJECT ENGINEER R.C.E. NO. DATE

RECOMMENDED [illegible] 27638 8/20/81
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. R.C.E. NO. DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II | CHEMICAL BUILDING – INTERIOR ELEVATIONS AND DETAILS

SHEET 6A-3 OF 66 SHEETS

8 | PINUS CANARIENSIS
6-15 GAL 2-5 GAL | C.I. PINE

EXISTING PINE

2 | LIQUID AMBER STYRACIFLUA
15 GAL | SWEET GUM TREE

REMOVED BY CONTRACTOR

EXISTING FINAL SEDIMENTATION TANKS

JAWL

FUTURE FILTERS

SEE BELOW FOR CONTINUATION OF THIS AREA.

REMOVED BY CONTRACTOR

CONCRETE

3 | LIQUIDAMBAR STYRACIFLUA
15 GAL | SWEET GUM TREE (G L-3)

EXISTING AERATION TANKS

EXISTING LANDSCAPING ALONG SIDE OF TANKS SHALL REMAIN WHEREVER POSSIBLE

TURF FOR EROSION CONTROL

AUTOMATIC CONTROLLER (COORDINATE POWER)

CHEMICAL BUILDING

LAWN

1-15 GAL.
2-5 GAL. JUNIPER

2-5 GAL BOTTLEBRUSH

15 GAL BOTTLEBRUSH

2-5 GAL. BOTTLEBRUSH

5 | PRUNUS CERASIFERA
15 GAL | 'KRAUTER VELUVIUS' (C L-3)

JOB NO.
IDENT. NO.
NAME NO.

FILTERS & CHEMICAL BLDG. PLANTING

SCALE 1"=20'

22 | LANTANA MONTEVIDENSIS "GOLD MOUND"
5 GAL | TRAILING LANTANA

G.C. | ARCTOTHECA CALENDULA
FLATS | (12" O.C.)

6 | NERIUM OLEANDER (WHITE)
5 GAL | OLEANDER

6 | PINUS CANARIENSIS
1-15 GAL 2-5 GAL | C.I. PINE

BALANCING POND

LAWN

GRASS

MOW STRIP (H L-3)

SEE ABOVE FOR CONTINUATION OF THIS AREA

6 | JUNIPERUS CHINENSIS 'TORULOSA'
15 GAL | TWISTED JUNIPER

BALANCING POND PLANTING

SCALE 1"=30'

03548

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	4/16/84	MPU	RECORD DRAWINGS

SCALE: AS SHOWN

DESIGNED EPT
DRAWN EPT
CHECKED EPT

SUBMITTED
Robert C Smith — PROJECT ENGINEER — 27304 R.C.E. NO. — 9/17/81 DATE

RECOMMENDED
L.A.S.D. — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27632 R.C.E. NO. — 9/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD

TAPIA WRF – FILTRATION/DISINFECTION ADDITION

PHASE II

LANDSCAPE PLAN

SHEET L-1 OF 66 SHEETS

CONTROL LINE

EXISTING FINAL SEDIMENTATION TANKS

EXISTING AERATION TANKS

SEE BELOW FOR CONTINUATION OF THIS AREA

PULL BOX

2" CONDUIT FOR CONTROL WIRE

IRRIGATION AUTOMATIC CONTROL (18 STATION)

RP

PULL BOX

1" CONDUIT TO P.B.

CHEMICAL BUILDING

1½" R.C.V. 16 G.P.M.

C C-3

2" BRASS P.O.C. TO 20" EFFLUENT WATER LINE.

1½" WITH CAP FOR FUTURE EXPANSION

FILTERS & CHEMICAL BLDG. IRRIGATION

SCALE 1"= 20'

BALANCING POND

SEE ABOVE FOR CONTINUATION OF THIS AREA

P.O.C. OF 6" LINE TO 20" EFFLUENT WATER LINE (NO PRESSURE REDUCTION)

STA 0+00.00

1½" R.C.V. 50 G.P.M.

1½" R.C.V. 19 G.P.M.

1½" R.C.V. 46 G.P.M.

6"

FOR CONTINUATION OF MAIN LINE SEE ENTRANCE ROAD IRRIGATION SHT. L-4

P.O.C. TO 20" EFFLUENT WATER LINE

BALANCING POND IRRIGATION

SCALE 1"= 30'

03549

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	4/1/84	MDU	RECORD DRAWINGS

SCALE: AS SHOWN

DESIGNED EPT
DRAWN EPT
CHECKED EPT

SUBMITTED PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

RECOMMENDED JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27033 R.C.E. NO. — 9/23/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

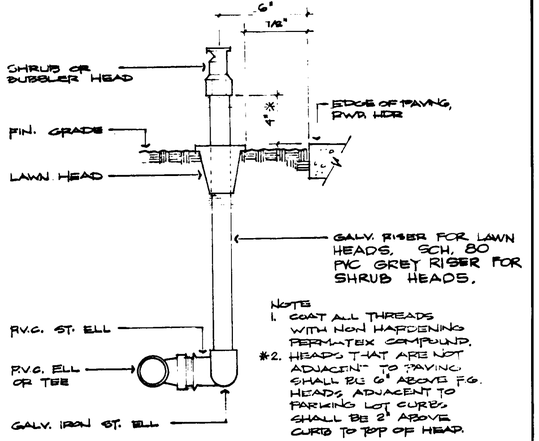
LAS VIRGENES MWD/TRIUNFO CSD

TAPIA WRF – FILTRATION/DISINFECTION ADDITION

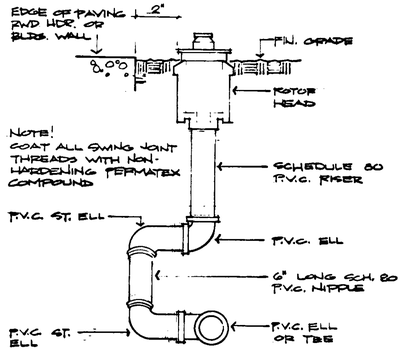
PHASE II

IRRIGATION PLAN

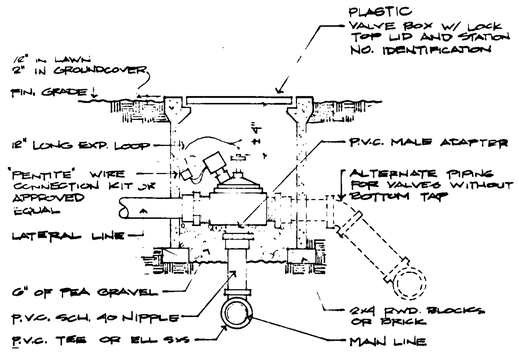
SHEET L-2 OF 66 SHEETS



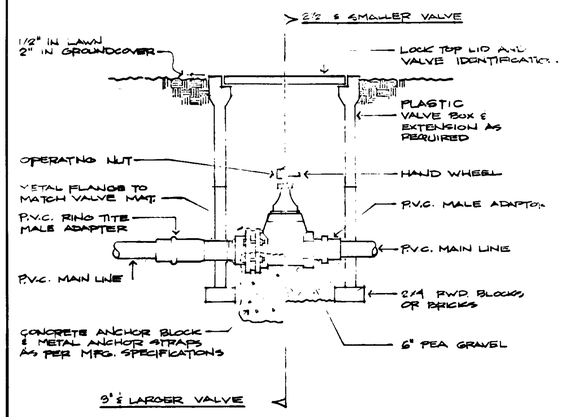
LAWN & SHRUB HEAD DETAIL (A, L-3)
NO SCALE



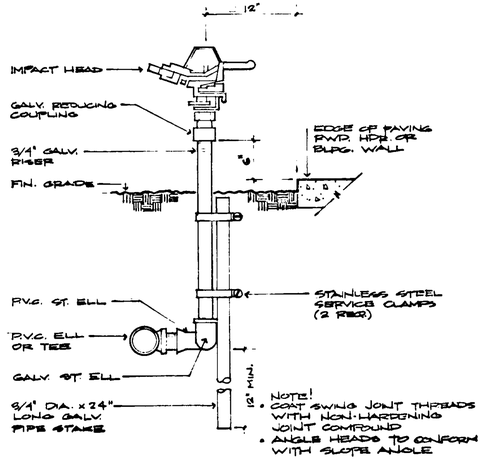
LAWN ROTOR HEAD DETAIL (B, L-3)
NO SCALE



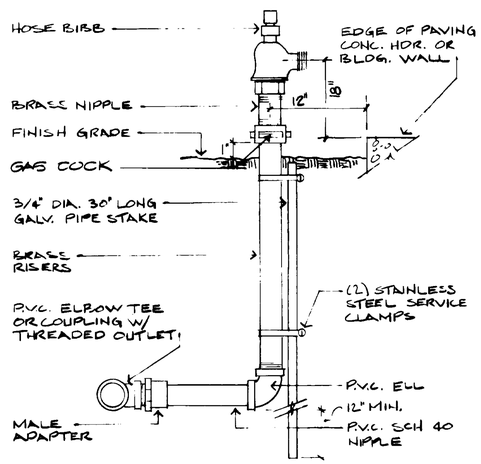
REMOTE CONTROL VALVE DETAIL (C, L-3)
NO SCALE



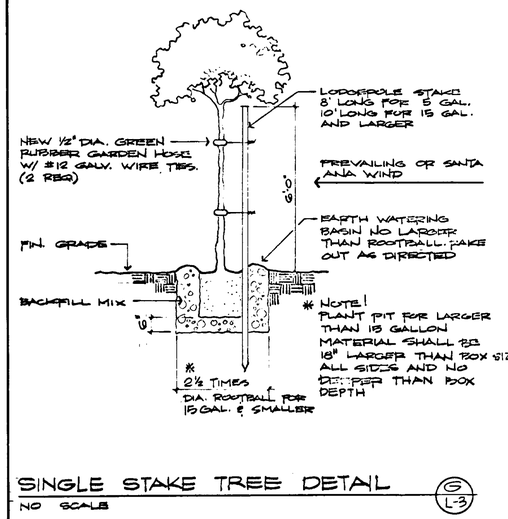
GATE VALVE DETAIL (D, L-3)
NO SCALE



IMPACT HEAD DETAIL (E, L-3)
NO SCALE



HOSE BIBB DETAIL (F, L-3)



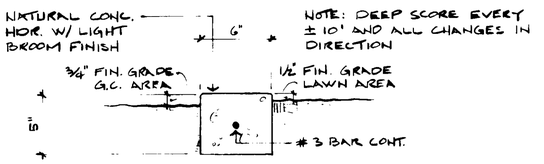
SINGLE STAKE TREE DETAIL (G, L-3)
NO SCALE

IRRIGATION LEGEND

SYMBOL	MANUFACTURER *	CAT. NO. & DESCRIPTION *	PSI	GPM	RAD.	REF.
X	TORO	336-00-06 FULL ROTOR	60	11.6	47'	B L-3
V	"	328-00-06 PART "	60	5.8	47'	
V	"	329-00-06 " "	60	6.3	47'	
V	"	327-00-06 " "	60	5.3	47'	
V	"	324-00-06 " "	60	2.9	47'	
▼	TORO	308-00-01 " "	50	1.4	18'	
▽	TORO	308-10-03 PART ROTOR	50	3.3	36'	A L-3
⊗	TORO	304-10-03 PART ROTOR	50	1.5	36'	
▼	"	309-10-02 PART ROTOR	50	1.8	24'	
⊗	"	316-10-02 FULL ROTOR	50	3.4	24'	
▽	TORO	304-10-01 PART "	50	.72	18'	
⊗	"	304-10-03 PART "	50	1.5	36'	
⊗	TORO	307-10-02 PART "	50	1.4	24'	B L-3
⊠	TORO	336-00-05 FULL ROTOR	60	7.4	41'	
▣	"	328-00-05 PART ROTOR	60	3.7	41'	
▣	"	324-00-05 " "	60	1.9	41'	A L-3
X	RAIN-O-MAT	310F FULL LAWN SPRAY	15	2.0	10'	
V	"	310H HALF " "	15	1.0	10'	
V	"	310Q QTR. " "	15	.8	10'	
V	RAIN-O-MAT	320H HALF LAWN SPRAY	15	1.7	12½'	
V	"	320Q QTR. " "	15	1.6	12½'	
▼	RAIN-O-MAT	305SH HALF FLAT SPRAY	10	.75	6'	
◐	RAIN-O-MAT	310SH HALF SHRUB SPRAY	15	1.0	10'	
◐	"	310SQ QTR. " "	15	.8	10'	
■	RAIN-O-MAT	320SH HALF " "	20	1.7	12½'	
■	"	320SQ QTR. " "	20	1.6	12½'	
◪	RAINBIRD	35 PJ-TNT SPECIAL	45	6.8	48'	E L-3
②	RAINBIRD EFA SERIES ELECTRIC REMOTE CONTROL VALVE					C L-3, F L-3
●	HOSE BIBB - 3/4" x 3/4"					
☒	RAINBIRD MODEL RC-1860 CONTROLLER (PEDESTAL MOUNT)					D L-3
▯	GATE VALVE (LINE SIZE)					
———	LATERAL LINE SCH 40 P.V.C.					
———	MAIN LINE SCH 40 P.V.C.					

NOTE: INSTALL VALCON ANTI-DRAIN-VALVES ON ALL SPRINKLER HEAD RISERS. MODEL ADV 5000 ON 1½" RISERS & MODEL ADV 5100 ON ¾" RISERS.

* SEE SPECIFICATION FOR EQUAL MFG & NUMBERS



CONCRETE MOW STRIP DETAIL (H, L-3)
NO SCALE

JOB NO. FRAME
CONT. NO. N

03550

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

SCALE: NTS

DESIGNED EPT
DRAWN EPT
CHECKED EPT

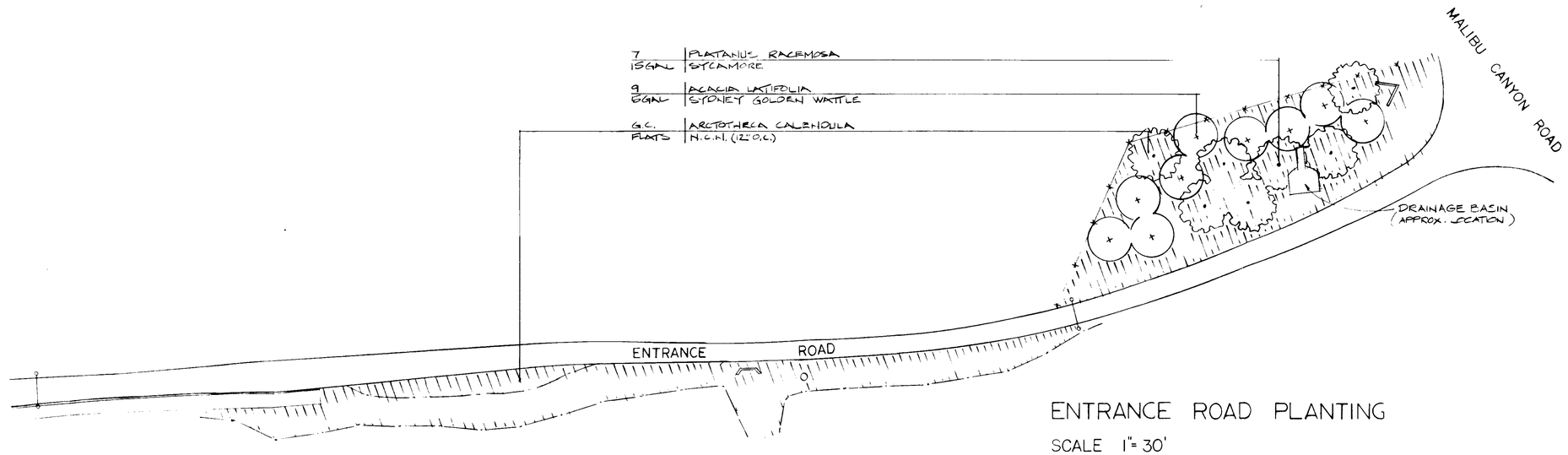
SUBMITTED Robert C Smith PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27033 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
LEGEND AND DETAILS

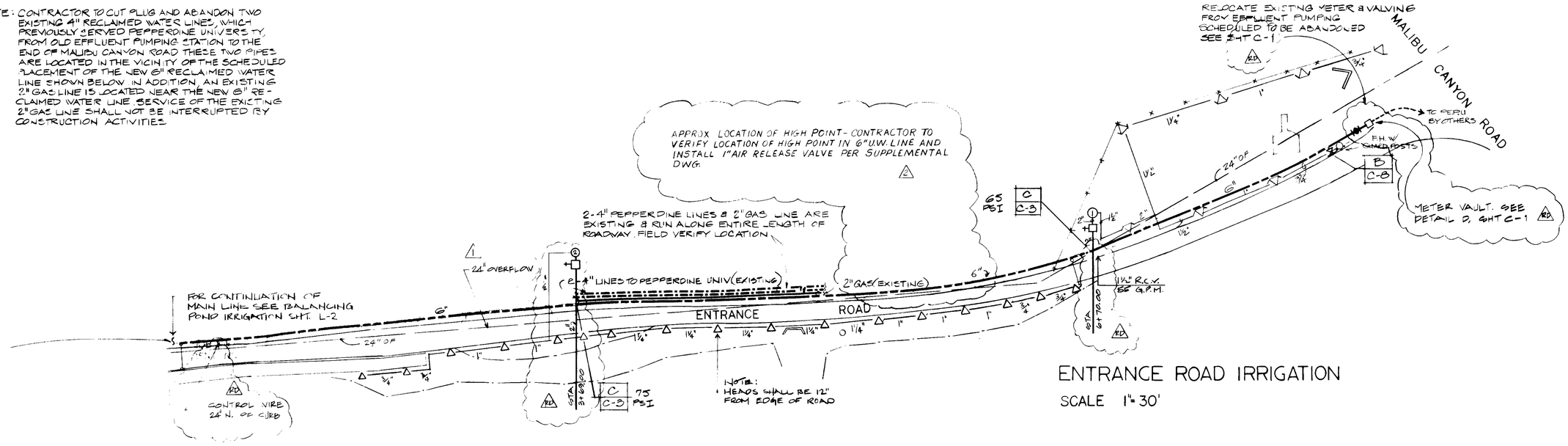
SHEET L-3 OF 66 SHEETS



ENTRANCE ROAD PLANTING

SCALE 1"= 30'

NOTE: CONTRACTOR TO CUT PLUG AND ABANDON TWO EXISTING 4" RECLAIMED WATER LINES, WHICH PREVIOUSLY SERVED PEPPERDINE UNIVERSITY, FROM OLD EFFLUENT PUMPING STATION TO THE END OF MALIBU CANYON ROAD. THESE TWO PIPES ARE LOCATED IN THE VICINITY OF THE SCHEDULED PLACEMENT OF THE NEW 6" RECLAIMED WATER LINE SHOWN BELOW. IN ADDITION, AN EXISTING 2" GAS LINE IS LOCATED NEAR THE NEW 6" RECLAIMED WATER LINE. SERVICE OF THE EXISTING 2" GAS LINE SHALL NOT BE INTERRUPTED BY CONSTRUCTION ACTIVITIES.



ENTRANCE ROAD IRRIGATION

SCALE 1"= 30'

03551

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
		RD/AJB/MDU	RECORD DRAWING
		4/28/83 JMH	
2	4-12-83	A.L.R.	C.O. No. ADDED 1" A.V.
1	11-5-82	L.V.	CONSTRUCTION VERIFICATION (ADDED PIPE)

SCALE: 1" : 30'

DESIGNED EPT
DRAWN EPT
CHECKED EPT

SUBMITTED: Robert C. Smith, PROJECT ENGINEER, 27338 R.C.E. NO., 8/19/81 DATE

RECOMMENDED: JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC., 27038 R.C.E. NO., 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD

TAPIA WRT FILTRATION/ DISINFECTION ADDITION

PHASE II — ENTRANCE ROAD, PLANTING AND IRRIGATION PLAN

SHEET L-4 OF 66 SHEETS

PROPERTY LINE

EXIST. SCREEN PRESSURE REGULATOR & BACKFLOW PREVENTER

VALVE STRUCT.

RETAINING WALL SEE SHT. 10 S-1

PROVIDE CONC. STEPS DET'S. SIMILAR DET. 3/HT. 10 S-1

JOIN NEW RAIL

ELECT. VAULT

N10037.00 E10219.00

N10035 E10109 END RET. WALL

N10031.00 E10309.34 EXIST. VALVE (TYP.)

ROCK & OIL ROAD AND PAVED ROAD DELETED

ROCK RIPRAP

CONSTRUCT CONCRETE BLOCK WALL SEE DETAIL B

FENCE

CONSTRUCT 8'X4' CONC. PAD AT SAG TO DIVERT DRAINAGE TO THE CREEK OR TO DRAINAGE DITCH. PROVIDE 4' OPENING IN CURB

JOIN EXIST. WALL

OVERFLOW STRUCTURE PARSHALL FLUME FOR MODIFICATION SEE PLAN C C-6

PROVIDE 2' THK. RIPRAP 1/2 TON TO ALLOW FLOW TO CREEK. LENGTH REQ'D. TO BE APP'D. BY ENGINEER

N10 000

20'

10'

EX. 60" C.M.P.

N9958.41 E10794.96 (F.G. 467.60±) SAW CUT & JOIN EXIST. ROAD

REPLACE EXIST. BAR SCREEN W/ NEW ONE AS SHOWN ON SECTION 4 THIS SHEET

E10800

JOIN EXIST. GUNITE DITCH SAW CUT & MATCH 6" THICK CONC. WALK

6" WIDE X 6" THICK W.W.M. (TYP.) W/ GXG-6X6 W.W.M. FOR FINISH & EXP. JOINT SEE A-C-2

MATCH EXIST. DITCH IN SHAPE & ELEV.

EXIST. RD.

2' THK. RIPRAP (SEE SPECS.)

EXIST. 60" C.M.P.

COMPACT BACKFILL (SEE SPECS.)

EXIST. GRD.

SECTION 5 / NO SCALE

REMOVE EXIST. WOOD STAIRS & CONST STAIRS SEE DETAIL A SHEET 10S-1

EFFLUENT CONTROL VALVE STRUCTURE SEE SHEETS C-6 & 10M-E

RETAINING WALL

EFFLUENT POND BOT. EL. 449.0±

EFFLUENT PUMP STATION

SUMP

SURGE TANK

METER VAULT (EAST)

VALVE VAULT

PG. 472.40

472.5 F.G.

REMOVE FAILED EXIST. AC PVMT & CURB (SEE SPECS.)

NEW CONC. CURB

EXPANSION JT.

SLOPE

SLOPE TO DRAIN

LIMITS OF RESURFACING SEE SPECS

BEGIN DITCH RECONSTRUCTION ROUTE WITH EXISTING

PROVIDE GUARD POSTS SEE DET'D SHEET C-3

TEMPORARY 14" S.E. PIPE

FUTURE FILTERS IN TEMPORARY POND

FUTURE FILTER INFLUENT PUMP

EXIST. BALANCING POND BOT EL. 458.0

SEEPAGE BARRIER FENCE

FILL THIS AREA WITH STRUCTURAL FILL PER SPECS

EXIST. BOTT. EL. 458.0

TOE EL. 468.0 ALL AROUND

TOE EL. 473.0

2:1 SLOPE (TYP.)

ROCK AND OIL ROAD

DEMOLISH EXIST. EFFLUENT PUMPING STATION SEE GENERAL NOTES

FINAL SEDIMENTATION TANKS

SEE SHT. 8S-1

MH

3:1 SLOPE

END OF NEW PVM'T.

RAISE EXIST. C.I. PIPE & VALVE EXTENSION TO F.G.

6" CONC. RAMP

12"

END OF CURB

NEW A.C. PVM'T.

Δ = 16° 51' 03"
R = 90.00'
L = 73.69'
= 30.99

EXIST. DRAINAGE DITCH

PAVED UNDER CONTRACT NO. C-9

20' LONG CONCRETE BLOCK WALL

E10600

END NEW PAVEMENT

GALV. 3" X 3.8" THK BAR W/ 1 1/8" HOLES

SPOT WELD BARS TYP.

EXIST. GRD.

GALV. WIRE MESH (SEE FENCING SPEC.)

12"

8" THK CONC

COMPACT BACKFILL (SEE SPECS.)

1" ϕ BAR SCREENS @ 12" O.C. (GALV.)

3' MIN. ON UNDISTURBED SOIL

SECTION 4 / NO SCALE

N9800

WASTE WASH WATER HOLDING TANK (BURIED)

CHEM. FEED

CHEMICAL BUILDING AND STORAGE SEE SHTS G-5 FOR DETAILS

CONC. CURB

AERATION TANKS

PRIMARY SEDIMENTATION TANKS

PRIMARY SEDIM. TANK

REAERATION TANK

AEROBIC DIGESTERS

SUBSTATION

FOR ENLARGED PLAN OF THIS AREA SEE SHEET C-2

PROPERTY LINE

T.B.M.

N9632.34 E10000.00 FD. RR SPIKE

N10000.00 E10000.00 FD. R.R. SPIKE

P.I. N10031.80 E10176.00

SAW CUT & JOIN EXIST. A.C. PVMT.

CONTROL BUILDING

JOB NO. IDENT. NO.

FRAME NO.

FM0

3" ϕ

N9600

SAW CUT & JOIN EXIST. PVM'T.

SAW CUT & JOIN EXIST. CURB

NEW

LIMITS OF

PLANT

TRUE NORTH

23°55'31"

E10200

E10000

EXIST. DITCH

T.B.M. FOUND BOLT SET IN S.W. CORNER OF AERATION BASIN ELEV. 494.23

PLAN SCALE: 1"=30'

FOR DETAILS SEE PEPPERDINE UNIVERSITY TAPIA REUSE MAIN PLANNING STA 0+00 TO STA 7+05 EAST, BY KENNETH J. MULLEN ENGINEERS INC.

6" GTL, CML & CMC FORCE MAIN

6" GTL, CML & CMC REV

EXIST. FENCE

P.P.

F.H.

DETAIL D / NO SCALE

PROVIDE PLANT SIGN SEE SHT. GA-3

EXIST. 36" C.M.P.

EXIST. HEADWALL

ACCESS ROAD

6" REW SEE SHT. L-4

PROVIDE RIPRAP & BAR SCREEN W/ WIRE MESH SEE SECT. 3/4

24" ST PIPE OUT FALL TO 003

PLANT ENTRANCE PARTIAL PLAN / NO SCALE

MALIBU CANYON ROAD

CHLORINE CONTACT TANK

2" CAP

#4 CONTINUOUS

#4@24" 6" X 8" X 16" CONC BLK WALL. FILL ALL CELLS SOLID

EXIST. GUNITE

DETAIL B / SCALE 1"=2'

EXIST. GRD.

A C-2

SEE PLAN FOR WIDTH

1.5'

8.0'±

12"

EXIST. FENCE

℄ OF SWALE

472.50 T.W.

472.25 (TYP.)

F.S. SEE PLAN

3" A.C. PV'MT. (NEW) 2" A.C. PV MT (RESURFACING)

2%

2%

3" R. (TYP.)

VARIES

COMPACT FILL TO 95% MAX. DENSITY (TYP. SEE SPECS.)

3" GUNITE DITCH W/ GXG/10X10 W.W.M. (TYP.)

6" BASE COURSE COMPACT TO 95% MAX. DENSITY (FOR NEW PAVING ONLY)

SECTION 2 / NO SCALE

℄ WALL IN LINE W/ ℄ CURB

6"

15'

℄ GUNITE DITCH

2' MIN.

2.5'

A.C. PV'MT.

12"

5"

1'

1" ϕ BAR SCREEN

1/2 ROCK RIPRAP

8" THK. CONC.

4'

20' L.G. RET. WALL W/ #4 @ 24" O.C. EA. WAY

#4 @ 12" O.C. EA. WAY

SECTION 3 / NO SCALE

03552

RECORD DRAWING

GENERAL NOTES

1. EXISTING UTILITIES SHOWN IN PLANS ARE IN APPROXIMATE LOCATIONS AND ELEVATIONS AND DO NOT REPRESENT ALL EXISTING UTILITIES.
2. DEMOLISH AND REMOVE EXISTING EFFLUENT PUMPING STATION STRUCTURE AND ITS APPURTENANCES INCLUDING TWO MANHOLES AS SHOWN AND SPECIFIED. DEMOLITION OF PUMPING STATION SHALL BE AFTER COMPLETING CONSTRUCTION OF THE NEW 12" REW PIPELINE TO THE UPPER RESERVOIR INCLUDING TIE CONNECTION. CONTRACTOR TO BACKFILL ALL EXCAVATED AREAS RESULTING FROM DEMOLITION.
3. CUT, PLUG AND ABANDON TWO EXISTING 4" PEPPERDINE UNIVERSITY RECLAIMED WATER PIPELINES FROM THE EXISTING OLD EFFLUENT PUMPING STATION UP TO MALIBU CANYON ROAD AND RELOCATE ITS METER AS SHOWN IN PLANS.
4. CONTRACTOR SHALL COMPLY WITH HEALTH REGULATIONS IN CONSTRUCTING THE NEW POTABLE WATER LINE WITH REGARD TO THE CLEARANCE BETWEEN THE POTABLE WATER LINE AND THE RECLAIMED OR SEWAGE LINES. IF THE REQUIRED CLEARANCE CANNOT BE OBTAINED, THE SEWER LINE SHALL BE ENCASED, AS SHOWN ON E-C-6. ENCASEMENT AT CROSSING SHALL BE 10' LONG.

REV	DATE	BY	DESCRIPTION
R.D.	4/18/84	MDJ	RECORD DRAWING
4	6/6/84	JMH	
3	3/30/82	ALR	15-BURT REV. - ADDED CONCRETE WALKWAY
2	5/21/82	ALR	CHANGE ORDER
1	3/1/82	E.C.	CHANGE ORDER

SCALE: AS SHOWN

DESIGNED V. BAYANI
DRAWN R. GRIFFIN
CHECKED S. MARCUS

SUBMITTED
PROJECT ENGINEER — 27306 R.C.E. NO. — 8/19/81 DATE

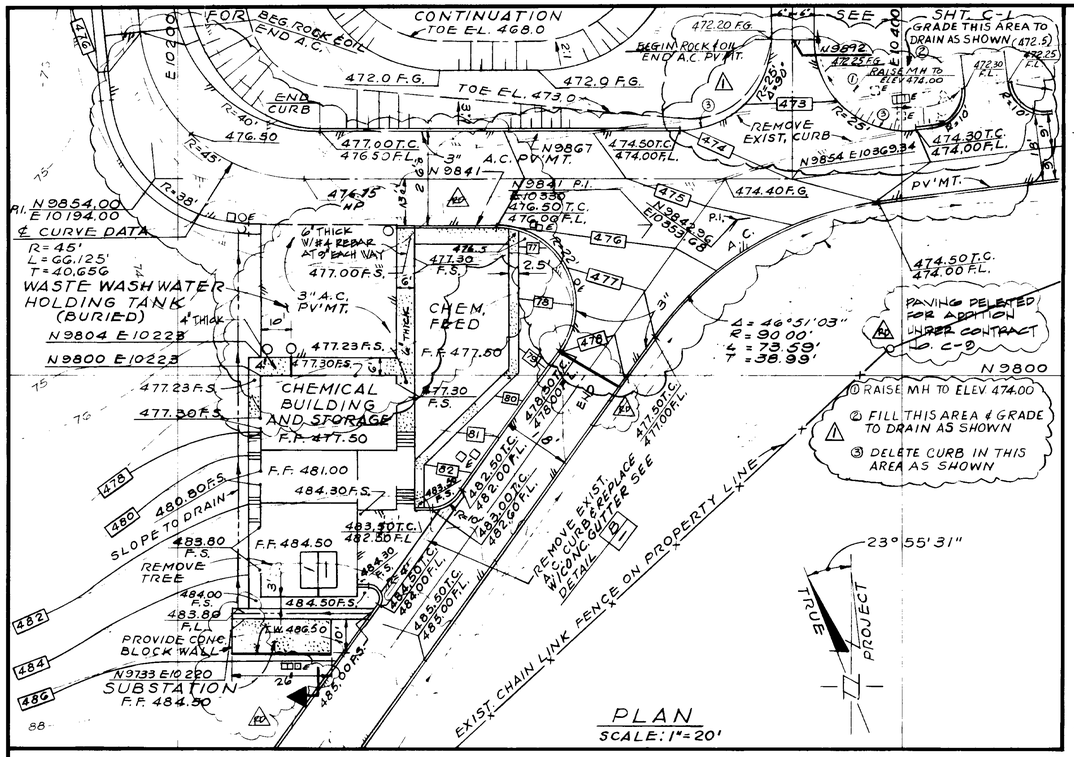
RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

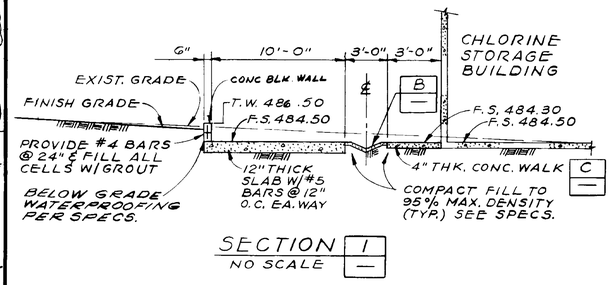
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

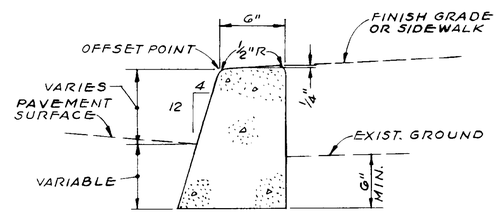
LAS VIRGENES MWD/TRUSTEE CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
SITE GRADING AND PAVING PLAN

SHEET C-1 OF 56 SHEETS





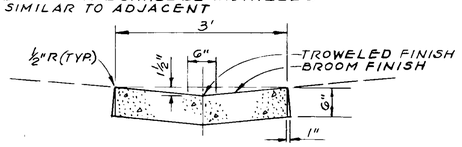
SECTION 1 / NO SCALE



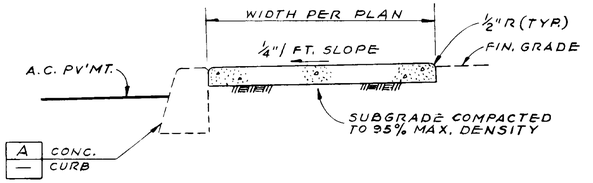
NOTES:
1. EXPANSION JOINTS OF ONE-HALF INCH RIGID BITUMINOUS MATERIAL SHALL BE PLACED AT ALL B.C.'S AND AT MAX. 50-FEET SPACING.
2. ALL EXPOSED SURFACES OF CURBS SHALL BE GIVEN A MORTAR BRUSH COAT CONSISTING OF ONE PART PORTLAND CEMENT, ONE PART SAND, PER SACK OF CEMENT, THEN TROWELED SMOOTH.
3. TYPICAL INSTRUCTIONS FOR GUTTER & SIDE WALK

CONCRETE CURB A / NO SCALE

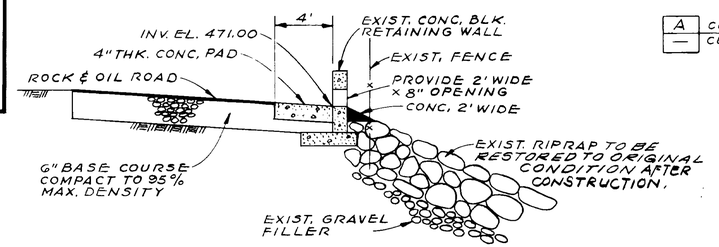
NOTE
BASE COURSE SHALL BE INSTALLED SIMILAR TO ADJACENT



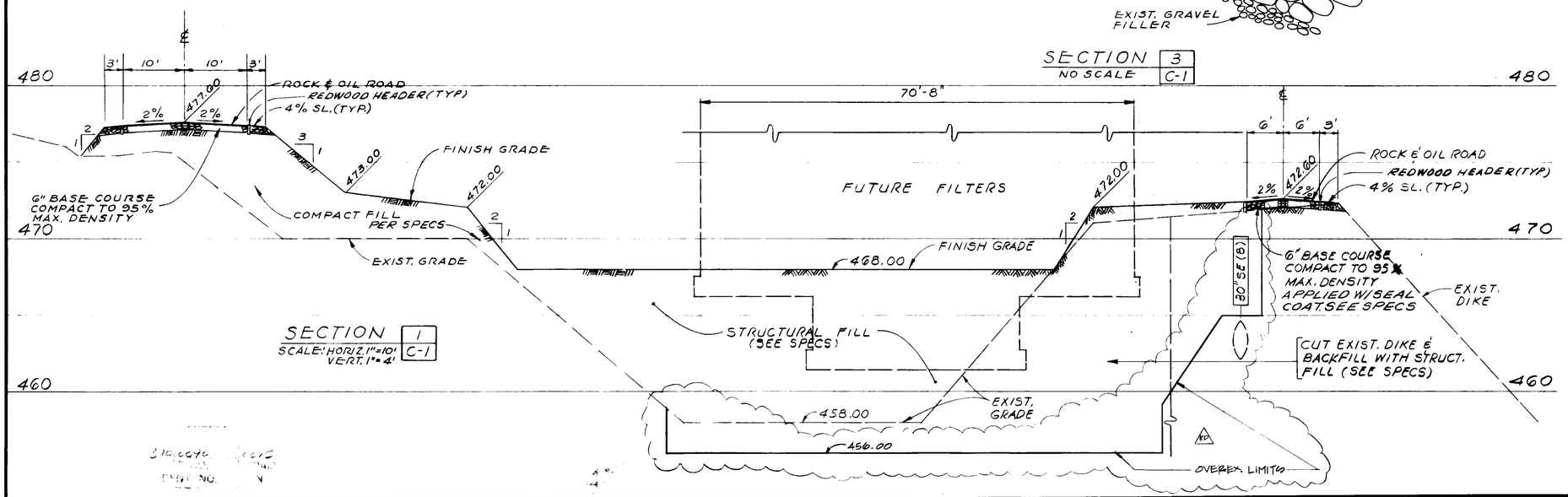
CONCRETE GUTTER B / NO SCALE



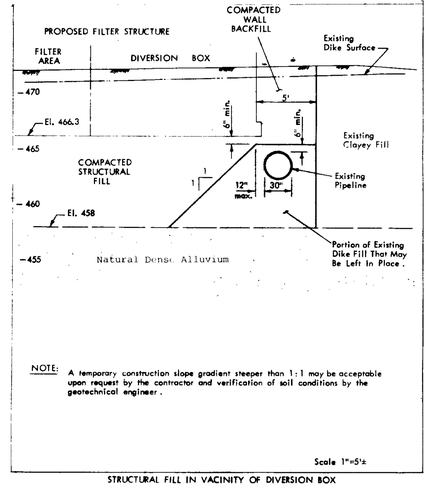
CONCRETE SIDEWALK C / NO SCALE



SECTION 3 / C-1 / NO SCALE



SECTION 1 / C-1 / SCALE: HORIZ. 1"=10' VERT. 1"=4'



NOTE: A temporary construction slope gradient steeper than 1:1 may be acceptable upon request by the contractor and verification of soil conditions by the geotechnical engineer.

STRUCTURAL FILL IN VACINITY OF DIVERSION BOX

SECTION 5 / C-1

03553

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	4/16/82	MDJ	RECORD DRAWING
		JMH	
1	5/27/82	A.L.R	CHANGE ORDER

SCALE: AS SHOWN

DESIGNED V. BAYANI
DRAWN R. GRIFFIN
CHECKED S. Marcos

SUBMITTED Robert C. Smith — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27633 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
GRADING AND PAVING PLAN, SECTIONS AND DETAILS

SHEET C-2 OF 56 SHEETS

FOR MODIFICATIONS SEE DETAIL A C-5

1½" IRRIGATION LINE FOR CONTINUATION SEE L-2.

REMOVE EXIST. 30" PIPE & DELIVER EXIST. 30" B'FLY. VALVE TO THE DISTRICT

◆ CONTRACTOR SHALL PLUG & SEAL ENDS OF EXIST. 30" STL. PIPE W/ CEMENT MORTAR. CONTRACTOR TO VERIFY LOCATION (TYP. 3 PLACES)

2-4" EFFLUENT PIPE TO PEPPERDINE UNIV. ABANDON EXIST. 30" ACP IN PLACE. CUT & PLUG ENDS AFTER FILLING PIPE WITH SAND. CONTRACTOR SHALL VERIFY LOCATION AND EXTENT OF EXIST. 30" ACP

14" PIPE ABANDND. IN PLACE

FOR CONN. SEE SHT. 8M-1

PROVIDE 3"X1/8" INCREASER, A.C. ALAPTER AND CONNECT TO EXIST. M.L.C.C. STEEL 16" RAS LINE. FOR LOCATION SEE EXIST. DRAWING BY BOYLE ENGR. SHT. 151 1970 EXPANSION

MOUNT 4" PIPE ON WALL OF CHLORINE CONTACT CHANNEL W/GALV. WALL BRACKETS @ 6'-0" C.

EXISTING 10" PIPELINE TO UPPER RESERVOIR TO BE ABANDONED, CAP ENDS OF PIPE NEAR PUMPING STA. TO BE DEMOLISHED AND NEAR POINT OF CONNECTION WITH NEW 10" REW. SEE SHEET C-4

FIELD FABRICATE STL. FITTINGS TO MEET ANGLE JOINT STL. PIPE W/ BELL & SPIGOT MORTARED JOINT

CUT & PLUG

ABANDONED IN PLACE

JOIN EXIST. PIPES

EXIST. ABO V TRANSMISSION LINE IN BURIED CONDUIT

JOIN EXIST.

REGULATED CONNECTION

G" UW BY OTHERS

JOIN EXIST. G" UW

2" NG

TO EXIST. UPPER RESERVOIR

PORTION OF EXIST. 10" PIPE TO BE ABAN'DND. IN PLACE

STATION 20+00 MATCH LINE SEE SHT.

TO OUTFALL STRUCTURE SEE SHT. C-6

FOR CONTINUATION SEE SHEET L-4

EXIST. THRUST BLOCK. PROVIDE G" FROM 20" REW

OUTLET N 9903.07 E 10510.29 STA. 18+08.43 INV. EL. 466.00

REMOVE EXIST. BLIND FLANGE & JOIN EXIST. PIPE

20" x 12" REDUCER

12" MECHANICAL COUPLING

12" PLUG VALVE (1-V-7)

12" REW(B)

STA. 18+05.50 REMOVE BLD. FLG. & JOIN EXIST. 20" PIPE

N 9877.69 E 10495.29 STA. 17+78.43 HORIZ. & PT. Δ = 49°53'23" LT

N 9851.78 E 10340.84 STA. 16+20.68 HORIZ. & PT. Δ = 44°28'21" RT.

N 9601.76 E 10156.40 STA. 13+09.26 HORIZ. & PT. Δ = 29°37'09" LT

N 9660.00 E 10182.00 STA. 13+64.83 HORIZ. & PT. Δ = 28°46'47" RT.

N 9667.48 E 10214.00 STA. 13+89.82 HORIZ. & PT. Δ = 23°37'09" LT.

CONNECT EXIST. F.H. TO NEW 12" REW. CONTRACTOR TO FIELD VERIFY LOCATION OF EXIST. CONNECTION, CUT, PLUG & ABANDON AS NECESSARY

PLAN
SCALE: 1"=30'

DETAIL G
N.T.S.

DETAIL H
N.T.S.

DETAIL A
NO SCALE

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

DETAIL C
FOR IRRIG. SYSTEM

GUARD POST DETAIL D
NO SCALE

NOTE: PAINT PIPE W/ RED PAINT PER SPECS.

03554

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
4	10/11/84	MDU	RECORD DRAWING
3	3/1/82	E.C.	CONSTRUCTION CLARIFICATION
2	5/18/82	A.V.	CHANGE ORDER
1	2/5/82	R.G.	CONSTRUCTION CLARIFICATION

SCALE: AS SHOWN

DESIGNED V. BAYANI
DRAWN A. QUINTANA
CHECKED S. Mateos

SUBMITTED Robert C. Smith PROJECT ENGINEER 27334 R.C.E. NO. 8/19/81 DATE
RECOMMENDED JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. 27638 R.C.E. NO. 8/20/81 DATE

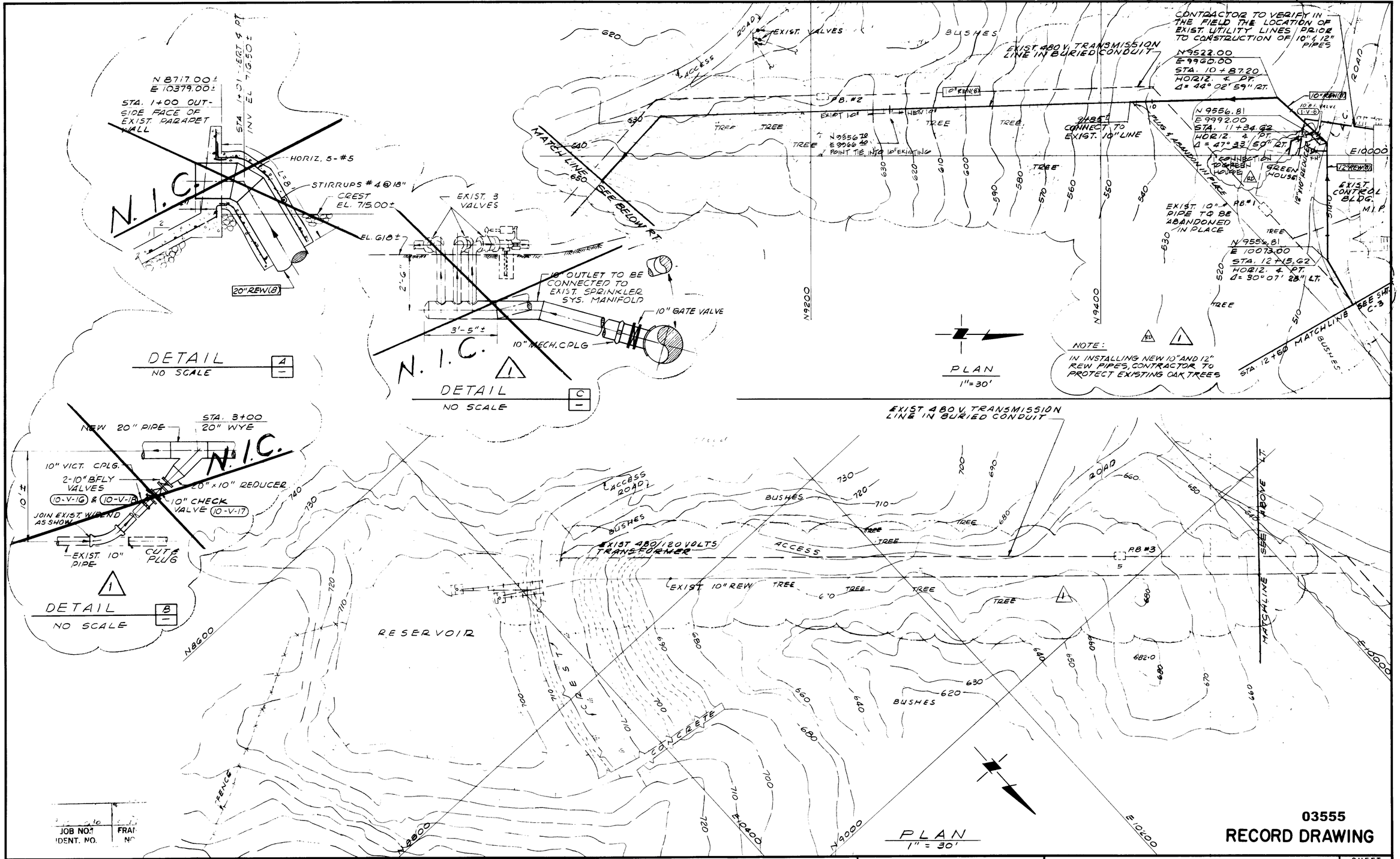
JOB NO.: IDENT. NO. FRAME NO.

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
YARD PIPING PLAN

SHEET C-3 OF 66 SHEETS



REV	DATE	BY	DESCRIPTION
RD	4/16/81	MDU	RECORD DRAWINGS
1	8/19/81	A.V.	CHANGE ORDER

SCALE: AS SHOWN

DESIGNED V. BAYANI
DRAWN V. BAYANI
CHECKED S. Marcos

SUBMITTED
Robert C. Siemak — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

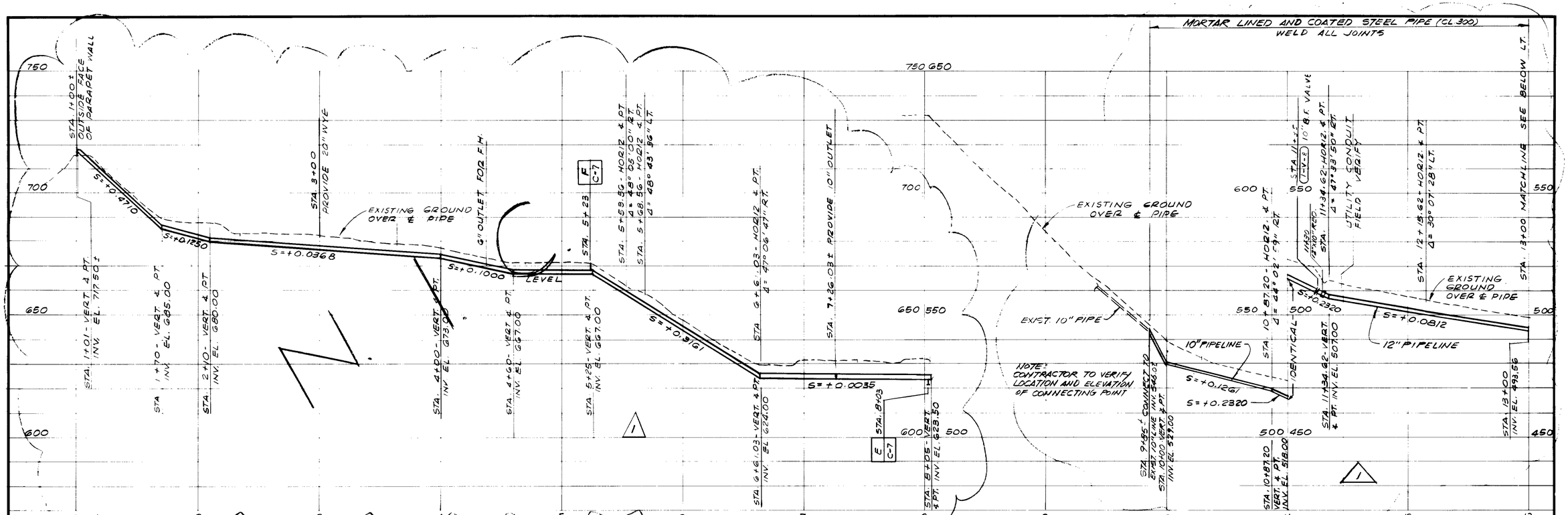
RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD / TRIUNFO CSD
TAPIA WRF - FILTRATION / DISINFECTION ADDITION
PHASE II
20" RECLAIMED WATER LINE - PLAN AND DETAILS

SHEET C-4 OF 66 SHEETS



03556

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
1	3/1/82	A.V.	CHANGE ORDER

SCALE: AS SHOWN

DESIGNED V. BAYANI
DRAWN V. BAYANI
CHECKED S. Marco

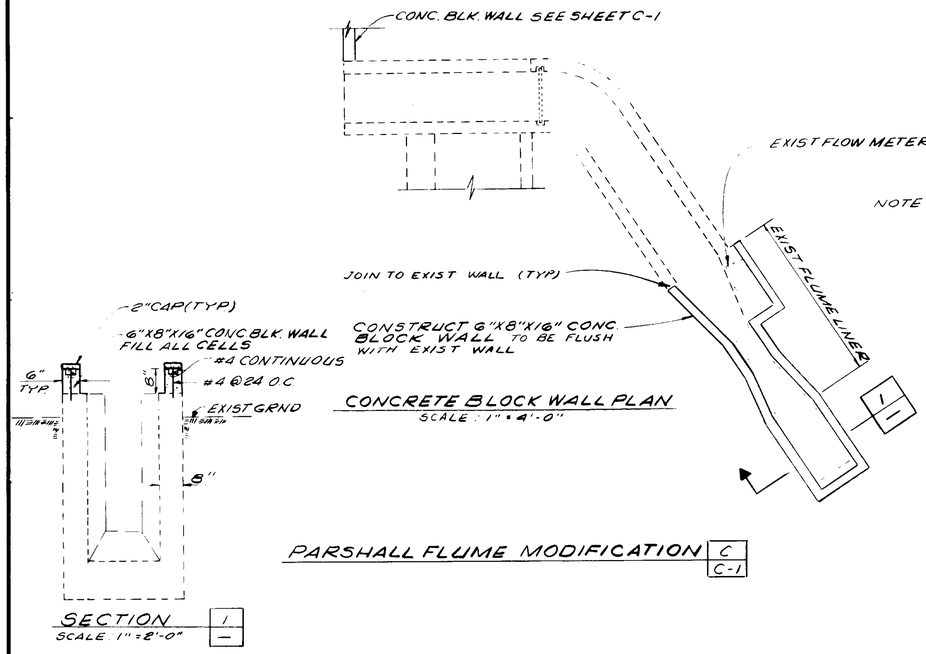
SUBMITTED Robert C. Swenk, PROJECT ENGINEER, 27304 R.C.E. NO., 8/19/81 DATE
RECOMMENDED [signature], JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC., 27638 R.C.E. NO., 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

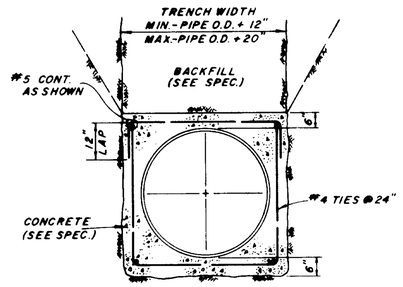
LAS VIRGENES MWD/ TRIUNFO CSD
TAPIA WRF - FILTRATION / DISINFECTION ADDITION
PHASE II
20" RECLAIMED WATER LINE - PROFILE AND DETAILS

SHEET C-5 OF 66 SHEETS

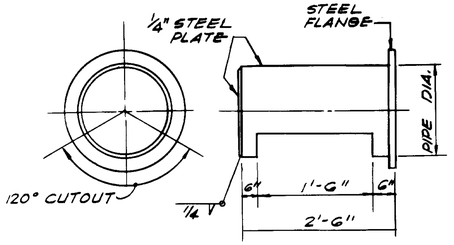


NOTE: DO NOT COVER EXIST. FLUME LINER OR FLOW METER BASE WITH NEW CONC BLOCK WALL.

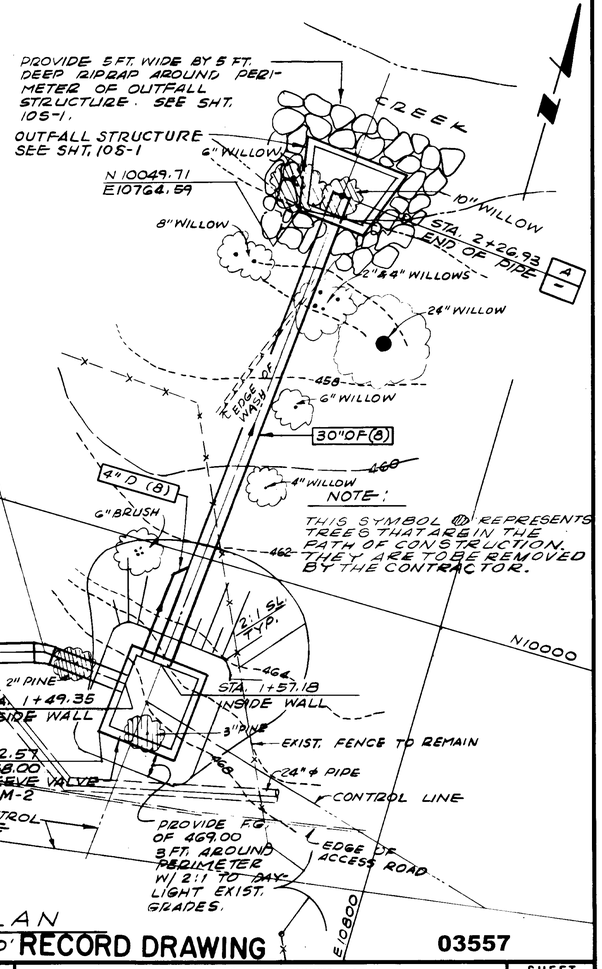
PARSHALL FLUME MODIFICATION C / C-1



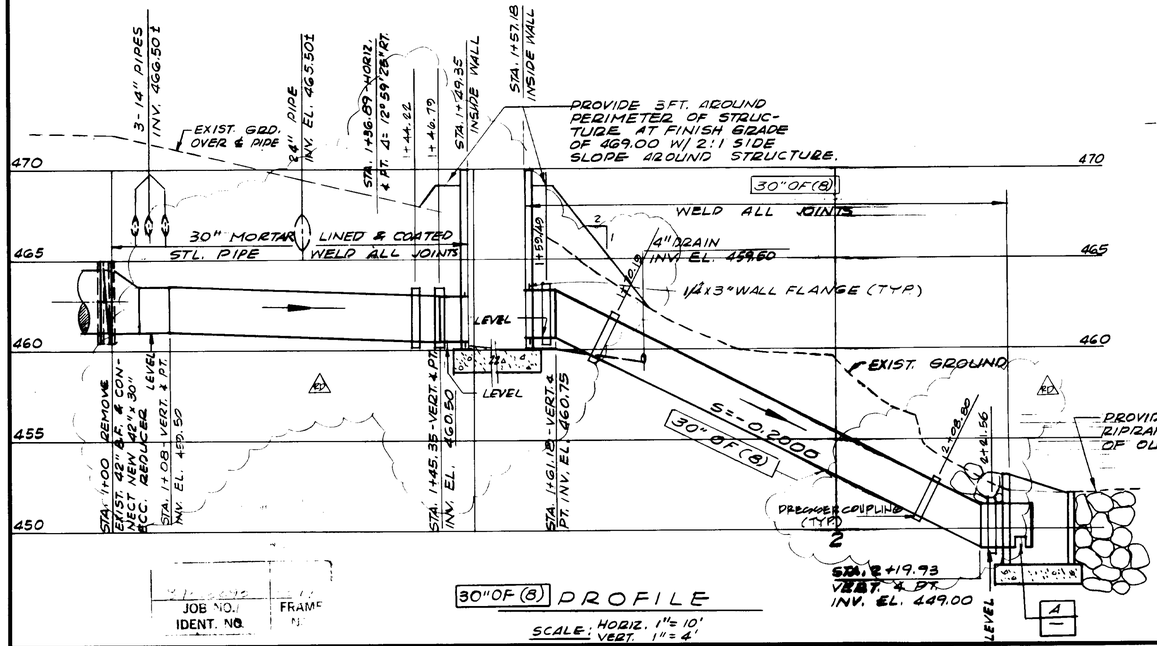
CONCRETE ENCASEMENT DETAIL E / C-7



DETAIL A / —
NO SCALE



OUTFALL PLAN
SCALE 1" = 10'



30"OF(8) PROFILE
SCALE: HORIZ. 1"=10'
VERT. 1"=4'

JOB NO./ IDENT. NO. | FRAME NO.

