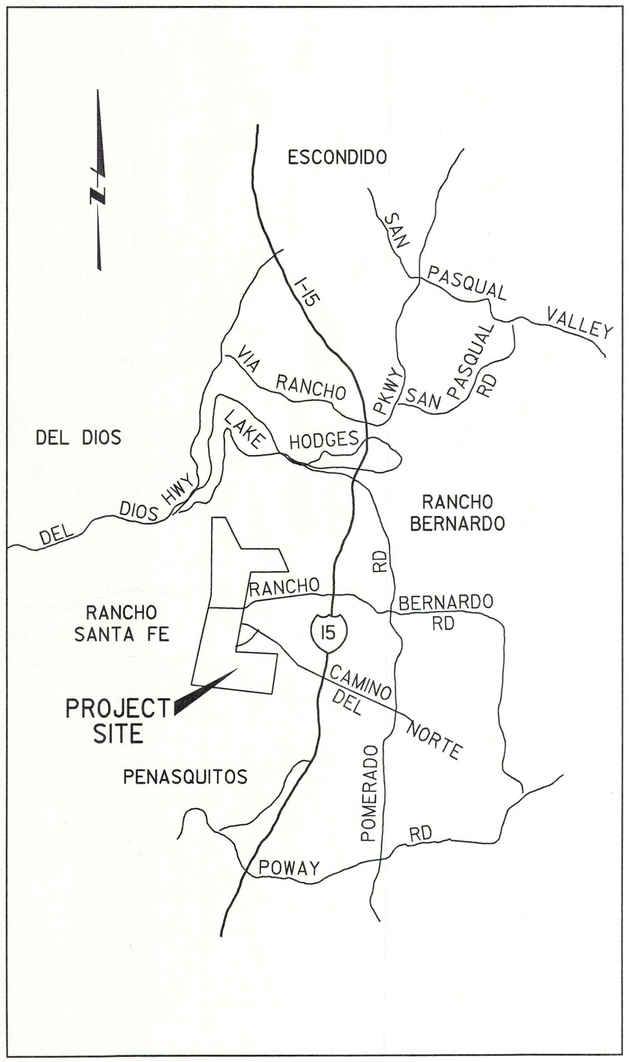
KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
4S RANCH WWTP EXPANSION AND RELATED PROJECTS

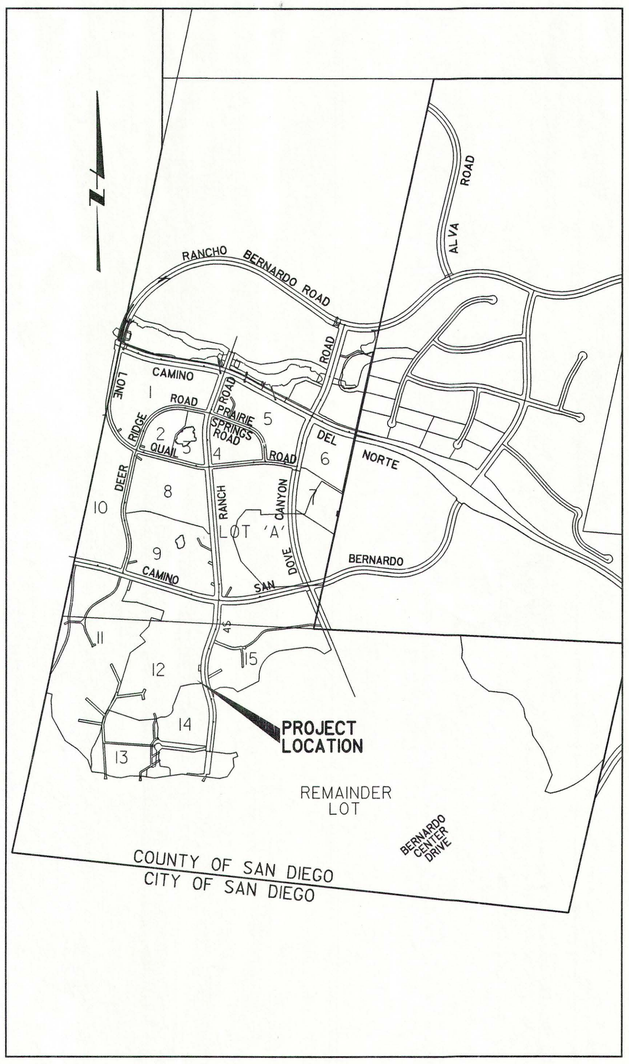
NEIGHBORHOOD NO. 1 PUMP STATION

NOVEMBER 2001

MONTGOMERY WATSON



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

GENERAL

G-0	COVER SHEET
G-1	VICINITY MAP, LOCATION MAP AND LIST OF DRAWINGS
G-2	SYMBOLS
G-3	ABBREVIATIONS

CIVIL

GC-1	CIVIL GENERAL NOTES
GC-2	CIVIL STANDARD DETAILS - I
GC-3	CIVIL STANDARD DETAILS - 2
GC-4	CIVIL STANDARD DETAILS - 3
I2C-1	HORIZONTAL CONTROL AND PAVING PLAN
I2C-2	GRADING AND DRAINAGE PLAN
I2C-3	YARD PIPING PLAN
I2C-4	HORIZONTAL CONTROL AND CALL-OUT DATA

ARCHITECTURAL

GA-1	ARCHITECTURAL DETAILS
I2A-1	ARCHITECTURAL FLOOR PLAN AND ELEVATIONS

MECHANICAL

GM-1	MECHANICAL EQUIPMENT LIST
GM-2	MECHANICAL STANDARD DETAILS - 1
GM-3	MECHANICAL STANDARD DETAILS - 2
I2M-1	NEIGHBORHOOD NO. I PUMP STATION - PLAN
I2M-2	NEIGHBORHOOD NO. I PUMP STATION - SECTION
I2M-3	NEIGHBORHOOD NO. I PUMP STATION - FERRIC CHLORIDE FEED AND STORAGE FACILITY
I2M-4	NEIGHBORHOOD NO. I PUMP STATION - PROCESS SCHEMATIC
I2M-5	NEIGHBORHOOD NO. I PUMP STATION - GENERATOR PAD AND FUEL TANK
I2M-6	NEIGHBORHOOD NO. I PUMP STATION - STORM WATER P.S. PLAN AND PROFILE

STRUCTURAL

GS-1	GENERAL NOTES AND CONSTRUCTION JOINT DETAILS
GS-2	STANDARD DETAILS - I
GS-3	STANDARD DETAILS -II
GS-4	STANDARD DETAILS - III
GS-5	STANDARD DETAILS - IV
GS-6	STANDARD DETAILS - V
GS-7	STANDARD DETAILS -VI
GS-8	STANDARD DETAILS - VII
I2S-1	NEIGHBORHOOD NO. I PUMP STATION - PLANS
I2S-2	NEIGHBORHOOD NO. I PUMP STATION - SECTIONS
I2S-3	NEIGHBORHOOD NO. I PUMP STATION - FERRIC CHLORIDE FEED AND STORAGE FACILITY
I2S-4	NEIGHBORHOOD NO. I PUMP STATION - GENERATOR PAD AND FUEL TANK

ELECTRICAL

GE-1	NEIGHBORHOOD NO. I PUMP STATION - ELECTRICAL SYMBOLS
GE-2	NEIGHBORHOOD NO. I PUMP STATION - ELECTRICAL ABBREVIATIONS AND GENERAL NOTES
GE-3	NEIGHBORHOOD NO. I PUMP STATION - ELECTRICAL STANDARD DETAILS - I
GE-4	NEIGHBORHOOD NO. I PUMP STATION - ELECTRICAL STANDARD DETAILS - 2
E-1	NEIGHBORHOOD NO. I PUMP STATION - ELECTRICAL SITE PLAN
E-2	NEIGHBORHOOD NO. I PUMP STATION - SINGLE LINE DIAGRAM AND EQUIPMENT ELEVATION
E-3	NEIGHBORHOOD NO. I PUMP STATION - SCHEMATIC DIAGRAMS
E-3.1	NEIGHBORHOOD NO. I PUMP STATION - SCHEMATIC DIAGRAMS - 2
E-4	NEIGHBORHOOD NO. I PUMP STATION - PANEL, FIXTURE AND CONDUIT SCHEDULES
I2E-1	NEIGHBORHOOD NO. I PUMP STATION - LIGHTING AND RECEPTACLE PLAN
I2E-2	NEIGHBORHOOD NO. I PUMP STATION - POWER AN CONTROL PLAN
I2E-3	NEIGHBORHOOD NO. I PUMP STATION - FERRIC CHLORIDE FEED FACILITY ELECTRICAL PLAN
I2E-4	NEIGHBORHOOD NO. I PUMP STATION - GENERATOR PAD AND FUEL TANK ELECTRICAL PLAN

INSTRUMENTATION

GI-1	NEIGHBORHOOD NO. I PUMP STATION INSTRUMENTATION ABBREVIATIONS & SYMBOLS - I
GI-2	NEIGHBORHOOD NO. I PUMP STATION INSTRUMENTATION ABBREVIATIONS & SYMBOLS - II
I2I-1	NEIGHBORHOOD NO. I PUMP STATION P & ID - I
I2I-2	NEIGHBORHOOD NO. I PUMP STATION P & ID - II
I2I-3	NEIGHBORHOOD NO. I PUMP STATION FERRIC CHLORIDE FEED SYSTEM P & ID
I2I-4	NEIGHBORHOOD NO. I PUMP STATION UTILITY WATER SYSTEM P & ID

REGISTERED PROFESSIONAL ENGINEER
PAUL F. WARNER
No. C43137
Exp. 03-31-04
CIVIL
STATE OF CALIFORNIA
11/5/01

REV	DATE	BY	DESCRIPTION
1	11/05/01	PFW	OMWD ADD 2 SHEETS

SCALE: AS SHOWN

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED N. NAZARIAN
DRAWN N. NAZARIAN
CHECKED T. BUI

SUBMITTED BY: Paul F. Warner — PROJECT MANAGER — 43137 LICENSE NO. — 11/5/01 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 11/5/01 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED: George R. Bomberger — OLIVENHAIN MWD — 1/2/02 DATE
APPROVED: FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

NEIGHBORHOOD NO. I PUMP STATION
VICINITY MAP, LOCATION MAP, AND LIST OF DRAWINGS

SHEET G-1 OF • SHEETS

Plot Date: 05-NOV-2001 15:41
File: \\pas4_designsvr\swdd\projects\4sr\00\civ\4sr_nbps_g01.div
Job No: MW Job #

- MASONRY
- CAST IRON
- STEEL
- BRONZE
- INSULATION
- GRAVEL
- CONCRETE
- EARTH
- SAND
- ALUMINUM OR METAL DECKING
- CHECKERED PLATE
- GRATING (SPAN)
- PLASTIC, RUBBER OR NEOPRENE
- WOOD (FINISH)
- WOOD (ROUGH FRAMING) OR, OPENING OR DEPRESSION IN SLAB OR WALL
- 12x24 DUCT (FIRST DIMENSION DUCT SIDE SHOWN, SECOND DIMENSION DUCT SIDE NOT SHOWN)
- 24x12 SUPPLY OR OUTSIDE AIR DUCT (FIRST DIMENSION, DUCT WIDTH)
- 24x12 EXHAUST OR RETURN AIR DUCT (FIRST DIMENSION, DUCT WIDTH)
- SIZE / CFM CEILING SUPPLY DIFFUSER (SIZE IN INCHES)
- SIZE / CFM CEILING RETURN OR EXHAUST AIR GRILLE OR REGISTER (SIZE IN INCHES, WIDTH X HEIGHT)
- SIZE / CFM EXHAUST OR RETURN AIR GRILLE OR REGISTER (SIZE IN INCHES, WIDTH X HEIGHT)
- SIZE / CFM SUPPLY GRILLE OR REGISTER (SIZE IN INCHES, WIDTH X HEIGHT)
- AIR TURNING VANES IN DUCT
- DD DEFLECTING DAMPER
- FHC FIRE HOSE CABINET
- FE FIRE EXTINGUISHER
- UNIT HEATER
- CENTERLINE
- PROPERTY LINE
- NEW STRUCTURE OR FACILITY
- EXISTING STRUCTURE OR FACILITY
- FUTURE STRUCTURE OR FACILITY
- NEW FENCE
- EXISTING FENCE
- NEW PIPELINE (CIVIL SHEETS) 36" DIA. AND LARGER
- NEW PIPELINE (CIVIL SHEETS) 12" DIA. TO 34" DIA.
- NEW PIPELINE (CIVIL SHEETS) 10" DIA. AND SMALLER
- EXISTING PIPELINE

- 123 CONTOUR LINE, FINISHED GRADE
- 123 CONTOUR LINE, EXISTING GRADE
- 123.20 FINISHED ELEVATION
- (123.20) EXISTING ELEVATION
- TOP / TOE CUT OR FILL SLOPE TO BE CONSTRUCTED
- NEW A.C. PAVING
- EXISTING A.C. PAVING
- RAILING
- FH FIRE HYDRANT
- MH MANHOLE
- PCOTG PRESSURE CLEANOUT TO GRADE
- WCO WALL CLEANOUT
- FCO FLOOR CLEANOUT
- COTG CLEANOUT TO GRADE
- BLOW OFF ASSEMBLY
- HUB DRAIN
- FLOOR DRAIN
- FLOOR SINK
- DRAIN TRAP
- SOIL BORING
- BENCH MARK
- HORIZONTAL AND VERTICAL CONTROL POINT
- VAULT OR JUNCTION STRUCTURE
- CHANGE IN PIPING MATERIAL
- ROUND OR DIAMETER
- SQUARE
- @ AT
- ANGLE
- 24" RW-RCP PIPE SIZE, FLUID ABBREVIATION AND TYPE OF PIPE
- 2" UW (2) PIPE CALLOUT (SEE PIPING SCHEDULE)
- ME-2 EQUIPMENT NUMBER (SEE EQUIPMENT SCHEDULE)
- BACKWATER VALVE
- BACKFLOW PREVENTER
- STOP GATE
- SLIDE GATE
- SLUICE GATE

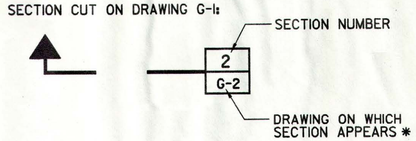
- GATE VALVE, BURIED WITH VALVE BOX
- BUTTERFLY VALVE, BURIED WITH VALVE BOX
- ECCENTRIC PLUG VALVE, BURIED WITH VALVE BOX
- LUBRICATED PLUG VALVE, BURIED WITH VALVE BOX
- GATE VALVE
- BUTTERFLY VALVE
- ECCENTRIC PLUG VALVE
- LUBRICATED PLUG VALVE
- GLOBE VALVE
- BALL VALVE
- DIAPHRAGM VALVE
- CHECK VALVE
- PRESSURE REGULATING VALVE
- BACK-PRESSURE VALVE
- M P MOTOR OPERATOR FOR VALVES (M = ELECTRIC, P = PNEUMATIC)
- T TEMPERATURE CONTROL VALVE
- S SOLENOID VALVE
- MULTIPORT VALVE - 3 WAY
- MULTIPORT VALVE - 4 WAY
- FLOAT OPERATED VALVE
- NEEDLE VALVE
- PRESSURE RELIEF VALVE
- ANGLE VALVE
- HOSE BIBB (H/B)
- B BUBBLER LEVEL CONTROL
- CENTRIFUGAL OR TURBINE PUMP OR FAN
- METERING PUMP
- PROGRESSING CAVITY, POSITIVE DISPLACEMENT PUMP
- BLOWER OR COMPRESSOR
- INJECTOR OR EDUCTOR
- F/A FLAME ARRESTER
- AIR VACUUM AND AIR RELEASE ASSEMBLY
- THERMOMETER
- PIPE ANCHOR

- T ROOM THERMOSTAT
- G PRESSURE GAUGE
- G PRESSURE GAUGE WITH DIAPHRAGM SEAL
- S PRESSURE SWITCH
- S PRESSURE SWITCH WITH DIAPHRAGM SEAL
- FLANGED FITTING
- WELDED FITTING
- MECHANICAL-TYPE FITTING (GROOVED)
- SCREWED, SOCKET-WELD, BELL AND SPIGOT OR HUBLESS FITTING
- SLEEVE-TYPE COUPLING
- FLANGED ADAPTER COUPLING
- FLANGED ADAPTER - SET SCREW TYPE
- EXPANSION JOINT
- MECHANICAL TYPE COUPLING
- FLEXIBLE COUPLING
- UNION
- QUICK DISCONNECT COUPLER
- CAPPED END OR PLUGGED END
- BLIND FLANGE
- REDUCER OR INCREASER
- CUT PIPE
- STRAINER
- DRAIN
- FLOW TUBE
- M M MAGNETIC METER
- D M DENSITY METER
- P M PROPELLER METER
- ORIFICE PLATE AND FLANGES
- ROTAMETER
- T CONDENSATE TRAP
- PIPE SUPPORT (IN PLAN ONLY)
- CB CATCH BASIN
- PULSATION DAMPENER
- EXPANSION CHAMBER WITH RUPTURE DISC
- RUPTURE DISC
- FG / X FLOW SIGHT GLASS

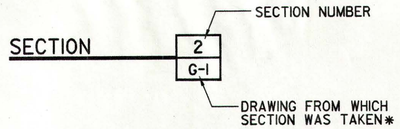
SECTION AND DETAIL IDENTIFICATION

SECTION IDENTIFICATION

(1) SECTION CUT ON DRAWING G-1:

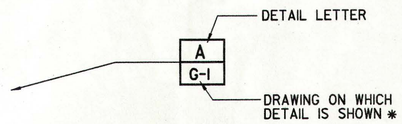


(2) ON DRAWING G-2 THIS SECTION IS IDENTIFIED AS:

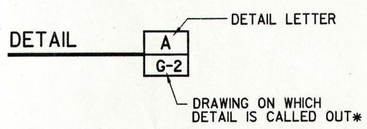


DETAIL IDENTIFICATION

(1) DETAIL CALL-OUT ON DRAWING G-2 AS:

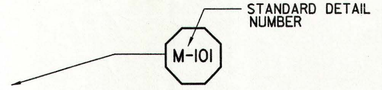


(2) ON DRAWING G-1 THIS DETAIL IDENTIFIED AS:

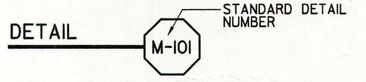


STANDARD DETAIL IDENTIFICATION

(1) DETAIL CALL-OUT ON PLAN OR SECTION:



(2) ON DRAWING G-4 THIS DETAIL IDENTIFIED AS:



*NOTE: IF PLAN AND SECTION (OR DETAIL CALL-OUT AND DETAIL) ARE SHOWN ON SAME DRAWING, DRAWING NUMBER IS REPLACED BY A LINE.

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.

REGISTERED PROFESSIONAL ENGINEER — No. 57871 — Exp. 06/30/02 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL F. WALKER — No. 043737 — Exp. 03-31-04 — CIVIL — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW
DRAWN MW
CHECKED MW

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 37699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

SYMBOLS

SHEET G-2 OF • SHEETS

Plot Date: 12-DEC-2000 14:57
File: P:\Projects\45R\00\civ\4sr_nbps_g02.div
Job No: MW Job #

A	AIR
AB	ANCHOR BOLT
ABBR	ABBREVIATION
ABS	ABSOLUTE TEMPERATURE
AC	ACTIVATED CARBON, ASPHALTIC CONCRETE, OR ALTERNATING CURRENT
A/C	AIR CONDITIONING
ACOUS	ACOUSTIC OR ACOUSTICAL
ACP	ASPHALTIC CONCRETE PAVEMENT OR ASBESTOS CEMENT PIPE
ADJ	ADJUSTABLE
AER	AERATION
AL	ALUMINUM OR ALUM
ALUM	ALUMINUM
AMB	AMBIENT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE (FORMERLY A.S.A.)
API	AMERICAN PETROLEUM INSTITUTE
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
AT	ACOUSTICAL TILE
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
BOT	BOTTOM
BPV	BACK PRESSURE VALVE
BRK	BRICK
B & S	BELL AND SPIGOT
BSMT	BASEMENT
BT	BOLT
BTU	BRITISH THERMAL UNIT
BV	BUTTERFLY VALVE
BVC	BEGIN VERTICAL CURVE
BWV	BACK WATER VALVE
C	CENTIGRADE
CAB	CABINET
CAP	CAPACITY
CB	CATCH BASIN OR CHALK BOARD
CC	CENTER TO CENTER
CD	CEILING DIFFUSER
CLR	CLEAR
CEM	CEMENT
CER	CERAMIC
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHEM	CHEMICAL
CHG	CHANGE
CHK V	CHECK VALVE
CHKD PL	CHECKERED PLATE
CI	CAST IRON
CJ	CONSTRUCTION JOINT
CL	CHLORINE GAS, CHLORINATOR, CHAIN LINK, CLEARANCE OR CENTERLINE
CLG	CEILING
CLOS	CLOSET
CLR	CLEAR
CM	CENTIMETER
CML & C	CEMENT MORTAR LINED AND COATED
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
CONC	CONCRETE OR CONCENTRIC
COND	CONDENSER OR CONDENSATE
CONN	CONNECTION
CONSTR	CONSTRUCTION OR CONSTRUCT
CONT	CONTINUED OR CONTINUOUS
CONTR	CONTRACTOR
COMP	COMPRESSOR
COTG	CLEAN-OUT TO GRADE
CPLG	COUPLING
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CAUSTIC SODA OR CAST STEEL
CT	CERAMIC TILE
CTSK	COUNTERSUNK
CTR	CENTER
CU	COPPER OR CUBIC
CYL	CYLINDER
d	PENNY
DBL	DOUBLE
DC	DIRECT CURRENT
DET	DETAIL
DF	DRINKING FOUNTAIN OR DOUGLAS FIR
DG	DOOR GRILLE
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIAPH	DIAPHRAGM
DISCH	DISCHARGE
DISP	DISPENSER
DN	DOWN OR DECANT
DO	DISSOLVED OXYGEN
DR	DOOR OR DRAIN
DS	DRENCH SHOWER AND EYE WASH
DWG	DRAWING
DIFF	DIFFUSER OR DIFFERENTIAL

E	EAST
EA	EACH
EB	EXPANSION BOLT OR ANCHOR
EC	END CURVE
ECC	ECCENTRIC
ECR	END CURB RETURN
EF	EACH FACE OR EXHAUST FAN
EFF	EFFLUENT
EG	EXHAUST GRILLE OR EXISTING GRADE
EL	ELEVATION
ELEC	ELECTRICAL OR ELECTRONIC
ENG	ENGINE
EPT	ETHYLENE PROPYLENE
ENCL	ENCLOSURE
ENT	ENTRANCE
EQ	EQUAL
EQUIP	EQUIPMENT
EVAP	EVAPORATOR
EVC	END VERTICAL CURVE
EW	EACH WAY OR EYE WASH
EXH	EXHAUST
EX-HY	EXTRA HEAVY
EXIST	EXISTING
EXP JT	EXPANSION JOINT
EXT	EXTERIOR OR EXTENSION
EXTR	EXTRUDED
F	FAHRENHEIT OR FINISH
FABR	FABRICATION, FABRICATE OR FABRICATED
FAI	FRESH AIR INTAKE
FB	FLAT BAR, FLOOR BEAM OR FIELD BOOK
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDR	FEEDER
FE	FIRE EXTINGUISHER OR FINAL EFFLUENT
FEM	FEMALE (PIPE THREAD)
FF	FLAT FACE OR FAR FACE
F TO F	FACE TO FACE
FG	FINISHED GRADE
FH	FIRE HYDRANT
FIG	FIGURE
FIN	FINISHED
FIX	FIXTURE
FL	FLOWLINE OR FLOOR
FLEX	FLEXIBLE
FLOCC	FLOCCULATOR OR FLOCCULATION
FLG	FLANGE OR FLOORING
FLGD	FLANGED
FLR	FLOOR
FM	FACTORY MUTUAL (LAB. APPROVED)
FMH	FLEXIBLE METAL HOSE
FND	FOUNDATION
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
FR	FRAME
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FAR SIDE, FLOOR SINK, FINISHED SURFACE, FORGED STEEL
	FROTH SPRAY OR FACTOR OF SAFETY
FT	FEET OR FOOT
FT. LB	FOOT-POUND
FTG	FOOTING
FUT	FUTURE
GA	GAGE OR GAUGE
GAL	GALLON
GALV	GALVANIZED
GEN	GENERAL OR GENERATOR
GFA	GROOVED FLANGE ADAPTER
GI	GALVANIZED IRON
GL	GLASS
GL/BM	GLUE LAMINATED BEAM
GLV	GLOBE VALVE
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRD	GRADE OR GROUND
GR BRK	GRADE BREAK OR GRADE CHANGE
GRTG	GRATING
GV	GATE VALVE
GYP	GYPSUM
H/B	HOSE BIBB
HDR	HEADER
HDW	HARDWARE
HEX	HEXAGONAL
Hg	MERCURY
HGR	HANGER
HGT	HEIGHT
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSEPOWER OR HIGH PRESSURE
H/P	HIGH POINT
HR	HEATING RETURN OR HOUR
HTG	HEATING
HTR	HEATER
H & V	HEATING AND VENTILATING
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HWL	HIGH/WATER LEVEL
HWD	HARDWOOD
HWO	HANDWHEEL OPERATED
HV	HORIZONTAL AND VERTICAL CONTROL POINT
HYD	HYDRAULIC OR HYDRANT

ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INFL	INFLUENT
IN. LB	INCH-POUND
INSL	INSULATION OR INSULATED
INSTR	INSTRUMENT
INT	INTERIOR
INV	INVERT ELEVATION
IP	IRON PIPE
IPS	IRON PIPE SIZE
IRRG	IRRIGATION
JAN	JANITOR
JT	JOINT
K	KELVIN, KILO OR KARAT
KG	KILOGRAM
KM	KILOMETER
KV	KILOVOLT
KW	KILOWATT
KWH	KILOWATT HOUR
L/P	LOW POINT
L	LITER OR LENGTH
LAB	LABORATORY
LAM	LAMINATED
LAV	LAVATORY
LB	POUND
LDG	LANDING
LEV	LEVEL
LG	LENGTH OR LONG
LT	LEFT OR LIGHT
LWL	LOW WATER LEVEL
LWR	LOWER
M	METER OR MALE (PIPE THREAD)
MAG	MAGNETIC
MAN	MANUAL
MACH	MACHINE
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MED	MEDIUM
MEMB	MEMBRANE
MFR	MANUFACTURER
MFR'D	MANUFACTURED
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MI	MALLEABLE IRON
MICRON	1/1,000,000 METER
MIL	MILITARY, 1/1,000 INCH
MIN	MINIMUM OR MINUTE
MIR	MIRROR
MISC	MISCELLANEOUS
MK	MARK
MO	MOTOR OPERATED OR MANSONRY OPENING
MOD	MODEL
MS	MOP SINK
MTC	MECHANICAL-TYPE COUPLING
MTD	MOUNTED
MTG	MOUNTING
MTL	MATERIAL OR METAL
MTR	MOTOR
N	NORTH
NBS	NATIONAL BUREAU OF STANDARDS
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NF	NEAR FACE
NG	NATURAL GRADE OR NATURAL GAS
NIC	NOT IN CONTRACT
NO	NUMBER OR NORMALLY OPEN
NOM	NOMINAL
NPS	NOMINAL PIPE SIZE (FORMERLY I.P.S.)
NPT	NATIONAL PIPE THREAD
NRS	NON-RISING STEM
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	OVER-CROSSING OR ON CENTER
OD	OUTSIDE DIAMETER OR OVERALL DIMENSION
OF	OVERFLOW OR OUTSIDE FACE
OFF	OFFICE
OH	OVER HEAD
OPER	OPERATOR OR OPERATING
OPNG	OPENING
OPW	OVERFLOW POND WATER
OS & Y	OUTSIDE SCREW AND YOKE
OWG	OIL, WATER, GAS
OZ	OUNCE

P/S	POLE AND SHELF
P	POLE, PAGE OR PIPE
PART	PARTITION
PAVMT	PAVEMENT
PB	POLYBUTYLENE
PC	PRIMARY CLARIFIER OR PORTLAND CEMENT
PCC	PORTLAND CEMENT CONCRETE
PCOTG	PRESSURE CLEANOUT TO GRADE
PE	PLANT EFFLUENT, POLYELECTROLYTE POLYMER OR POLYETHYLENE
PG	PRESSURE GAGE
pH	HYDROGEN ION CONCENTRATION
PI	PLANT INFLUENT OR POINT OF INTERSECTION
PL	PLATE, PROPERTY LINE OR PLACE
PLAS	PLASTER OR PLASTIC
PLYWD	PLYWOOD
PNEU	PNEUMATIC
PNL	PANEL
PM	PRESSED METAL
PP	POWER POLE OR POLYPROPYLENE
PLT	PLANT
PPD	POUNDS PER DAY
PPH	POUNDS PER HOUR
PPM	PARTS PER MILLION
PR	PAIR
PRCT	PRECAST
PREFAB	PREFABRICATED
PRESS	PRESSURE
PRV	PRESSURE REGULATING, RELIEF OR REDUCING VALVE
PS	PRESSURE SWITCH
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	PAINT
PTDF	PRESSURE TREATED DOUGLAS FIR
PTFE	POLYTETRAFLUOROETHYLENE (TEFLON®)
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVDF	POLYVINYLIDENE FLUORIDE (KYNAR®)
QT	QUARRY TILE
QTY	QUANTITY
R	RADIUS, RISER, RETURN OR RATE OF SLOPE
RAG	RETURN AIR GRILLE
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN, ROUND, OR ROAD
RDWD	REDWOOD
RECIRC	RECIRCULATED
RED	REDUCER OR REDUCING
REF	REFERENCE OR REFER
REG	REGULATING
REIN	REINFORCE OR REINFORCED
RE-STL	REINFORCING STEEL
REQD	REQUIRED
RESIL	RESILIENT
REV	REVISION
RFG	ROOFING
RF	ROOF OR RAISED FACE
RM	ROOM
RO	ROUGH OPENING
RPM	REVOLUTIONS PER MINUTE OR REINFORCED PLASTIC MORTAR
RR	RAILROAD
RS	RISING STEM
RT	RIGHT
RTP	REINFORCED THERMOSETTING PLASTIC
R/W	RIGHT OF WAY
RW	REDWOOD
RWL	RAINWATER LEADER
S	SOUTH, SCUM, SINK, SECOND OR SLOPE
SA	SAMPLE
SBR	STYRENE BUTADENE (RUBBER)
SC	SPARE CHEMICAL OR SECONDARY CLARIFIER
SCD	SCREWED
SCFM	STANDARD CUBIC FEET PER MINUTE
SCH	SCHEDULE
SDR	STORM DRAINS
SEC	SECONDARY
SECT	SECTION
SER	SERIES
SETT	SETTLING
SH	SHOWER
SHT	SHEET OR SHELF
SHTG	SHEATHING
SIM	SIMILAR
SL	SLUDGE OR SLOPE
SOLN	SOLUTION
SLDG	SLIDING
SP	STATIC PRESSURE
SPECS	SPECIFICATIONS
SPECF	SPECIFIED
SQ	SQUARE
SS	SANITARY SEWER, STAINLESS STEEL OR SERVICE SINK
SSU	SECONDS SAYBOLT UNIVERSAL
STA	STATION
STC	SLEEVE-TYPE COUPLING
STD	STANDARD
STL	STEEL
STM	STEAM
STN	STAINLESS
STN STL	STAINLESS STEEL
STRUCT	STRUCTURAL OR STRUCTURE
SUCT	SUCTION
SV	SOLENOID VALVE
SWR	SIDEWALL REGISTER
SYM	SYMMETRICAL OR SYMBOL
SYS	SYSTEM

T	THERMOSTAT, TREAD OF STAIR, TANGENT OR TOP
TB	TACK BOARD
T & B	TOP AND BOTTOM
TBE	THREAD BOTH ENDS
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB
TEMP	TEMPERATURE OR TEMPORARY
T & G	TONGUE AND GROOVE
THK	THICK OR THICKNESS
THR	THRESHOLD
THR'D	THREADED
TK	TANK
TOE	THREAD ONE END
TOL	TOILET
TP	TELEPHONE POLE OR TELEGRAPH POLE
TRANS	TRANSITION OR TRANSMITTER
TSB	TOP SET BASE
TV	THERMOSTATIC VALVE OR TELEVISION
TW	TOP OF WALL OR THERMOMETER WELL
TYP	TYPICAL
UB	UNION BONNET
UC	UNDER-CROSSING
UG	UNDERGROUND
UGC	UNDERGROUND CONDUIT
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
V	VACUUM, VALVE, VERTICAL, VENT, VOLT OR VOLUME
VAR	VARIES OR VARIABLE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VOL	VOLUME
VTC	VENT TO CEILING
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	WEST OR WASTE OR WATER
W/	WITH
WC	WATER COLUMN OR WATER CLOSET
WCO	WALL CLEANOUT
WD	WOOD
WH	WATER HEATER
WI	WROUGHT IRON
W/O	WITHOUT
WOG	WATER, OIL OR GAS WORKING PRESSURE
WP	WATER PROOFING
WS	WATER SURFACE
WSTP	WATER STOP
WT	WEIGHT
WWM	WELDED WIRE MESH
WWP	WATER WORKING PRESSURE
XS	EXTRA STRONG
XXS	DOUBLE EXTRA STRONG
YD	YARD
YR	YEAR
Z	ZERO OR ZONE
ZN	ZINC

NOTES:

ADDITIONAL PIPING ABBREVIATIONS SHOWN ON PIPE SCHEDULE SHEET GM-1

ELECTRICAL ABBREVIATIONS SHOWN ON ELECTRICAL SHEET GE-2

ADDITIONAL ABBREVIATIONS CONFORM TO ANSI STANDARD ABBREVIATIONS Z32.2.3

REV. 091587

REGISTERED PROFESSIONAL ENGINEER — STEVEN V. BOE — No. 57871 — Exp. 06/30/02 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL A. WATSON — No. 43937 — Exp. 03-31-04 — CIVIL — STATE OF CALIFORNIA

Plot Date: 12-DEC-2000 14:57
File: P:\Projects\45R\00\civ\4sr_nbps_g03.dlv
Job No: MW Job #

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW
DRAWN MW
CHECKED MW

SUBMITTED BY
PROJECT MANAGER — LICENSE NO. 50802 — DATE 12/13/00
COMPANY OFFICER — LICENSE NO. 33699 — DATE 12/13/00

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — George R. Bunt — DATE 8.29.01

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

ABBREVIATIONS

SHEET G-3 OF • SHEETS

CIVIL GENERAL NOTES

1. PRIOR TO START OF CONSTRUCTION , THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION.
2. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES TO REMAIN.
3. THE CONTRACTOR SHALL COMPLY WITH THE STATE DEPARTMENT OF HEALTH SERVICES CRITERIA FOR THE SEPARATION OF WATER MAINS AND SANITARY SEWERS AS SET FORTH IN SECTION 64630. TITLE 22 OF THE CALIFORNIA ADMINISTRATIVE CODE. NOTE THAT THESE CRITERIA ARE APPLICABLE TO HOUSE LATERALS AS WELL AS SEWERS.
4. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 42 INCHES COVER ON ALL PIPELINES UNLESS OTHERWISE SHOWN OR DIRECTED.
5. SEWER ELEVATIONS SHOWN ARE TO INVERT (FLOWLINE) OF CONDUIT.
6. STRAIGHT SLOPES SHALL BE MAINTAINED BETWEEN INVERTS SHOWN.
7. THE CONTRACTOR SHALL ADJUST ALL VALVE BOXES, PULL BOXES AND MANHOLES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR DIRECTED. MANHOLES IN OPEN FIELDS SHALL BE SET ONE FOOT ABOVE GRADE. APPROXIMATE RIM ELEVATIONS ARE SHOWN ON DRAWINGS.
8. THE CONTRACTOR SHALL DISPOSE OF ALL DEBRIS FROM DEMOLITION PROPERLY.
9. ALL TRENCHING AND BACKFILL SHALL BE IN ACCORDANCE WITH DETAIL C-601 C-602
10. ALL BURIED VALVE INSTALLATIONS SHALL BE IN ACCORDANCE WITH DETAIL C-640
11. THRUST BLOCKS SHALL BE INSTALLED ON ALL PRESSURE PIPELINES 4" OR GREATER IN ACCORDANCE WITH DETAIL C-605
12. ALL BUILDING COORDINATES ARE TO OUTSIDE CORNER OF COLUMN OR BUILDING.
13. LOCATION OF ELECTRICAL MANHOLES & PULLBOXES ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF MANHOLES & PULLBOXES WITH MECHANICAL, ELECTRICAL, AND CIVIL WORK.
14. PRIOR TO ANY CONNECTION TO AN EXISTING UTILITY, THE CONTRACTOR SHALL COORDINATE WITH THE OWNER OR WITH THE CORRESPONDING AGENCIES.
15. FOR PIPING CONNECTIONS TO STRUCTURE SEE MECHANICAL DRAWINGS.
16. CONTRACTOR SHALL PROVIDE TWO FLEXIBLE CONNECTIONS FOR EACH PIPE PENETRATING A STRUCTURE, WHETHER REFLECTED ON THE DRAWINGS OR NOT. THE CONNECTION SHALL BE 3' AND 8' AWAY FROM THE STRUCTURE, OR AS SHOWN ON PLANS.
17. EXISTING SURFACE FEATURES SHOWN ON ALL SHEETS HEREIN ARE BASED ON UNVERIFIED AERIAL PHOTO. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING SURFACE FEATURES, WHETHER SHOWN OR NOT HEREIN.
18. PRIOR TO SUBMITTAL OF PIPE SHOP DRAWINGS THE CONTRACTOR SHALL VERIFY THE INVERT ELEVATION, OUTSIDE DIAMETER, LOCATION AND MATERIAL OF ALL EXISTING PIPELINES TO WHICH NEW PIPELINES WILL BE CONNECTED.