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
		MDU	RECORD DRAWING

SCALE: AS SHOWN

DESIGNED V. BAYANI
DRAWN V. BAYANI
CHECKED S. Marcos

SUBMITTED
PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

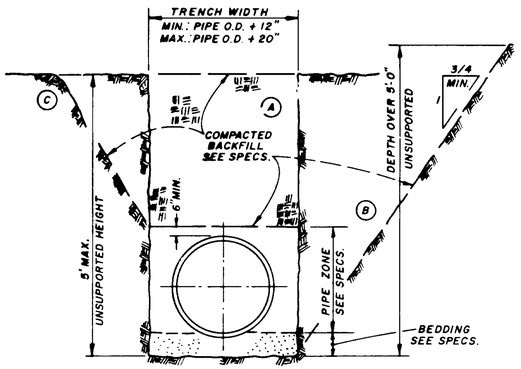
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF - FILTRATION / DISINFECTION ADDITION
PHASE II
DETAILS AND OUTFALL STRUCTURE PLAN AND PIPING PROFILE

SHEET C-6 OF 56 SHEETS

03557



1. ALTERNATIVE TRENCH SECTIONS (A,B and C) ARE FOR USE ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST:

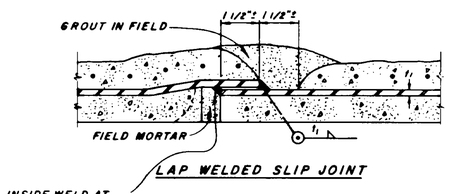
   A. Vertical trench walls-Section (A)
      1. For depths up to 5 feet, no trench support is required.
      2. For depths exceeding 5 feet, shoring or solid sheathing is required.

   B. Sloping trench walls-Section (B)
      1. Sloping trench wall section shall not be used without approval of engineer, unless specifically designated on plans or in specifications.
      2. Except as approved by engineer, unsupported sloping trench walls shall not be steeper than 3/4 horiz. to 1 vert.

   C. Combination of vertical and sloping trench walls-Section (C)
      1. Trench depths not exceeding 5 feet shall have vertical walls in pipe zone unless otherwise approved by engineer, or where specified.
      2. For trenches with combined walls and any depth exceeding 5 feet, design calculations by a registered civil engineer and approval by governing agency of support methods are required.

2. WHERE WET, UNSTABLE OR RUNNING SOIL IS ENCOUNTERED, SOLID SHEATHING IS REQUIRED FOR ALL VERTICAL TRENCH WALLS.

TYPICAL TRENCH SECTION A

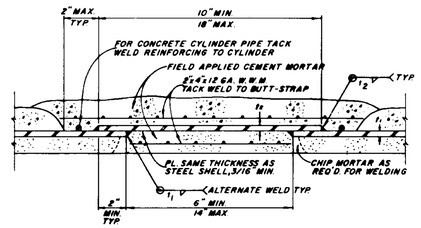


LAP WELDED SLIP JOINT

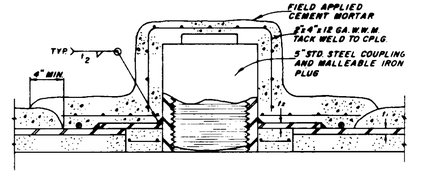
SINGLE-BUTT WELD JOINT

DOUBLE-BUTT WELD JOINT

MORTAR LINED AND COATED STEEL PIPE B



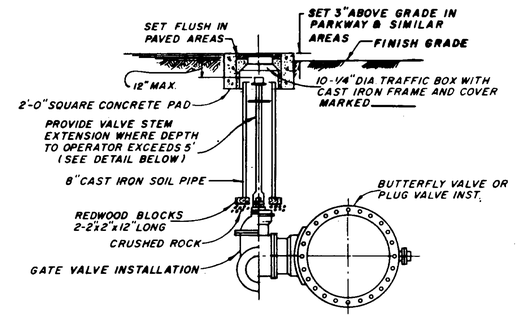
TYPICAL SECTION - BUTT-STRAP JOINT

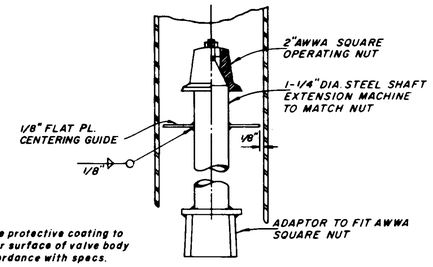


TYPICAL HANDHOLE

(REQUIRED ON PIPE 24" IN DIAMETER AND SMALLER)

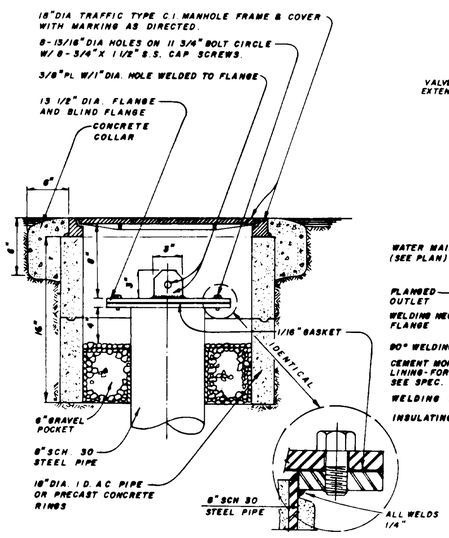
BUTT-STRAP JOINT FOR STEEL CYLINDER CONCRETE PIPE, STEEL PIPE MORTAR LINED AND COATED, AND WELDED STEEL PIPE C

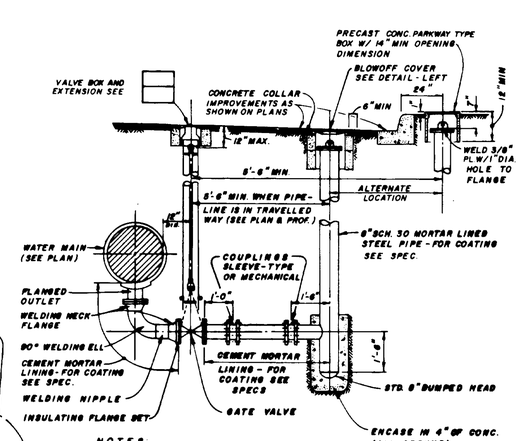




NOTE:
Provide protective coating to exterior surface of valve body in accordance with specs.

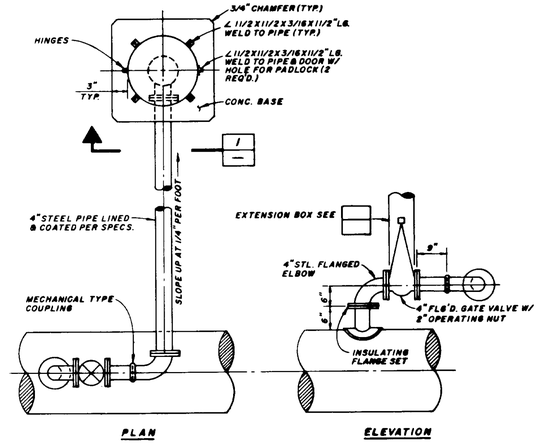
BURIED VALVE INSTALLATION D



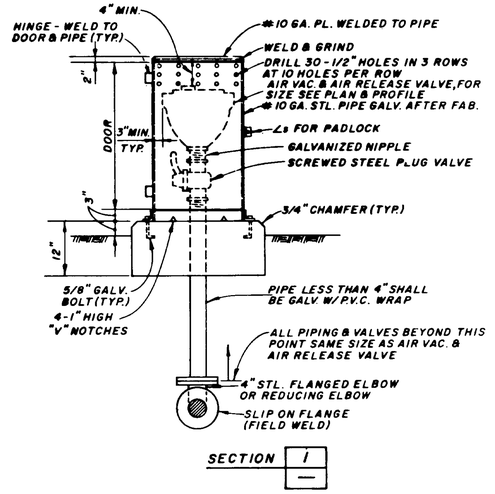


NOTES:
1. FLANGE AND BLIND FLANGE SAME CLASS AS PIPELINE.
2. CEMENT 1/16" THK. FULL COVER GASKET TO FLANGE.
3. ALL EXPOSED FERROUS SURFACES OF BURIED PIPE & APPURTENANCES TO BE PROVIDED WITH PROTECTIVE COATINGS PER SPECIFICATIONS.
4. PROVIDE STAINLESS STEEL NUTS, BOLTS & WASHERS TO BURIED FLANGES & COUPLINGS EXCEPT FOR NON-METALLIC WASHERS AS PART OF INSULATING FLANGE SET.

BLOWOFF DETAILS E



NOTE:
THIS ASSEMBLY TO BE USED IN AREAS WHERE VAULT NOT REQ'D. OR WHERE MAIN PIPELINE IS TOO SHALLOW TO PERMIT USE OF VAULT.



SECTION I — I

NOTES:
1. ALL FERROUS SURFACES OF PIPE AND APURTENANCES TO BE PROVIDED WITH PROTECTIVE COATINGS PER SPECS
2. PROVIDE STAINLESS STEEL NUTS, BOLTS AND WASHERS TO BURIED FLANGES AND COUPLINGS; EXCEPT FOR NON METALLIC WASHERS TO BE PROVIDED AS PART OF INSULATING FLANGE SET

AIR VACUUM AND AIR RELEASE VALVE ASSEMBLY F

JOB NO./ IDENT. NO. | FRAME NO.

03558

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

SCALE: NO SCALE

DESIGNED J.M.M.
DRAWN J.M.M.
CHECKED S. Marcel

SUBMITTED
PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

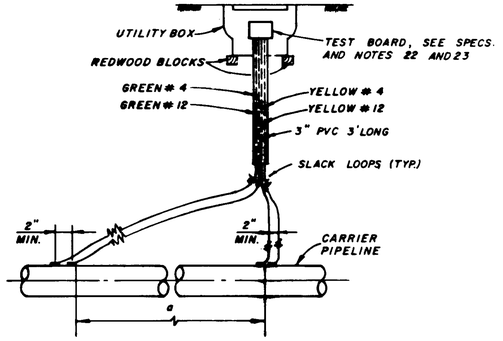
RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS YARD PIPING DETAILS - A

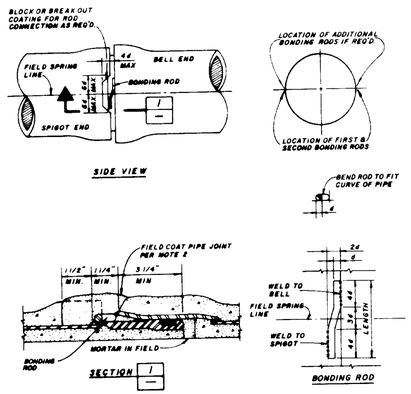
SHEET C-7 OF 66 SHEETS



DISTANCE a = 80FT.± WHERE IRON OR STEEL CYLINDER WEIGHT ≤ 35 LBS/FT.
DISTANCE a = 200FT.± WHERE IRON OR STEEL CYLINDER WEIGHT > 35 LBS./FT.
RECORD ACTUAL DISTANCE "a" ON AS-BUILT DRAWINGS

NOTE:
THIS DETAIL APPLIES TO ALL PIPE WITH BONDED JOINTS (TYPICAL WATER WORKS PIPELINE)

FOUR-WIRE ELECTROLYSIS TEST STATION FOR GENERAL POTENTIAL AND STRAY CURRENT MEASUREMENTS — A

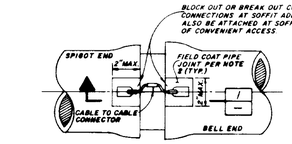


BONDING ROD DETAILS

NOM. PIPE DIA. (IN.) / PRESSURE	24/300					
CYLINDER WALL THICKNESS (IN.)						
BONDING ROD DIA. (#)	0.25					
BONDING ROD LENGTH (IN.)						
NO. OF RODS PER PIPE JOINT	1					

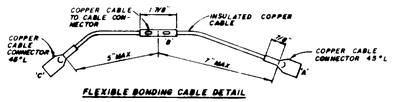
NOTES:
1. AT THE CONTRACTOR'S OPTION, JOINT BOND MAY BE OF THE RIGID OR FLEXIBLE TYPE, BUT NOT BOTH FOR A CONTINUOUS REACH OF PIPELINE.
2. FIELD COAT PIPE JOINTS WITH THE SAME MATERIAL AS THE PIPE COATING. COVER BONDING CABLES WITH A MINIMUM THICKNESS OF MATERIAL EQUAL TO THE SPECIFIED PIPE COATING THICKNESS.
3. FOR TESTING OF THE JOINT ELECTRICAL CONTINUITY SEE SPECIFICATION.
4. SEE STD. DWG. C-346 FOR ADDITIONAL NOTES

BURIED STEEL PIPE
ELECTRICAL BONDING WITH BONDING RODS — D

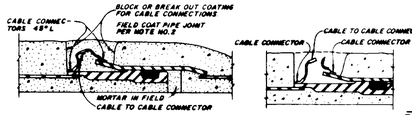


NOM. PIPE DIA. (IN.) / PRESSURE	24/300					
CYLINDER WALL THICKNESS (IN.)						
FLEXIBLE BONDING CABLE SIZE	#1					
FLEXIBLE BONDING CABLE LGT. (IN.)						
NO. OF CABLES PER PIPE JOINT	1					

NOTES:
1. AT THE CONTRACTOR'S OPTION, JOINT BOND MAY BE OF THE RIGID OR FLEXIBLE TYPE, BUT NOT BOTH FOR A CONTINUOUS REACH OF PIPELINE.
2. FIELD COAT PIPE JOINTS WITH THE SAME MATERIAL AS THE PIPE COATING. COVER BONDING CABLES WITH A MINIMUM THICKNESS OF MATERIAL EQUAL TO THE SPECIFIED PIPE COATING THICKNESS.
3. SEE STD. DWGS. C-346 FOR ADDITIONAL NOTES.



FLEXIBLE BONDING CABLE DETAIL



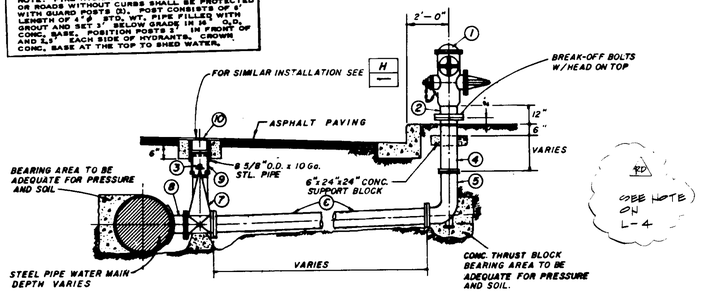
SECTION

FIELD INSTALLATION PROCEDURE FOR FLEXIBLE BONDING CABLES

1. LUG A BRAZED TO BELL END BY PIPE MANUFACTURER.
2. CABLE FROM 'A' TO 'B' BRAZED, SOLDERED OR CRIMPED BY PIPE MANUFACTURER TO BOTH 'A' + 'B'.
3. LUG 'C' BRAZED TO SPIGOT END BY PIPE MANUFACTURER.
4. CABLE FROM 'B' TO 'C' BRAZED, SOLDERED OR CRIMPED AT 'C' BY PIPE MANUFACTURER.
5. CONNECTION OF 'B' TO CABLE FROM 'C' TO BE SOLDERED OR CRIMPED IN FIELD.
6. AS AN ALTERNATIVE TO STEPS 1-5, CONTRACTOR MAY BREAK OUT COATING IN THE FIELD AND BRAZE OR THERMITE WELD CABLE TO BELL AND SPIGOT.
7. CABLE SHALL BE MULTISTRAND COPPER WELDING CABLE FOR MAXIMUM FLEXIBILITY.
8. A, B AND C TO BE INSULATED WITH RUBBER MASTIC ELECTRICAL INSULATING COMPOUND 1/16" THICK, GATES RUBBER OR APPROVED EQUAL.
9. AFTER COMPLETING THE FIELD JOINT AT B IN THE FIELD, TOUCH UP ALL EXPOSED COPPER WITH ELECTRICAL INSULATING COMPOUND 1/16" MIN., GATES RUBBER OR APPROVED EQUAL.
10. FOLD CABLE ASSEMBLY INTO JOINT SPACE.

BURIED STEEL PIPE
ELECTRICAL BONDING WITH FLEXIBLE BONDING CABLES — E

NOTE: FIRE HYDRANTS INSTALLED AT STREETS OR ROADS WITHOUT CURBS SHALL BE PROTECTED WITH GUARD POSTS (3). POST CONSISTS OF 6" STD. WT. PIPE FILLED WITH CONC., BASED IN 36" O.D. GROUT AND SET 3' BELOW GRADE IN 36" O.D. CONC. BASES. POSITION POSTS 3' IN FRONT OF AND 1.5' EACH SIDE OF HYDRANTS, CROWN CONC. BASE AT THE TOP TO SHED WATER.



NOTE: ALL FLANGES SHALL BE CLASS 250

ITEM	NO	DESCRIPTION	REMARKS
1	1	6" SOLID BRONZE HEAD WITH 2-1/8" AND 4" OUTLET	JONES J-378 OR APPROVED EQUAL
2	1	6" GALV. IRON PIPE	W/COMPANION FLANGE (CLASS 250)
3	1	OPERATING NUT EXTENSION STEM	MUELLER FIG. 2 EXTENSION STEM OR APPROVED EQUAL
4	1	HYDRANT BARREL 6" -10 GA. STEEL PIPE CMC AND CML	LENGTH AS REQUIRED - CEM. LINED
5	1	HYDRANT BURY ELL. - 6" X 36" CAST IRON	FLANGE BY FLANGE - CEMENT LINED
6	1	8 5/8 O.D. STEEL PIPE, 10 GA. W/SLIP-ON FLANGES	CM/CL PIPE - LENGTH = 6'-6" MIN.
7	1	6" GATE VALVE - FLANGE BY FLANGE	RICH SERIES 469 OR APPROVED EQUAL
8	1	6" FLANGED OUTLET	CEMENT LINED AND COATED
9	1	PIPE SLIP JOINT STEEL VALVE BOX ASS'Y	
10	1	8" CAST IRON VALVE BOX COVER	

JOB NO. 276-15 | IDENT. NO. | FRAME NO. 21

TYPICAL FIRE HYDRANT LATERAL — B

CATHODIC PROTECTION, TESTING AND BONDING - GENERAL NOTES

1. FOR LOCATION AND TYPE OF ELECTROLYSIS TEST STATION (ETS) OR SACRIFICIAL ANODE INSTALLATION, SEE PLANS.
2. ALL TEST CONNECTIONS ON BURIED STEEL PIPE TO BE MADE AT EXPOSED FIELD JOINTS. WHERE TEST CONNECTIONS ARE SHOWN 2" APART, THE CONNECTIONS ARE TO BE MADE ON THE SAME SIDE OF THE JOINT. IF CONNECTIONS CANNOT BE MADE EASILY 2" APART LONGITUDINALLY, THEY MAY BE SEPARATED CIRCUMFERENTIALLY INSTEAD.
3. ALL TEST CABLE CONNECTIONS ON STEEL PIPE TO BE MADE BY THERMITE WELDING OR BRAZING.
4. ALL WELDED OR BRAZED CABLE CONNECTIONS TO BE INSULATED WITH FLEXIBLE DIELECTRIC MATERIAL EQUIVALENT TO BITUMINOUS PIPE COATING.
5. NO WELDING WILL BE PERMITTED ON PRESTRESSED WIRES ON STEEL CYLINDER CONCRETE PIPE.
6. IN VICINITY OF UTILITY BOX AND IN VICINITY OF PIPE, PROVIDE TWO FEET OF SLACK COIL IN EACH WIRE.
7. ALL UTILITY BOXES FOR ETS ARE TO BE PLACED DIRECTLY ABOVE YELLOW TEST CABLES.
8. ALL EXPOSED COPPER (TEST LEADS, BONDS, ETC.) SHALL BE FULLY INSULATED WITH A FLEXIBLE DIELECTRIC MATERIAL EQUIVALENT TO BITUMINOUS PIPE COATING. CEMENT MORTAR AND EPOXY ARE NOT ACCEPTABLE. REMAINDER OF COATING TO BE PLACED OVER THE BITUMINOUS PIPE COATING SHALL BE SAME AS ON ADJACENT PIPE SECTIONS.
9. ALL CABLE DIMENSIONS ARE AWG (AMERICAN WIRE GAGE).
10. THE OUTER WIRES SHALL BE NO. 4, THE INNER WIRES SHALL BE NO. 12. IF THE CARRIER PIPE DIAMETER IS LESS THAN 12". A NO. 8 WIRE SHALL BE SUBSTITUTED FOR THE NO. 4.
11. ALL TEST LEADS AND BONDING CABLES SHALL BE COPPER AND SHALL BE INSULATED WITH 600-VOLT CLASS INSULATION WITH MOISTURE AND ROT RESISTANT CHARACTERISTICS EQUIVALENT TO PVC, PE OR NEOPRENE.
12. ALL TEST LEADS AND BONDING CABLES ARE SINGLE CONDUCTOR (1/C), STRANDED WELDING CABLE FOR SIZES NO. 6 AND LARGER, STRANDED OR SOLID FOR SIZES NO. 8 AND SMALLER.
13. TEST LEADS SHALL NOT BE SPLICED.
14. CABLE COLOR CODING SCHEME:
    A. YELLOW AND GREEN TEST CABLES ARE ON CARRIER LINE.
    B. YELLOW IS USED TO DESIGNATE SOUTH OR WEST AND GREEN TO DESIGNATE NORTH OR EAST ON THE CARRIER PIPE.
    C. RED DESIGNATES A FOREIGN LINE.
15. THE BANANA JACK OR MALE TERMINAL SHALL BE THE SAME COLOR AS THE TEST CABLE (I.E., YELLOW, GREEN OR RED) TO WHICH IT IS CONNECTED.
16. EACH TERMINAL IN TEST BOARD SHALL BE IDENTIFIED ON THE TERMINAL STRIP BY PERMANENT MARKING.
17. A ZINC RIBBON SPIRAL OF 20' LINEAL LENGTH SHALL BE INSTALLED IN A CIRCULAR PATTERN AROUND ALL ETS LOCATED IN AREAS WHERE THE PIPELINE RUNS PARALLEL TO HIGH VOLTAGE AC TRANSMISSION LINES, AT THE DISCRETION OF THE ENGINEER.
18. A MARKER POST SHALL BE ERECTED FOR EACH ETS LOCATED BELOW GROUND IN A UTILITY BOX IN AN UNIMPROVED AREA. LOCATION SHALL BE AS DIRECTED BY ENGINEER. MARKER POST SHALL BE A 4-IN. DIA. STEEL PIPE PROJECTING 4 FT ABOVE GRADE AND BURIED 2 FT IN GROUND WITH BURIED PORTION ENCASED IN CONCRETE. PIPE SHALL BE FILLED AND CAPPED WITH CONCRETE.
19. ALL BURIED ETS SHALL BE ENCLOSED IN AN UTILITY BOX WHICH SHALL BE MIN. 8-IN. DIA. CAST IRON OR CONCRETE WITH CAST IRON COVER.
20. ALL UTILITY BOXES SHALL BE LOCATED AT THE STATIONS SHOWN ON THE PLANS. THEY SHALL BE PLACED IN AREAS OF MINIMUM TRAFFIC HAZARD AS DIRECTED BY THE ENGINEER, SUCH AS IN PARKWAYS, SHOULDERS, OR BEHIND CURBS.
21. IN SECURE AREAS SUCH AS IN VAULTS, BUILDINGS, OR FENCED YARDS, THE ETS MAY BE FLANGE MOUNTED, WALL MOUNTED, OR POLE MOUNTED AS DIRECTED BY THE ENGINEER.
22. FEMALE BANANA PLUGS SHALL BE USED ON ALL TERMINAL TEST BOARDS WHERE AC OR DC VOLTAGES ARE AN ELECTROCUTION HAZARDS (e.g. FAULT CURRENTS OR INDUCED AC FROM PARALLELING AC TRANSMISSION LINES.)
23. MALE TERMINALS SHALL BE USED ON ALL TERMINAL TEST BOARDS WHERE THERE IS NO ELECTROCUTION HAZARD.

BURIED STEEL PIPE
ELECTRICAL BONDING WITH FLEXIBLE BONDING CABLES — C

RECORD DRAWING 03559

REV	DATE	BY	DESCRIPTION
RD	4/1/84	MDJ	RECORD DRAWINGS

SCALE: NO SCALE

DESIGNED J.M.M. | DRAWN J.M.M. | CHECKED S. Marco

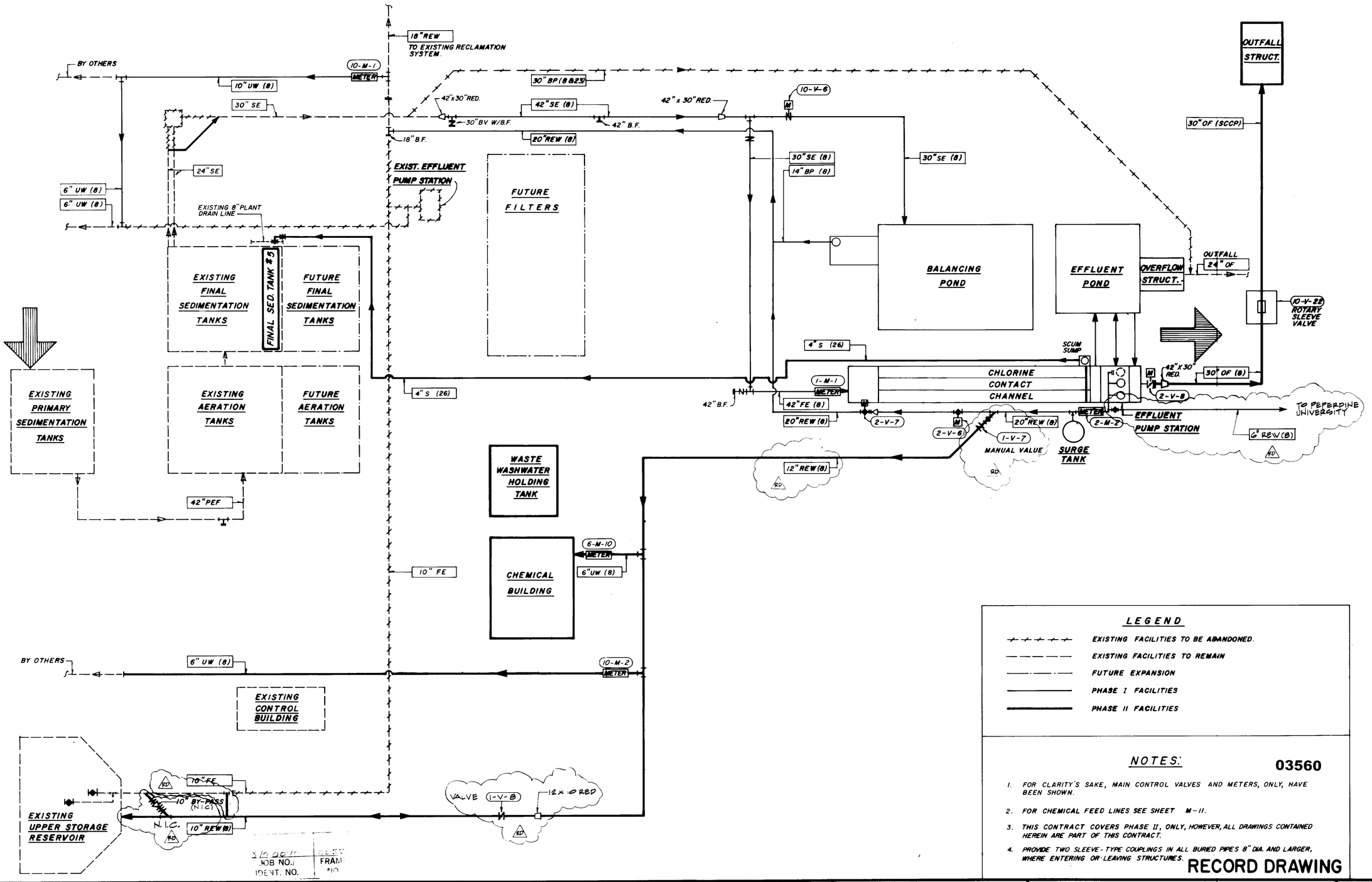
SUBMITTED
PROJECT ENGINEER — 27304 R.C.E. NO. — 8/13/81 DATE
RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27639 R.C.E. NO. — 8/13/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF - FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS YARD PIPING DETAILS - B

SHEET C-8 OF 55 SHEETS



LEGEND

- EXISTING FACILITIES TO BE ABANDONED.
- EXISTING FACILITIES TO REMAIN
- FUTURE EXPANSION
- PHASE I FACILITIES
- PHASE II FACILITIES

NOTES:

03560

1. FOR CLARITY'S SAKE, MAIN CONTROL VALVES AND METERS, ONLY, HAVE BEEN SHOWN.
2. FOR CHEMICAL FEED LINES SEE SHEET M-11.
3. THIS CONTRACT COVERS PHASE II, ONLY, HOWEVER, ALL DRAWINGS CONTAINED HEREIN ARE PART OF THIS CONTRACT.
4. PROVIDE TWO SLEEVE-TYPE COUPLINGS IN ALL BURIED PIPES 8" DIA. AND LARGER, WHERE ENTERING OR LEAVING STRUCTURES.

RECORD DRAWING

3/10/81 JOB NO./IDENT. NO. — FRAM NO.

REV	DATE	BY	DESCRIPTION
RD	4/11/84	MDU	RECORD DRAWINGS
	6/6/84	JMH	

SCALE: NONE

DESIGNED J. Montg
DRAWN R. Sauer
CHECKED J. Montg

SUBMITTED
Robert C. Samuel — 27304 R.C.E. NO. — 3/19/81 DATE
DISTRICT ENGINEER
RECOMMENDED
[illegible] — 27033 R.C.E. NO. — 3/23/81 DATE
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
PROCESS FLOW DIAGRAM

SHEET M-1 OF 66 SHEETS

FLUID ABBREVIATION	FUNCTION (THIS LIST INCLUDES SOME LINES NOT USED IN THIS PROJECT)	PIPING MATERIALS (SEE SCHEDULE AT RIGHT)				FIELD TEST REQUIREMENTS (SEE NOTE 3 AND NOTE 4)		
		EXPOSED PIPING		BURIED PIPING				
		2 INCH DIA. AND SMALLER	2-1/2 INCH DIA. AND LARGER	2 INCH DIA. AND SMALLER	2-1/2 INCH DIA. AND LARGER	MINIMUM TEST PRESSURE PSI	TEST MEDIUM	LEAKAGE ALLOWANCE (NOTE 2)
A	AERATION	1, 16, 18	5, 11, 16, 18	1, 16, 18	5, 11, 16, 18	25	AIR	(A)(D)
AW	FILTER AIR WASH	16	16	16	16	25	WATER	(A)
BD	BOTTOM DRAIN	–	11	–	11	50	WATER	(B)
BP	BYPASS	–	8	–	8	50	WATER	(A)
BW	FILTER BACKWASH	–	8	–	8	75	WATER	(A)
CAW	CHANNEL AGITATION WATER	16	16	16	16	25	WATER	(A)
CD	CHEMICAL DRAIN AND VENT	13, 17, 29	13, 17, 29	13, 17, 29	13, 17, 29	NOTE 7	–	–
CL	CHLORINE (GAS OR LIQUID STATE)	10	–	10	–	300	DRY AIR	(A)(D)
CLS	CHLORINE SOLUTION	16	16	16	16	125	WATER	(A)
CLV	CHLORINE GAS UNDER VACUUM	16	16	16	16	15 INCH Hg	VACUUM	(A)(E)
CN	CENTRATE	–	26	–	26	75	WATER	(B)
CS	CAUSTIC SODA	6	6	6	6	125	WATER	(A)
CSL	CIRCULATED SLUDGE	–	30	–	30	75	WATER	(A)
CV	CHLORINATOR VENT AND DETECTION LINE	16	16	16	16	NOTE 8	–	–
DCS	DEFOAMING CHEMICAL SOLUTION	16	16	16	16	125	WATER	(A)
DN	DECANT	–	26	–	26	50	WATER	(B)
DSL	DIGESTED SLUDGE	–	30	–	30	75	WATER	(A)
DW	DEMINERALIZED WATER	16, 18	16, 18	16, 18	16, 18	125	WATER	(A)
EE	ENGINE EXHAUST	14*	14*	14	14	NOTE 8	–	–
EWR	ENGINE COOLING WATER RETURN	1*	1*	1	1	125	WATER	(A)
EWS	ENGINE COOLING WATER SUPPLY	1*	1*	1	1	125	WATER	(A)
FI	FILTER INFLUENT	–	8	–	8	50	WATER	(A)
FE	FINAL EFFLUENT	–	8	–	8	50	WATER	(A)
FM	FORCE MAIN	–	11, 8	–	11, 8	125	WATER	(B)
FOR	FUEL OIL RETURN	9	9	9	9	125	AIR	(A)(D)
FOS	FUEL OIL SUPPLY	9	9	9	9	125	AIR	(A)(D)
FS	FROTH SPRAY	24, 14	24, 14	–	–	125	WATER	(A)
FSP	FIRE PROTECTION SPRINKLER SYSTEM	NOTE 10	NOTE 10	NOTE 10	NOTE 10	NOTE 9	WATER	–
H	HYPOCHLORITE	16	16	16	16	125	AIR	(A)
HWR	HOT WATER RETURN	24*	–	24*	–	125	WATER	(A)
HWS	HOT WATER SUPPLY	24*	–	24*	–	125	WATER	(A)
IA	INSTRUMENT AIR	24	2	24	2	125	AIR	(A)(D)
IE	INTERMEDIATE EFFLUENT	–	8	–	8, 28	50	WATER	8(A), 28(B)
LA	LIQUID ALUM	16	16	16	16	125	WATER	(A)
LO	LUBE OIL	9	9	9	9	125	AIR	(A)(D)
LPG	LP GAS	3	3	3	3	NOTE 7	–	–
LS	LIME SLURRY	NOTE 15	NOTE 15	NOTE 15	NOTE 15	NOTE 8	–	–
LSP	LANDSCAPING SPRINKLER SYSTEM	16, 24	16, 24	16, 24	16, 24	NOTE 7	–	–
MA	MURIATIC ACID	25	25	–	–	100	AIR	(A)(D)
ML	MIXED LIQUOR	24	8, 11, 28	24	8, 11, 28	50	WATER	(B)
NG	NATURAL GAS	9	9	9	9	NOTE 7	AIR	–
O	OZONE	15	15	16	16	50	AIR	(A)(D)
OF	OVERFLOW OR OUTFALL	–	8	–	8	50	WATER	(A)
PA	PLANT AIR	7, 24	7	7, 24	7	300	AIR	(A)(D)
PD	PLANT DRAIN	24	8, 12	24	8, 12, 22, 28	NOTE 6	WATER	2, 8(B), 12, 22, 28(C)
PEA	POLYMER – ANIONIC	16	16	16	16	125	WATER	(A)
PEC	POLYMER – CATIONIC	16	16	16	16	125	WATER	(A)
PEN	POLYMER – NONIONIC	16	16	16	16	125	WATER	(A)
PEF	PRIMARY EFFLUENT	–	8, 26	–	8, 26	50	WATER	8(A), 26, (B)
PI	PLANT INFLUENT	–	21, 23, 26	–	21, 23, 26	NOTE 6	WATER	(C)
PO	PLANT OVERFLOW	2	8	2	8, 28	NOTE 6	WATER	2, 8(B), 28(C)
PW	POTABLE WATER	24	11, 23, 24	24	11, 19, 23, 24	125	WATER	2, 24(A), 11, 19, 23(B)
RAS	RETURN ACTIVATED SLUDGE	–	26	–	26	75	WATER	(A)
REW	RECLAIMED WATER	–	8	–	8	275*/75	WATER	(A)(*AHEAD OF PVR)
RSL	RAW SLUDGE	–	30	–	30	75	WATER	(A)
RW	RAW WATER	24	8	24	8, 28	125	WATER	(B)
RWL	RAINWATER LEADER	4, 12	4, 12	12	12	NOTE 7	–	–
S	SCUM	–	30	–	30	75	WATER	(A)
SA–	SAMPLE LINES (SEE LIST AT RIGHT)	16, 24	11, 16	16, 24	11, 16	125	WATER	16, 24(A)11(B)
SC	SPARE CHEMICAL	16	16	16	16	125	WATER	(A)
SD	SANITARY DRAINS AND VENTS	4, 12	12	12	12, 21	NOTE 7	–	–
SDR	STORM DRAIN	–	5	–	22, 28	NOTE 6	WATER	5(B), 22, 28(C)
SE	SECONDARY EFFLUENT	–	8, 26	–	8, 26	50	WATER	8(A), 26(B)
SF	SLUDGE FILTRATE	–	26	–	26	50	WATER	(B)
SG	SEWER GAS	9	9	9	9	125	AIR	(A)(D)
SI	SODIUM SILICATE	16, 9	16, 9	16, 9	16, 9	100	WATER	(A)
SN	SUPERNATANT	–	26	–	26	50	WATER	(B)
SO	SULFUR DIOXIDE (GAS OR LIQUID STATE)	10	–	10	–	300	AIR	(A)(D)
SOA	SULFURIC ACID	25	25	–	–	100	AIR	(A)(D)
SOS	SULFUR DIOXIDE SOLUTION	16	16	16	16	125	WATER	(A)
SOV	SULFUR DIOXIDE GAS UNDER VACUUM	16	16	16	16	15 INCH Hg	VACUUM	(A)(E)
SPD	SUMP PUMP DISCHARGE	24	26	24	26	100	WATER	2(A), 26(B)
SS	SANITARY SEWER	–	12	–	12, 21	NOTE 7	–	–
SU	STRUCTURE UNDERDRAIN	–	–	–	20	NO TEST REQUIRED		
SUC	STRUCTURE UNDERDRAIN COLLECTOR	–	12	–	12, 21	NOTE 6	WATER	(C)
SW	FILTER SURFACE WASHWATER	14, 16, 18	8, 14, 15, 16, 18	16, 18	8, 15, 16, 18	125	WATER	(A)
TPR	THICKENER PRESSURIZED RECYCLE	–	26	–	26	75	WATER	(A)
TS	THICKENER SUBNATANT	–	26	–	26	50	WATER	(B)
TSL	THICKENED SLUDGE	–	30	–	30	75	WATER	(A)
TSO	THICKENER SUBNATANT OVERFLOW	–	26	–	26	50	WATER	(B)
UW	UTILITY WATER (NON-POTABLE WATER)	24	11, 23, 24	24	11, 19, 23, 24	125	WATER	(A)
V	VACUUM	24	–	24	–	15 INCH Hg	VACUUM	(A)(E)
WAS	WASTE ACTIVATED SLUDGE	–	26	–	26	75	WATER	(A)
WLO	WASTE LUBE OIL	9	9	9	9	50	AIR	(A)(D)
WW	FILTER WASTE WASHWATER	–	8	–	8	NOTE 6	WATER	(A)
SV	SULFUR DIOXIDE VENT AND DETECTION LINE	16	16	16	16	NOTE 8	–	–

(*SEE NOTE 5)

W.O. 33-21-6073
JOB NO. FRA
DRAWING NO.

REV	DATE	BY	DESCRIPTION

SCALE: NONE

DESIGNED L.M.
DRAWN G.M.
CHECKED H.M.

SUBMITTED
Robert C Smith
PROJECT ENGINEER
27304 R.C.E. NO.
8/19/81 DATE

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
27638 R.C.E. NO.
8/20/81 DATE

PIPING MATERIAL SCHEDULE (SEE NOTE 4)

GROUP NO.	PIPE (SEE NOTE 13)	FITTINGS	VALVES, 6 INCHES AND UNDER (NOTE 1 AND NOTE 11)
1	STEEL, ASTM A120, SCHEDULE 40, BLACK, WELDED.	MALLEABLE IRON. ANSI B16.3, THREADED, BANDED, BLACK, 150 PSI OR BUTT-WELDED, ANSI B16.9.	BRASS, THREADED, GATE VALVE, CRANE NO. 428 UB OR STOCKHAM B-105. GLOBE VALVE, CRANE NO. 14-1/2P OR STOCKHAM B-29. CHECK VALVE, CRANE NO. 37 OR STOCKHAM B-319. STEEL, LUBE PLUG VALVE, ROCKWELL FIG 142 OR 143 OR POWELL FIG 2200 OR 2201. ECCENTRIC PLUG OR BALL VALVE, DEZURIK SERIES 118 OR HOMESTEAD 1512.
2	STEEL, ASTM A120, SCHEDULE 40, WELDED, GALVANIZED.	3 INCH AND SMALLER, MALLEABLE IRON, ANSI B16.3 THREADED. BANDED, GALVANIZED, 4 INCH AND LARGER, 125 PSI CAST IRON, FLANGED ANSI B16.1 OR MECHANICAL COUPLING.	ECCENTRIC PLUG OR BALL, SYNTHETIC RUBBER FACED, 2-1/2 INCH, 3 INCH DEZURIK 118S OR HOMESTEAD 1512. 4 INCH AND LARGER DEZURIK 118F, HOMESTEAD 1522 OR 1532 EWG, GATE VALVE AWWA C500 OR BUTTERFLY VALVE AWWA, FLANGED.
3	STEEL, ASTM A106 OR A53, SCHEDULE 80, SEAMLESS, BLACK.	FORGED STEEL, ANSI B16.11, 2000 LB SOCKET WELDED OR THREADED, BLACK, OR BUTT-WELDED ANSI B16.9, SCHEDULE 80.	SEMI-STEEL, LUBE PLUG VALVE, ROCKWELL FIG 214 OR 305 OR POWELL FIG 2210 OR 2211.
4	SAME AS GROUP NO. 1	CAST IRON ANSI B16.12 THREADED, DRAINAGE PATTERN.	
5	WELDED STEEL PIPE, AWWA C200, UNLINED.	WELDED STEEL, FABRICATED, AWWA C200, UNLINED.	AS INDICATED ON DRAWINGS.
6	STEEL, ASTM A106, OR A53, SCHEDULE 40, SEAMLESS, BLACK.	BUTT-WELDED ANSI B16.9 OR 125 PSI CAST IRON FLANGED ANSI B16.1 OR SOCKET WELDED, 2000 LB ANSI B16.11 OR 150 PSI FLANGED STEEL ANSI B16.5.	SEMI-STEEL, FLANGED LUBE PLUG VALVE WITH TAPERED PLUG. ROCKWELL FIG 143 OR POWELL FIG 2201.
7	SAME AS GROUP NO. 2.	MALLEABLE IRON, ANSI B16.3, THREADED, BANDED, GALVANIZED, 300 PSI.	BRONZE, THREADED, GLOBE VALVE CRANE NO. 212P OR 229C OR STOCKHAM B-62 OR B-32. BALL VALVE W-K-M, TYPE B-136 OR JAMESBURY TYPE A-11 CHECK VALVE CRANE NO. 27 OR STOCKHAM B-322.
8	WELDED STEEL PIPE, AWWA C200.	WELDED STEEL, FABRICATED, AWWA C200.	AS INDICATED ON DRAWINGS.
9	SAME AS GROUP NO. 1	THROUGH 3 INCH, MALLEABLE IRON, ANSI B16.3, THREADED, BANDED, BLACK, 150 PSI. 4 INCH AND LARGER, BUTT-WELDED ANSI B16.9.	ECCENTRIC PLUG OR BALL. DEZURIK SERIES 118 OR HOMESTEAD 1512, CHECK VALVE CRANE NO. 366-1/2 OR WALWORTH NO. 904 OR POWELL FIG 668Y.
10	SAME AS GROUP NO. 3.	FORGED STEEL, ANSI B16.11, 3000 LB THREADED, BLACK, OR BUTT-WELDED ANSI B16.9, SCHEDULE 80 WITH FLANGED AMMONIA UNIONS.	SEMI-PLUG AND YOKE TYPE VALVES FOR CHLORINE SERVICE, FORGED CARBON STEEL.
11	DUCTILE IRON ANSI A21.51 (AWWA C151) OR CAST IRON ANSI A21.6 OR A21.8, CLASS 150, BELL AND SPIGOT, MECHANICAL JOINT, MECHANICAL COUPLINGS, OR FLANGED.	DUCTILE IRON OR CAST IRON, ANSI A21.10 OR AWWA C110, CLASS D, BELL AND SPIGOT, MECHANICAL COUPLINGS, FLANGED OR MECHANICAL JOINTS. CLASS 250, 12 INCHES AND SMALLER; CLASS 150, 14 INCHES AND LARGER.	GATE VALVE, AWWA C500, "O" RING SEALS, MECHANICAL JOINT ENDS, MUELLER A-2380-20, OR EDDY-10WA (CLOW) F-5155. BUTTERFLY VALVE, AWWA.
12	CAST IRON SOIL ANSI A112.5.1 SERVICE WEIGHT, BELL AND SPIGOT OR HUBLESS.	CAST IRON SOIL ANSI A112.5.1, SERVICE WEIGHT, BELL AND SPIGOT OR HUBLESS.	AS INDICATED ON DRAWINGS.
13	CORROSION RESISTANT (HIGH SILICON CONTENT) CAST IRON, SERVICE WEIGHT, BELL AND SPIGOT OR HUBLESS.	CORROSION RESISTANT (HIGH SILICON CONTENT) CAST IRON, SERVICE WEIGHT, BELL AND SPIGOT, OR HUBLESS.	
14	STAINLESS STEEL, TYPE 18-8, ASTM A312, SCHEDULE 40S.	STAINLESS STEEL, ANSI B16.3, CLASS 150, SCREWED, SCHEDULE 40S BUTT-WELDED, ANSI B16.9, 150 PSI FLANGED.	STAINLESS STEEL, BALL VALVE FLANGED, LADISH NO. 4202, OR JAMESBURY TYPE D150F. CHECK VALVE LADISH NO. 5272 OR STOCKHAM FIG 15 SF 316 OR AS SHOWN ON DRAWINGS.
15	STAINLESS STEEL, TYPE 18-8, ASTM A312, SCHEDULE 10S.	STAINLESS STEEL, ANSI B16.9, SCHEDULE 10S BUTT-WELDED OR 150 PSI FLANGED.	STAINLESS STEEL, AS INDICATED ON DRAWINGS.
16	POLYVINYL CHLORIDE, SCHEDULE 80, NORMAL IMPACT.	POLYVINYL CHLORIDE, SCHEDULE 80, NORMAL IMPACT, SOCKET SOLVENT WELD JOINTS, ASTM D2467.	POLYVINYL CHLORIDE BALL VALVE, BUTTERFLY VALVE, BALL OR LIFT CHECK VALVE, DIAPHRAGM WITH HYPALON DIAPHRAGM, CHEMTROL, HILLS-MC CANNA OR GSR-R.G. SLOAN CO.
17	POLYPROPYLENE, ASTM D2146, SCHEDULE 40, WITH HEAT FUSED JOINTS.	POLYPROPYLENE, SCHEDULE 40, DRAINAGE FITTINGS WITH HEAT FUSED SOCKET JOINTS.	
18	FIBERGLASS REINFORCED PLASTIC, FILAMENT-WOUND, SOCKET AND SPIGOT ENDS, ADHESIVE BONDED, ASTM D2122.	FIBERGLASS REINFORCED PLASTIC, FILAMENT-WOUND, SOCKET ENDS, ADHESIVE BONDED, OR FIBERGLASS FLANGES.	PLASTIC LINED, FLANGED VALVES, FLANGES TO MATCH 150 PSI ANSI B16.5 DIMENSIONS.
19	POLYVINYL CHLORIDE PRESSURE PIPE WITH BELL AND SPIGOT JOINTS, ASTM D2241.	CAST IRON, CLASS 150, FOR POLYVINYL CHLORIDE PIPE, AWWA C110 CEMENT MORTAR LINED, AWWA C104.	SAME AS GROUP 11.
20	VITRIFIED CLAY PIPE, PERFORATED, BELL AND SPIGOT OR ASBESTOS CEMENT, PERFORATED WITH COUPLINGS.	VITRIFIED CLAY PIPE, BELL AND SPIGOT OR CAST IRON ANSI A21.10 FOR ASBESTOS CEMENT PIPE WITH FLEXIBLE COMPRESSION JOINTS.	
21	VITRIFIED CLAY PIPE, EXTRA STRENGTH, FLEXIBLE COMPRESSION JOINTS FOR BELL AND SPIGOT PIPE, ASTM C700.	VITRIFIED CLAY PIPE FLEXIBLE JOINTS FOR BELL AND SPIGOT PIPE, ASTM C425.	
22	REINFORCED CONCRETE PIPE ASTM C76, TONGUE AND GROOVED JOINTS.	SAME AS GROUP 8.	
23	ASBESTOS CEMENT WITH COUPLINGS AND FLEXIBLE COMPRESSION JOINTS, AWWA C400, CLASS 150.	CAST IRON, ANSI A21.10, BELL AND SPIGOT COMPRESSION JOINTS.	SAME AS GROUP 11 OR AS INDICATED ON DRAWINGS.
24	COPPER, ASTM B88, TYPE K, SOFT TEMPER WHERE BURIED, HARD TEMPER WHERE EXPOSED.	WROUGHT COPPER OR CAST BRONZE, SOLDER JOINT, 150 PSI, ANSI B16.22 OR COMPRESSION FITTINGS.	BRASS, SOLDER JOINT, GLOBE VALVE CRANE NO. 1310 OR STOCKHAM B-14. CHECK VALVE, CRANE NO. 1342 OR 36, OR STOCKHAM B-309 OR B-345. GATE VALVE CRANE NO. 1320 OR 426, OR STOCKHAM B-104 OR B-105.
25	STEEL ASTM A106 OR A53, SCHEDULE 40, SEAMLESS, BLACK, SARAN OR POLYPROPYLENE-LINED.	STEEL ANSI B16.5, 150 PSI FLANGED, DUCTILE IRON OR CAST IRON, ANSI A21.10 OR AWWA C110, FLANGED, SARAN OR POLYPROPYLENE-LINED.	CAST STEEL PLUG OR DIAPHRAGM AND CHECK VALVE 150 LB FLANGED SARAN OR POLYPROPYLENE-LINED.
26	SAME AS GROUP NO. 11.	DUCTILE IRON OR CAST IRON, ANSI A21.10 OR AWWA C110, CLASS D, MECHANICAL JOINT, MECHANICAL COUPLINGS OR FLANGED.	ECCENTRIC PLUG OR BALL, BUTTERFLY VALVE, AWWA, SYNTHETIC RUBBER FACED DEZURIK 118F OR HOMESTEAD 1522, SWING TYPE CHECK VALVE, CRANE NO. 383 OR POWELL FIG. 559.
27	POLYVINYL CHLORIDE GRAVITY SEWER PIPE, BELL AND SPIGOT ASTM D3034.	POLYVINYL CHLORIDE, BELL AND/OR SPIGOT ASTM D3034.	
28	REINFORCED CONCRETE PIPE, AWWA C302, CLASS – SEE DRAWINGS.	SAME AS GROUP 8	AS INDICATED ON DRAWINGS.
29	TEMPERED GLASS PIPE, (ARMORED, WHERE BURIED)	TEMPERED GLASS DRAINAGE FITTINGS WITH COMPRESSION COUPLINGS AND TEFLON JOINTS.	
30	SAME AS GROUP 11, GLASS-LINED OR SCHEDULE 40, STEEL ASTM A120, GLASS-LINED.	SAME AS GROUP 11, GLASS-LINED OR SCHEDULE 40 WELDING FITTINGS WITH MECHANICAL COUPLINGS, GLASS-LINED.	SAME AS GROUP 26

LIST OF SAMPLE LINES

PIPE DESIGNATION	SAMPLE POINT

TYPICAL PIPE DESIGNATION:

2" UW(24)

- 2" – PIPE DIAMETER
- UW – FLUID ABBREVIATION
- (24) – MATERIAL GROUP NUMBER (SEE NOTE 12)

NOTES

NOTE 1
PROPRIETARY NAMES HAVE BEEN QUOTED FOR IDENTIFICATION PURPOSES ONLY. SUBSTITUTIONS WILL BE PERMITTED SUBJECT TO PROVISIONS OF THE SPECIFICATIONS.

NOTE 2
LEAKAGE ALLOWANCE IS AS FOLLOWS:
- (A) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE.
- (B) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE FOR UNBURIED PIPE AND NOT MORE THAN 0.002 GALLON PER HOUR PER INCH DIAMETER PER 100 FEET OF BURIED PIPE.
- (C) PIPES SO DESIGNATED SHALL NOT SHOW A LEAKAGE OF MORE THAN 0.15 GALLON PER HOUR PER INCH OF DIAMETER PER 100 FEET OF PIPE.
- (D) PIPES SO DESIGNATED SHALL NOT SHOW A LOSS OF PRESSURE OF MORE THAN 5 PERCENT.
- (E) PIPES SO DESIGNATED SHALL NOT SHOW A LOSS OF VACUUM OF MORE THAN 4 INCHES MERCURY COLUMN.

NOTE 3
FOR FIELD TEST PROCEDURES AND ADDITIONAL TEST REQUIREMENTS, SEE PIPING SECTION OF SPECIFICATIONS.

NOTE 4
ANY DEVIATION FROM THE PIPING MATERIALS OR FIELD TEST REQUIREMENTS SHOWN WILL BE NOTED IN THE SPECIFICATIONS OR ON THE DRAWINGS.

NOTE 5
PIPING GROUP NUMBER SHOWN THUS* SHALL BE INSULATED, SEE PIPING SECTION OF SPECIFICATIONS FOR INSULATING MATERIALS.

NOTE 6
STATIC WATER TEST WITH SURFACE 5 FEET ABOVE HIGH POINT OF PIPE.

NOTE 7
INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE PLUMBING CODE.

NOTE 8
NO APPARENT LEAKS UNDER NORMAL OPERATING CONDITIONS.

NOTE 9
INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.

NOTE 10
PIPING MATERIALS SHALL BE IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.

NOTE 11
FOR VALVES 8 INCHES AND OVER SEE VALVE SCHEDULE, FOR SPECIAL VALVES SEE SPECIFICATIONS.

NOTE 12
CHANGE IN PIPING MATERIAL GROUP NUMBER IS INDICATED THUS: ◇

NOTE 13
FOR PIPE LININGS AND COATINGS, SEE SPECIFICATIONS.

NOTE 14
EXPOSED PIPING SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATIONS. COLORS TO BE SELECTED BY ENGINEER.

NOTE 15
PIPING MATERIAL SHALL BE NON-ABRASIVE FLEXIBLE RUBBER HOSE AND QUICK CONNECTING COUPLINGS WITH GROUP I AT EQUIPMENT.

03561

RECORD DRAWING

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
PIPING SCHEDULE

SHEET M-2 OF 66 SHEETS

PUMP SCHEDULE

PUMP NO.	LOCATION	SERVICE	FLOW GPM	TDH FT	HP MIN	TYPE AND REMARKS
1-P-3	CHLORINE CONTACT CHANNEL	FILTER BACKWASH	3,000	20		VERTICAL MIXED FLOW OR TURBINE W/ SUCTION STRAINER
1-P-4	CHLORINE CONTACT CHANNEL	FILTER BACKWASH	3,000	20		VERTICAL MIXED FLOW OR TURBINE W/ SUCTION STRAINER
1-P-5	CHLORINE CONTACT CHANNEL	FILTER BACKWASH	3,000	20		VERTICAL MIXED FLOW OR TURBINE W/ SUCTION STRAINER
4-P-1	FILTER INFLUENT	FLASH MIXING	500	21	5	VERTICAL TURBINE
4-P-2	FILTER INFLUENT	CHANNEL AGITATION	1890	33	20	VERTICAL TURBINE
4-P-3	FILTER PIPE GALLERY	DRAINAGE	100	22	1	SUMP PUMP, SUBMERSIBLE
4-P-4	FILTER PIPE GALLERY	DRAINAGE	100	22	1	SUMP PUMP, SUBMERSIBLE
5-P-1	BALANCING POND	FILTER INFLUENT	6,100	32		VERTICAL MIXED FLOW W/ SUCTION STRAINER
5-P-2	BALANCING POND	FILTER INFLUENT	6,100	32		VERTICAL MIXED FLOW W/SUCTION STRAINER
6-P-1	NOT USED					
6-P-2	NOT USED					
6-P-3	CHEMICAL BLDG.	CATIONIC POLYMER	10	20	—	DRUM PUMP
6-P-4	CHEMICAL BLDG.	AN-IONIC POLYMER	10	20	—	DRUM PUMP
6-P-5	CHEMICAL BLDG.	AN-IONIC POLYMER	35	115	2	TRANSFER PUMP
	—					
7-P-1	S OF FILTERS	WASTE WASHWATER	500	37	7.5	VERTICAL TURBINE W/ SUCTION STRAINER
7-P-2	S OF FILTERS	WASTE WASHWATER	500	37	7.5	VERTICAL TURBINE W/ SUCTION STRAINER
7-P-3	S OF FILTERS	WASTE WASHWATER	500	37	7.5	VERTICAL TURBINE W/ SUCTION STRAINER
1-P-6	CHLORINE CONTACT CHANNEL	SUMP	100	20	1	SUBMERSIBLE SUMP PUMP
5-P-3	BALANCING POND	SECONDARY EFFLUENT BY-PASS	3,500/ 5,000	8-15	25	VERTICAL TURBINE

CHLORINATOR AND CHEMICAL FEEDER SCHEDULE

FEEDER NO.	LOCATION	SERVICE	TYPE	H P AND ELECTRICAL SUPPLY	CAPACITY	REMARKS
6-FD-1	CHEMICAL BLDG. AND STORAGE	CHLORINE	V-NOTCH	75 WATTS	2,000 LBS/DAY	ULTIMATELY 4,000 LBS/DAY
6-FD-2	CHEMICAL BLDG. AND STORAGE	CHLORINE	V-NOTCH	75 WATTS	2,000 LBS/DAY	ULTIMATELY 4,000 LBS/DAY
6-FD-3	CHEMICAL BLDG. AND STORAGE	CHLORINE	V-NOTCH	75 WATTS	2,000 LBS/DAY	ULTIMATELY 4,000 LBS/DAY
6-FD-4	CHEMICAL BLDG. AND STORAGE	SULFUR DIOXIDE	V-NOTCH	30 WATTS	2,000 LBS/DAY	ULTIMATELY 1,425 LBS/DAY
6-FD-5	CHEMICAL BLDG. AND STORAGE	SULFUR DIOXIDE	V-NOTCH	30 WATTS	940 LBS/DAY	ULTIMATELY 1,425 LBS/DAY
6-FD-6	CHEMICAL BLDG. AND STORAGE	LIQUID ALUM	HYD. DIAPH. PUMP	1/2 HP	26 GPH AT 50 PSI	
6-FD-7	CHEMICAL BLDG. AND STORAGE	LIQUID ALUM	HYD. DIAPH. PUMP	1/2 HP	26 GPH AT 50 PSI	
6-FD-8	CHEMICAL BLDG. AND STORAGE	CATIONIC POLYMER	HYD. DIAPH. PUMP	1/2 HP	13 GPH AT 50 PSI	
6-FD-9	CHEMICAL BLDG. AND STORAGE	CATIONIC POLYMER	HYD. DIAPH. PUMP	1/2 HP	13 GPH AT 50 PSI	
6-FD-10	CHEMICAL BLDG. AND STORAGE	NON-IONIC POLYMER	HYD. DIAPH. PUMP	1/2 HP	50 GPH AT 50 PSI	
6-FD-11	CHEMICAL BLDG. AND STORAGE	NON-IONIC POLYMER	HYD. DIAPH. PUMP	1/2 HP	50 GPH AT 50 PSI	
6-FD-12	CHEMICAL BLDG. AND STORAGE	NON-IONIC POLYMER	HELIX FEEDER	1/4 HP	27 LBS/DAY	

TANK SCHEDULE

TANK NO.	LOCATION	SERVICE	CAPACITY GAL.	SIZE INCHES DIA X SHELL	MATERIAL	REMARKS
6-T-1	CHEMICAL BLDG.	CHLORINE STORAGE	3,500	78 X 168	STEEL	300 PSI WORK'G
6-T-2	CHEMICAL BLDG.	CHLORINE STORAGE	3,500	78 X 168	STEEL	300 PSI WORK'G
6-T-3	CHEMICAL BLDG.	SULFUR DIOXIDE STORAGE	1,350	60 X 108	STEEL	300 PSI WORK'G
6-T-4	CHEMICAL BLDG.	SULFUR DIOXIDE STORAGE	1,350	60 X 108	STEEL	300 PSI WORK'G
6-T-5	CHEMICAL BLDG.	CATIONIC POLYMER	350	48 X 48	FIBERGLASS	W/SPLIT COVER AND MIXER PAD
6-T-6	CHEMICAL BLDG.	ANIONIC POLYMER AGING	350	48 X 48	FIBERGLASS	OPEN TOP W/MIXER PAD
6-T-7	CHEMICAL BLDG.	ANIONIC POLYMER FEED	350	48 X 48	FIBERGLASS	OPEN TOP
6-T-8	CHEMICAL BLDG.	COMPR. AIR	80	27 X 96	STEEL	150 PSI WORK'G W/ COMPRESSOR 6-ME-13
7-T-1	WWW HOLDING TANK	ALUM STORAGE	7,500	96 X 240	STEEL, PVC-LINED	W/VENT AND AIR DIFFUSER
4-T-1	FILTER PIPE GALLERY	COMPRESSED AIR	30	18 X 40	STEEL	VERTICAL, 150 PSI

NOT INCLUDED IN CONTRACT

03562

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
2	6-30-89	TMD	REVISED CAPACITY - SULFUR DIOXIDE - FEEDER 6-FD-4

SCALE: NONE

DESIGNED G.M.
DRAWN G.M.
CHECKED J.C.S.