CIVIL SYMBOLS

- PROPOSED IMPROVEMENT
- EXISTING IMPROVEMENT
- EXISTING IMPROVEMENT TO BE REMOVED OR DEMOLISHED
- SOIL BORING
- BENCH MARK
- HORIZONTAL AND VERTICAL CONTROL POINT
- STRUCTURE, TANK OR BUILDING
- ASPHALT CEMENT PAVING
- CONCRETE PAVING
- GRAVEL PAVING
- EARTH (IN SECTION)
- COMPACTED EARTH (IN SECTION)
- POND LINER (SEE SPECIFICATIONS)
- CONCRETE CURB
- CONCRETE CURB AND GUTTER
- DROP INLET CATCH BASIN
- CURBSIDE DROP INLET CATCH BASIN WITH LOCAL DEPRESSION
- SIDE INLET CATCH BASIN WITH LOCAL DEPRESSION
- CONCRETE WALK
- DRIVEWAY / ACCESS RAMP
- MASONRY WALL, RETAINING WALL, HEADWALL

- 123.25 — FINISHED ELEVATION
- (123.25) — EXISTING ELEVATION
- TOP / TOE — CUT OR FILL SLOPE
- -------GB------- — GRADE BREAK
- -------R------- — RIDGE LINE
- ------C/F------ — CUT/FILL OR DAYLIGHT LINE
- FLOW LINE
- S=0.0123 — SLOPE ON PAVED SURFACE
- 3:1 — BERM SLOPE (HORIZ. TO VERT)
- BURIED ACCESS MH (IN PLAN) LOCATE ON SIDE SHOWN.
- BURIED ACCESS MH (IN PROFILE).
- A/R VALVE (IN PROFILE)
- A/R VALVE LOCATE ON SIDE SHOWN (IN PLAN)
- BLOWOFF (IN PROFILE)
- BLOWOFF (IN PLAN) LOCATE ON SIDE SHOWN
- DELTA
- BUMPED HEAD
- FLEX COUPLING

BASIS OF BEARINGS

THE BASIS OF BEARING FOR THIS MAP IS THE NAD 83, ZONE 6, GRID BEARING POINT NO'S. 350 AND399 AS SAID STATIONS ARE PUBLISHED IN THE SAN DIEGO HORIZONTAL CONTROL BOOK. I.E. N14° 28'44"W

QUOTED BEARINGS FROM REFERENCE MAPS OR DEEDS MAY OR MAY NOT BE IN TERMS OF SAID SYSTEM.
THE COMBINED SCALE FACTOR AT STATION NO. 399 IS 0.9999448
GRID DISTANCE = GROUND DISTANCE x SCALE FACTOR

BENCHMARK

3" BRASS DISK IN MONUMENT WELL STAMPED LS 5894. LOCATED AT THE C/L INTERSECTION OF THORNMINT ROAD AND THORNMINT COURT RECORD FROM CITY OF SAN DIEGO\ (PT NO. 399, R.O.S. 14492)
ELEVATION: 622.05 DATUM: NGVD 29(FEET)

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER — No. 57871 — Exp. 06/30/02 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL R. WARNKE — No. C43139 — Exp. 03-31-04 — CIVIL — STATE OF CALIFORNIA

Plot Date: 12-DEC-2000 14:57
Files: P:\Projects\45R\00\civ\45r_nbps_gc01.dlv
Job No: MW Job #

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 ½ 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED N. NAZARIAN
DRAWN N. NAZARIAN
CHECKED T. BUI

SUBMITTED BY
PROJECT MANAGER — 50892 LICENSE NO. — 12/1/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/1/00 DATE

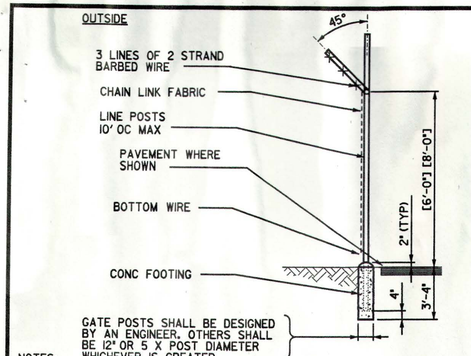
MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
CIVIL GENERAL NOTES

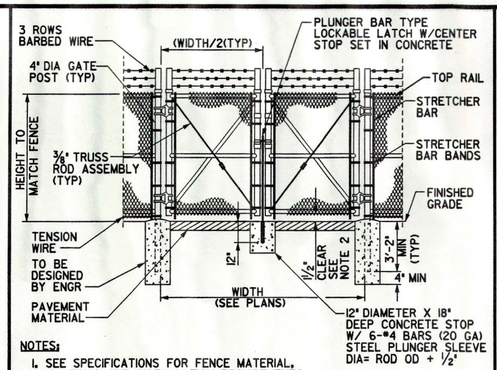
SHEET GC-1 OF • SHEETS



NOTES:

1. SEE SPECIFICATIONS FOR FENCE MATERIAL, COATINGS, AND INSTALLATION REQUIREMENTS
2. EXTENSION ARM MAY BE TURNED IN AT OPTION OF OWNER.

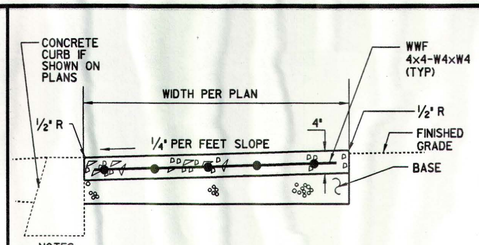
CHAIN LINK FENCE — C-101



NOTES:

1. SEE SPECIFICATIONS FOR FENCE MATERIAL, COATINGS, AND INSTALLATION REQUIREMENTS.
2. SEE SPECIFICATIONS FOR CLEARANCES IN SNOW REGIONS

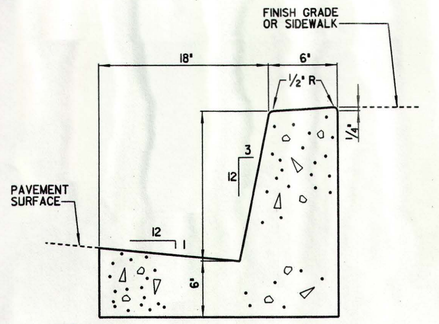
DOUBLE GATE — C-102



NOTES:

1. EXPANSION JOINTS OF 1/2" PREMOLDED JOINT FILLER SHALL BE PLACED AT APPROXIMATELY 24-FEET SPACING (U.N.O.)
2. SCORE LINES AT RIGHT ANGLES TO CENTERLINE SHALL BE MARKED AT 48" INTERVALS ON WALKS EXCEEDING FOUR FEET IN WIDTH, A CONTINUOUS SCORE LINE SHALL BE MARKED ON CENTERLINE (U.N.O.)
3. BASE AND SUBGRADE PREPARATION SHALL MATCH ADJACENT PAVING
4. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL FINISH REQUIREMENTS

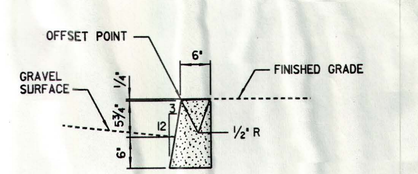
CONCRETE SIDEWALK — C-120



NOTE:
EXPANSION JOINTS OF 1/2" PREMOLDED JOINT FILLER SHALL BE PLACED AT ALL B.C.'S AND AT 50'-0" MAXIMUM SPACING.

CONCRETE CURB AND GUTTER — C-123

NOT TO SCALE

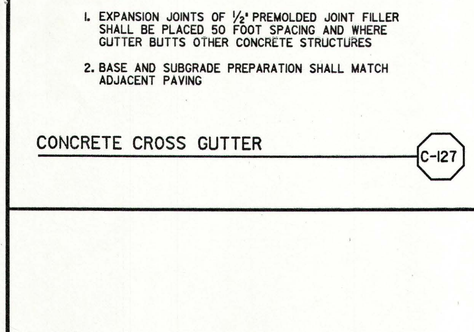


NOTES:

1. SCORE AT RIGHT ANGLES AT 10'-0" O.C.
2. EXPANSION JOINTS OF ONE-HALF INCH RIGID JOINT FILLER SHALL BE PLACED AT ALL B.C.'S AND AT MAXIMUM 50 FEET SPACING.
3. ALL EXPOSED SURFACES OF CURB SHALL BE GIVEN A MORTAR BRUSH COAT CONSISTING OF ONE PART PORTLAND CEMENT, AND THEN TROWELED SMOOTH.

CONCRETE CURB — C-124

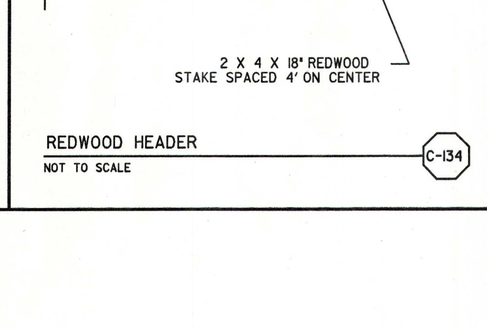
NOT TO SCALE



NOTES:

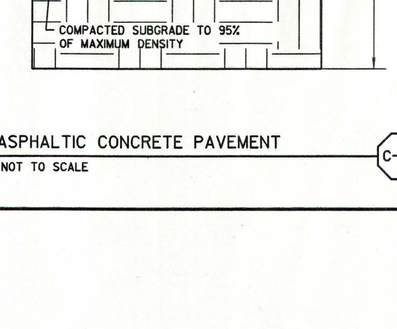
1. EXPANSION JOINTS OF 1/2" PREMOLDED JOINT FILLER SHALL BE PLACED 50 FOOT SPACING AND WHERE GUTTER BUTTS OTHER CONCRETE STRUCTURES
2. BASE AND SUBGRADE PREPARATION SHALL MATCH ADJACENT PAVING

CONCRETE CROSS GUTTER — C-127



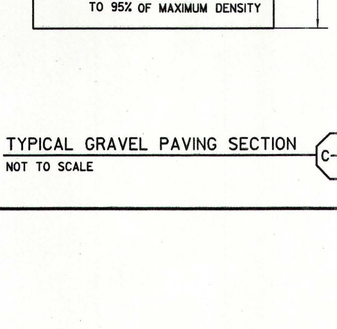
REDWOOD HEADER — C-134

NOT TO SCALE



ASPHALTIC CONCRETE PAVEMENT — C-142

NOT TO SCALE



TYPICAL GRAVEL PAVING SECTION — C-144

NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER — STEVEN V. COX — No. 57871 — Exp. 06-30-02 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL F. WALKER — No. C43137 — Exp. 12-31-04 — CIVIL — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED N. NAZARIAN
DRAWN N. NAZARIAN
CHECKED T. BUI

SUBMITTED BY
PROJECT MANAGER — 50502 LICENSE NO. — 12/3/01 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/12/01 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

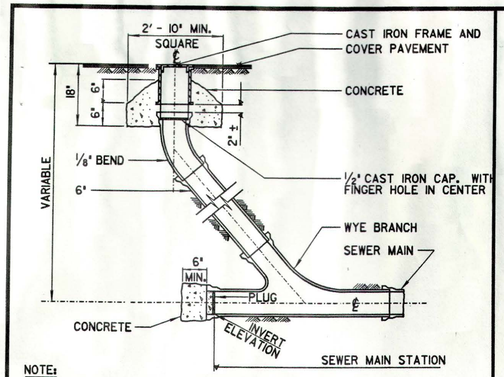
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

CIVIL STANDARD DETAILS - I

SHEET GC-2 OF • SHEETS

Plot Date: 12-DEC-2000 14:57
File: P:\Projects\45R\00\civ\4sr_nbps_gc02.dv
Job No: MW Job #

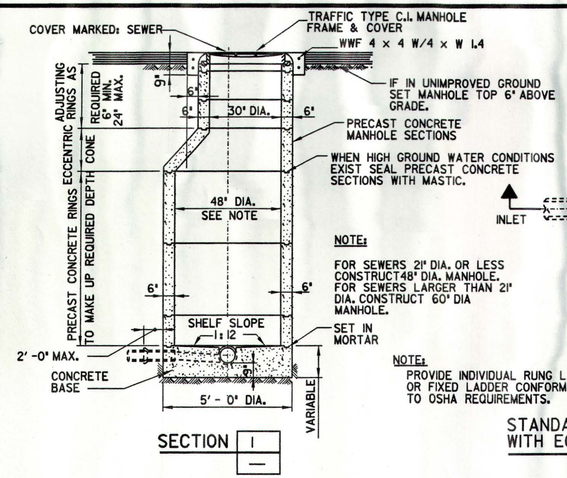


NOTE:
1. IF IN UNIMPROVED AREA TOP SHALL BE 6" ABOVE GRADE.
2. SEE PLAN FOR STATION AND INVERT ELEVATION. PIPE AND FITTINGS SHALL BE OF THE SAME MATERIAL AS THE MAIN LINE SEWER.

SEWER CLEANOUT

NOT TO SCALE

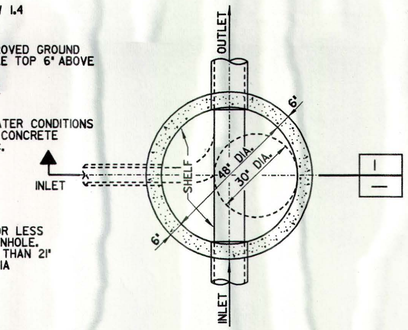
C-507



SECTION 1/—

NOTE:
FOR SEWERS 21" DIA. OR LESS CONSTRUCT 48" DIA. MANHOLE. FOR SEWERS LARGER THAN 21" DIA. CONSTRUCT 60" DIA MANHOLE.

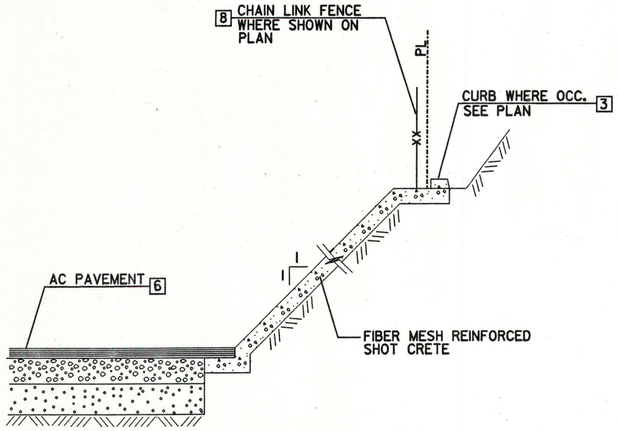
NOTE:
PROVIDE INDIVIDUAL RUNG LADDER OR FIXED LADDER CONFORMING TO OSHA REQUIREMENTS.



SECTIONAL PLAN

STANDARD MANHOLE (MH) WITH ECCENTRIC CONE

C-501



EMERGENCY OVERFLOW POND PAVING DETAIL

C-190

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER — JOHN V. [illegible] — No. 57871 — Exp. 06/30/02 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL F. WALKER — No. [illegible] — Exp. 03-31-[illegible] — CIVIL — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED N. NAZARIAN
DRAWN N. NAZARIAN
CHECKED T. BUI

SUBMITTED BY
PROJECT MANAGER — LICENSE NO. 50802 — DATE 12/12/00
COMPANY OFFICER — LICENSE NO. 33699 — DATE 12/12/00

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — DATE 8.29.01
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

CIVIL STANDARD DETAILS - 2

SHEET GC-3 OF • SHEETS

Job No: MW Job # Files: P:\Projects\4SRN00\civ\4sr_nbps_gc03.dlv Plot Date: 12-DEC-2000 14:57

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

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

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

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

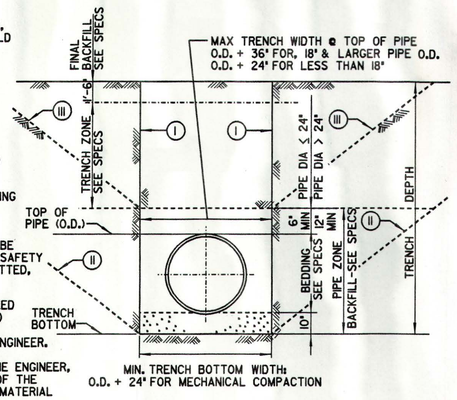
E. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING PIPE DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.

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

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

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

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



TRENCH SECTION - FLEXIBLE PIPE

NOT TO SCALE — C-601

A. RIGID PIPE REFERS TO ALL TYPES OF REINFORCED AND UN-REINFORCED CONCRETE PIPE AND VITRIFIED CLAY PIPE.

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

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

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

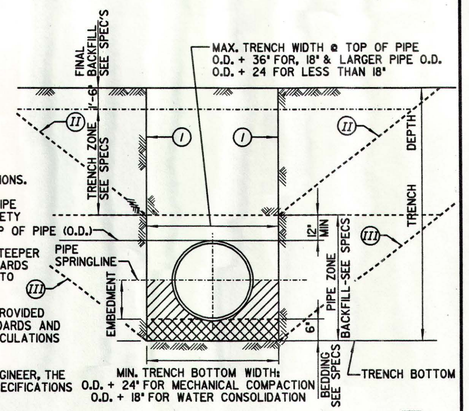
E. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING PIPE DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.

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

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

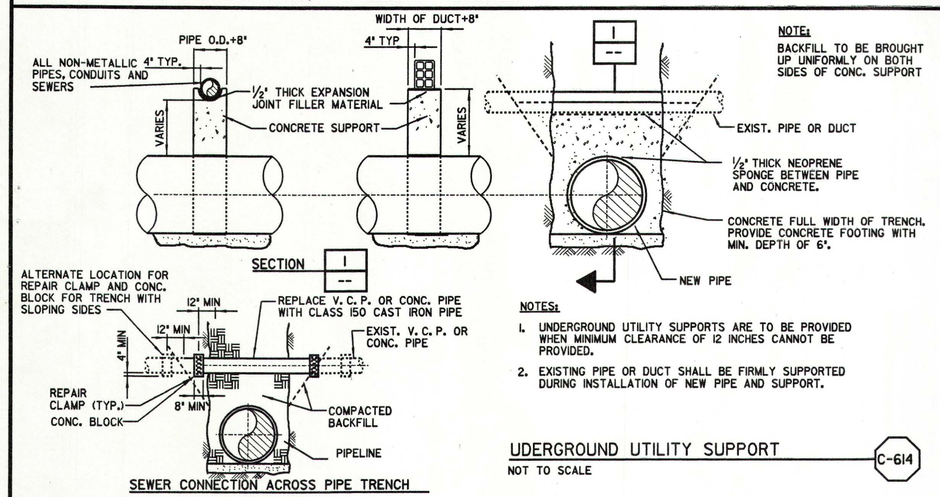
H. IF OVER-EXCAVATION DUE TO POOR FOUNDATION MATERIAL IS ORDERED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTION OF THE SPECIFICATIONS ARTICLE ENTITLED, "USE OF FILL, BACKFILL AND EMBANKMENT MATERIAL TYPES."

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



TRENCH SECTION - RIGID PIPE

NOT TO SCALE — C-602



SEWER CONNECTION ACROSS PIPE TRENCH

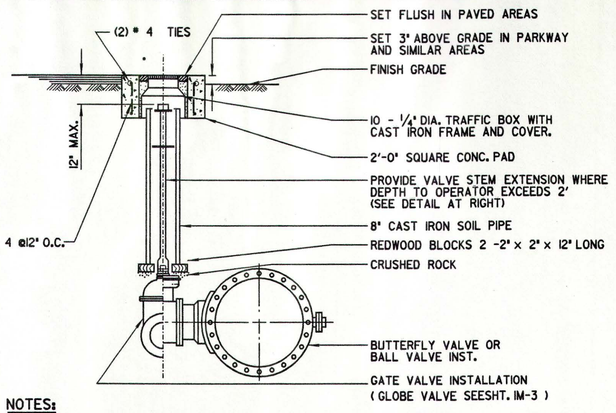
NOTE:
BACKFILL TO BE BROUGHT UP UNIFORMLY ON BOTH SIDES OF CONC. SUPPORT

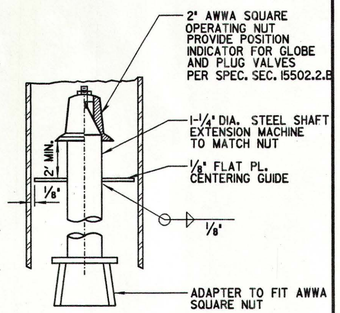
NOTES:

1. UNDERGROUND UTILITY SUPPORTS ARE TO BE PROVIDED WHEN MINIMUM CLEARANCE OF 12 INCHES CANNOT BE PROVIDED.
2. EXISTING PIPE OR DUCT SHALL BE FIRMLY SUPPORTED DURING INSTALLATION OF NEW PIPE AND SUPPORT.

UDERGROUND UTILITY SUPPORT

NOT TO SCALE — C-614





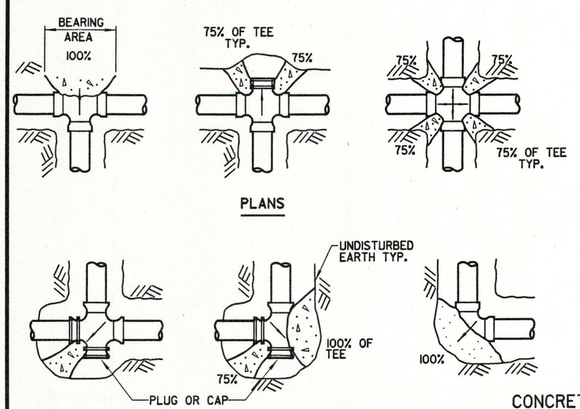
NOTES:

PROVIDE PROTECTIVE COATING TO EXTERIOR SURFACE OF VALVE BODY IN ACCORDANCE WITH SPECS.

FOR LUBRICATED PLUG VALVE, EXTEND LUBRICATION LINE TO GRADE PER MANUFACTURERS INSTRUCTIONS.

BURIED VALVE INSTALLATION

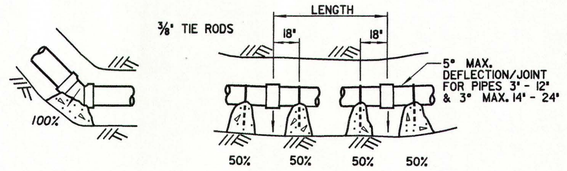
NOT TO SCALE — C-640

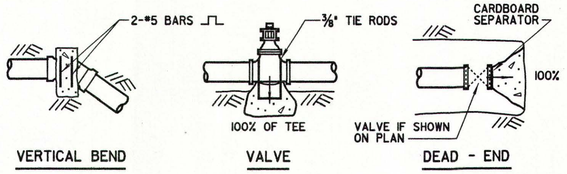


THRUST PER PSI OF WATER PRESSURE AT VARIOUS FITTINGS				
PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22 ½° ELBOW
4	19	27	15	7
6	39	55	30	15
8	67	94	51	26
10	109	154	84	43
12	155	218	119	61
14	210	296	161	82
16	275	383	209	106
18	351	494	269	137
20	434	611	333	169
24	623	878	478	244

EXAMPLE:

8 INCH 90° ELBOW, PRESSURE = 200LB./ SQ. IN. FROM TABLE:
THRUST = 94 x 200 = 18,000 LBS.
ASSUME BEARING STRENGTH OF SOIL = 2000 LB./SQ. FT.
18,800 / 2000 = 9.4 SQ. FT. = AREA OF BEARING REQUIRED FOR THRUST BLOCK.





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

MULTIPLY THRUST BY DEGREE OF DEFLECTION TO OBTAIN TOTAL THRUST.

NOTES:

1. IN USING THE ABOVE TABLES, USE THE MAXIMUM INTERNAL PRESSURE ANTICIPATED (i.e. HYDROSTATIC TEST PRESSURE, POSSIBLE SURGE PRESSURE DUE TO PUMP SHUT-OFF, ETC.
2. SEE SOILS REPORT FOR BEARING STRENGTH OF SOIL. IN THE ABSENCE OF A SOILS REPORT, AN AVERAGE SOIL (SPADABLE MEDIUM CLAY) CAN BE ASSUMED TO HAVE A BEARING STRENGTH OF 2000 P.S.F.
3. THRUST BLOCKS ARE NOT REQUIRED ON P.V.C. PIPE WITH SOLVENT WELDED JOINTS.
4. CONCRETE FOR THRUST BLOCKS TO BE 2000 P.S.I.
5. ARRROWS (⟵) INDICATE THRUST DIRECTION
6. FIGURE (100%) AT THRUST BLOCK INDICATES PERCENT OF TOTAL THRUST TO BE APPLIED FOR BEARING AREA.

CONCRETE THRUST BLOCKS FOR DUCTILE IRON AND P.V.C. PIPE

NOT TO SCALE — C-610

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW
DRAWN N. NAZARIAN
CHECKED T. BUI

SUBMITTED BY
PROJECT MANAGER — 50872 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
CIVIL STANDARD DETAILS - 3

SHEET GC-4 OF • SHEETS

Job No: MW Job #
File: P:\Projects\4SR\00\civ\4sr_nbps_gc04.dlv
Plot Date: 12-DEC-2000 14:57

E 6,295,200 | E 6,295,300 | E 6,295,400 | E 6,295,500 | E 6,295,600 | E 6,295,700

N 1,946,000

N 1,945,900

N 1,945,800

EMERGENCY OVERFLOW POND

FERRIC CHLORIDE STORAGE AND FEED SYSTEM

SWBD

PUMP ROOM

MCC

GEN PAD

FUEL TANK

XFMR PAD

WET WELL

MH 4SS-18
PER TM 5066-1,
SHEET 65 (NIC)

MH 4SS-17
PER TM 5066-1,
SHEET 65 (NIC)

VAR

20'

10'

0.5' (TYP)

2' (TYP)

15.4'

12'

7'

1.5'

TYPE II RIPRAP
SEE SPECS

2' WIDE
CURB OPENING

50'

20'

NOTE: SEE SHEET C-4 FOR HORIZONTAL CONTROL AND CALL-OUT DATA

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J

Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER — STEVEN V. MUELLER — No. 57871 — Exp. 06-30-02 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL F. WAIL — No. 040137 — Exp. 03-31-04 — CIVIL — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: 1" = 20'

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED T BUI
DRAWN T BUI
CHECKED J MOUAWAD

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED George R Bomt — OLIVENHAIN MWD — 8.29.01 DATE
APPROVED — FLANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

NEIGHBORHOOD NO. 1 PUMP STATION
HORIZONTAL CONTROL AND PAVING PLAN

SHEET 12C-1 OF • SHEETS

Job No: MW Job # File: P:\Projects\45R\00\civ\45r_nbps_c01.div Plot Date: 12-DEC-2000 14:57

Plot Date: 12-DEC-2000 14:57

Job No: MW Job # Files: P:\Projects\45R\00\civ\4sr_nbps_c02.dlv

E 6,295,200 | E 6,295,300 | E 6,295,400 | E 6,295,500 | E 6,295,600 | E 6,295,700

N 1,946,000

N 1,945,900

N 1,945,800

421.4 | 418.9 | 421.2 | 417.3 | 422.4 | 424.9 | 429.3 | 423.8 | 415.1 | 417.1 | 414.8 | 421.2 | 413.0 | 417.7 | 415.0 | 413.1 | 411.0 | 415.4 | 404.9 | 416.6 | 419.1 | 420.9 | 422.7

438 | 438.0 | 439.9 | 419.0 | 430 | 418.0 | 420 | 443.0 | 440

FILL

420.69 TC
420.32 LIP
420.19 FL

420.95 TC
420.45 FS
(420.00 LIP)

421.22 TC
420.72 FS

421.44 TC
420.94 FS

418
415
410
408

408.00 FL

1.3%

407.00 FS

EMERGENCY OVERFLOW POND

420.1

8.5'H
4H:1V

0.77%

VAR

FERRIC CHLORIDE STORAGE AND FEED SYSTEM FF=421.75

420.30 FS

2.00%

421.00 TC
420.50 FS

422.00 FL

SWBD

422.60 FL

423.4 FG

424.27 TC
423.77 FS

424.17 FS

422.71 FS
PUMP ROOM FF=422.75
MCC

422.71 FS

WET WELL TOP=422.75

GEN PAD FF=423.50

FUEL TANK FF=423.50

XFMR PAD FF=423.75

423.73 TC
423.23 FS

422.24 FL

421.59 FL

421.72 TC
421.22 FS

423.23 TC
422.86 LIP
422.73 FS

424.00 TC
423.63 LIP
423.50 FL

2.50%

420.56 TC
420.06 FS

420.00 FS

RIDGE

0.50%

419.63 LIP
419.50 FL
=TCB

421.22 TC
420.85 LIP
420.72 FL

LIMITS OF GRADING JOIN EXIST GRADE

420.25 TC
419.88 LIP
419.75 FL

419.15 FG

LIMITS OF GRADING JOIN EXIST GRADE

411.1

Q=47.4 CFS
V=19.9 FPS
8' 2 TON RIPRAP

416.5' RM
4045 IE

417.0

417.00 FG

FL 416.8

Q=2.0 CFS
V=3.6 FPS
NO.2 BACKING

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER — JOHN V. [illegible] — No. 57871 — Exp 04/30/02 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL D. WATKINS — No. C43137 — Exp 03-31-04 — CIVIL — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE 1" = 20'

WARNING 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED T BUI
DRAWN T BUI
CHECKED J MOUAWAD

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/12/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
George R Bent — 8.29.01 DATE
OLIVENHAIN MWD

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

NEIGHBORHOOD NO. 1 PUMP STATION GRADING AND DRAINAGE PLAN

SHEET 12C-2 OF • SHEETS

Plot Date: 05-NOV-2001 15:03

File: P:\Projects\4SR\00\civ\4sr_nbps_c03.dlv

Job No: MW Job #

E 6,295,200 | E 6,295,300 | E 6,295,400 | E 6,295,500 | E 6,295,600 | E 6,295,700

N 1,946,000

N 1,945,900

N 1,945,800

438

439.9

441.0

443.0

FILL

CUT

FL 418.0

FL 417.0

STORM DRAIN LINE "W" EASEMENTS

8" SEWER EASEMENTS

416.5 TW
404.5 IE

416.8

417.0

FL 416.7

1½" HOSEBIB

N 1,945,865.56
E 6,295,540.86
IE 404.16
OE 403.96

N 1,945,880.63
E 6,295,501.15

EMERGENCY OVERFLOW POND

N 1,945,878.58
E 6,295,504.12
INV 404.75

18" OF (27)

PROVIDE SHOP DWG FOR CONNECTION

N 1,945,828.43
E 6,295,554.00
INV 416.50
CB BOTTOM 414.00

FERRIC CHLORIDE STORAGE AND FEED SYSTEM SEE SHT. 12M-3

N 1,945,911.16
E 6,295,609.81
POC OF 1½" REW

CHEMICAL INJECTION VAULT

SURGE TANK

SWSH

PUMP ROOM SEE SHT. 12M-1

MCC

WET WELL

GEN PAD SEE SHT. 12E-4

FUEL TANK

XFMR PAD

SEE SHT. 12E-1

N 1,945,876.28
E 6,295,724.96
POC TO 6" PW

F.M. ISO Valve

2" PW (16)

10" FM (19)

N 1,945,860.51
E 6,295,727.68
POC OF 10" FM

1½" SPD (19)

1½" BALL VALVE

NOTE:

1. YARD PIPING SHALL BE DESIGNED AND CONSTRUCTED BY SHOP DRAWING FURNISHED BY CONTRACTOR.

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with: (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J

Date 12/19/01 By

PAUL F. WELLER
No. 43137
Exp. 03.31.04
CIVIL
STATE OF CALIFORNIA

11/5/01

REV	DATE	BY	OMWD	DESCRIPTION
1	11/05/01	PFW		DELETE FH PER FIRE DEPT PERMIT

SCALE 1" = 20'

WARNING 0 ½ 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED T BUI
DRAWN T BUI
CHECKED J MOUAWAD

SUBMITTED BY
PROJECT MANAGER — 43137 LICENSE NO. — 11/5/01 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 11/5/01 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 1/2/02 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

NEIGHBORHOOD NO. 1 PUMP STATION
YARD PIPING PLAN

SHEET 12C-3 OF • SHEETS

Job No: MW Job # File: P:\Projects\4SR\00\civ\4sr_nbps_c04.dlv Plot Date: 12-DEC-2000 14:57

SEE SHEET 12C-1 FOR DRAWINGS

CURVE DATA

NO.	R (FT)	L (FT)	Δ	T (FT)
1	20.00	23.58	67° 32′26″	13.37
2	25.00	38.13	87° 23′11″	23.88
3	NOT USED	*	*	*
4	90.00	19.76	12° 34′35″	9.92
5	20.00	38.34	109° 50′45″	28.48
6	NOT USED	*	*	*

CONSTRUCTION NOTES

1. CONSTRUCT CONCRETE SIDEWALK PER DETAIL C-120
2. CONSTRUCT CONCRETE CURB & GUTTER PER DETAIL C-123
3. CONSTRUCT CONCRETE CURB PER DETAIL C-124
4. CONSTRUCT CONCRETE CROSS GUTTER PER DETAIL C-127
5. CONSTRUCT REDWOOD HEADER PER DETAIL C-134
6. CONSTRUCT ASPHALTIC CONCRETE PAVEMENT PER DETAIL C-142
7. CONSTRUCT GRAVEL PAVEMENT PER DETAIL C-144
8. CONSTRUCT BLACK VINYL-COATED CHAIN LINK FENCE SIMILAR TO DETAIL C-101
9. CONSTRUCT 22′ BLACK VINYL-COATED DOUBLE SWING GATE SIMILAR TO DETAIL C-102
10. CONSTRUCT 6′ DIA CATCH BASIN MANHOLE/ PUMP STATION/WITH GALV TRAFFIC RATED GRATING C-501
11. CONSTRUCT CONC SLAB PER DETAIL S-190
12. CONSTRUCT INLET/OUTLET BOX SIMILAR TO DRAWING 7S-1
13. INSTALL HYDROMATIC SW25 (20 GPM @ 8-FT TDH) IN CATCH BASIN
14. CONSTRUCT SHOTCRETE PAVEMENT PER DETAIL C-190

HORIZONTAL CONTROL

NO.	DISCRIPTION	NORTHING	EASTING
1	ROAD CL	1,945,863.81	6,295,743.19
2	BEGIN CURB/CURB BC	1,945,883.07	6,295,720.20
3	CURB EC	1,945,868.18	6,295,703.69
4	PAD CORNER	1,945,886.13	6,295,697.12
5	PAD CORNER	1,945,884.25	6,295,687.30
6	FUEL TANK	1,945,871.52	6,295,684.65
7	FUEL TANK	1,945,869.82	6,295,675.81
8	GEN PAD CORNER	1,945,893.06	6,295,664.22
9	GEN PAD CORNER	1,945,890.79	6,295,652.44
10	PUMP ROOM CORNER	1,945,887.32	6,295,620.18
11	PUMP ROOM CORNER	1,945,862.44	6,295,624.96
12	WET WELL CORNER	1,945,880.04	6,295,601.72
13	WET WELL CORNER	1,945,859.91	6,295,605.58
14	BUILDING CORNER	1,945,904.69	6,295,597.50
15	BUILDING CORNER	1,945,899.60	6,295,570.98
16	FLOWLINE	1,945,892.75	6,295,648.50
17	FLOWLINE	1,945,861.06	6,295,654.58
18	SURGE TANK CENTER	1,945,890.82	6,295,615.44
19	FLOWLINE	1,945,886.61	6,295,616.50
20	FLOWLINE	1,945,856.38	6,295,622.30
21	CURB BC	1,945,853.74	6,295,604.08
22	CURB EC	1,945,873.77	6,295,575.94
23	END CURB	1,945,911.17	6,295,568.76
24	BEGIN CURB & GUTTER	1,945,916.26	6,295,537.24
25	BEGIN CURB	1,945,856.20	6,295,536.66
26	TOP OF RAMP	1,945,856.03	6,295,536.83
27	BEGIN CURB	1,945,843.68	6,295,534.72
28	TOP OF RAMP	1,945,844.08	6,295,535.72
29	ROAD CL	1,945,828.40	6,295,499.02
30	PI	1,945,812.28	6,295,457.51
31	PI	1,945,825.28	6,295,370.45
32	BC	1,945,833.39	6,295,463.69
33	EC	1,945,832.71	6,295,443.99
34	BC	1,945,835.62	6,295,405.56
35	EC, END CURB	1,945,863.75	6,295,388.82
36	PI	1,945,864.16	6,295,387.91
37	PI	1,945,918.59	6,295,412.33
38	END CURB	1,945,918.54	6,295,523.09
39	POND BOTTOM	1,945,894.02	6,295,503.87
40	POND BOTTOM	1,945,876.04	6,295,507.78
41	BOTTOM OF RAMP	1,945,853.51	6,295,434.15
42	POND BOTTOM	1,945,855.54	6,295,407.41
43	POND BOTTOM	1,945,895.97	6,295,426.16
44	C/L SEWER MH (NIC)	1,945,868.29	6,295,591.75

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By [signature]

REGISTERED PROFESSIONAL ENGINEER — No. 57871 — Exp. 06/30/02 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL F. WALKER — No. C43137 — Exp. 03-31-04 — CIVIL — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED T BUI
DRAWN P BOGDANOFF
CHECKED J MOUAWAD