SUBMITTED
PROJECT ENGINEER — R.C.E. NO. 27354 — DATE

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — R.C.E. NO. 41693 — DATE 3/6/91

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
PUMP, FEEDER, AND TANK SCHEDULES

SHEET M-3 OF 66 SHEETS

VALVE SCHEDULE (FOR VALVES 8-INCHES AND LARGER)

VALVE NO.	LOCATION	SERVICE	TYPE OF VALVE	SIZE IN.	CLASS PSI	OPERATOR	REMARKS
1-V-1	BACKWASH PUMP STATION	FILTER BACKWASH	SILENT CHECK	14	125	IN-LINE SPRING	1-P-3 DISCHARGE
1-V-2	BACKWASH PUMP STATION	FILTER BACKWASH	SILENT CHECK	14	125	IN-LINE SPRING	1-P-4 DISCHARGE
1-V-3	BACKWASH PUMP STATION	FILTER BACKWASH	SILENT CHECK	14	125	IN-LINE SPRING	1-P-5 DISCHARGE
1-V-4	BACKWASH PUMP STATION	FILTER BACKWASH	BUTTER-FLY	14	150	MANUAL GEAR	1-P-3 DISCHARGE
1-V-5	BACKWASH PUMP STATION	FILTER BACKWASH	BUTTER-FLY	14	150	MANUAL GEAR	1-P-4 DISCHARGE
1-V-6	BACKWASH PUMP STATION	FILTER BACKWASH	BUTTER-FLY	14	150	MANUAL GEAR	1-P-5 DISCHARGE
1-V-7	S OF CHLORINE CONTACT TANK	FINAL EFFLUENT	LUBE PLUG	1.	300	MANUAL W. EXTEN-SION BONNET	LINE TO RESERVOIR-BURIED
1-V-8 (KD)	SOUTH OF CONTROL BLDG.	FINAL EFFLUENT	BUTTER-FLY	1	300	W. EXTEN-SION BONNET	LINE TO RESERVOIR-BURIED
4-V-1	FILTER IN-FLUENT	FILTER INFLUENT	BUTTER-FLY	42	25	REPLACE MAN. OPER. W/ELECT. (EXTENED TO ABOVE GROUND) C-5	MOVE EXISTING BURIED VALVE NO 10-V-5 C-2
4-V-2	FILTER PIPE GALL'Y	BACKWASH	LUBE PLUG V	24	150	ELECTRIC (KD)	W/MECH. STOPS
4-V-3	FILTERS	CHANNEL AGITATION	BUTTER-FLY	10	150	MANUAL	4-P-2 DISCHARGE
4-V-101	FILTER NO. 1	INFLUENT	BUTTER-FLY	18	150	ELECTR. W/EXTN. BONNET	—
4-V-102	FILTER NO. 1	EFFLUENT	BUTTER-FLY	14	150	ELECTRIC.	—
4-V-103	FILTER NO. 1	BACKWASH	BUTTER-FLY	24	25	ELECTRIC	—
4-V-104	FILTER NO. 1	AIR SCOUR	BUTTER-FLY	8	150	ELECTRIC	—
4-V-105	FILTER NO. 1	WWW DRAIN	BUTTER-FLY	18	150	ELECTR. W/EXTN. BURIED BONNET	—
4-V-201 THRU 4-V-205	FILTER NO. 2	—	BUTTER-FLY	—	—	ELECTRIC	SAME AS FILTER NO. 1
4-V-301 THRU 4-V-305	FILTER NO. 3	—	BUTTER-FLY	—	—	ELECTRIC	SAME AS FILTER NO. 1
4-V-401 THRU 4-V-405	FILTER NO. 4	—	BUTTER-FLY	—	—	ELECTRIC	SAME AS FILTER NO. 1
4-V-501 THRU 4-V-505	FILTER NO. 5	—	BUTTER-FLY	—	—	ELECTRIC	SAME AS FILTER NO. 1
4-V-601 THRU 4-V-605	FILTER NO. 6	—	BUTTER-FLY	—	—	ELECTRIC	SAME AS FILTER NO. 1
4-V-701 THRU 4-V-705	FILTER NO. 7	—	BUTTER-FLY	—	—	ELECTRIC	SAME AS FILTER NO. 1
4-V-801 THRU 4-V-801	FILTER NO. 8	—	BUTTER-FLY	—	—	ELECTRIC	SAME AS FILTER NO. 1
5-V-1	FILTER INFL. PUMP STATION	FILTER INFLUENT	SILENT CHECK	18	125	IN-LINE SPRING	5-P-1 DISCHARGE
5-V-2	FILTER INFL. PUMP STATION	FILTER INFLUENT	SILENT CHECK	18	125	IN-LINE SPRING	5-P-2 DISCHARGE
5-V-3	FILTER INFL. PUMP STATION	FILTER INFLUENT	BUTTER-FLY	18	150	MANUAL	5-P-1 DISCHARGE
5-V-4	FILTER INFL. PUMP STATION	FILTER INFLUENT	BUTTER-FLY	18	150	MANUAL	5-P-2 DISCHARGE
5-V-5	FILTER INFL. PUMP STATION	FILTER INFLUENT	LUBE PLUG V	24	150	ELECTRIC	THROTTLING
7-V-1 7-V-2 7-V-3	WWW TANK	BACKWASH RECOVERY	SWING CHECK	8	125	LEVER AND SPR'G	—
7-V-4	WWW TANK	BACKWASH RECOVERY	BUTTER-FLY	8	150	MANUAL	—
7-V-5	WWW TANK	BACKWASH RECOVERY	BUTTER-FLY	8	150	MANUAL	—
7-V-6	WWW TANK	BACKWASH RECOVERY	BUTTER-FLY	8	150	MANUAL	—
9-V-1	PIPE GALLERY NO. 3	AIR SCOUR	BUTTER-FLY	10	150	MANUAL, CHAIN DRIVE	
10-V-6	N OF EXIST. POND	SECONDARY EFFLUENT	BUTTER-FLY	30	25	REPLACE MAN. OPER. W ELECT (EXTN. BONNET)	
10-V-14	EXISTING RESERVOIR	OUTLET	LUBE PLUG	10	200	MANUAL OPER. W EXTN. STEM	SUBMERGED SERVICE
10-V-15	EXISTING RESERVOIR	OUTLET	LUBE PLUG	10	200	MANUAL OPER. W EXTN. STEM	SUBMERGED SERVICE
10-V-16	EXISTING RESERVOIR	OUTLET	BUTTER-FLY	10	150	SQUARE NUT	BURIED
10-V-17	EXISTING RESERVOIR	OUTLET	SILENT CHECK	10	125	IN-LINE SPRING	IN BOX (KD)
10-V-18	EXISTING RESERVOIR	OUTLET	BUTTER-FLY	10	150	SQUARE NUT	BURIED
10-V-19	(NOT USED)						
10-V-20	'S' OF AERATION TANKS	WWW	BUTTER-FLY	12	150	SQUARE NUT	BURIED
10-V-21	AT BARMINUTOR	WWW	BUTTER-FLY	12	150	HANDWHEEL	—

GATE SCHEDULE

GATE NO.	LOCATION	SERVICE	SIZE IN.	SEATING HEAD FT.	UN-SEATING HEAD FT.	OPERATOR	REMARKS
4-G-1	DIVERSION BOX	FILTER INFLUENT	42 DIA.	6	6	HAND CRANK AND FL. STAND	FLUSH BOTTOM
4-G-2	EFFLUENT BOX	FILTER EFFLUENT	24 X 24	20	7	HAND CRANK AND FL. STAND	FLUSH BOTTOM
4-G-3	DIVERSION BOX	ADJUSTABLE WEIR	132 X 48	2	—	MANUAL-W/ FLOOR STAND	FABRICATED ALU-MINUM OR FIBER-GLASS
4-G-4	DIVERSION BOX	ADJUSTABLE WEIR	132 X 48	2	—	MANUAL-W/ FLOOR STAND	FABRICATED ALU-MINUM OR FIBER-GLASS
4-G-5	DIVERSION BOX	ADJUSTABLE WEIR	84 X 48	2	—	MANUAL-W/ FLOOR STAND	FABRICATED ALU-MINUM OR FIBER-GLASS
8-G-1	FINAL SED. TANK	INLET	24 DIA.	4	4	NEW HANDWHEEL W/FLOOR STAND	GATE EXISTING
8-G-2	FINAL SED. TANK	SCUM	12 X 12	1	1	HANDWHEEL AND STAND	DOWNWARD OPENING
8-G-3	FINAL SED. TANK	RAS	30 X 30	2	2	HANDWHEEL	ALUMINUM V-NOTCH GATE AND BOX, SELF-CONTAINED
8-G-4	FINAL SED. TANK	RAS	30 X 30	2	2	HANDWHEEL	ALUMINUM V-NOTCH GATE AND BOX, SELF-CONTAINED

VALVE SCHEDULE CONCLUDED

VALVE NO.	LOCATION	SERVICE	TYPE OF VALVE	SIZE IN.	CLASS PSI	OPERATOR	REMARKS
10-V-22	'E' OF EFFLUENT PUMP STATION	EFFLUENT THROTTLING	ROTARY SLEEVE	30	—	FLOAT	FABRICATED STEEL VALVE

FAN SCHEDULE

FAN NO.	LOCATION	SERVICE	TYPE OF FAN	CFM	SP INCHES	HP	REMARKS
4-F-1	FILTER PIPE GALLERY	VENTILATION	PROPELLER	827	1/4	1/12	W/WEATHER LOUVER, SCREEN AND SAFTY GUARD
6-F-1	CHLORINATOR ROOM	EXHAUST	PROPELLER	1635	1/2	1/3	W/BACKDRAFT DAMPER AND SAFTY GUARD
6-F-2	SULFONATOR ROOM	EXHAUST	PROPELLER	1635	1/2	1/3	W/BACKDRAFT DAMPER AND SAFTY GUARD
6-F-3	ELECTRICAL ROOM	COOLING	ROOF EXHAUSTER	796	3.8	1/4	W/BACKDRAFT DAMPER, CURB, AND REGISTER
6-F-4	CHEM. FEEDER ROOM	EXHAUST	ROOF EXHAUSTER	1861	1/2	1/2	W/BACKDRAFT DAMPER, CURB, AND REGISTER

NOT INCLUDED IN CONTRACT

03563

RECORD DRAWING

REVISED PER ADDENDUM NO. 1 (WATER JUMP)

REV.	DATE	BY	DESCRIPTION
1	2-16-73	JMP	REVISED PER ADDENDUM NO. 1
2	6-15-73	JMP	REVISED PER CHANGE ORDER NO. 1

SCALE: NONE

DESIGNED J.M.

DRAWN J.M.

CHECKED JCM

SUBMITTED: Robert C. Swank — PROJECT ENGINEER — R.C.E. NO. 27934 — DATE 5/10/73

RECOMMENDED: [signature] — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — R.C.E. NO. C-1055 — DATE 5/22/73

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/ TRIUNFO CSD

TAPIA WRF – FILTRATION/ DISINFECTION ADDITION

PHASE II

VALVE, GATE, AND FAN SCHEDULES

SHEET: M-4 OF 66 SHEETS

MISCELLANEOUS MECHANICAL EQUIPMENT SCHEDULE

EQUIP. NO.	LOCATION	SERVICE	TYPE	HP (MIN)	CAPACITY	REMARKS
4-ME-1	FILTER PIPE GALLERY	HEATING	ELECTR. UNIT HEATER	7.5 KW	25,590 BTU/HR	W/THERMOSTAT
4-ME-2	FILTER INFLUENT PIPE GALLERY	FILTER INFLUENT	TURBIDIMETER	60W	—	—
4-ME-3	FILTER PIPE GALLERY	FILTER NO. 1 EFFLUENT	TURBIDIMETER	60W	—	—
4-ME-4	FILTER PIPE GALLERY	FILTER NO. 2 EFFLUENT	TURBIDIMETER	60W	—	—
4-ME-5	FILTER PIPE GALLERY	FILTER NO. 3 EFFLUENT	TURBIDIMETER	60W	—	—
4-ME-6	FILTER PIPE GALLERY	FILTER NO. 4 EFFLUENT	TURBIDIMETER	60W	—	—
4-ME-7	FILTER PIPE GALLERY	FILTER NO. 5 EFFLUENT	TURBIDIMETER	60W	—	—
4-ME-8	"	FILTER NO.6 EFFLUENT	"	60W	—	—
4-ME-9	"	FILTER NO.7 EFFLUENT	"	60W	—	—
4-ME-10	"	FILTER NO.8 EFFLUENT	"	60W	—	—
4-ME-11	"	FILTER EFFLUENT	"	60W	—	—
6-ME-1	CHEMICAL BLDG. AND STORAGE	CHLORINE EVAPORATOR	ELECTRIC	2-6 KW	8,000 LB/DAY	—
6-ME-2	CHEMICAL BLDG. AND STORAGE	CHLORINE EVAPORATOR	ELECTRIC	2-6 KW	8,000 LB/DAY	—
6-ME-3	CHEMICAL BLDG. AND STORAGE	CHLORINE RES. ANALYZER	AMPEROMETRIC	—	0-20 PPM	—
6-ME-4	CHEMICAL BLDG. AND STORAGE	CHLORINE RES. ANALYZER	AMPEROMETRIC	—	0-20 PPM △1	—
6-ME-5	CHEMICAL BLDG. AND STORAGE	CHLORINE TANK SCALE	HYDRAULIC LOAD CELL	—	MIN. 30 TONS	—
6-ME-6	CHEMICAL BLDG. AND STORAGE	CHLORINE TANK SCALE	HYDRAULIC LOAD CELL	—	MIN. 30 TONS	—
6-ME-7	CHEMICAL BLDG. AND STORAGE	SULFUR DIOXIDE EVAPORATOR	ELECTRIC	2-6 KW	4,000 LB/DAY	—
6-ME-8	CHEMICAL BLDG. AND STORAGE	SULFUR DIOXIDE EVAPORATOR	ELECTRIC	2-6 KW	4,000 LB/DAY	—
6-ME-9	CHEMICAL BLDG. AND STORAGE	SULFUR DIOXIDE TANK SCALE	HYDRAULIC LOAD CELL	—	MIN. 12 TONS	—
6-ME-10	CHEMICAL BLDG. AND STORAGE	SULFUR DIOXIDE TANK SCALE	HYDRALIC LOAD CELL	—	MIN. 12 TONS	—
6-ME-11	CHEMICAL BLDG. AND STORAGE	CAT.-IONIC POLYMER MIXER	PROPELLER	1/3	350 GAL. TANK	350 RPM MAX.
6-ME-12	CHEMICAL BLDG. AND STORAGE	NON-IONIC POLYMER MIXER	PROPELLER	1/3	350 GAL. TANK	350 RPM MAX W/POLYPAK
6-ME-13	CHEMICAL BLDG. AND STORAGE	AIR COMPRESSOR	RECIPROCATING	5	18 CFM AT 125 PSI ACT.	W/80 GAL. RECEIVER 6-T-6
6-ME-14	CHEMICAL BLDG. AND STORAGE	CHLORINE LEAK DETECTOR	ELECTRO-CHEMICAL	—	—	—
6-ME-15	CHEMICAL BLDG. AND STORAGE	SULFUR DIOXIDE LEAK DETECTOR	ELECTRO-CHEMICAL	—	—	—
6-ME-16	CHLORINATOR ROOM	HEATING	ELECTRIC UNIT HEATER	3 KW	—	W/WALL THERMOSTAT
6-ME-17	SULFONATOR ROOM	HEATING	ELECTRIC UNIT HEATER	3 KW	—	W/WALL THERMOSTAT
6-ME-18	ELECTRICAL ROOM	HEATING	ELECTRIC UNIT HEATER	3 KW	—	W/WALL THERMOSTAT
6-ME-19	CHEM. FEEDER ROOM	HEATING	UNIT HEATER	7 KW	—	W/WALL THERMOSTAT
6-ME-20	CHEM. FEEDER ROOM	AIR DRYER		—	10 SCFM	
6-ME-21	CHLORINATOR ROOM	CHLORINE	INJECTOR	—	60 GPM AT 10 PSI B. P.	INJECTOR TO BE CHANGED TO 3" (125 GPM) IN FUTURE
6-ME-22	CHLORINATOR ROOM	CHLORINE	INJECTOR	—	75 GPM AT 10 PSI B. P.	INJECTOR TO BE CHANGED TO 3" (125 GPM) IN FUTURE
6-ME-23	CHEMICAL BLDG. AND STORAGE	DRUM HANDLING	DRUM TRUCK	—	1500 LB	PORTABLE
8-ME-1	FINAL SEDI-MENTATION TANK NO. 5	SLUDGE COLLEC-TION	FLIGHT-TYPE COLLECTOR	—	TANK SIZE 150'-0" X 20'-0"	W/PROVISION FOR FUT. TANK NO. 6

METER SCHEDULE

METER NO.	LOCATION	TYPE	SERVICE	PIPE SIZE IN.	FLOW RANGE GPM	REMARKS
4-M-1	FILTER DIVERSION BOX	VERTICAL OPEN FLOW PROPELLER	FILTER INFLUENT	42 36" MTR	1,500-15,000 20,000 ULT.	36" INSERT IN 42" PIPE
4-M-2	FILTER DIVERSION BOX	VERTICAL OPEN FLOW PROPELLER	FILTER INFLUENT	24	2,000-12,000	
4-M-3	FILTER INFLUENT	SONIC METER	FILTER INFLUENT	42 30" MTR	1,500-15,000 20,000 ULT.	REDUCE TO 30"
4-M-4	FILTER PIPE GALLERY	SHORT VENTURI	FILTERED EFFLUENT (BACKWASH)	24	2,000-6,000	
4-M-5	FILTER PIPE GALLERY	INSERT FLOW TUBE	AIR	10	300-1,500 CFM	
6-M-1	CHEMICAL BLDG.	BATCH METER	WATER	1	30	AT 6-FD-12
6-M-2	CHEMICAL BLDG.	BATCH METER	WATER	1	30	AT 6-T-5
6-M-3	CHEMICAL BLDG.	ROTAMETER	WATER	1-1/2	25	AT 6-FD-12
6-M-4	CHEMICAL BLDG.	ROTAMETER	PEC SOLUTION	3/4	10	
6-M-5	CHEMICAL BLDG.	ROTAMETER	PEC SOLUTION	3/4	10	
6-M-6	CHEMICAL BLDG.	ROTAMETER	ALUM SOLUTION	1	10	
6-M-7	CHEMICAL BLDG.	ROTAMETER	ALUM SOLUTION	1	10	
6-M-10	CHEMICAL BLDG.	PROPELLER	UTILITY WATER	6	100-900	W/ELECTR. HEAD
6-M-11	EXISTING AERATION TANKS	ROTAMETER	PEC/LA	3/4	10	
6-M-12		ROTAMETER	PEC/LA	3/4	10	
6-M-13		ROTAMETER	PEC/LA	3/4	10	
7-M-1	WWW TANK	MAG. METER	FILTER BACKWASH WASTE	6	200-1,500	
10-M-2	S OF CHEM. BLDG.	PROPELLER	FILTERED EFFL'T	6	100-900	W/ELECTR. HEAD

NOT INCLUDED IN CONTRACT

03564

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
2D	4/1/92	MDJ	RECORD DRAWING
1	3/30/89	TJCR	REVISION G-ME-4 CAPACITY

SCALE: NONE

DESIGNED G M
DRAWN G M
CHECKED J C S

SUBMITTED
PROJECT ENGINEER — R.C.E. NO. 27202 — DATE 5/19/89

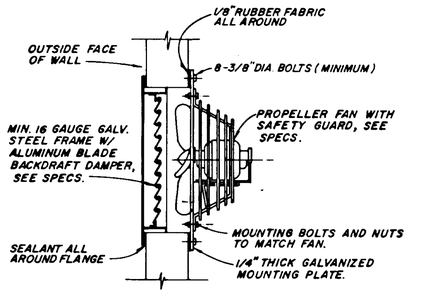
RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — R.C.E. NO. 17019 — DATE 5/23/89

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

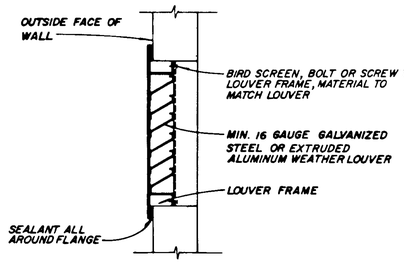
DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS MECHANICAL EQUIPMENT AND METER SCHEDULES

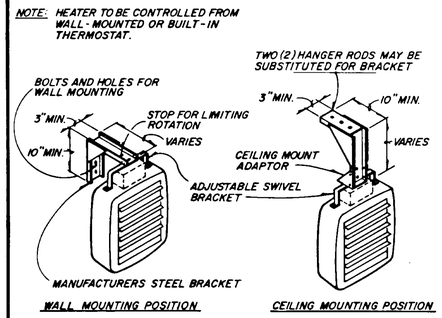
SHEET M-5 OF 66 SHEETS



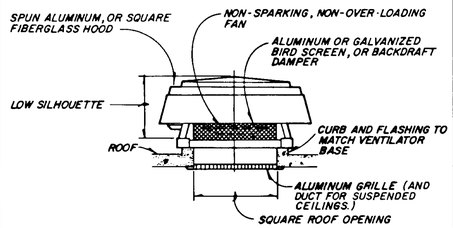
FAN WITH BACKDRAFT DAMPER — A / VAR



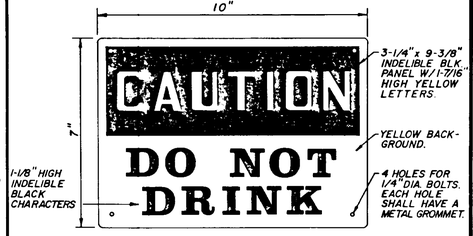
FIXED WEATHER LOUVER — B / VAR



ELECTRIC UNIT HEATER — C / VAR



POWER ROOF VENTILATOR — D / VAR

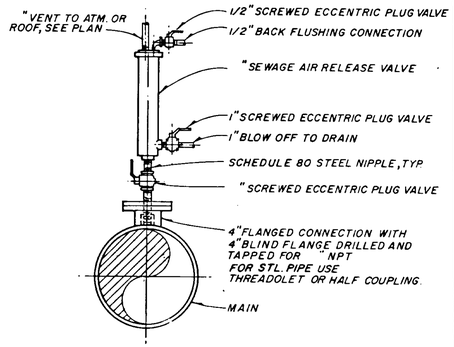


NOTES: MAT'L. TO BE SEMI-RIGID BUTYRATE OR APPROVED EQUAL, AS MFR'D. BY SETON NAME PLATE CORP., NEW HAVEN, CONN., 06505; W.H. BRADY CO., MILWAUKEE, WIS. 53201 OR EQUAL.

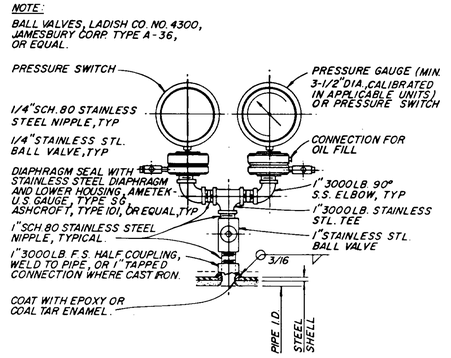
COLORS & LETTER SIZES TO BE PER OSHA STD'S. FOR CAUTION SIGNS.

PROVIDE THIS SIGN AT ALL HOSE BIBB LOCATIONS WHERE WATER IS NONPOTABLE.

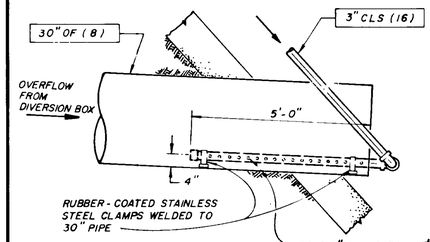
WARNING SIGN FOR NONPOTABLE WATER — E / VAR



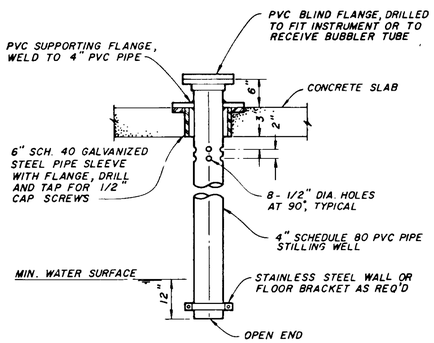
SEWAGE AIR RELEASE VALVE — F / VAR



PRESSURE GAUGE AND PRESSURE SWITCH WITH DIAPHRAGM SEAL — G / VAR



CHLORINE DIFFUSER — J / C-6



STILLING WELL THROUGH CONCRETE — K / VAR

JOB NO.	FRAME NO
IDENT. NO.	

03565

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

SCALE: NONE

DESIGNED G.M. DRAWN G.M. CHECKED J.C.S.

SUBMITTED Robert C Sumek PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

RECOMMENDED [signature] JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

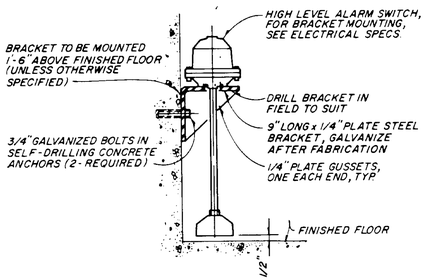
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

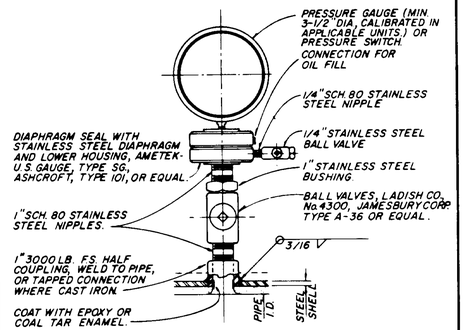
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS MECHANICAL DETAILS — A

SHEET M-6 OF 66 SHEETS

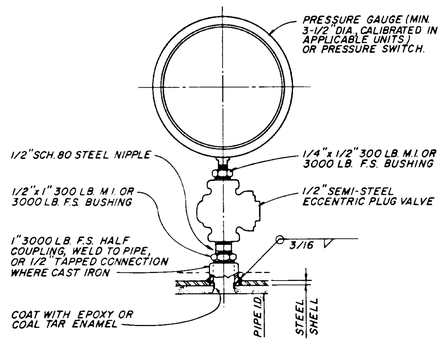
1-5-81



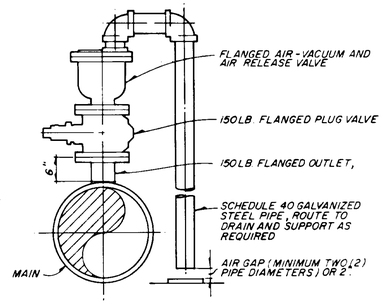
FLOOD ALARM SWITCH — A — VAR



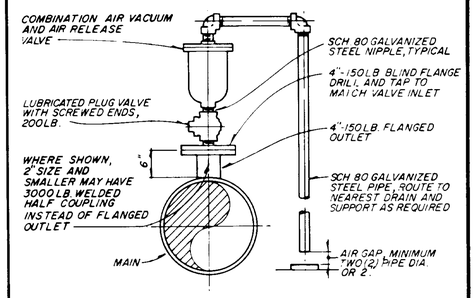
PRESSURE GAUGE OR PRESSURE SWITCH WITH DIAPHRAGM SEAL — B — VAR



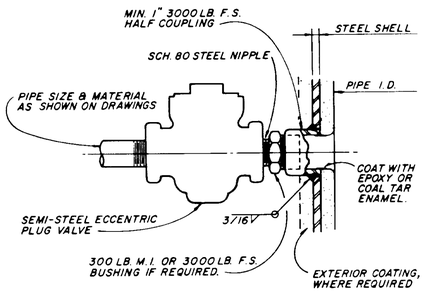
PRESSURE GAUGE OR PRESSURE SWITCH — C — VAR



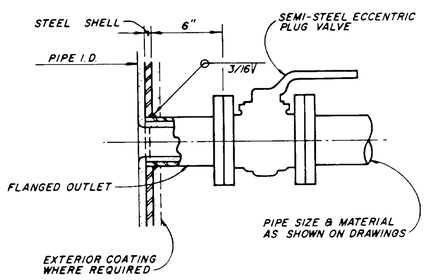
AIR-VACUUM AND AIR RELEASE VALVE ASS'Y. 4" AND LARGER — D — VAR



AIR-VACUUM AND AIR RELEASE VALVE ASS'Y. 3" AND SMALLER — E — VAR

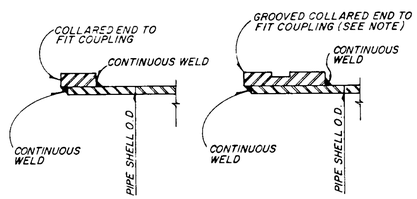


PIPE CONNECTION 2" AND SMALLER — F — VAR

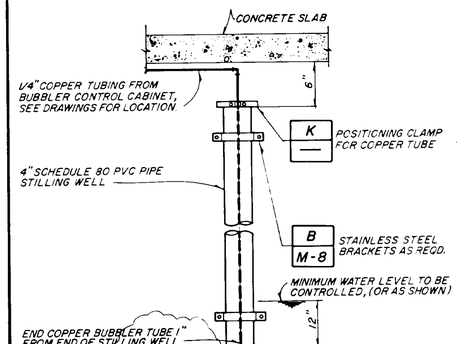


PIPE LINE CONNECTION 4" AND LARGER — G — VAR

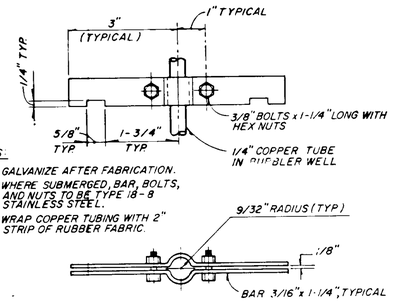
NOTE:
FOR ALL PRESSURE CONNECTIONS TO AND FROM PUMPS AND OTHER EQUIPMENT, PROVIDE HARNESS SETS, OR RADIUS GROOVING, UNLESS OTHERWISE SHOWN.



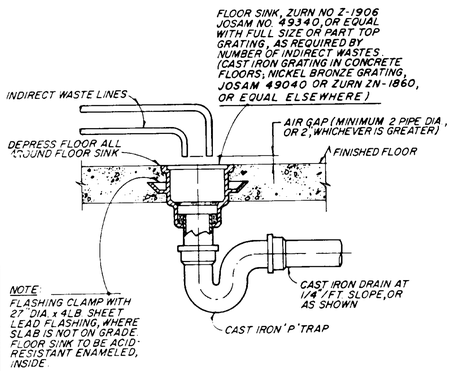
COLLARED END DETAILS FOR MECHANICAL COUPLINGS — H — VAR



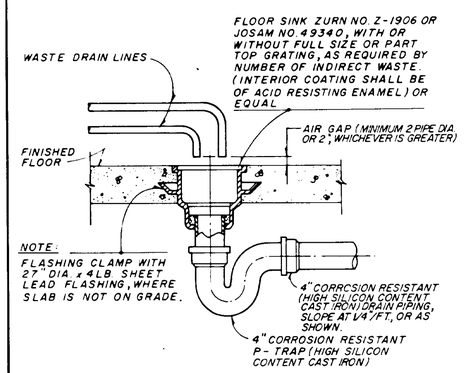
BUBBLER STILLING WELL — J — VAR



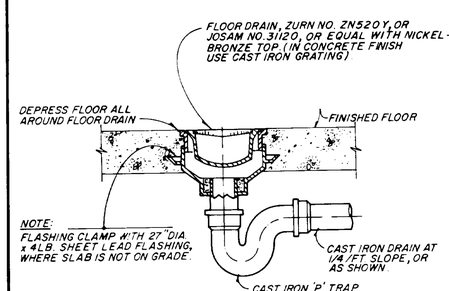
POSITIONING CLAMP — K — VAR



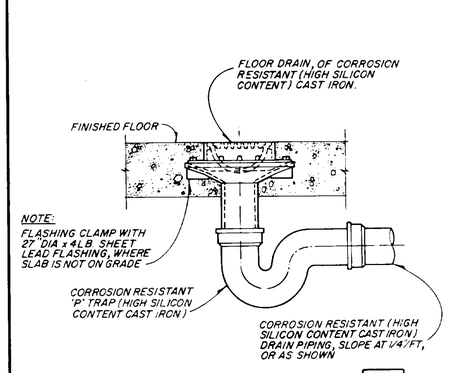
FLOOR SINK — L — VAR



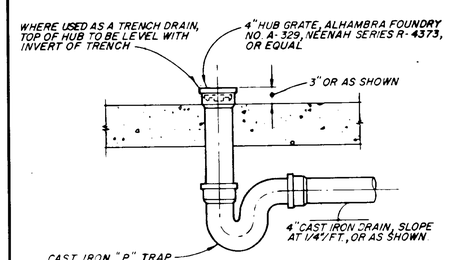
CORROSION RESISTANT FLOOR SINK — M — VAR



FLOOR DRAIN — N — VAR



CORROSION RESISTANT FLOOR DRAIN — P — VAR



HUB DRAIN — R — VAR

RECORD DRAWING 03566

REV	DATE	BY	DESCRIPTION
			RECORD DRAWINGS

1-5-81

SCALE: NONE

DESIGNED G. M. DRAWN G. M. CHECKED H. M.

SUBMITTED Robert Smith — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

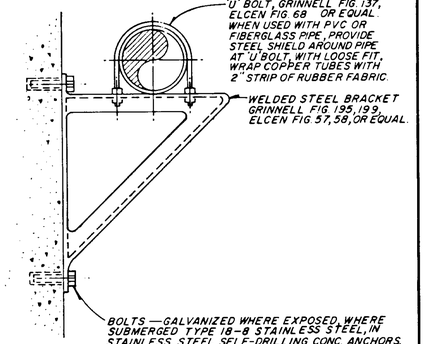
RECOMMENDED Jim Montgomery — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27639 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

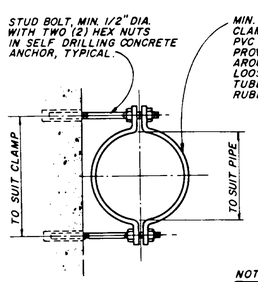
DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS MECHANICAL DETAILS — 8

SHEET M-7 OF 66 SHEETS

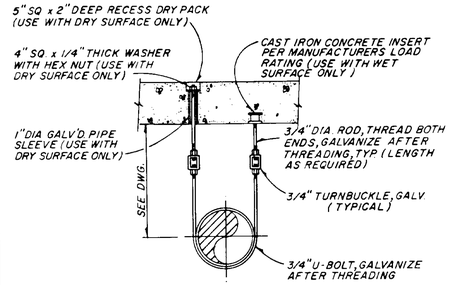


PIPE BRACKET | A | VAR



NOTE:
GALVANIZE ALL PARTS AFTER FABRICATION. WHERE SUBMERGED, PIPE CLAMP, STUD BOLTS, NUTS, SELF-DRILLING CONCRETE ANCHORS, AND SHIELDS TO BE TYPE 18-8 STAINLESS STEEL.

PIPE CLAMP | B | VAR

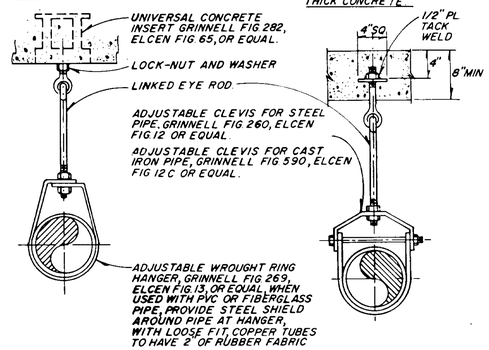


NOTE:
FOR PIPE SIZES 8" THRU 24"

PIPE HANGER | C | VAR

FOR HANGER RODS 3/4" DIA. AND SMALLER

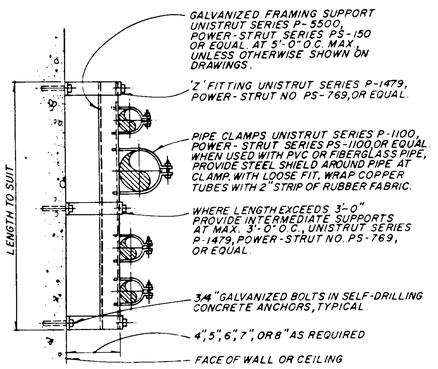
FOR HANGER RODS 7/8" DIA AND LARGER, AND MIN. 8" THICK CONCRETE



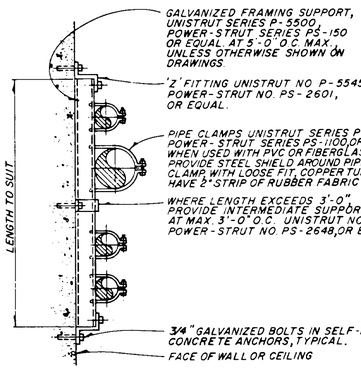
PIPE HANGER | D | VAR

PIPE HANGER RODS & SUPPORT SPACING			
PIPE DIA (INCHES)	ROD DIA (INCHES)	MAX. SUPPORT SPACING (FEET)	
		STEEL PIPE	CAST IRON PIPE
1 & SMALLER	3/8	6	5
1 1/4 TO 2	3/8	9	5
2 1/2 TO 3 1/2	1/2	12	5
4 TO 5	5/8	14	5
6, 8	3/4	16	5
10, 12	7/8	18	—
14, 16	1	20	—

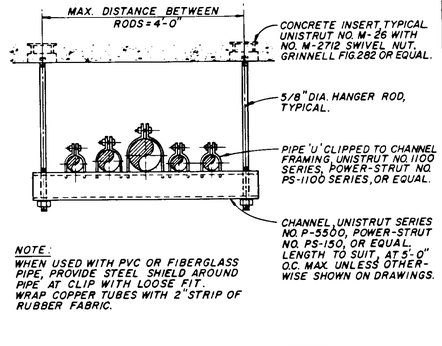
NOTE: GALVANIZE ALL PARTS AFTER FABRICATION.



EXTENDED PIPE SUPPORT | E | VAR

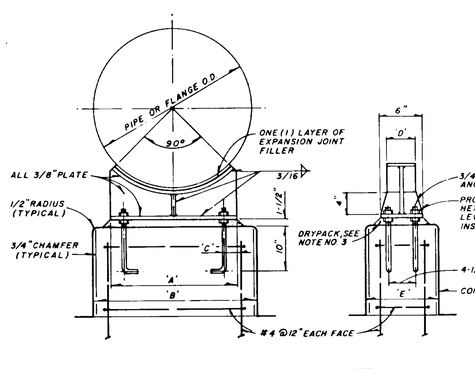


FLUSH MOUNTED PIPE SUPPORT | F | VAR



NOTE:
WHEN USED WITH PVC OR FIBERGLASS PIPE, PROVIDE STEEL SHIELD AROUND PIPE AT CLIP WITH LOOSE FIT. WRAP COPPER TUBES WITH 2" STRIP OF RUBBER FABRIC.

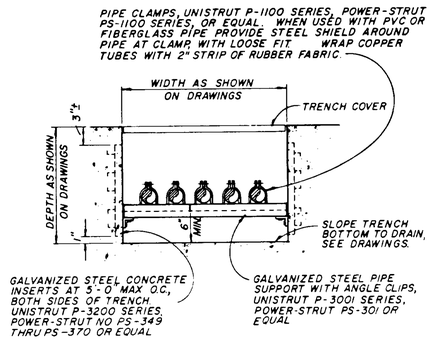
TRAPEZE PIPE HANGER | G | VAR



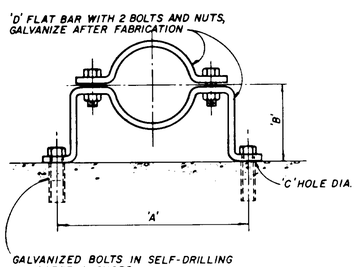
PIPE SUPPORT | H | VAR

DIMENSIONS IN INCHES							
NOMINAL PIPE SIZE	SUPPORTING PIPE OR FLANGE			SUPPORTING PIPE		FLANGE	
	C	D	E	A	B	A	B
6	2	4	12	10	16	10	16
8 & 10	2	4	12	10	16	14	20
12 & 14	2	4	12	12	18	16	22
16 & 18	2	4	12	14	20	20	26
20 & 22	3	5	12	16	22	22	28
24	3	5	12	18	24	24	30
26	4	5	12	20	26	26	32
30	4	5	12	24	30	30	36
34	4	5	15	26	32	34	40
36	5	6	15	28	34	36	42
42	5	6	18	32	36	40	46
48	6	6	18	38	42	44	50
54	6	6	18	42	48	50	56
60	6	6	18	46	52	54	60

NOTES:
1. WHEN SUPPORTING ON THE SAME LINE ALTERNATIVELY PIPE AND FLANGE, CONCRETE PIERS FOR PIPE SUPPORTS SHALL ALL HAVE THE SAME DIMENSION (B) FOR FLANGE SUPPORT.
2. PIPE SUPPORTS TO BE LOCATED IN PLAN AT POINTS MARKED THUS (X)
3. DRYPACK 1-1/2" SPACE WITH CEMENT MORTAR. WHERE DIFFERENTIAL SETTLEMENT IS LIKELY TO OCCUR, OMIT AS DIRECTED BY THE ENGINEER.
4. GALVANIZE AFTER FABRICATION.



PIPE TRENCH | J | VAR

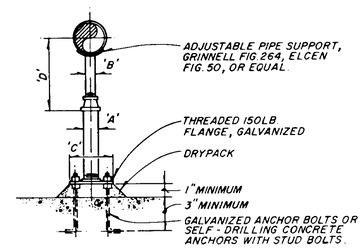


DIMENSIONS IN INCHES					
PIPE DIA.	'A'	'B'	'C' HOLE DIA.	'D' FLAT BAR SIZE	LOAD RATING LBS.*
3/4	5-15/16	2-1/2	7/16	3/16 x 1-1/4	300
1	6-1/4	2-5/8	7/16	3/16 x 1-1/4	300
1-1/4	6-11/16	2-3/4	7/16	3/16 x 1-1/4	300
1-1/2	6-15/16	3	7/16	3/16 x 1-1/4	300
2	8-5/16	3-3/16	7/16	1/4 x 1-1/4	500
2-1/2	8-7/8	3-7/16	7/16	1/4 x 1-1/4	500
3	9-1/8	3-3/4	7/16	1/4 x 1-1/4	500
3-1/2	10-1/16	4	7/16	1/4 x 1-1/4	500
4	10-9/16	4-1/4	9/16	1/4 x 1-1/2	600
5	11-3/4	4-3/4	9/16	1/4 x 1-1/2	600
6	14-3/8	5-5/16	9/16	3/8 x 1-1/2	850
8	16-5/8	6-5/16	9/16	3/8 x 1-1/2	850

* SAFETY FACTOR OF 5

NOTES:
WHERE SUBMERGED, PIPE CLAMP, BOLTS AND NUTS TO BE TYPE 18-8 STAINLESS STEEL.
WHEN USED WITH PVC OR FIBERGLASS PIPE PROVIDE STEEL SHIELD AROUND PIPE AT CLAMP WITH LOOSE FIT. WRAP COPPER TUBES WITH 2" STRIP OF RUBBER FABRIC.
FOR FLANGED PIPING INCREASE 'B' DIMENSION AS REQUIRED.

PIPE CLAMP FOR INDIVIDUAL PIPES | K | VAR



ADJUSTABLE PIPE SUPPORT | L | VAR

ADJUSTABLE PIPE SUPPORT APPROXIMATE DIMENSIONS IN INCHES					
PIPE SIZE	A	B	C	D MINIMUM	D MAXIMUM
2-1/2	2-1/2	1-1/2	9	8	11-1/2
3	2-1/2	1-1/2	9	8-1/4	11-3/4
3-1/2	2-1/2	1-1/2	9	8-1/2	12
4	3	2-1/2	9	10-1/4	14
6	3	2-1/2	9	11-5/8	15-1/4
8	3	2-1/2	9	13-5/8	16-1/2
10	3	2-1/2	9	14-5/8	18-1/4
12	3	2-1/2	9	15-5/8	19-3/4
14	4	3	11	18-7/8	20-3/4
16	4	3	11	19-7/8	22-1/4
18	6	3-1/2	13-1/2	21-1/4	24
20	6	3-1/2	13-1/2	23-1/4	25-1/2
24	6	4	13-1/2	26-1/2	28-1/4
30	6	4	13-1/2	29-5/8	31-1/2
32	6	4	13-1/2	30-5/8	32-3/4
36	6	4	13-1/2	32-5/8	34-3/4

RECORD DRAWING 03567

JOB NO. / IDENT. NO. | FRAME

1-5-91

REV	DATE	BY	DESCRIPTION

SCALE: NONE

DESIGNED G. M.
DRAWN G. M.
CHECKED H. M.

SUBMITTED Robert C. Stanek PROJECT ENGINEER 27304 R.C.E. NO. 8/19/81 DATE

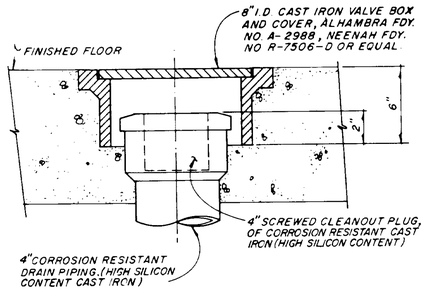
RECOMMENDED R. H. Dale JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. 27638 R.C.E. NO. 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

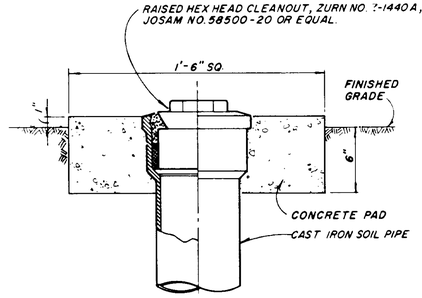
DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS MECHANICAL DETAILS — C

SHEET M-8 OF 66 SHEETS

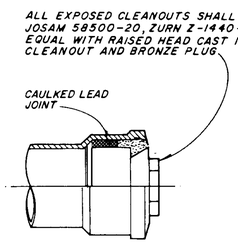


CORROSION RESISTANT CLEANOUT IN FINISHED FLOOR | A | VAR

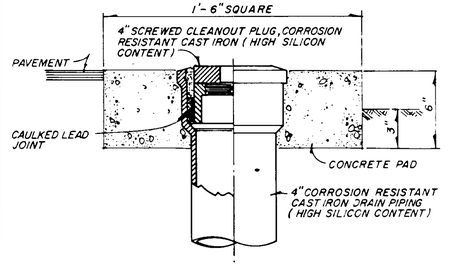


NOTE:
IN TRAFFIC AREAS PROVIDE FLUSH FINISH WITH 10" I.D. CAST IRON COVER AND FRAME, ALHAMBRA FOUNDRY NO. A-1240, NEENAH NO. R-1977, JOSAM 58680 OR EQUAL.

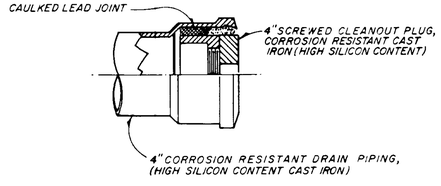
CLEANOUT TO GRADE | B | VAR



EXPOSED CLEANOUT | C | VAR

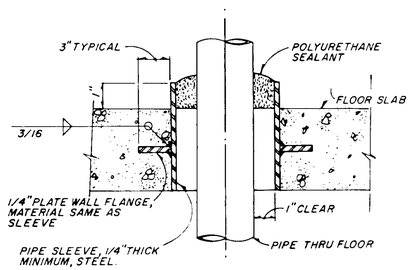


CORROSION RESISTANT CLEANOUT TO GRADE | D | VAR

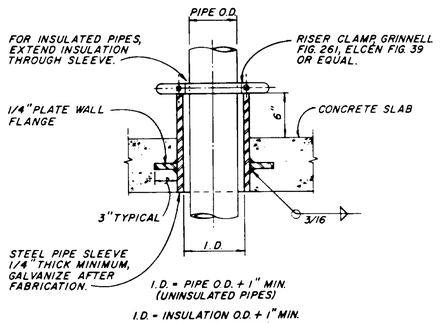


CORROSION RESISTANT CLEANOUT | E | VAR

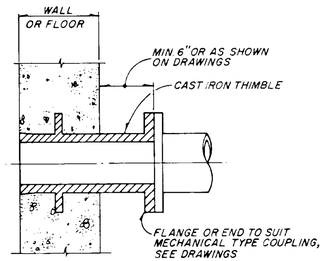
NOTE: THIS SLEEVE IS TO BE USED BETWEEN DRY SPACES, ONLY.



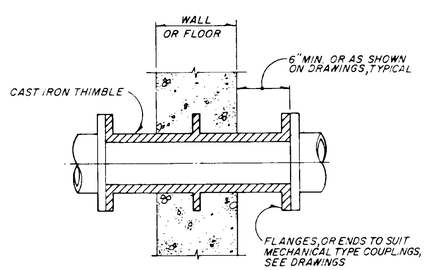
FLOOR PIPE SLEEVE | F | VAR



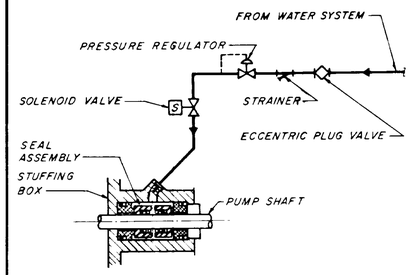
VERTICAL PIPE SUPPORT SLEEVE | G | VAR



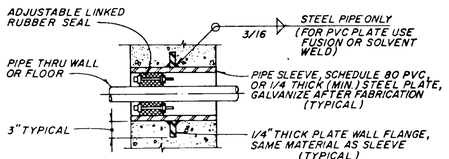
FLANGED (OR GROOVED) AND SPIGOT CAST IRON THIMBLE | H | VAR



FLANGED OR GROOVED CAST IRON THIMBLE | J | VAR

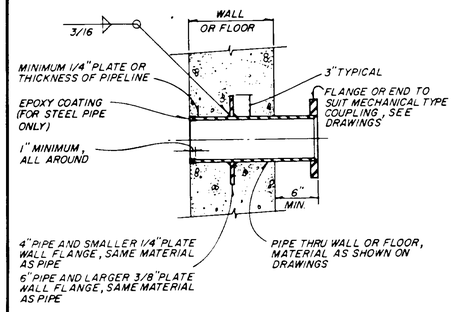


WATER FLUSHED PUMP SEAL | K | VAR

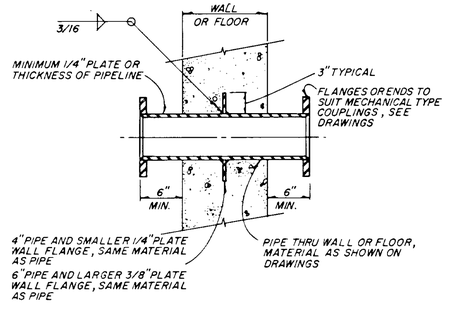


NOTE:
THESE SLEEVED PIPE DETAILS ARE TO BE USED IN DRY WALLS ONLY.

SLEEVED PIPE OPENING | L | VAR

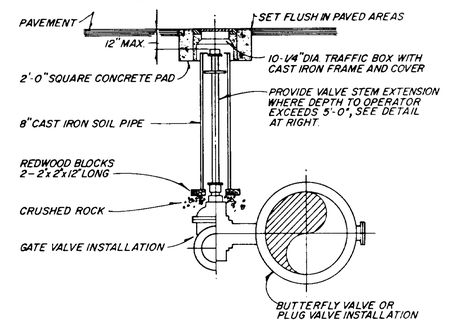


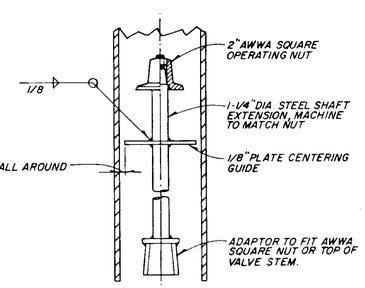
FABRICATED PIPE THIMBLE | M | VAR



FABRICATED PIPE THIMBLE | N | VAR

NOTE: WHERE VALVE BOX IS NOT IN PAVEMENT, COVER TO PROJECT 3" ABOVE GRADE.





BURIED VALVE | P | VAR

03568

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
			JOB NO. FRAME
			IDENT. NO. I.D.

SCALE: NONE

DESIGNED G. M.
DRAWN G. M.
CHECKED H. M.

SUBMITTED
PROJECT ENGINEER — 27354 R.C.E. NO. — 8/19/81 DATE

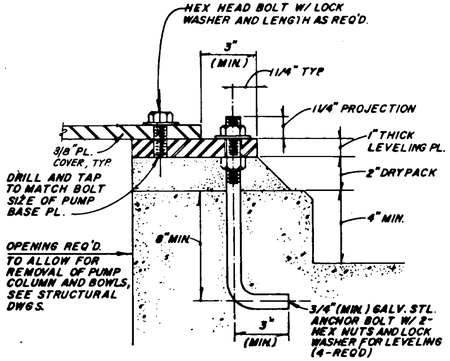
RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

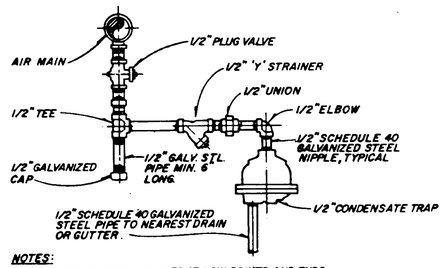
DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS MECHANICAL DETAILS — D

SHEET M-9 OF 66 SHEETS



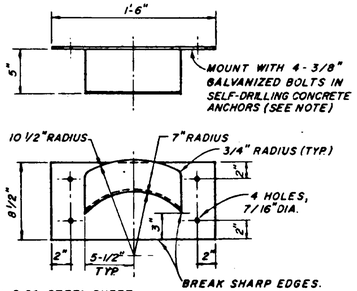
PUMP MOUNTING BASE — A — VAR.



NOTES:
1. PROVIDE TRAP ON AIR LINES AT LOW POINTS AND ENDS AND WHERE SHOWN ON DRAWINGS.
2. FITTINGS SHALL BE ISOLB. SCREWED MALLEABLE IRON GALVANIZED, OR AS CALLED OUT.

CONDENSATE TRAP — B — VAR.

NOTE: WHERE HOSE RACK IS FREE-STANDING PROVIDE 2-2" CHANNELS WITH MOUNTING FLANGES.

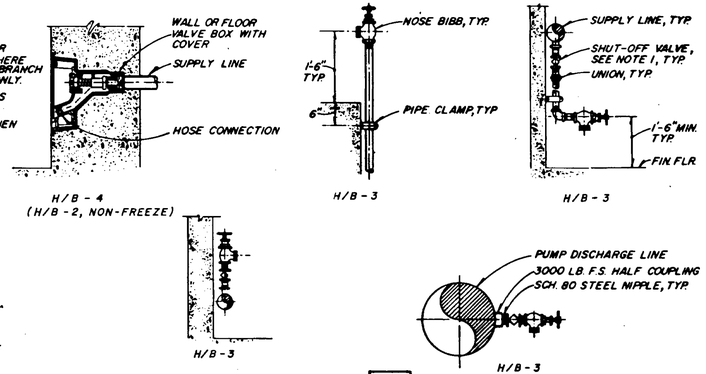


MATERIAL: 8 GA. STEEL SHEET

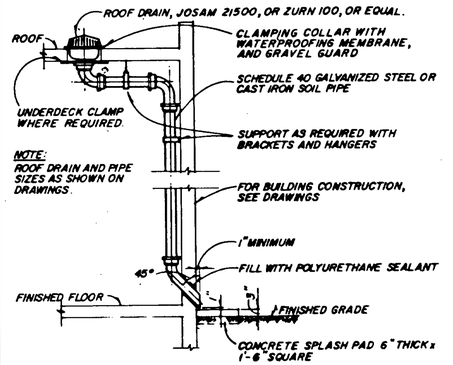
CONSTRUCTION: ALL WELDED, GALVANIZED AFTER FABRICATION

HOSE RACK — C — VAR.

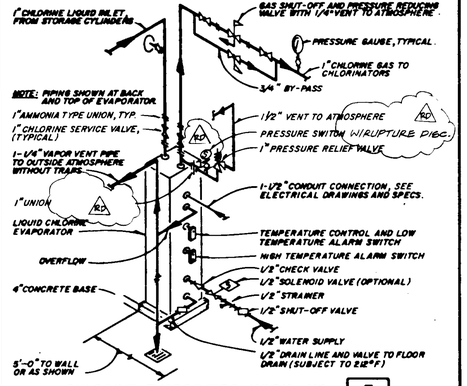
NOTES:
1. ALL HOSE BIBBS TO BE CONTROLLED BY INDIVIDUAL SHUT-OFF VALVES (BALL OR PLUG VALVES), EXCEPT WHERE INDIVIDUALLY CONTROLLED BRANCH MAIN SERVES HOSE BIBBS ONLY.
2. FOR SIZE AND LOCATION, AS SHOWN ON DRAWINGS.
3. PROVIDE WARNING SIGN, WHEN USED FOR NON-POTABLE WATER.



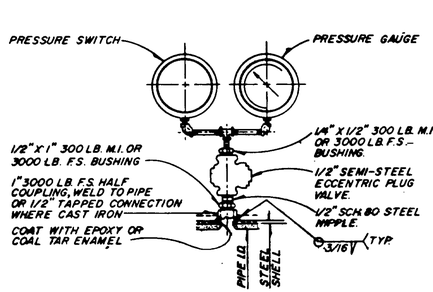
HOSE BIBB DETAILS — D — VAR.



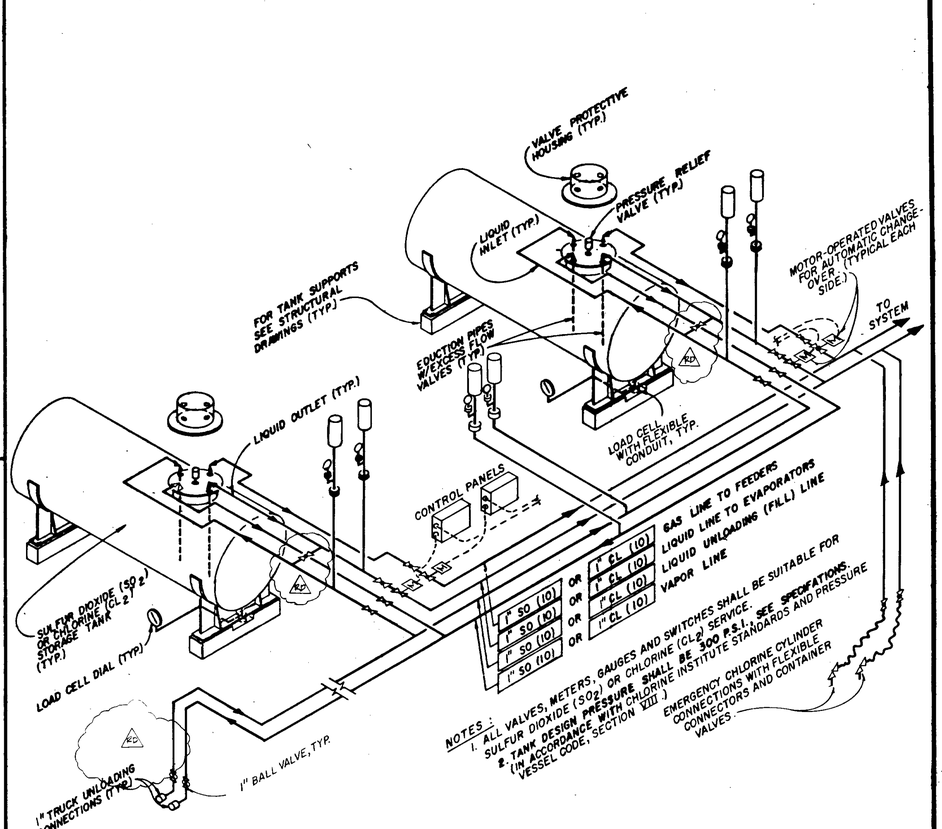
RAINWATER LEADER — E — VAR.



CHLORINE EVAPORATOR HOOK-UP — F — 6M-1



PRESSURE GAUGE AND PRESSURE SWITCH — G — VAR.



TYPICAL SULFUR DIOXIDE OR CHLORINE STORAGE AND UNLOADING SYSTEM (DIAGRAMMATIC ONLY) — K — 6M-1

03569

RECORD DRAWING

JOB NO
IDENT
FRAME

REV	DATE	BY	DESCRIPTION
ED	4/1/81	MDU	RECORD DRAWINGS
ENGR		MH	

SCALE: NONE

DESIGNED G.M.
DRAWN G.M.
CHECKED J.C.S.

SUBMITTED Robert C. Stanek — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

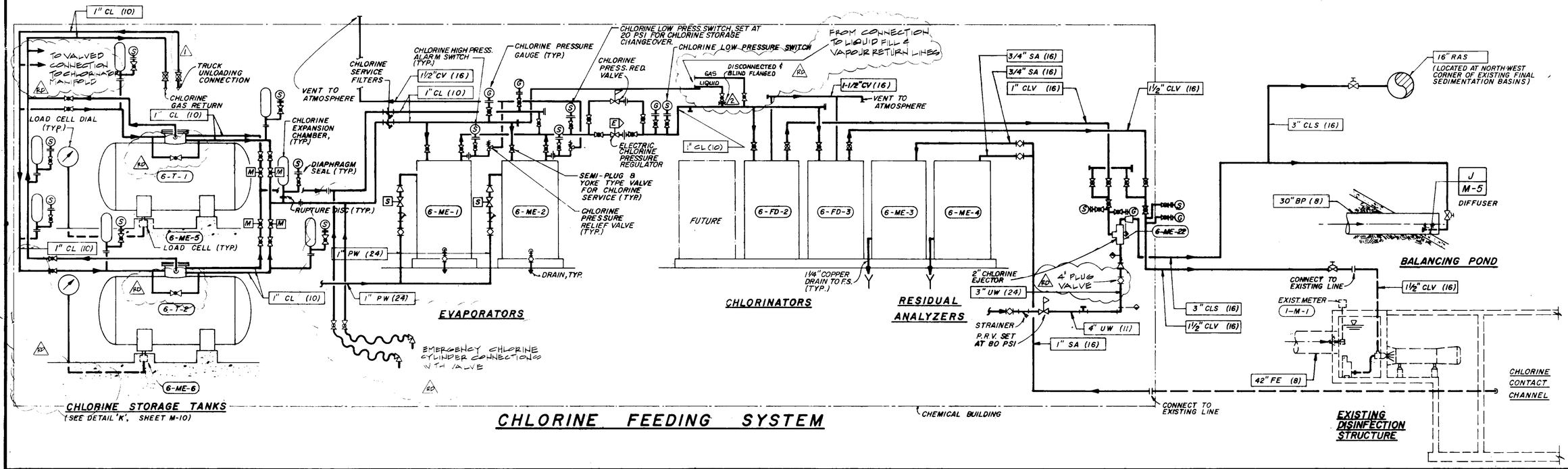
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
333 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

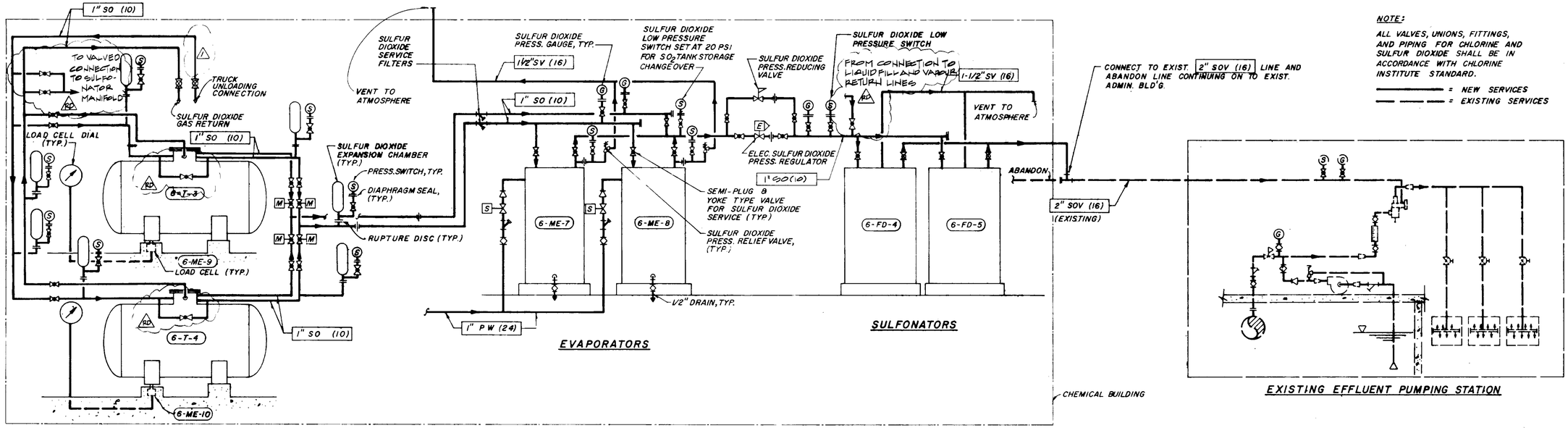
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS MECHANICAL DETAILS — E

SHEET M-10 OF 66 SHEETS

1-5-81



CHLORINE FEEDING SYSTEM



NOTE:

ALL VALVES, UNIONS, FITTINGS, AND PIPING FOR CHLORINE AND SULFUR DIOXIDE SHALL BE IN ACCORDANCE WITH CHLORINE INSTITUTE STANDARD.

——— = NEW SERVICES

— — — = EXISTING SERVICES

SULFUR DIOXIDE FEEDING SYSTEM

03570

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
2	8-30-89	MMB	AS-BUILT REVISIONS
RD	4/1/82	JMH	RECORD DRAWINGS
1	11/6/82	TV	DELETED ROTAMETERS

SCALE: NONE

DESIGNED C.S

DRAWN B. McCutchan

CHECKED C.S.

SUBMITTED Robert C. Swanah — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

RECOMMENDED — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27698 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/ TRUINFO CSD

TAPIA WRF – FILTRATION/DISINFECTION ADDITION

PHASE II

CHLORINATION AND DECHLORINATION SCHEMATICS

SHEET M-11 OF 66 SHEETS

1-5-81

03571

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	4/11/84	MDU	RECORD DRAWINGS
	6/26/84	JMH	

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

DESIGNED C. S.
DRAWN R. G.
CHECKED J. [signature]

SUBMITTED [signature] 27304 R.C.E. NO. 8/19/81 DATE
PROJECT ENGINEER
RECOMMENDED [signature] 27638 R.C.E. NO. 8/20/81 DATE
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

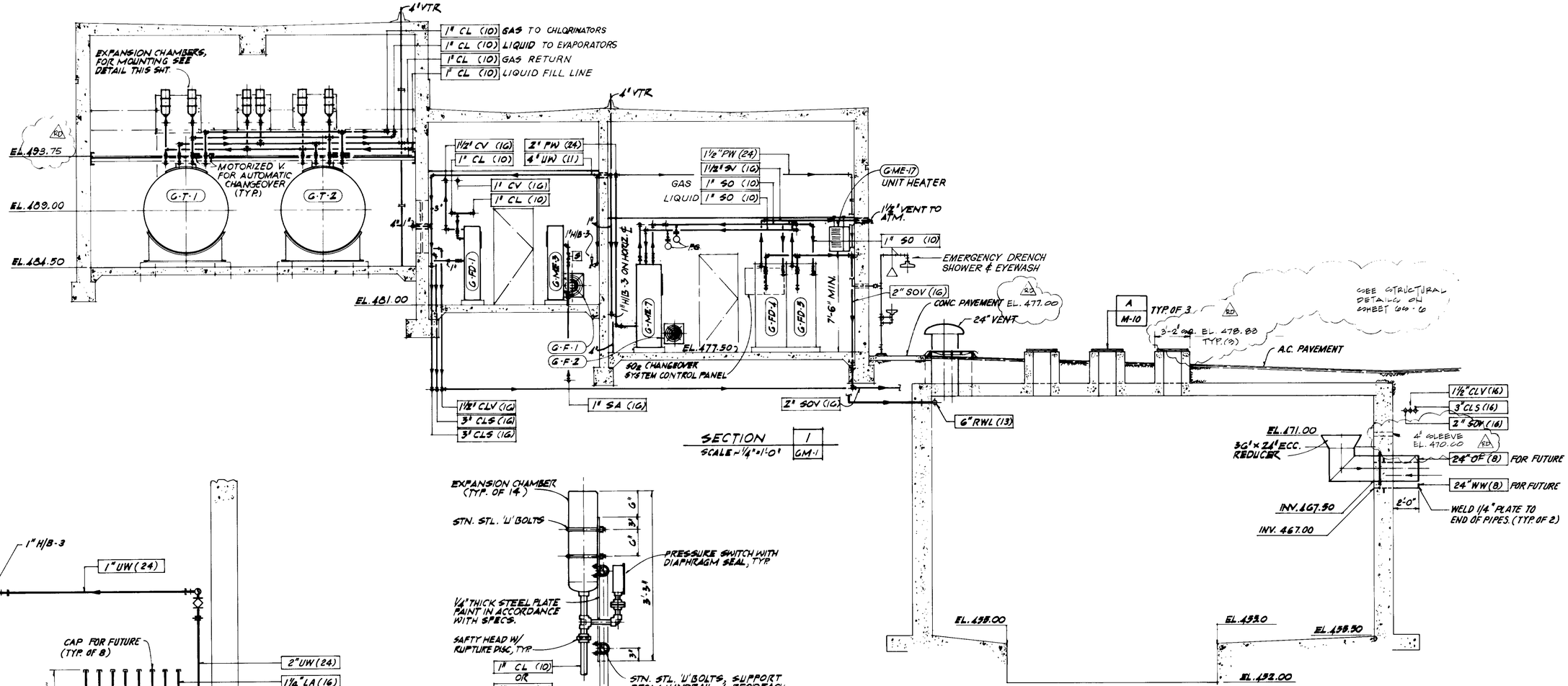
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
CHEMICAL BUILDING AND STORAGE - PIPING PLAN

SHEET 6M-1 OF 66 SHEETS

1-5-81



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

SECTION 2
3/4" = 1'-0" GM-1

EXPANSION CHAMBER MOUNTING DETAIL
SCALE: 1" = 1'-0"

03572
RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	4/11/84	MDU	RECORD DRAWINGS

SCALE: AS NOTED

DESIGNED C. SENON
DRAWN R.L.G.
CHECKED C.S.

SUBMITTED Robert C. Sievert, PROJECT ENGINEER, 27304 R.C.E. NO., 8/19/81 DATE
RECOMMENDED [signature], JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC., 27633 R.C.E. NO., 8/20/81 DATE

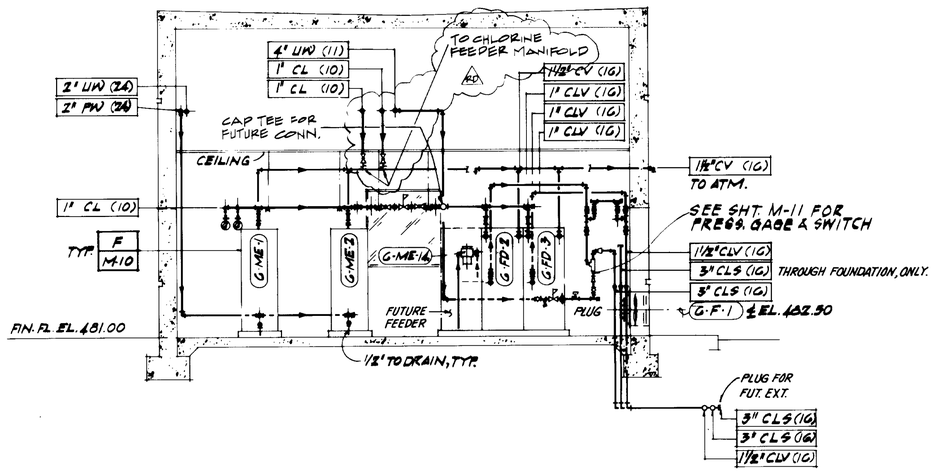
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

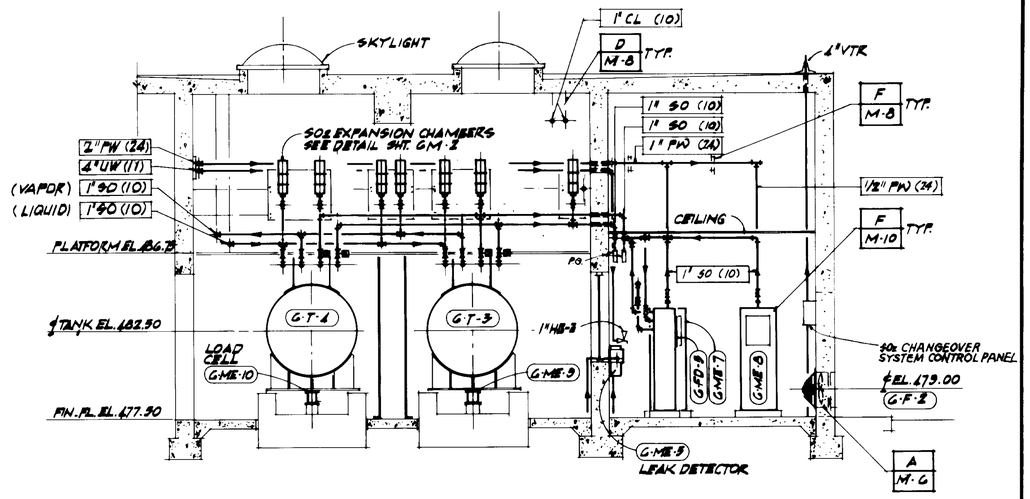
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
CHEMICAL BUILDING AND STORAGE — PIPING SECTIONS, SHEET A

SHEET 6M-2 OF 66 SHEETS

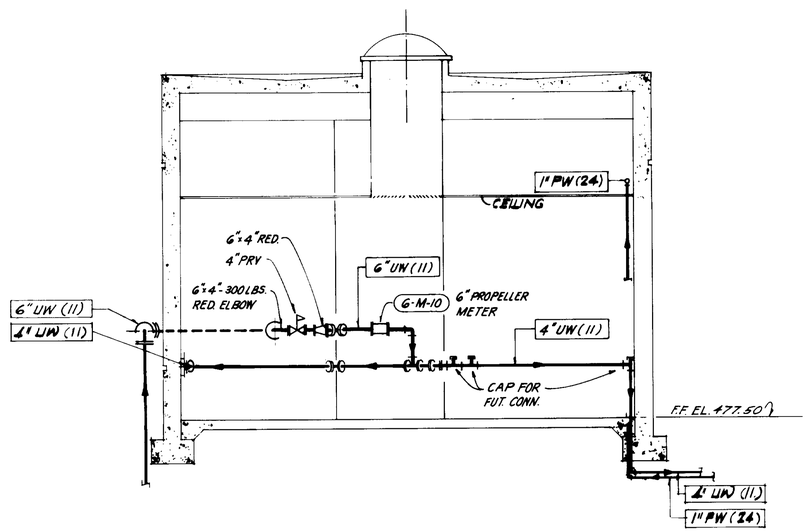
1-5-81



SECTION 3 / SCALE = 1/4" = 1'-0" / GM-1



SECTION 4 / SCALE = 1/4" = 1'-0" / GM-1



SECTION 5 / SCALE = 1/4" = 1'-0" / GM-1

03573

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	4/11/84	MDU	RECORD DRAWINGS
	9/28/84	JMM	

SCALE: AS NOTED

DESIGNED R.L.G. DRAWN R.L.G. CHECKED C.S.

SUBMITTED Project Engineer 27304 R.C.E. NO. 8/19/81 DATE

RECOMMENDED James M. Montgomery Consulting Engineers, Inc. 27638 R.C.E. NO. 9/29/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD

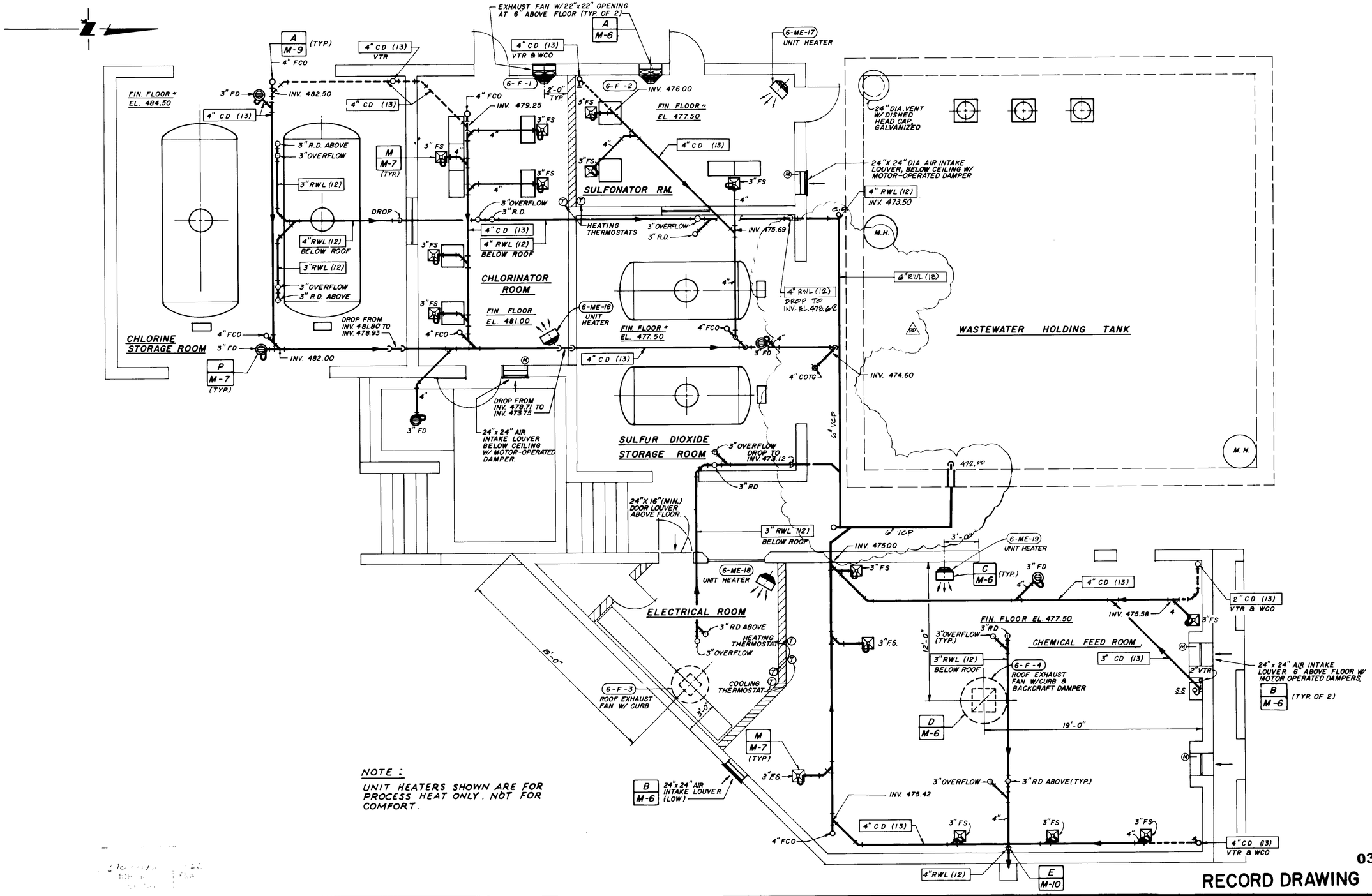
TAPIA WRF – FILTRATION/DISINFECTION ADDITION

PHASE II

CHEMICAL BUILDING AND STORAGE – PIPING SECTIONS, SHEET 8

SHEET 6M-3 OF 66 SHEETS

1-5-81



NOTE :

UNIT HEATERS SHOWN ARE FOR PROCESS HEAT ONLY. NOT FOR COMFORT.

03574

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	4/11/84	MDU	RECORD DRAWINGS

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

DESIGNED J. Brock
DRAWN H. McCutchen
CHECKED J. Brock

SUBMITTED Robert C. Smith, PROJECT ENGINEER, 27304 R.C.E. NO., 8/27/81 DATE

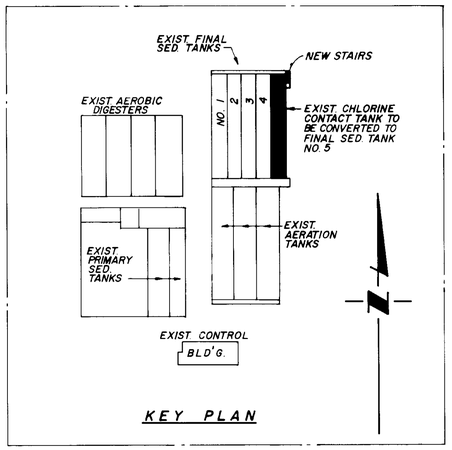
RECOMMENDED JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC., 27633 R.C.E. NO., 8/28/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

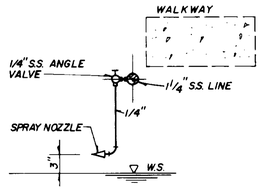
DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
CHEMICAL BUILDING AND STORAGE – HEATING, VENTILATING, AND DRAINAGE

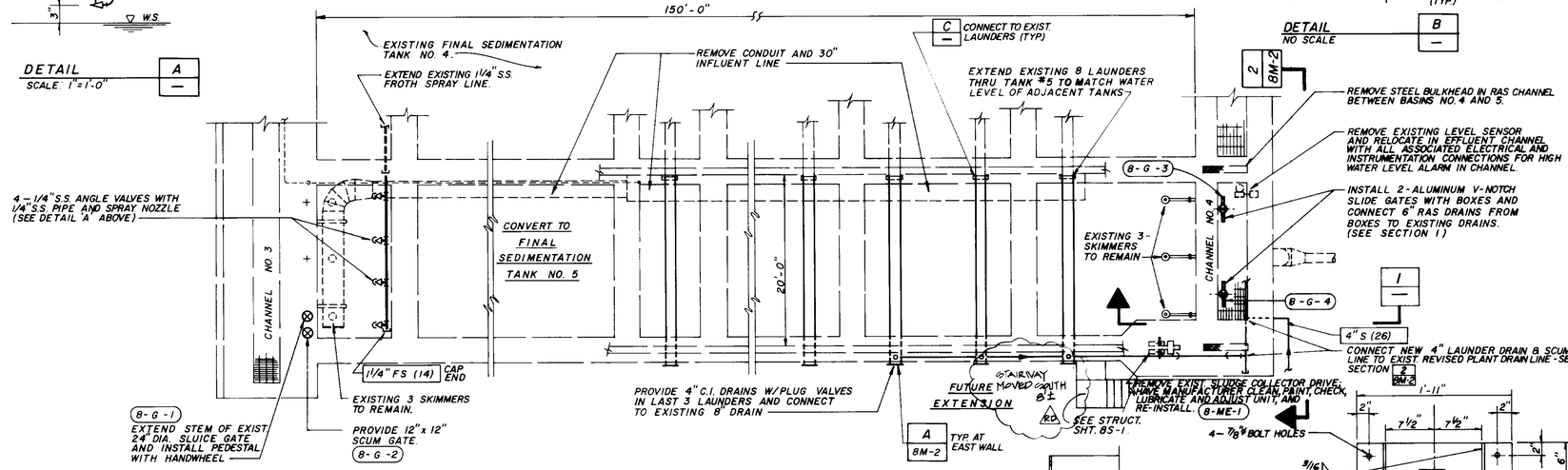
SHEET 6M-4 OF 66 SHEETS



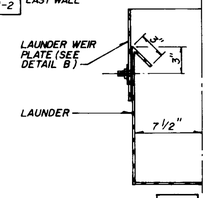
KEY PLAN



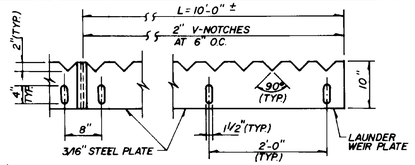
DETAIL A — SCALE: 1"=1'-0"



PARTIAL PLAN — SCALE: 1/8"=1'-0"

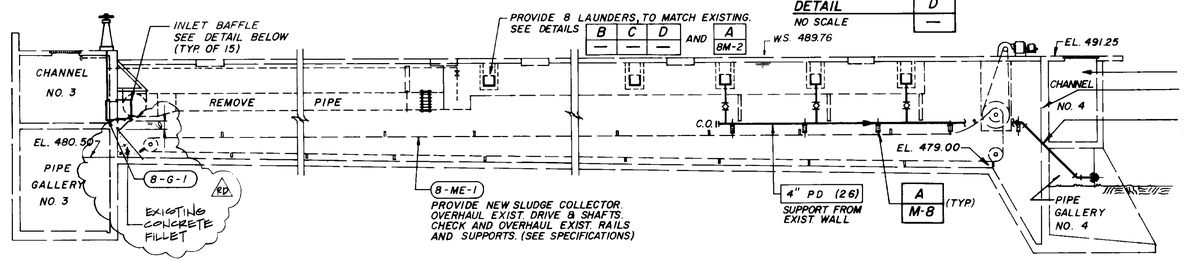


DETAIL D — NO SCALE

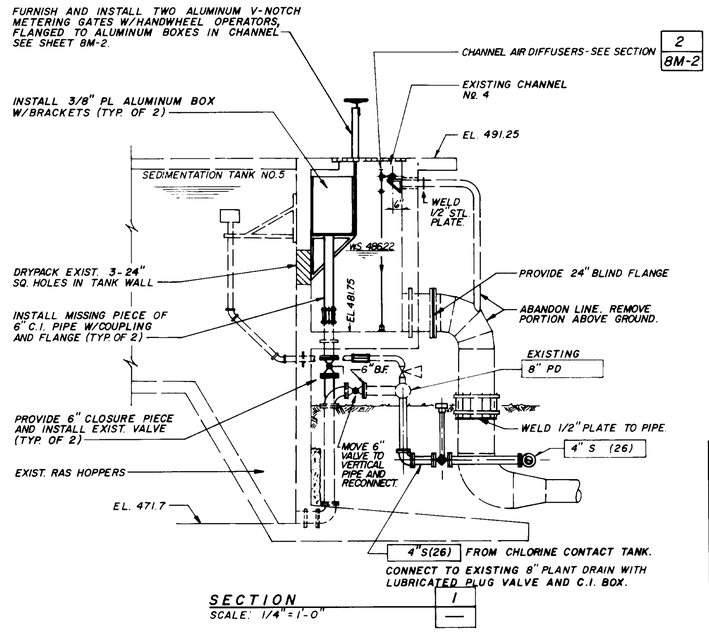


DETAIL B — NO SCALE

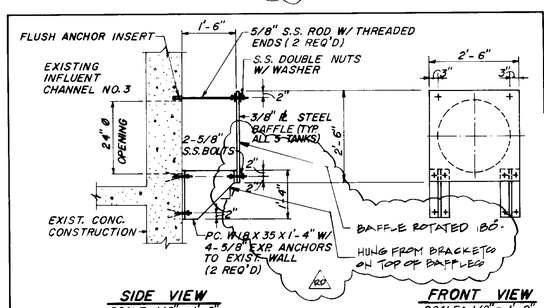
DETAIL C — NO SCALE



ELEVATION — SCALE: 1/8"=1'-0"



SECTION — SCALE: 1/4"=1'-0"



DETAIL OF INLET BAFFLE

NOTE:

1. ALL STEEL PARTS SHALL BE GALVANIZED AFTER FABRICATION
2. ALL BOLTS, NUTS, WASHERS, ANCHORS & INSERTS FOR CONNECTIONS TO EXIST. CONC. WALL SHALL BE STAINLESS STEEL
3. PROVIDE 3 NEW INLET BAFFLES FOR EACH OF 5 FINAL SEDIMENTATION TANKS, AS DETAILED.

NOTES:

1. THE EXISTING CHLORINE CONTACT TANK SHALL BE CONVERTED TO A FINAL SEDIMENTATION TANK NO. 5.- REMOVE ALL UNNECESSARY EQUIPMENT AND PIPING AND SEAL OPENINGS. MATCH ALL EQUIPMENT OF EXISTING FINAL SEDIMENTATION TANKS #1-4.
2. PRIOR TO CONVERSION OF TANK NO. 5, ALL WORK AT JUNCTION STRUCTURE 'NW' OF FINAL SEDIMENTATION TANK NO.1 MUST BE COMPLETED. (SEE CIVIL DRAWINGS)

RECORD DRAWING 03575

REV	DATE	BY	DESCRIPTION
RD	4/11/84	MDU	RECORD DRAWING

SCALE: AS NOTED

DESIGNED M. McCutcheon
DRAWN M. McCutcheon
CHECKED J. Thomas

SUBMITTED Robert C Swank — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27639 R.C.E. NO. — 8/21/81 DATE

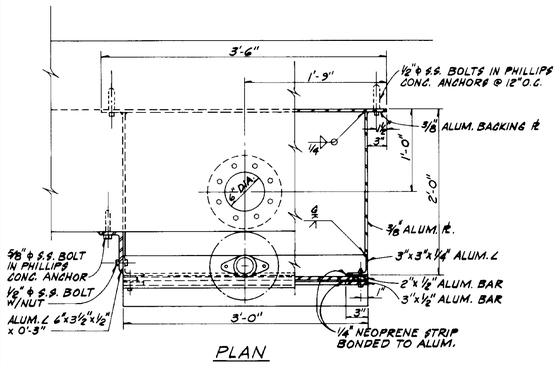
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

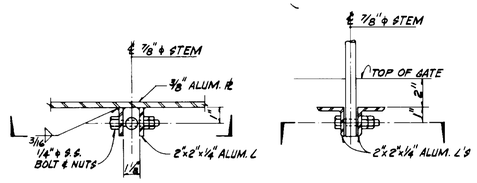
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
EXISTING CHLORINE CONTACT CHANNEL CONVERSION — PLAN AND SECTIONS

SHEET 8M-1 OF 66 SHEETS

1-5-81



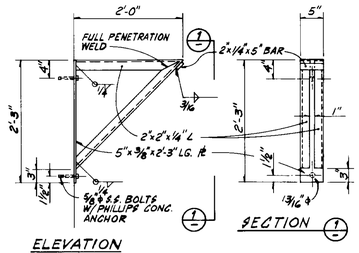
PLAN



PLAN SECTION ELEVATION

STEM CONNECTION DETAIL 'A'

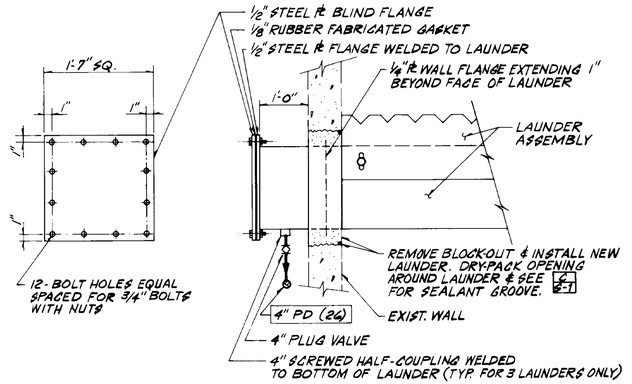
SCALE: NONE



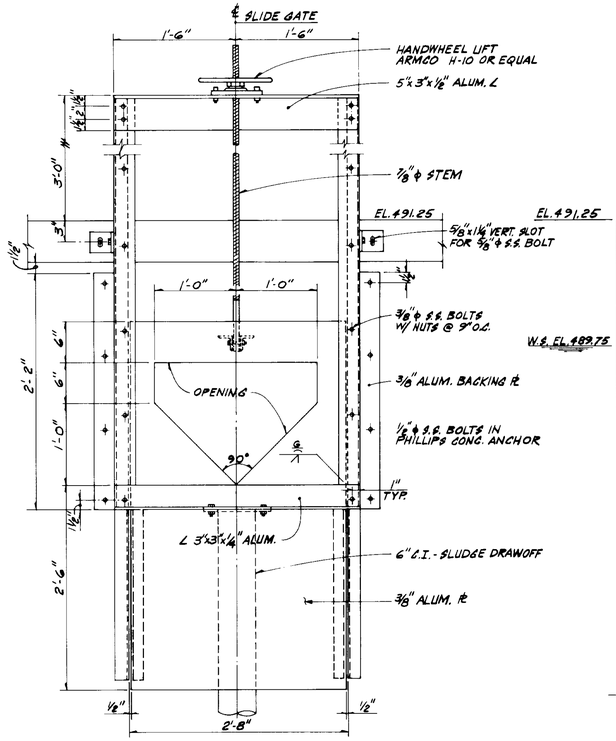
ELEVATION SECTION

SUPPORT BRACKET DETAIL

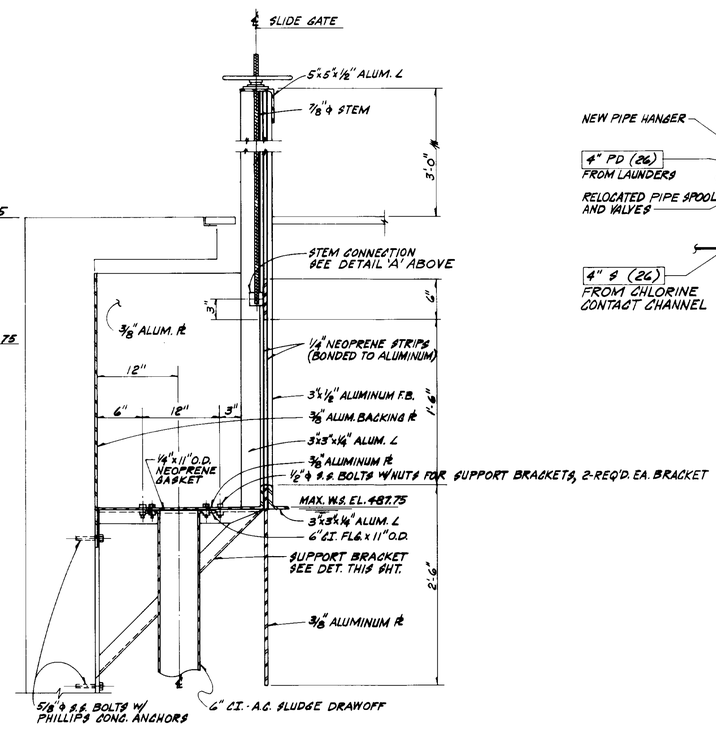
SCALE: NONE



DETAIL A / 8M-2



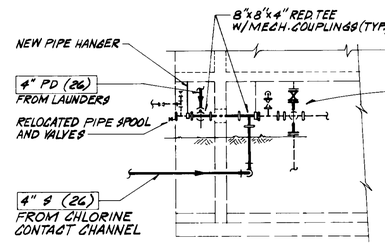
ELEVATION



ELEVATION = SECTION

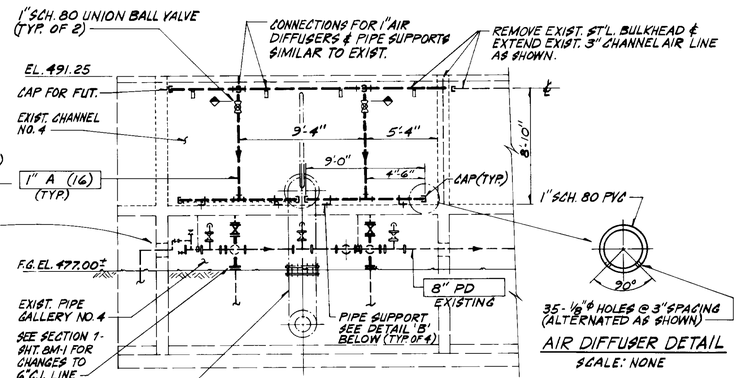
RETURN ACTIVATED SLUDGE METERING GATE DETAILS

SCALE: NONE



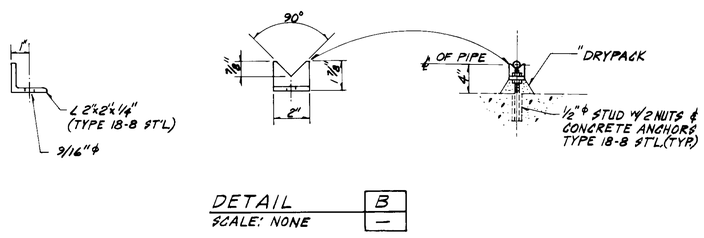
REVISED PLANT DRAIN

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



SECTION 2 / 8M-1

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



DETAIL B / —

SCALE: NONE

03576

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

SCALE: AS NOTED

DESIGNED M. McCutcheon
DRAWN M. McCutcheon
CHECKED J. Mann

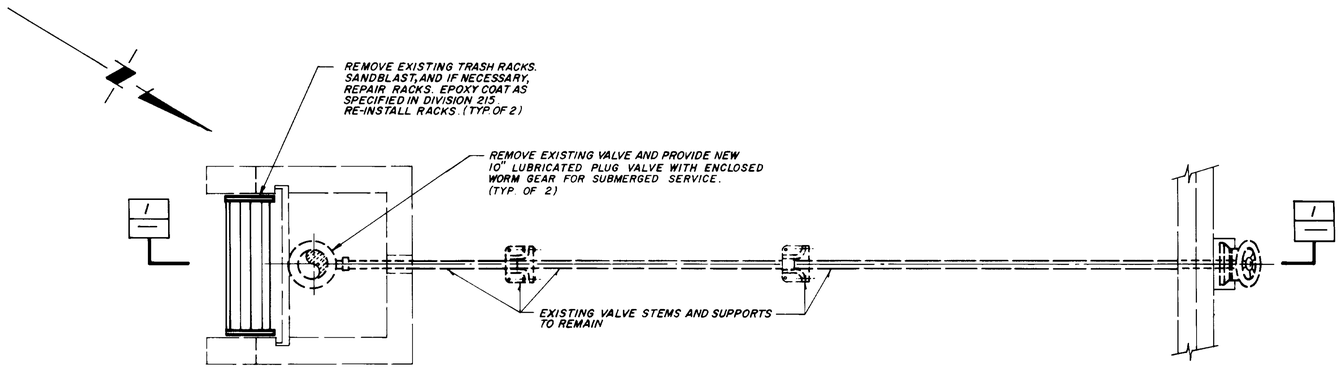
SUBMITTED
Robert C Smith — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED
GHSDL — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

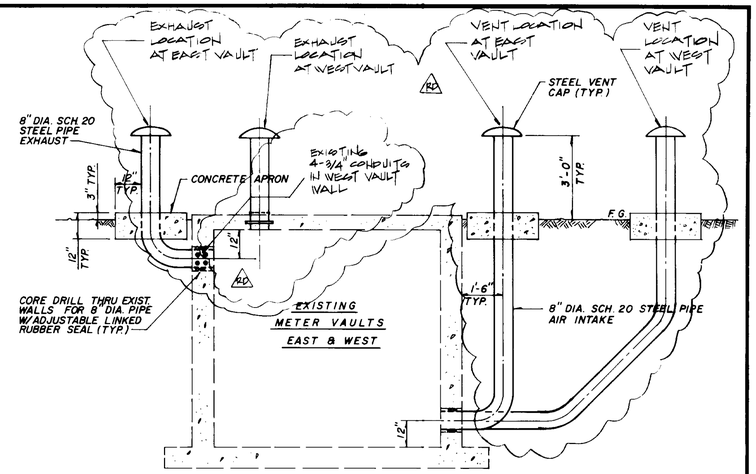
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
EXISTING CHLORINE CONTACT CHANNEL CONVERSION — SECTIONS AND DETAILS

SHEET 8M-2 OF 66 SHEETS

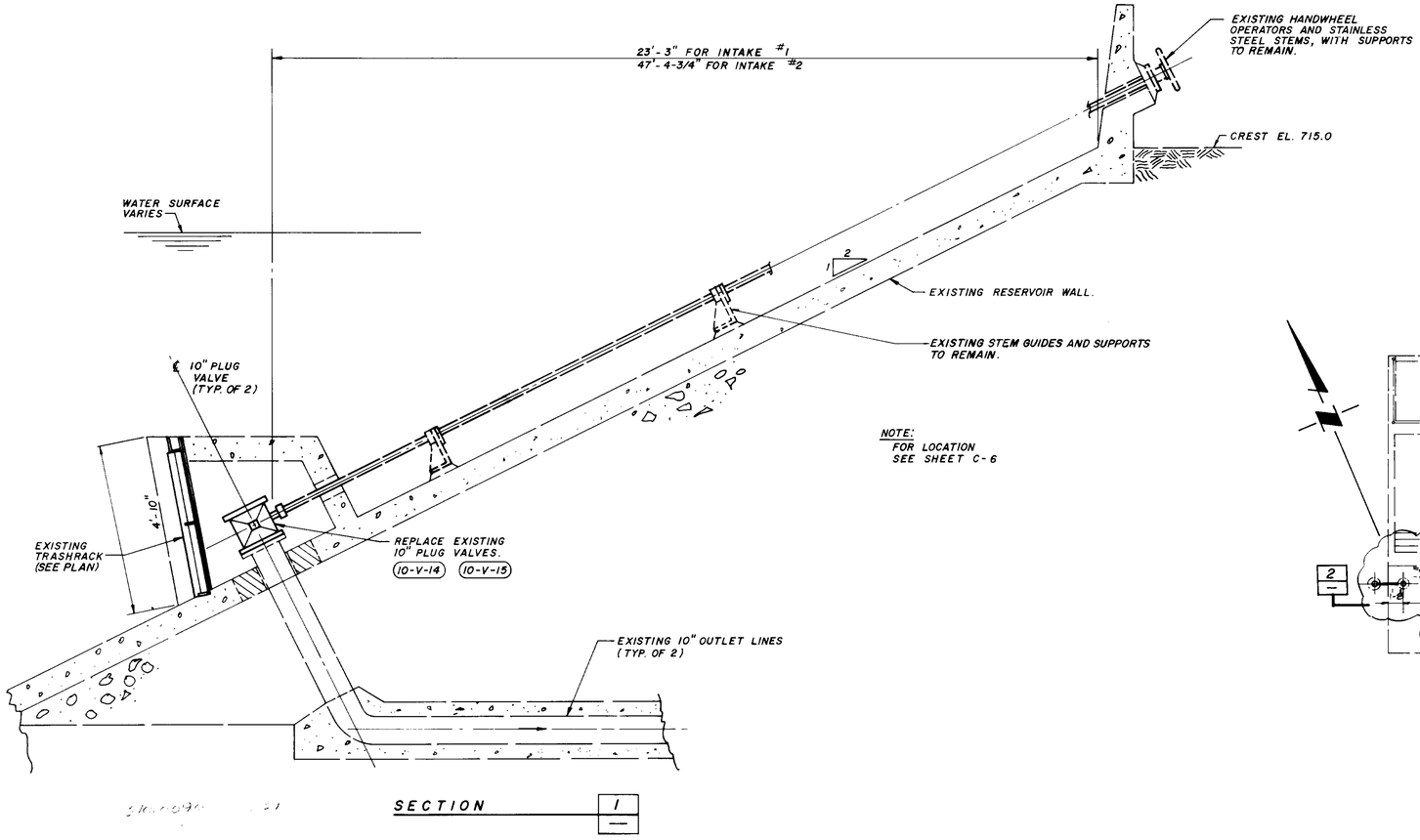


PLAN

RESERVOIR OUTLET (TYP. OF 2)

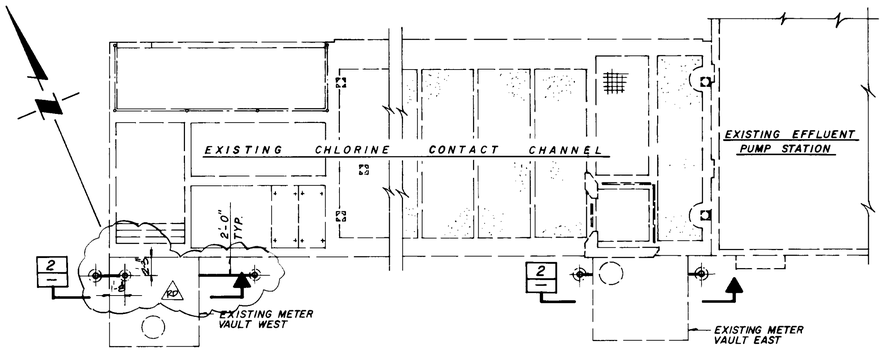


SECTION — SCALE 1" = NONE — 2



NOTE: FOR LOCATION SEE SHEET C-6

SECTION — 1



PLAN

VENTS FOR METER VAULTS

SCALE 1/8" = 1'-0"

03577

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	4/1/81	MDU	RECORD DRAWINGS
	6/16/81	MH	

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

DESIGNED G. M.
DRAWN G. M.
CHECKED J. C. S.

SUBMITTED
PROJECT ENGINEER — R.C.E. NO. 27304 — DATE 8/19/81

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — R.C.E. NO. 27638 — DATE 8/21/81

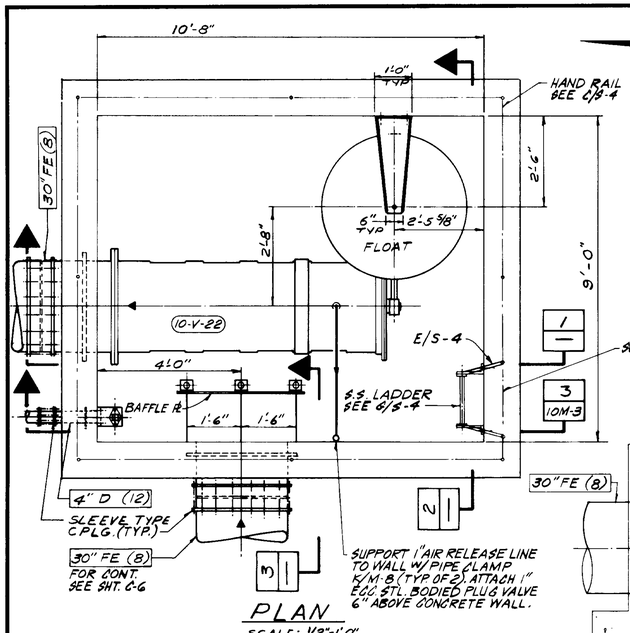
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II — MISCELLANEOUS MODIFICATIONS — RESERVOIR OUTLETS

SHEET 10M-1 OF 66 SHEETS

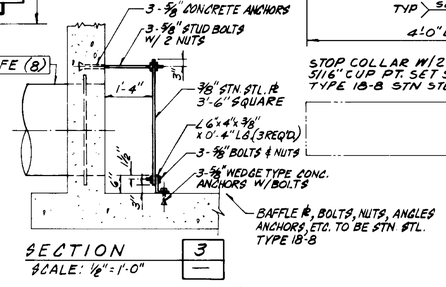
1-5-81



PLAN

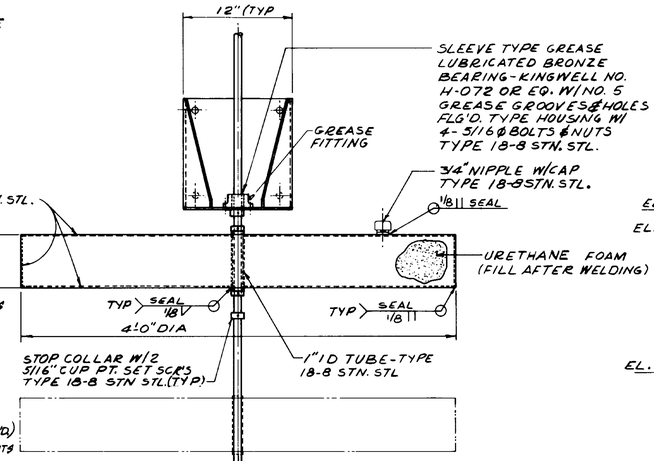
SCALE: 1/2"=1'-0"

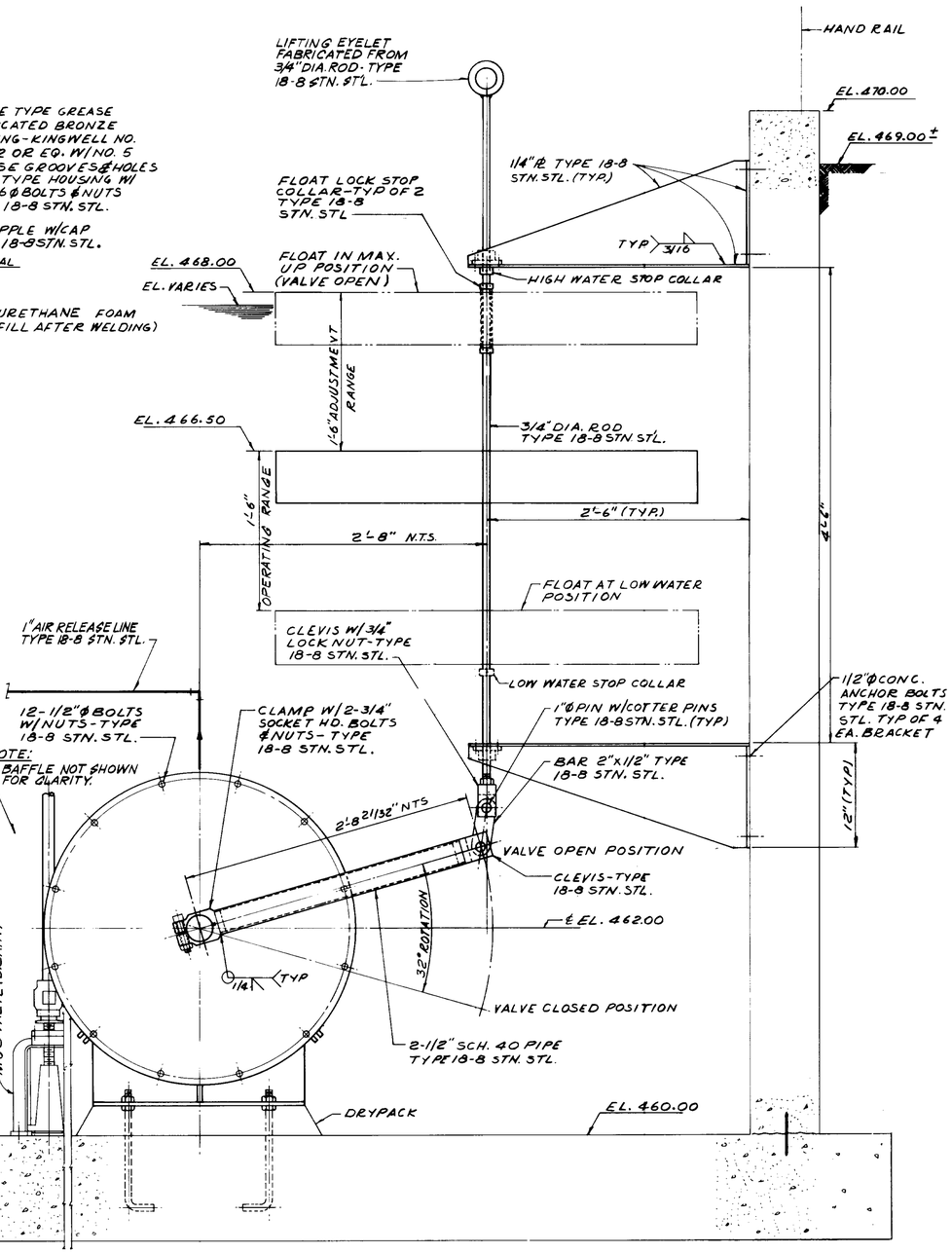
NOTE:
FOR LOCATION SEE SHEETS C-1 & C-6.

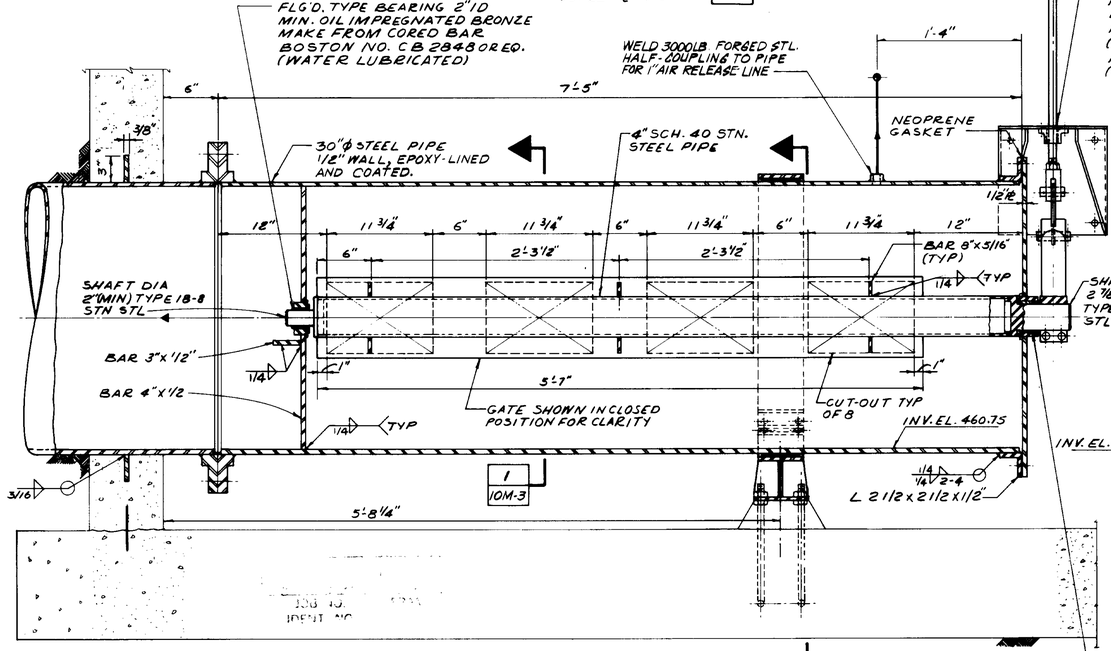


SECTION 3 —

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







SECTION 1 — 2 10M-3

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

NOTE:
VALVE MANUFACTURER TO SUBMIT DETAILED FABRICATING DRAWINGS AND PERFORMANCE GUARANTY FOR APPROVAL.