SUBMITTED BY
PROJECT MANAGER — LICENSE NO. 50802 — DATE 12/13/00
COMPANY OFFICER — LICENSE NO. 33699 — DATE 12/13/00

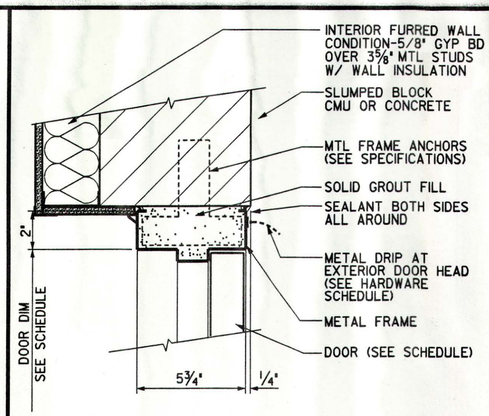
MONTGOMERY WATSON
Pasadena, California

APPROVED George R Brant — OLIVENHAIN MWD — DATE 8.29.01
APPROVED — FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

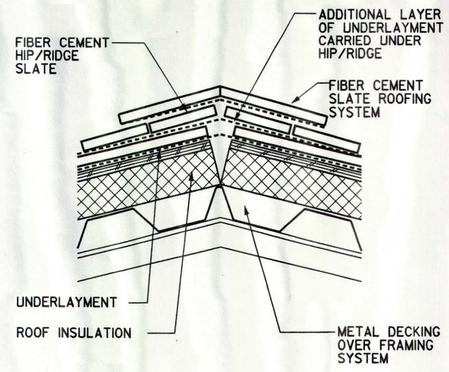
NEIGHBORHOOD NO. 1 PUMP STATION
HORIZONTAL CONTROL AND CALL-OUT DATA

SHEET 12C-4
OF * SHEETS



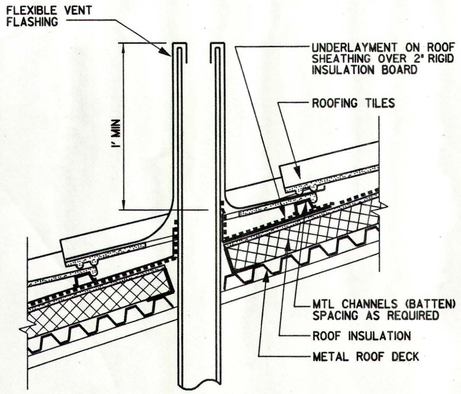
DOOR HEAD — 9 / 12A-1

SCALE: 3"=1'-0" JAMB SIMILAR



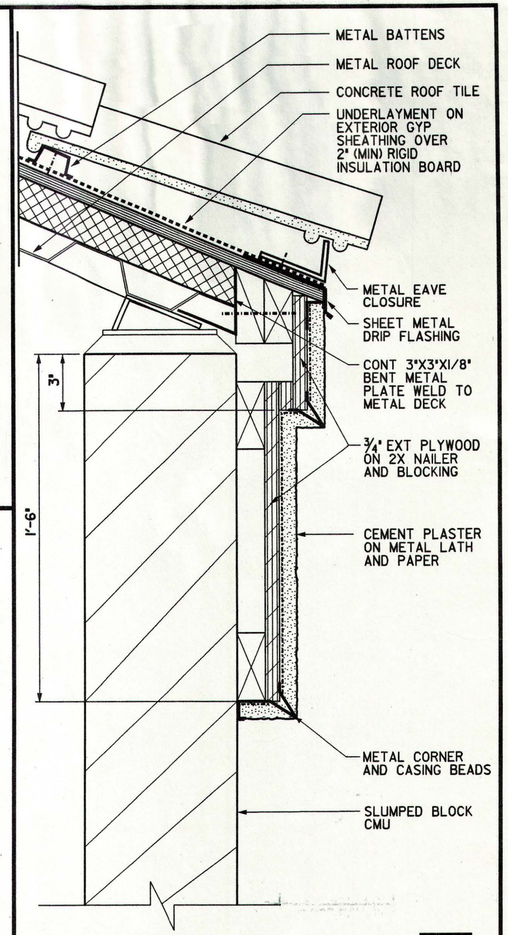
RIDGE DETAIL — 6 / 12A-1

SCALE: 3"=1'-0"



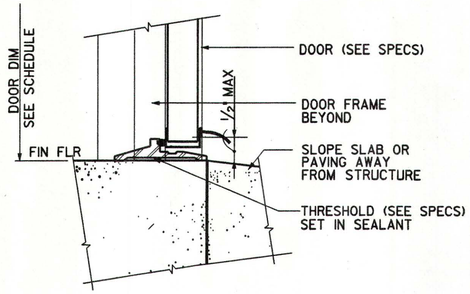
PIPE FLASHING — 3 / 12A-1

SCALE: 3"=1'-0"



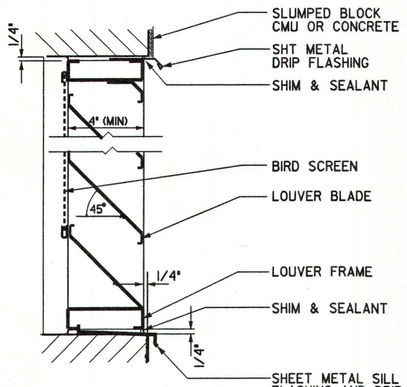
ROOF EAVE DETAIL — 1 / 12A-1

SCALE: 3"=1'-0"



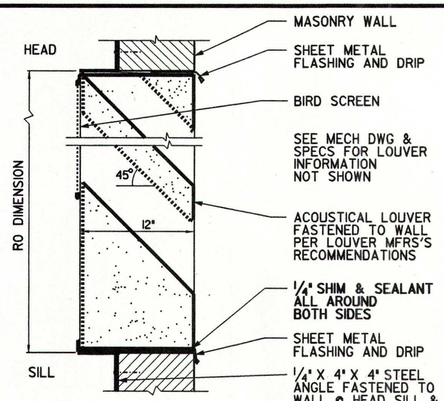
EXTERIOR DOOR SILL — 10 / 12A-1

SCALE: 3"=1'-0"



LOUVER — 11 / 12A-1

SCALE: 3"=1'-0"



ACOUSTICAL LOUVER — 5 / 12A-1

SCALE: 1½"=1'-0"

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J

Date 8/23/01 By

LICENSED ARCHITECT CHARLES E. YOUNG No. C-9856 RENEWAL DATE 12-31-01 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL F. WALTERS No. 43782 EXP. DATE 08-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C YOUNG
DRAWN C YOUNG
CHECKED C Young

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

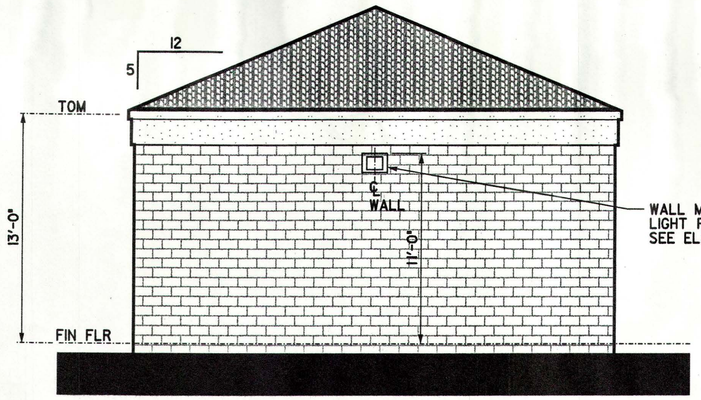
NEIGHBORHOOD NO. I PUMPSTATION
ARCHITECTURAL DETAILS

SHEET GA-1 OF • SHEETS

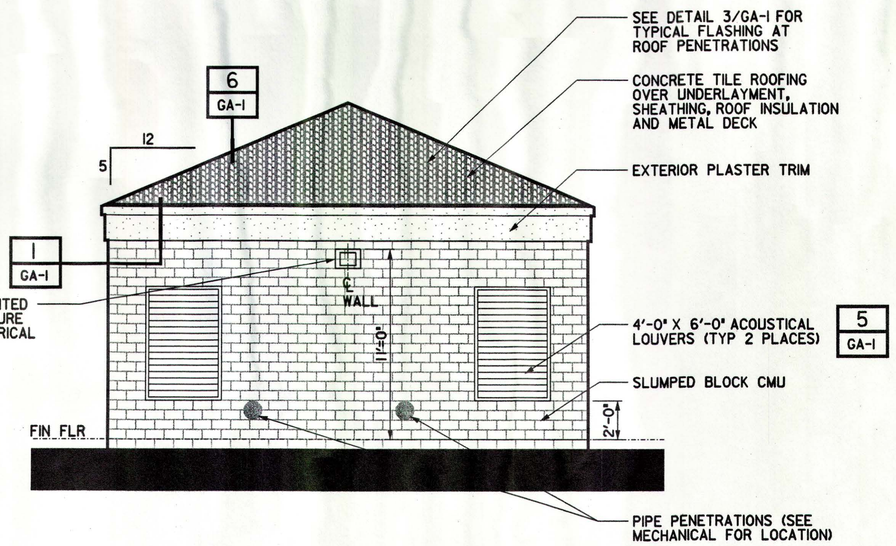
Plot Date: 12-DEC-2000 13:32

File: P:\Projects\4SRV12\arc\4sr12ga01.dlv

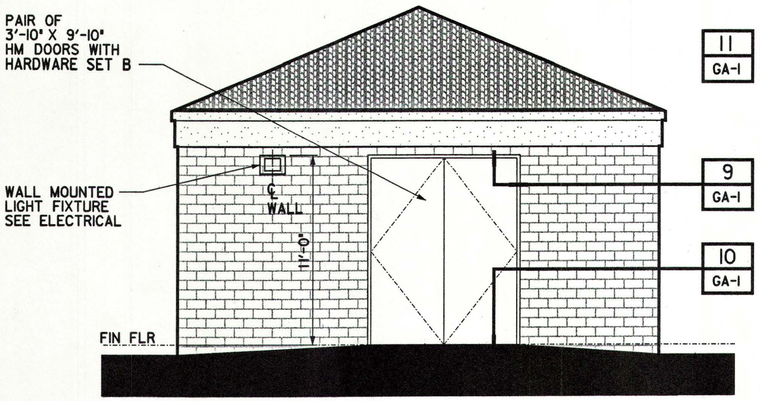
Job No: MW Job #



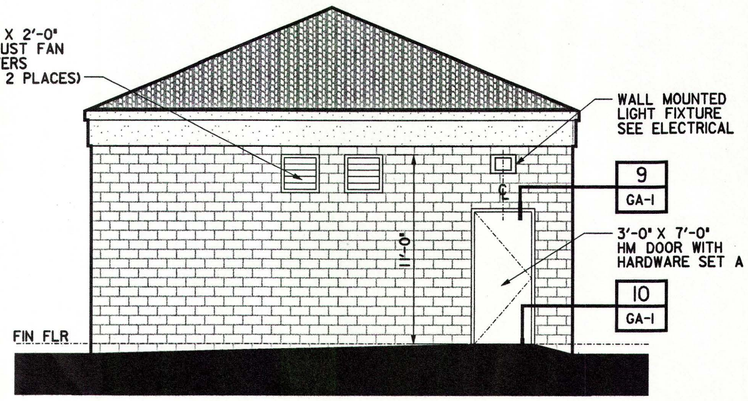
NORTH ELEVATION



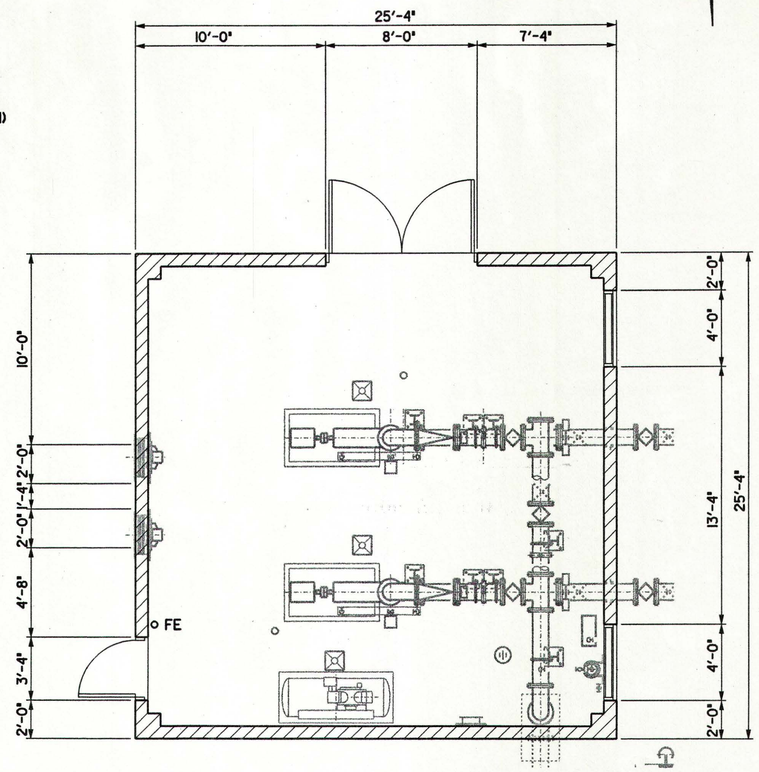
WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION



FLOOR PLAN

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with: (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By

LICENSED ARCHITECT CHARLES E. YOUNG No. C-9856 RENEWAL DATE 12-31-01 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL F. WATKINS No. 043571 Exp 03-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE 1/4"=1'-0"

WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED E CARBONNIER
DRAWN C YOUNG
CHECKED C Young

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/12/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED George R Bunt 8.29.01
OLIVENHAIN MWD DATE
APPROVED
FILANC CONSTRUCTION CO. DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
ARCHITECTURAL FLOOR PLAN AND ELEVATIONS

SHEET 12A-1 OF • SHEETS

Plot Date: 12-DEC-2000 13:32
Files: p:\Projects\4SRV12\arc\4sr04a01.dlv
Job No: MW Job #

MISCELLANEOUS VALVE SCHEDULE (8 INCH AND LARGER)

VALVE NO.	LOCATION	DWG. NO.	SERVICE	TYPE	SIZE IN.	OPERATOR	REMARKS
12-V-1	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	ECCENTRIC PLUG	10	MANUAL WITH HANDWHEEL	FLANGED
12-V-2	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	ECCENTRIC PLUG	10	MANUAL WITH HANDWHEEL	FLANGED
12-V-3	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	ECCENTRIC PLUG	10	MANUAL WITH HANDWHEEL	FLANGED
12-V-4	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	ECCENTRIC PLUG	10	MANUAL WITH HANDWHEEL	FLANGED
12-V-5	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	ECCENTRIC PLUG	10	MANUAL WITH HANDWHEEL	FLANGED
12-V-6	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	SWING CHECK	10	-----	FLANGED W/LIMIT SWITCH
12-V-7	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	SWING CHECK	10	-----	FLANGED W/LIMIT SWITCH
12-V-8	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	ECCENTRIC PLUG	10	MANUAL WITH HANDWHEEL	FLANGED
12-V-9	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	ECCENTRIC PLUG	10	MANUAL WITH HANDWHEEL	FLANGED
12-V-10	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	ECCENTRIC PLUG	8	MANUAL WITH HANDWHEEL	FLANGED

PUMP SCHEDULE

PUMP NO.	LOCATION	DWG. NO.	SERVICE	TYPE	GPM	TDH FT.	HP (MIN.)	REMARKS
12-P-1	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	SUBMERSIBLE	1360	135	75	CONSTANT SPEED
12-P-2	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	SUBMERSIBLE	1360	135	75	CONSTANT SPEED
12-P-3	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	HORIZONTAL NON-CLOG	1360	225	125	VARIABLE SPEED
12-P-4	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	HORIZONTAL NON-CLOG	1360	225	125	VARIABLE SPEED
12-P-5	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	UTILITY WATER	CLOSED COUPLED TURBINE	2	356	2	SEAL WATER BOOSTER
12-P-6	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	UTILITY WATER	CLOSED COUPLED TURBINE	2	356	2	SEAL WATER BOOSTER

TANK SCHEDULE

TANK NO.	LOCATION	DWG. NO.	SERVICE	TYPE	CAPACITY GALS.	SIZE FT.	REMARKS
12-T-1	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	SURGE TANK	VERTICAL STEEL TANK	750	4' DIA	
12-T-2	NEIGHBORHOOD NO. 1 PUMP STATION	12M-3	FERRIC CHLORIDE	FRP TANK	5000	10' DIA	

METER SCHEDULE

METER NO.	LOCATION	DWG. NO.	SERVICE	TYPE	SIZE IN.	FLOW RANGE GPM	ENDS	REMARKS
12-M-1	NEIGHBORHOOD NO. 1 PUMP STATION	12M-2	WASTE WATER	MAGNETIC	10	0-2000	FLG'D	

CHEMICAL FEEDER SCHEDULE

FEEDER NO.	LOCATION	DWG. NO.	SERVICE	TYPE	PSI	CAPACITY	REMARKS
12-FD-1	NEIGHBORHOOD NO. 1 PUMP STATION	12M-3	FERRIC CHLORIDE				
12-FD-2	NEIGHBORHOOD NO. 1 PUMP STATION	12M-3	FERRIC CHLORIDE				

GATE SCHEDULE

GATE NO.	LOCATION	DWG. NO.	SERVICE	OPERATOR	SIZE IN. WD	SIZE IN. HT	TYPE OR REMARKS
12-G-1	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	MANUAL GEAR	16	16	DOWNWARD CLOSING SLUICE GATE
12-G-2	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	WASTE WATER	MANUAL GEAR	16	16	DOWNWARD CLOSING SLUICE GATE

FAN AND VENTILATOR SCHEDULE

FAN OR VENT NO.	LOCATION	DWG. NO.	SERVICE	TYPE	CFM	S. P. IN.	HP (MIN.)	REMARKS
12-EF-1	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	EXHAUST AIR	PROPELLER	2340	0.25	1/4	DIRECT DRIVE
12-EF-2	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	EXHAUST AIR	PROPELLER	2340	0.25	1/4	DIRECT DRIVE

MISCELLANEOUS MECHANICAL EQUIPMENT SCHEDULE

EQUIP. NO.	LOCATION	DWG. NO.	SERVICE	TYPE	HP (MIN.)	CAPACITY (MIN.)	REMARKS
12-ME-1	NEIGHBORHOOD NO. 1 PUMP STATION	12M-1	COMPRESSED AIR	TANK-MOUNTED LUBRICATED AIR COMPRESSOR	1.5	4 ACFM	

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water Distri t, is intended as a limited review only for general conformance with: (1) This approved Design/Bu d documents, (2) Accepted standards of practice within the industry, and (3) The standards of o Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act o relieve the Design/Build Team of any professional liability to the responsibility to provide a compl e and functional facility that is compliant with all applicable specifications, standards, codes, d regulations.

PBS & J
Date 12/13/01 By

REGISTERED PROFESSIONAL ENGINEER
PAUL F. WALLACE
No. C49137
Exp 03-31-04
CIVIL
STATE OF CALIFORNIA
11/5/01

REV	DATE	BY	OMWD	DESCRIPTION
1	11/5/01	PFW		ADD 2ND SEAL WATER BOOSTER PUMP

SCALE: NONE

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED T.S. LOH
DRAWN T.S. LOH
CHECKED J. CHUEH

SUBMITTED BY
PROJECT MANAGER — 43137 LICENSE NO. — 11/5/01 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 11/5/01 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 1/2/02 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
MECHANICAL EQUIPMENT LIST

SHEET GM-1 OF • SHEETS

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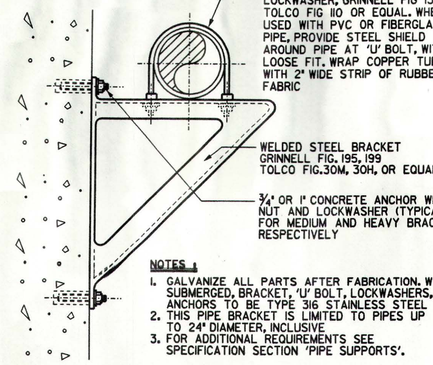
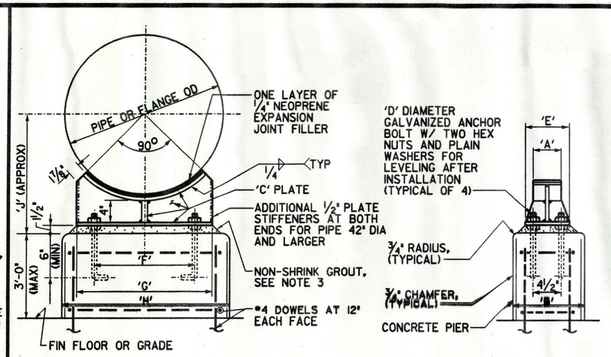
File: p:\Projects\4SR\12\mec\4sr12gml.dlv
Plot Date: 05-NOV-2001 15:06



NOTES :
1. GALVANIZE ALL PARTS AFTER FABRICATION. WHERE SUBMERGED, BRACKET, 'U' BOLT, LOCKWASHERS, AND ANCHORS TO BE TYPE 316 STAINLESS STEEL
2. THIS PIPE BRACKET IS LIMITED TO PIPES UP TO 24" DIAMETER, INCLUSIVE
3. FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATION SECTION 'PIPE SUPPORTS'.

PIPE BRACKET
REV 010199 — M-104

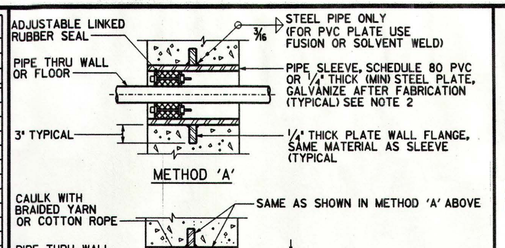


NOTES:
1. WHEN SUPPORTING PIPE AND FLANGE ALTERNATELY ON THE SAME LINE, CONCRETE PIERS FOR PIPE SUPPORTS SHALL ALL HAVE THE SAME DIMENSION 'H' FOR FLANGE SUPPORT
2. PIPE SUPPORTS SHALL BE LOCATED IN PLAN AT POINTS MARKED THUS: (X)
3. WHERE DIFFERENTIAL SETTLEMENT IS LIKELY TO OCCUR, OMIT GROUT AS DIRECTED BY THE ENGINEER
4. GALVANIZE ALL PARTS AFTER FABRICATION
5. WHERE DIRECTED BY THE STRUCTURAL ENGINEER, BOTTOM OF PIERS SHALL EXTEND BELOW BOTTOM OF SLAB
6. WHERE PIPE SUPPORT OCCURS ON GRADE REFER TO STRUCTURAL DRAWINGS FOR DETAILS

NOMINAL PIPE SIZE	SUPPORTING PIPE A	B	C	D	E	SUPPORTING FLANGE F	G	H	J
6	4	12	3/8	5/8	6	4½	6	12	10
8	4	12	3/8	5/8	6	5	8	13	11
10	4	12	3/8	5/8	6	6	9	15	12
12	4	12	3/8	5/8	6	7	11	17	13
14	4	12	3/8	5/8	6	8	12	17	14
16	4	12	3/8	5/8	6	9	13	19	15
18	4	12	3/8	5/8	6	10	14	20	16
20	5	12	3/8	5/8	6	10	15	21	17
22	5	12	3/8	5/8	6	12	18	24	18
24	5	12	3/8	5/8	6	13	19	24	19
26	5	12	3/8	3/4	6	14	21	27	20
30	5	12	3/8	3/4	6	16	23	28	22
34	5	15	3/8	3/4	6	18	26	32	24
36	6	15	3/8	3/4	6	19	27	32	25
42	6	18	1/2	1	8	21	31	36	28
48	8	18	1/2	1	8	24	35	42	31
54	6	18	1/2	1	8	28	40	46	34
60	6	18	1/2	1 1/8	8	32	45	52	37
66	6	18	1/2	1 1/8	8	33	49	56	40
72	6	18	1/2	1 1/8	8	36	53	60	43

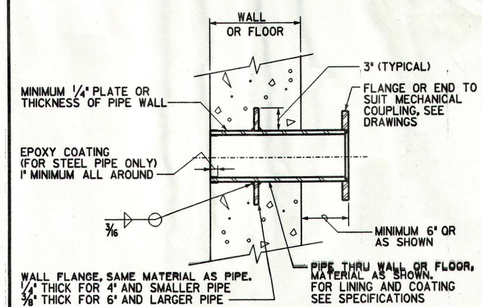
NOMINAL PIPE SIZE	SUPPORTING PIPE H	J	SUPPORTING FLANGE H	J
6	24	13	6½	9
8	5	8	7½	9
10	6	9	9	13
12	7	11	10	15
14	8	12	11	16
16	9	13	12	18
18	10	14	13	19
20	10	15	15	21
22	12	18	16	23
24	13	19	16	24
26	14	21	18	26
30	16	23	20	29
34	18	26	22	33
36	19	27	24	34
42	21	31	27	39
48	24	35	30	44
54	28	40	34	48
60	32	45	36	54
66	33	49	40	59
72	36	53	44	63

PIPE SUPPORT
REV 060299 — M-109

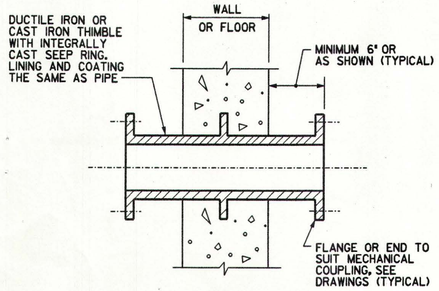


NOTES:
1. THESE SLEEVED PIPE OPENING DETAILS ARE TO BE USED IN DRY WALLS ONLY AND SHALL NOT BE USED FOR WALLS WITH WATER ON ONE OR BOTH SIDES.
2. SLEEVES ARE NOT REQUIRED IN CORE DRILLED WALLS OR FLOORS.

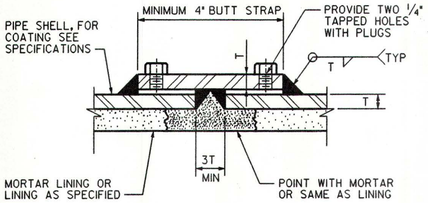
SLEEVED PIPE OPENING
REV 010199 — M-111



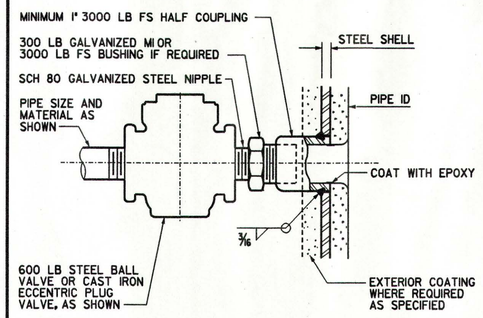
FABRICATED PIPE THIMBLE
REV 010199 — M-112



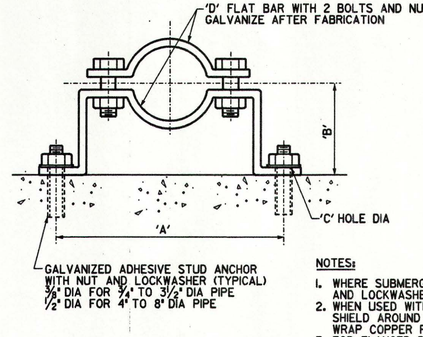
FLANGED OR GROOVED DUCTILE IRON OR CAST IRON PIPE THIMBLE
REV 010199 — M-116



BUTT STRAP JOINT
REV 010199 — M-118



PIPE CONNECTION 2½" AND SMALLER
REV 010199 — M-120

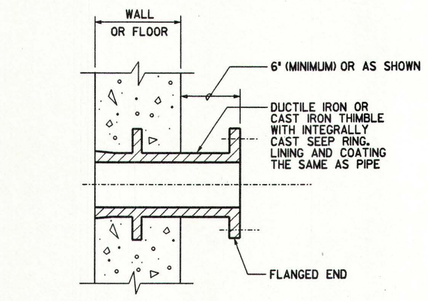


PIPE DIA	'A'	'B' SEE NOTE 3 BELOW	'C' HOLE DIA	'D' FLAT BAR SIZE	LOAD RATING LBS*
3/4	5-15/16	2-1/2	7/16	3/16 x 1-1/4	300
1	6-1/4	2-5/8	7/16	3/16 x 1-1/4	300
1-1/4	6-11/16	2-3/4	7/16	3/16 x 1-1/4	300
1-1/2	6-15/16	3	7/16	3/16 x 1-1/4	300
2	8-5/16	3-3/16	7/16	1/4 x 1-1/4	500
2-1/2	8-7/8	3-7/16	7/16	1/4 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

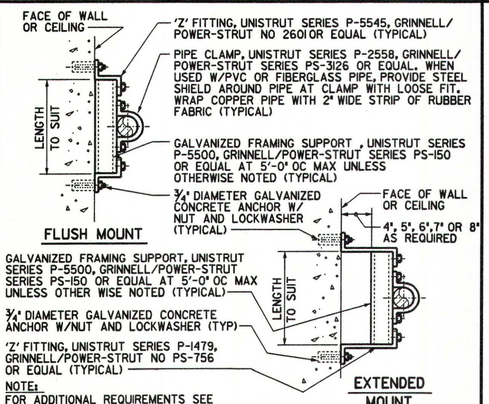
*SAFETY FACTOR OF 5

NOTES:
1. WHERE SUBMERGED, PIPE CLAMP, ANCHORS, SHIELD, NUTS AND LOCKWASHER TO BE TYPE 316 STAINLESS STEEL.
2. WHEN USED WITH PVC OR FIBERGLASS PIPE, PROVIDE STEEL SHIELD AROUND PIPE AT CLAMP WITH LOOSE FIT. WRAP COPPER PIPE WITH 2" STRIP OF RUBBER AT CLAMP.
3. FOR FLANGED PIPING, INCREASE 'B' DIMENSION AS REQUIRED.
4. FOR PIPES SMALLER THAN ¾" SEE STANDARD M-142.

PIPE CLAMP FOR INDIVIDUAL PIPES
REV 010199 — M-131

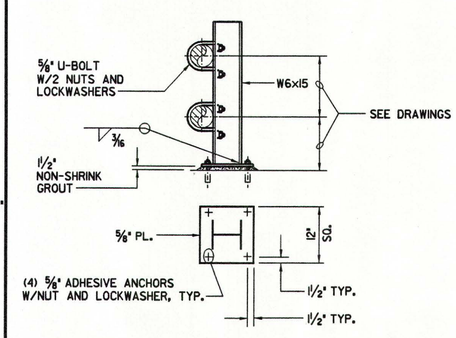


FLANGED AND SPIGOT DUCTILE IRON OR CAST IRON PIPE THIMBLE
REV 022299 — M-122

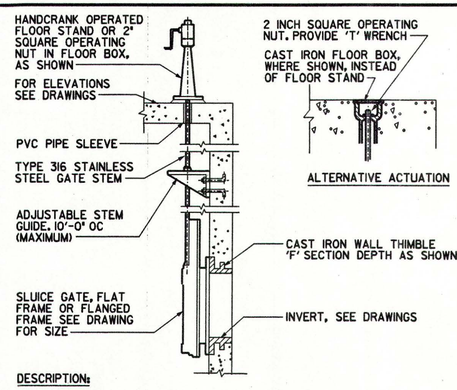


NOTE:
FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATION SECTION 'PIPE SUPPORTS'.

PIPE SUPPORT FOR INDIVIDUAL PIPES
REV 010199 — M-139



PIPE SUPPORT
REV. 062097 — M-151



DESCRIPTION:
WALL MOUNTED FLAT FRAME OR FLANGED FRAME SLUICE GATE, WITH FLOOR STAND OR 2" SQUARE NUT IN FLOOR BOX, DOWNWARD CLOSING.

SLUICE GATE
REV 010199 — M-210

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER — JOHN J. CHUEH — No. C051402 — Exp. 6/30/02 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL F. WALKER — No. C48137 — Exp 03-31-04 — CIVIL — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED S.P.H.
DRAWN T.S.L.
CHECKED P.F.W.

SUBMITTED BY
PROJECT MANAGER — LICENSE NO. 50802 — DATE 12/11/00
COMPANY OFFICER — LICENSE NO. 33699 — DATE 12/13/00

MONTGOMERY WATSON
Pasadena, California

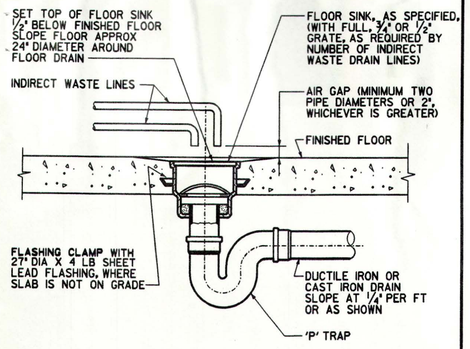
APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
MECHANICAL STANDARD DETAILS - 1

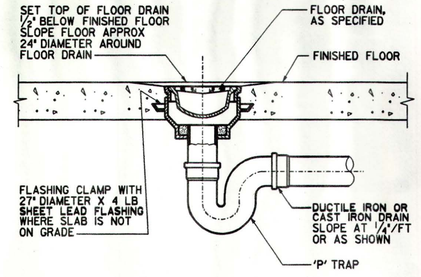
SHEET GM-2 OF • SHEETS

Plot Date: 12-DEC-2000 16:03
File: P:\Projects\4SR\2\mec\4sr12gm2.div
Job No: MW Job #



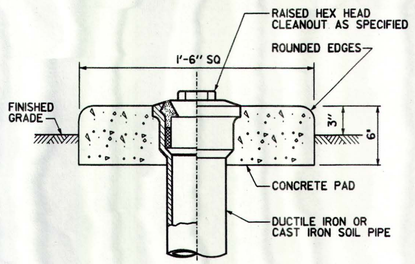
FLOOR SINK

REV 010199 M-301



FLOOR DRAIN

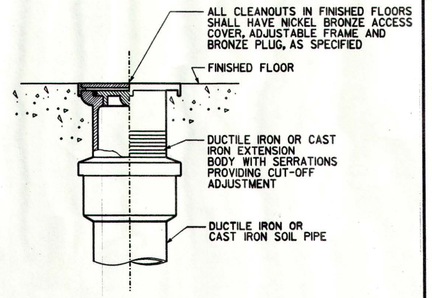
REV 010199 M-302



NOTE:
IN TRAFFIC AREAS PROVIDE FLUSH FINISH WITH 10" ID CAST IRON COVER AND FRAME AS SPECIFIED.

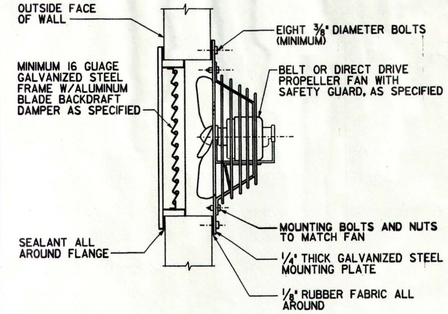
CLEANOUT TO GRADE

REV 010199 M-306



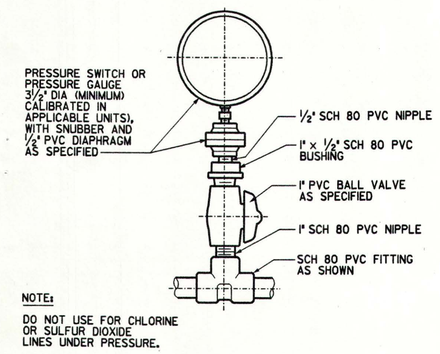
CLEANOUT IN FINISHED FLOOR

REV 010199 M-307



FAN WITH BACKDRAFT DAMPER

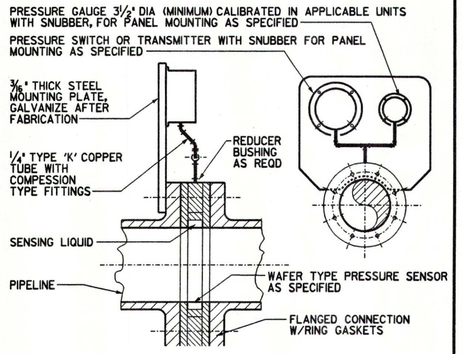
REV 010199 M-506



NOTE:
DO NOT USE FOR CHLORINE OR SULFUR DIOXIDE LINES UNDER PRESSURE.