FLG'D. TYPE BEARING 2 7/8 I.D. MIN. OIL IMPREGNATED BRONZE MAKE FROM CORED BAR BOSTON NO. C.B 4056 OR EQ. (WATER LUBRICATED)

SECTION 2 —

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

03578

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

SCALE: AS NOTED

DESIGNED Robert C. Sprowls
DRAWN Jim Thomas
CHECKED J. Mann

SUBMITTED Robert C. Sprowls — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

RECOMMENDED — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27633 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD

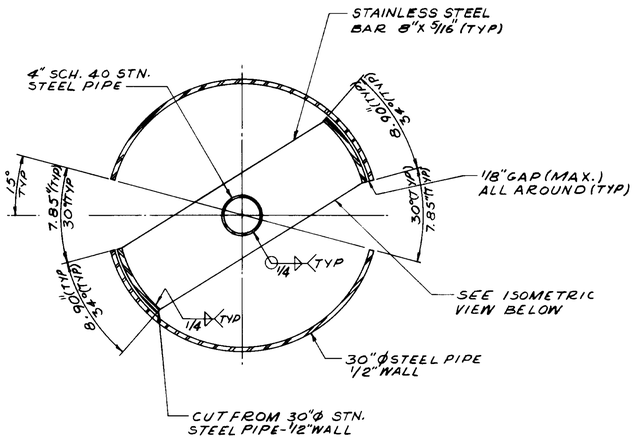
TAPIA WRF — FILTRATION/DISINFECTION ADDITION

PHASE II

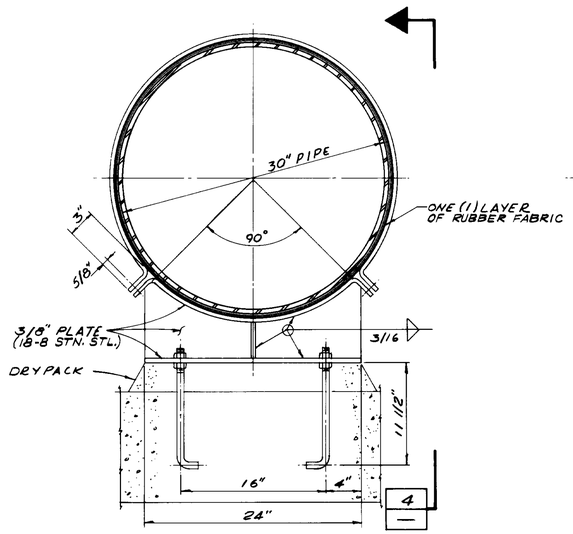
EFFLUENT CONTROL VALVE STRUCTURE

SHEET 10M-2 OF 66 SHEETS

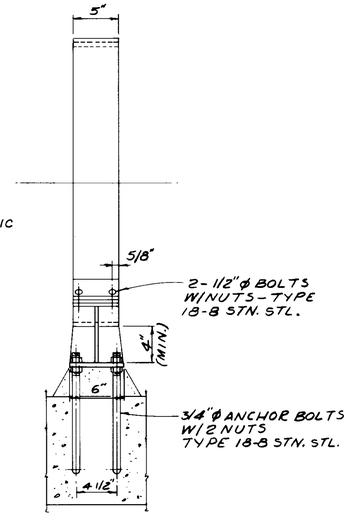
1-5-81



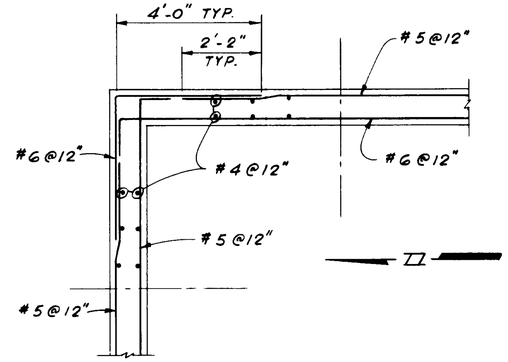
SECTION 1 — SCALE: 1 1/2"=1'-0" — 10M-2 TYP



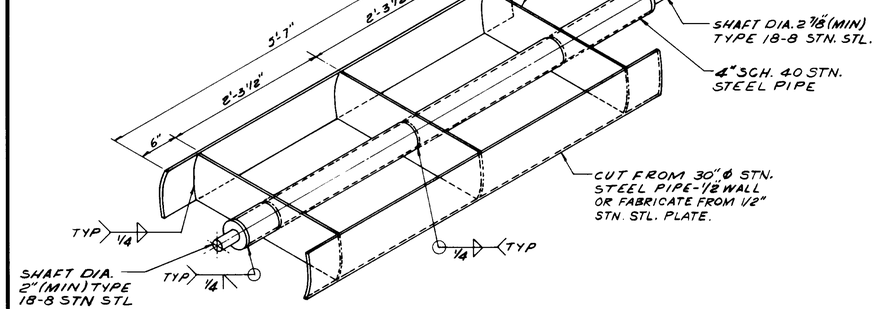
SECTION 2 — SCALE: 1 1/2"=1'-0" — 10M-2



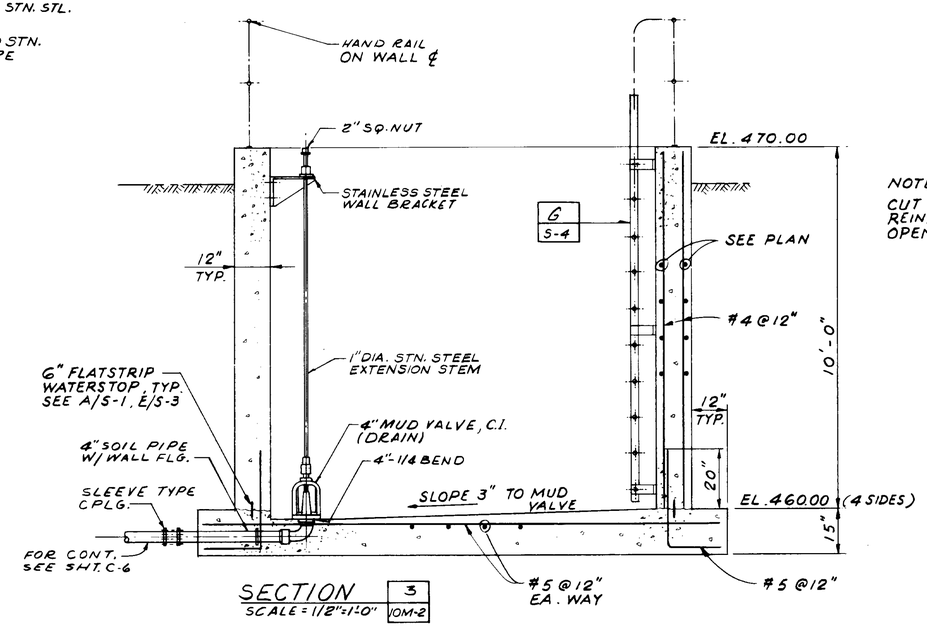
VIEW 4 — SCALE: 1 1/2"=1'-0"



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

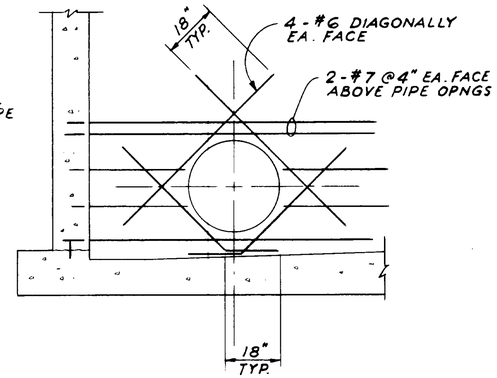


GATE IN ISOMETRIC VIEW
SCALE: NONE



SECTION 3 — SCALE = 1/2"=1'-0" — 10M-2

NOTE:
CUT NORMAL REINF. AT PIPE OPENING



REINF. @ PIPE OPENING K — SCALE: 1/2"=1'-0"

03579

RECORD DRAWING

JOB NO.
DENT. NO.

1-5-81

REV	DATE	BY	DESCRIPTION

SCALE: AS NOTED

DESIGNED Earl Pennell
DRAWN Earl Pennell
CHECKED J. Brink

SUBMITTED
Robert C Grant — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27633 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II — EFFLUENT CONTROL VALVE STRUCTURE

SHEET 10M-3 OF 66 SHEETS

GENERAL NOTES

GENERAL
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE VERIFED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED FOR PRIOR TO PLACING CONCRETE. STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH MECHANICAL, ELECTRICAL, ARCHITECTURAL, CIVIL DRAWINGS AND SHOP DRAWINGS PROVIDED BY MANUFACTURERS OF EQUIPMENT.
STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND BALANCING WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR.
ALL CONSTRUCTION JOINTS REQUIRED FOR CONSTRUCTION BUT NOT SHOWN ON THE DRAWINGS SHALL HAVE A 6" FLATSTRIP WATERSTOPS IF IN MEMBERS IN CONTACT WITH WATER.

STRUCTURAL
DESIGN IN ACCORDANCE WITH THE 1976 EDITION OF THE UNIFORM BUILDING CODE.
DESIGN FOR FOUNDATIONS IS BASED ON THE RECOMMENDATIONS OF "GEOTECHNICAL INVESTIGATION TERTIARY ADDITIONS, TAPIA WRF" BY CONVERSE, WARD, DAVIS, DIXON, GEOTECHNICAL CONSULTANTS, 126 WEST DEL MAR BLVD., PASADENA, CALIFORNIA 91105. DATED FEBRUARY 6, 1979.

STRUCTURAL STEEL
STEEL CONSTRUCTION SHALL CONFORM TO THE SPECIFICATIONS AND STANDARDS AS CONTAINED IN THE LATEST EDITION OF THE AISC STEEL CONSTRUCTION MANUAL.
ALL STRUCTURAL SHAPES, BARS, PLATES AND SHEETS SHALL BE OF STEEL MEETING ASTM-A-36 SPECIFICATIONS.

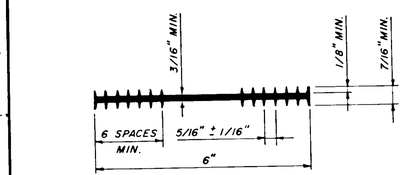
CONCRETE
ALL STRUCTURAL CONCRETE SHALL DEVELOP A COMPRESSIVE STRENGTH OF 4,000 PSI MINIMUM IN 28 DAYS.
REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING TO THE REQUIREMENTS OF THE SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REQUIREMENT.
ASTM DESIGNATION A-615, GRADE 60.
COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:
FOR CONCRETE PLACED AGAINST EARTH.....3"
FOR SURFACES IN CONTACT WITH WATER.....2½"
FORMED SURFACES IN CONTACT WITH EARTH.....2"
FOR UNDERSIDE OF SLABS OVER WATER IN ENCLOSED CONDUITS, BEAMS AND COLUMNS NOT IN CONTACT WITH EARTH OR WATER..... 1½"
SURFACES EXPOSED TO AIR AND ALL INTERIOR SURFACES IN PIPE GALLERIES OR DRY ROOMS..... 1"
UNLESS OTHERWISE SHOWN, ASIDE FROM NORMAL ACCESSORIES USED TO HOLD REINFORCING BARS FIRMLY IN POSITION, THE FOLLOWING SHALL BE ADDED:
A) IN SLABS NO. 5 RISER BARS AT 36 INCHES O.C. MAXIMUM TO SUPPORT TOP REINFORCING BARS.
B) IN WALLS WITH 2 CURTAINS NO. 3 U OR Z SHAPE SPACERS AT 6 FEET O.C. EACH WAY.
METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUBGRADE. CONCRETE BLOCKS (OR DOBBIES) SUPPORTING BARS ON SUBGRADE SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS WITHOUT SETTLEMENT, BUT IN NO CASE SUCH SUPPORT SHALL BE CONTINUOUS.
DOWELS SHALL BE WIRED OR OTHERWISE HELD IN POSITION. THEY SHALL NOT BE SHOVED INTO FRESHLY PLACED CONCRETE.
UNLESS OTHERWISE NOTED OR SHOWN ON DRAWINGS, ALL BAR SPLICES SHALL BE LAPPED AT LEAST 32 BAR DIAMETERS.
LOCATE TWO 3/4 GALV. RICHMOND ROCKET, HOHMANN AND BARNARD, OR EQUAL INSERTS, STRADDLING CENTER LINE OF EQUIPMENT, OVER ALL PUMPS, METERS OR OTHER MECHANICAL UNITS OF MORE THAN 100 POUNDS FOR INSERTING LIFTING EYES, IF NOT OTHERWISE SHOWN ON DRAWINGS.
REINFORCEMENT BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY PIPE, PIPE FLANGE OR METAL PARTS EMBEDDED IN CONCRETE, A MINIMUM OF 2 INCHES CLEARANCE SHALL BE PROVIDED AT ALL TIMES.

ALUMINUM
ALUMINUM CONSTRUCTION SHALL BE IN ACCORDANCE WITH AMERICAN SOCIETY OF CIVIL ENGINEERS SPECIFICATIONS FOR STRUCTURES OF ALUMINUM ALLOY 6061-T6.
ALUMINUM SURFACES SHALL BE PREVENTED FROM COMING IN DIRECT CONTACT WITH CONCRETE OR WITH METALS NOT COMPATIBLE WITH ALUMINUM, USING METHODS DESCRIBED IN THE SPECIFICATIONS.

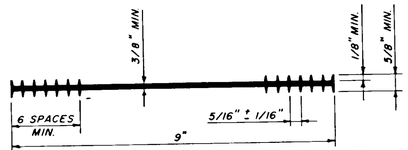
STAINLESS STEEL
UNLESS OTHERWISE SHOWN OR SPECIFIED, STAINLESS STEEL SHALL BE TYPE 18-8.

TESTING HYDRAULIC STRUCTURES
WHEN FILLING THE STRUCTURES WITH WATER, FOR THE TEST REQUIRED IN THE SPECIFICATIONS, ALL VARIOUS BASINS LOCATED WITHIN THE SAME STRUCTURE SHALL BE FILLED SIMULTANEOUSLY AT THE SAME RATE IN ORDER TO KEEP THE SAME LEVEL IN EACH BASIN.

JOB NO. 142
IDENT. NO. FRA

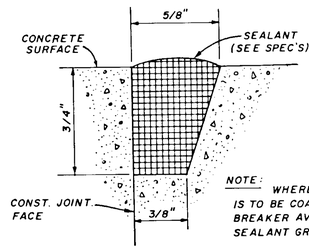


6" FLATSTRIP WATERSTOP A



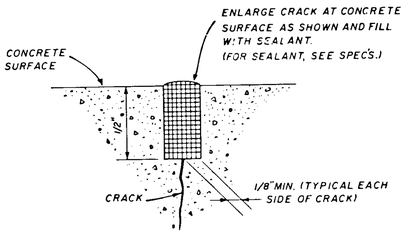
9" FLATSTRIP WATERSTOP B

ALL FLOOR JOINTS OF HYDRAULIC STRUCTURES (MEMBERS COVERED WITH WATER) SHALL HAVE A SEALANT GROOVE



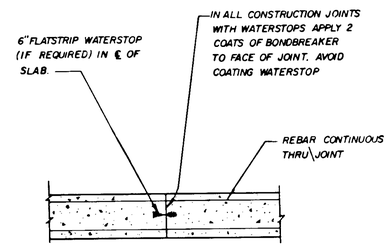
NOTE: WHERE FACE OF JOINT IS TO BE COATED WITH BOND BREAKER AVOID COATING SEALANT GROOVE.

SEALANT GROOVE C

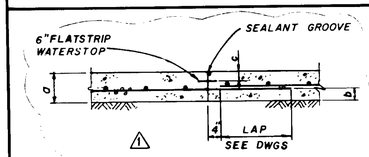


NOTE: PRIOR TO FILLING, STRUCTURES TO CONTAIN WATER SHALL HAVE ALL CRACKS REPAIRED AS SHOWN IN THIS DETAIL.

CONCRETE CRACK REPAIR D



ROOF SLAB JOINT DETAIL E

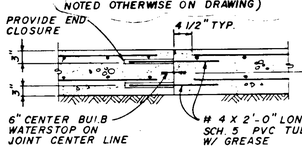


⚠

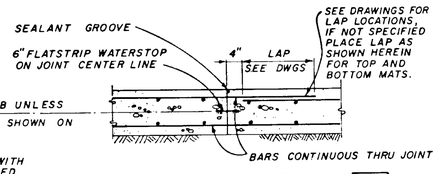
a	b	c
6"	3	2"
7"	3 1/2"	2"
8"	4"	2 1/2"

NOTES:
1. IN ALL CONSTRUCTION JOINTS WITH WATERSTOPS APPLY 2 COATS OF BONDBREAKER TO FACE OF JOINT, AVOID COATING WATERSTOP (AND SEALANT GROOVE WHERE USED.)
2. WATERSTOPS AND SEALANT GROOVES TO BE PROVIDED IN ALL WATER RETAINING STRUCTURE, SEE DRAWINGS FOR OTHER LOCATIONS WHERE THEY MAY BE REQUIRED.

SINGLE MAT BARS CONTINUOUS THRU JOINT (TYPICAL JOINT UNLESS NOTED OTHERWISE ON DRAWING) F1

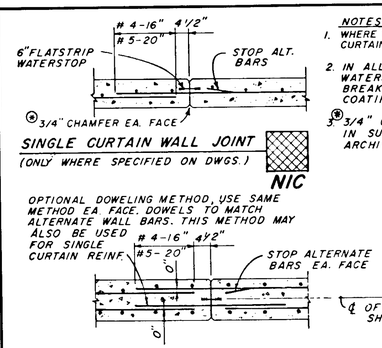


DOUBLE MAT SLEEVE-TYPE JOINT (ONLY WHERE SPECIFIED ON DRAWINGS) NIC



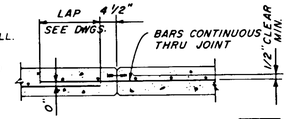
DOUBLE MAT BARS CONTINUOUS THRU JOINT (TYPICAL JOINT UNLESS NOTED OTHERWISE ON DRAWINGS.) F3

SLAB-ON-GRADE CONSTRUCTION JOINT DETAILS F



SINGLE CURTAIN WALL JOINT (ONLY WHERE SPECIFIED ON DWGS.) NIC

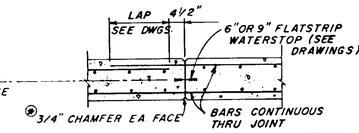
NOTES:
1. WHERE WATERSTOP IS REQUIRED, IN SINGLE CURTAIN WALL, PLACE ON WATER SIDE OF WALL.
2. IN ALL CONSTRUCTION JOINTS WITH WATERSTOPS APPLY 2 COATS OF BOND BREAKER TO FACE OF JOINT. AVOID COATING WATERSTOP.
3. 3/4" CHAMFER SHALL BE OMITTED IN SURFACES TO RECEIVE ARCHITECTURAL TREATMENT.



SINGLE CURTAIN WALL JOINT (TYPICAL JOINT UNLESS OTHERWISE NOTED ON DRAWINGS) G3

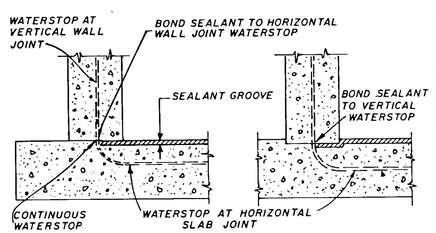
OPTIONAL DOWELING METHOD, USE SAME METHOD EA FACE. DOWELS TO MATCH ALTERNATE WALL BARS. THIS METHOD MAY ALSO BE USED FOR SINGLE CURTAIN REINF.

DOUBLE CURTAIN WALL JOINT (ONLY WHERE SPECIFIED ON DWGS.) NIC



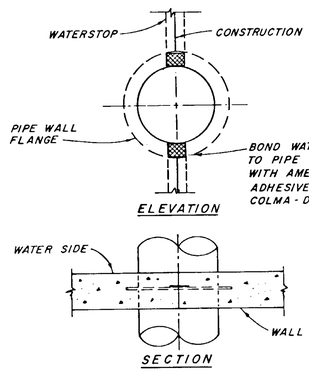
DOUBLE CURTAIN WALL JOINT (TYPICAL JOINT UNLESS OTHERWISE NOTED ON DRAWINGS) G4

WALL CONSTRUCTION JOINT DETAILS G

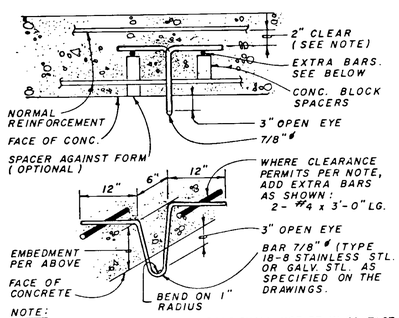


NOTES:
SEALANT GROOVE SHALL BE CONTINUED UNDER WALL & SEALANT SHALL BOND WITH WALL WATERSTOP IN ALL CASES WHERE SUCH WATERSTOP OCCURS.
SEALANT UNDER WALL SHALL BE IN PLACE PRIOR TO PLACEMENT OF CONCRETE FOR WALL.

SEALANT GROOVE UNDER WALL H



CONSTRUCTION JOINT DETAIL AT PIPE OPENING J



NOTE: EYE BAR AND EXTRA SUPPORT BARS SHALL NOT BE IN CONTACT WITH NORMAL REINFORCING BARS OR ANY OTHER METAL INSTALLATION OR ACCESSORY EMBEDDED IN CONCRETE.

LIFTING EYE DETAILS K
N.I.C.

THE DETAILS ILLUSTRATED ON THIS SHEET ARE PART OF JAMES M. MONTGOMERY STANDARD DETAILS.

THESE DETAILS ARE TO BE USED WHEN REFERRED TO OR WHEN NO OTHER MORE RESTRICTIVE OR DIFFERENT DETAILS ARE SHOWN ON THE DRAWINGS.

DETAILS NOT PERTAINING TO THE PROJECT ARE MARKED THUS ▨ N.I.C. (NOT IN CONTRACT)

03580

RECORD DRAWING

RC.	DATE	BY	DESCRIPTION
⚠	9-30-81	P.R	CONST. JOINT DETAIL ADDED

SCALE: NO SCALE

DESIGNED P. REYMOND
DRAWN M. LASLEY
CHECKED P. Reymond

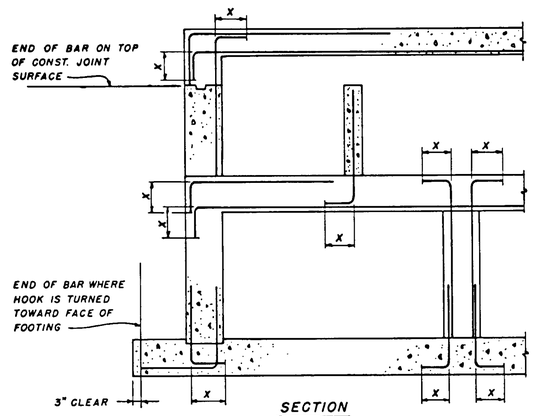
SUBMITTED Patrick Sinnott PROJECT ENGINEER 27304 R.C.E. NO. 8/19/81 DATE
RECOMMENDED JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. 27638 R.C.E. NO. 9/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
GENERAL NOTES AND CONSTRUCTION JOINT DETAILS

SHEET S-1 OF 66 SHEETS

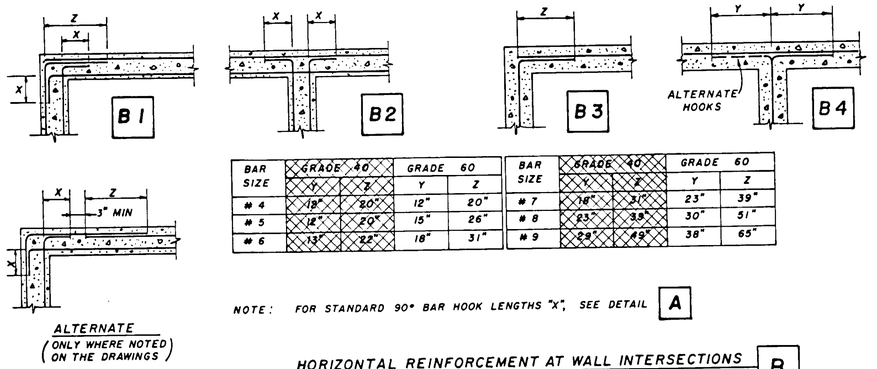


SECTION

BAR SIZE	90° HOOKS "X"	BAR SIZE	90° HOOKS "X"
# 3	6"	# 8	16"
# 4	8"	# 9	19"
# 5	10"	# 10	22"
# 6	12"	# 11	24"
# 7	14"		

NOTE:
UNLESS OTHERWISE NOTED ON THE DRAWINGS ALL LENGTHS OF BAR HOOKS IN FOOTINGS, COLUMNS, WALLS AND SLABS SHALL BE AS GIVEN IN THE TABLE HEREIN.
THE HOOK LENGTH "X" IS THE STANDARD 90° BAR HOOK LENGTH FOR GRADE 40 OR GRADE 60 REINFORCEMENT STEEL.

STANDARD 90° BAR HOOKS — A

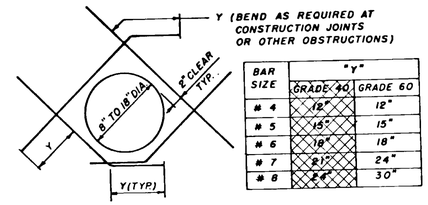


BAR SIZE	GRADE 40 X	GRADE 40 Z	GRADE 60 Y	GRADE 60 Z
# 4	18"	20"	12"	20"
# 5	18"	20"	15"	26"
# 6	13"	22"	18"	31"

BAR SIZE	GRADE 40 X	GRADE 40 Z	GRADE 60 Y	GRADE 60 Z
# 7	18"	31"	23"	39"
# 8	23"	33"	30"	51"
# 9	28"	49"	38"	65"

NOTE: FOR STANDARD 90° BAR HOOK LENGTHS "X", SEE DETAIL A

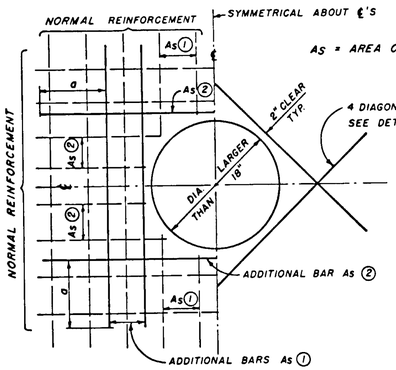
HORIZONTAL REINFORCEMENT AT WALL INTERSECTIONS — B



BAR SIZE	"Y" GRADE 40	"Y" GRADE 60
# 4	12"	12"
# 5	15"	15"
# 6	18"	18"
# 7	21"	24"
# 8	24"	30"

1. CUT NORMAL REINFORCEMENT AT OPENING.
2. DIAGONAL BARS TO BE PLACED;
   A. AT ℄ OF WALL WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.
   B. AT EACH FACE OF WALL WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
3. UNLESS OTHERWISE NOTED, SIZE OF DIAGONAL BARS SHALL BE THE SIZE OF THE LARGEST NORMAL REINF. BAR CUT.
4. THIS DETAIL TO BE USED ONLY WHEN CALLED FOR ON THE DRAWINGS OR WHEN NO OTHER DETAIL IS SPECIFIED.

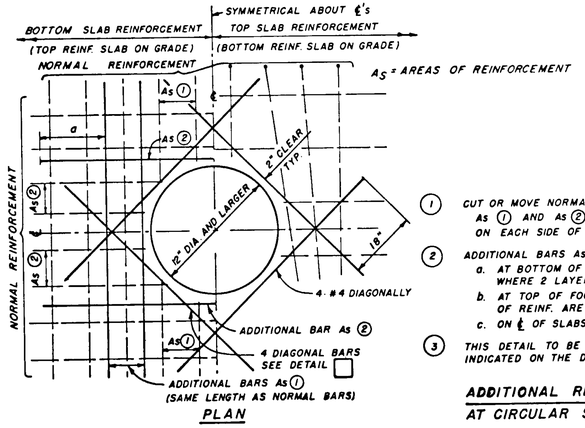
DIAGONAL REINFORCEMENT AT CIRCULAR WALL OPENINGS — C



BAR SIZE	"a" GRADE 40	"a" GRADE 60
# 4	15"	15"
# 5	18"	21"
# 6	18"	24"
# 7	21"	27"
# 8	24"	36"
# 9	30"	42"
# 10	36"	48"

1. CUT NORMAL REINFORCEMENT AT OPENING: As ① AND As ② = 1/2 AREA OF CUT BARS TO BE ADDED ON EACH SIDE OF OPENING.
2. ADDITIONAL BARS As ① AND As ② TO BE PLACED:
   a. AT ℄ OF WALLS WHERE ONE LAYER OF REINF IS PROVIDED.
   b. AT EACH FACE OF WALLS WHERE TWO LAYERS OF REINF ARE PROVIDED.
3. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS.

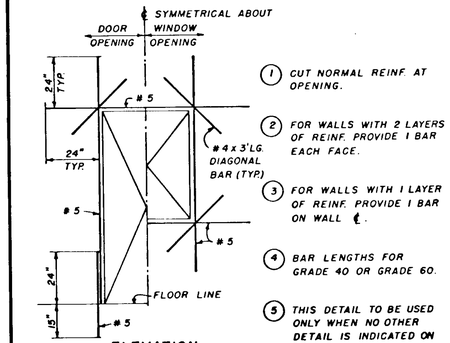
ADDITIONAL REINFORCEMENT AT CIRCULAR WALL OPENINGS — D



BAR SIZE	"a" GRADE 40	"a" GRADE 60
# 4	15"	15"
# 5	18"	21"
# 6	18"	24"
# 7	21"	27"
# 8	24"	36"
# 9	30"	42"
# 10	36"	48"

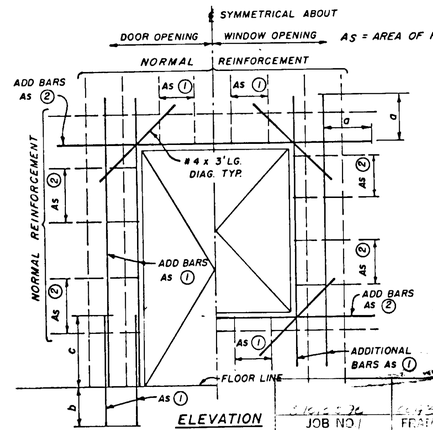
1. CUT OR MOVE NORMAL REINFORCEMENT AT OPENING: As ① AND As ② TO BE ADDED ON EACH SIDE OF OPENING.
2. ADDITIONAL BARS As ① AND As ② TO BE PLACED:
   a. AT BOTTOM OF ROOF AND FLOOR SLABS NOT ON GRADE, WHERE 2 LAYERS OF REINF. ARE PROVIDED.
   b. AT TOP OF FOOTING SLABS ON GRADE, WHERE 2 LAYERS OF REINF. ARE PROVIDED.
   c. ON ℄ OF SLABS WHERE ONE LAYER OF REINF IS PROVIDED.
3. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS.

ADDITIONAL REINFORCEMENT AT CIRCULAR SLAB OPENINGS — E



1. CUT NORMAL REINF. AT OPENING.
2. FOR WALLS WITH 2 LAYERS OF REINF. PROVIDE 1 BAR EACH FACE.
3. FOR WALLS WITH 1 LAYER OF REINF. PROVIDE 1 BAR ON WALL ℄.
4. BAR LENGTHS FOR GRADE 40 OR GRADE 60.
5. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS.

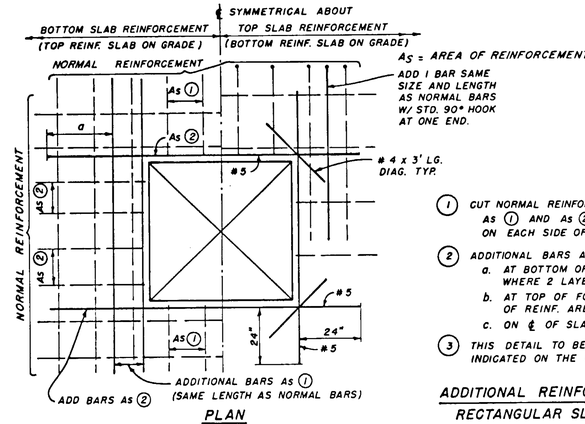
TYPICAL REINFORCEMENT AROUND RECTANGULAR WALL OPENINGS — F



BAR SIZE	GRADE 40 a	GRADE 40 b	GRADE 40 c	GRADE 60 a	GRADE 60 b	GRADE 60 c
# 4	16"	12"	20"	16"	12"	20"
# 5	16"	15"	20"	20"	15"	26"
# 6	17"	15"	22"	24"	18"	31"
# 7	23"	18"	31"	30"	24"	39"
# 8	30"	24"	39"	39"	30"	51"
# 9	38"	30"	49"	49"	38"	65"
# 10	48"	36"	63"	63"	48"	82"

1. CUT NORMAL REINFORCEMENT AT OPENING: As ① AND As ② = 1/2 AREA OF CUT BARS TO BE ADDED ON EACH SIDE OF OPENING.
2. ADDITIONAL BARS As ① AND As ② TO BE PLACED:
   a. AT ℄ OF WALLS WHERE ONE LAYER OF REINF IS PROVIDED.
   b. AT EACH FACE OF WALLS WHERE TWO LAYERS OF REINF. ARE PROVIDED.
3. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS.

ADDITIONAL REINFORCEMENT AROUND RECTANGULAR WALL OPENINGS — G



BAR SIZE	"a" GRADE 40	"a" GRADE 60
# 4	15"	16"
# 5	16"	20"
# 6	17"	24"
# 7	23"	30"
# 8	30"	39"
# 9	38"	49"
# 10	48"	63"

1. CUT NORMAL REINFORCEMENT AT OPENING: As ① AND As ② = 1/2 AREA OF CUT BARS TO BE ADDED ON EACH SIDE OF OPENING.
2. ADDITIONAL BARS As ① AND As ② TO BE PLACED:
   a. AT BOTTOM OF ROOF AND FLOOR SLABS NOT ON GRADE, WHERE 2 LAYERS OF REINF. ARE PROVIDED.
   b. AT TOP OF FOOTING SLABS ON GRADE, WHERE 2 LAYERS OF REINF. ARE PROVIDED.
   c. ON ℄ OF SLAB WHERE ONE LAYER OF REINF. IS PROVIDED.
3. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS.

ADDITIONAL REINFORCEMENT AROUND RECTANGULAR SLAB OPENINGS — H

THE DETAILS ILLUSTRATED ON THIS SHEET ARE PART OF JAMES M. MONTGOMERY STANDARD DETAILS.

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DETAILS NOT PERTAINING TO THE PROJECT ARE MARKED THUS ▨ N.I.C. (NOT IN CONTRACT)

03581

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

SCALE: NO SCALE

DESIGNED P. REYMOND
DRAWN C. FITZPATRICK
CHECKED P. Reymond

SUBMITTED Robert C. Sieverts — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

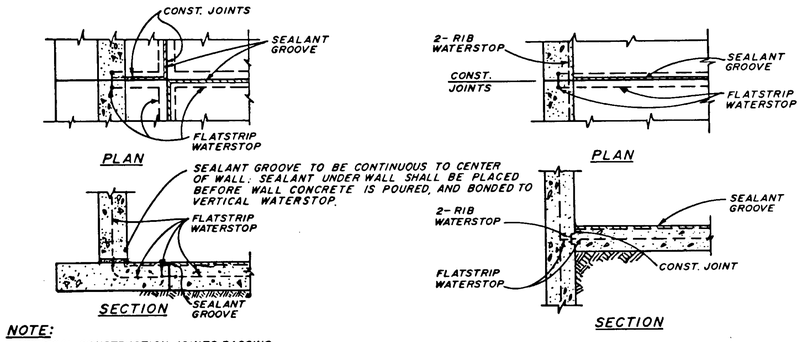
JOB NO. / CONT. NO. / FRAME

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

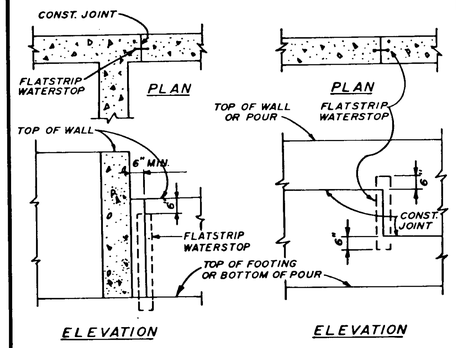
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS REINFORCEMENT DETAILS

SHEET S-2 OF 66 SHEETS

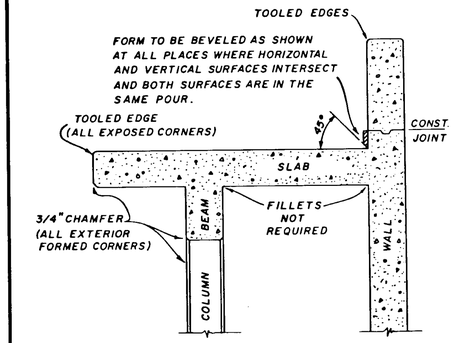


NOTE:
VERTICAL CONSTRUCTION JOINTS PASSING THRU VARIOUS MEMBERS OF A WATER RETAINING STRUCTURE, SHALL BE SEALED WITH WATERSTOPS BONDED TOGETHER, SO AS TO PROVIDE A CONTINUOUS WATERTIGHT JOINT.

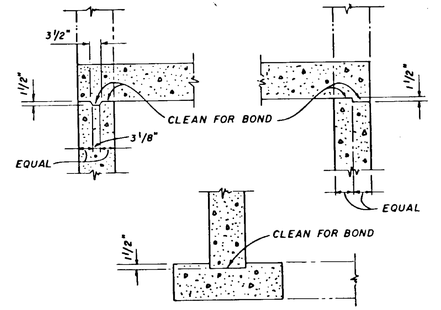
WATERSTOP DETAILS FOR FLOOR JOINTS — A



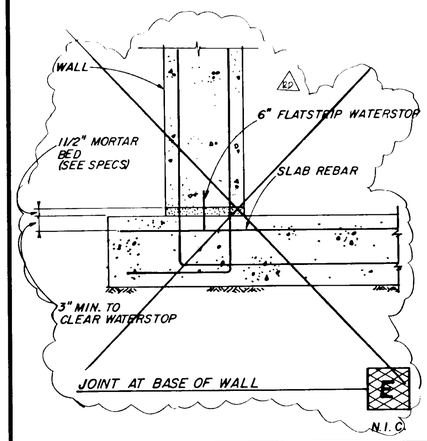
WATERSTOP DETAILS FOR VERTICAL WALL JOINTS — B



FORMING DETAILS — C

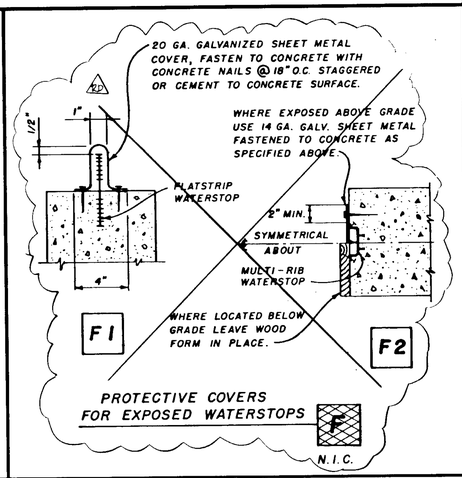


TYPICAL KEYWAYS — D



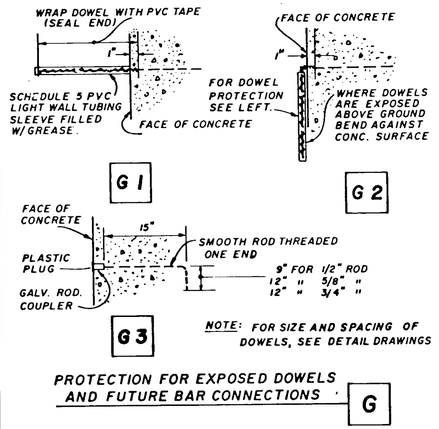
JOINT AT BASE OF WALL — E

N.I.C.



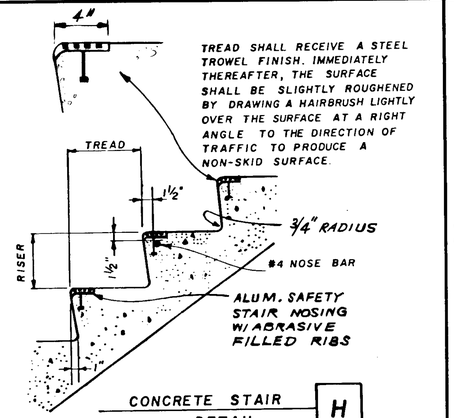
PROTECTIVE COVERS FOR EXPOSED WATERSTOPS — F

N.I.C.

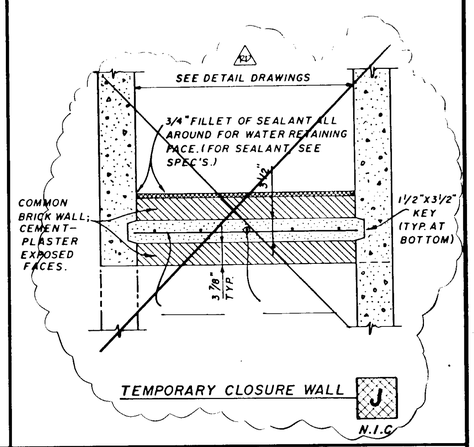


NOTE: FOR SIZE AND SPACING OF DOWELS, SEE DETAIL DRAWINGS

PROTECTION FOR EXPOSED DOWELS AND FUTURE BAR CONNECTIONS — G

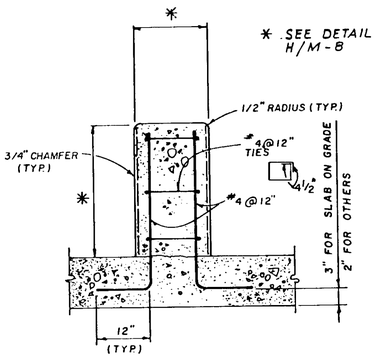


CONCRETE STAIR DETAIL — H

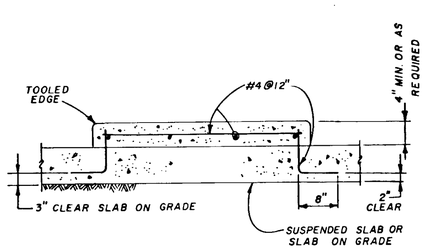


TEMPORARY CLOSURE WALL — J

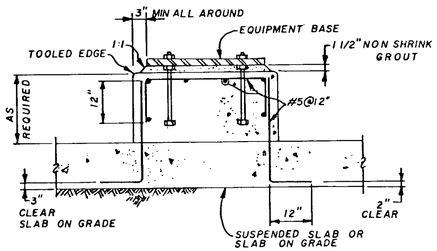
N.I.C.



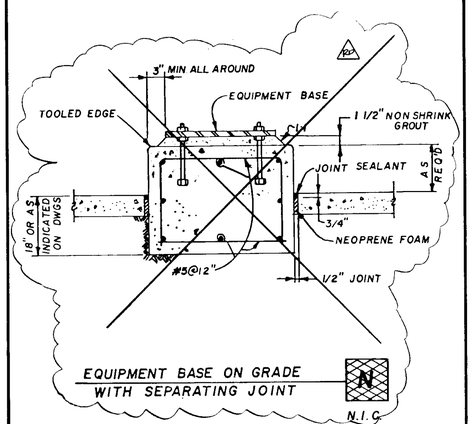
CONCRETE PIER FOR PIPE SUPPORT — K



EQUIPMENT PAD — L



EQUIPMENT BASE — M



EQUIPMENT BASE ON GRADE WITH SEPARATING JOINT — N

N.I.C.

THE DETAILS ILLUSTRATED ON THIS SHEET ARE PART OF JAMES M. MONTGOMERY STANDARD DETAILS.

THESE DETAILS ARE TO BE USED WHEN REFERRED TO OR WHEN NO OTHER MORE RESTRICTIVE OR DIFFERENT DETAILS ARE SHOWN ON THE DRAWINGS.

DETAILS NOT PERTAINING TO THE PROJECT ARE MARKED THUS ▨ N.I.C. (NOT IN CONTRACT)

03582

RECORD DRAWING

JOB NO. | IDENT. NO | FRAME NO

REV	DATE	BY	DESCRIPTION
RD	4/1/84	MDJ	RECORD DRAWINGS

SCALE: NO SCALE

DESIGNED P. REYMOND
DRAWN C. FITZPATRICK
CHECKED [signature]

SUBMITTED [signature] PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

RECOMMENDED [signature] JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

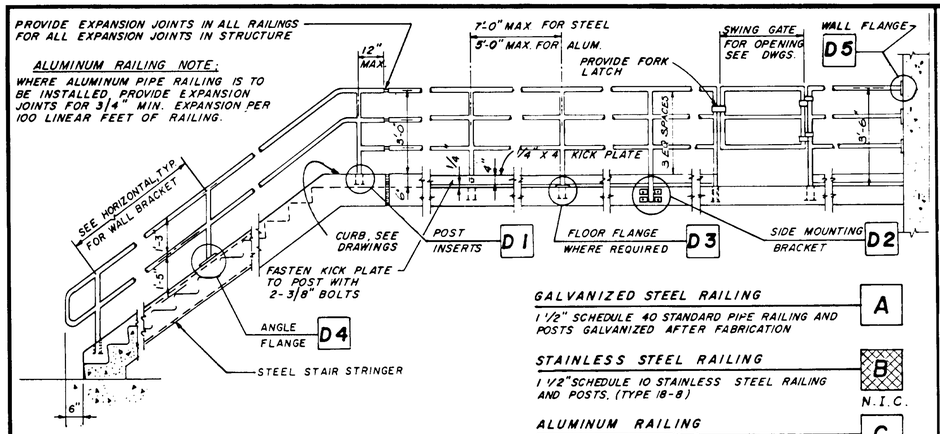
DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS STRUCTURAL DETAILS

SHEET S-3 OF 66 SHEETS

PROVIDE EXPANSION JOINTS IN ALL RAILINGS FOR ALL EXPANSION JOINTS IN STRUCTURE

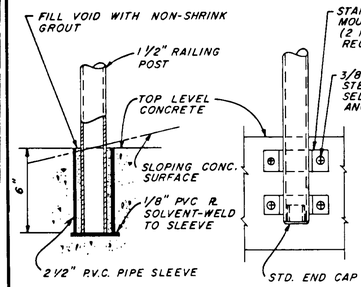
ALUMINUM RAILING NOTE:
WHERE ALUMINUM PIPE RAILING IS TO BE INSTALLED, PROVIDE EXPANSION JOINTS FOR 3/4" MIN. EXPANSION PER 100 LINEAR FEET OF RAILING.



GALVANIZED STEEL RAILING — A
1 1/2" SCHEDULE 40 STANDARD PIPE RAILING AND POSTS GALVANIZED AFTER FABRICATION.

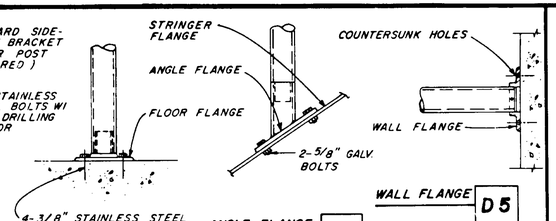
STAINLESS STEEL RAILING — B — N.I.C.
1 1/2" SCHEDULE 10 STAINLESS STEEL RAILING AND POSTS. (TYPE 18-8)

ALUMINUM RAILING — C
1 1/2" SCHEDULE 40 STANDARD PIPE RAILING AND POST WITH MECHANICAL JOINTS.



POST INSERT IN CONCRETE — D1

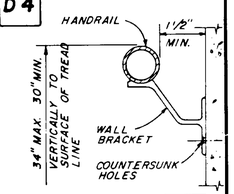
SIDE-MOUNTING BRACKET — D2



FLOOR FLANGE (WHEN REQUIRED) — D3

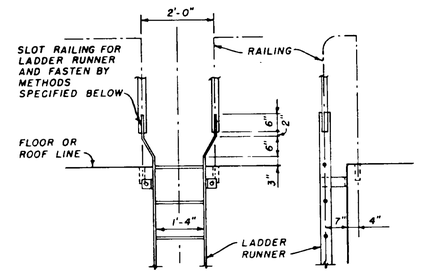
ANGLE FLANGE — D4

WALL FLANGE — D5



RAILING, GUARDRAIL AND HANDRAIL SUPPORT DETAILS — D

HANDRAIL WALL BRACKET — D6

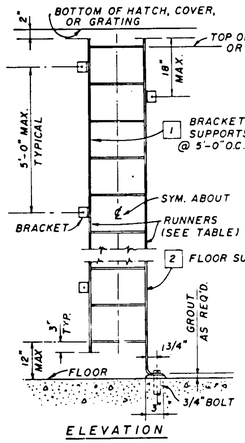


CONNECTIONS:

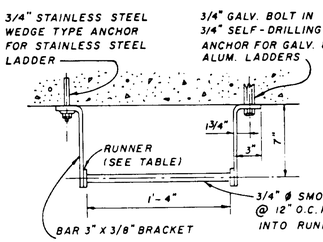
STEEL TO STEEL OR ALUMINUM TO ALUMINUM:
WELDED CONNECTION, GRIND SMOOTH.

STEEL TO ALUMINUM:
DRILL HOLE THRU LADDER RUNNER AND RAILING FOR 1/2" PIN. INSERT PIN AND WELD BOTH ENDS AND GRIND SMOOTH. PIN SHALL BE THE SAME MATERIAL AS RAILING.

LADDER TO RAILING CONNECTIONS — E



ELEVATION



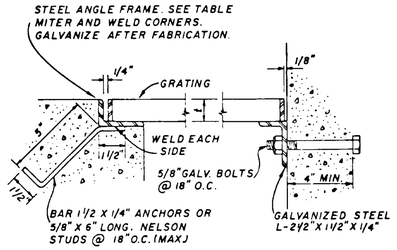
BRACKET SPACING	FLAT BAR SIZE
5'-0" O.C. MAX.	2" X 3/8"
5'-0" TO 10'-0"	3" X 3/8"
10'-0" TO 20'-0"	3" X 1/2"
OVER 20'-0"	4" X 1/2"

PLAN

ALUMINUM LADDER — F — N.I.C.
(MATERIAL: ALUMINUM ALLOY 6063 T-5 OR T-6

STAINLESS STEEL LADDER — G — N.I.C.
(MATERIAL: STAINLESS STEEL TYPE 18-8

GALVANIZED STEEL LADDER — H
(MATERIAL: CARBON STEEL GALVANIZED AFTER FABRICATION)



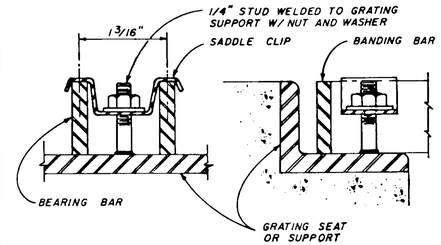
GRATING FRAME TABLE					
TYPE	GRATING DEPTH "t"	FRAME ANGLE	TYPE	GRATING DEPTH "t"	FRAME ANGLE
1	1"	1 3/4 X 1 3/4 X 1/4	5	2"	2 1/2 X 2 1/2 X 1/2
2	1 1/4"	2 X 1 1/2 X 1/4	6	2 1/4"	2 1/2 X 2 1/2 X 1/4
3	1 1/2"	1 3/4 X 1 3/4 X 1/4	7	2 1/2"	3 X 2 1/2 X 1/2
4	1 3/4"	2 X 2 X 1/4	8		

ALUMINUM GRATING — J
BEARING BARS: DEPTH "t" x 3/16 @ 1 3/16" O.C.
CROSS BARS @ 4" O.C.
USE ALUM. ANGLE SUPPORTS AND BOLTS

GALVANIZED STEEL GRATING — K
BEARING BARS: DEPTH "t" x 3/16 @ 1 3/16" O.C.
CROSS BARS @ 4" O.C.
PER DETAIL TO LEFT

STAINLESS STEEL GRATING — L — N.I.C.
STAINLESS STEEL SHALL BE TYPE 18-8
USE STAINLESS STEEL ANGLE SUPPORTS AND BOLTS

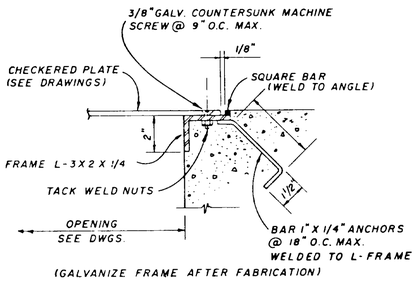
GRATING OF DEPTH "t" AS NOTED ON DRAWINGS SHALL BE AS SPECIFIED HEREIN.
ALL ENDS AND OPENINGS SHALL BE BANDED.
ALL GRATINGS SHALL BE SECURED IN PLACE WITH REMOVABLE FASTENERS, SEE DETAIL M.
WEIGHT OF GRATING SECTION SHALL NOT EXCEED 80 LBS.



PROVIDE 4 CLIPS PER GRATING PANEL, APPROX. 4" FROM PANEL CORNERS. MAXIMUM CLIP SPACING AT 36" O.C.

STUD, NUT, WASHER AND CLIP TO BE THE SAME MATERIAL AS THE GRATING.

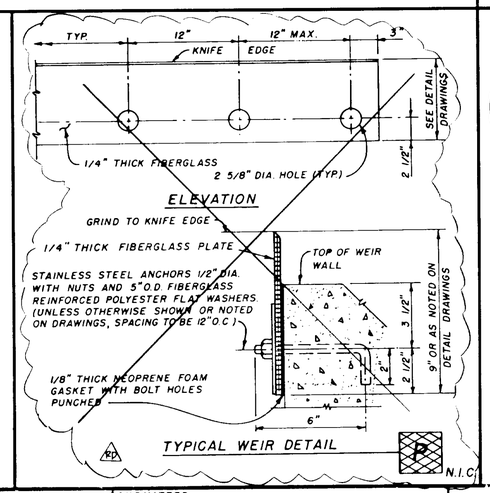
GRATING ANCHOR DETAIL — M



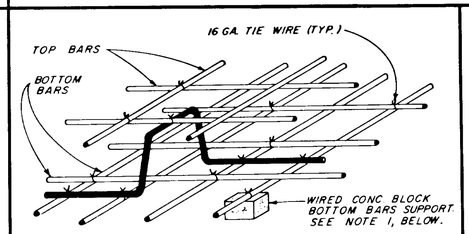
(GALVANIZE FRAME AFTER FABRICATION)

TYPICAL PLATE-COVERED OPENING — N

JOB NO.	FRAME NO.
IDENT. NO.	



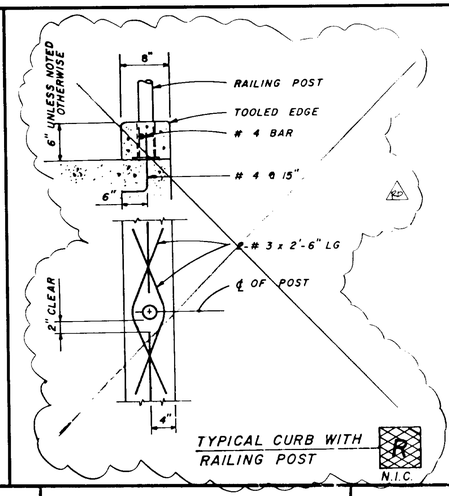
TYPICAL WEIR DETAIL — P — N.I.C.



METAL BAR SUPPORTS, IF USED IN SLABS NOT ON GROUND, SHALL NOT MAKE CONTACT WITH FORMS.

REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY OTHER METAL INSTALLATION OR ACCESSORY EMBEDDED IN CONCRETE. A MINIMUM OF 2" CLEARANCE SHALL BE PROVIDED IN ALL CASES.

BAR CHAIR REINFORCEMENT SUPPORT — Q



TYPICAL CURB WITH RAILING POST — R — N.I.C.

THE DETAILS ILLUSTRATED ON THIS SHEET ARE PART OF JAMES M. MONTGOMERY STANDARD DETAILS.

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DETAILS NOT PERTAINING TO THE PROJECT ARE MARKED THUS ▨ N.I.C. (NOT IN CONTRACT)

RECORD DRAWING 03583

RD 4/1/82 HDJ RECORD DRAWING

BY	DESCRIPTION

SCALE: NO SCALE

DESIGNED P REYMOND
DRAWN C FITZPATRICK
CHECKED P Reymond

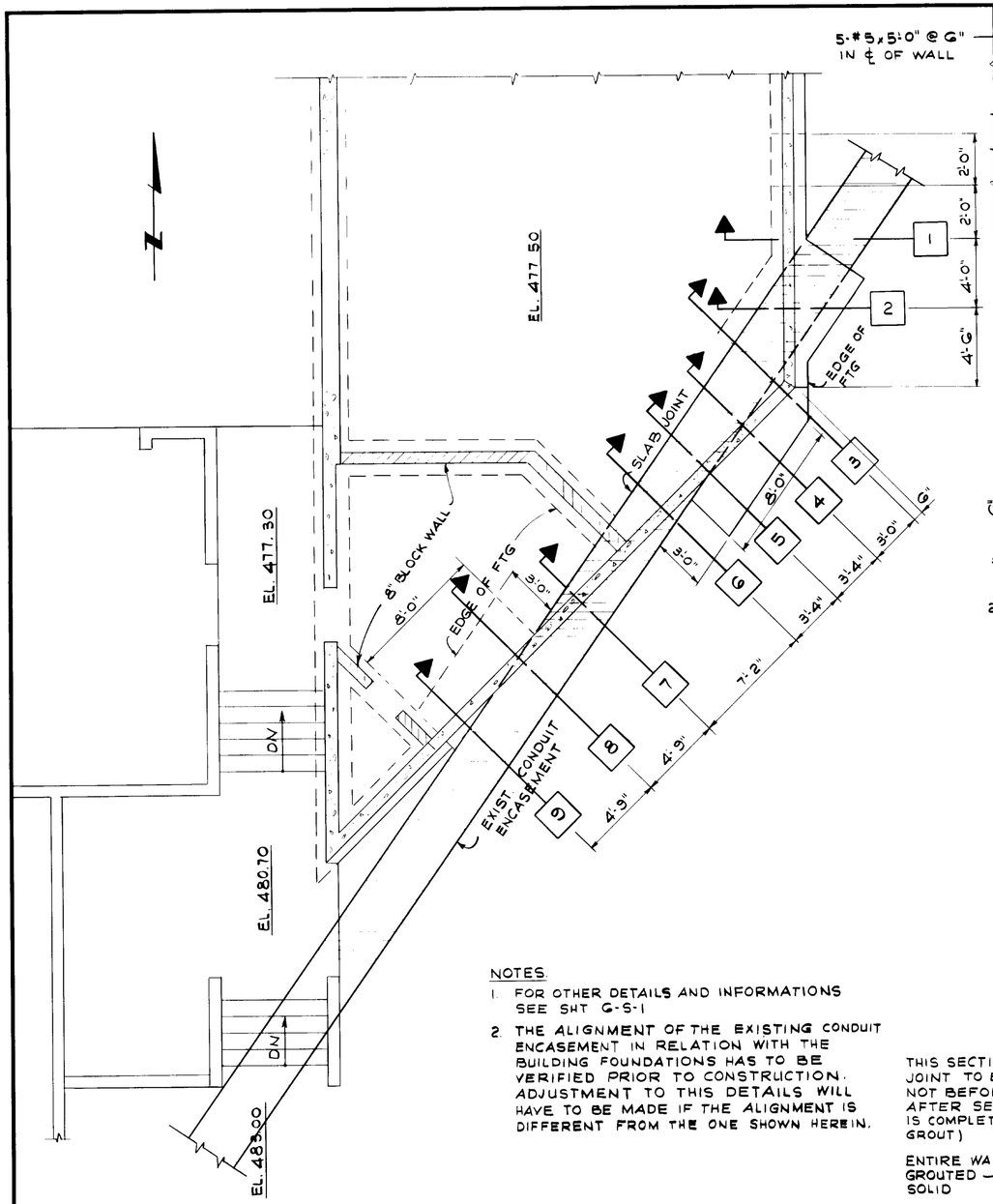
SUBMITTED Robert Simonds — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED [illegible] — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS METALWORK DETAILS

SHEET S-4 OF 66 SHEETS

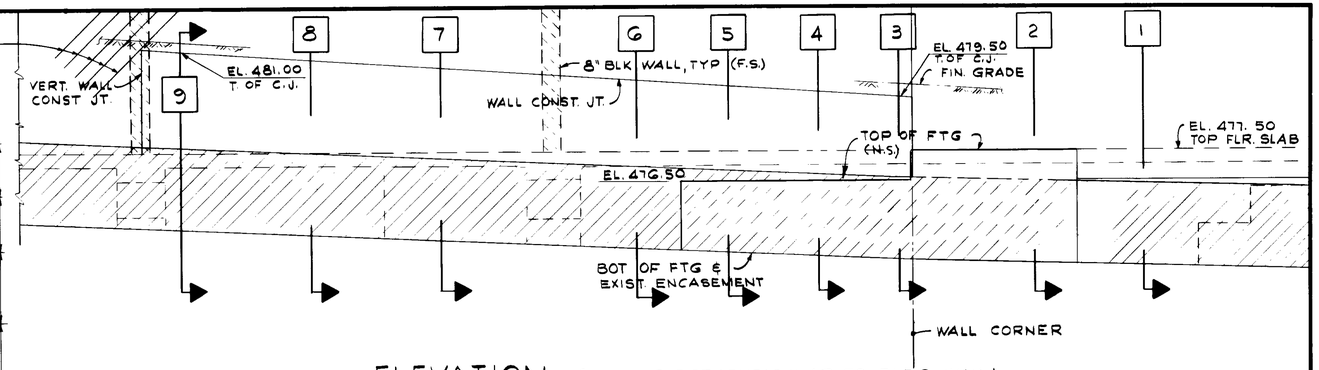


NOTES:

1. FOR OTHER DETAILS AND INFORMATIONS SEE SHT G-S-1
2. THE ALIGNMENT OF THE EXISTING CONDUIT ENCASEMENT IN RELATION WITH THE BUILDING FOUNDATIONS HAS TO BE VERIFIED PRIOR TO CONSTRUCTION. ADJUSTMENT TO THIS DETAILS WILL HAVE TO BE MADE IF THE ALIGNMENT IS DIFFERENT FROM THE ONE SHOWN HEREIN.

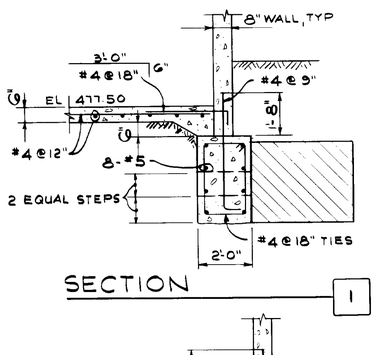
PARTIAL FOUNDATION PLAN

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

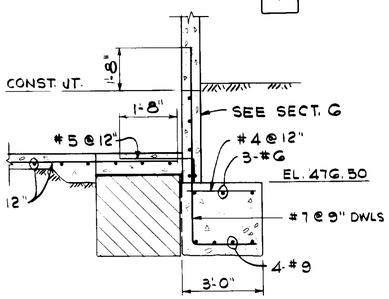


ELEVATION (LOOKING PERPENDICULAR TO BLDG. WALL)

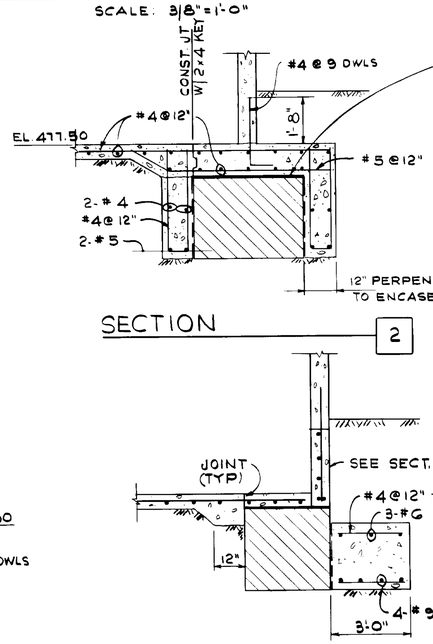
SCALE: 3/8"=1'-0"



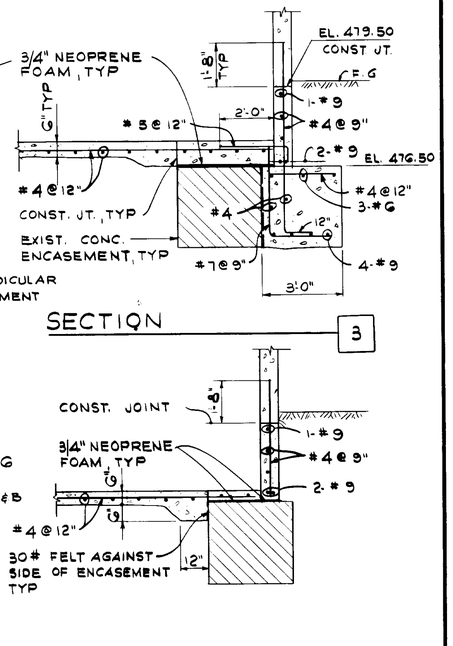
SECTION 1



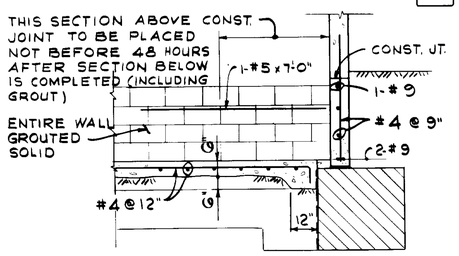
SECTION 2



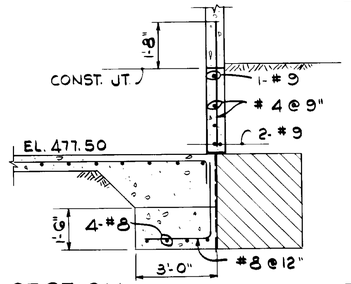
SECTION 3



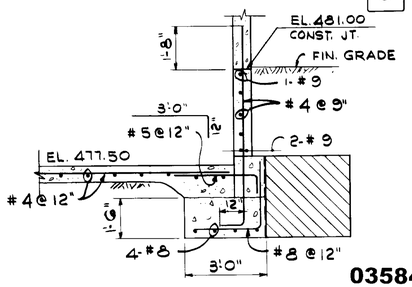
SECTION 4



SECTION 5



SECTION 6



SECTION 7

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

SECTION 8

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

SECTION 9

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

03584

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

SCALE: AS NOTED

DESIGNED P REYMOND
DRAWN M DULNUAN
CHECKED P Reymond

SUBMITTED PROJECT ENGINEER C033699 R.C.E. NO. 8/5/82 DATE

RECOMMENDED JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. 27304 R.C.E. NO. 8/5/82 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

APPROVED _____ DATE _____

APPROVED _____ DATE _____

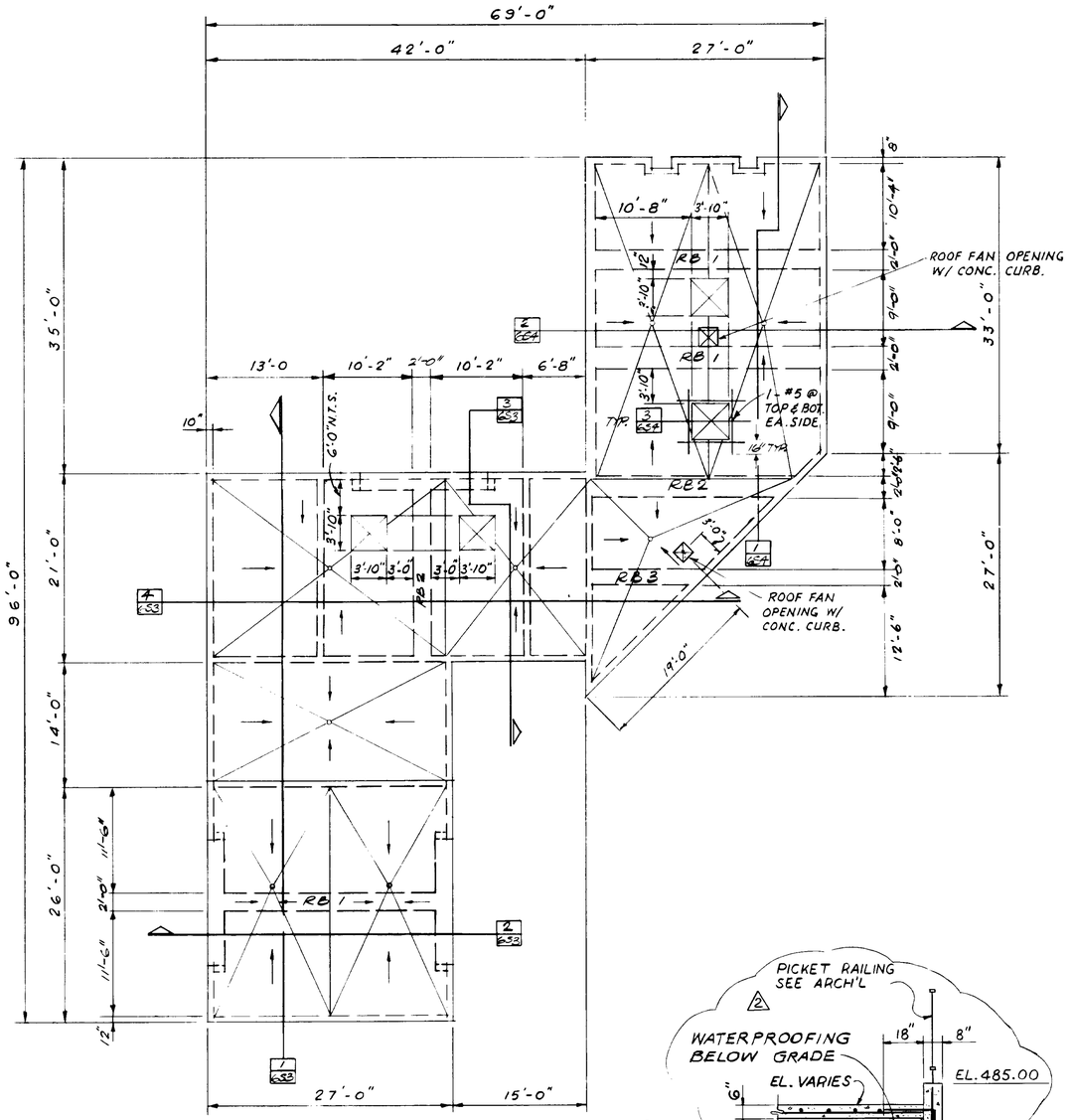
LAS VIRGINES MWD/TRIUNFO CSD

TAPIA WRF-FILTRATION/DISINFECTION ADDITION

CHEMICAL BUILDING FOOTING REVISION

CHANGE ORDER NO.

SHEET 1 OF 1 SHEETS

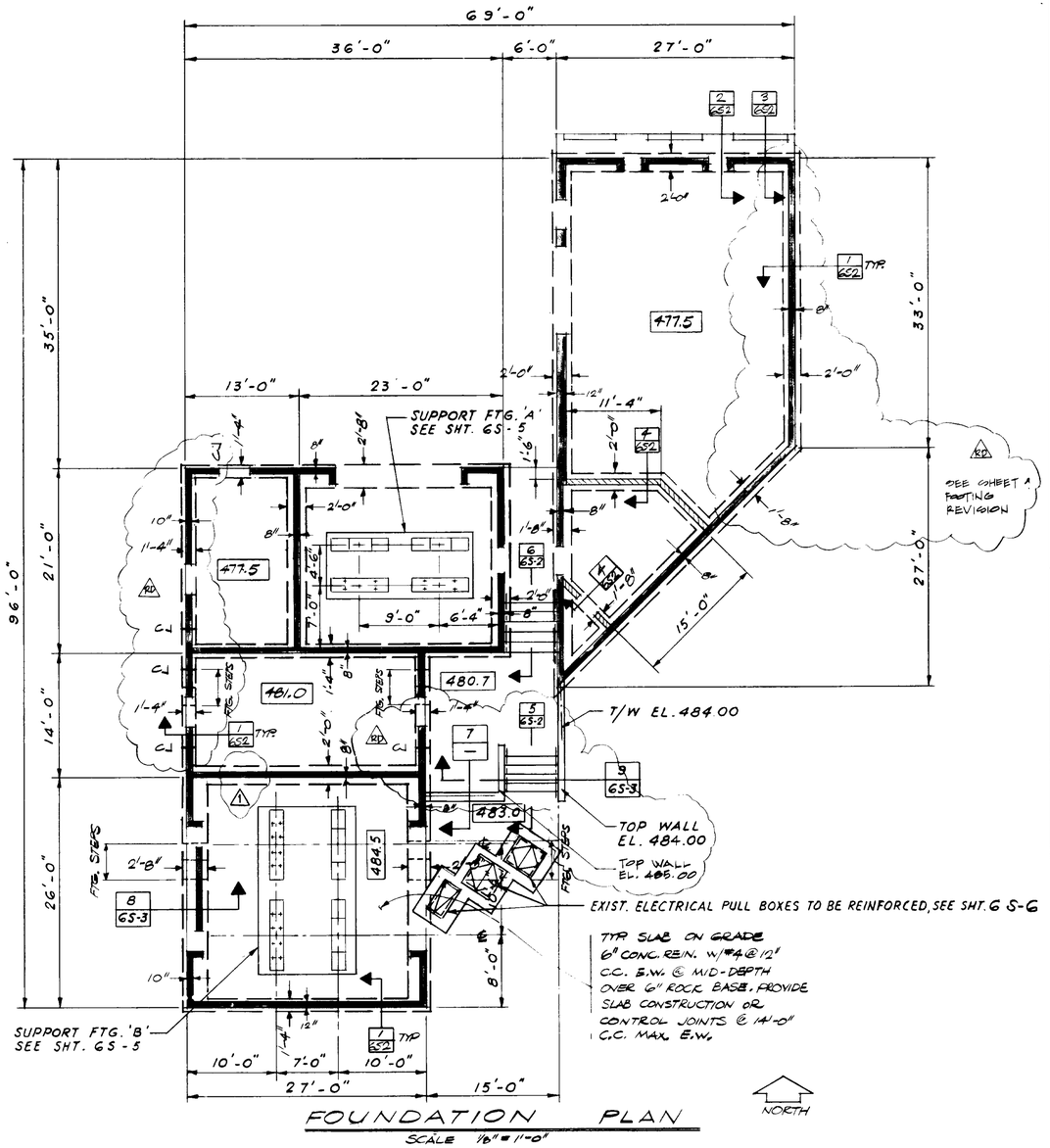


ROOF PLAN

SCALE 1/8" = 1'-0"

SECTION 7

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



FOUNDATION PLAN

SCALE 1/8" = 1'-0"

NORTH

JOB NO. 37[illegible]
IDENT. NO. [illegible]

03585

RECORD DRAWING

H D Rueb
STRUCTURAL ENGINEER
380 CIVIC DRIVE SUITE F
PLEASANT HILL CA 94523
TELEPHONE (415) 825-9540
JOB NUMBER 3220

REV	DATE	BY	DESCRIPTION
RD	4/11/64	MDU	RECORD DRAWINGS
2	5-17-82	P.R.	CLARIFICATION
1	9-30-81	P.R.	SECTION LINE CLARIFICTION

SCALE: AS NOTED

DESIGNED HDR
DRAWN DWD
CHECKED [illegible]

SUBMITTED [illegible] PROJECT ENGINEER — 27304 R.C.E. NO. — 3/19/81 DATE

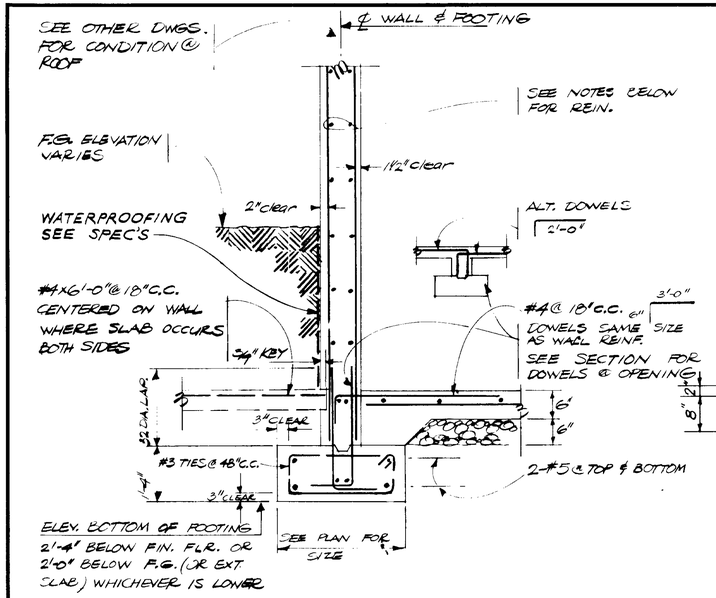
RECOMMENDED [illegible] JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 9/24/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

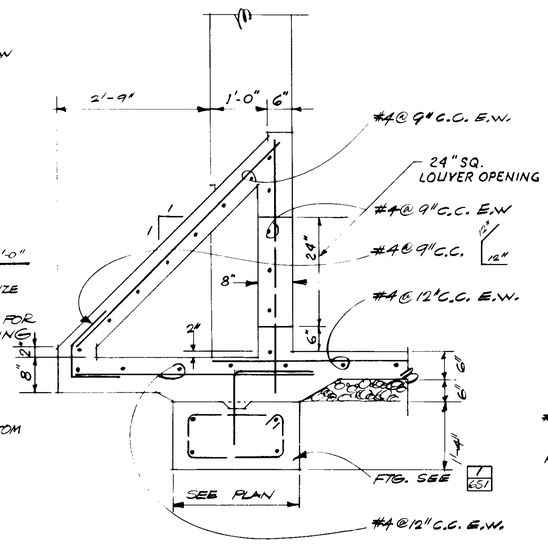
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
CHEMICAL BUILDING — FOUNDATION AND ROOF PLANS

SHEET 6S-1 OF 66 SHEETS



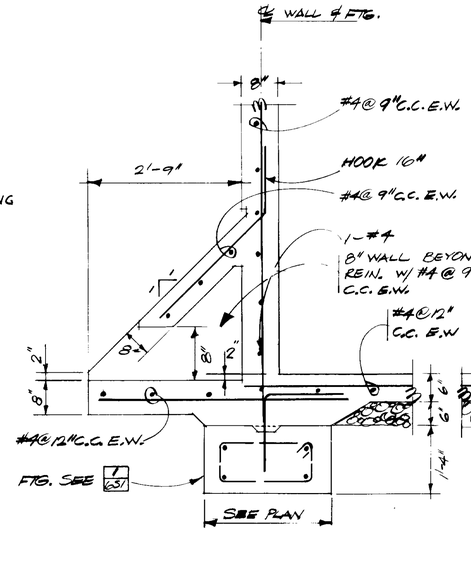
TYPICAL VERTICAL SECTION THRU WALL FOOTING & SLAB — 1 / 6S1

SCALE 3/4" = 1'-0"



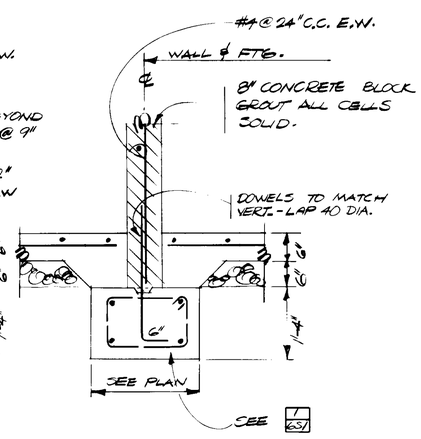
SECTION — 2 / 6S1

SCALE 3/4" = 1'-0"



SECTION — 3 / 6S1

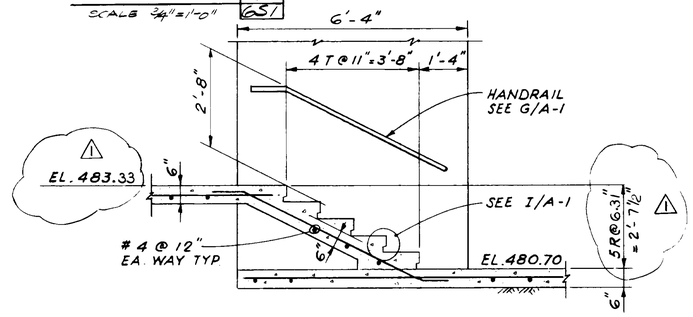
SCALE 3/4" = 1'-0"



SECTION — 4 / 6S1

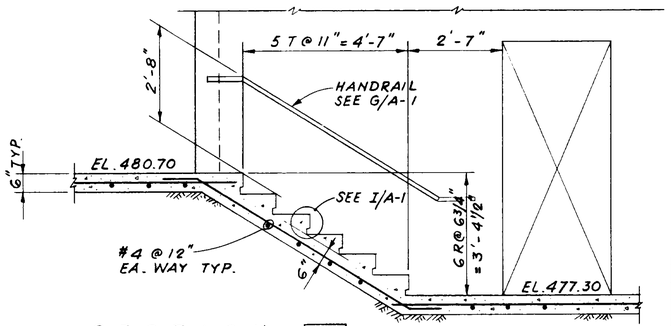
SCALE 3/4" = 1'-0"

1. EXTERIOR DOUBLE CURTAIN WALL SHOWN, SINGLE CURTAIN WALL SIM.
2. TYP. WALL REIN. SHALL BE AS FOLLOWS:
   8" WALL - #4 @ 9" C.C. E.W. @ CENTER OF WALL (VERT. REIN. @ ℄).
   10" WALL - #4 @ 16" C.C. E.W. EA. FACE.
   12" WALL #4 @ 12" C.C. E.W. EA. FACE.



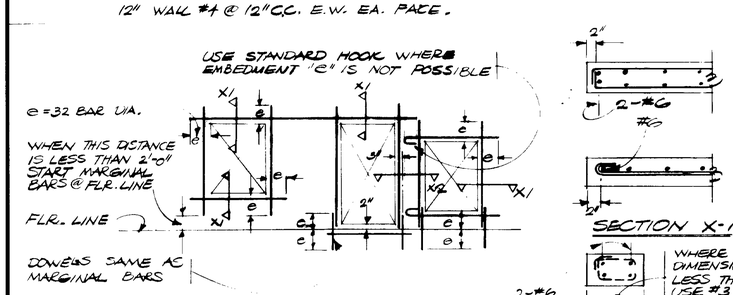
SECTION — 5 / 6S-1

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

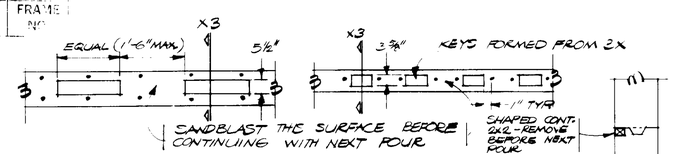


SECTION — 6 / 6S-1

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

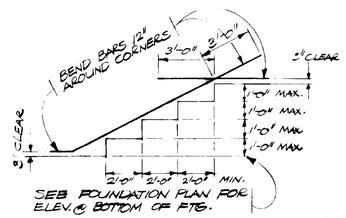


TYPICAL WALL OPENING REINFORCEMENT



CONSTRUCTION JOINTS IN WALLS

APPLIES TO BOTH HORIZONTAL & VERTICAL JOINTS



TYPICAL STEPS IN WALL FOOTING

AT CONTROL JOINTS — TYP. SLABS — AT CONSTRUCTION JOINTS

CONCRETE SLAB ON GROUND DETAILS

SEE SHEET #1 FOOTING REVISION 1/6

REV	DATE	BY	DESCRIPTION
RD	4/1/84	MDH	RECORD DRAWINGS
1	5-17-82	P.R.	CLARIFICATION

SCALE: NOT TO SCALE EXCEPT AS NOTED

DESIGNED HDR
DRAWN DMD
CHECKED

SUBMITTED Robert C. Swanson — PROJECT ENGINEER — 27034 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

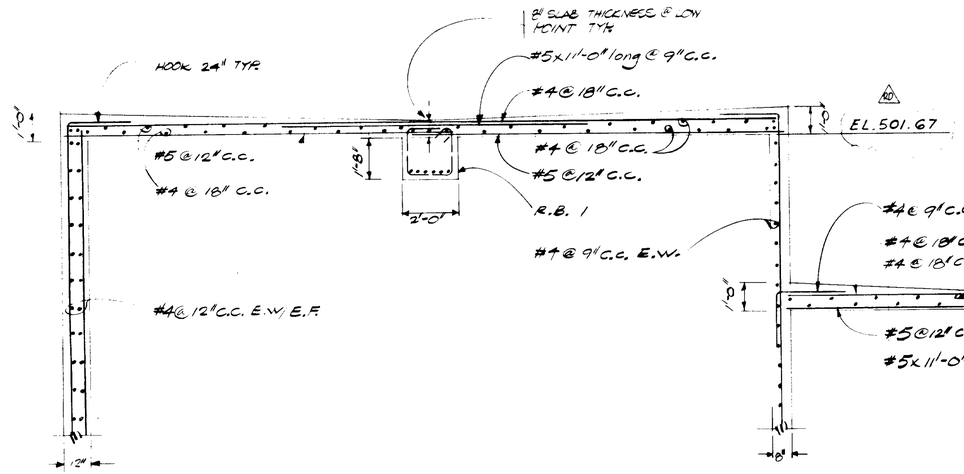
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
CHEMICAL BUILDING — MISCELLANEOUS WALL SECTIONS AND DETAILS

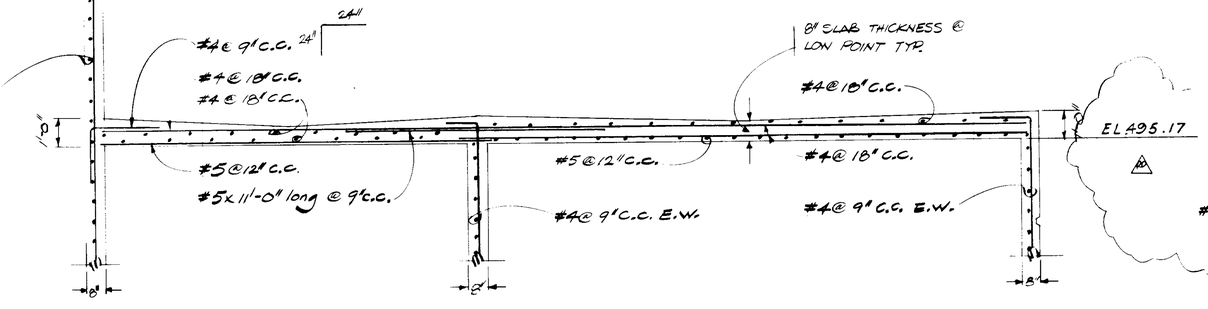
SHEET 6S-2 OF 66 SHEETS

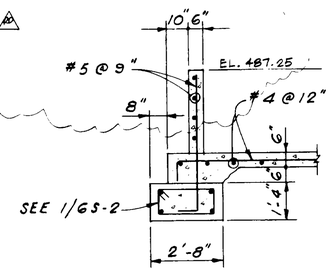
03586

H D Rueb
STRUCTURAL ENGINEER
380 CIVIC DRIVE SUITE F
PLEASANT HILL CA 94523
TELEPHONE (415) 825-9540
JOB NUMBER 2220

RECORD DRAWING

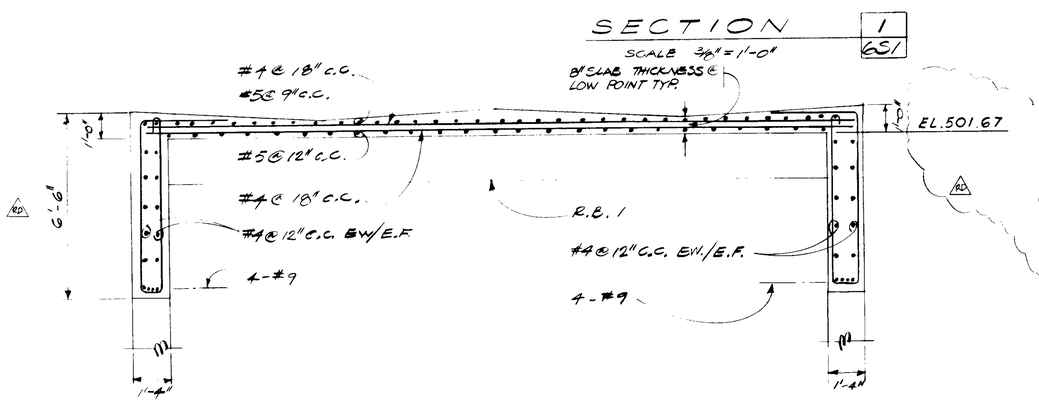


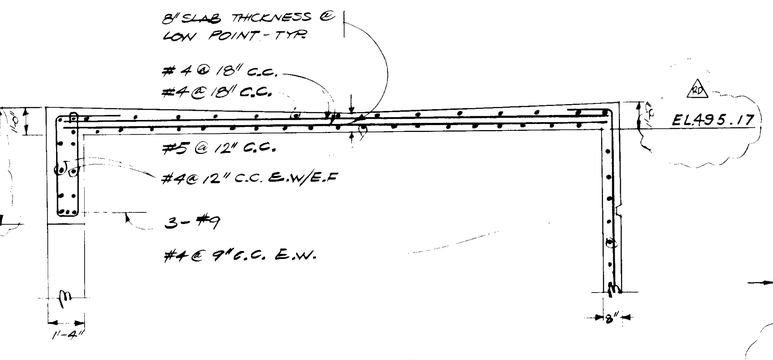


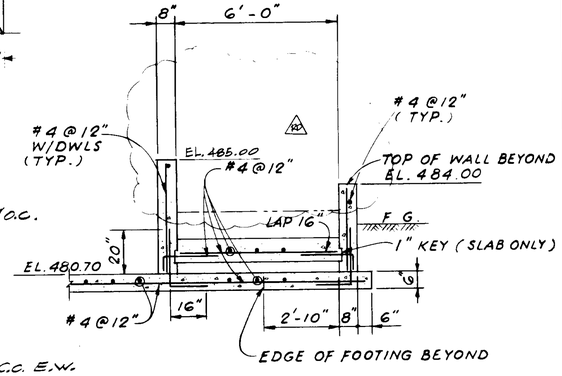


SECTION 1 / GS1
SCALE 3/8" = 1'-0"

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



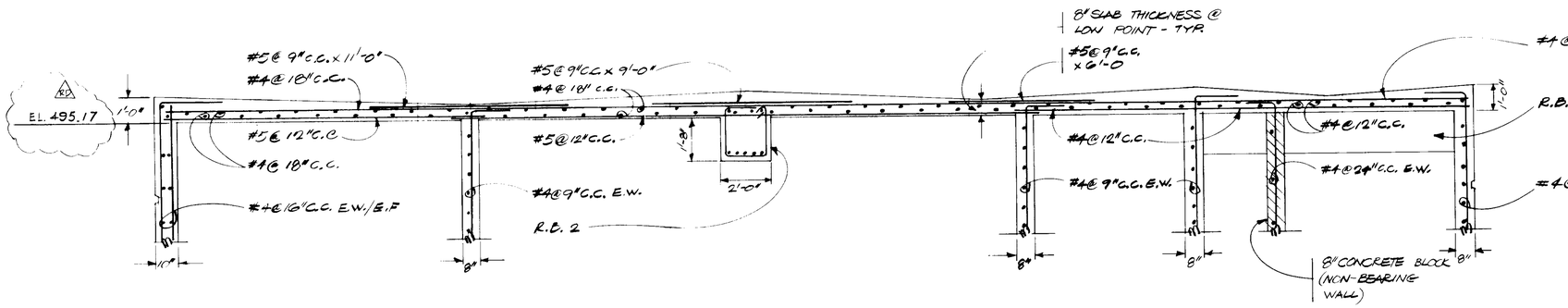




SECTION 2 / GS1
SCALE 3/8" = 1'-0"

SECTION 3 / GS1
SCALE 3/8" = 1'-0"

SECTION 9 / GS-1
SCALE : 3/8" = 1'-0"



SECTION 4 / GS1
SCALE 3/8" = 1'-0"

JOB NO.
IDENT. NO.
FRA

03587

H D Rueb
STRUCTURAL ENGINEER
360 CIVIC DRIVE SUITE F
PLEASANT HILL CA 94523
TELEPHONE (415) 825-9540
JOB NUMBER 7770

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
2D	4/11/84	MDJ	RECORD DRAWINGS

SCALE: AS NOTED

DESIGNED HDR
DRAWN DML
CHECKED

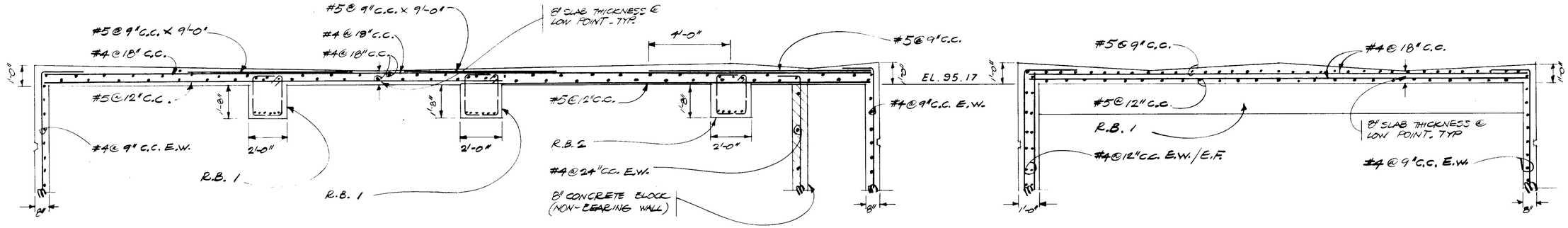
SUBMITTED Robert C Sievert — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

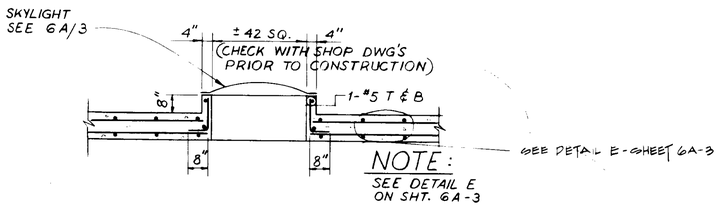
DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II — CHEMICAL BUILDING – WALLS AND ROOF SLAB SECTIONS

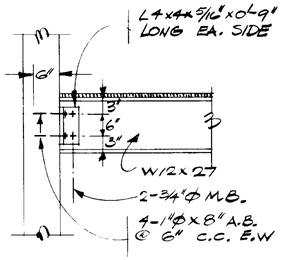
SHEET 6S-3
OF 66 SHEETS

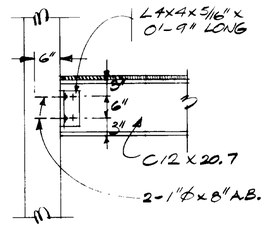


SECTION 1
SCALE 3/8"=1'-0" 6S-1

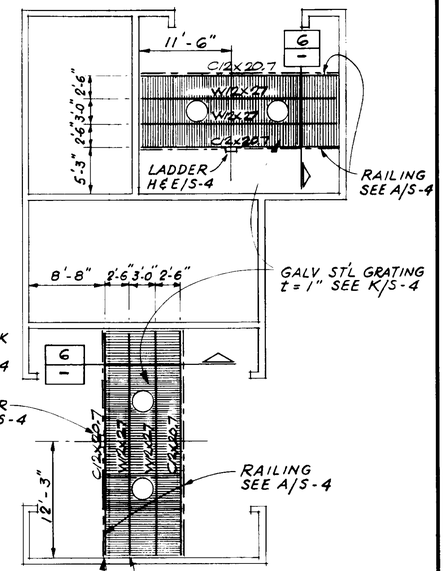


SECTION 3
SCALE 3/4"=1'-0" 6S-1

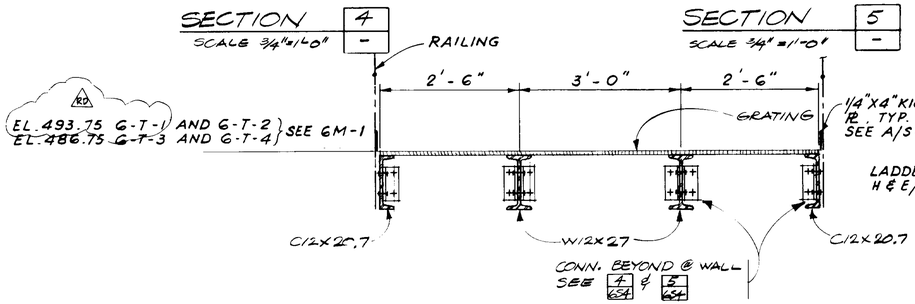




SECTION 2
SCALE 3/8"=1'-0" 6S-1



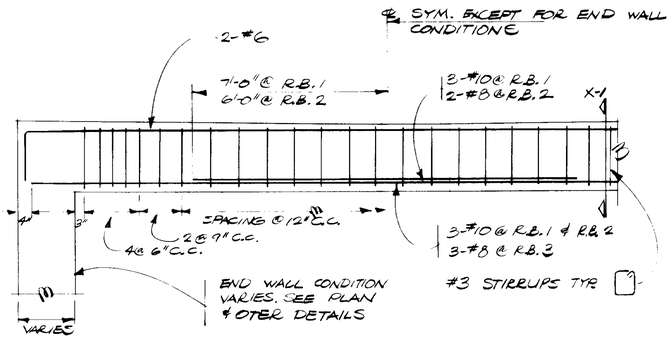
PLATFORM FRAMING PLANS
SCALE 1/8"=1'-0"



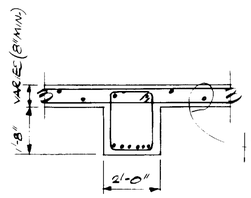
SECTION 4
SCALE 3/4"=1'-0"

SECTION 5
SCALE 3/4"=1'-0"

SECTION 6
SCALE 3/4"=1'-0"



BEAM RB1, RB2 & RB3
SCALE 3/8" = 1'-0"



SECTION X-1

03588

H D Rueb
STRUCTURAL ENGINEER
380 CIVIC DRIVE SUITE F
PLEASANT HILL CA. 94523
TELEPHONE (415) 825-8540
JOB NUMBER 2220

RECORD DRAWING

JOB NO. IDENT. NO.	FRA NO

REV	DATE	BY	DESCRIPTION
		JMH	RECORD DRAWINGS
1	9-30-91		SKYLIGHT CURBING REVISED

SCALE: AS NOTED

DESIGNED HDR
DRAWN LMD
CHECKED Raymond

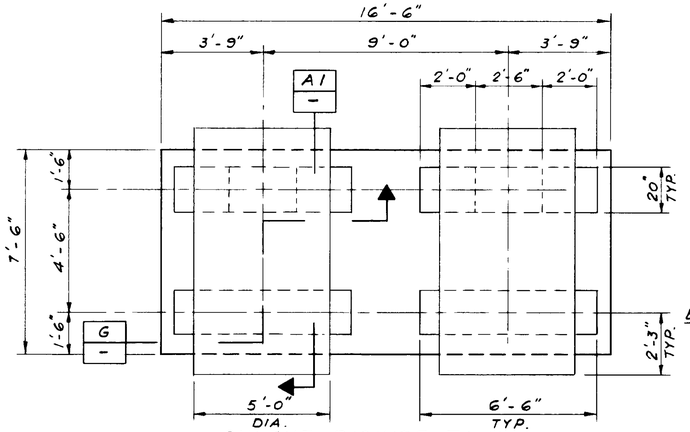
SUBMITTED Robert C Sinnah — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/91 DATE
RECOMMENDED Kirk B Miller — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/91 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
CHEMICAL BUILDING — ROOF SLAB SECTIONS AND PLATFORM FRAMING DETAILS

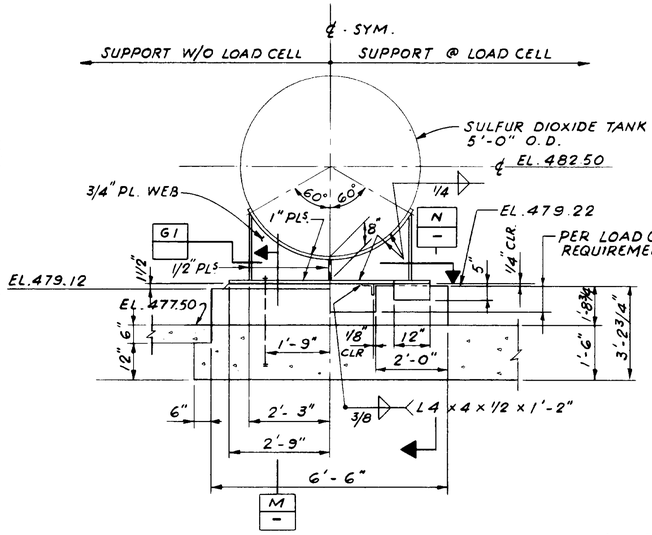
SHEET 6S-4 OF 66 SHEETS



SULFUR DIOXIDE TANK
SUPPORT FOOTING PLAN

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

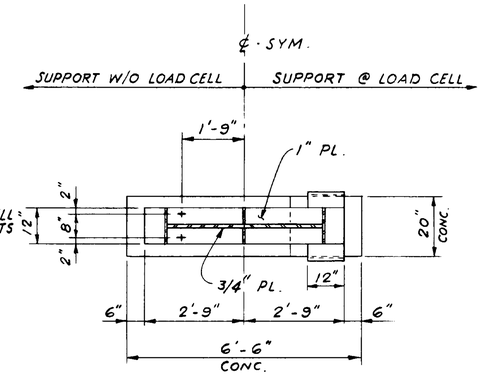
A | GS-1



D E T A I L

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

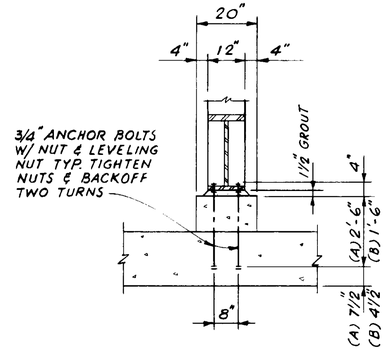
G | -



S E C T I O N A L P L A N

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

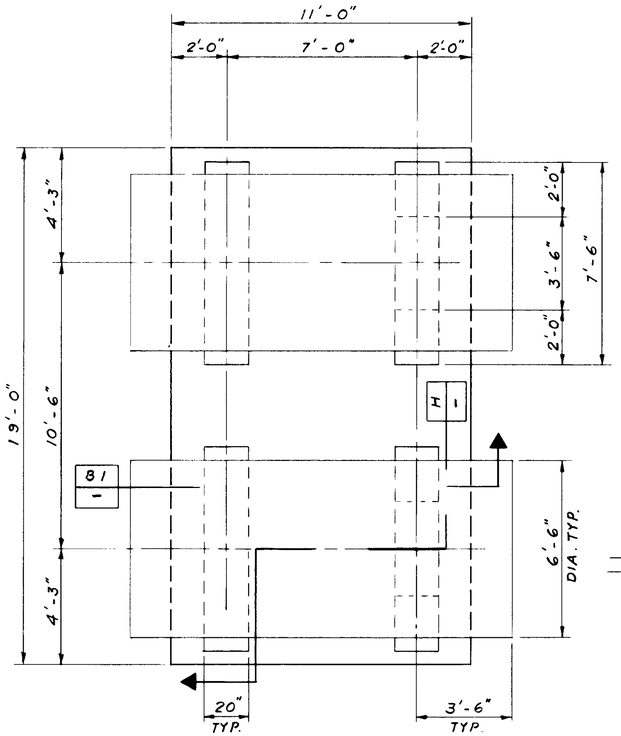
G1 | -



S E C T I O N

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

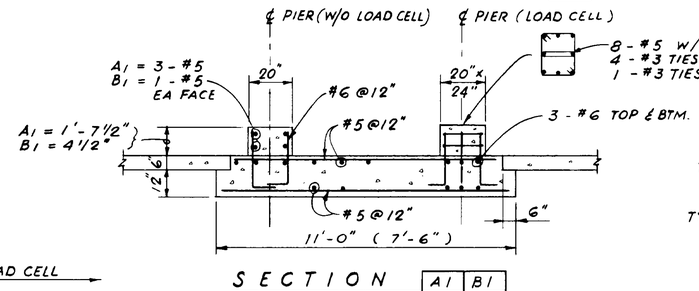
M | -



CHLORINE STORAGE TANK
SUPPORT FOOTING PLAN

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

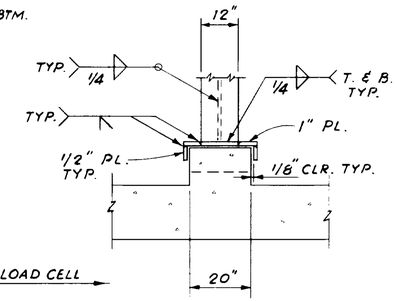
B | GS-1



S E C T I O N

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

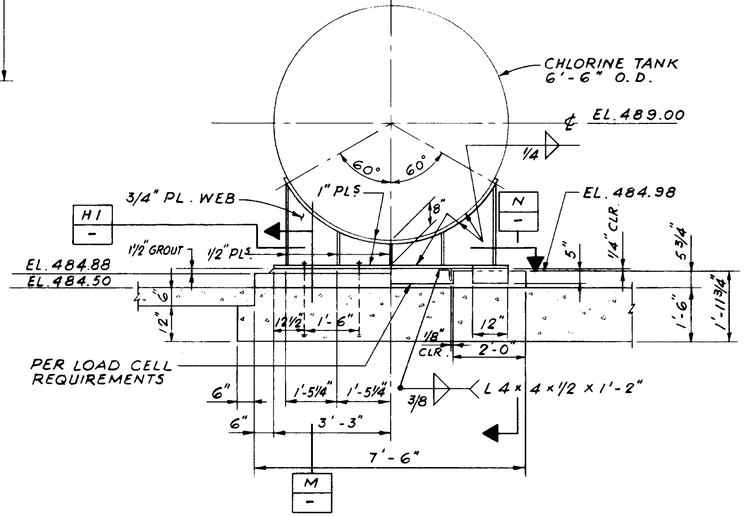
A1	B1
-	-



S E C T I O N

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

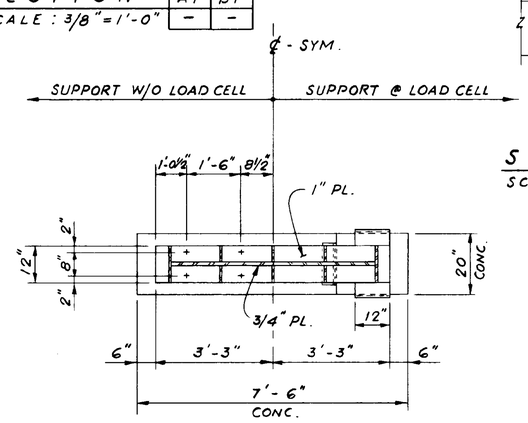
N | -



D E T A I L

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

H | -



S E C T I O N A L P L A N

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

H1 | -

03589

RECORD DRAWING

JOB NO. | EPA No.

REV	DATE	BY	DESCRIPTION

SCALE: AS NOTED

DESIGNED P. REYMOND
DRAWN T. S. CHONG
CHECKED

SUBMITTED
Robert C Spanch — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/91 DATE

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27633 R.C.E. NO. — 9/23/91 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

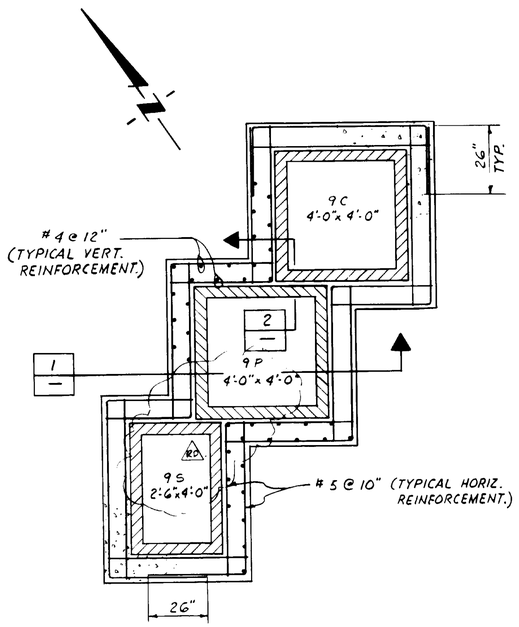
DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD

TAPIA WRF – FILTRATION/DISINFECTION ADDITION

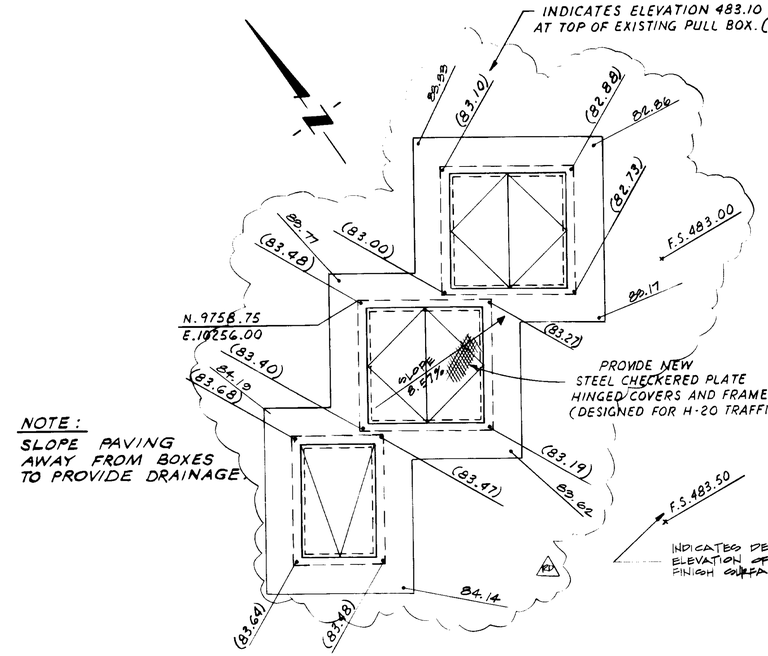
PHASE II — CHEMICAL BUILDING - TANK SUPPORT DETAILS

SHEET 6S-5 OF 66 SHEETS



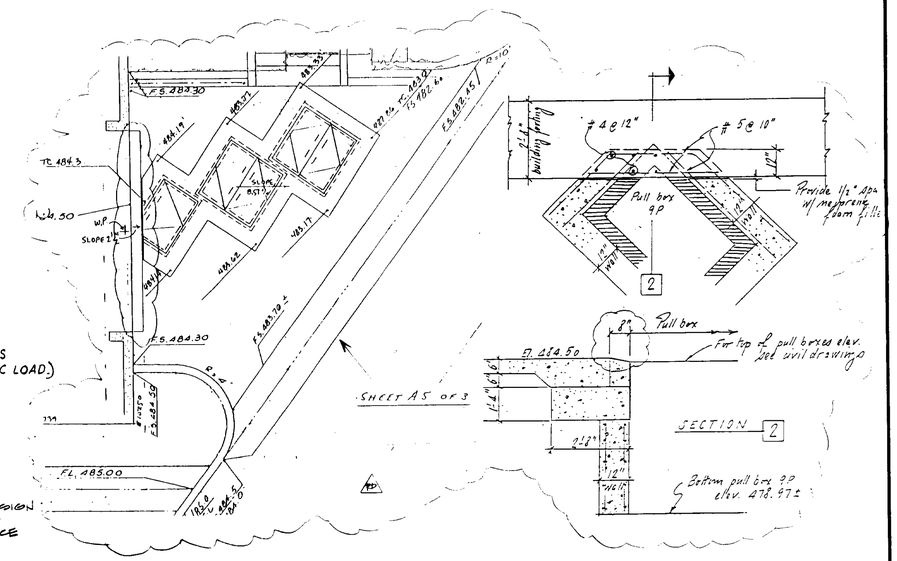
SECTIONAL PLAN — A / GS-1

SCALE 3/8" = 1'-0"

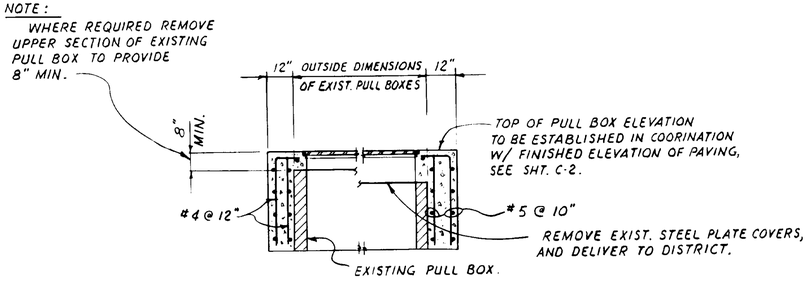


PLAN — B / GS-1

SCALE 3/8" = 1'-0"

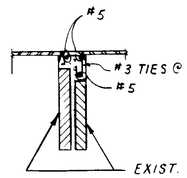


NOTE:
WHERE REQUIRED REMOVE UPPER SECTION OF EXISTING PULL BOX TO PROVIDE 8" MIN.