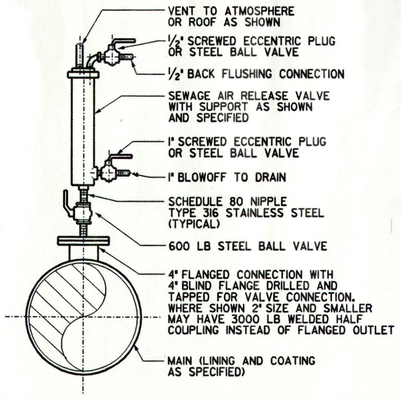
PRESSURE GAUGE OR PRESSURE SWITCH WITH PVC DIAPHRAGM SEAL

REV 010199 M-612



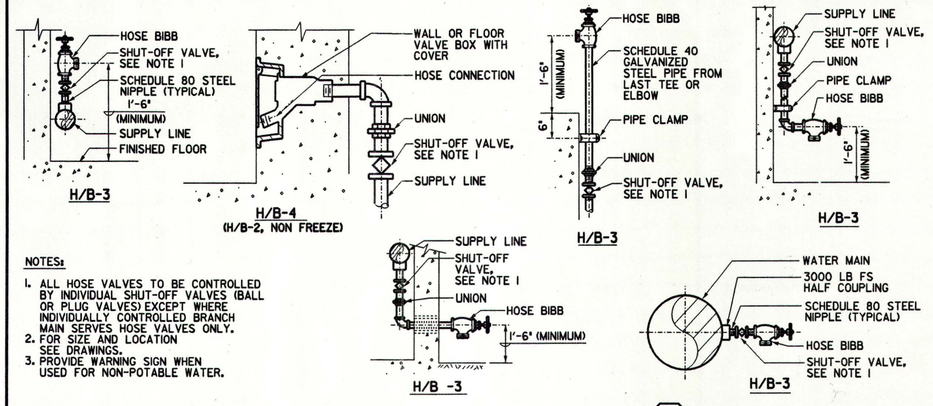
PRESSURE GAUGE, SWITCH OR TRANSMITTER WITH PRESSURE SENSOR

REV 010199 M-613



SEWAGE AIR RELEASE VALVE

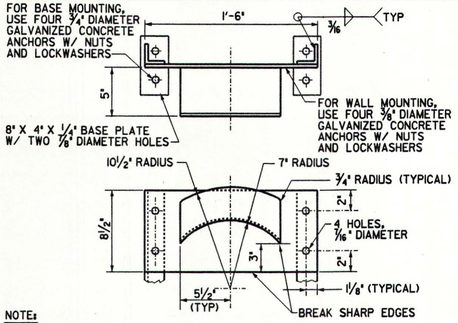
REV 010199 M-806



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

HOSE BIBBS

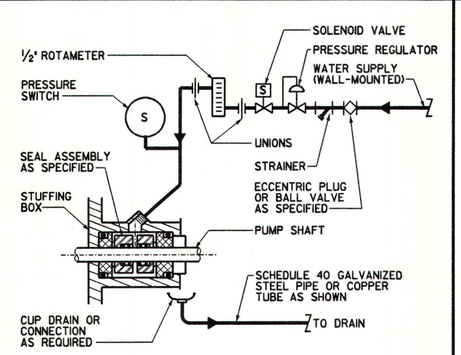
REV 010199 M-904



NOTE:
1. WHERE HOSE RACK IS FREE-STANDING, PROVIDE TWO STEEL ANGLES 2 X 2 X 1/4 W/BASE PLATES (OMIT BASE PLATES WHERE ANGLES CAN BE SET IN CONCRETE).
2. ALL WELDED CONSTRUCTION. 8 GAUGE STEEL SHEET GALVANIZED AFTER FABRICATION.

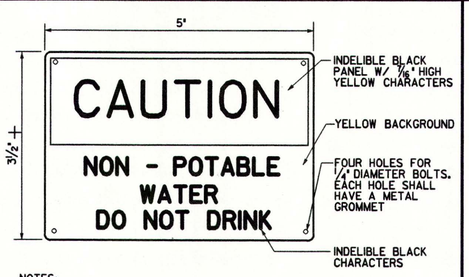
HOSE RACK

REV 010199 M-905



WATER FLUSHED PUMP SEAL

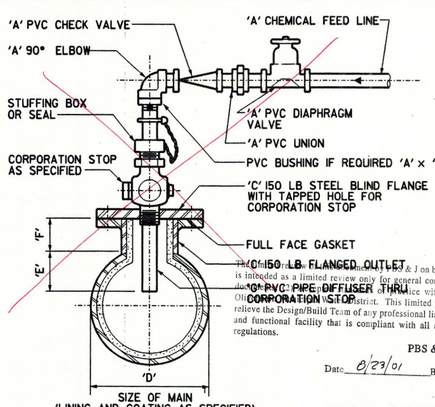
REV 010199 M-906



NOTES:
1. MATERIAL TO BE SEMI-RIGID BUTYRATE OR EQUAL.
2. COLORS AND LETTER SIZE TO BE PER OSHA STANDARDS FOR CAUTION SIGNS.
3. PROVIDE THIS SIGN AT ALL HOSE BIBB LOCATIONS WHERE WATER IS NON-POTABLE.

WARNING SIGN FOR NON-POTABLE WATER

REV 010199 M-912



IDENTIFICATION MARK	CHEMICAL	GPM	DIMENSIONS IN INCHES						
			'A'	'B'	'C'	'D'	'E'	'F'	'G'
MK I	FC	--	1	--	4	10	2.5	6	1

Deleted

PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with: (1) This approved Design/Build Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER JOHN L. SCHMIDT NO. C021402 Exp. 6/30/03 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL F. WATKINS NO. C43137 Exp. 12-31-04 CIVIL STATE OF CALIFORNIA

CHEMICAL DIFFUSER

REV 010199 M-707

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED S.P.H.
DRAWN T.S.L.
CHECKED P.F.W.

SUBMITTED BY
PROJECT MANAGER — LICENSE NO. 50802 — DATE 12/17/00
COMPANY OFFICER — LICENSE NO. 33699 — DATE 12/13/00

MONTGOMERY WATSON
Pasadena, California

APPROVED George R Brust 8.29.01
OLIVENHAIN MWD — DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

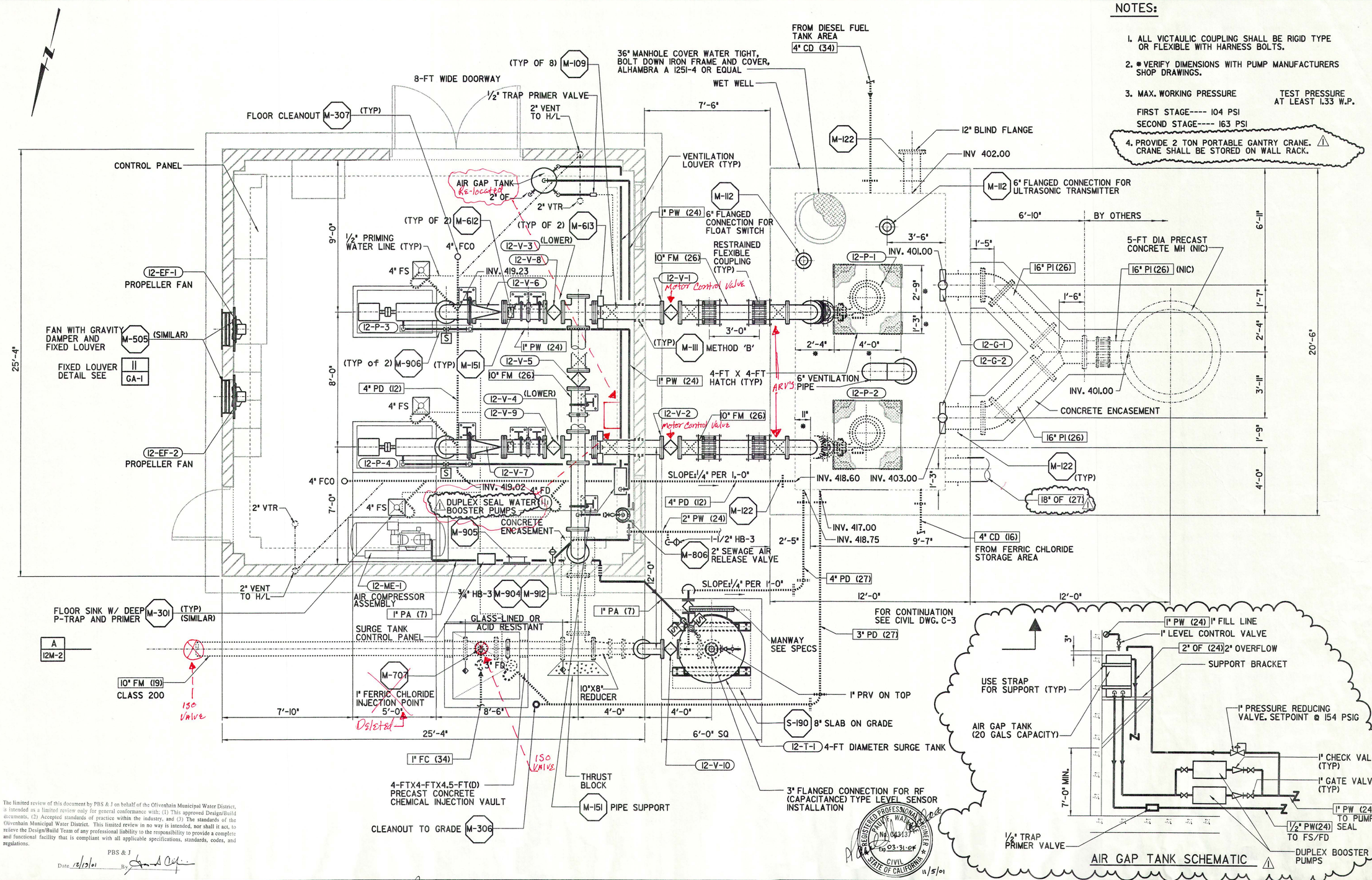
MECHANICAL STANDARD DETAILS - 2

SHEET GM-3 OF • SHEETS

Plot Date: 12-DEC-2000 16:03
File: P:\Projects\4SR\2\mec\4sr12gm3.div
Job No: MW Job #

NOTES:

1. ALL VICTAULIC COUPLING SHALL BE RIGID TYPE OR FLEXIBLE WITH HARNESS BOLTS.
2. * VERIFY DIMENSIONS WITH PUMP MANUFACTURERS SHOP DRAWINGS.
3. MAX. WORKING PRESSURE — TEST PRESSURE AT LEAST 1.33 W.P.
   FIRST STAGE---- 104 PSI
   SECOND STAGE---- 163 PSI
4. PROVIDE 2 TON PORTABLE GANTRY CRANE. CRANE SHALL BE STORED ON WALL RACK. ⚠



REGISTERED PROFESSIONAL ENGINEER — PAUL F. WALLACE — No. 043137 — Exp. 03-31-04 — CIVIL — STATE OF CALIFORNIA — 11/5/01

REV	DATE	BY	OMWD	DESCRIPTION
⚠	10/8/01	PFW		ADD AIR GAP, CRANE; REVISE PIPE TYPE

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

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED S.P.H.
DRAWN T.S.L.
CHECKED P.F.W.

SUBMITTED BY
PROJECT MANAGER — 43137 LICENSE NO. — 11/5/01 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 11/5/01 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 12/02 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
PLAN

SHEET 12M-1 OF • SHEETS

Job No: MW Job. #
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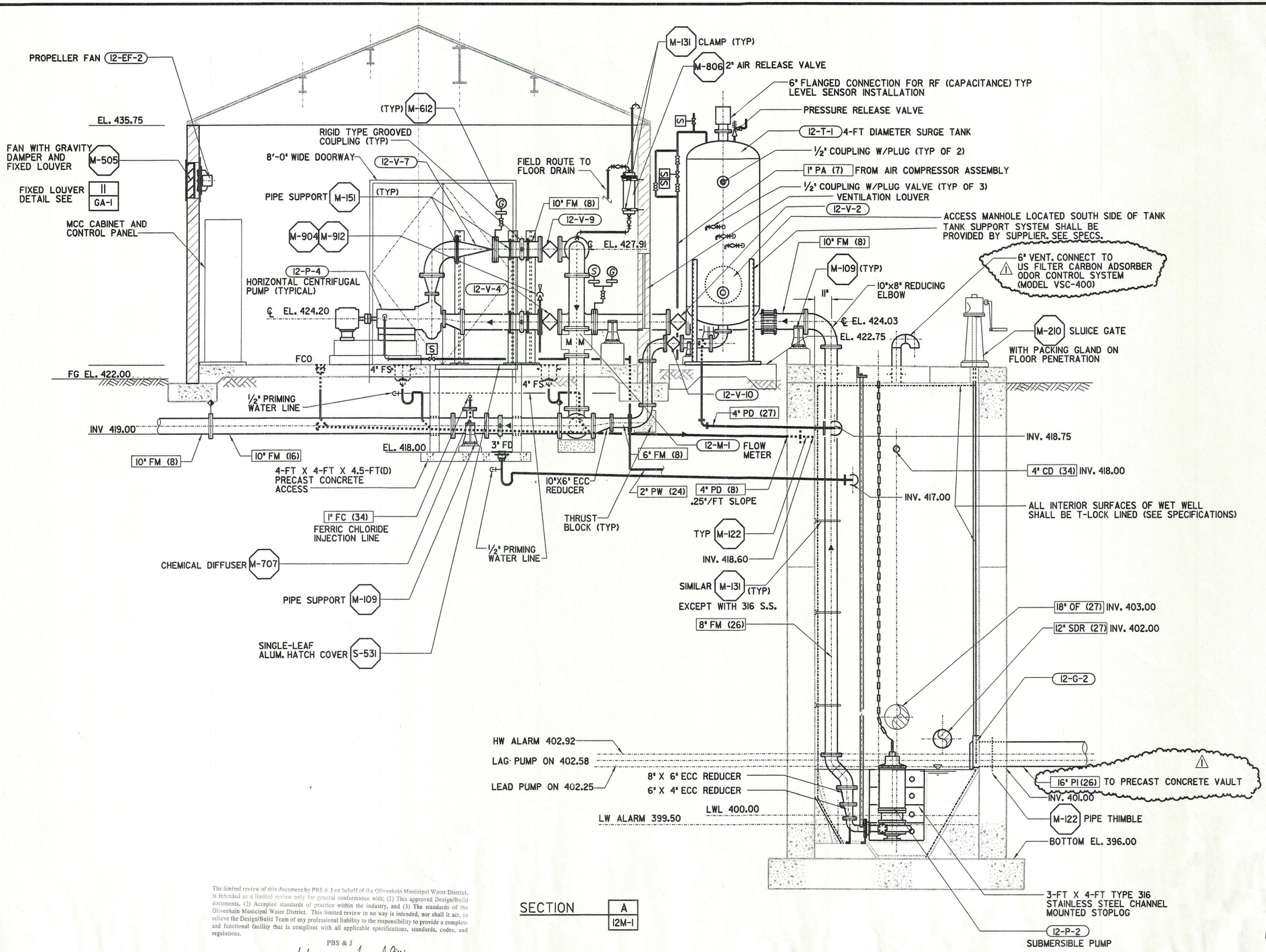
Plot Date: 05-NOV-2001 15:06



SECTION A / 12M-1

REGISTERED PROFESSIONAL ENGINEER PAUL F. WALLACE No. 43137 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA
11/5/01

REV	DATE	BY	OMWD	DESCRIPTION
1	11/5/01	PFW		REVISION OF PIPE TYPE

SCALE 3/8" = 1'-0"

WARNING 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED S.P.H. | DRAWN T.S.L. | CHECKED P.F.W.

SUBMITTED BY
PROJECT MANAGER 43137 LICENSE NO. 11/5/01 DATE
COMPANY OFFICER 33699 LICENSE NO. 11/5/01 DATE

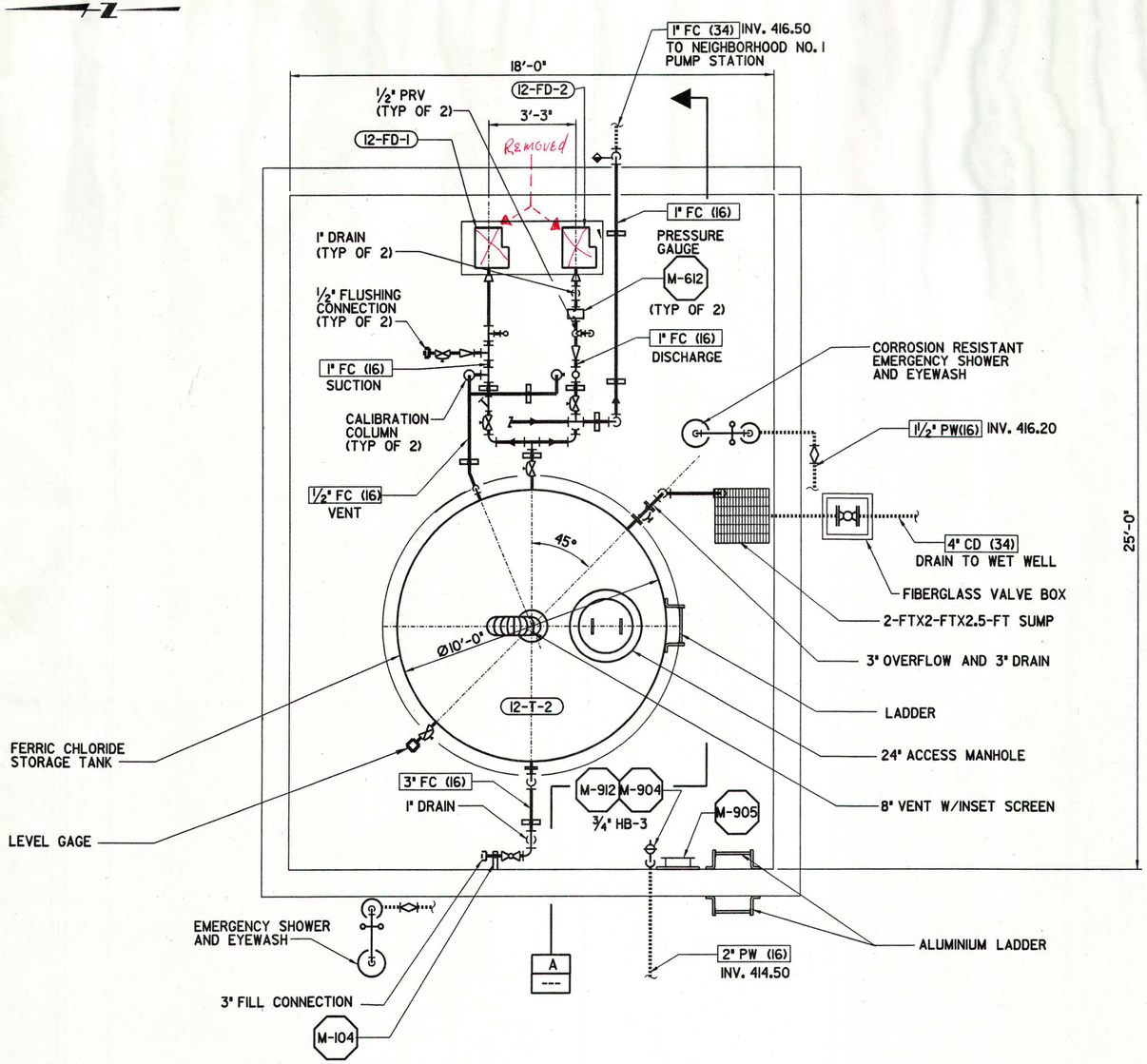
MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD 1/2/02 DATE
APPROVED
FILANC CONSTRUCTION CO. DATE

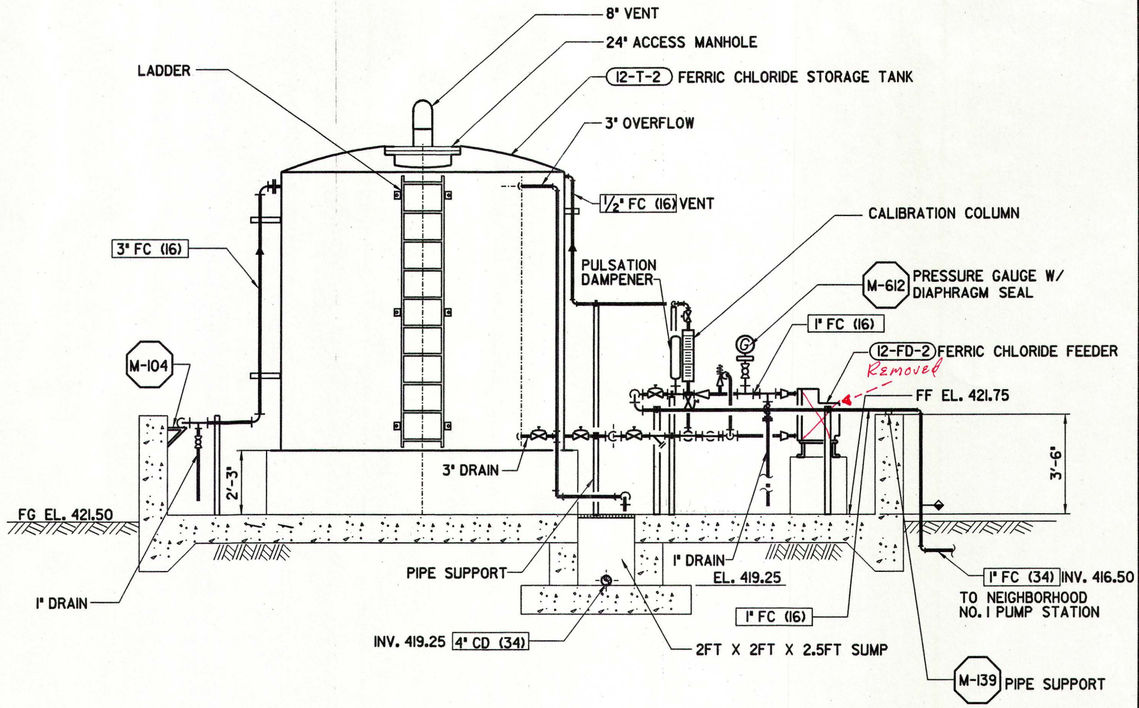
KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
SECTION

SHEET 12M-2 OF • SHEETS

Plot Date: 05-NOV-2001 15:05
Files: p:\Projects\4SR\12\mec\4sr12m02.dlv
Job No: MW Job #



FERRIC CHLORIDE FEED AND STORAGE FACILITY
PLAN



SECTION A---

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER JOHN J. CHUEH No. C051402 Exp. 6/30/02 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL F. WATSON No. C48137 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

Plot Date: 12-DEC-2000 16:13
File: P:\Projects\45R\12\mec\45r12m03.dlv
Job No: MW Job #

REV	DATE	BY	OMWD	DESCRIPTION

SCALE 3/8" = 1'-0"

WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED S.P.H.
DRAWN T.S.L.
CHECKED P.F.W.

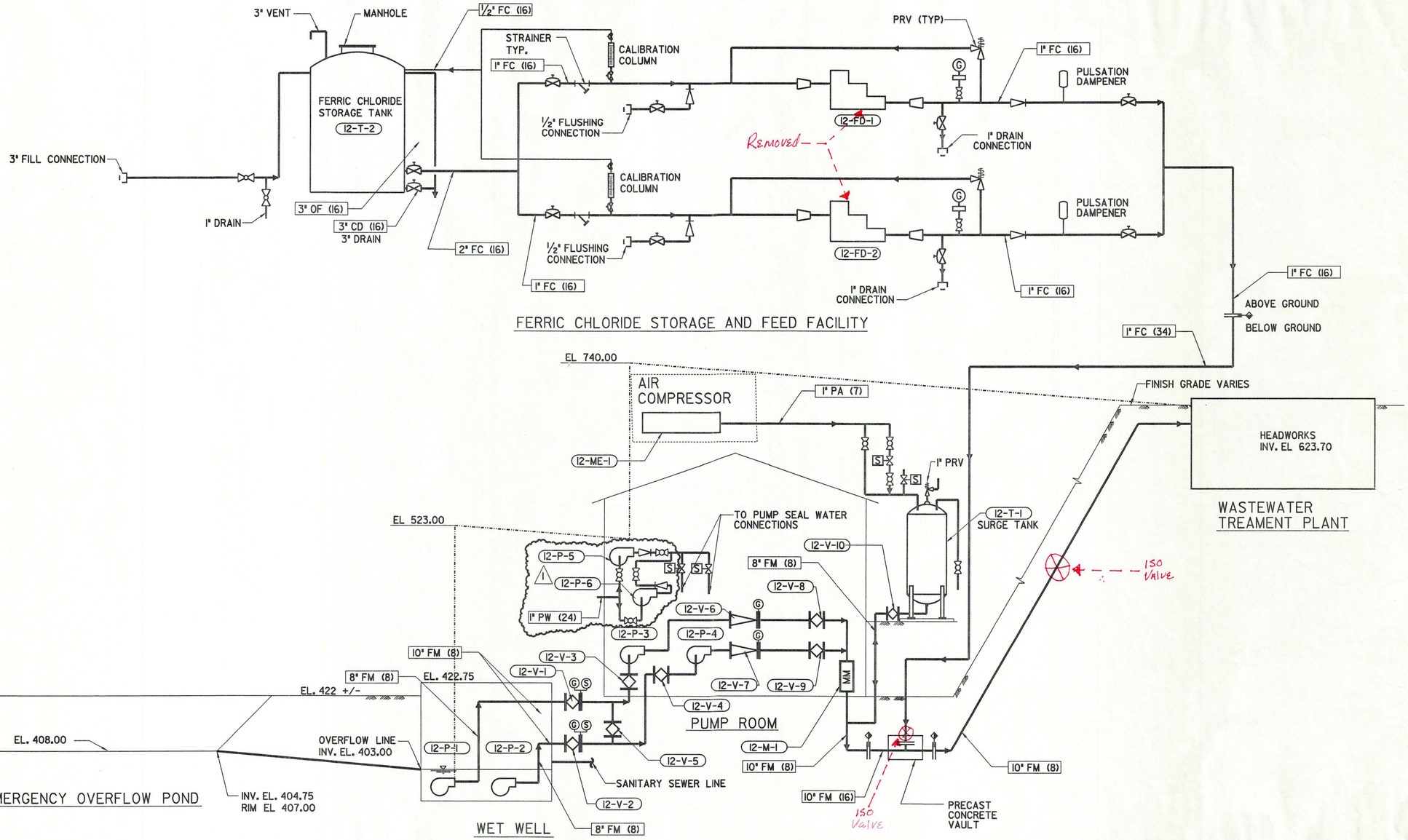
SUBMITTED BY
PROJECT MANAGER — LICENSE NO. — DATE
COMPANY OFFICER — 33699 — 12/13/00
LICENSE NO. — DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED OLIVENHAIN MWD — 8.29.01 DATE
APPROVED FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
FERRIC CHLORIDE FEED AND STORAGE FACILITY

SHEET 12M-3 OF • SHEETS



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PBS & J

Date 12/19/01 By

REGISTERED PROFESSIONAL ENGINEER PAUL F. WATSON No. C48157 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

11/5/01

REV	DATE	BY	OMWD	DESCRIPTION
1	11/5/01	PFW		ADD 2ND SEAL WATER BOOSTER PUMP

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED S.P.H.
DRAWN T.S.L.
CHECKED P.F.W.

SUBMITTED BY
PROJECT MANAGER 43137 LICENSE NO. 11/5/01 DATE
COMPANY OFFICER 33629 LICENSE NO. 11/5/01 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED OLIVENHAIN MWD George R. Bennett 1/2/02 DATE
APPROVED FILANC CONSTRUCTION CO. DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
PROCESS SCHEMATIC

SHEET 12M-4 OF • SHEETS

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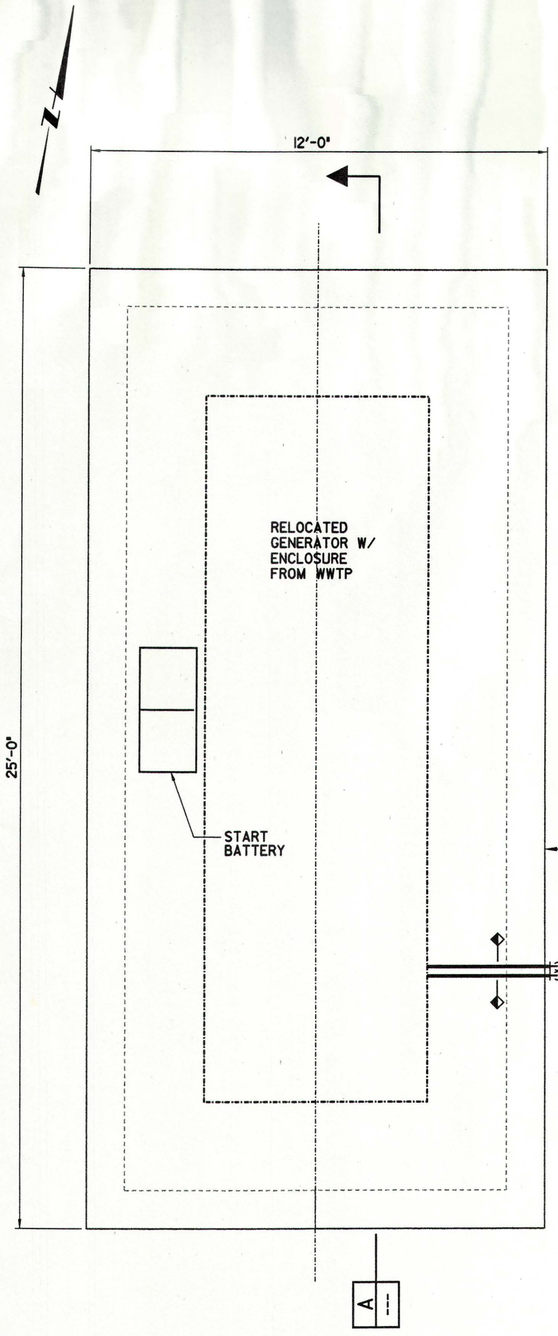
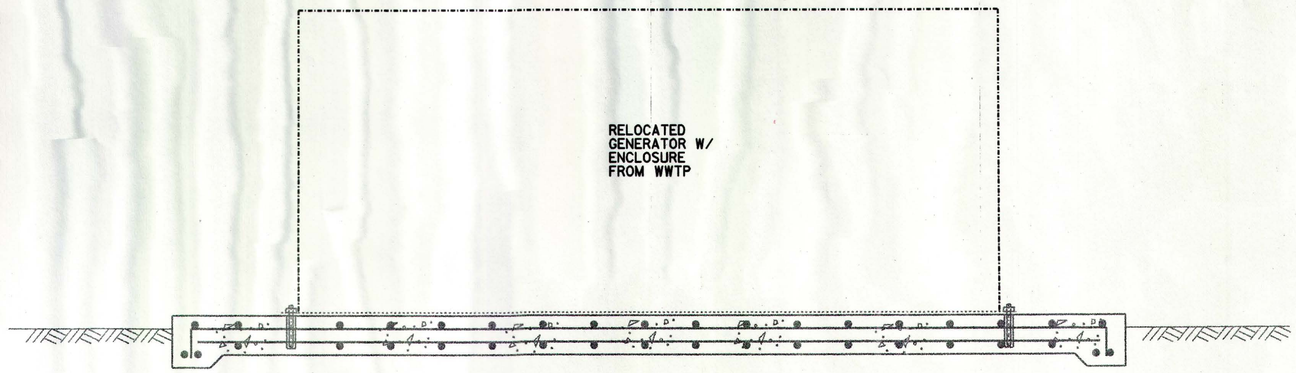
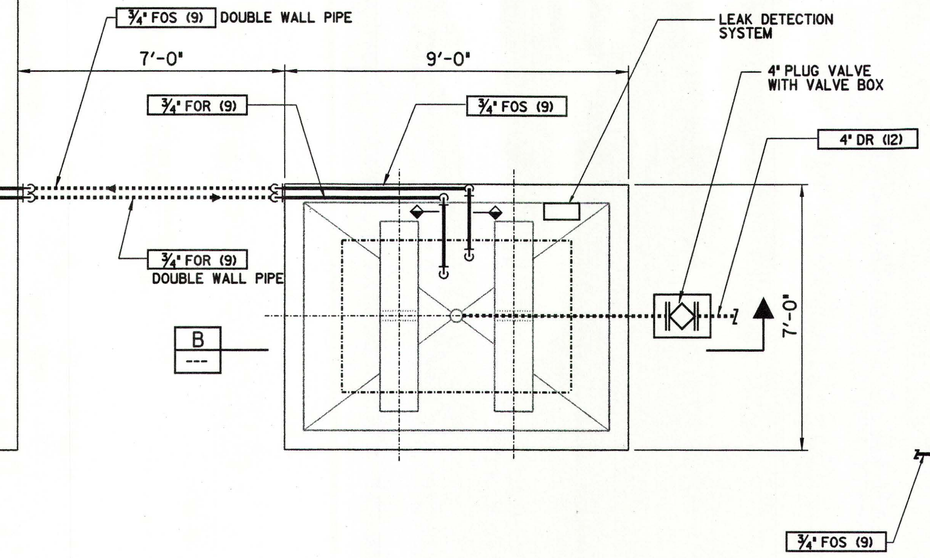


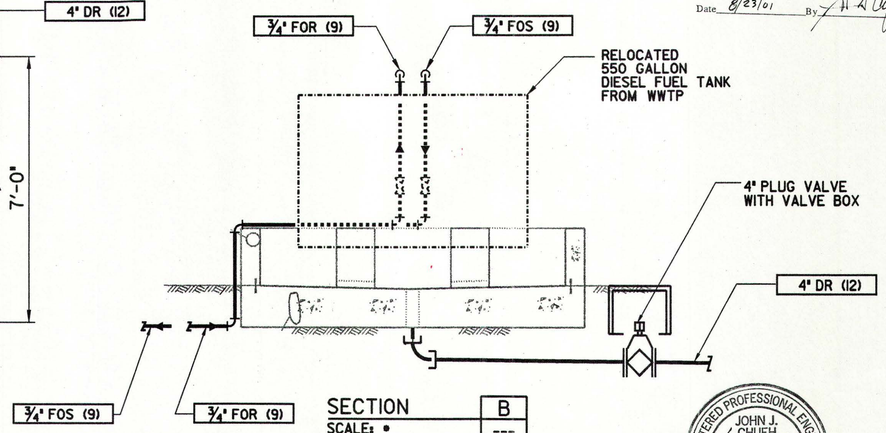
RELOCATED GENERATOR PLAN



SECTION A
SCALE: •



RELOCATED FUEL TANK PLAN



SECTION B
SCALE: •

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with: (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER
JOHN J. CHUEH
No. C051402
Exp. 6/30/02
CIVIL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
PAUL F. WALTER
No. 54137
Exp. 03-31-04
CIVIL
STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: ½" = 1'-0"

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED S.P.H.
DRAWN T.S.L.
CHECKED P.F.W.

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

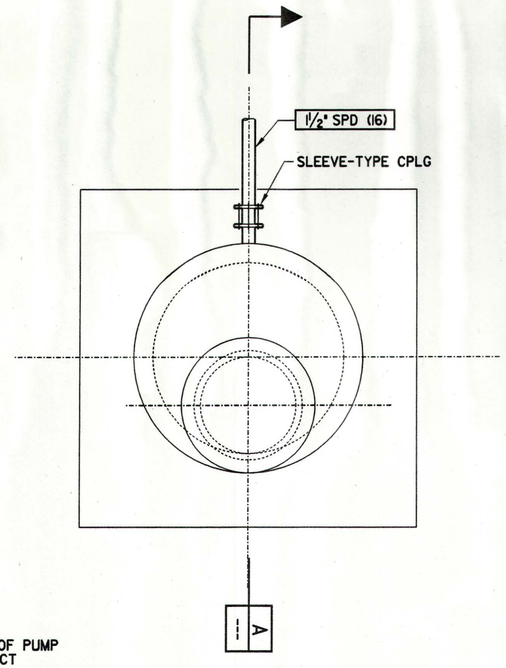
MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
GENERATOR PAD AND FUEL TANK

SHEET 12M-5 OF • SHEETS

Job No: MW Job #
File: P:\Projects\45R\12\mec\4sr12m05.dlv
Plot Date: 12-DEC-2000 16:15

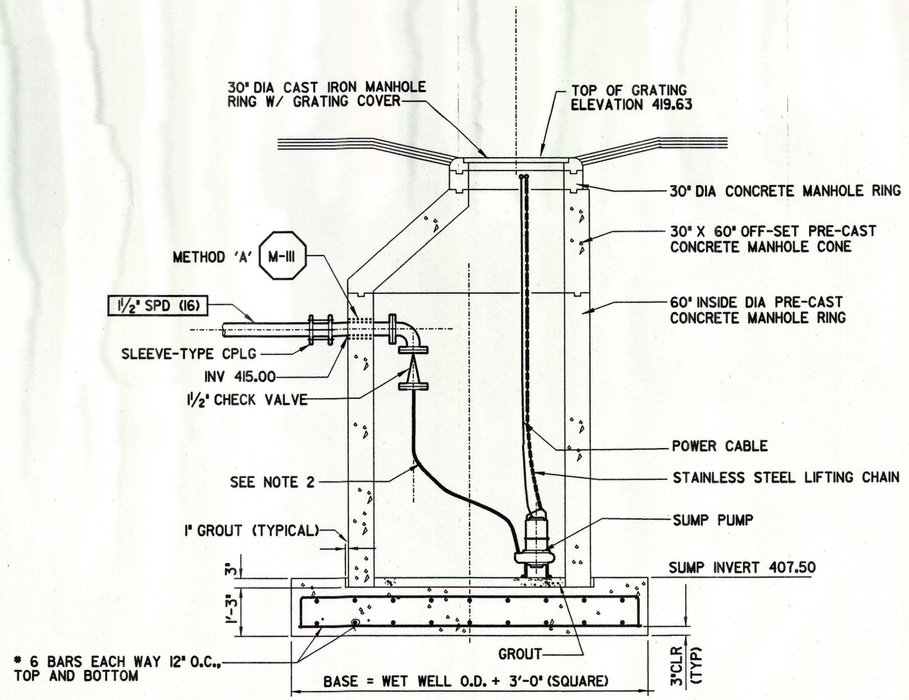


NOTES :

1. FOR LOCATION OF STORM WATER PUMP STATION SEE CIVIL SHEET 12C-3

2. 1½" REINFORCED NEOPRENE PRESSURE HOSE. LENGTH OF HOSE SHALL ALLOW FOR REMOVAL OF PUMP THROUGH GRATING COVER. PROVIDE QUICK CONNECT FITTING AT PUMP.

PLAN - STORM WATER PUMP STATION
SCALE: ½" = 1'-0"



SECTION A
SCALE: ½" = 1'-0"

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER — JOHN J. CHUEH — NO. C051402 — Exp. 6/30/02 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL F. WALTER — No. 043187 — Exp. 03-31-04 — CIVIL — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: ½" = 1'-0"

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED J.G.
DRAWN L.R.M.
CHECKED P.F.W.

SUBMITTED BY
PROJECT MANAGER — LICENSE NO. 50802 — DATE 12/13/00
COMPANY OFFICER — LICENSE NO. 33699 — DATE 12/13/00

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — DATE 8.29.01

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO.1 PUMP STATION
STORM WATER P.S. PLAN AND SECTION

SHEET 12M-6 OF • SHEETS

Job No: MW Job # Files: P:\Projects\4SRV12\mec\4sr12m06.div Plot Date: 12-DEC-2000 16:16

GENERAL NOTES

GENERAL

STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE COORDINATED 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 MANUFACTURES 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.

UNLESS OTHERWISE SHOWN, ON ALL STRUCTURAL DRAWINGS THE FINISH GRADE AROUND STRUCTURES IS SHOWN THUS ////////// INDICATING EITHER GROUND SURFACE, TOP OF CONCRETE SLAB OR AC PAVEMENT. FOR DETAILS OF FINISH SURFACES SEE CIVIL AND ARCHITECTURAL DRAWINGS.

STRUCTURAL

DESIGN IN ACCORDANCE WITH THE 1994 EDITION OF THE UNIFORM BUILDING CODE, EXCEPT WHERE OTHER APPLICABLE CODES OR THE FOLLOWING NOTES ARE MORE RESTRICTIVE.

LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. ALL CONSTRUCTION JOINTS LOCATED ON THE DRAWINGS OR REQUIRED FOR CONSTRUCTION, BUT NOT SHOWN ON THE DRAWINGS, SHALL HAVE A 6" FLATSTRIP WATERSTOP, IF IN MEMBERS IN CONTACT WITH WATER. IN ADDITION, JOINTS IN ALL SLABS COVERED WITH WATER, SHALL HAVE BOTH A 6" FLATSTRIP WATERSTOP AND A SEALANT GROOVE.

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.

ALL WELDING SHALL BE BY THE SHIELDED ARC METHOD AND SHALL CONFORM TO AWS CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION. QUALIFICATIONS OF WELDERS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS FOR STANDARD QUALIFICATION PROCEDURE OF THE AWS.

CONCRETE (EXCEPT PRECAST CONCRETE)

UNLESS OTHERWISE NOTED OR SPECIFIED, ALL STRUCTURAL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS.

REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING IN QUALITY TO THE REQUIREMENTS OF ASTM A-615, "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", GRADE 60

COLUMN SPIRALS SHALL CONFORM TO ASTM A-82, "SPECIFICATION FOR COLD-DRAWN STEEL WIRE FOR CONCRETE REINFORCEMENT".

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING BARS, UNLESS OTHERWISE INDICATED, SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.

TOLERANCES IN PLACING REINFORCEMENT SHALL BE:

± 3/8 INCH FOR MEMBERS WITH D < 8 INCHES
± 1/2 INCH FOR MEMBERS WITH D > 8 INCHES

ALL KEYWAYS IN CONSTRUCTION JOINTS, WHERE SHOWN, SHALL BE ROUGH AND THOROUGHLY CLEANED FOR BOND.

DOWELS, PIPE, WATERSTOPS AND OTHER INSTALLED MATERIALS AND ACCESSORIES SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.

UNLESS OTHERWISE INDICATED, ASIDE FROM NORMAL ACCESSORIES USED TO HOLD REINFORCING BARS FIRMLY IN POSITION, THE FOLLOWING SHALL BE ADDED:

A) IN SLABS #5 RISER BARS AT 36 INCHES OC MAXIMUM TO SUPPORT TOP REINFORCING BARS.

B) IN WALLS WITH 2 CURTAINS #3 U OR Z SHAPE SPACERS AT 6 FEET OC EACH WAY.

METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUBGRADE. CONCRETE BLOCKS (OR DOBIES) SUPPORTING BARS ON SUBGRADE SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS WITHOUT SETTLEMENT, BUT IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.

DOWELS SHALL BE WIRED OR OTHERWISE HELD IN POSITION. THEY SHALL NOT BE SHOVED INTO FRESHLY PLACED CONCRETE.

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, LAPS OF REINFORCEMENT SHALL BE AS SHOWN ON DETAIL S-143.

LOCATE TWO 3/4INCH GALVANIZED RICHMOND ROCKET INSERTS, HOHMANN & BARNARD OR EQUAL, STRADDLING CENTERLINE OF EQUIPMENT OVER ALL PUMPS, METERS OR OTHER MECHANICAL UNITS OF MORE THAN 100 LBS, FOR INSERTING LIFTING EYES IF NOT OTHERWISE INDICATED.

REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH AND PIPE, PIPE FLANGE OR METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM OF 2" INCHES CLEARANCE SHALL BE PROVIDED AT ALL TIMES.

UNLESS OTHERWISE SHOWN ON THE DRAWINGS CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:

FOR CONCRETE PLACED AGAINST EARTH ..... 3"

FOR SURFACES IN CONTACT WITH WATER OR WEATHER AND FORMED SURFACES IN CONTACT WITH EARTH ..... 2"

FOR CONCRETE NOT EXPOSED TO WEATHER, OR IN CONTACT WITH WATER OR EARTH ..... 1½"

UNLESS OTHERWISE NOTED, WALLS AND SLABS SHOWN WITH A SINGLE LAYER OF REINFORCEMENT SHALL HAVE THAT REINFORCEMENT CENTERED

SLABS WITH SLOPING SURFACES SHALL HAVE THE INDICATED SLAB THICKNESS MAINTAINED AS THE MINIMUM. SLAB BOTTOMS MAY EITHER SLOPE WITH THE TOP SURFACE OR BE LEVEL. REINFORCING IN SLABS WITH SLOPING SURFACES SHALL BE PLACED AT THE REQUIRED CLEARANCE FROM THE SLAB SURFACES.

MASONRY

CONCRETE BLOCK MASONRY SHALL BE MEDIUM HOLLOW UNITS CONFORMING TO ASTM C 90, GRADE N. SIZE OF UNITS, COLOR AND TEXTURE SHALL BE PER THE SPECIFICATIONS.

GROUT ALL CELLS OF CONCRETE BLOCK MASONRY UNLESS OTHERWISE NOTED ON DRAWINGS.

BAR LAPS SHALL BE 72 BAR DIAMETERS UNLESS OTHERWISE NOTED.

MORTAR SHALL BE IN ACCORDANCE WITH TABLE 21-A OF UBC TYPE M AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 2000 PSI.

GROUT SHALL BE IN ACCORDANCE WITH PARAGRAPH 2103 OF THE UBC AND AS MODIFIED BY SPECIFICATION AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI.

UNLESS OTHERWISE SPECIFIED, SPECIAL INSPECTION SHALL BE PROVIDED FOR ALL MASONRY WORK.

THE COMBINED MASONRY ASSEMBLAGE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE A MINIMUM OF f'm = 2000 PSI.

REINFORCEMENT SHALL BE TIED OR OTHERWISE SECURED IN POSITION PRIOR TO GROUTING.

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.

TESTING HYDRAULIC STRUCTURES

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

STRUCTURAL STANDARD DETAILS

DETAILS ON SHEETS S-1 THRU S-7 ARE PART OF MONTGOMERY WATSON'S STRUCTURAL 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 ▨

STRUCTURAL STANDARD DETAIL CALL-OUT

INSPECTION

SPECIAL INSPECTION SHALL BE PROVIDED FOR THE FOLLOWING IN ACCORDANCE WITH CHAPTER 17 OF THE 1994 UBC:

TAKING OF TEST SPECIMINS; AND PLACING OF REINFORCING AND ANCHOR BOLTS FOR CONCRETE FOUNDATIONS; ALL STRUCTRUAL WELDING EXCEPT BY AN APPROVED FABRICATOR; INSTALLATION OF ALL HIGH STRENGTH BOLTING; ALL STRUCTURAL MASONRY; AND PLACING OF PRE-ENGINEERED WOOD TRUSSES.

DETAIL S-103 → S-103 — DETAIL NUMBER LOCATED ON STANDARD DETAIL SHEETS IN NUMERICAL ORDER

SECTION CALL-OUT

SECTION NUMBER → 2 / S-5 — SHEET ON WHICH SECTION IS SHOWN

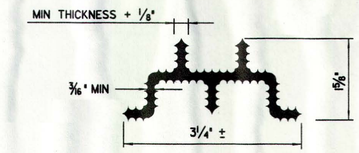
SECTION 2 / S-1 — SHEET ON WHICH SECTION IS CUT

DETAIL CALL-OUT

A / S-6 — SHEET ON WHICH DETAIL IS SHOWN

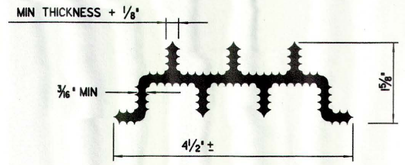
DETAIL A / S-4 — SHEET ON WHICH DETAIL IS CALLED-OUT

REV 022696



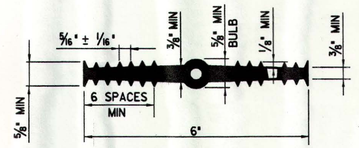
2 - RIB WATERSTOP — S-101

REV 010196



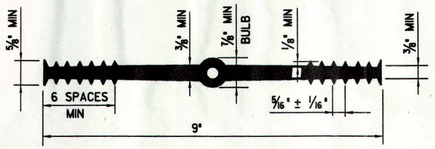
3 - RIB WATERSTOP — S-102

REV 010196



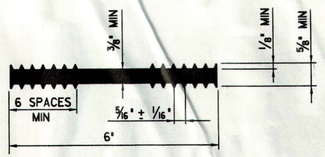
6" CENTER-BULB WATERSTOP — S-103

REV 010196



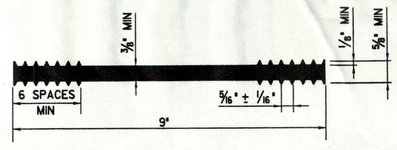
9" CENTER-BULB WATERSTOP — S-104

REV 010196



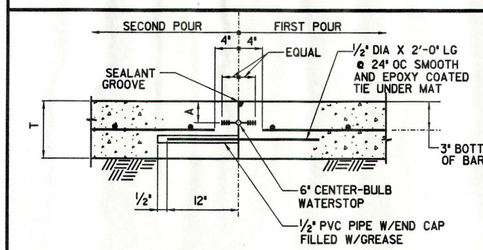
6" FLATSTRIP WATERSTOP — S-105

REV 010196



9" FLATSTRIP WATERSTOP — S-106

REV 010196



SINGLE MAT REINF - SLEEVE - TYPE JOINT

(TYP CONSTRUCTION JOINT UNLESS OTHERWISE NOTED)

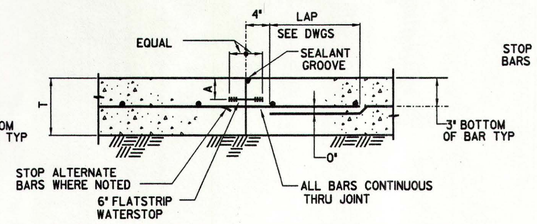
WITH WATERSTOP AND SEALANT GROOVE — S-110

NO WATERSTOP OR SEALANT GROOVE — S-111

T	A
6"	2"
7"	2½"
8"	2½"

NOTES:

1. IN ALL CONSTRUCTION JOINTS WITH WATERSTOPS, APPLY 2 COATS OF BOND BREAKER TO FACE OF JOINT. AVOID COATING WATERSTOP (AND SEALANT GROOVE WHERE USED)



SINGLE MAT REINF - CONTINUOUS THRU JOINT

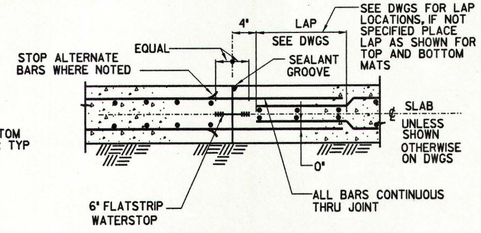
(ONLY WHEN SPECIFIED ON DRAWINGS)

WITH WATERSTOP AND SEALANT GROOVE — S-112

NO WATERSTOP OR SEALANT GROOVE — S-113

2. WATERSTOPS AND SEALANT GROOVES TO BE PROVIDED IN ALL WATER RETAINING SLABS, SEE DRAWINGS, FOR OTHER LOCATIONS WHERE THEY MAY BE REQUIRED

3. STAGGER SPLICES UNLESS NOTED OTHERWISE



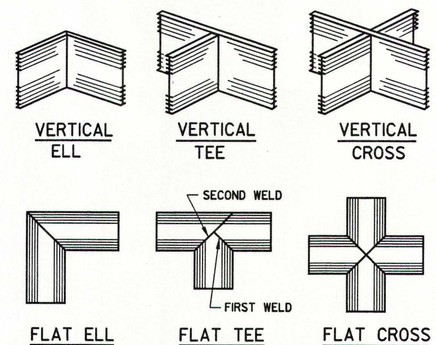
DOUBLE MAT REINF

WITH WATERSTOP AND SEALANT GROOVE — S-114

NO WATERSTOP OR SEALANT GROOVE — S-115

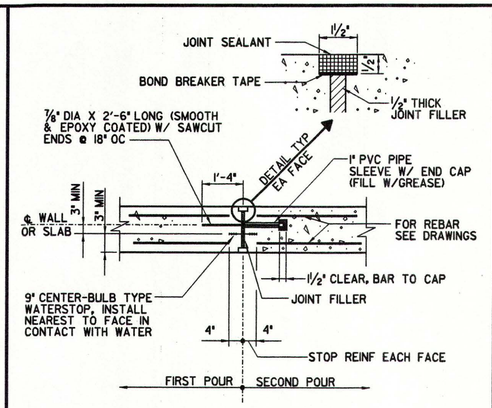
SLAB-ON-GRADE CONSTRUCTION JOINTS

REV 011696

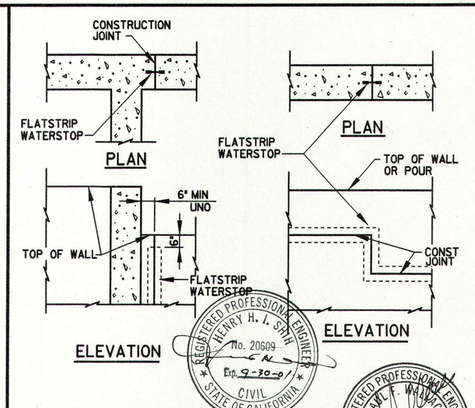


PREFABRICATED WATERSTOPS JOINTS — S-108

REV 010196



SLAB OR WALL EXPANSION JOINT — S-116



WATERSTOP DETAILS FOR VERTICAL WALL JOINTS — S-120

REV 010196

REGISTERED PROFESSIONAL ENGINEER HENRY H. J. SMITH No. 20609 Exp. 9-30-01 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL M. WARNE No. 043137 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

Plot Date: 12-DEC-2000 13:51

File: p:\Projects\4SR\general details\str\4srgs01.dlv

Job No: MW Job #

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW
DRAWN MW
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/15/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

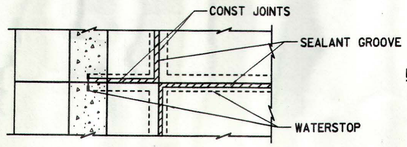
APPROVED George R Brant — OLWENHAIN MWD — 8.29.01 DATE

APPROVED — FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

GENERAL NOTES AND CONSTRUCTION JOINT DETAILS

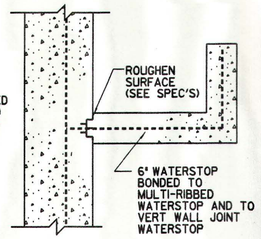
SHEET GS-1 OF • SHEETS



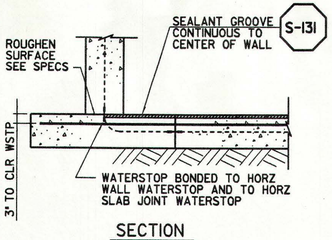
PLAN

NOTES:

1. SEALANT GROOVE SHALL BE CONTINUED UNDER WALL & SEALANT SHALL BOND WITH WALL WATERSTOP IN ALL CASES WHERE SUCH WATERSTOP OCCURS
2. SEALANT UNDER WALL SHALL BE IN PLACE PRIOR TO PLACEMENT OF CONCRETE FOR WALL
3. CONSTRUCTION JOINTS PASSING THROUGH VARIOUS MEMBERS OF A WATER RETAINING STRUCTURE SHALL BE SEALED WITH WATERSTOPS BONDED TOGETHER, SO AS TO PROVIDE A CONTINUOUS WATERTIGHT JOINT

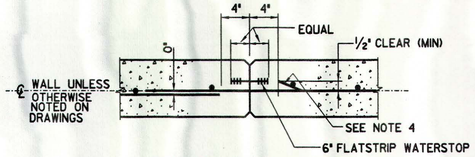


LAUNDER JOINT



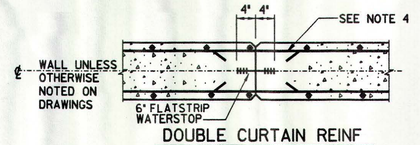
SECTION

CONSTRUCTION JOINT DETAILS
WALL TO SLAB
REV 011896 S-118



SINGLE CURTAIN REINF

WITH WATERSTOP S-121 NO WATERSTOP S-122



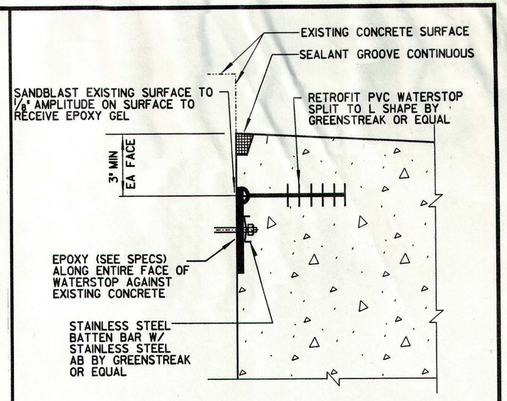
DOUBLE CURTAIN REINF

WITH WATERSTOP S-123 NO WATERSTOP S-124

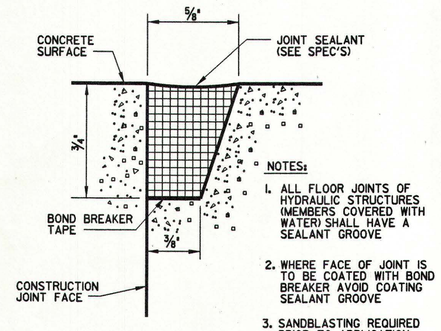
NOTES:

1. IN ALL WALL CONSTRUCTION JOINTS WITH WATERSTOPS APPLY 2 COATS OF BOND BREAKER TO FACE OF JOINT AVOID COATING WATERSTOP
2. WHERE WATERSTOP IS REQUIRED IN SINGLE CURTAIN WALL REINFORCEMENT PLACE WATERSTOP ON WATER SIDE OF WALL
3. UNLESS OTHERWISE NOTED ¾" CHAMFERS SHALL BE OMITTED IN SURFACES TO RECEIVE ARCHITECTURAL TREATMENT
4. UNLESS SPECIFICALLY NOTED OTHERWISE #5 AND LARGER BARS SHALL BE CONTINUOUS THRU JOINT. #4 & SMALLER SHALL STOP ALTERNATE AT JOINT
5. STAGGER SPLICES UNLESS NOTED OTHERWISE

VERTICAL WALL CONSTRUCTION JOINT DETAILS
REV 010196



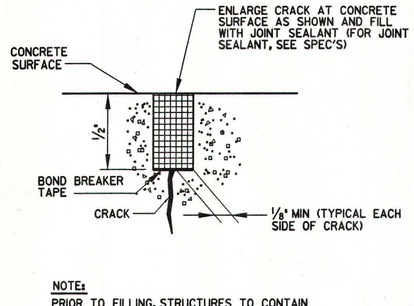
WATERSTOP AT EXISTING SURFACE
S-130



NOTES:

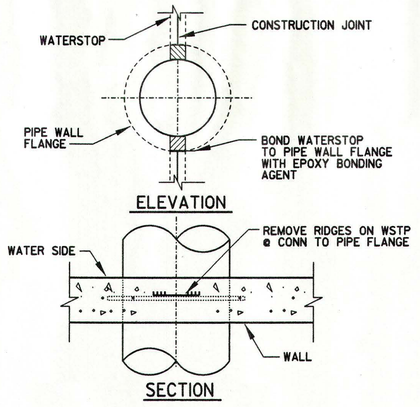
1. ALL FLOOR JOINTS OF HYDRAULIC STRUCTURES (MEMBERS COVERED WITH WATER) SHALL HAVE A SEALANT GROOVE
2. WHERE FACE OF JOINT IS TO BE COATED WITH BOND BREAKER AVOID COATING SEALANT GROOVE
3. SANDBLASTING REQUIRED PRIOR TO APPLICATION OF PRIMER
4. USE BONDBREAKER TAPE ONLY ON SLIP DOWEL JOINTS

SEALANT GROOVE
REV 010196 S-131



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

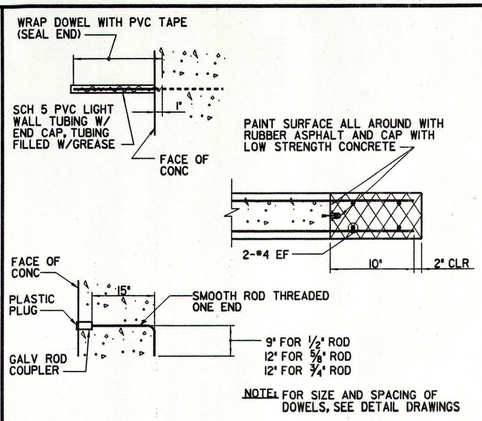
CONCRETE CRACK REPAIR
REV 010196 S-132



ELEVATION

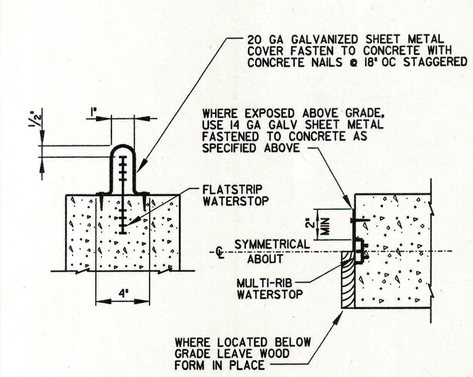
SECTION

CONSTRUCTION JOINT DETAILS AT
PIPE OPENINGS
REV 010196 S-133

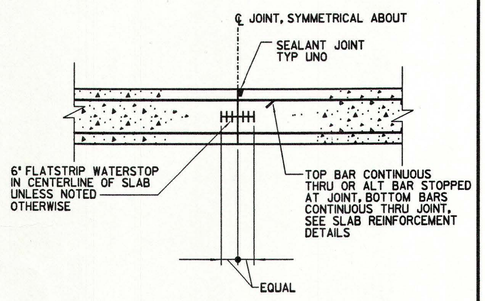


NOTE: FOR SIZE AND SPACING OF DOWELS, SEE DETAIL DRAWINGS

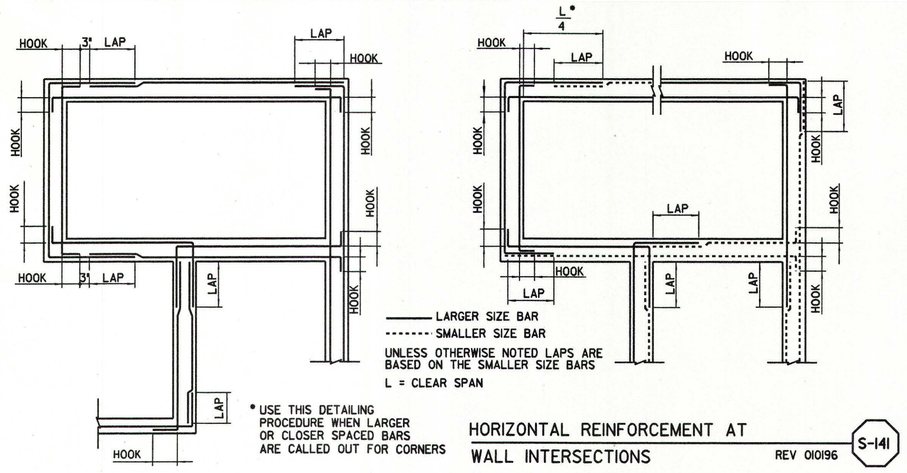
PROTECTION FOR EXPOSED DOWELS AND
FUTURE BAR CONNECTIONS
REV 010196 S-134



PROTECTIVE COVERS FOR EXPOSED
WATERSTOPS
REV 010196 S-135

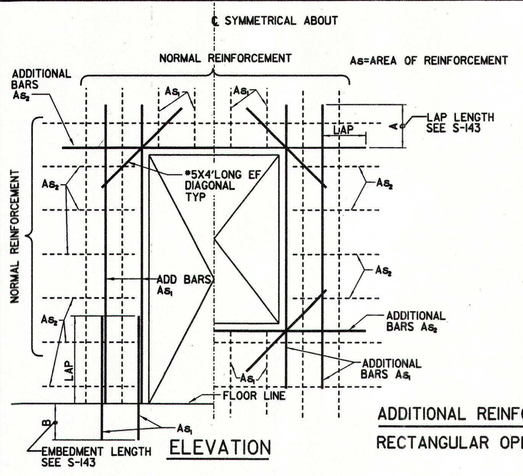


SUSPENDED SLAB CONSTRUCTION
JOINT DETAIL
REV 010196 S-137



* USE THIS DETAILING PROCEDURE WHEN LARGER OR CLOSER SPACED BARS ARE CALLED OUT FOR CORNERS

HORIZONTAL REINFORCEMENT AT
WALL INTERSECTIONS
REV 010196 S-141



ELEVATION

NOTES:

1. CUT NORMAL REINFORCEMENT AT OPENING:
   A_{s_1} AND A_{s_2} = ½ AREA OF CUT BARS TO BE ADDED ON EACH SIDE OF OPENING
2. ADDITIONAL BARS A_{s_1} AND A_{s_2} TO BE PLACED:
   A) AT CENTERLINE OF WALLS OR SLABS WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED
   B) AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED
3. INCREASE SIZE OF ADDITIONAL BARS AS NEEDED TO FIT WITHIN A DISTANCE OF 2 X WALL/SLAB THICKNESS FROM OPENING. PROVIDE 2" MIN CLEAR BETWEEN BARS
4. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS
5. WHERE A SLAB OR INTERSECTING WALL CONNECTS WITHIN ONE WALL THICKNESS OF THE OPENINGS, ADDITIONAL BARS ON THAT SIDE MAY BE OMITTED

REGISTERED PROFESSIONAL ENGINEER HENRY H. L. SHIH No. 20609 9-30-01 CIVIL STATE OF CALIFORNIA

ADDITIONAL REINFORCEMENT AROUND
RECTANGULAR OPENINGS
REV 010196 S-148

REGISTERED PROFESSIONAL ENGINEER PAUL F. WATSON No. 49137 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW
DRAWN MW
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — LICENSE NO. 50692 — DATE 12/13/00
COMPANY OFFICER — LICENSE NO. 33699 — DATE 12/13/00

MONTGOMERY WATSON
Pasadena, California

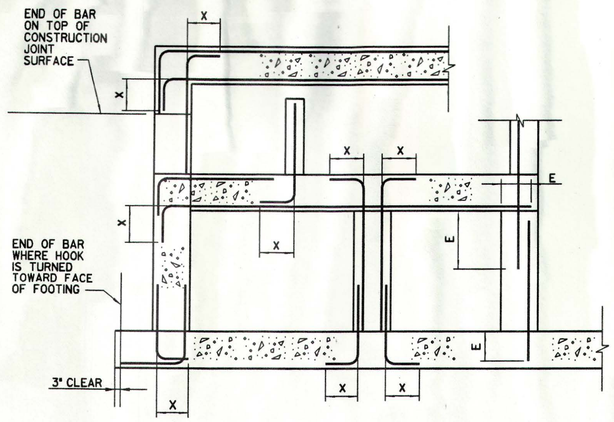
APPROVED
OLIVENHAIN MWD — DATE 8.29.01

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
STANDARD DETAILS - I

SHEET GS-2 OF • SHEETS

Plot Date: 12-DEC-2000 13:51
File: p:\Projects\4SR\general details\str\4srgs02.div
Job No: MW Job #



SECTION

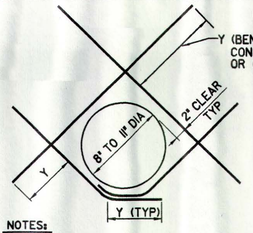
LENGTH (INCHES)			
BAR SIZE	HOOK X	LAP	EMBEDMENT E
#3	6"	18"	12"
#4	8"	18"	14"
#5	10"	23"	18"
#6	12"	28"	22"
#7	14"	33"	25"
#8	16"	SEE TABLE BELOW	SEE TABLE BELOW
#9	19"		
#10	22"		
#11	24"		

LENGTH (INCHES)						
REBAR SIZE	FOR 1" TO < 2" CONCRETE COVER		FOR 2" TO < 3" CONCRETE COVER		FOR 3" AND LARGER CONCRETE COVER	
	REBAR SPACING (CENTER TO CENTER)		REBAR SPACING (CENTER TO CENTER)		REBAR SPACING (CENTER TO CENTER)	
	< 8"	≥ 8"	< 8"	≥ 8"	< 8"	≥ 8"
LAP						
#8	62"	62"	37"	37"	37"	37"
#9	99"	79"	69"	55"	49"	42"
#10	125"	100"	88"	70"	63"	50"
#11	154"	123"	108"	86"	77"	62"
EMBEDMENT E						
#8	48"	48"	29"	29"	29"	29"
#9	77"	61"	54"	43"	38"	33"
#10	97"	77"	68"	54"	49"	39"
#11	119"	95"	84"	67"	60"	48"

NOTES:

1. USE LAP LENGTHS AS DETERMINED FROM THESE TABLES UNLESS SHOWN OTHERWISE
2. THE TABLES SHOWN ARE FOR f'C=4000 PSI AND fy=60,000 PSI
3. MULTIPLY THE LAP & E SHOWN IN THESE TABLES BY 1.3 FOR WALL HORIZONTAL REBARS AND SLAB BARS WITH 12" OR MORE FRESH CONCRETE UNDERNEATH
4. WHEN BARS OF DIFFERENT SIZE ARE LAP SPLICED, LAP LENGTH SHALL BE THE LARGER OF:
   - EMBEDMENT LENGTH OF LARGER BAR
   - LAP LENGTH OF SMALLER BAR
5. UNLESS NOTED OTHERWISE USE REBAR COUPLERS FOR SPLICES OF #11 AND LARGER BARS
6. ALL DOWEL BARS SHALL EXTEND AN EMBEDMENT LENGTH E INTO ANOTHER MEMBER OR ACROSS A CONSTRUCTION JOINT UNLESS SHOWN TO SPLICE WITH OTHER BARS OR TO EXTEND TO THE FAR FACE OF THE MEMBER AND END WITH A STANDARD HOOK

STANDARD 90° BAR HOOKS, EMBEDMENT LENGTHS AND LAP LENGTHS — S-143 — REV 010196

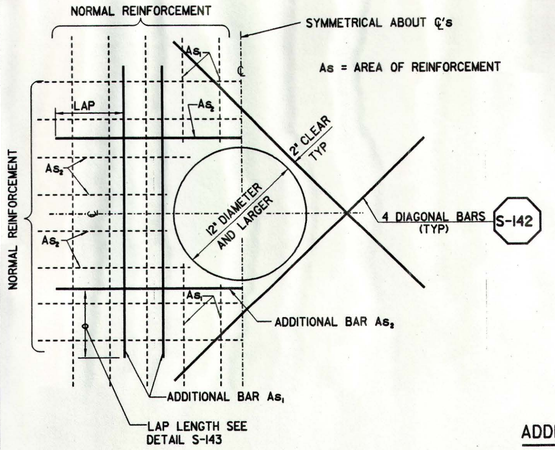


BAR SIZE	Y GRADE 60
#4	15"
#5	21"
#6	24"
#7	27"
#8	36"
#9	42"

NOTES:

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

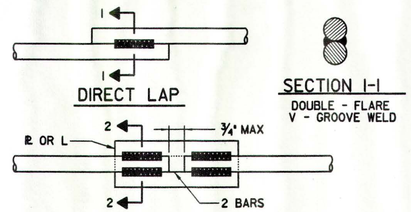
DIAGONAL REINFORCEMENT AT CIRCULAR OPENINGS (8" - 11" DIA) — S-142 — REV 010196



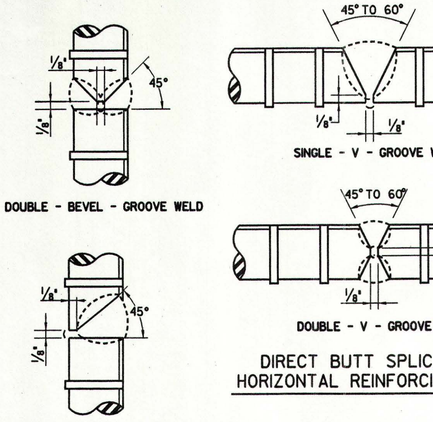
NOTES:

1. CUT NORMAL REINFORCEMENT AT OPENINGS:
   As1 AND As2 = 1/2 AREA OF CUT BARS TO BE ADDED ON EACH SIDE OF OPENING
2. ADDITIONAL BARS As1 AND As2 TO BE PLACED:
   - A) AT CENTERLINE OF WALLS OR SLABS WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED
   - B) AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED
3. INCREASE SIZE OF ADDITIONAL BARS AS NEEDED TO FIT WITHIN A DISTANCE OF 2 X WALL/SLAB THICKNESS FROM OPENING, PROVIDE 2" MIN CLEAR BETWEEN BARS
4. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS
5. WHERE A SLAB OR INTERSECTING WALL CONNECTS WITHIN ONE WALL THICKNESS OF THE OPENING, ADDITIONAL BARS ON THAT SIDE MAY BE OMITTED

ADDITIONAL REINFORCEMENT AT CIRCULAR OPENINGS (12" DIA OR LARGER) — S-144 — REV 010196



WELDED SPLICES FOR REINFORCING BARS (#6 AND SMALLER) — S-146 — REV 010196



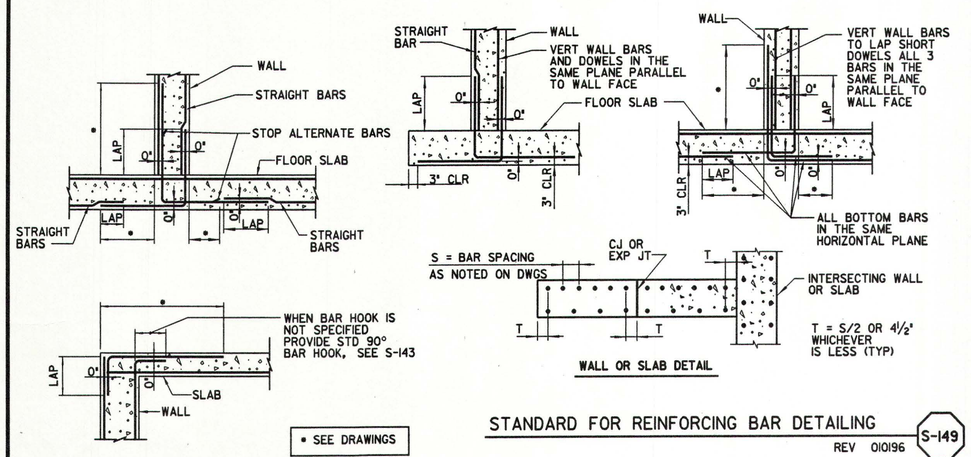
DIRECT BUTT SPLICES FOR VERTICAL REINFORCING BARS

DIRECT BUTT SPLICES FOR HORIZONTAL REINFORCING BARS

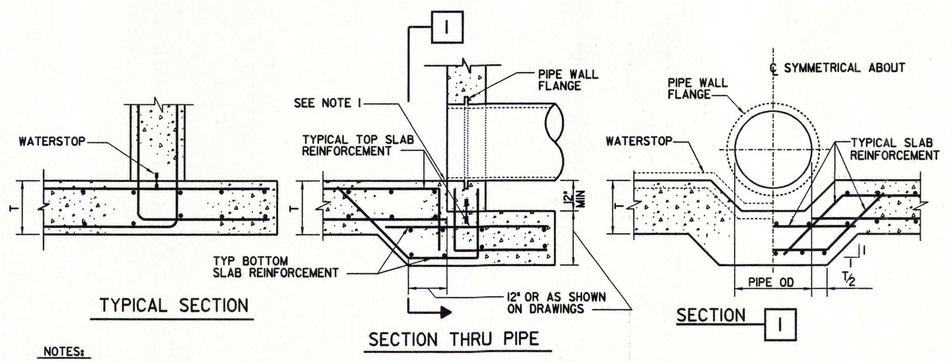
NOTES:

1. SPLICES SHALL BE WELDED PER UBC STD. NO. 19-2, AWS D1.4 AND MEET THE REQUIREMENTS OF ACI 318 SECTION 12.14.3.
2. SURFACES DO NOT HAVE TO BE SQUARE CUT. BEVELS CAN BE CUT WITH A TORCH.
3. CHIP OR GRIND ROOT TO SOUND METAL BEFORE WELDING SECOND SIDE.
4. BARS MUST BE PLUMB AND PRECISELY LOCATED IN ORDER TO BE PROPERLY WELDED.
5. WRAP BARS WITH INSULATING MATERIAL AFTER WELDING IS COMPLETED TO ALLOW SLOW COOLING.
6. BACKING IS REQUIRED FOR SINGLE - V -GROOVE AND SINGLE - BEVEL - GROOVE WELDS FOR #8 AND #7 BARS.