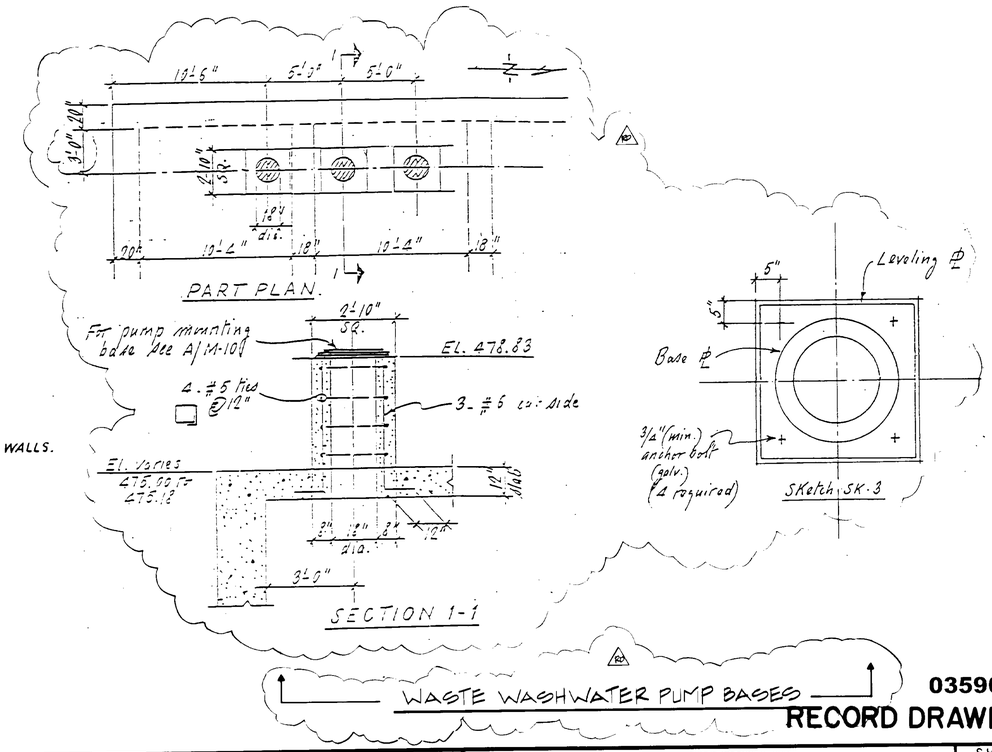
SECTION — 1 / —

SCALE 3/8" = 1'-0"



SECTION — 2 / —

SCALE 3/8" = 1'-0"



03590

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	4/11/84	MPU	RECORD DRAWINGS
	6/6/84	MH	

SCALE: AS NOTED

DESIGNED P. REYMOND
DRAWN T. FLINT
CHECKED P. Reymond

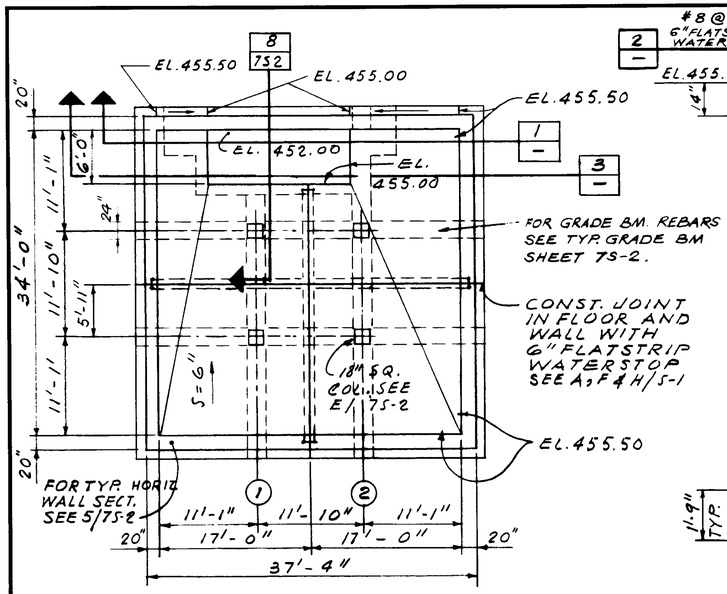
SUBMITTED Robert C. Smith, PROJECT ENGINEER — 27934 R.C.E. NO. — 8/15/81 DATE
RECOMMENDED [illegible] — 27633 R.C.E. NO. — 9/25/81 DATE
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

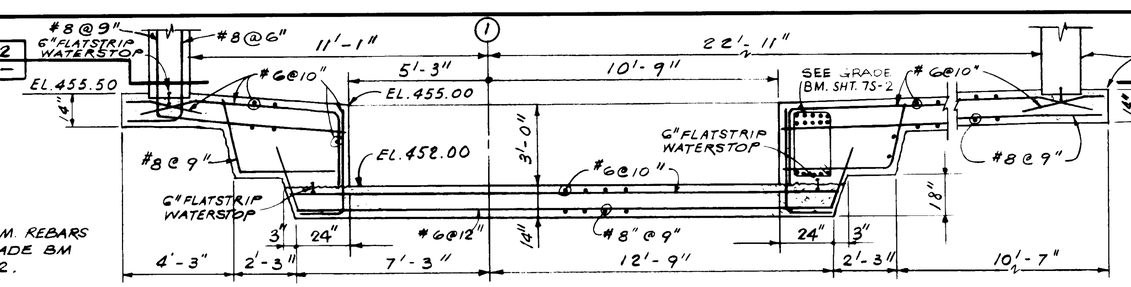
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF - FILTRATION/DISINFECTION ADDITION
PHASE II — MODIFICATION OF EXISTING ELECTRICAL PULL BOXES

SHEET 6S-6 OF 66 SHEETS



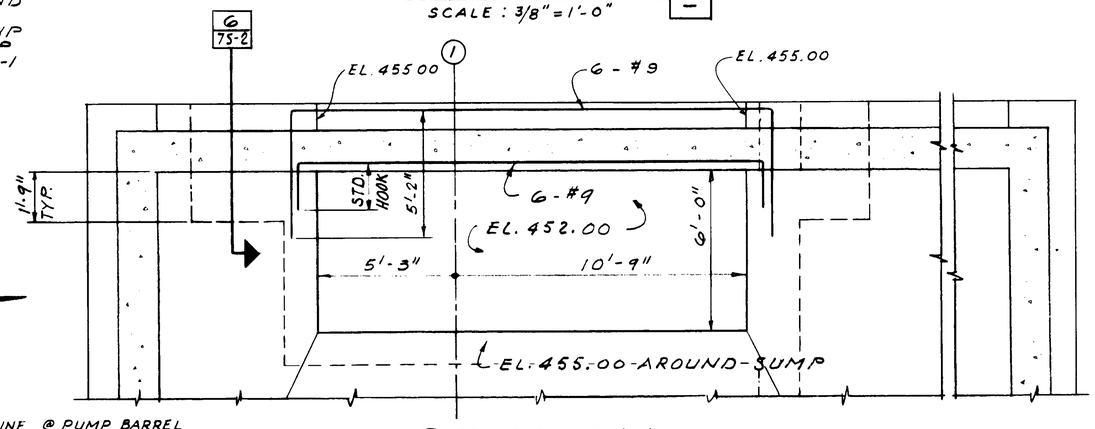
FOUNDATION PLAN

SCALE 1/8" = 1'-0"



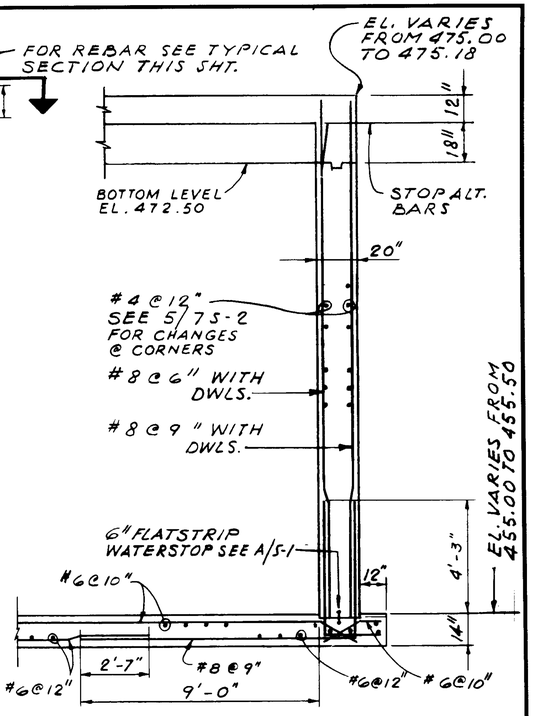
SECTION 1/—

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



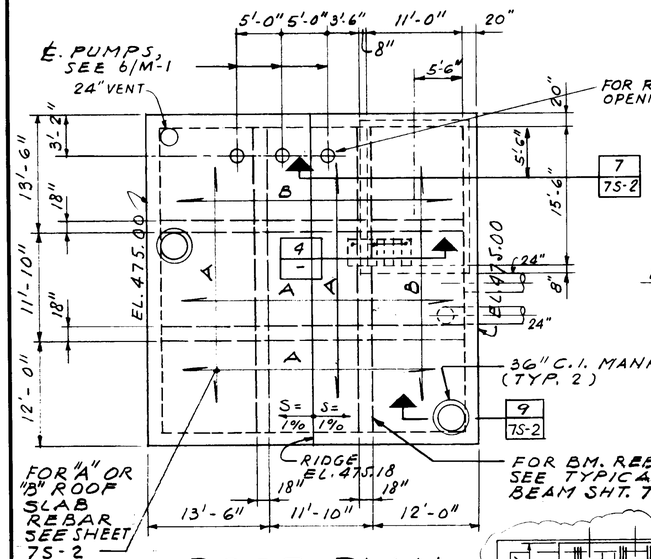
SECTION 2/—

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



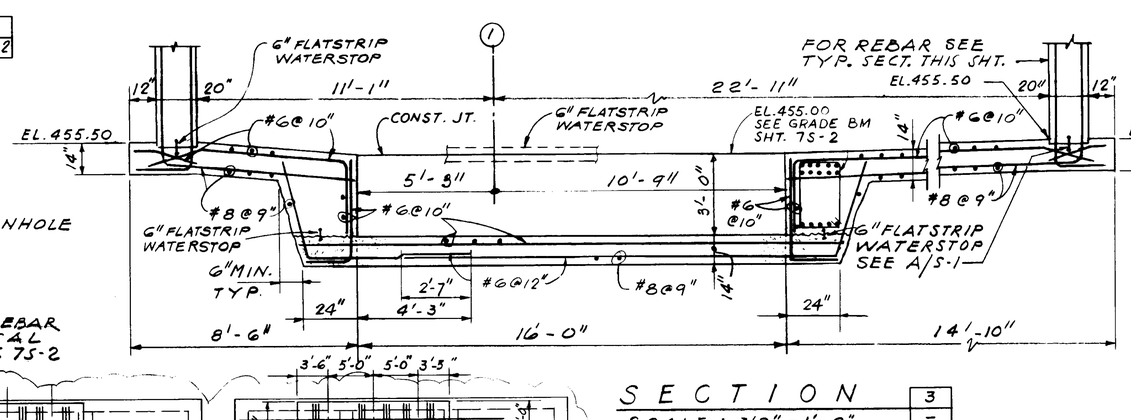
TYPICAL SECTION

SCALE 3/8" = 1'-0"



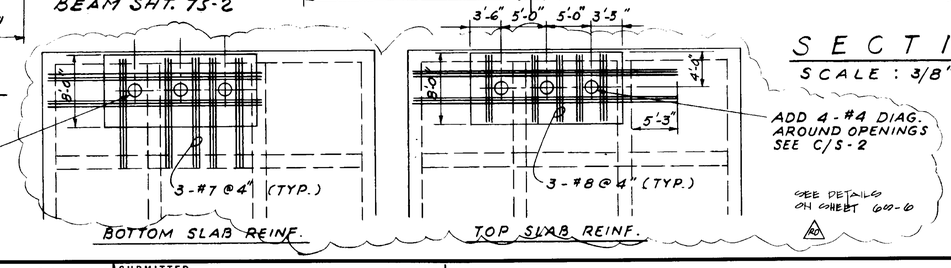
ROOF PLAN

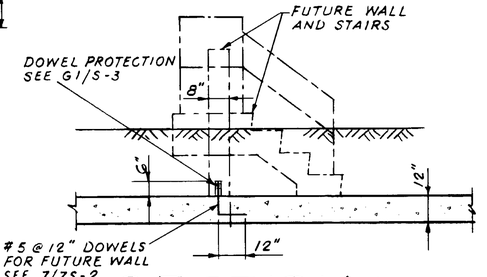
SCALE 1/8" = 1'-0"



SECTION 3/—

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





SECTION 4/—

SCALE 3/8" = 1'-0"

03591

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	WINBA	MDU	RECORD DRAWINGS

SCALE: AS NOTED

DESIGNED P. REYMOND
DRAWN JANSEN
CHECKED P. Reymond

SUBMITTED Robert C Saunders — PROJECT ENGINEER — 27304 R.C.E. NO. — 3/19/81 DATE

RECOMMENDED — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 9/23/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

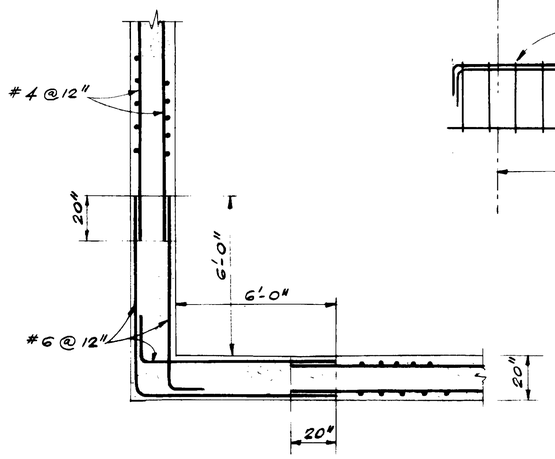
LAS VIRGENES MWD/TRIUNFO CSD

TAPIA WRF — FILTRATION/DISINFECTION ADDITION

PHASE II — WASTE WASHWATER TANK — PLANS AND SECTIONS

SHEET 7S-1 OF 66 SHEETS

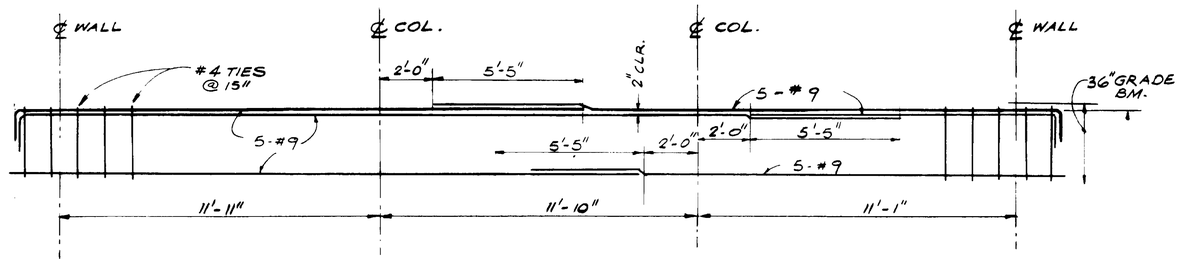
JOB NO. —— FILE —— CC 1978



HORIZ. WALL SECTION

5 / 7S-1

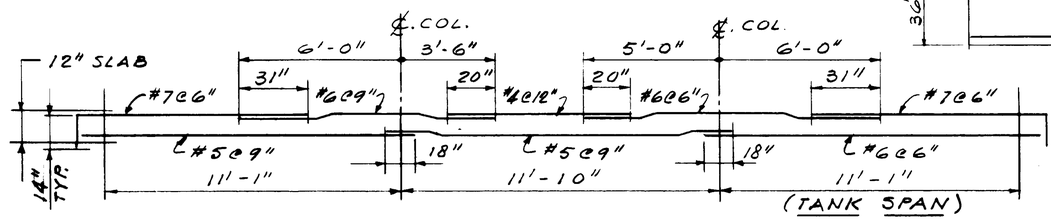
SCALE: 3/8" = 1'-0"



TYPICAL GRADE BEAM

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

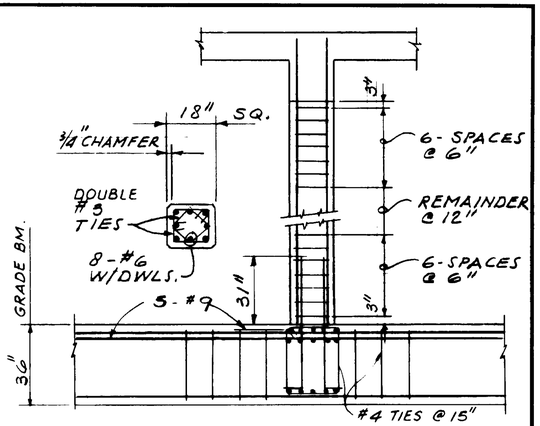
SEE FOUNDATION PLAN SHEET 7S-1



ROOF SLAB STRIP "B"

SCALE 3/8" = 1'-0"

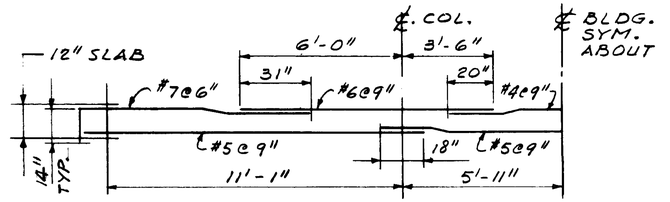
SEE ROOF PLAN SHEET 7S-1



TYP. COLUMN DETAIL

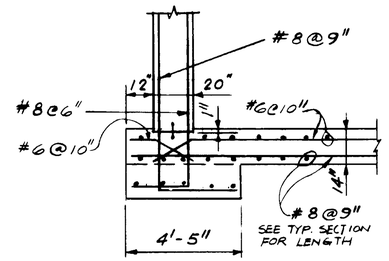
E / 7S-1

SCALE 3/8" = 1'-0"



ROOF SLAB STRIP "A"

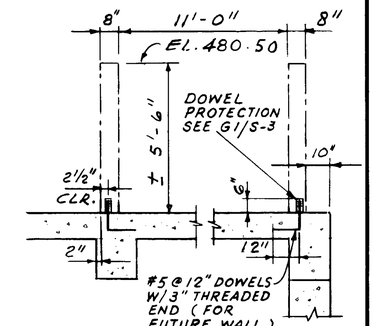
SEE ROOF PLAN SHT. 7S-1 SC. 3/8" = 1'-0"



SECTION

6 / 7S-1

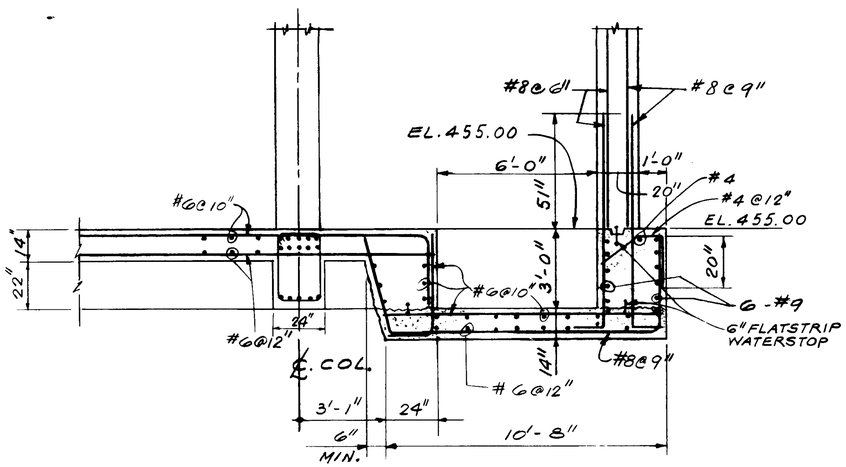
SCALE 3/8" = 1'-0"



SECTION

7 / 7S-1

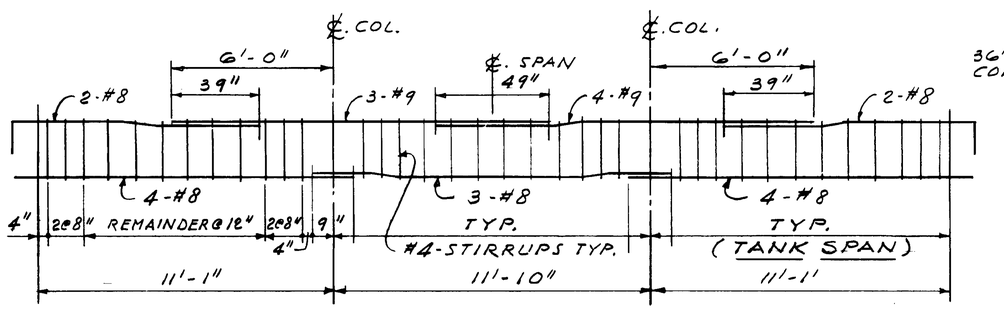
SCALE 3/8" = 1'-0"



SECTION

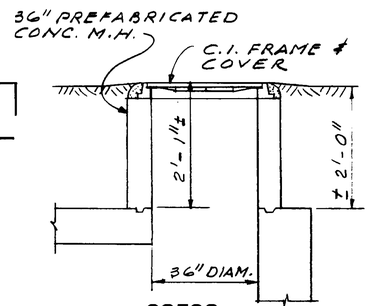
8 / 7S-1

SCALE 3/8" = 1'-0"



TYPICAL BEAM NOTE TANK SPAN!

SCALE 3/8" = 1'-0"



03592

SECTION

9 / 7S-1

SCALE 1/2" = 1'-0"

RECORD DRAWING

REV	DATE	BY	DESCRIPTION

SCALE: AS NOTED

DESIGNED AREYMOND
DRAWN JANSEN
CHECKED Heymond

SUBMITTED Dale C. Sims — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE

RECOMMENDED [illegible] — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

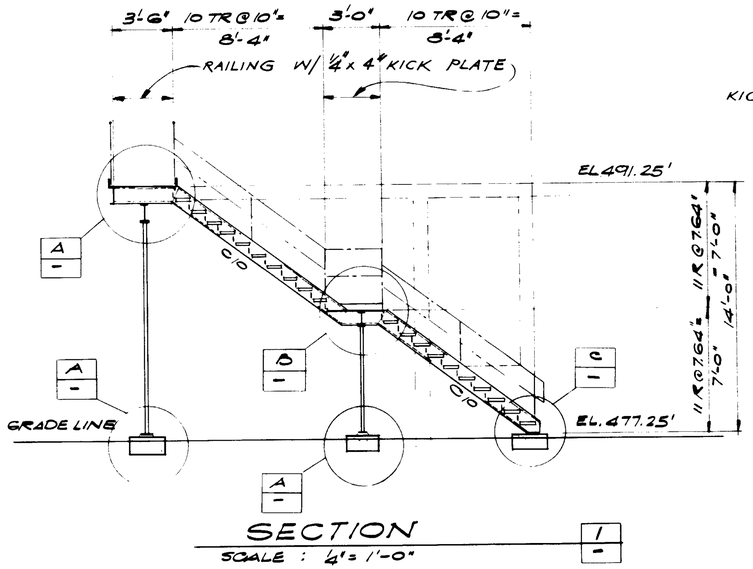
LAS VIRGENES MWD/TRIUNFO CSD

TAPIA WRF — FILTRATION/DISINFECTION ADDITION

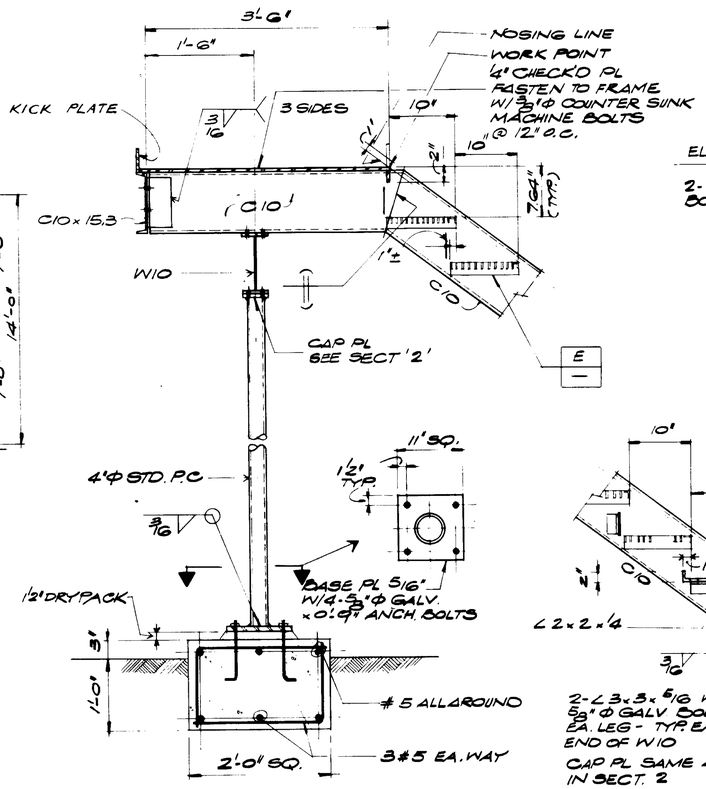
PHASE II — WASTE WASHWATER TANK — SECTIONS AND DETAILS

SHEET 7S-2 OF 66 SHEETS

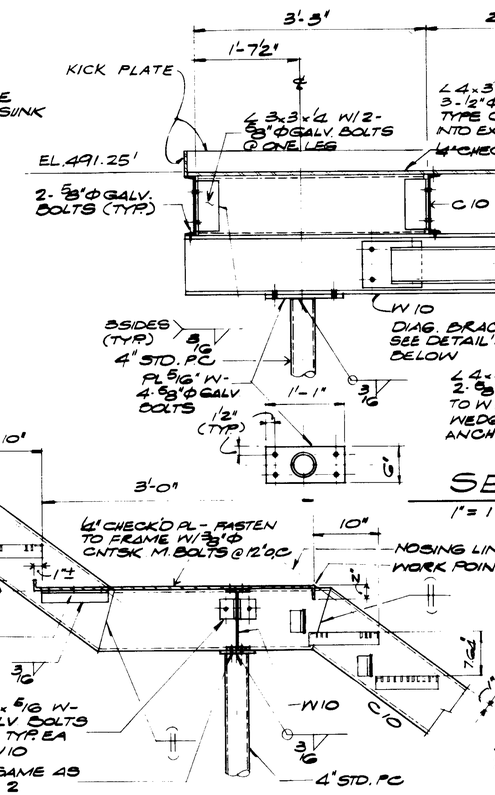
CC 279 FILE JOB NO.



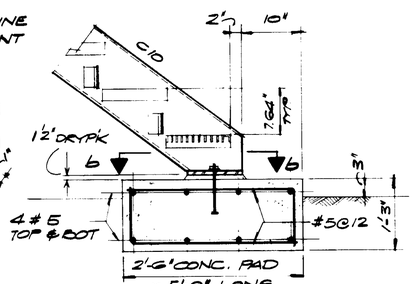
SECTION
SCALE : 1/4" = 1'-0"
1



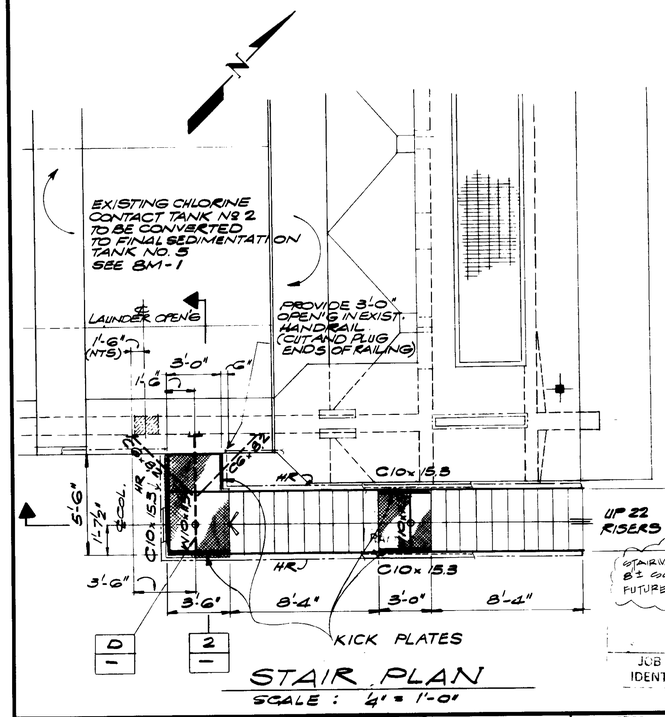
DETAIL
SCALE : 1" = 1'-0"
A



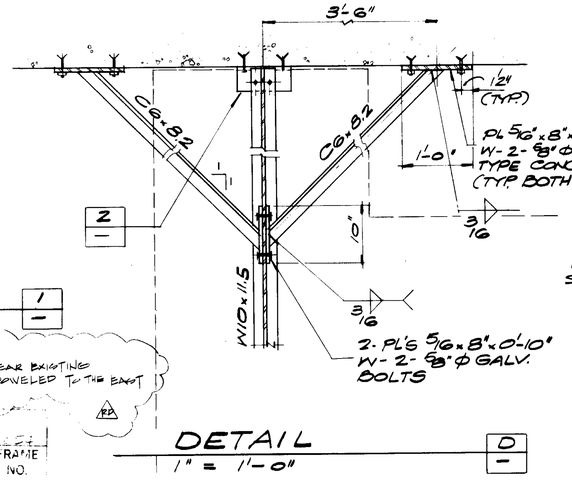
DETAIL
1" = 1'-0"
B



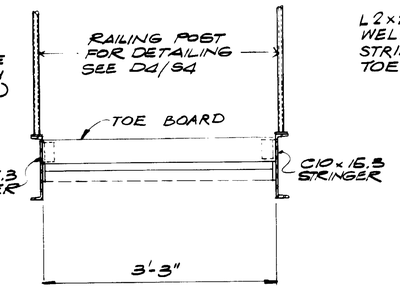
DETAIL
1" = 1'-0"
C



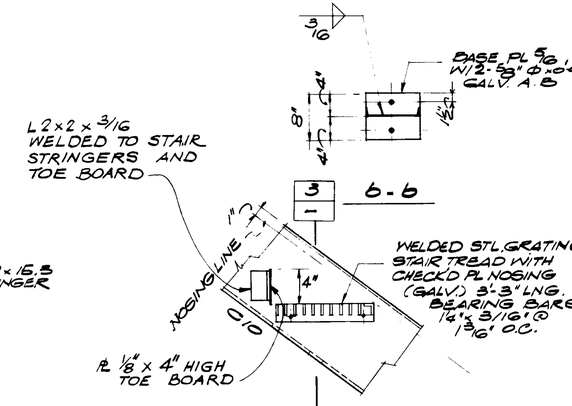
STAIR PLAN
SCALE : 1/4" = 1'-0"
D



DETAIL
1" = 1'-0"
D



SECTION
1" = 1'-0"
3



DETAIL
1 1/2" = 1'-0"
E

03593

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	4/1/84	MDJ	RECORD DRAWINGS

SCALE: AS NOTED

DESIGNED PRETMOND
DRAWN JAMOLINA
CHECKED T Heymond

SUBMITTED Robert Swank PROJECT ENGINEER 27334 R.C.E. NO. 8/19/81 DATE
RECOMMENDED [illegible] JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. 27633 R.C.E. NO. 8/23/81 DATE

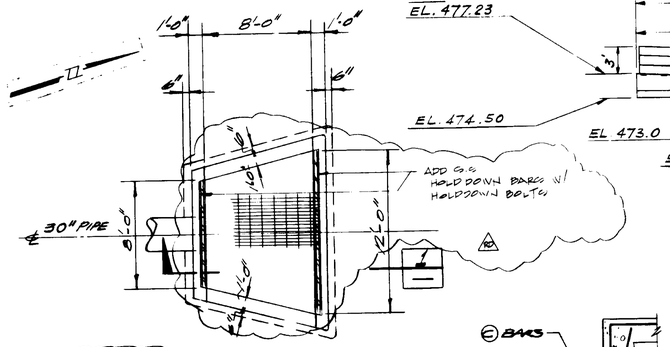
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

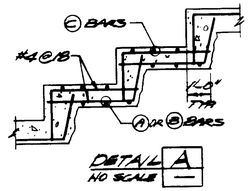
DISTRICT APPROVAL ON TITLE PAGE

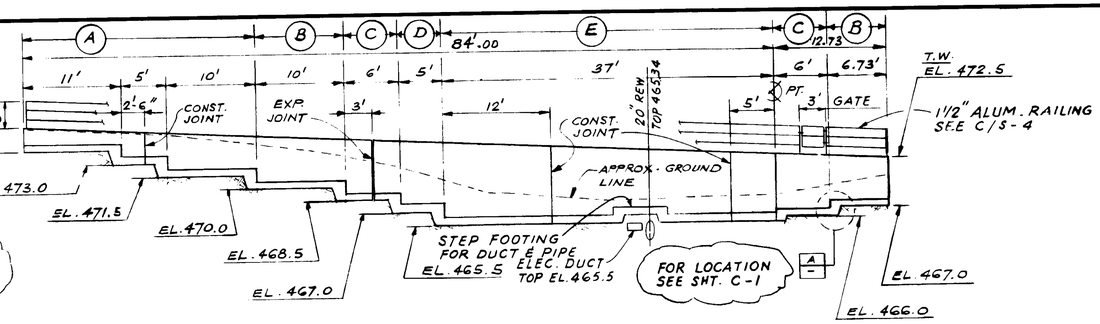
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF - FILTRATION/DISINFECTION ADDITION
ACCESS STAIRS TO EXISTING CHLORINE CONTACT TANK

SHEET 8S-1 OF 66 SHEETS

JOB NO. 870.0060 FILE CC 7/79

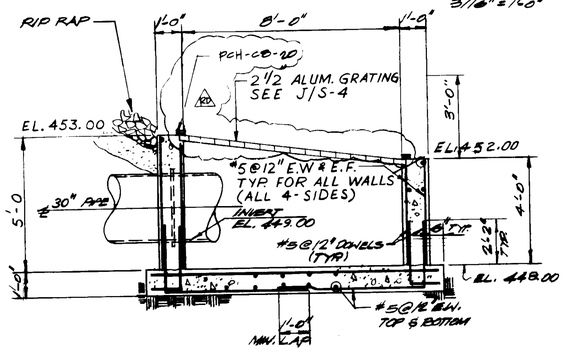




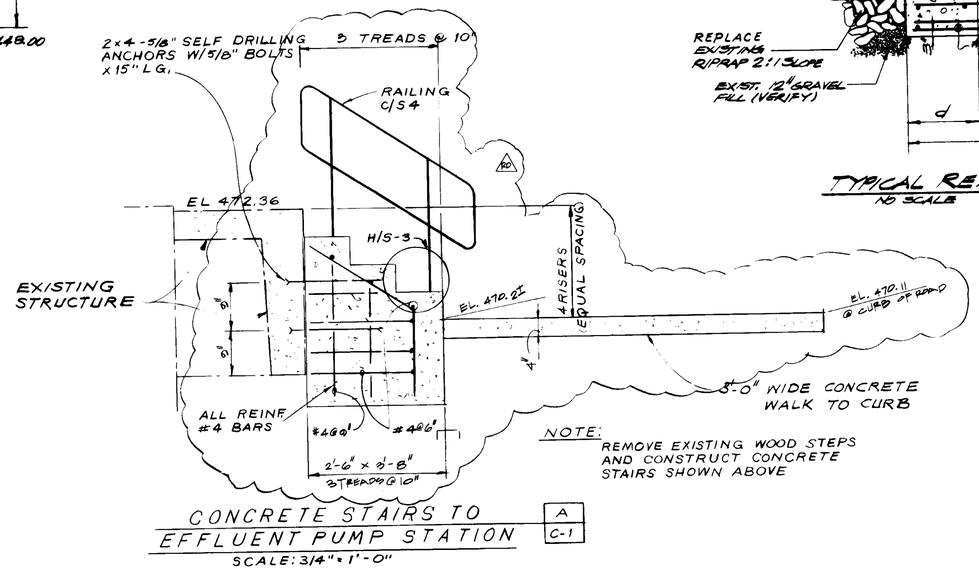


RETAINING WALL ELEVATION
1/8"=1'-0"

PLAN OUTFALL STRUCTURE
3/16"=1'-0"

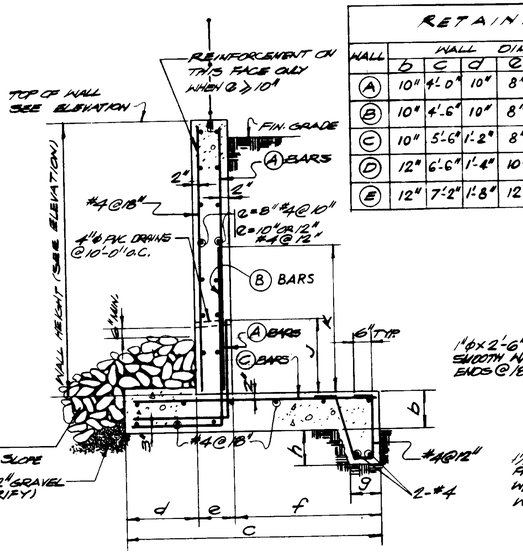


SECT 1
3/8"=1'-0"



CONCRETE STAIRS TO EFFLUENT PUMP STATION
SCALE: 3/4"=1'-0"

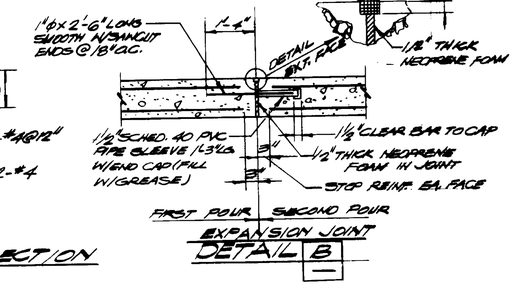
A / C-1



TYPICAL RETAINING WALL SECTION
NO SCALE

RETAINING WALL SCHEDULE

WALL	WALL DIMENSIONS b	c	d	e	f	g	h	WALL REINFORCING (A) BARS	J	(B) BARS	K	(C) BARS
(A)	10"	4'-0"	10"	8"	2'-6"	OMIT	OMIT	#4@12"	20"	OMIT	OMIT	#4@12"
(B)	10"	4'-6"	10"	8"	3'-0"	OMIT	OMIT	#4@12"	20"	OMIT	OMIT	#4@12"
(C)	10"	5'-6"	1'-2"	8"	3'-8"	OMIT	OMIT	#5@12"	26"	OMIT	OMIT	#4@12"
(D)	12"	6'-6"	1'-4"	10"	4'-4"	OMIT	OMIT	#5@18"	20"	#5@18"	3'-0"	#5@12"
(E)	12"	7'-2"	1'-8"	12"	4'-6"	12"	12"	#5@16"	20"	#5@16"	3'-6"	#5@10"



03594

RECORD DRAWING

REV	DATE	BY	DESCRIPTION
RD	4/1/84	MDV	RECORD DRAWINGS

SCALE: AS NOTED

DESIGNED E.HATSON
DRAWN SHOOBY DOOBY
CHECKED Reymond

SUBMITTED Robert C Smith PROJECT ENGINEER — 27304 R.C.E. NO. — 3/19/81 DATE

RECOMMENDED L.H.D.M. JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. JMM
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II — OUTFALL STRUCTURE AND RETAINING WALL DETAILS

SHEET 10S-1 OF 66 SHEETS

JOB NO. 870.0060 FILE CC 279

SYMBOLS

PLAN

- BUS
- EXPOSED CONDUIT
- CONDUIT CONCEALED ABOVE FLOOR.
- CONDUIT RUN UNDERGROUND OR IN CONCRETE
- EXPOSED CONDUIT RUN BEHIND OBSTRUCTION
- BARE COPPER GROUND WIRE IN GROUND OR SLAB, SIZE AS NOTED.
- LA-1/3,7 — HOMERUN TO PANEL "LA", CIRCUITS NO. 1, 3 AND 7. CROSS MARKS ON CONDUIT INDICATE NO. OF NO. 12 WIRES ONLY. 3/4" CONDUIT WITH 5 NO. 12 WIRES SHOWN, CIRCUITS 1 AND 3 WITH COMMON NEUTRAL; CIRCUIT 7 WITH SEPARATE NEUTRAL. CONDUIT RUNS NOT MARKED ARE 3/4" C. WITH 2 NO. 12.
- CONDUIT RUN – CHANGE IN ELEVATION
- CONDUIT BENDS TOWARD OBSERVER
- CONDUIT BENDS AWAY FROM OBSERVER
- GROUND ROD AND GROUND ROD BOX
- GROUND INSERT
- 2a — CEILING OR PENDANT INCANDESCENT, MERCURY VAPOR, OR SIMILAR LAMP FIXTURE. "2" INDICATES CIRCUIT NUMBER. "a" INDICATES FIXTURE CONTROLLED BY SWITCH "a".
- FLEXIBLE LIQUID-TIGHT CONDUIT CONNECTION
- 2M 18 — INDICATES CONDUIT NO. "2M18" IN CONDUIT AND WIRE SCHEDULE. "2M" MOTOR CONTROL CENTER DESIGNATION "18" CIRCUIT NUMBER.
- WALL BRACKET INCANDESCENT, MERCURY VAPOR, OR SIMILAR LAMP FIXTURE WITH EXPOSED BACK BOX AND CONDUIT.
- WALL BRACKET FLOOD OR SPOTLIGHT WITH CONCEALED BACK BOX AND CONDUIT.
- POLE MOUNTED FLOODLIGHT
- STREETLIGHT
- A / 2/40/3 — FIXTURE TYPE A. 2-40 WATT LAMPS 3 - NUMBER OF FIXTURES
- C — CLOCK HANGER RECEPTACLE
- M — MOTOR
- SS — PUSHBUTTON STATION "SS" START-STOP, "LOS" LOCK-OUT-STOP, "SLOS" START-LOCK-OUT-STOP
- J — EQUIPMENT JUNCTION BOX
- J — JUNCTION BOX OR FITTING
- WALL TYPE TEL. OUTLET. M.H.= 4'6" OR AS NOTED.
- FLOOR TYPE TELEPHONE OUTLET
- M — MOTOR OPERATED VALVE
- SOLENOID VALVE
- SOUND OR PAGING SYSTEM DEVICE. # DENOTES NUMBER TO DIFFERENTIATE BETWEEN DIFFERENT DEVICES.
- PUBLIC TELEPHONE SYSTEM DEVICE
- PRIVATE TELEPHONE (ANY TYPE) SYSTEM DEVICE
- OTHER SIGNAL SYSTEMS DEVICE
- LS — LIMIT SWITCH
- FS — FLOAT SWITCH
- PS — PRESSURE SWITCH

- EF — ELECTRODE FITTING WITH ELECTRODES
- LIGHTING PANEL
- POWER PANEL
- MOTOR CONTROL CENTER
- T — TELEPHONE CONDUIT ONLY 1 IN. UNLESS OTHERWISE NOTED.
- FLUORESCENT LIGHTING FIXTURE
- T — THERMOSTAT
- H — HEATER
- HORN
- 1 — INDEX TO NOTE 1. "SEE NOTE 1"
- S_a — SINGLE POLE SWITCH. "a" INDICATES OUTLET CONTROLLED.
- S_2 — DOUBLE POLE SWITCH
- S_3 — THREE-WAY SWITCH
- S_4 — FOUR-WAY SWITCH
- S_K — KEY-OPERATED SWITCH
- S_P — SWITCH AND PILOT LIGHT
- S_{MC} — MOMENTARY CONTACT SWITCH
- S_M — MANUAL MOTOR STARTER

WALL	FLOOR	
⊖	⊡	120 V. SINGLE RECEPTACLE, NEMA CONFIGURATION 5-20.
⊖	⊡	120 V. DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20.
◑	◧	240 V. DUPLEX RECEPTACLE, NEMA CONFIGURATION 6-20.
⊖	⊡	COMBINATION DUPLEX RECEPTACLE, NEMA CONFIGURATIONS 5-20 AND L5-20.
⊘	⊠	SINGLE SPECIAL-PURPOSE RECEPTACLE, ASTERISK INDICATES NUMBER, SUCH AS AMPERAGE, TO DIFFERENTIATE BETWEEN TWO OR MORE DIFFERENT TYPES. 120 OR 240 V.A.C.
⊗		SINGLE SPECIAL PURPOSE RECEPTACLE 480 V.A.C.

DIAGRAM

- II — ACROSS-THE-LINE, NON REVERSING NEMA SIZE 2 MAGNETIC STARTER
- IV PW — NEMA SIZE 4 MAGNETIC STARTER: PW - PART WINDING, YD-WYE DELTA, R-REVERSING
- IV RV — NEMA SIZE 4 MAGNETIC STARTER: RV - REDUCED VOLTAGE AUTOTRANSFORMER
- 50A. — MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED: 50A.-TRIP RATING IN AMPERES NA - NON-AUTOMATIC
- TRANSFORMER, DETAILS AS NOTED WITH GROUNDED SECONDARY
- * — CONTROL RELAY OR COIL
  - 1T2 PUMP NO. 1, TIME DELAY RELAY NO. 2
  - 2R1 PUMP NO. 2, GENERAL PURPOSE RELAY NO. 1
  - CR1 CONTROL RELAY IN STARTER NO. 1
  - M1 STARTER NO. MAIN COIL
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- NORMALLY OPEN LIMIT SWITCH (SPECIFY WHEN CLOSED)
- NORMALLY CLOSED LIMIT SWITCH (SPECIFY WHEN OPEN)
- FLOAT TYPE LIQUID LEVEL SWITCH, CLOSING ON RISING LEVEL.
- FLOAT TYPE LIQUID LEVEL SWITCH, OPENING ON RISING LEVEL
- VACUUM OR PRESSURE SWITCH, CLOSING ON RISING PRESSURE
- VACUUM OR PRESSURE SWITCH, OPENING ON RISING PRESSURE
- TEMPERATURE ACTUATED SWITCH; CLOSING ON RISING TEMPERATURE
- TEMPERATURE ACTUATED SWITCH; OPENING ON RISING TEMPERATURE
- FLOW SWITCH (AIR, WATER, ETC.); CLOSING ON FLOW INCREASE
- FLOW SWITCH (AIR, WATER, ETC.); OPENING ON FLOW INCREASE
- NORMALLY OPEN PUSHBUTTON, MOMENTARY CLOSE
- NORMALLY CLOSED PUSHBUTTON, MOMENTARY OPEN
- MANUAL MOTOR STARTER WITH OVERLOAD PROTECTION.
- FUSE
- RES — RESISTOR (FIXED)
- RESISTOR (CONTINUOUSLY ADJUSTABLE)
- R — PUSH-TO-TEST INDICATING LIGHT
- R — INDICATING LIGHT: R-RED, G-GREEN, A-AMBER
- ET — ELAPSED TIMER
- L / R — TWO-POSITION SELECTOR SWITCH: H-HAND, M-MANUAL, R-REMOTE, L-LOCAL, A-AUTOMATIC, O-OFF
- H / O / A — THREE-POSITION SELECTOR SWITCH: (SAME AS ABOVE)
- SINGLE POLE TOGGLE SWITCH ("ON-OFF," ETC.)
- THREE-POSITION SPRING RETURN-TO-CENTER MOMENTARY CONTACT SWITCH ("LATCH-UNLATCH," "ON-OFF," ETC.)
- HEATER

- T.C. — CONTACT-TIME DELAY
  - T.C.: NORMALLY OPEN WITH TIME DELAY CLOSING
  - I.C. – T.O.: NORMALLY OPEN WITH INSTANT CLOSING AND TIME DELAY OPENING
  - T.C. – T.O.: NORMALLY OPEN WITH TIME DELAY CLOSING AND TIME DELAY OPENING AFTER DEENERGIZATION
- T.O. — CONTACT-TIME DELAY
  - T.O.: NORMALLY CLOSED WITH TIME DELAY OPENING
  - T.O.-T.C.: NORMALLY CLOSED WITH TIME DELAY OPENING AND TIME DELAY CLOSING AFTER DEENERGIZATION
  - I.O.-T.C.: NORMALLY CLOSED WITH INSTANT OPENING AND TIME DELAY CLOSING

- CROSSING OF CONDUCTORS - NOT CONNECTED
- CONNECTION OF CONDUCTORS, FITTING AS REQUIRED.
- RESET PUSHBUTTON
- HOA — SELECTOR SWITCH

ABBREVIATIONS

AA	ALARM ANNUNCIATOR
A/C	AIR-CONDITIONING
AF	AMPERE FRAME SIZE OF CKT. BKRS.
AMP	AMPERES, AMPERAGE
APPR.	APPROVED
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BKR	BREAKER
BBL	BUBBLER
CAB	CABINET
CHLOR.	CHLORINE, CHLORINATION
CKT	CIRCUIT
CO	CONDUIT ONLY
COND	CONDUIT
COMPT	COMPARTMENT
COMPR	COMPRESSOR
CPT	CONTROL POWER TRANSFORMER (IN INDIVIDUAL STARTER CUBICLE)
CR	CONTROL RELAY (MAGNETICALLY HELD)
CT	CURRENT TRANSFORMER
CU	COPPER
DISC	DISCONNECT
DISTR	DISTRIBUTION
DWG	DRAWING
ELEV	ELEVATION
EMERG	EMERGENCY
ENCL	ENCLOSURE
EQPT	EQUIPMENT
EXH	EXHAUST
EXIST	EXISTING
FDR.	FEEDER
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FUT	FUTURE
GALV	GALVANIZED
GEN	GENERATOR
GRD	GROUND
HH	HAND HOLE
HOA	HAND-OFF-AUTOMATIC
HTR	HEATER
HLL	HIGH LIQUID LEVEL SWITCH
HZ	HERTZ
INCAND	INCANDESCENT
IND	INDICATION (SYSTEM)
INSTR	INSTRUMENT
Isc	SHORT CIRCUIT CURRENT, AMPS
J. BOX	JUNCTION BOX
LOC	LOCAL
LOS	PUSHBUTTON W/ "LOCK-OUT-STOP"
LS	LIMIT SWITCH
LT, LTS	LIGHT, LIGHTS
LTG	LIGHTING
LTNG	LIGHTNING
MA	MILLIAMPS
MAN	MANUAL
MAG	MAGNETIC
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCB	MAIN CONTROL BOARD
MCM	THOUSAND CIRCULAR MILS
MFM	MAGNETIC FLOW METER
MH	MANHOLE
MIN	MINUTES, MINIMUM
MOV	MOTOR OPERATED VALVE
MS	MANUAL MOTOR STARTER
MT, MTD	MOUNT, MOUNTED
NA	NON-AUTOMATIC
NO, NOS	NUMBER, NUMBERS
NP	NAMEPLATE
NIC	NOT IN CONTRACT
NITS	NOT IN THIS SECTION
NTS	NOT TO SCALE
OC	ON CENTER
CC	CENTER TO CENTER
OL	OVERLOAD RELAY
PB	PUSHBUTTON
PNL	PANEL
PNLBD	PANELBOARD
POS	POSITION
POT	POTENTIOMETER
PRI	PRIMARY
PS	PRESSURE SWITCH
PVC	POLYVINYL CHLORIDE
PW	PART WINDING
PWR	POWER
REC	RECEPTACLE
RECPTS	RECEPTACLES
REQ'D	REQUIRED
RM	RUN CONTACTOR COIL
SA	STATUS ANNUNCIATOR
SCH	SCHEDULE
SEC	SECONDS, SECONDARY
SECT	SECTION
SEL SW	SELECTOR SWITCH
SEQ	SEQUENCE
SHLD	SHIELDED
SHT	SHEET
SIG	SIGNAL
SM	START CONTACTOR COIL
SPECS	SPECIFICATIONS
SP HTR	SPACE HEATER
ST	SHUNT TRIP
STA	STATION
STD	STANDARD
STL	STEEL
STR	STARTER
SV	SOLENOID VALVE
SW	SWITCH
SYS	SYSTEM
TACH	TACHOMETER
TEMP	TEMPERATURE
TERM	TERMINAL
THERM	THERMOSTAT
TR	TIME DELAY RELAY
TS	TIME SWITCH
TYP	TYPICAL
UG	UNDERGROUND
VP	VAPORPROOF
VS	VARIABLE SPEED
W	WATTS, WIRE
WP	WEATHERPROOF
XFMR	TRANSFORMER
XMTR	TRANSMITTER
XP	EXPLOSION-PROOF

03595

RECORD DRAWING

Norbert Schneider REE 6373

NO. FRAME

870.0070

REV	DATE	BY	DESCRIPTION

SCALE: NONE

DESIGNED D. BAUTISTA
DRAWN D. BARBIER
CHECKED N. SCHNEIDER

SUBMITTED Robert C. Schneider PROJECT ENGINEER 27304 R.C.E. NO. 8/19/81 DATE

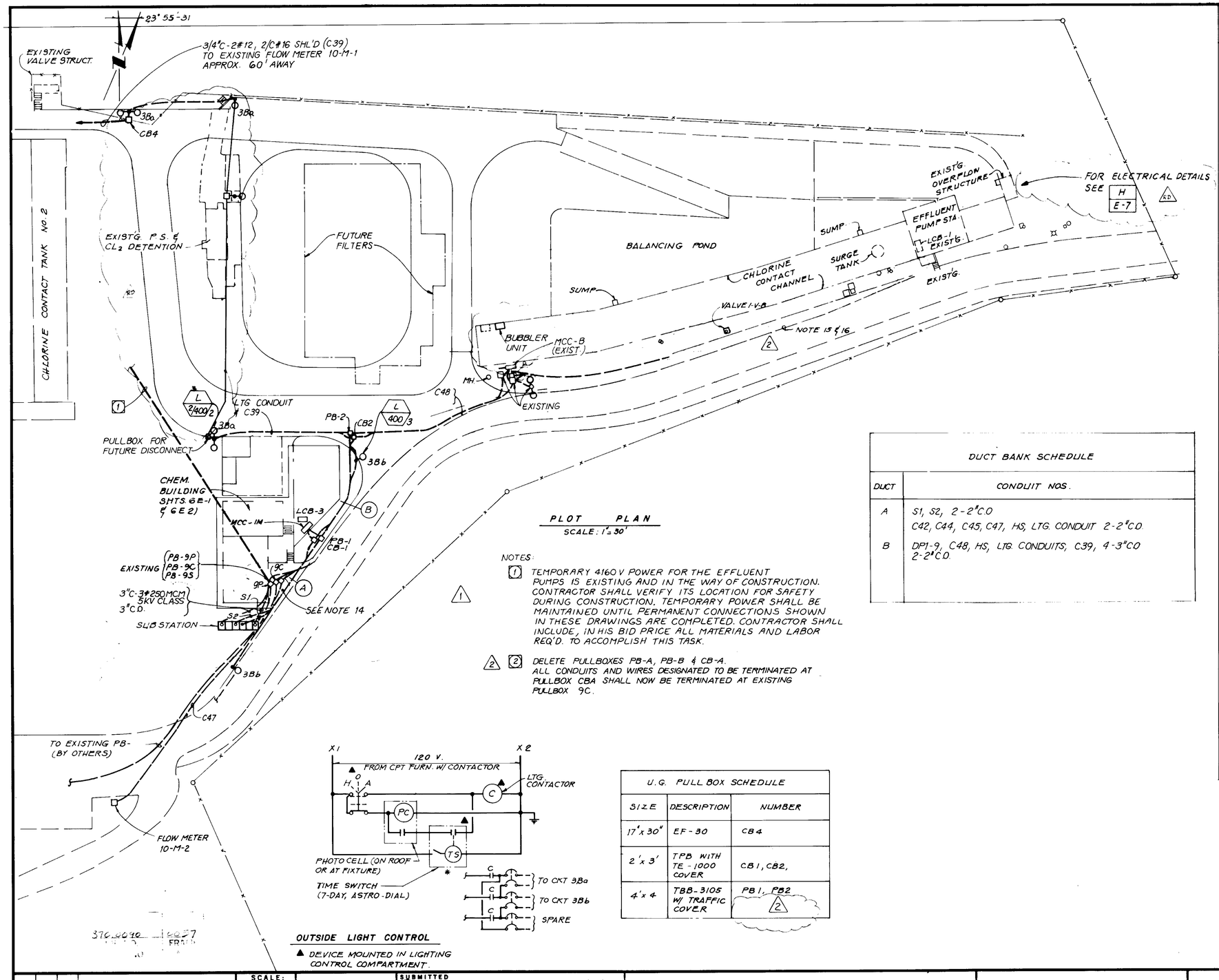
RECOMMENDED [illegible] JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. 27638 R.C.E. NO. 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
ELECTRICAL SYMBOLS AND ABBREVIATIONS

SHEET E-1 OF 66 SHEETS



PLOT PLAN
SCALE: 1"=30'

NOTES:

1. TEMPORARY 4160 V POWER FOR THE EFFLUENT PUMPS IS EXISTING AND IN THE WAY OF CONSTRUCTION. CONTRACTOR SHALL VERIFY ITS LOCATION FOR SAFETY DURING CONSTRUCTION. TEMPORARY POWER SHALL BE MAINTAINED UNTIL PERMANENT CONNECTIONS SHOWN IN THESE DRAWINGS ARE COMPLETED. CONTRACTOR SHALL INCLUDE, IN HIS BID PRICE ALL MATERIALS AND LABOR REQ'D. TO ACCOMPLISH THIS TASK.

2 (2) DELETE PULLBOXES PB-A, PB-B & CB-A. ALL CONDUITS AND WIRES DESIGNATED TO BE TERMINATED AT PULLBOX CBA SHALL NOW BE TERMINATED AT EXISTING PULLBOX 9C.

OUTSIDE LIGHT CONTROL

▲ DEVICE MOUNTED IN LIGHTING CONTROL COMPARTMENT.

DUCT BANK SCHEDULE

DUCT	CONDUIT NOS.
A	S1, S2, 2-2"C.O C42, C44, C45, C47, HS, LTG. CONDUIT 2-2"C.O.
B	DP1-9, C48, HS, LTG. CONDUITS, C39, 4-3"C.O 2-2"C.O.

U.G. PULL BOX SCHEDULE

SIZE	DESCRIPTION	NUMBER
17"x 30"	EF-30	CB4
2'x 3'	TPB WITH TE-1000 COVER	CB1, CB2,
4'x 4	TBB-3105 W/ TRAFFIC COVER	PB1, PB2 2

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF TERMINAL BOXES AND CONDUIT ENTRANCES OF ALL EQUIPMENT AGAINST SHOP DRAWINGS BEFORE STUBBING UP CONDUITS.
2. CONDUIT RUNS FOR FUTURE EQUIPMENT OR EXTENSION SHALL BE TERMINATED AS SHOWN IN DETAIL 'G' ON SHEET E-7 UNLESS OTHERWISE NOTED ON PLANS. 2
3. CONNECTION BETWEEN RIGID CONDUIT AND MOTOR TERMINAL BOX SHALL BE LIQUID-TIGHT.
4. EXPOSED FLEXIBLE CONNECTION SHALL BE FLEXIBLE LIQUID-TIGHT CONDUIT WITH APPROVED GROUNDING TYPE FITTINGS AND SHALL NOT EXCEED 30" IN LENGTH FOR 2" SIZE AND LARGER. MAX. OF 18" FOR SIZES 1 1/2" AND SMALLER.
5. CONDUIT STUB-UPS SHALL NOT BE MORE THAN 6" FROM CENTER LINES OF TERMINAL BOXES.
6. CONDUITS TERMINATING AT MOTOR CONTROL CENTERS, CONTROL CABINETS, ETC., SHALL BE EQUIPPED WITH A GROUNDING BUSHING 'OZ' TYPE GB AND GROUNDED AS A BANK WITH NO.6 GROUND WIRE.
7. MOTOR CONTROL CENTERS AND ALL FREE STANDING PANELS SHALL BE SET ON CONCRETE PAD AND LEVELING CHANNELS EMBEDDED IN PAD AS SHOWN UNLESS OTHERWISE INDICATED.
8. IN CASE OF ANY INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING AND THE ENGINEER SHALL REVIEW THE PROPOSED CHANGES BEFORE THEY ARE MADE.
9. ALL OUTDOOR DEVICES SHALL BE WEATHERPROOF.
10. ALL RECEPTACLES SHALL BE MOUNTED 12" ABOVE FLOOR SURFACE UNLESS OTHERWISE INDICATED.
11. WIRES OR CABLES SHOWN FOR FUTURE EQUIPMENT SHALL BE INSTALLED WHEREVER SUCH WIRES OR CABLES ARE SHOWN TOGETHER WITH OTHER WIRES OR CABLES AS MARKED ON PLANS.
12. ONLY MAJOR PULLBOXES FOR UNDERGROUND RUNS ARE SHOWN. CONTRACTOR SHALL PROVIDE ADDITIONAL PULLBOXES WHERE THEY ARE REQUIRED TO MAKE A WORKABLE INSTALLATION.
13. 2
14. PROVIDE AND INSTALL ADDITIONAL 5 KV CABLE FROM EXISTING PULLBOX 9P TO EXISTING EFFLUENT PUMP STATION. UTILIZE EXISTING 4" CONDUIT. SEE SINGLE LINE DIAGRAM ON SHEET E-3 4A
15. PROVIDE AND INSTALL 4#12 WIRES FROM LCB-1 AT EFFLUENT PUMP STATION TO EXISTING PULLBOX PB-9S, USING ONE EXISTING U.G. 2" CONDUIT.
16. PROVIDE AND INSTALL 15 - 3/C #16 SHIELD CONDUCTORS FROM LCB-1 TO PB-9S USING ANOTHER EXISTING U.G. 2" CONDUIT.
17. ALL OUTDOOR RECEPTACLES SHALL BE PROVIDED WITH GROUND FAULT INTERRUPTER.
18. GROUND SURFACE SHALL DRAIN AWAY FROM PULLBOX

03596

RECORD DRAWING

REE 6373

REV	DATE	BY	DESCRIPTION
RD	4-11-84	MDU	RECORD DRAWINGS
2	3-1-88	M.S.	CHANGE ORDER
1	9-28-81	M.S.	ADDENDUM 2

SCALE: AS NOTED

DESIGNED M. SANTOS
DRAWN R.S.
CHECKED H. RODRIGUEZ

SUBMITTED
PROJECT ENGINEER — R.C.E. NO. 27304 — DATE 9/19/81

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — R.C.E. NO. 27638 — DATE 9/22/81

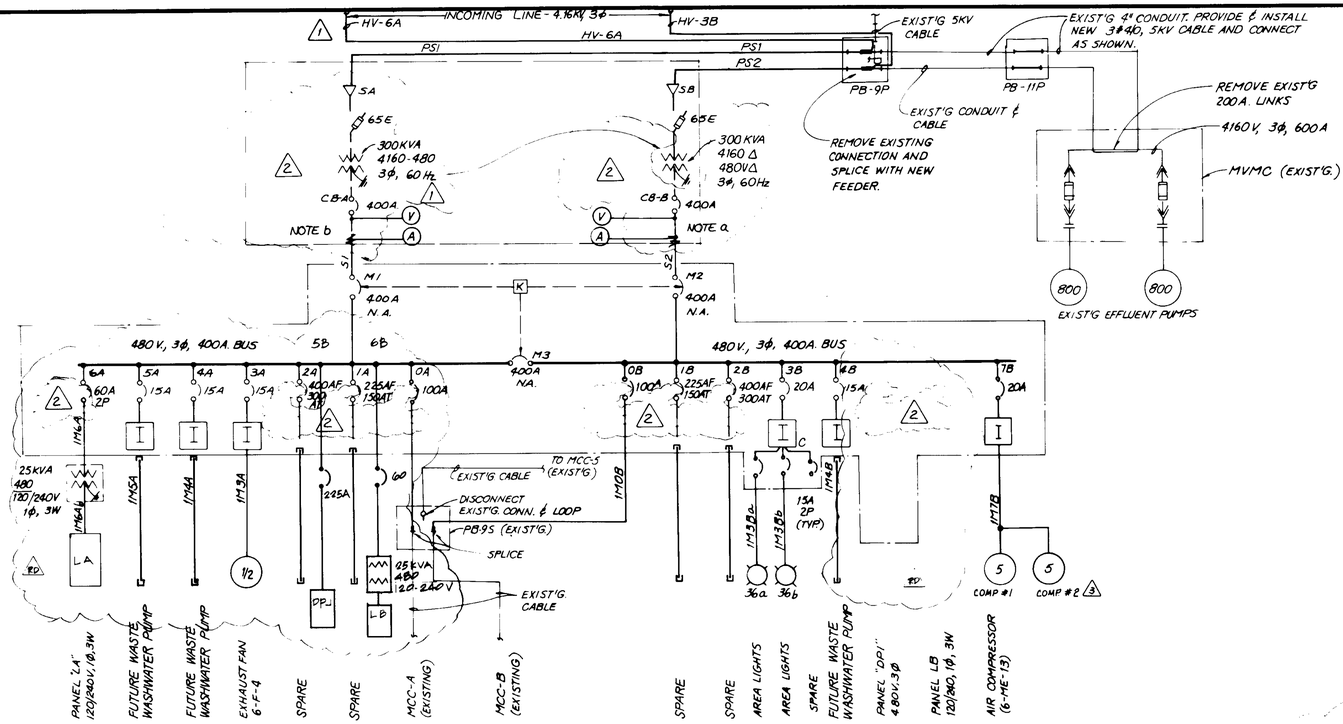
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

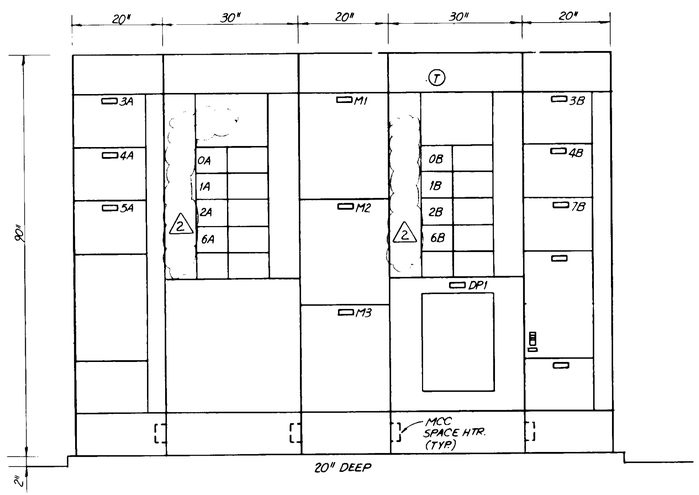
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
PLOT PLAN

SHEET E-2 OF 66 SHEETS

JOB NO. 870.0070 FILE CC 378



MCC – IM



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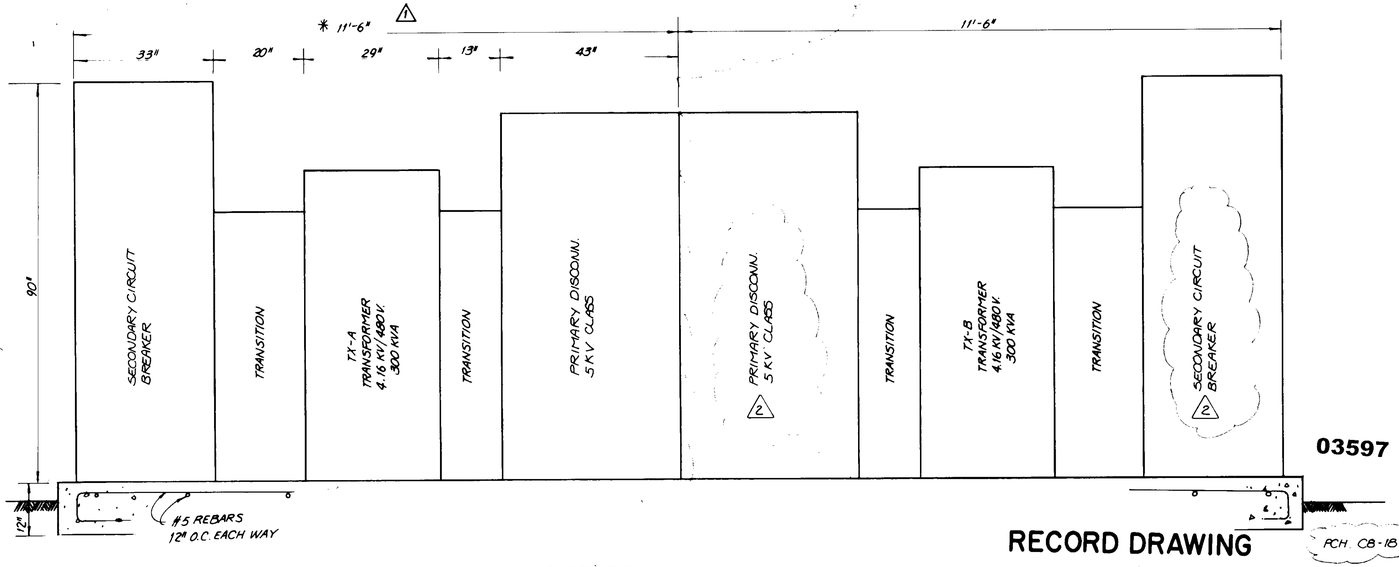
EXISTING 300KVA SUBSTATION TO BE REUSED.