WELDED SPLICES FOR REINFORCING BARS (#7 AND LARGER) — S-145 — REV 011696



STANDARD FOR REINFORCING BAR DETAILING — S-149 — REV 010196



NOTES:

1. SET PIPE INVERT FLUSH WITH SLAB
2. DETAIL IS SIMILAR FOR RCP

FOOTING DETAIL AT WALL PIPE CONNECTION — S-150 — REV 011696

REGISTERED PROFESSIONAL ENGINEER HENRY H. I. SHIH No. 20609 Exp. 9-30-02 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PHIL F. WARNER No. C43137 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW
DRAWN MW
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
STANDARD DETAILS - II

SHEET GS-3 OF • SHEETS

Plot Date: 12-DEC-2000 13:52
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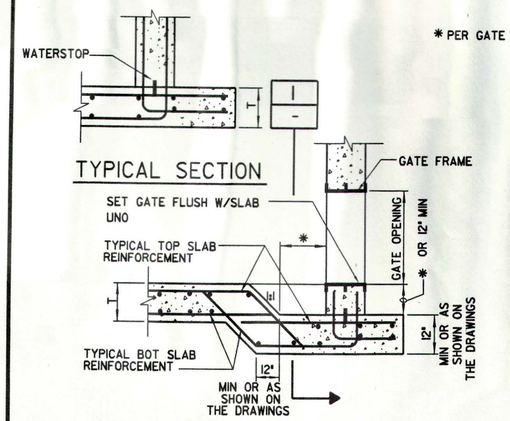
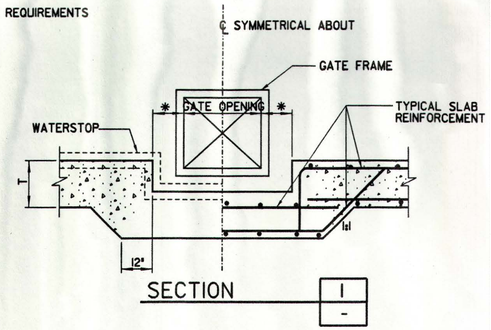
Job No: MW Job #

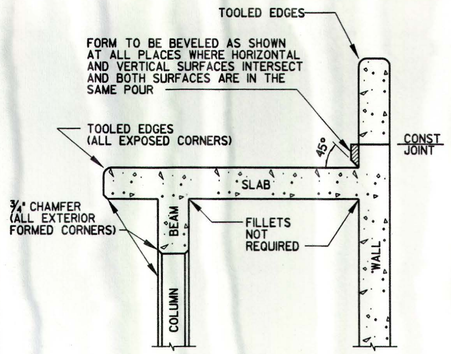


SECTION THRU GATE



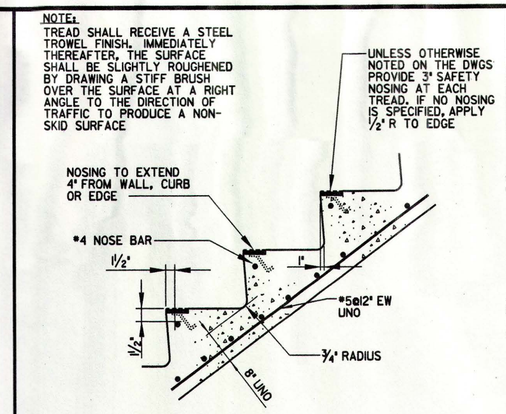
FLOOR SLAB POCKET FOR SLUICE GATE INSTALLATION

REV 010196 — S-151



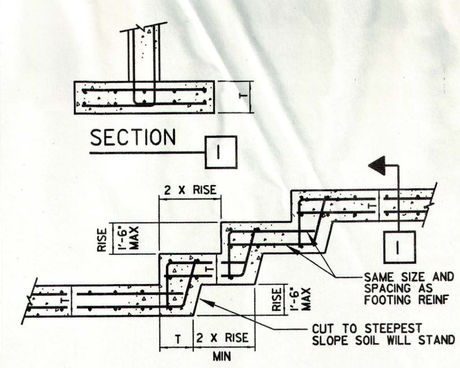
FORMING DETAILS

REV 010196 — S-152



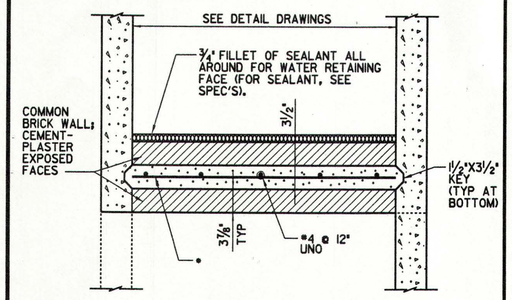
CONCRETE STAIR DETAIL

REV 010196 — S-153



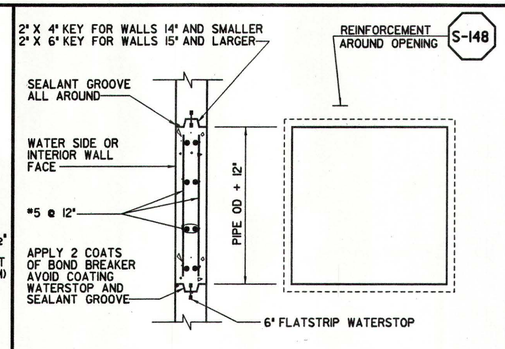
STEPPED FOOTING DETAIL

REV 010196 — S-155



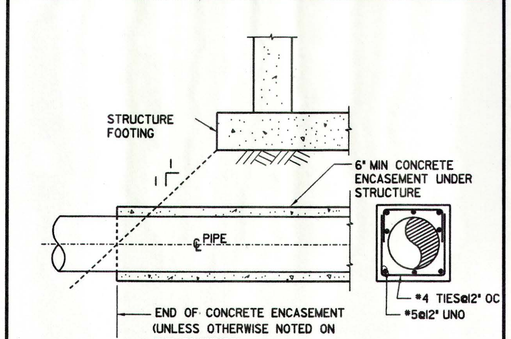
TEMPORARY CLOSURE WALL

REV 010196 — S-157



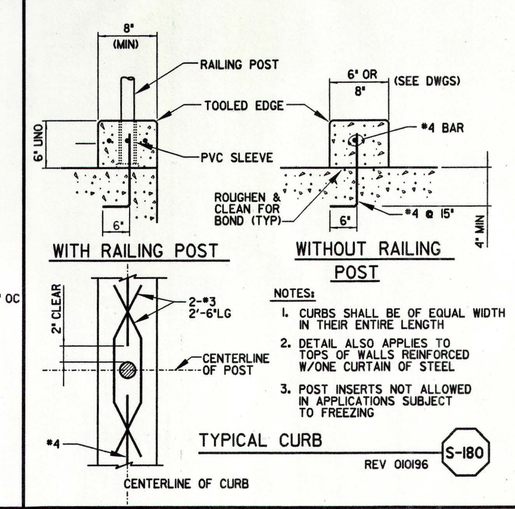
REMOVABLE WALL SECTION FOR FUTURE PIPING

REV 010196 — S-159



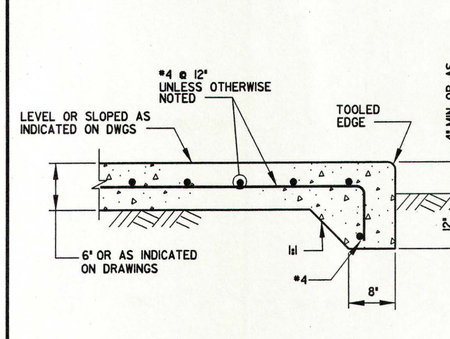
END OF PIPE ENCASEMENT UNDER STRUCTURES

REV 010196 — S-170



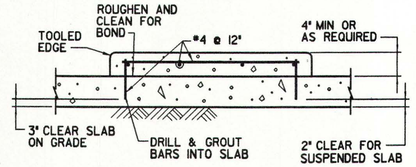
TYPICAL CURB

REV 010196 — S-180



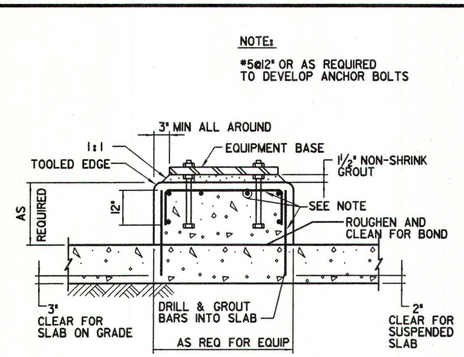
SLAB ON GRADE

REV 010196 — S-190



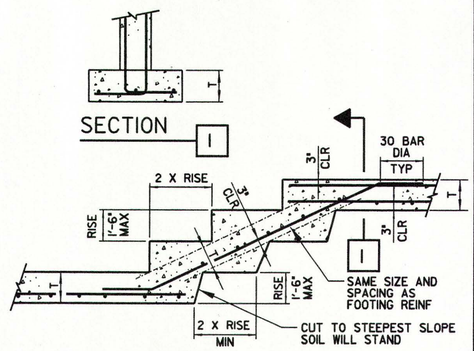
HOUSEKEEPING PAD

REV 010196 — S-191



EQUIPMENT BASE

S-192



STEPPED FOOTING DETAIL

REV 010196 — S-156

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water Dis is intended as a limited review only for general conformance with; (1) This approved Design/E documents, (2) Accepted standards of practice within the industry, and (3) The standards o Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it ac relieve the Design/Build Team of any professional liability to the responsibility to provide a com and functional facility that is compliant with all applicable specifications, standards, codes, regulations.

PBS & J

Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER — HENRY H. L. SHIH — No. 20609 — Exp 3-30-01 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL F. WALTER — No. C48137 — Exp 03-31-04 — CIVIL — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW
DRAWN MW
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/01 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

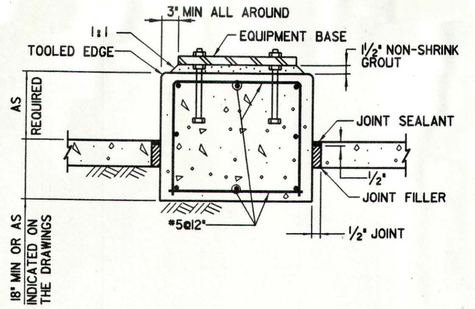
STANDARD DETAILS - III

SHEET GS-4 OF • SHEE

Plot Date: 12-DEC-2000 13:53
Files: p:\Projects\MSR\general details\str\4srgs04.dlv
Job No: MW Job #

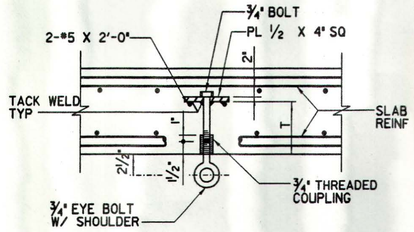
NOTE:

WHERE NO DIMENSION IS INDICATED ON THE DRAWINGS, BASE DEPTH SHALL BE SET SO THAT THE BASE WEIGHS AT LEAST TWICE THE WEIGHT OF THE EQUIPMENT SUPPORTED



EQUIPMENT BASE ON GRADE WITH SEPARATING JOINT

REV 010196 — S-193



NOTES:

1. ALL METAL PARTS SHALL BE GALVANIZED STEEL
2. A CLEARANCE OF 2" MIN SHALL BE MAINTAINED BETWEEN THE LIFTING EYE ASSEMBLY AND THE REINFORCING STEEL
3. LOAD CAPACITY T = 4" 2000#
   T = 5" 3000#
   T = 6" 4000#

LIFTING EYE

REV 010196 — S-195

UNLESS OTHERWISE SHOWN ON THE DRAWINGS CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:

FOR CONCRETE PLACED AGAINST EARTH ..... 3"

FOR SURFACES ON CONTACT WITH WATER AND 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"

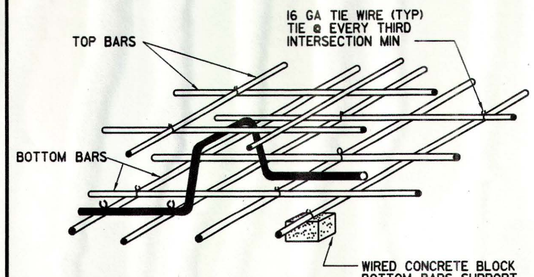
FOR SURFACES EXPOSED TO WEATHER AND INTERIOR SURFACES (EXCEPT BEAMS AND COLUMNS) NOT IN CONTACT WITH EARTH OR WATER ..... 1"

UNLESS OTHERWISE NOTED, WALLS AND SLABS SHOWN WITH A SINGLE LAYER OF REINFORCEMENT SHALL HAVE THAT REINFORCEMENT CENTERED.

CONCRETE PROTECTION FOR REINFORCEMENT

(CAST-IN-PLACE CONCRETE)

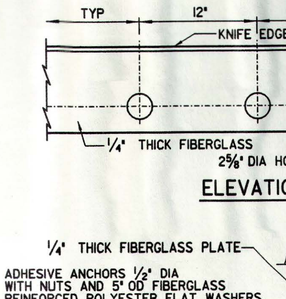
REV 051893 — S-199



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

REINFORCEMENT SUPPORT

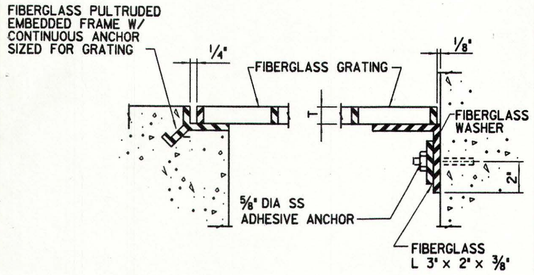
REV 010196 — S-204



TYPICAL WEIR DETAIL

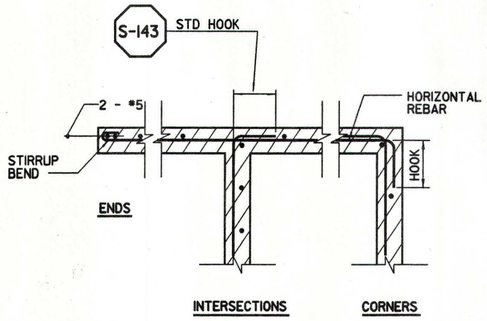
NOTES:

1. ALL CUT EDGES SHALL BE SEALED WITH RESIN
2. ALL GRATING SHALL BE SECURED IN PLACE WITH REMOVABLE FASTENERS, SIMILAR TO DETAIL S-517
3. BONDING: USE EPOXY ADHESIVE BONDING AGENT
4. WEIGHT OF EACH SECTION OF GRATING SHALL NOT EXCEED 80 POUNDS
5. ALL FRAME COMPONENTS SHALL BE FIBERGLASS
6. T TO BE DETERMINED BY GRATING MFR & APPROVED BY ENGINEER



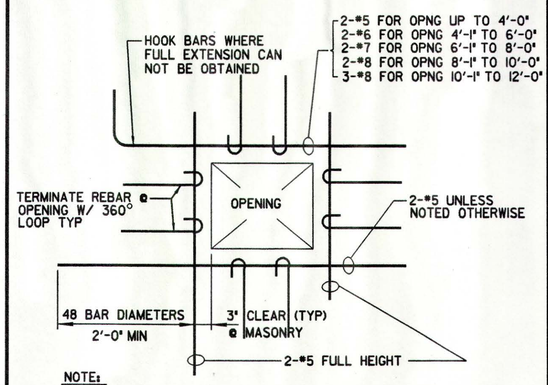
FIBERGLASS GRATING DETAILS

REV 010196 — S-320



TYPICAL 8" & 10" BLOCK WALL SECTIONS

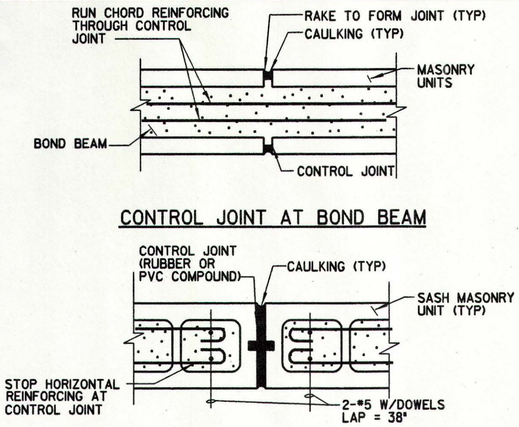
REV 010196 — S-401



NOTE:
REINFORCING SHOWN IS IN ADDITION TO NORMAL REINFORCING AND SHALL BE PLACED WITH EACH LAYER OF BARS PROVIDED

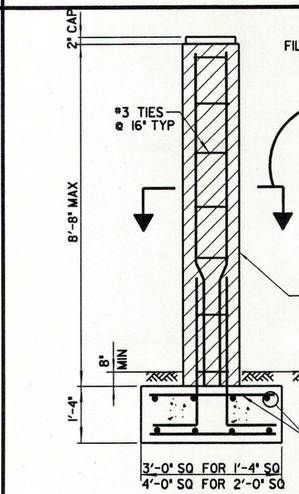
TYPICAL REINFORCEMENT AT MASONRY WALL OPENING

REV 010196 — S-410

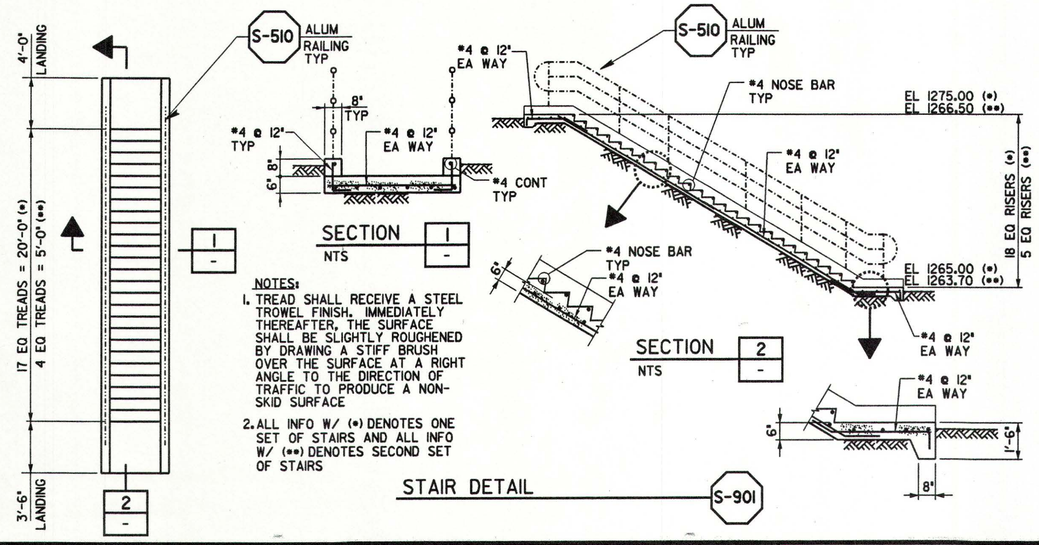


CONTROL JOINTS

REV 010196 — S-430



TYP FENCE PILASTER ELEVAT

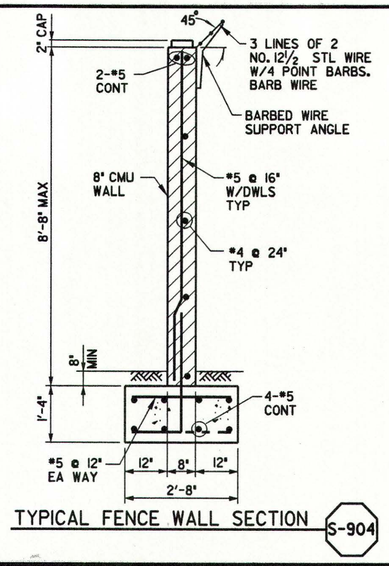


NOTES:

1. TREAD SHALL RECEIVE A STEEL TROWEL FINISH. IMMEDIATELY THEREAFTER, THE SURFACE SHALL BE SLIGHTLY ROUGHENED BY DRAWING A STIFF BRUSH OVER THE SURFACE AT A RIGHT ANGLE TO THE DIRECTION OF TRAFFIC TO PRODUCE A NON-SKID SURFACE
2. ALL INFO W/ (*) DENOTES ONE SET OF STAIRS AND ALL INFO W/ (**) DENOTES SECOND SET OF STAIRS

STAIR DETAIL

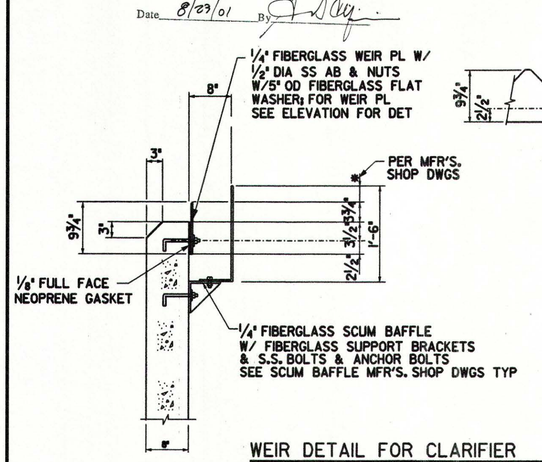
S-901



TYPICAL FENCE WALL SECTION

S-904

PBS & J
Date 8/23/01 By



WEIR DETAIL FOR CLARIFIER

S-905

REGISTERED PROFESSIONAL ENGINEER HENRY H. I. SMITH No. 20609 Exp. 7-30-02 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW
DRAWN MW
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — 50807 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

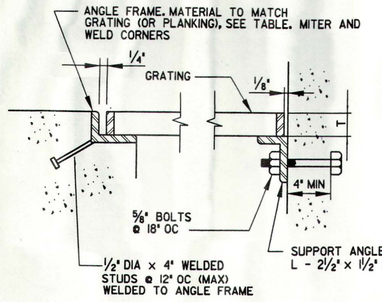
APPROVED
OLIVENHAIN OMWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO

STANDARD DETAILS - IV

Plot Date: 12-DEC-2000 13:54
Files: p:\Projects\4SR\general details\str\4srgs05.dlv
Job No: MW Job #



GRATING (OR PLANKING) FRAME TABLE				
GRATING DEPTH T	FRAME ANGLE		GRATING DEPTH T	FRAME ANGLE
1"	1 3/4 x 1 1/4 x 1/4		2"	•2 1/2 x 2 1/2 x 1/2
1 1/4"	2 x 1 1/2 x 1/4		2 1/4"	2 1/2 x 2 1/2 x 1/4
1 1/2"	1 3/4 x 1 3/4 x 1/4		2 1/2"	3 x 2 1/2 x 1/2
1 3/4"	2 x 2 x 1/4			

• OR USE 2 1/2 x 2 1/2 x 1/4 W/1/4" SHIM PLATE WELDED TO BOTTOM

NOTES:

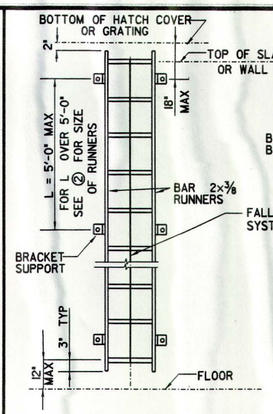
1. GRATING DEPTH TO BE DETERMINED BY MANUFACTURER AND APPROVED BY ENGINEER (UNO)
2. ALL ENDS AND OPENINGS SHALL BE BANDED
3. ALL GRATING SHALL BE SECURED IN PLACE WITH REMOVABLE FASTENERS, SEE DETAIL S-517
4. WEIGHT OF GRATING SECTION SHALL NOT EXCEED 80 LBS
5. BEARING BARS SHALL BE DEPTH T x 3/16" @ 1 3/16" OC CROSS BARS SHALL BE @ 4" OC

ALUMINUM GRATING — S-501
USE ALUMINUM ANGLE SUPPORTS AND STAINLESS STEEL BOLTS

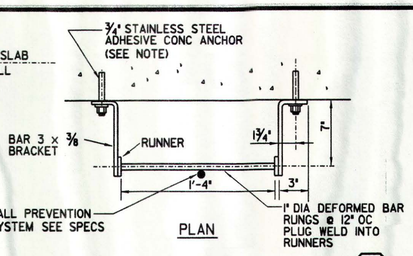
GALVANIZED STEEL GRATING — S-502
USE STEEL ANGLE SUPPORTS AND BOLTS GALVANIZE AFTER FABRICATION

STAINLESS STEEL GRATING — S-503
USE STAINLESS STEEL ANGLE SUPPORTS AND BOLTS
REV 011696

ALUMINUM PLANK GRATING - UNPUNCHED — S-501A
WACOGRATING TYPE HD (HEAVY DUTY) RECTANGULAR PLAIN PATTERN DEPTH "T" (SEE DWGS) AS MFR'D. BY WASHINGTON ALUMINUM CO. OR EQUAL.



① STANDARD LADDER WITH RUNNER SUPPORTS AT 5'-0" OC MAX

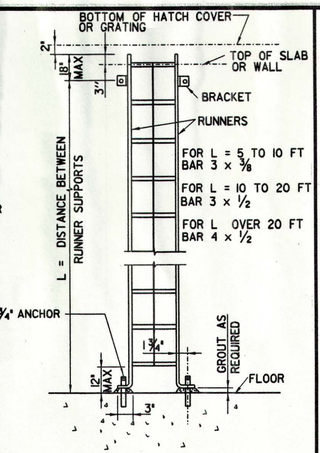


ALUMINUM LADDER — S-504

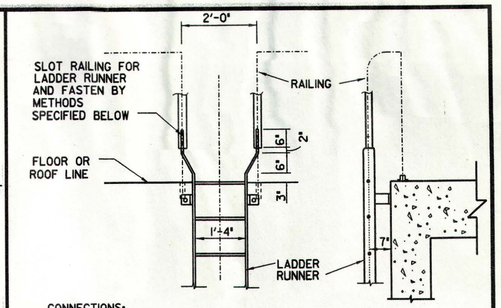
GALVANIZED STEEL LADDER — S-505

STAINLESS STEEL LADDER — S-506
REV 011096

NOTE:
PROVIDE ANCHOR BOLT INSERTS FOR PRESTRESSED TANK WALL



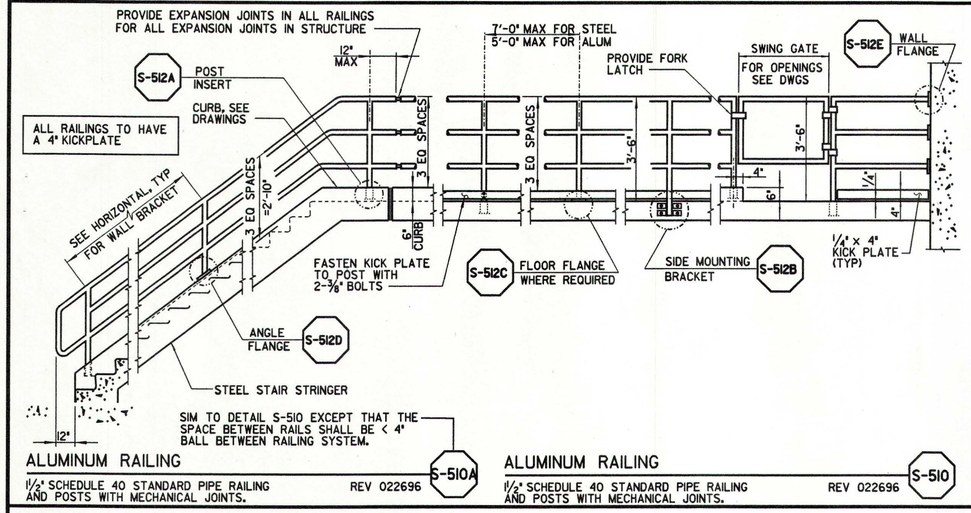
② LADDER WITH RUNNER SUPPORTS OVER 5'-0" OC



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

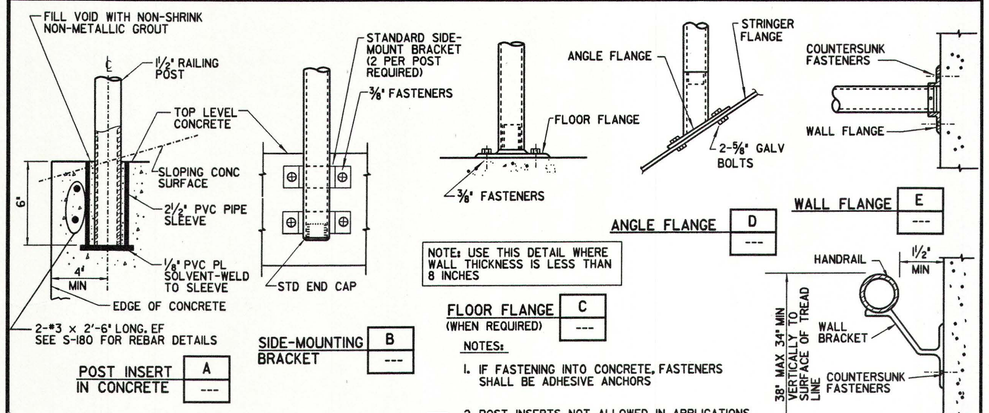
STEEL TO ALUMINUM: DRILL HOLE THRU LADDER RUNNER AND RAILING FOR 1/2" PIN. INSERT PIN AND WELD BOTH ENDS AND GRIND SMOOTH. PIN SHALL BE THE SAME MATERIAL AS RAILING

LADDER TO RAILING CONNECTIONS — S-507
REV 010196



ALUMINUM RAILING — S-510A
1 1/2" SCHEDULE 40 STANDARD PIPE RAILING AND POSTS WITH MECHANICAL JOINTS.
REV 022696

ALUMINUM RAILING — S-510
1 1/2" SCHEDULE 40 STANDARD PIPE RAILING AND POSTS WITH MECHANICAL JOINTS.
REV 022696



POST INSERT IN CONCRETE — A

SIDE-MOUNTING BRACKET — B

ANGLE FLANGE — D

NOTE: USE THIS DETAIL WHERE WALL THICKNESS IS LESS THAN 8 INCHES

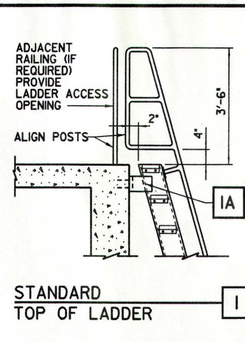
FLOOR FLANGE (WHEN REQUIRED) — C

WALL FLANGE — E

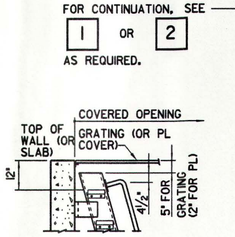
HANDRAIL WALL BRACKET — F

NOTES:
1. IF FASTENING INTO CONCRETE, FASTENERS SHALL BE ADHESIVE ANCHORS
2. POST INSERTS NOT ALLOWED IN APPLICATIONS SUBJECT TO FREEZING

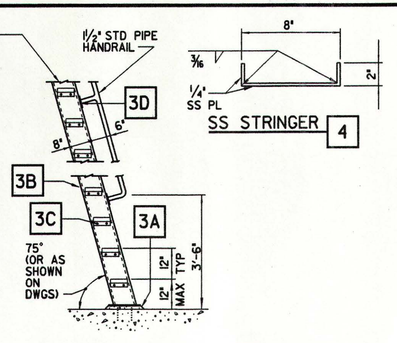
RAILING, GUARDRAIL AND HANDRAIL SUPPORT DETAILS — S-512
REV 010196



STANDARD TOP OF LADDER — 1

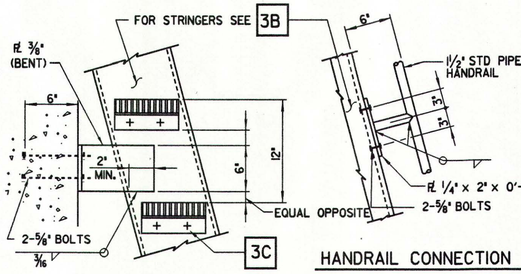


TOP OF LADDER AT COVERED OPENING — 2



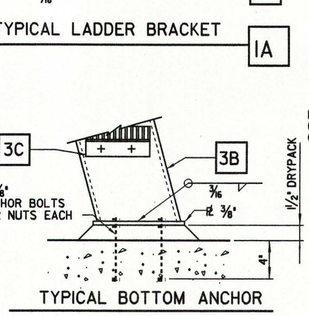
SHIPS LADDER — 3

SS STRINGER — 4

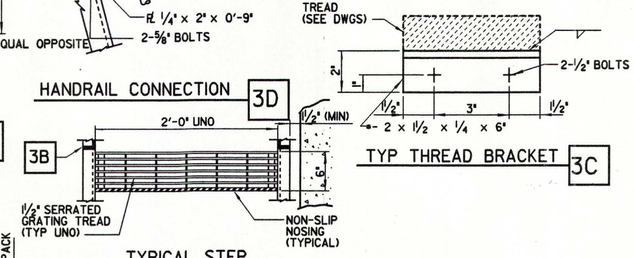


TYPICAL LADDER BRACKET — 1A

3B STRINGERS { ALUM LADDER: C8 X 6.48; GALVANIZED STL LADDER: C8 X 11.5; STAINLESS STEEL LADDER: PROVIDE FABRICATED CHANNELS PER DET 4



TYPICAL BOTTOM ANCHOR DETAIL — 3A



HANDRAIL CONNECTION — 3D

TYP THREAD BRACKET — 3C

TYPICAL STEP

ALUMINUM SHIPS LADDER — S-513
W/SS FASTENERS

STAINLESS STEEL SHIPS LADDER — S-514
W/SS FASTENERS

GALVANIZED STEEL SHIPS LADDER — S-515
W/GALV FASTENERS
REV 010196

REGISTERED PROFESSIONAL ENGINEER HENRY H. I. SIAH No. 20609 Exp. 6-30-02 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL F. WRYCE No. 043137 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW
DRAWN MW
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

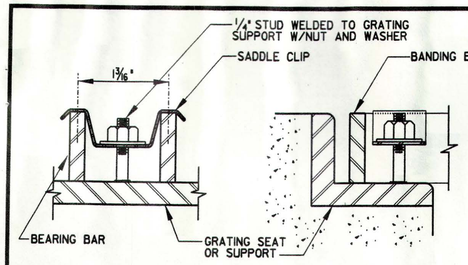
APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
STANDARD DETAILS V

SHEET GS-6 OF • SHEETS

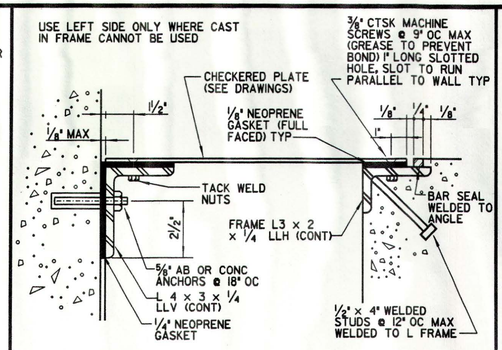
Plot Date: 12-DEC-2000 13:55
File: p:\Projects\4SR\general details\str\4srgs06.dlv
Job No: MW Job #



NOTES:
1. PROVIDE 4 CLIPS PER GRATING PANEL, APPROX 4" FROM PANEL CORNERS. MAXIMUM CLIP SPACING AT 36" OC
2. STUD, NUT, WASHER AND CLIP TO BE THE SAME MATERIAL AS THE GRATING EXCEPT FOR ALUMINUM USE SS
3. AT FRP GRATING USE 1/4" FRP ALL TREAD BOLTS AND ADHESIVE ANCHORS AS APPROPRIATE

GRATING ANCHOR DETAIL

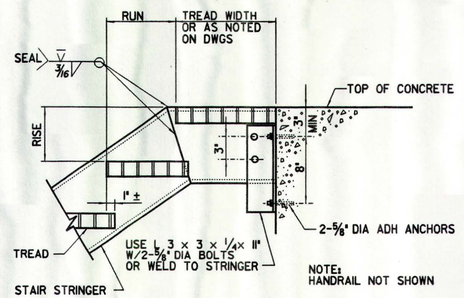
REV 010196 — S-517



STEEL CHK'D PLATE — STEEL FRAME & ANCHORS (GALV AFTER FABRICATION)
ALUM CHK'D PLATE — ALUM FRAME AND STUDS, AND SS ANCHORS
SS CHK'D PLATE — SS FRAME AND ANCHORS
MAX WEIGHT OF PLATES = 80 LBS

TYPICAL PLATE COVERED OPENING

REV 010196 — S-518

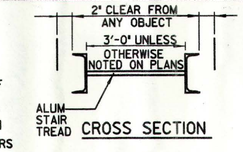


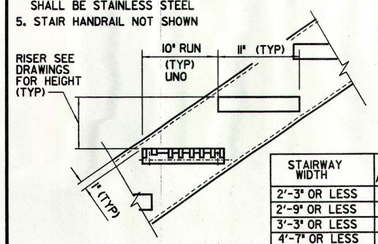
NOTE: HANDRAIL NOT SHOWN

STAIR TOP CONNECTION TO CONCRETE

REV 010196 — S-525

NOTES:
1. SEE PLANS AND/OR SPECS. FOR MATERIALS USED FOR STAIRWAY USE C10X5.28 STRINGERS UNLESS NOTED OTHERWISE
2. STAIR TREADS SHALL BE MADE OF SERRATED ALUM GRATING
3. TREAD MANUFACTURER TO VERIFY HOLE LOCATION FOR BOLTED CONN
4. ALL BOLTS AND CONCRETE ANCHORS SHALL BE STAINLESS STEEL
5. STAIR HANDRAIL NOT SHOWN

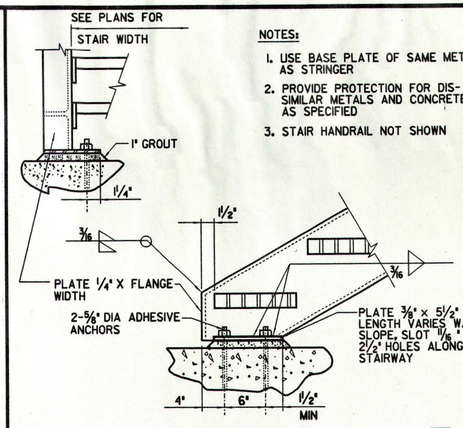




STAIRWAY WIDTH	BEARING BARS ALUMINUM TREAD
2'-3" OR LESS	1 1/4" x 3/16"
2'-9" OR LESS	1 1/2" x 3/16"
3'-3" OR LESS	1 3/4" x 3/16"
4'-7" OR LESS	2" x 3/16"

STAIR DETAIL

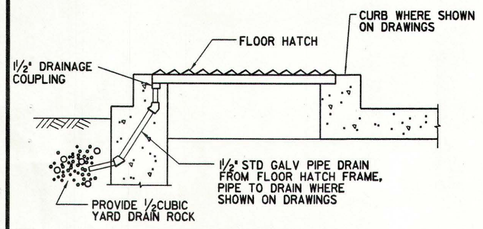
REV 010196 — S-526



NOTES:
1. USE BASE PLATE OF SAME METAL AS STRINGER
2. PROVIDE PROTECTION FOR DISSIMILAR METALS AND CONCRETE AS SPECIFIED
3. STAIR HANDRAIL NOT SHOWN

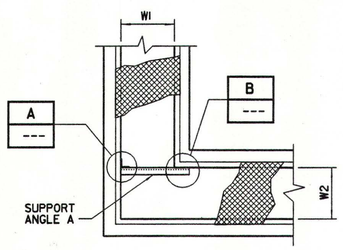
STAIR BOTTOM CONNECTION

REV 010196 — S-527

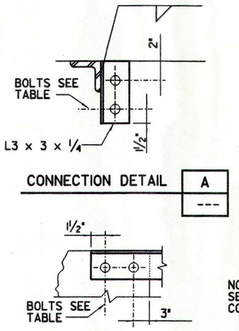


FLOOR HATCH DETAIL

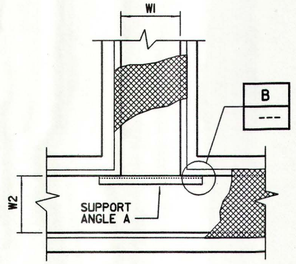
REV 010196 — S-531



PLAN
TYPICAL COVER SUPPORT AT CORNER



NOTE: SEE DRAWINGS FOR COVER MATERIAL



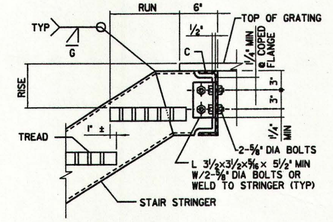
PLAN
TYPICAL COVER SUPPORT AT INTERSECTION

W1	W2	A (IN) (LLV)	& SPACING
< 3	< 3	3 x 3 x 1/4	1/2 @ 4 1/2"
3 TO 4 1/2	< 3	4 x 3 x 1/4	1/2 @ 4 1/2"
4 1/2 TO 6	< 3	4 x 3 x 3/8	1/2 @ 4 1/2"
< 3	3 TO 4 1/2	4 x 3 x 1/4	1/2 @ 4 1/2"
3 TO 4 1/2	3 TO 4 1/2	4 x 3 x 3/8	1/2 @ 4 1/2"
4 1/2 TO 6	3 TO 4 1/2	5 x 3 x 3/8	5/8 @ 6"
< 3	4 1/2 TO 6	4 x 3 x 1/4	1/2 @ 4 1/2"
3 TO 4 1/2	4 1/2 TO 6	5 x 3 x 3/8	5/8 @ 6"
4 1/2 TO 6	4 1/2 TO 6	6 x 4 x 3/8	5/8 @ 6"

NOTES:
1. SUPPORT ANGLES SHALL MATCH COVER MATERIAL UNO
2. TOP OF SUPPORT ANGLE SHALL BE ALIGNED WITH COVER SEAT
3. WHERE EMBEDDED COVER SEAT REQUIRES A NEOPRENE GASKET A MATCHING GASKET SHALL BE PROVIDED AT THE SUPPORT ANGLE AND SHALL EXTEND THE FULL WIDTH OF THE ANGLE
4. THIS DETAIL SHALL APPLY TO METAL GRATING, METAL PLATE COVERS AND PRECAST CONCRETE COVERS NOT THICKER THAN 4 INCHES. THE COVER LIVE LOAD SHALL NOT EXCEED 150 PSF AND THE COVER SPAN SHALL NOT EXCEED 6 FEET
5. FOR FRP GRATING, THE GRATING SPAN SHALL NOT EXCEED 4.5 FEET AND THE SUPPORT AND CONNECTION ANGLES SHALL BE 4 x 4 x 3/8" FRP. CONNECTION BETWEEN FRP ANGLES SHALL BE BY EPOXY BONDING
6. BOLTS SHALL BE SS CAST-IN-PLACE AB OR ADHESIVE ANCHORS

COVER SUPPORTS AT INTERSECTIONS

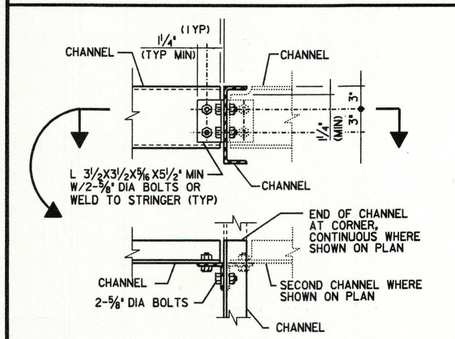
REV 010196 — S-543



NOTES:
1. FOR CHANNEL SIZES SEE PLAN
2. HANDRAIL NOT SHOWN
3. COPE STRINGER MIN AS REQ'D

STAIR TOP TO CHANNEL CONNECTION

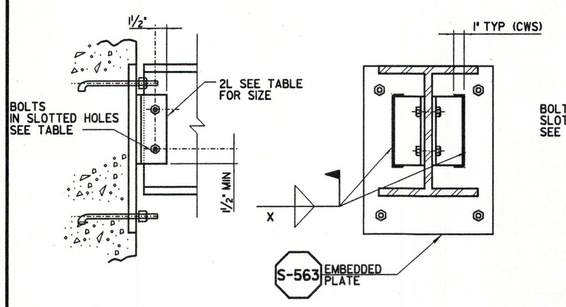
REV 010196 — S-528



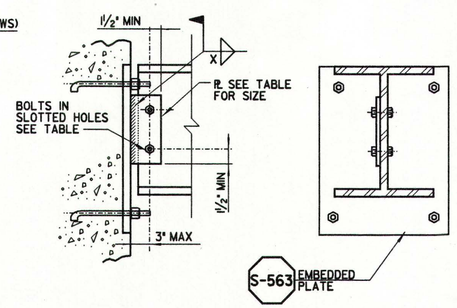
NOTES:
1. FOR CHANNEL SIZES SEE PLAN
2. COPE STRINGER MINIMUM AS NEEDED
3. STANDARD SIZE HOLES UNLESS NOTED OTHERWISE

CHANNEL TO CHANNEL CONNECTION

REV 010196 — S-555



TYPE A CONNECTION



TYPE B CONNECTION

NOTES:
1. ALL CONNECTIONS ARE BEARING TYPE UNLESS NOTED OTHERWISE
2. PROVIDE 2" DIA WASHERS

CONNECTION SCHEDULE

BEAM SIZE	ANGLE OR PLATE SIZE	CONN TYPE	# OF BOLTS	BOLT SPACING	EMBEDDED PLATE THICKNESS	WELD SIZE X
W8, W10	3/8"	B	2	3"	1/2"	1/4"
W12, W14	3/8"	B	3	3"	5/8"	5/16"
W16, W18	3/8"	A	4	3"	5/8"	5/16"
W21, W24	3/8"	A	6	3"	3/4"	3/8"
W27	3/8"	A	8	3"	3/4"	3/8"

TYPICAL BEAM TO CONCRETE CONNECTION

REV 010196 — S-560

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER HENRY H. I. SHIH No. 20609 Exp. 9-30-01 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL P. WANG No. C43237 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW
DRAWN MW
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

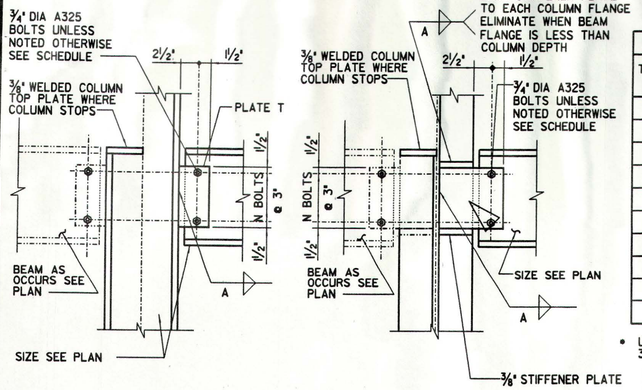
MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
STANDARD DETAILS VI

SHEET GS-7 OF • SHEETS

Plot Date: 12-DEC-2000 13:56
Files: p:\Projects\45R\general details\str\4srgs07.dlv
Job Nos: MW Job =

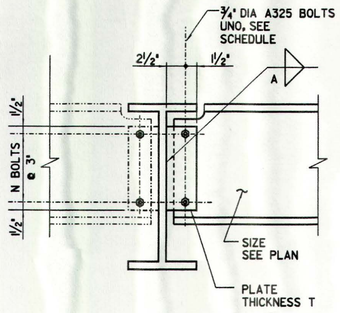


BEAM TO COLUMN CONNECTION SCHEDULE				
TYPICAL BEAM	NO. OF BOLTS N	PLATE THICKNESS T	WELD SIZE A	COMMENTS
W8	2	⅜"	⅜"	
W10	2	⅜"	⅜"	
W12	3	⅜"	⅜"	
W14	3	⅜"	⅜"	
W16	4	⅜"	⅜"	
W18	5	⅜"	⅜"	
W21	6	½"	⅝"	
W24	7	½"	⅝"	
W27	8	⅝"	⅝"	
W36	9	⅝"	⅝"	

• USE A DOUBLE ROW OF BOLTS - 5 PER ROW 3" BETWEEN ROWS AND 1½" EDGE DISTANCE

BEAM TO COLUMN CONNECTION DETAIL — S-561

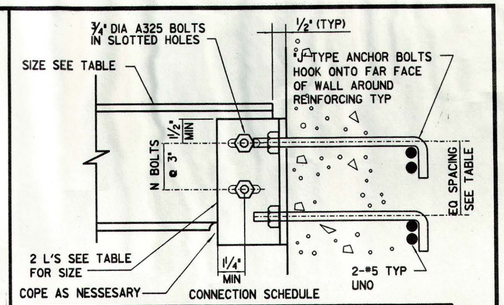
REV 022696



BEAM TO GIRDER CONNECTION SCHEDULE				
TYPICAL BEAM	NO. OF BOLTS N	PLATE THICKNESS T	WELD SIZE A	COMMENTS
W8	2	⅜"	⅜"	
W10	2	⅜"	⅜"	
W12	3	⅜"	⅜"	
W14	3	⅜"	⅜"	
W16	4	⅜"	⅜"	
W18	5	⅜"	⅜"	
W21	6	½"	⅝"	
W24	7	½"	⅝"	
W27	8	⅝"	⅝"	
W36	9	⅝"	⅝"	

BEAM TO GIRDER CONNECTION DETAIL — S-562

REV 022696

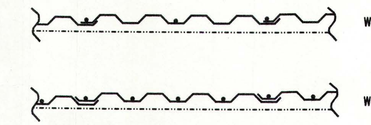


CONNECTION SCHEDULE

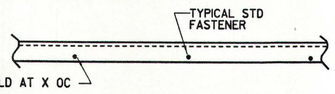
BEAM SIZE	DOUBLE ANGLE SIZE	# OF BOLTS N	ANCHORS BOLT NUMBER AND SIZE
W8, W10	3½ x 3½ x ¼	SEE S-560	4 - ¾"
W12X W14	3½ x 3½ x ¼	SEE S-560	6 - ¾"
W16, W18	3½ x 3½ x ⅜	SEE S-560	6 - ¾"
W21,W24	3½ x 3½ x ⅜	SEE S-560	8 - ¾"
W27	3½ x 3½ x ⅜	SEE S-560	8 - ¾"

BEAM TO CONCRETE CONNECTION — S-563

REV 022696

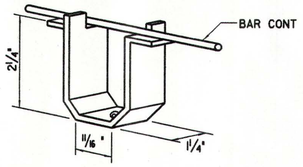


WELDING PERPENDICULAR TO DECK SPAN



WELDING PARALLEL TO DECK SPAN

WELDING PATTERN	X
2	24"
3	12"
5	8"

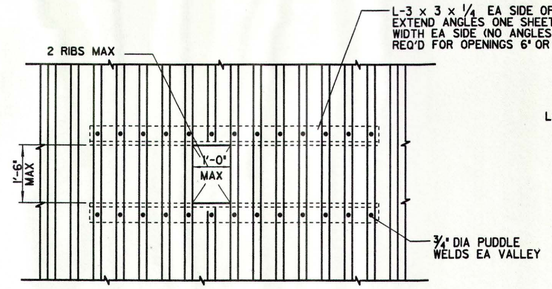


TYPICAL ANCHOR BAR SUPPORT

TYP STANDARD WELD WASHER

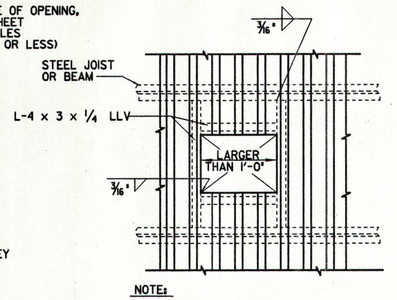
TYPICAL DECK WELDING DETAIL — S-540

REV 022696



NOTE:
FRAMING TO BE FURNISHED AND INSTALLED BY MISC METALS CONTRACTOR

FRAMING FOR OPENINGS 6" TO 12"

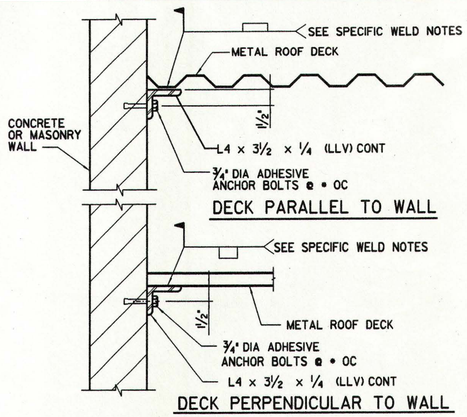


NOTE:
FRAMING TO BE FURNISHED AND INSTALLED BY STRUCTURAL STEEL CONTRACTOR

FRAMING FOR OPENINGS LARGER THAN 12" AND SMALLER THAN 48"

FRAMING AT METAL DECK OPENINGS — S-541

REV 010196

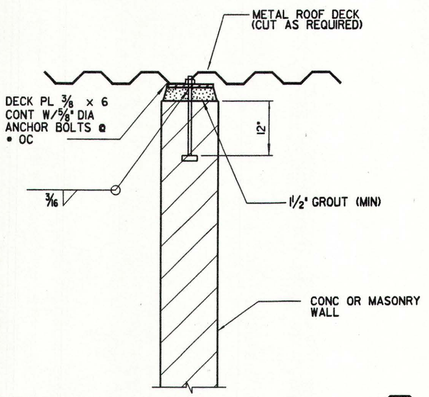


DECK PARALLEL TO WALL

DECK PERPENDICULAR TO WALL

DECK ANGLE TO WALL DETAIL — S-545

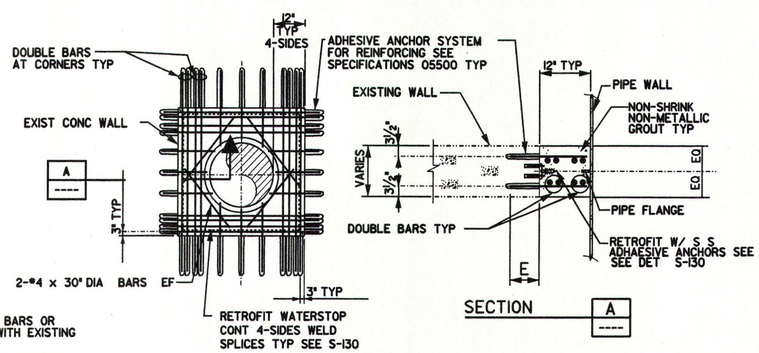
REV 010196



DECK PLATE ON WALL DETAIL — S-546

REV 010196

NOMINAL REBAR SIZE	E, EMBED DEPTH
#3	5½"
#4	8"
#5	10¼"
#6	12¾"
#7	15"
#8	17½"
#9	19"
#10	23"
#11	26"



NOTES:
1. DRILLING OF NEW REINFORCING BARS OR ANCHORS NOT TO INTERFER WITH EXISTING REINFORCING.
2. COAT EXISTING CONCRETE WITH BONDING AGENT PRIOR TO PLACING WATERSTOP AND AGAIN PRIOR TO PLACING NEW CONC.
3. SANDBLAST EXISTING SURFACE TO ⅛" AMPLITUDE PRIOR TO PLACING WS OR NEW CONCRETE.
4. REINFORCING SIZING FOR HORIZONTAL AND VERTICAL BARS TO MATCH EXISTING REINFORCING PLUS ONE BAR SIZE

NEW PIPE TO EXISTING STRUCTURE — S-902

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED MW
DRAWN MW
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — 50602 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
STANDARD DETAILS VII

SHEET GS-8 OF • SHEETS

Plot Date: 12-DEC-2000 13:56
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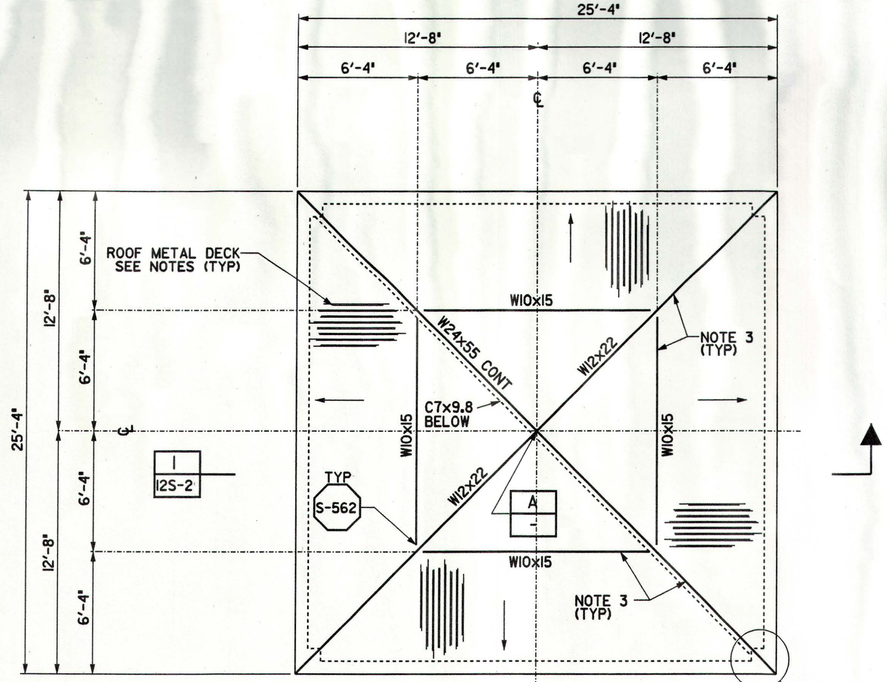
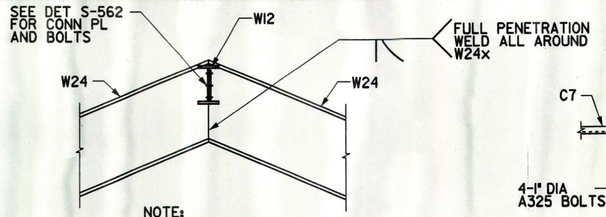
Job No: MW Job #

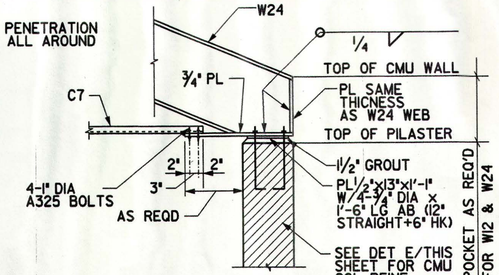


ROOF FRAMING PLAN

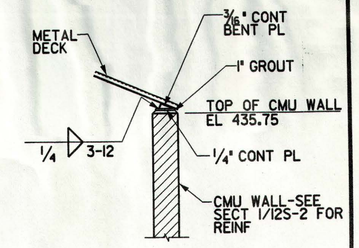
SCALE: 1/4"=1'-0"



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



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

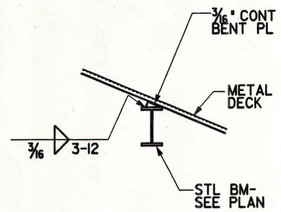


DETAIL C / SCALE: 1/2"=1'-0" / 12S-2

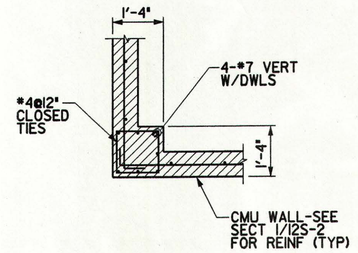
NOTES:

1. SEE DWGS GS-1 THRU GS-8 FOR STRUCTURAL GENERAL NOTES AND STANDARD DETAILS.
2. ROOF METAL DECK SHALL BE 1 1/2"x 18 GA, GALV TYPE "HSB-36" BY VERCO OR APPROVED EQUAL.

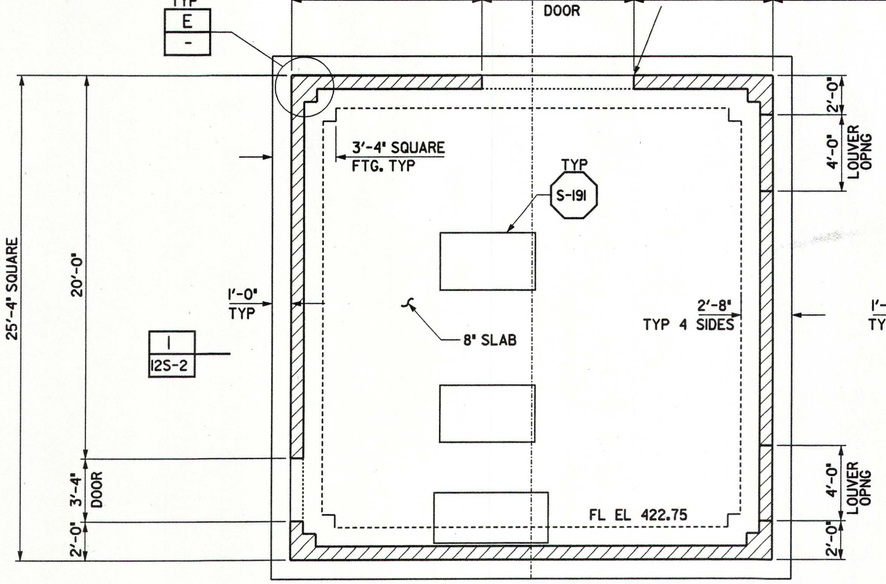
   DECK WELDING: PROVIDE 5 WELDS PER SHEET TO SUPPORTS SIDE LAP BUTTON PUNCH WELDS @ 12" OC AND ALL AROUND BOUNDRIES @ 12" OC.
3. PROVIDE 3/16" CONT BENT PL ON TOP OF BM FOR METAL DECK SUPPORT WELD TO TOP FLANGE OF BM W/ 3/16" WELDS, 3" LONG @ 12" OC ON BOTH SIDES (TYP).
4. (•) COORDINATE DIMENSIONS WITH MECH DWGS.



DETAIL D / SCALE: 1/2"=1'-0" / 12S-2

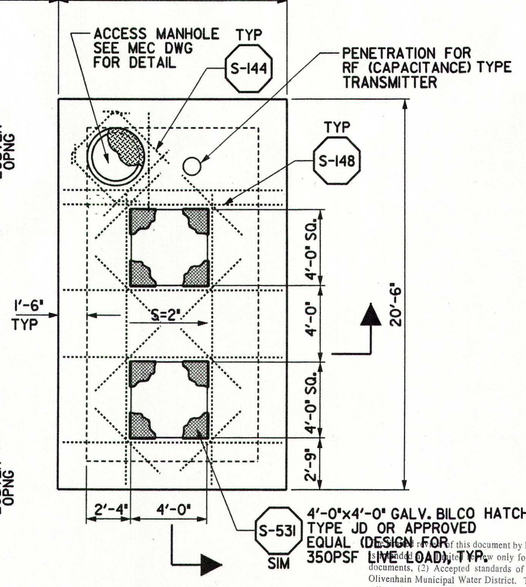


DETAIL E / SCALE: 1/2"=1'-0"



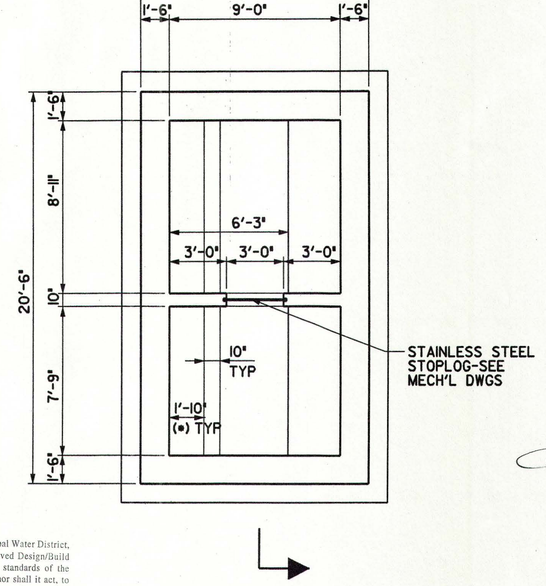
FOUNDATION AND FLOOR PLAN

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



WET WELL TOP PLAN

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



WET WELL BOTTOM PLAN

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

REGISTERED PROFESSIONAL ENGINEER HENRY H. I. SHIH No. 20699 Exp. 9-30-02 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL F. WARD No. C49137 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED H. SHIH
DRAWN J. TRAN
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

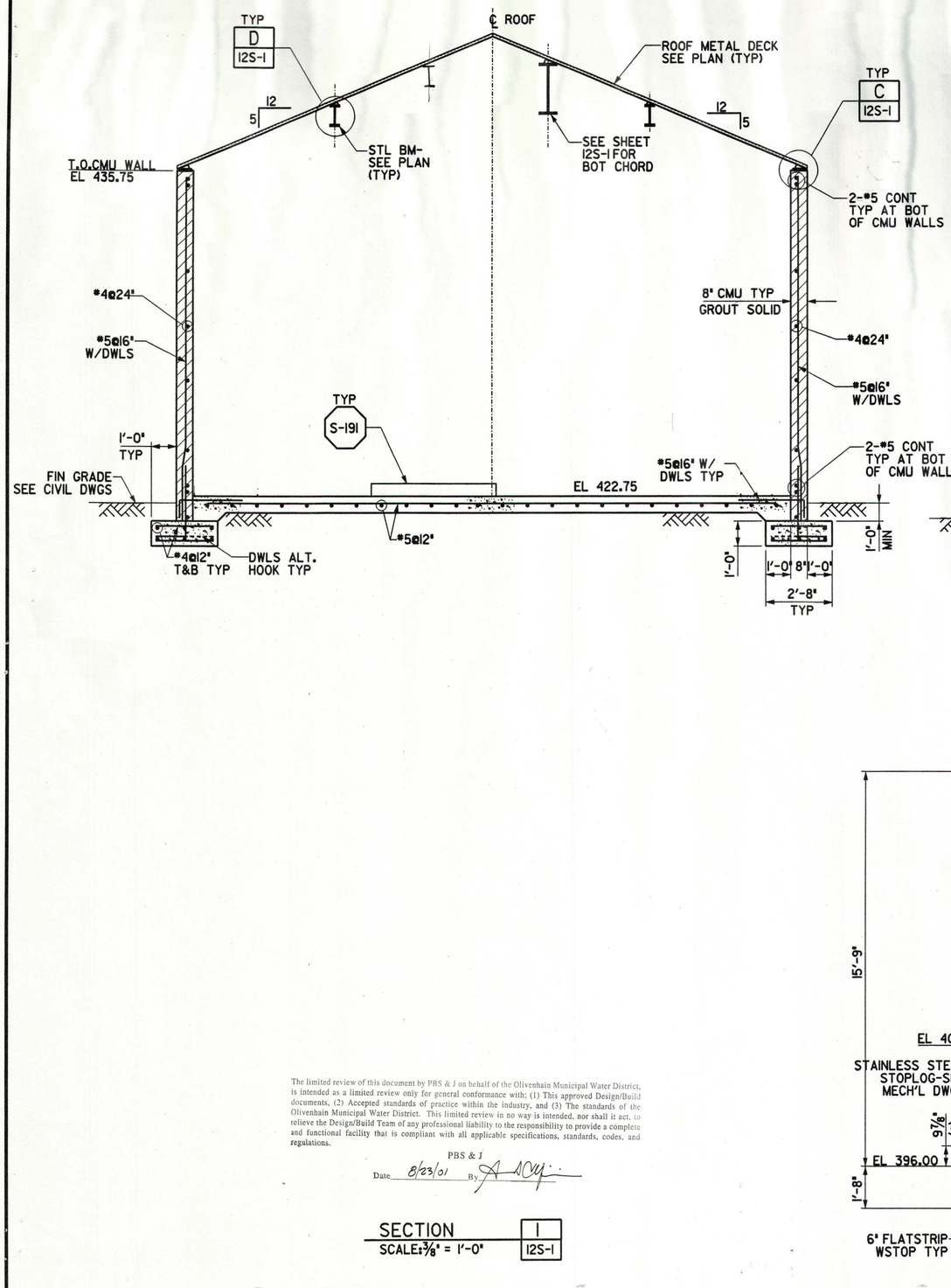
MONTGOMERY WATSON
Pasadena, California

APPROVED George R Bennett — 8.29.01 DATE
OLIVENHAIN MWD
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO.1 PUMP STATION PLANS

SHEET 12S-1 OF • SHEETS

Job No: MW Job # Files: p:\Projects\45R\12\str\4sr12s01.div Plot Date: 12-DEC-2000 14:24



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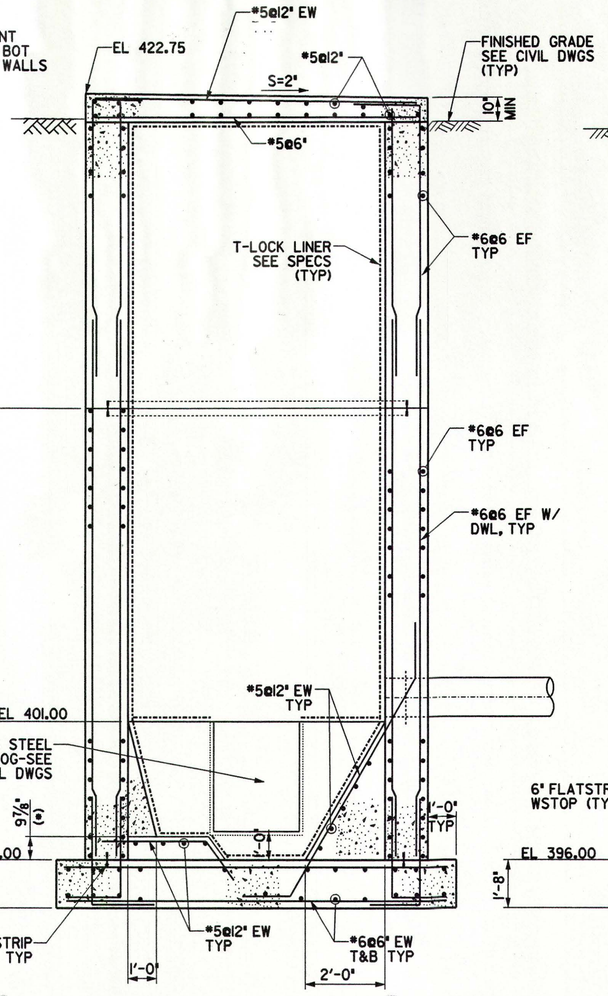
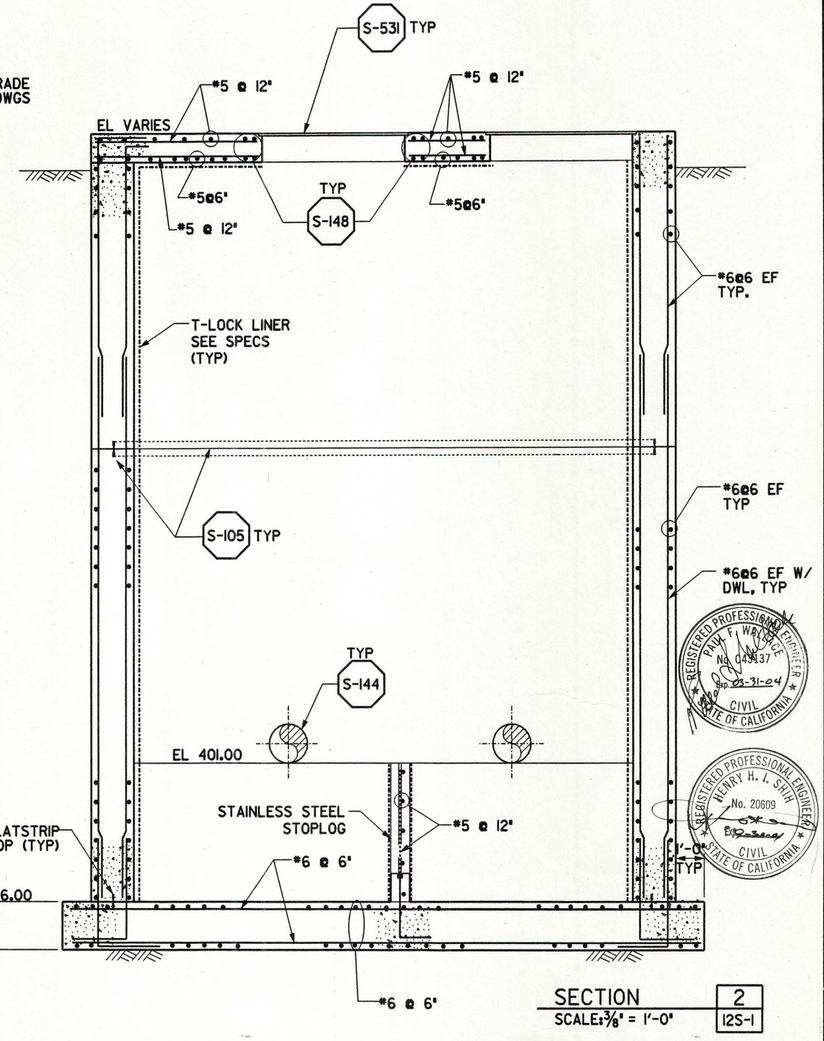
PBS & J

Date 8/23/01 By

SECTION 1
SCALE: 3/8" = 1'-0" 12S-1





SECTION 2
SCALE: 3/8" = 1'-0" 12S-2

REGISTERED PROFESSIONAL ENGINEER PAUL F. WARNECKE No. 049937 exp 03-31-04 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER HENRY H. I. SHIH No. 20609 exp 6-30-03 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED H. SHIH
DRAWN J. TRAN
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO.1 PUMP STATION
SECTIONS