2 * PHYSICAL DIMENSIONS SHALL BE VERIFIED W/EXIST'G. SUBSTATION.



SUBSTATION

1 NOTE: DELETE PULLBOXES PB-A & PB-B. SPLICE 5KV CABLE IN PULLBOX PB-9P. DELETE ONE 300KVA TRANSFORMER TOGETHER WITH PRIMARY AND SECONDARY DISCONNECT AND IN PLACE OF IT INSTALL ONE EXISTING 300 KVA TRANSFORMER TOGETHER WITH EXISTING DISCONNECTS. CONTRACTOR SHALL INSPECT THIS EXISTING 300KVA TRANSFORMER NOW ON SITE AND EXAMINE PRIMARY AND SECONDARY CONDUCTOR TERMINATIONS. CONTRACTOR SHALL PROVIDE ALL NECESSARY ACCESSORIES AND COMPONENTS TO MAKE INSTALLATION COMPLETE.

2

a. FURNISH AND INSTALL MOLDED CASE CIRCUIT BREAKER WITH SOLID STATE TRIP UNITS INSTEAD OF AIR CIRCUIT BREAKER AS DESCRIBED IN SPECS.

b. DELETE ALL GROUND FAULT PROTECTION IN FAVOR OF GROUND - FAULT ALARM

03597

RECORD DRAWING

PCH. 08-18

Norbert Schneider REE 6373

REV	DATE	BY	DESCRIPTION
4	3/30/89	MDU	AS-BUILT REVISION - ADDED COMP. # 2
RD	4/1/84	MDU	RECORD DRAWINGS
2	8-6-82	M.S.	PCH # 18
1	3-1-82	M.S.	CHANGE ORDER

SCALE: NONE

DESIGNED M. SANTOS
DRAWN M. LASLEY
CHECKED H. RODRIGUEZ

SUBMITTED PROJECT ENGINEER — 27304 R.C.E. NO. — 8/10/81 DATE

RECOMMENDED JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 3/23/81 DATE

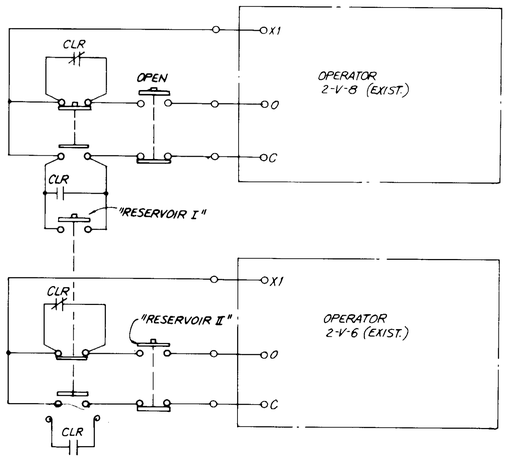
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

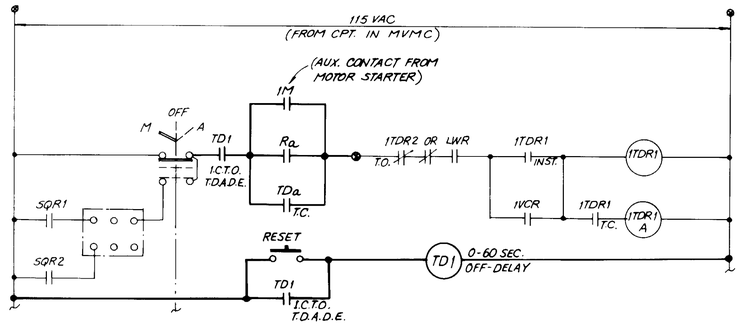
DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
SINGLE LINE DIAGRAM AND EQUIPMENT ELEVATIONS

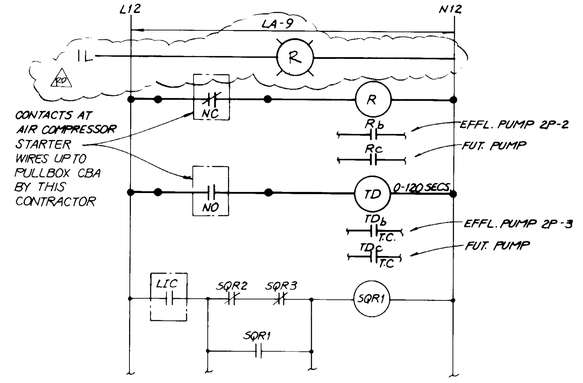
SHEET E-3 OF 66 SHEETS

JOB NO. 870.0070 FILE — CC 379





STARTER CONTROL (3 REQ'D.)
ADDITION OF INTERLOCK W/AIR COMPRESSOR



EFFLUENT PUMP CONTROL MODIFICATION

* ALL COMPONENTS SHOWN IN HEAVY LINES SHALL BE PROVIDED AND INSTALLED BY THIS CONTRACTOR INCLUDING ADDITIONAL AUXILIARY CONTACT AT EXIST. MOTOR STARTERS. COMPONENTS SHOWN IN LIGHT LINES ARE EXISTING.

03598

RECORD DRAWING

Norbert Schneider REE 6373

JOB NO. 870.6070 FILE _____ CC 239

JOB NO. 870.6070 ITEM 1653

REV	DATE	BY	DESCRIPTION
1	3/11/82	MS.	CHANGE ORDER
RD	4/1/82	MDU	RECORD DRAWINGS

SCALE: AS NOTED

DESIGNED M. SANTOS, D. BARBIER
DRAWN M. LASLEY
CHECKED H. RODRIGUEZ

SUBMITTED Richard C. Siemak PROJECT ENGINEER 27304 R.C.E. NO. 8/19/81 DATE

RECOMMENDED James M. Montgomery JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. 27638 R.C.E. NO. 8/23/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
SCHEMATIC DIAGRAMS

SHEET E-4 OF 66 SHEETS

CABLE NO.	CONDUCTORS	CONDUIT NO.	CONDUIT SIZE	FUNCTION	FROM	TO	ROUTE	REMARKS
PS1 ⚠1	3 # 250 MCM	PS1	3"	POWER	SUBSTATION	PB-9P (EXIST.)		5KV CLASS, SHIELDED
PS2	3 # 250 MCM	PS2	3"	POWER	SUBSTATION	PB-9P (EXIST.)		
S1a	3 # 250 MCM	S1a	3"	POWER FEEDER TO MCC-1M	SUBSTATION (300 KVA)	MCC-1M		> PARALLEL FDR'S. (S1)
S1b	3 # 250 MCM	S1b	3"					
S2a	3 # 250 MCM	S2a	3"					> PARALLEL FDR'S. (S2)
S2b	3 # 250 MCM	S2b	3"					
1M1A	3# 2/0	1M1A	3"	MCC-2M	MCC-1M	MCC-2M		
1M2A	3# 350 MCM	1M2A	3"	MCC-3M	MCC-1M	MCC-3M		
1M0A	3 #1	1M0A	1½"	POWER	MCC-1M	PULL BOX PB 9S (EXIST.)		
1M0B	3 #1	1M0B	1½"	POWER	MCC-1M	PULL BOX PB 9S		
1M1B	3# 2/0	1M1B	3"	POWER	MCC-1M	MCC-2M		
1M2B	3# 350 MCM	1M2B	3"	POWER	MCC-1M	MCC-3M		
1M3BA		⚠4		-SH-NE				
1M6Ab	3 # 1/0	1M6Ab	2"	120/240V POWER	25 KVA TRANSFORMER	PANEL LA		
1M6Bb	3 # 1/0	1M6Bb	2"	120/240V POWER	25 KVA TRANSFORMER	PANEL LB		
2M1A	3#8	2M1A	1"	POWER	MCC-2M	FILT. BW. PUMP 1P-4	⚠	
2M2A	3#8	2M2A	1"	POWER	MCC-2M	FILT. BW. PUMP 1P-3		
2M1B	3#8	2M1B	1"	POWER	MCC-2M	FILT. BW. PUMP 1P-5		
3M1A	3#2	3M1A	1½"	POWER	MCC-3M	FILT. INFL. PUMP 5P-1		
3M3A	3#8, 8#14	3M3A	1¼"	POWER & CONTROL	MCC-3M	CHAN. AGITATOR 4P-2		
3M1B	3#2	3M1B	1½"	POWER	MCC-3M	FILT. INFL. PUMP 5P-2		
		3M2B	1½"	POWER		FILT. INFL. PUMP (FUT.)		C.O.
3M3B	3#12	3M3B	¾"	POWER		UNIT HEATER 4ME-1		
3M4B	3#12, 8#14	3M4B	1¼"	POWER & CONTROL		FLASH MIXER 4P-1		
3M7	3#12	3M7B	¾"	POWER	MCC-3M	SUMP PUMP 4P-3 & 4P-4		

CABLE NO.	CONDUCTORS	CONDUIT NO.	CONDUIT SIZE	FUNCTION	FROM	TO	ROUTE	REMARKS
		CO	2"		SEE DUCT SCHEDULE			
C1	8 # 14	C1	1"	CONTROL & SPACE HTR.	MCC-3M	FILT. INFL. PUMP 5P-1		
C2	8 # 14	C2	1"	CONTROL & SPACE HTR.	MCC-3M	FILT. INFL. PUMP 5P-2		
		C3	1"	CONTROL & SPACE HTR.	MCC-3M	FILT. INFL. PUMP (FUT.)		
C4	3 # 14	C4	¾"	LOW SUCTION CUT OFF	MCC-3M	FILT. INFL. PUMP STA.		
C5	8 # 14	C5	1"	CONTROL	VALVE 5V-5	PUSH BUTTON STA. @ LCB2		
C6	2#12 2-2C #16 SHLD	C6	1"	POWER & SIGNAL	LCB-2	FLOW TRANS. 4-M-2 & 4-M-1		
C7	2#12 2/C #16 SHLD	C7	1"	POWER & SIGNAL	LCB-2	SONIC METER 4-P-1		
C8	2 #12	C8	¾"	POWER	LP-B	HEAT TRACE		
C11	8 # 14	C11	1"	CONTROL & SPACE HTR.	MCC-2M	BW. PUMP 1P-3		
C12	8 # 14	C12	1"	CONTROL & SPACE HTR.	MCC-2M	BW. PUMP 1P-4		
C13	8 # 14	C13	1"	CONTROL & SPACE HTR.	MCC-2M	BW. PUMP 1P-5		
C14	9 # 14	C14	1"	CONTROL	MCC-2M	LO-WATER AT SUCTION		
C18	2#12, 2-2C SHLD.	C18	¾"	POWER AND SIGNAL	FLOW METER 10-M-1	LCB-3		
C19	10-2/C #16 SHLD.	C19	2"	SIGNAL	LCB-2	LCB-3		
C20	15 # 12	C20	1"	CONTROL	LCB-2	MOV 10-V-6		
C21	15 # 12	C21	1"	CONTROL	LCB-2	MOV 4-V-1		
C22	10 # 14	C22	1"	CONTROL	MCC-1M	FILT. AUTO C.P.		
C23	2 # 14	C23	¾"	SIGNAL	HI-LEVEL SENSOR	LCB-2		
C30	15 # 14	C30	1"	CONTROL	MCC-2M	FILT. RELAY PANEL		
C31	18 # 14	C31	1"	STATUS	MCC-2M	LCB-2		
		HS		SEE DRAWINGS FOR CONDUIT SIZE,	CABLES BY INTERCOM SUPPLIER			
C39	2#12, 2/C#16SHLD	C39	1"	POWER & SIGNAL	FLOW METER 10-M-1	LCB-3		
C42	17-2/C #16 SHLD.	C42	2"	SIGNALS	LCB-3	⚠ PULL BOX 9C		
C44	80 #14	C44	2"	ALARM, STATUS	LCB-3	PULL BOX 9C		
C45	3 #10	C45	1"	SPRINKLER SYSTEM	CHEM. BLDG.	PULL BOX 9C		
		C46	1"	SPRINKLER SYSTEM	CHEM. BLDG.	PULL BOX 9C		C.O.
C47	2#12, 2-2C SHLD.	C47	¾"	POWER AND SIGNAL	METER 10-M-2	LCB-3		
C48	2#12 2/C #16 SHLD.	C48	1"	POWER AND SIGNAL	BUBBLER UNIT	PANEL "LA"		
B20	2 #12	B20	1"	POWER	PANEL B	SPRINKLER		

NOT INCLUDED IN CONTRACT

NOTE. THIS CABLE AND CONDUIT SCHEDULE IS NOT COMPLETE. CONTRACTOR SHALL REFER TO ALL DRAWINGS FOR ADDITIONAL WIRES AND CONDUITS.

03599

RECORD DRAWING

Norbert Schneider

REE 6373

870.0070

REV.	DATE	BY	DESCRIPTION
2	4-1-82	MDJ	RECORD DRAWINGS
⚠1	3-1-82	M.S	CHANGE ORDER

SCALE: NONE

DESIGNED M. SANTOS
DRAWN D. BARBIER
CHECKED H. RODRIGUEZ

SUBMITTED
PROJECT ENGINEER — 27304 R.C.E. NO. — 5/17/31 DATE

RECOMMENDED
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 5/23/31 DATE

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
CONDUIT AND WIREFILL SCHEDULE

SHEET E-5 OF 66 SHEETS

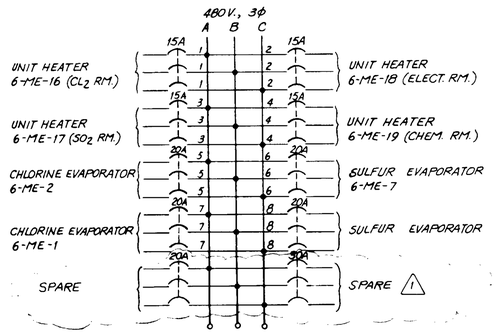
120/240 VOLTS 1 Φ 3 W — 125A MAIN CB - 2P — **PANELBOARD LA** — LOCATION CHEM. BLDG. (ELECT. RM) — FEED BOTTOM — MTG SURFACE

LOAD DESCRIPTION	WATTAGE OR VA ΦA	ΦB	ΦC	LTG	REC	MIS	CIR	BKR	C A	BKR	CIR	MIS	REC	LTG	WATTAGE OR VA ΦA	ΦB	ΦC	LOAD DESCRIPTION
CHEMICAL RM.	1600			8			1	20		20	2			5	1000			CL_2 STORAGE RM.
		1500		7			3				4			4		800		CL_2 STORAGE RM.
ELECTRICAL RM.	800			4			5				6			6	1200			CL_2 ROOM
SULFONATOR RM.		800		4			7				8					500		SPARE ■
SO_2 STORAGE ROOM	200						9				10			5	1200			OUTSIDE LIGHTS ■
BUBBLER UNIT		500				1	11				12			5		1000		
RECEPTACLES	800				4		13				14		4		800			RECEPTACLES
		800			4		15				16		4			800		
	600				3		17				18		4		800			
SPARE		500					19				20					500		Cl_2 & Cl_2 EVAP
LOCAL CONT. BOARD LCB-3	500						21	15			22	1			675			EXH. FAN 6-F-3 (ELEC. RM.)
MUX #5		500					23	15			24					500		MOTORIZED DAMPERS (2)
SPARE (1)	500						25	20			26				500			Cl_2 & Cl_2 CONTROL PANELS
		500					27				28					500		
	500						29				30				500			LIQUID Cl_2 HEATERS
		500					31				32					500		" " "
SPACE							33				34							SPACE
							35				36							
	5500	5600					TOTAL				TOTAL				6675	5100		
	PHASE TOTALS			TOTAL LOAD														
	12,175	10700		22.9 KVA (96 AMPS)														

■ CIRCUIT CONTROLLED BY TIME SWITCH (7-DAY ASTRO-DIAL AND PHOTOCELL)

120/240 VOLTS 1 Φ 3 W — 125A MAIN CB, 2P — **PANELBOARD LB** — LOCATION CHEM. BLDG. (CHM. FOR RM) — FEED TOP — MTG SURFACE

LOAD DESCRIPTION	WATTAGE OR VA ΦA	ΦB	ΦC	LTG	REC	MIS	CIR	BKR	B C	BKR	CIR	MIS	REC	LTG	WATTAGE OR VA ΦA	ΦB	ΦC	LOAD DESCRIPTION
SPRINKLER CONTROLLER	500						1	15		15	2					500		AIR TIMERS
SPARE		500					3	15		20	4				500			
CHLORINATORS & SULFONATORS	525					7	5	15		2P	6					500		
FLOW TRANSM. FT-7, LEVEL TRANS. LT-7		250				1	7	15		20	8	1			1000			
SPARE	500						9	15		2P	10					1000		
		500					11	15		20	12	1			1000			
	500						13	15		2P	14					1000		
		500					15	20		20	16	1			1000			
	500						17	20		2P	18					1000		
		500					19	20		20	20	1			1000			
SPACE							21			2P	22					1000		
							23			20	24	1			1000			
							25			2P	26					1000		
							27			20	28	1			1000			
							29			2P	30					1000		
							31			20	32	1			1000			
							33			2P	34					1000		
							35				36							SPACE
							37				38							
							39				40							
							41				42							
	2525	2525					TOTAL				TOTAL				7500	8000		
	PHASE TOTALS			TOTAL LOAD														
	10025	10525		20.6 KVA (86. AMPS)														



PANEL DP1

LIGHTING FIXTURE SCHEDULE

TYPE	WATTS	DESCRIPTION
A	4/40	FLUORESCENT, ENCLOSED AND GASKETED, HEAVY GAUGE STEEL CONSTRUCTION WITH HIGH REFLECTANCE WHITE BAKED ENAMEL AND ACRYLIC PRISMATIC DIFFUSER. PENDANT MOUNTED. PRUDENTIAL NO. P-1654-48 RS.
B	4/40	SAME AS TYPE 'A', EXCEPT NO GASKET REQUIRED. PRUDENTIAL NO. P-1604-48 RS. PENDANT MOUNTED
C	2/60	INCANDESCENT, CEILING MOUNTED, CAST ALUMINUM BODY WITH GLASS DIFFUSER, ENCLOSED AND GASKETED, ANODIZED FINISH. McPHILBEN NO. 43-99-WTA
D	4/40	FLUORESCENT, ENCLOSED AND GASKETED, MOISTURE AND CORROSION RESISTANT, WITH HEAVY DUTY PLASTIC HOUSING AND ACRYLIC PRISMATIC DIFFUSER. GLOBE NO. 7902-4R. PENDANT MOUNTED.
E	175	MERCURY VAPOR WALL BRACKET, WIDE SPREAD CAST ALUMINUM HOUSING WITH INTEGRAL BALLAST AND PRISMATIC REFRACTOR. HOLOPHANE NO. 417-120
* F	2/40	SAME AS TYPE 'A', EXCEPT 2-LAMP. PRUDENTIAL NO. P-1652-48 RS
* G	150	INCANDESCENT, ENCLOSED AND GASKETED WALL BRACKET, VAPORTIGHT, HEAVY DUTY DIE-CAST ALUMINUM HOUSING WITH GLASS GLOBE AND CAST GUARD. STONCO NO. VWXL-21 GC
* H	175	MERCURY VAPOR, POLE MOUNTED, CAST ALUMINUM LUMINAIRE WITH INTEGRAL BALLAST, SHALLOW ASYMMETRIC PRISMATIC LENS. FULL ENCLOSED AND GASKETED WITH SATIN BLACK ANODIZED FINISH. POLE TO BE 10 FT. NOMINAL HEIGHT, SQUARE ALUMINUM WITH CAST ALUMINUM BASE; POLE AND BASE COVER TO HAVE AN ANODIZED FINISH. McPHILBEN NO. 15BP-122N3-10T (120 V.)
* J	2/175	SAME AS TYPE 'H', EXCEPT DOUBLE LUMINAIRE. McPHILBEN NO. 15BP-222N3-10T (120 V.)
* K	200	INCANDESCENT FLOODLIGHT WEATHERPROOF, CORROSIONPROOF, HEAVY DUTY SEALED BEAM TYPE WITH SHIELD, HEAT AND SHOCK TEMPERED GLASS LENS, FULLY ENCLOSED AND GASKETED, WITH ADJUSTABLE ARM AND DEGREE-MARKED AIMING QUADRANT. STONCO NO. V4400-E
L	400	HI-PRESS SODIUM, ONE PIECE ALUMINUM, HOUSING WITH INTEGRAL BALLAST, CLEAR LENS, 25' ALUMINUM POLE, 400W E-18 LAMP MOLDCAST 3150-400 CLEAR FINISH. PROVIDE TWO FIXTURES ON SINGLE POLE WHERE L/2-400 IS INDICATED.
* M	2/40	FLUORESCENT, ENCLOSED AND GASKETED, ALUMINUM HOUSING WITH BAKED WHITE ENAMEL AND RIBBED ACRYLIC LENS - 'QUADRANT LIGHT FIXTURE' NU-ART NO. CL-2-4.
N	100	INCANDESCENT, RECESSED, SQUARE STEP LIGHT W/CAST ALUMINUM HOUSING AND ASYMMETRIC PRISMATIC LENS.

NOTE:
ALL LIGHTING FIXTURES THAT ARE DARK ANODIZED SHALL HAVE CLEAR FINISH.
* NOT IN THIS CONTRACT.

03600
RECORD DRAWING
Norbert Schneider REE 6373

870.0070

NO.	DATE	BY	DESCRIPTION
RD	4/1/82	M.D.U	RECORD DRAWINGS
1	3/1/82	M.S.	CHANGE ORDER

SCALE: NONE

DESIGNED H. RODRIGUEZ
DRAWN D. BARBIER
CHECKED M. SANTOS

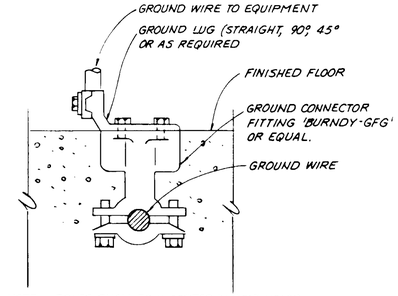
SUBMITTED Robert C. Simek PROJECT ENGINEER 27304 R.C.E. NO. 3/19/81 DATE
RECOMMENDED JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. 27638 R.C.E. NO. 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

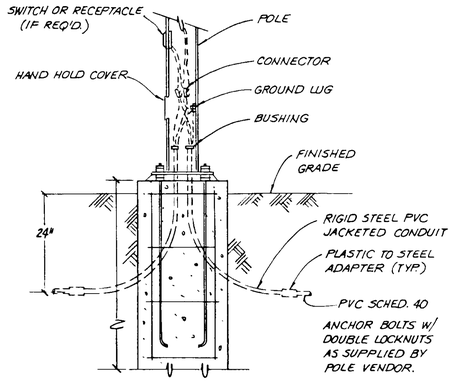
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II — PANEL AND FIXTURE SCHEDULE

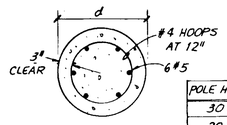
SHEET E-6 OF 66 SHEETS



NOTE: BOLTS SHALL BE INSERTED IN BOLT HOLES BEFORE CONNECTOR IS EMBEDDED.

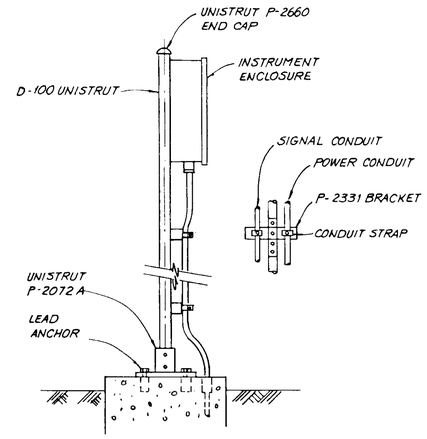
GROUNDING INSERT | A



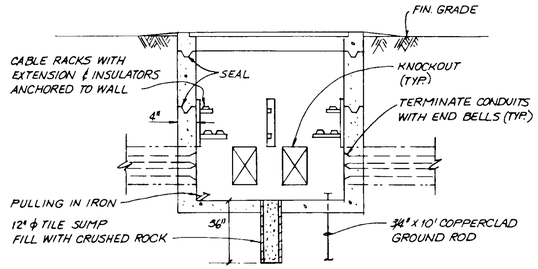


POLE HT.	d	D
30 FT.	24"	6'-0"
20 FT.	20"	5'-6"
12 FT.	20"	4'-6"

POLE MOUNTING | B

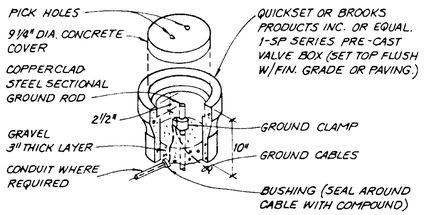


INSTRUMENT ENCLOSURE MOUNTING | C

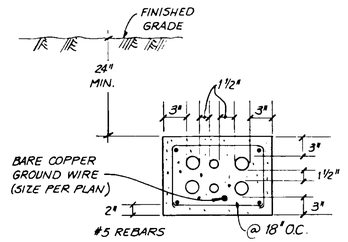


UNDERGROUND PULLBOX | D

DRAINAGE AWAY FROM PULLBOXES. CONTRACTOR TO ADJUST PAVING TO ACCOMODATE THIS.



GROUND ROD & BOX INSTALLATION | E

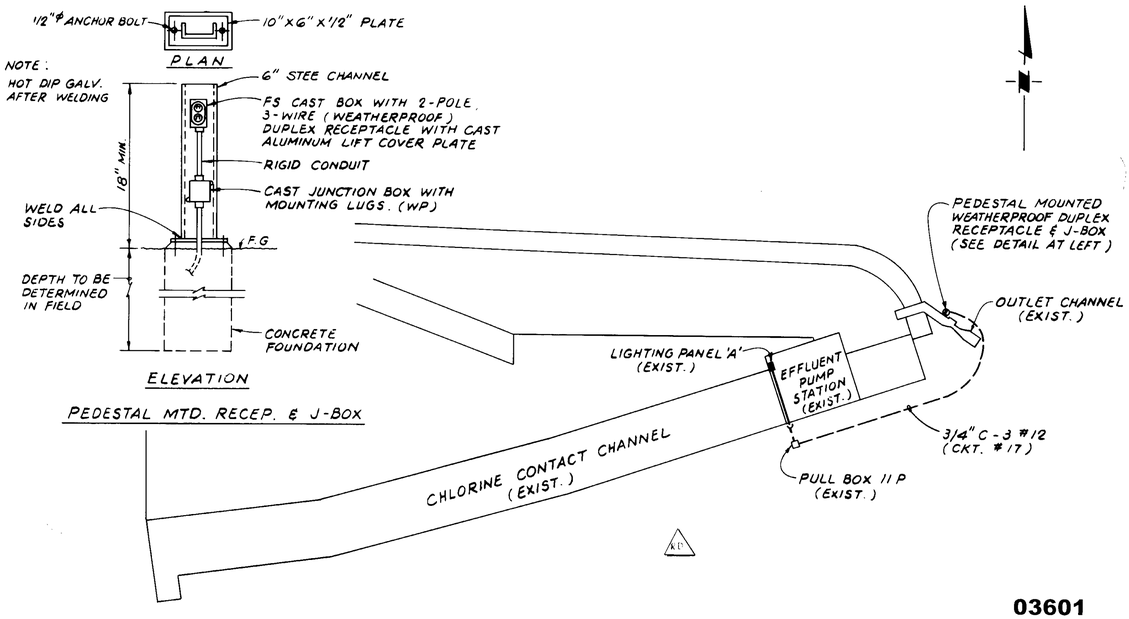


NOTE: LEAVE 3" BETWEEN POWER & INTERCOM OR SIGNAL CONDUIT

DUCT BANK SECTION | F

CONDUIT STUB-UP FOR FUTURE EQUIPMENT | G

EXPANSION COUPLING | J



03601

RECORD DRAWING

Norbert Schneider REE 6373

REV	DATE	BY	DESCRIPTION
RD	10/5/81	JAW	RECORD DRAWING

SCALE: AS NOTED

DESIGNED H.RODRIGUEZ
DRAWN BC/DB
CHECKED M. SANTOS

SUBMITTED Robert C. Spaink PROJECT ENGINEER 27304 R.C.E. NO. 8/19/81 DATE

RECOMMENDED [illegible] JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. 27638 R.C.E. NO. 9/20/81 DATE

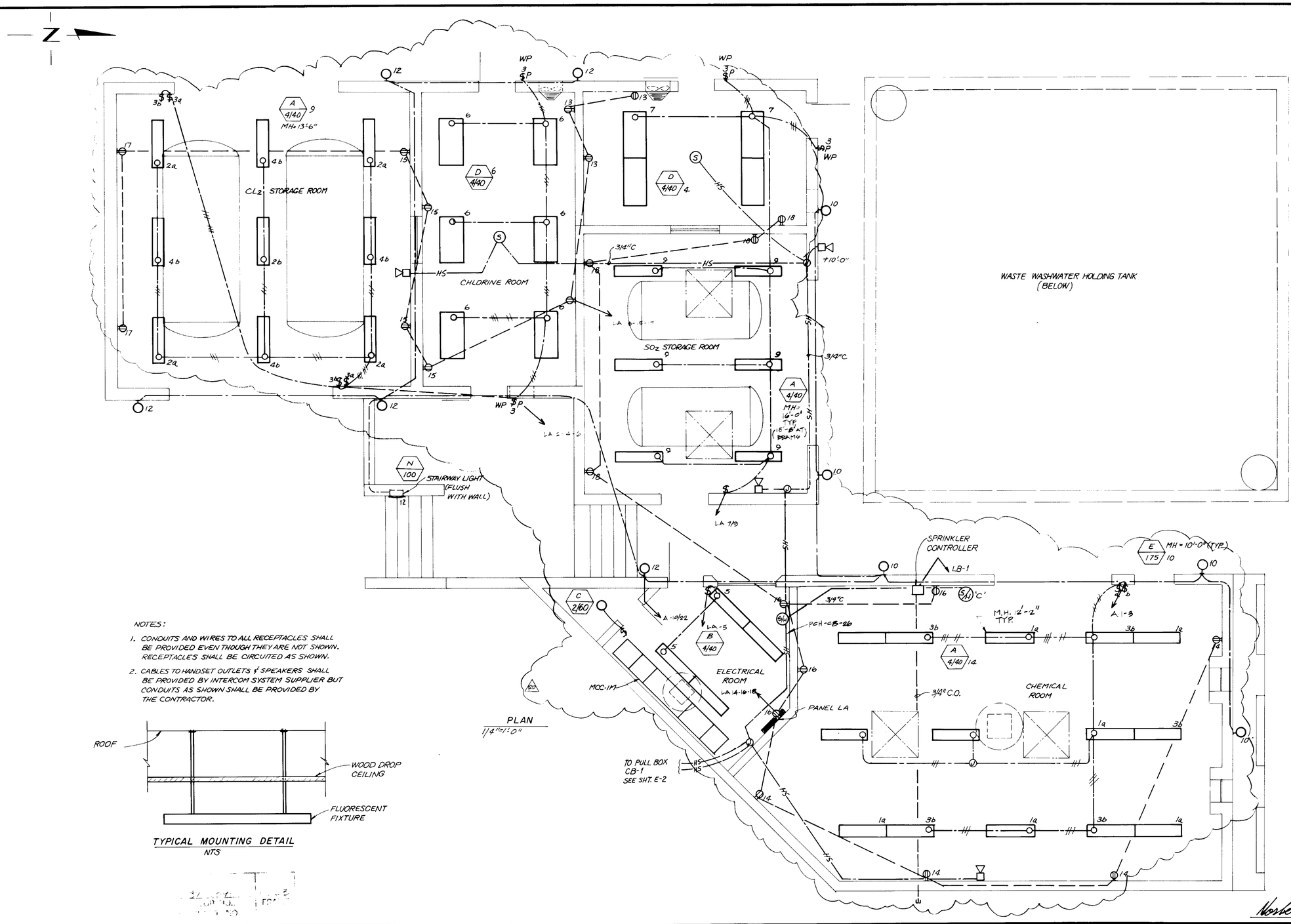
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
MISCELLANEOUS DETAILS

SHEET E-7 OF 66 SHEETS

870.0070



NOTES:

1. CONDUITS AND WIRES TO ALL RECEPTACLES SHALL BE PROVIDED EVEN THOUGH THEY ARE NOT SHOWN. RECEPTACLES SHALL BE CIRCUITED AS SHOWN.
2. CABLES TO HANDSET OUTLETS & SPEAKERS SHALL BE PROVIDED BY INTERCOM SYSTEM SUPPLIER BUT CONDUITS AS SHOWN SHALL BE PROVIDED BY THE CONTRACTOR.

TYPICAL MOUNTING DETAIL
NTS

03602

RECORD DRAWING

Norbert Schneider REE 6373

REV	DATE	BY	DESCRIPTION
RD	4/1/82	MDJ	RECORD DRAWINGS

SCALE: AS NOTED

DESIGNED H. RODRIGUEZ
DRAWN MICHAEL LASLEY
CHECKED M. SANTOS

SUBMITTED Robert C Sienk PROJECT ENGINEER 27304 R.C.E. NO. 3/19/81 DATE
RECOMMENDED James M. Montgomery JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. 27638 R.C.E. NO. 3/20/81 DATE

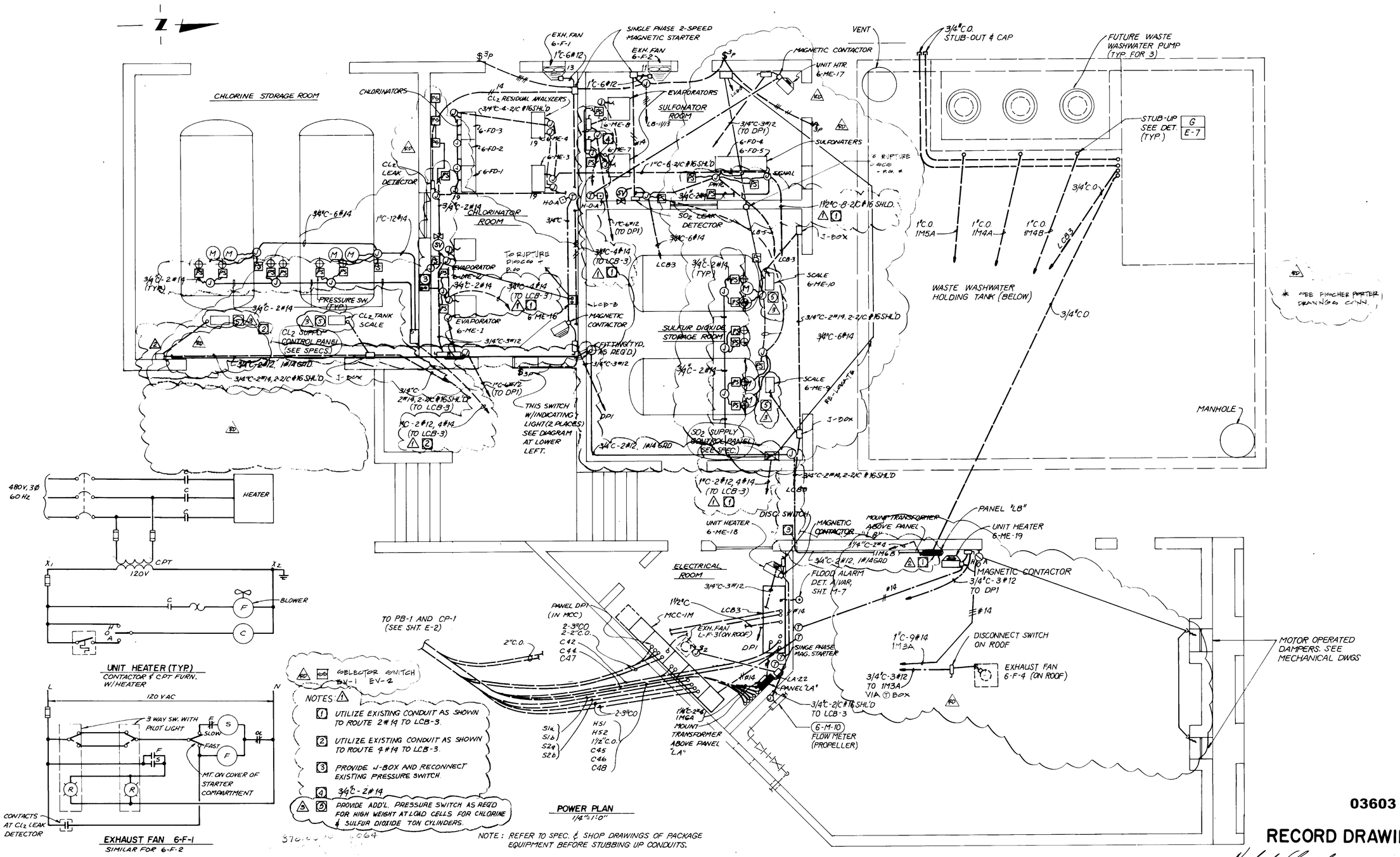
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
CHEMICAL BUILDING LIGHTING AND RECEPTACLE PLAN

SHEET 6E-1 OF 66 SHEETS

JOB NO. 870.0070 FILE CC 7/79



03603

RECORD DRAWING

Norbert Schneider · REE 6373

REV	DATE	BY	DESCRIPTION
1	2/11/83	RA	PLAN CLARIFICATION
2	5/19/83	RA	CHANGE ORDER
3	6/15/83	RA	CHANGE ORDER
RD	4/10/84	MDU	RECORD DRAWINGS
4	6/26/84	JMH	

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

DESIGNED H. RODRIGUEZ
DRAWN M. LASLEY
CHECKED M. SANTOS

SUBMITTED Robert C. Sawyer, PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/31 DATE

RECOMMENDED [illegible], JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
CHEMICAL BUILDING POWER AND CONTROL PLAN

SHEET 6E-2 OF 66 SHEETS

JOB NO. 870.0070 FILE CC 279

INSTRUMENT SYMBOLS

- LIT — INSTRUMENT OR OTHER COMPONENT TO BE MOUNTED IN FIELD (FOR LOCATIONS, SEE PLANS)
- TSL — INSTRUMENT OR OTHER COMPONENT TO BE MOUNTED INSIDE MAIN CONTROL BOARD OR OTHER PANEL AS MARKED
- FIC — INSTRUMENT OR OTHER COMPONENT TO BE MOUNTED ON MCB FRONT PANEL OR OTHER PANEL AS MARKED.
- PIR / PSH — SINGLE INSTRUMENT OR OTHER COMPONENT HAVING MULTIPLE FUNCTIONS.
- INSTRUMENT OR OTHER COMPONENT TO BE FURNISHED AND INSTALLED BY OTHERS IN THE FUTURE.
- F — MULTIPLEXER INTERFACE
- RELATED DEVICE PERFORMS LINEARIZING OR SQUARE ROOT FUNCTION.
- Σ — RELATED DEVICE PERFORMS SUMMATING FUNCTION.
- RELAY CONTACT
- * — INDICATED COMPONENTS ARE NOT SPECIFIED AS PART OF THE INSTRUMENT PACKAGE.
- PNEUMATIC PRESSURE SIGNAL
- PULSE FREQUENCY ELECTRIC SIGNAL.
- ELECTRONIC INTRUMENT SIGNAL 4-20 ma, EXCEPT AS NOTED.
- HYDRAULIC LINE
- PROCESS PIPING
- SONIC SIGNAL
- ES — ELECTRICAL SUPPLY (115V, 60HZ - EXCEPT AS NOTED)
- AS — AIR SUPPLY (20 PSIG - EXCEPT AS NOTED)

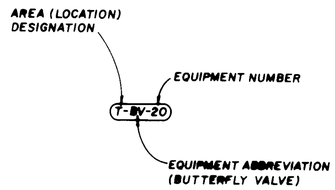
VALVE ACTUATORS

- M — ELECTRIC MOTOR
- PNEUMATIC CYLINDER, SINGLE ACTING
- HAND
- S — SOLENOID
- PNEUMATIC DIAPHRAGM SPRING OPPOSED.

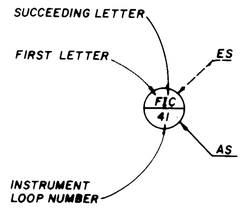
FLOW METERS

- PROPELLER
- FE / MM — MAGNETIC
- FE / FX — SONIC
- LIQUID VORTEX
- PITOT TUBE (ANNUBAR)
- VENTURI
- ORIFICE
- FLUME
- WEIR

MECHANICAL EQUIPMENT CALL OUT

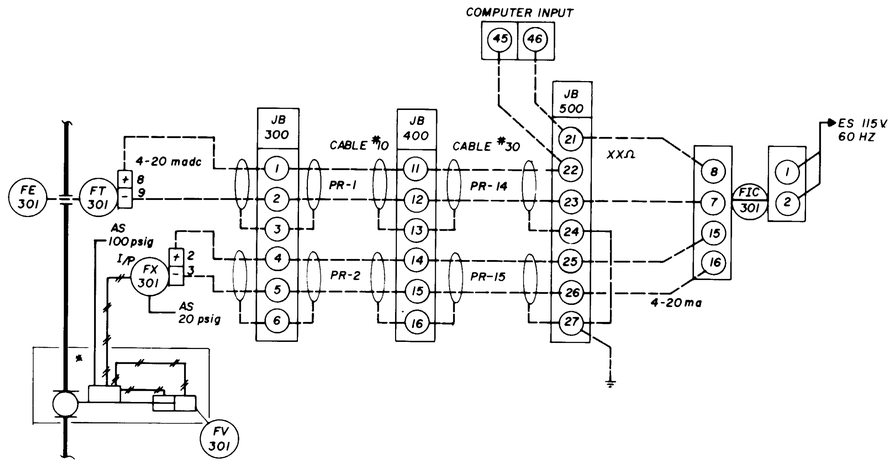


INSTRUMENT TAG NUMBER



ES - ELECTRIC SUPPLY (115V, 60HZ)

AS - AIR SUPPLY (20 PSIG - EXCEPT AS NOTED)



SAMPLE LOOP DIAGRAM - MINIMUM REQUIRED
(BASED ON ISA STANDARD S5.4)

NOTE: SEE SPECIFICATION DIVISION 403 FOR DETAILS OF SHOP DRAWING SUBMITTAL REQUIREMENTS.

INSTRUMENT IDENTIFICATION TAG LETTERS

LETTER	FIRST LETTER: MEASURED OR INITIATING VARIABLE	FIRST LETTER: MODIFIER	SUCCEEDING LETTERS: READOUT OR PASSIVE FUNCTION	SUCCEEDING LETTERS: OUTPUT FUNCTION	SUCCEEDING LETTERS: MODIFIER
A	ANALYSIS		ALARM		
B	BURNER FLAME		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY (ELECTRICAL)			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			
G	GAGING (DIMENSIONAL)		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE OR HUMIDITY				MIDDLE OR INTERMEDIATE
N	TORQUE		ISOLATOR		
O	USER'S CHOICE		ORIFICE (RESTRICTION)		
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZER			
R	RADIOACTIVITY		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MUTIFUNCTION	MULTIFUNCTION
V	VISCOSITY			VALVE, DAMPER, OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	TRANSDUCER OR CONVERTER	UNCLASSIFIED
Y	USER'S CHOICE			RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

DO	DISSOLVED OXYGEN	LCB	LOCAL CONTROL BOARD
pH	HYDROGEN CONCENTRATION		
SS	SUSPENDED SOLIDS		
TOC	TOTAL ORGANIC CARBON		
Tu	TURBIDITY		
CL	CHLORINE		

NOTES

1. ADDITIONAL INSTRUMENTATION AND CONTROL SYMBOLS MAY BE USED AS REQUIRED. SYMBOLS AND NOMENCLATURE ARE BASED ON ISA STANDARD S5.1 (1975).
2. SEE ASSOCIATED ELECTRICAL AND MECHANICAL SYMBOL SHEETS FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS.
3. FOR PIPE SIZES, MATERIAL, AS WELL AS DETAILS OF METER COUPLING AND OTHER MECHANICAL EQUIPMENT (e.g. VALVES, PUMPS, ETC.) SEE MECHANICAL DRAWINGS AND SPECIFICATIONS.

03604

RECORD DRAWING

Norbert Schneider REE 6373

REV	DATE	BY	DESCRIPTION

SCALE: NONE

DESIGNED J. Lind
DRAWN D. BARBIER
CHECKED L. Gaines

SUBMITTED L. Gaines PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/31 DATE
RECOMMENDED JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/31 DATE

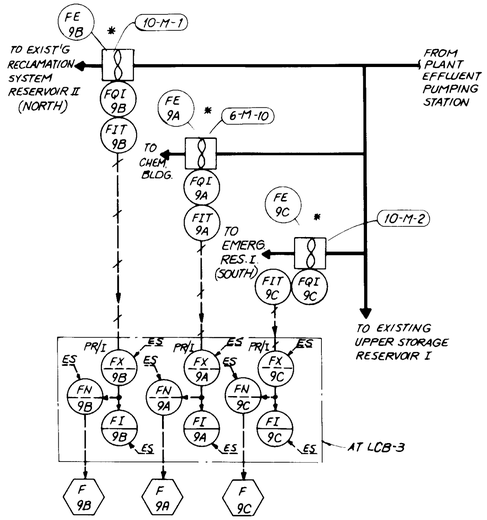
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

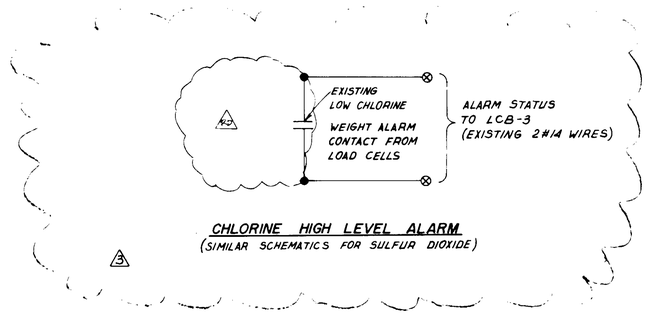
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
SYMBOLS AND SYMBOL NOMENCLATURE

SHEET I-1 OF 66 SHEETS

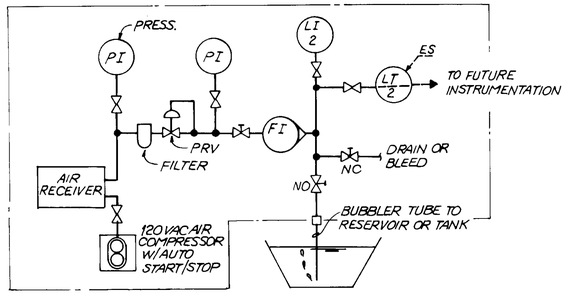
JOB NO. _____ FILE _____ DEC 30



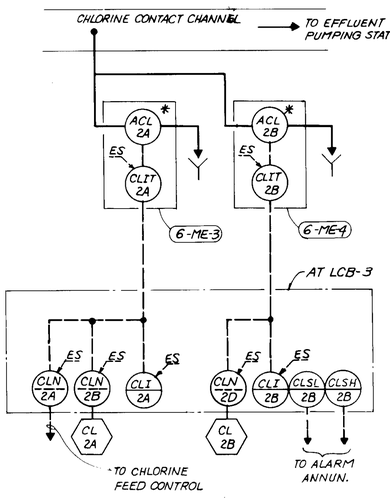
UTILITY WATER FLOW MEASUREMENTS
(LOOPS F-9A, F-9B AND F-9C)



CHLORINE HIGH LEVEL ALARM
(SIMILAR SCHEMATICS FOR SULFUR DIOXIDE)



BALANCING POND LEVEL MEASUREMENT
(LOOP L-2)



CHLORINE CONTACT CHANNEL TOTAL AND FREE CHLORINE RESIDUAL ANALYSES
(LOOPS 2A AND 2B)

03605

RECORD DRAWING

Norbert Schneider REE 6373

REV	DATE	BY	DESCRIPTION
RD	6-15-83	JMH	RECORD DRAWINGS
1	6-15-83		CHANGE ORDER

SCALE: NONE

DESIGNED M. Abell
DRAWN D. BARBIER
CHECKED L. Schneider

SUBMITTED Robert C. Sinnock — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/19/81 DATE
RECOMMENDED L. H. Bill — JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC. — 27638 R.C.E. NO. — 8/20/81 DATE

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

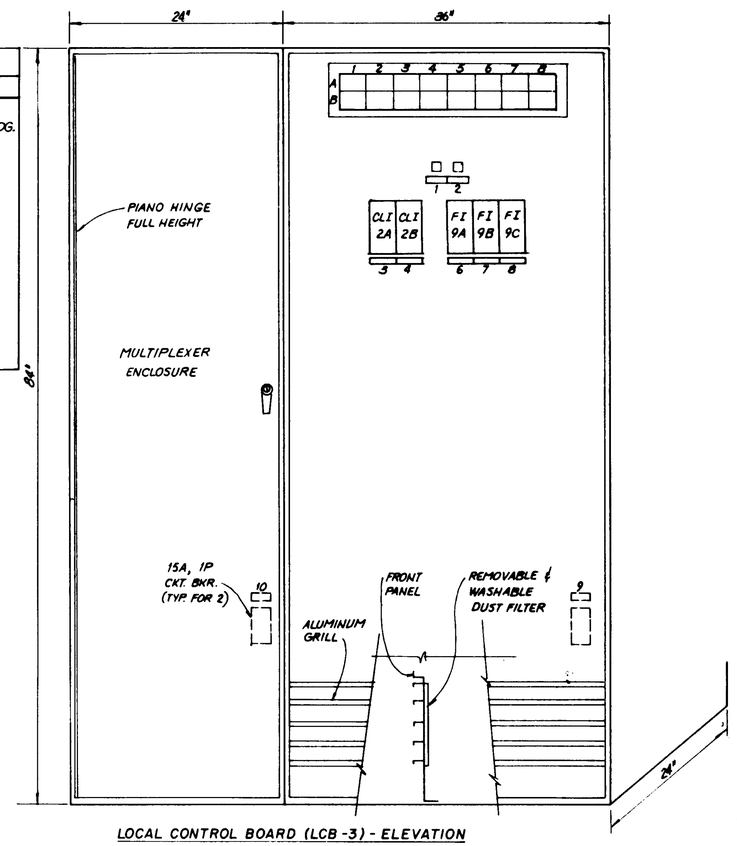
LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF – FILTRATION/DISINFECTION ADDITION
PHASE II
INSTRUMENTATION LOOP DIAGRAMS

SHEET I-2 OF 66 SHEETS

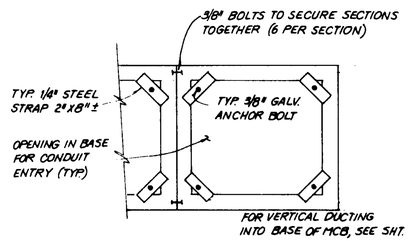
JOB NO. 870.0070 FILE CC 7/79

ANNUNCIATOR SCHEDULE

	NO.	WINDOW ENGRAVING	FIELD ACTUATING DEVICE	LOCATION
	A-1	(BLANK)		
* *	2	SULFUR DIOXIDE / LEAK	6-ME-14	CHEMICAL BLDG.
* *	3	CHLORINE / LEAK	6-ME-15	
* *	4	SULFUR DIOXIDE / RUPTURE DISK	SO_2 FEED LINE	
* *	5	CHLORINE / RUPTURE DISK	CL_2 FEED LINE	
* *	6	CONTACT CHANNEL / CHLORINE RESIDUAL / HIGH	CLSH-2B	
* *	7	CHLORINE FEED SYSTEM / MALFUNCTION	6-FD-2 ℄ 3	
* *	8	SULFUR DIOXIDE FEED SYSTEM / MALFUNCTION	6-FD-4 ℄ 5	
* *	B-1	CHEMICAL BUILDING / FLOODING	SUMP LEVEL SW.	
* *	2	CHLORINE SUPPLY / LOW / HIGH	6-T-1 ℄ 2	
* *	3	SULFUR DIOXIDE SUPPLY / LOW / HIGH (3)	6-T-3 ℄ 4	
	4	(BLANK)		
	5	(BLANK)		
* * (1)	6	CONTACT CHANNEL / CHLORINE RESIDUAL / LOW	CLSH-2B	
* *	7	SO_2 EVAPORATOR / MALFUNCTION	6ME-7 ℄ 8	
* *	8	CL_2 EVAPORATOR / MALFUNCTION	6-ME-1 ℄ 2	



LOCAL CONTROL BOARD (LCB-3) - ELEVATION



PARTIAL BASE ANCHORING PLAN
NTS

NOTES

1. ALL SINGLE OR DUAL-FUNCTION CONTROL DEVICES SHALL BE RECTANGULAR PUSHBUTTON OPERATORS ENGRAVED IN WHITE LETTERS ON A BLACK BACKGROUND.
2. SLASH "/" ON NAMEPLATE INSCRIPTIONS AND ANNUNCIATOR WINDOW ENGRAVINGS MEANS START A NEW LINE. SUPPLIER SHALL SUBMIT LETTER SIZE AND LINE THICKNESS FOR APPROVAL BY THE ENGINEER.
3. ASTERISKS (* *) ADJACENT TO ANNUNCIATOR POINT INDICATES RETRANSMISSION REQUIRED. EACH POINT SHALL BE EQUIPPED WITH DUPLICATE RETRANSMITTING ALARM CONTACTS TO THE MULTIPLEXER EQUIPMENT FURNISHED BY OTHERS.
4. ADDITIONAL ENGRAVED LETTERS FOR WINDOWS B-2 AND B-3. (3)

NAMEPLATE SCHEDULE

NO.	DESCRIPTION
1	ALARM TEST
2	ALARM ACKNOWLEDGE
3	CONTACT CHANNEL / TOTAL / CHLORINE RESIDUAL-MG/L
4	CONTACT CHANNEL / FREE / CHLORINE RESIDUAL-MG/L
5	NOT USED
6	UTILITY WATER / FLOW RATE - GPM / CHEMICAL BUILDING
7	UTILITY WATER / FLOW RATE - GPM / NORTH
8	UTILITY WATER / FLOW RATE - GPM / SOUTH
9	LCB-3 / CONTROL POWER
10	MULTIPLEX / CONTROL POWER

03606

RECORD DRAWING

Norbert Schneider REE 6373

REV	DATE	BY	DESCRIPTION
(3)	6-15-82	R.A.	CHANGE ORDED
(1)	3-1-82	M.T.	ADDENDUM #2

SCALE: AS NOTED

DESIGNED M.A. Hall
DRAWN D. BARBIER
CHECKED L. James

SUBMITTED Robert C. Simek — PROJECT ENGINEER — 27304 R.C.E. NO. — 8/12/81 DATE
RECOMMENDED C.T.D.I. — 27638 R.C.E. NO. — 8/20/81 DATE
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.
555 EAST WALNUT STREET, PASADENA, CALIFORNIA 91101

DISTRICT APPROVAL ON TITLE PAGE

LAS VIRGENES MWD/TRIUNFO CSD
TAPIA WRF — FILTRATION/DISINFECTION ADDITION
PHASE II
LOCAL CONTROL BOARD (LCB-3) — ELEVATIONS & DETAILS

SHEET I-3 OF 66 SHEETS

670.0070 FILE CC 229