SHEET 12S-2 OF • SHEETS

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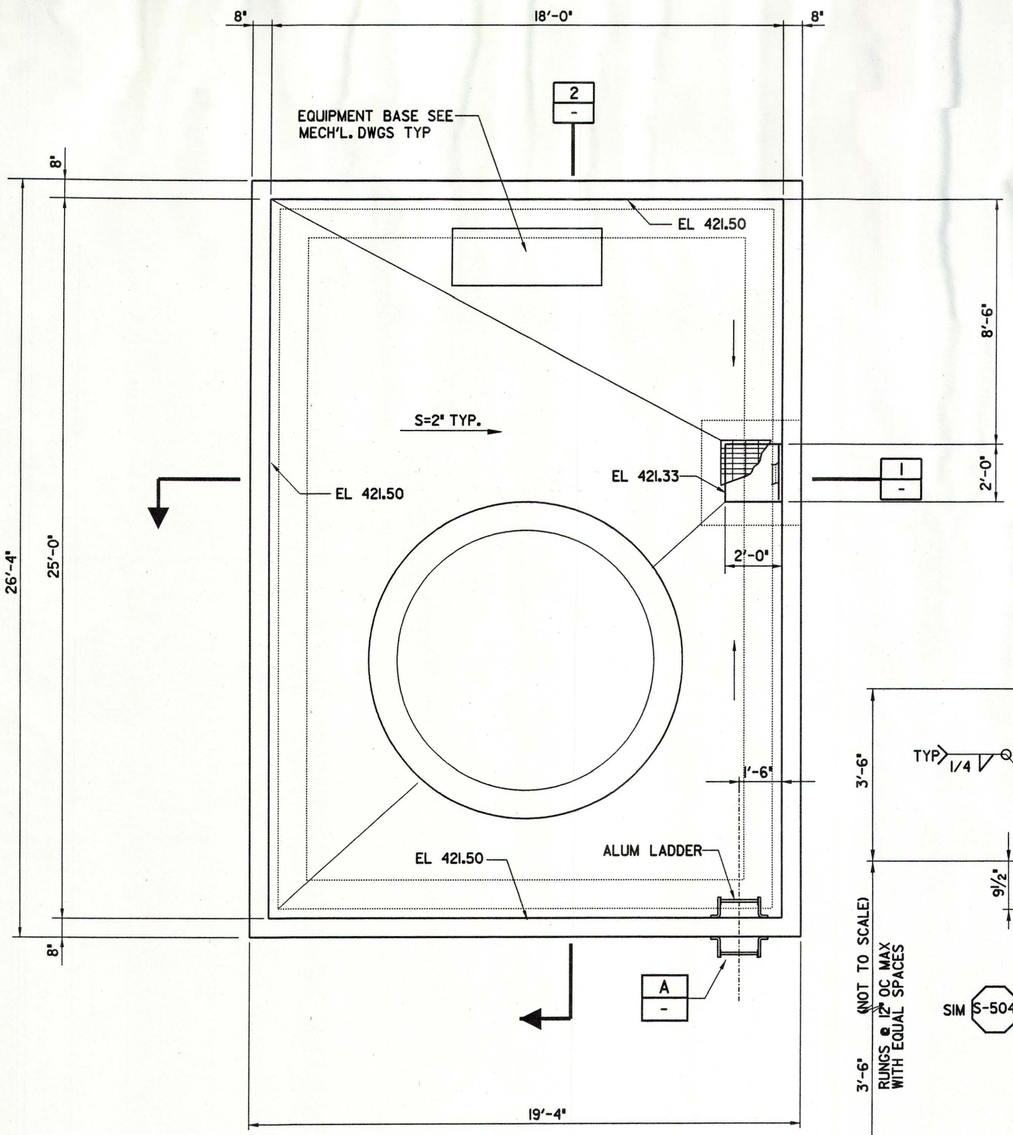
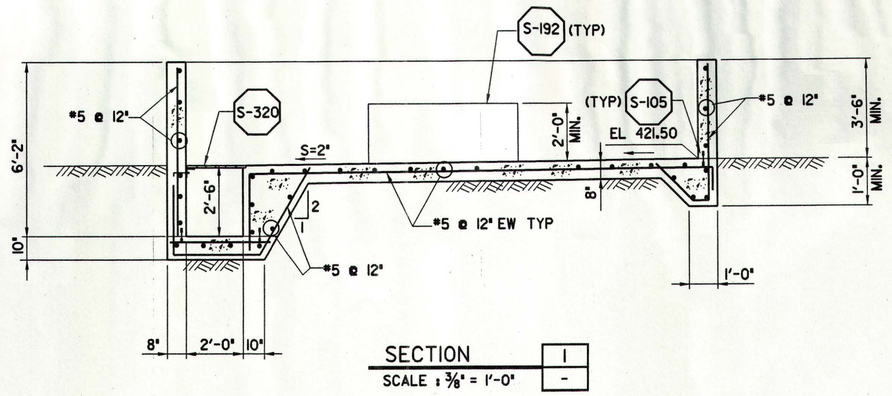
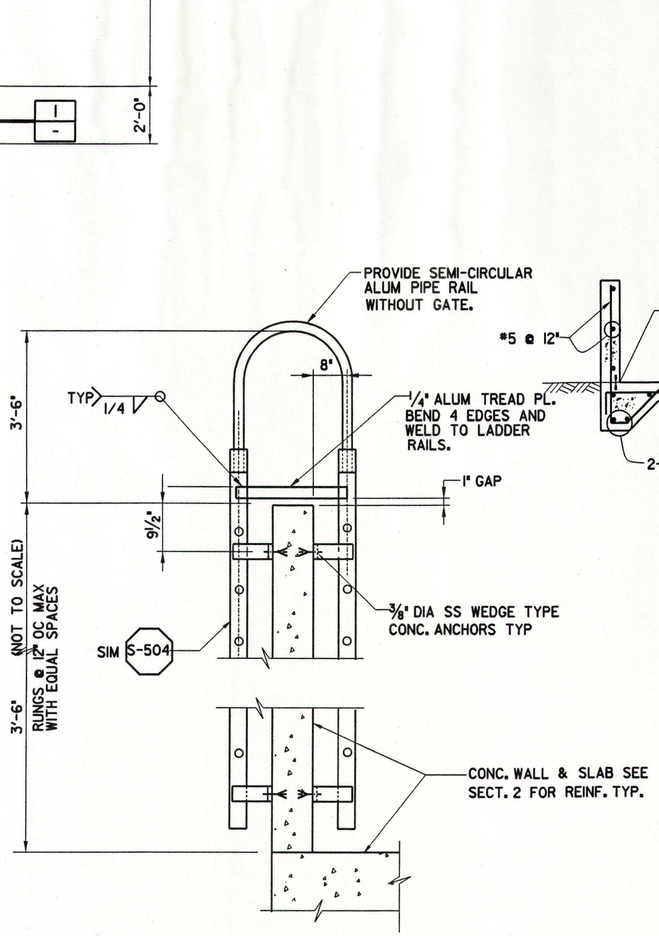


FERRIC CHLORIDE FEED AND STORAGE FACILITY PLAN

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



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



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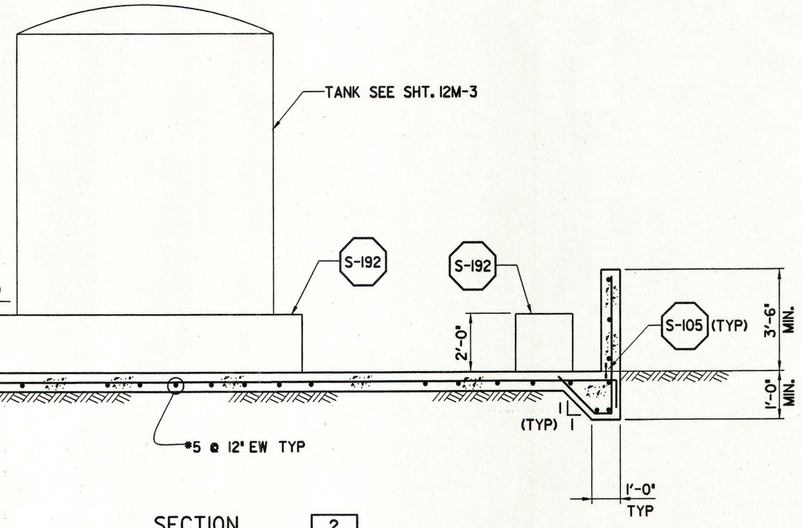

SECTION 2
SCALE : 3/8" = 1'-0"

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PBS & J
Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER HENRY H. I. SHIH No. 20609 Exp. 3-31-02 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL F. WATSON No. C45137 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED H. SHIH
DRAWN T. MA
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — 50892 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

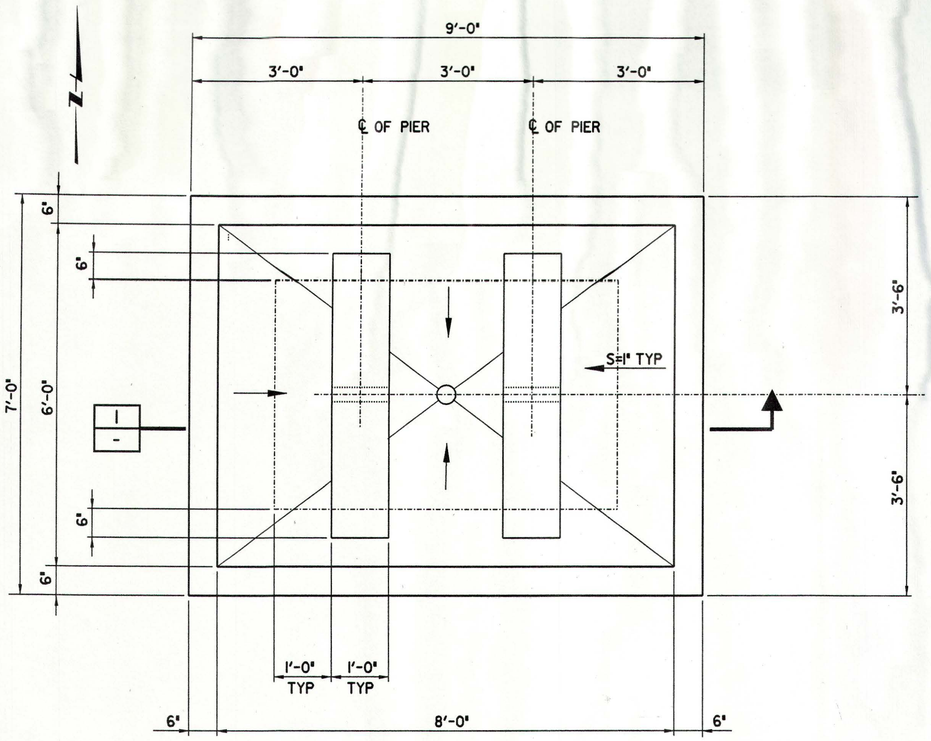
MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN/OMWD — 8.29.01 DATE
APPROVED
FILANC CONSTRUCTION CO. — DATE

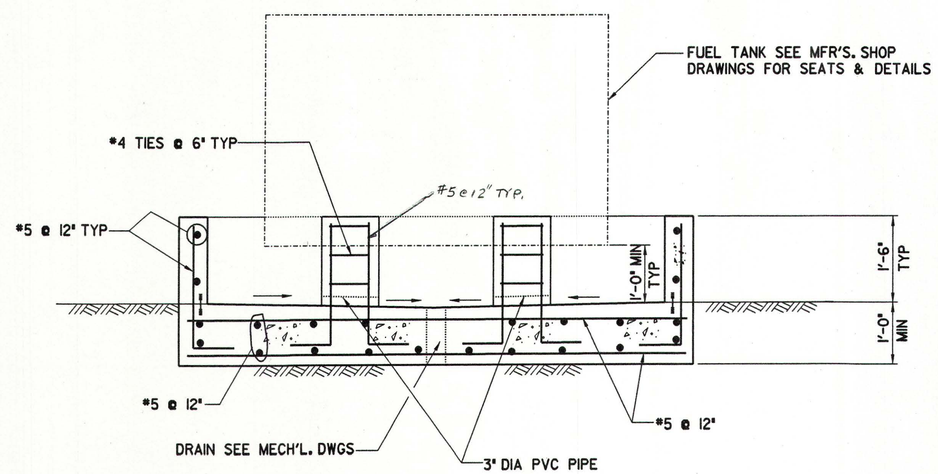
KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO.1 PUMP STATION
FERRIC CHLORIDE FEED AND STORAGE FACILITY

SHEET 12S-3
OF • SHEETS

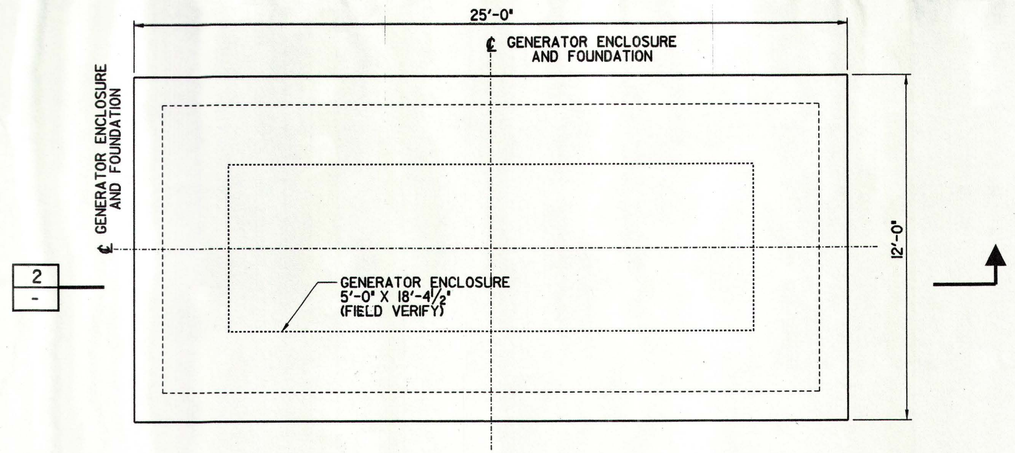
Job No: MW Job # File: p:\Projects\4SR\12\str\4sr12s03.dlv Plot Date: 12-DEC-2000 14:26



FUEL TANK PLAN

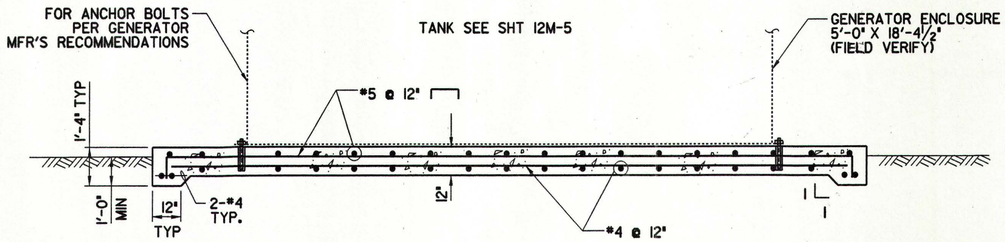


SECTION 1 / -



PLAN - GENERATOR FOUNDATION

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



SECTION 2 / -

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

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PBS & J

Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER HENRY H. I. SHIH No. 20609 Exp. 9-30-01 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL F. WALKER No. C 48137 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

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

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED H. SHIH
DRAWN T. MA
CHECKED C. LEE

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED OLIVENHAIN MWD — George R. Bunt — 8.29.01 DATE
APPROVED FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

NEIGHBORHOOD NO.1 PUMP STATION
GENERATOR PAD AND FUEL TANK

SHEET 12S-4 OF • SHEETS

Plot Date: 12-DEC-2000 14:27
Files: p:\Projects\45R\12\str\4sr12s04.dlv
Job No: MW Job #

SYMBOLS

PLAN

- EXPOSED CONDUIT
- CONDUIT CONCEALED ABOVE FLOOR.
- CONDUIT RUN UNDERGROUND OR IN CONCRETE
- EXPOSED CONDUIT RUN BEHIND OBSTRUCTION
- BARE COPPER GROUND TO GROUND WIRE IN SLAB, OR UNDERGROUND GROUND GRID, SIZE AS NOTED.
- LPI-1/3, 7 — HOME RUN TO PANEL 'LPI', CIRCUITS #1, 3, 7. CROSS MARKS INDICATE NUMBER OF CONDUCTORS. CONDUCTORS SHALL BE NO. 12 UNLESS OTHERWISE NOTED. CONDUIT SHALL BE ¾" UNLESS OTHERWISE NOTED. CONDUIT RUNS NOT MARKED SHALL BE ¾" WITH 2#12 & 1#12 GROUND. CONDUIT SHOWN IS ¾" WITH 5#12 & 1#12 GROUND. CIRCUIT 1 & 3 WITH COMMON NEUTRAL AND CIRCUIT 7 WITH SEPARATE NEUTRAL.
- CONDUIT RUN - CHANGE IN ELEVATION
- CONDUIT BENDS TOWARD OBSERVER
- CONDUIT BENDS AWAY FROM OBSERVER
- CONDUIT CAPPED, OR SEALED
- T — TELEPHONE CONDUIT ONLY. 'UNLESS OTHERWISE NOTED' -CONDUIT SHALL 2" DIAMETER.
- PA — PA CONDUIT - 2" C W/VENDOR CABLES
- FA — FIRE ALARM CONDUIT. ¾" C.O.
- FLEXIBLE LIQUID - TIGHT CONDUIT CONNECTION
- IM - 1 — INDICATES CONDUIT NUMBER FROM MCC 'IM' 'I' INDICATES FEEDER NO.
- 2a — CEILING OR PENDANT INCANDESCENT, MERCURY VAPOR, OR SIMILAR LAMP FIXTURE. '2' INDICATES CIRCUIT NUMBER. 'a' INDICATES FIXTURE CONTROLLED BY SWITCH 'a'.
- 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.
- I — POLE MOUNTED FIXTURE DISTRIBUTION TYPE AS INDICATED ON PLAN
- A 2/32 3 — FIXTURE TYPE A. 2-32 WATT LAMPS 3 - NUMBER OF TYPE 'A' FIXTURES
- FLUORESCENT LIGHTING FIXTURE
- FLUORESCENT LIGHTING FIXTURE, UNSWITCHED (SWITCHED AT LIGHTING PANEL ONLY)
- E — FLUORESCENT LIGHTING FIXTURE ON EMERGENCY CIRCUIT OR WITH BATTERY BACKUP
- BATTERY EMERGENCY LIGHT FIXTURE
- EXIT LIGHT.
- $a — SINGLE POLE SWITCH. 'a' INDICATES CIRCUIT CONTROLLED
- $2 — DOUBLE POLE SWITCH
- $3 — THREE-WAY SWITCH
- $4 — FOUR-WAY SWITCH
- $K — KEY-OPERATED SWITCH
- $P — SWITCH AND PILOT LIGHT
- $M — MANUAL MOTOR STARTER
- $WP — WEATHERPROOF SWITCH
- PT 101 — PROCESS INSTRUMENT CALLOUTS PER P & ID.
- SD — SMOKE DETECTOR

WALL	FLOOR	
⊖	▣	120V SINGLE RECEPTACLE, NEMA CONFIGURATION 5-20.
⊖	▣	120V DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20
◐	◙	240V DUPLEX RECEPTACLE, NEMA CONFIGURATION 6-20
		SINGLE SPECIAL-PURPOSE RECEPTACLE, ASTERISK INDICATES NUMBER, SUCH AS AMPERAGE, TO DIFFERENTIATE BETWEEN TWO OR MORE DIFFERENT TYPES. 120 OR 240 V.A.C.
	◉	WELDING RECEPTACLE
	⊗	SINGLE SPECIAL PURPOSE RECEPTACLE 480 V.A.C.
	Ⓒ	CLOCK HANGER RECEPTACLE
	▬	LIGHTING PANEL
	▭	POWER PANEL, CONTROL PANEL, ETC.
	▭▭	MOTOR CONTROL CENTER
	◑	FLOOR TYPE TELEPHONE OUTLET
	◈	SOUND OR PAGING SYSTEM DEVICE. * DENOTE NUMBER TO DIFFERENTIATE BETWEEN DIFFERENT DEVICES.
	◀	TELEPHONE OUTLET
	◁	DATA COMMUNICATION OUTLET
	⏚	GROUND CONNECTION BOLTED TYPE
	⊓	DISCONNECT SWITCH
	⊠	MOTOR STARTER
	Ⓜ	MOTOR
	SS	PUSHBUTTON STATION 'SS' START-STOP, 'LOS' LOCKOUT-STOP, 'SLOS' START-LOCKOUT-STOP
	JB	RACEWAY BOX 'JB' JUNCTION BOX 'MH' MANHOLE 'HH' HANDHOLE 'PB' PULLBOX 'TB' TERMINAL BOX
	Ⓙ	JUNCTION BOX OR FITTING
	PSL-1	FIELD INSTRUMENT I.E. 'PSL' PRESSURE SWITCH 'LSH' LEVEL SWITCH 'SV' SOLENOID VALVE
SV		SOLENOID VALVE
Ⓣ		THERMOSTAT
Ⓗ		HEATER
		HORN
		DENOTES REFERENCE TO NOTE 1 I.E. - 'SEE NOTE 1'
◉		GROUND ROD ¾" x 10'-0" WITH GROUND WELL (UNLESS OTHERWISE NOTED)
●—		GROUND CONNECTION - EXOTHERMIC TYPE
M		MOTOR OPERATED VALVE

SINGLE LINE DIAGRAM

- BUS
- II — ACROSS-THE-LINE, NON-REVERSING, II INDICATES NEMA SIZE 2 MAGNETIC STARTER
- IV PW — NEMA SIZE 4 MAGNETIC STARTER: PW - PART WINDING, REV - REVERSING RV - REDUCED VOLTAGE, AUTO-AUTO TRANSFORMER 2SP-2W - TWO SPEED, TWO WINDING
- 30A — CONTACTOR, SIZE AS NOTED
- UNIT MOUNTED COMBINATION STARTER
- SOLID STATE REDUCED VOLTAGE STARTER
- VACUUM CONTACTOR
- 50A / OR / 125AT 225AF — MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED: 50A.-TRIP RATING IN AMPERE NA-NON-AUTOMATIC MCP - MOTOR CIRCUIT PROTECTOR AF-FRAME SIZE (225 AMPS NOTED) AT-TRIP RATING (125 AMPS NOTED)
- 52 — MEDIUM OR HIGH VOLTAGE DRAWOUT BREAKER
- DRAWOUT BREAKER, SIZE AS NOTED EO - DENOTES ELECTRICALLY OPERATED
- MEDIUM OR HIGH VOLTAGE STARTER
- L.A. — LIGHTNING ARRESTOR
- 10 — MOTOR 10 HP NOTED
- TRANSFORMER WITH GROUNDED SECONDARY, KVA SIZE & VOLTAGE RATIO AS NOTED.
- PT 480/120V (2) — POTENTIAL TRANSFORMER, RATIO AND NUMBER OF PT'S AS NOTED
- CT 100/5A (3) — CURRENT TRANSFORMER, RATIO AND NUMBER OF CT'S AS NOTED
- E — E: ELECTRICAL INTERLOCK K: KEY INTERLOCK
- ELECTRICAL ENCLOSURE OUTLINE
- EQUIPMENT WITH INTEGRAL CONTROLLER
- DISCONNECT SWITCH, SIZE AS NOTED
- FUSED DISCONNECT SWITCH
- 10KVAR — CAPACITOR, KVAR AS NOTED
- AM — AMMETER
- VM — VOLTMETER
- AS — AMMETER SWITCH
- VS — VOLTMETER SWITCH
- SURGE AND LIGHTNING ARRESTER

SCHEMATIC DIAGRAM

- IM 121 — CONTROL RELAY OR COIL I: MCC NUMBER M: STARTER HOLDING COIL CR: CONTROL RELAY TD: TIME DELAY RELAY 12: MCC FEEDER NUMBER 12 I: RELAY MUNBER .1.
- M — SOLID STATE STARTER CONTROL FUNCTION
- N.O. CONTACT
- N.C. CONTACT
- TORQUE SWITCH (SPECIFY WHEN OPEN)
- NORMALLY OPEN LIMIT SWITCH
- NORMALLY CLOSED LIMIT SWITCH
- 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
- NO/NC MAINTAINED PUSHBUTTON
- ON OFF — 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)
- THREE-POSITION SPRING RETURN-TO-CENTER MOMENTARY CONTACT SWITCH ("LATCH-UNLATCH," "ON-OFF," ETC.)
- SINGLE POLE TOGGLE SWITCH ("ON-OFF", ETC.)
- GROUND CONNECTION
- OVERLOAD RELAY CONTACTS (MAGNETIC)

TIMED CONTACTS - CONTACT ACTION DELAYED AFTER COIL IS :

ENERGIZED

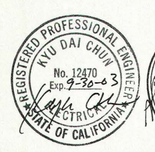
- T.C. — NORMALLY OPEN WITH TIME DELAY CLOSING
- T.O. — NORMALLY CLOSED WITH TIME DELAY OPENING

DE-ENERGIZED

- T.O. — NORMALLY OPEN WITH INSTANT CLOSING AND TIME DELAY OPENING
- T.C. — NORMALLY CLOSED WITH INSTANT OPENING AND TIME DELAY CLOSING
- MANUAL MOTOR STARTER WITH OVERLOAD PROTECTION
- FUSE
- RES — RESISTOR (FIXED)
- POTENTIOMETER TYPE RESISTOR (CONTINUOUSLY ADJUSTABLE)
- R — PUSH-TO-TEST INDICATING LIGHT
- ETM — ELAPSED TIME METER
- HEATER
- CROSSING OF CONDUCTORS-NOT CONNECTED
- CONNECTION OF CONDUCTORS, FITTING AS REQUIRED
- STRESS RELIEF CONNECTION
- ELECTRODE PROBES
- ▲ PANEL DOOR MOUNTED DEVICE
- ■ FIELD OR REMOTE MOUNTED DEVICE
- ● CONTACT AT PCM, DCS, PLC, RTU OR LCP

MOTOR OPERATED VALVE LIMIT SWITCH CONTACT DEVELOPMENT

CONTACT	VALVE POSITION		
DESIGNATION	FULL OPEN	INTERMEDIATE	FULLY CLOSED
COO	CLOSE	OPEN	OPEN
OOC	OPEN	OPEN	CLOSE
CCO	CLOSE	CLOSE	OPEN
OCC	OPEN	CLOSE	CLOSE



REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED N. CONCEPCION
DRAWN N. CHRAKIAN
CHECKED K.D. CHUN

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN/MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

NEIGHBORHOOD NO. 1 PUMP STATION
ELECTRICAL SYMBOLS

SHEET GE-1 OF • SHEETS

Job No: MW Job # Files: p:\Projects\4SR\general details\elv\neighbor\4srnge01.dlv Plot Date: 12-DEC-2000 14:19

ABBREVIATIONS

A	AMPERE, AUTO, AMMETER
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONING
AF	AMPERE FRAME SIZE OF CKT. BRKRS
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
AM	AMMETER
ANN	ANNUNCIATOR
AMP	AMPERES, AMPERAGE
APPR	APPROVED
AS	AMMETER SWITCH, ADJUSTABLE SPEED
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BKR	BREAKER
BBL	BUBBLER
BLDG	BUILDING
C	CONDUIT, CLOSED
CAB	CABINET
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CO	CONDUIT ONLY
COND	CONDUIT
COMPT	COMPARTMENT
COMPR	COMPRESSOR
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DH	DATA HIGHWAY
DISC	DISCONNECT
DISTR	DISTRIBUTION
DPDT	DOUBLE POLE DOUBLE THROW
DWG	DRAWING
E	EMPTY, EMERGENCY
ELEV	ELEVATION
EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EO	ELECTRICALLY OPERATED
EP	EXPLOSION PROOF
EQPT	EQUIPMENT
ER	ELECTRODE LEVEL RELAY
ETM	ELAPSED TIME METER
EXH	EXHAUST
EXIST	EXISTING
F, ~	FREQUENCY
FDR	FEEDER
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FM	FREQUENCY METER
FUT	FUTURE
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
FWD	FORWARD CONTACTOR COIL
GALV	GALVANIZED
GEN	GENERATOR
GFR	GROUND FAULT RELAY
GFS	GROUND FAULT SENSOR
GRD	GROUND
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HIGH	HIGH SPEED CONTACTOR
HOA	HAND - OFF - AUTOMATIC
HP	HORSE POWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HVAC	HEATING VENTILATION AIR CONDITIONING
HZ	HERTZ
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IND	INDICATION (SYSTEM)
I/O	INPUT/OUTPUT
INST	INSTANTANEOUS
INSTR	INSTRUMENT
Isc	SHORT CIRCUIT CURRENT, AMPS
INVT	INVERT
JB	JUNCTION BOX
J BOX	JUNCTION BOX
KAIC	KILOAMPERE INTERRUPTING AND WITHSTAND CAPACITY
KCM	THOUSAND CIRCULAR MILLS
KVA	KILO (1000) VOLT AMPS
KW	KILOWATTS
KWH	KILOWATT HOUR
LC	LIGHTING CONTACTOR
LCB	LOCAL CONTROL BOARD
LCP	LOCAL CONTROL PANEL
LOC	LOCAL
L-O-R	LOCAL-OFF-REMOTE
LOS	PUSHBUTTON W/"LOCK-OUT-STOP"
LS	LEVEL SWITCH
LT, LTS	LIGHT, LIGHTS
LTG	LIGHTING
LOW	LOW SPEED CONTACTOR
M	MOTOR CONTACTOR COIL
MA	MILLIAMPS
MAN	MANUAL
MAG	MAGNETIC
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCB	MAIN CONTROL BOARD
MCM	THOUSAND CIRCULAR MILS
MD	MOTORIZED DAMPER
MH	MANHOLE
MIN	MINUTES, MINIMUM
MLO	MAIN LUGS ONLY
MOV	MOTOR OPERATED VALVE
MS	MANUAL MOTOR STARTER
MT, MTD	MOUNT, MOUNTED
MTR	MOTOR
MUX	MULTIPLEXING PANEL
MVA	MILLION-VOLT-AMPERE
N	NEUTRAL
NA	NON-AUTOMATIC OR NOT APPLICABLE
NC	NORMALLY CLOSED
NO, NOS	NUMBER, NUMBERS, NORMALLY OPEN
NP	NAMEPLATE
NIC	NOT IN CONTRACT
NITS	NOT IN THIS SECTION
NTS	NOT TO SCALE
O	OPEN
OC	ON CENTER
CC	CENTER TO CENTER
OL	OVERLOAD RELAY
OTT	TRANSFORMER OVERTEMPERATURE SW.
P	POLE
PA	PUBLIC ADDRESS SYSTEM
PB	PUSHBUTTON
PCM	PROCESS CONTROL MODULE
PCP	PROCESS CONTROL PANEL
PF	POWER FACTOR
PH, Ø	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PNLBD	PANELBOARD
POS	POSITION
POT	POTENTIOMETER
PP	POWER PANEL
PRI	PRIMARY
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PW	PART WINDING
PWR	POWER
REC	RECEPTACLE
RECPTS	RECEPTACLES
REQ'D	REQUIRED
REV	REVERSE CONTACTOR COIL
RGS	RIGID GALVANIZED STEEL
RUN	RUN CONTACTOR COIL
RTU	REMOTE TERMINAL UNIT
RVAT	REDUCED VOLTAGE AUTO-TRANSFORMER
RVNR	REDUCED VOLTAGE NON-REVERSING
SCH	SCHEDULE
SEC	SECONDS, SECONDARY
SECT	SECTION
SEL SW	SELECTOR SWITCH
SEQ	SEQUENCE
SHLD	SHIELDED
SHT	SHEET
SIG	SIGNAL
SI, S2	START CONTACTOR COILS
SP	SPARE
SPDT	SINGLE POLE DOUBLE THROW
SPECS	SPECIFICTIONS
SP HTR	SPACE HEATER
SPST	SINGLE POLE SINGLE THROW
ST, SH	SHUNT TRIP
STA	STATION
STD	STANDARD
STL	STEEL
STR	STARTER
SV	SOLENOID VALVE
SW	SWITCH
SYS	SYSTEM
TB	TERMINAL BOX
TC	TIME CLOCK
TACH	TACHOMETER
TEMP	TEMPERATURE
TERM	TERMINAL
TH	THERMOSTAT
TM	REPEAT CYCLE TIMER
TD	TIME DELAY RELAY
TS	TEMPERATURE SWITCH
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
US	UNIT SUBSTATION
UST	UNIT SUBSTATION TRANSFORMER
V	VOLTAGE, VOLTS
VAR	VAR METER
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE (OTHER THAN VFD)
VP	VAPORPROOF
VS	VARIABLE SPEED, VOLTMETER SWITCH
W	WATTS, WIRE
WHD	WATTHOUR DEMAND METER
WHM	WATTHOUR METER
WP	WEATHERPROOF
XD	TRANSDUCER
XFMR	TRANSFORMER
XMTR	TRANSMITTER

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PBS & J

Date 8/23/01 By

GENERAL NOTES

RACEWAY

1. ALL CONDUIT, CABLE, CABLE TRAY RUNS ARE SHOWN DIAGRAMMATICALLY AND THEY SHALL BE ROUTED TO SUIT FIELD CONDITIONS.
2. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TERMINAL BOXES AND CONDUIT EMTRANCES OF ALL EQUIPMENT AGAINST SHOP DRAWINGS BEFORE STUBBING UP CONDUITS.
3. CONNECTION BETWEEN RIGID CONDUIT AND MOTOR TERMINAL BOX SHALL BE LIQUID TIGHT FLEXIBLE CONDUIT.
4. CONDUIT TERMINATING AT SWITCHBOARD, MOTOR CONTROL CENTER, POWER AND LIGHTING PANEL, CONTROL CABINET, ETC SHALL BE EQUIPPED WITH SEALING HUB AND GROUNDING BUSHING, AND SHALL BE GROUNDED WITH NO. 6 GROUND WIRE.
5. INSTALL EXPANSION FITTINGS EVERY 200 FEET OF STRAIGHT RUN OF CONDUITS AND CABLE TRAYS.
6. CONDUIT CROSSING BUILDING OR STRUCTURAL EXPANSION JOINTS SHALL BE PROVIDED WITH SUITABLE EXPANSION FITTINGS. THESE FITTINGS MUST BE CONSTRUCTED IN SUCH A MANNER THAT WILL INSURE THE CONTINUITY OF THE GROUND PATH IN EACH CONDUIT OR RACEWAY.
7. CONDUIT FITTINGS AND SUPPORTS ARE NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL PROVIDE ALL FITTINGS AND SUPPORT REQUIRED AND TO SUIT THE CONDITIONS.
8. THE CONTRACTOR SHALL LIMIT THE NUMBER OF BENDS BETWEEN PULL POINTS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL SLEEVES AND OPENINGS REQUIRED FOR THE PASSAGE OF ELECTRICAL RACEWAYS OR CABLES EVEN WHEN THESE OPENINGS OR SLEEVES ARE NOT SPECIFICALLY SHOWN ON THE DRAWINGS.
10. PROVIDE FLEXIBLE CONDUIT WHERE RIGID CONDUIT TERMINATES AT EQUIPMENT OR DEVICES SUBJECT TO MOVEMENT FROM VIBRATION, EXPANSION AND CONTRACTION.
11. ALL UNDERGROUND CONDUIT RUNS SHALL BE WITH LONG RADIUS SWEEP BENDS. THE MINIMUM BENDING RADIUS SHALL BE 12 TIMES NOMINAL DIAMETER OF THE CONDUIT, AND NO FACTORY BENDS SHALL BE PERMITTED.
12. ALL UNDERGROUND CONDUITS NOT ENCASED IN CONCRETE SHALL BE RIGID STEEL, GALVANIZED, PVC COATED.
13. THE MINIMUM SIZE OF CONDUITS INSTALLED BELOW GRADE SHALL BE 1" UNLESS OTHERWISE NOTED.
14. THE MINIMUM SIZE OF CONDUIT INSTALLED ABOVE GRADE SHALL BE ¾" UNLESS OTHERWISE NOTED.
15. ALL FLEXIBLE CONDUIT SHALL HAVE COPPER GROUNDING CONDUCTOR.
16. FOR LIGHTING AND RECEPTACLE SYSTEMS, ONLY CONDUIT HOMERUNS AND CIRCUIT NUMBERS ARE SHOWN. CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY CONDUITS, FITTINGS, JUNCTION BOXES AND ALL NECESSARY COMPONENTS SHOWN OR NOT SHOWN ON THE DRAWINGS TO MAKE ELECTRICAL INSTALLATION COMPLETE AND OPERATIONAL. ALL CONDUITS RUNS SHALL BE CONCEALED UNLESS INDICATED OTHERWISE. CIRCUIT LOADING SHALL BE AS SHOWN AND AS STATED IN PANEL SCHEDULE. ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH ALL CODES AND STANDARDS AS ENUMERATED IN SPEC. SECTION 16050. ALL MATERIALS SHALL BE IN ACCORDANCE WITH SPEC. SECTION 16400 AND 16500 ALL LIGHTING AND RECEPTACLE CIRCUITS SHALL INCLUDE 1#12 GROUND WIRE.

GROUNDING

1. ALL METALLIC STRUCTURES , METALLIC ENCLOSURES, AND ELECTRICAL EQUIPMENT, SUCH AS STRUCTURAL STEEL, METALLIC RACEWAY, FENCE, STAIR HANDRAILS, LIGHTING POLE, TANK, VESSELS, SWITCHING EQUIPMENT, PANEL, EQUIPMENT ENCLOSURE AND CABINETS GENERATOR, MOTOR, TRANSFORMERS, SWITCHGEAR, ETC. SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED AND GROUND CONNECTION SHALL BE MADE TO THE PLANT GROUND GRID. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE SIZED PER N.E.C. UNLESS OTHERWISE SHOWN EXCEPT THE MINIMUM SIZE SHALL BE #2AWG.
2. GROUNDING CONDUCTOR STUB-UP AND INSERT LOCATION ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL USE HIS BEST JUDGEMENT FOR CORRECT LOCATIONS IN FIELD.
3. ALL GROUNDING GRID CONDUCTORS SHALL BE #4/0 SIZE UNLESS OTHERWISE NOTED.
4. ALL GROUND CONDUCTOR SHALL BE BARE, COPPER, STRANDED UNLESS OTHERWISE NOTED.
5. ALL GROUNDING CONDUCTOR SHALL BE MINIMUM OF 18" BELOW GRADE EXCEPT UNDER BUILDING SLAB WHEN THEY SHALL BE MINIMUM OF 6" BELOW SLAB.

EQUIPMENT AND DEVICES

1. LOCATIONS OF EQUIPMENT, CONTROL DEVICES, INSTRUMENTS, BOXES, PANELS, ETC ARE APPROXIMATE ONLY, AND PROPER JUDGEMENT MUST BE EXERCISED IN EXECUTING THE WORK TO INSURE THE BEST POSSIBLE INSTALLATION.
2. PACKAGE EQUIPMENT. SOME CONDUITS AND WIRES ARE SHOWN ON THE DRAWINGS, BUT IT IS EXPECTED THAT SOME ADDITIONAL CONDUITS AND WIRES MAY BE REQUIRED BY EQUIPMENT MANUFACTURERS TO COMPLETE INSTALLATION. IT IS INCUMBENT UPON THE GENERAL CONTRACTOR TO COORDINATE THIS REQUIREMENT WITH HIS SUBCONTRACTORS TO MAKE SURE THAT EQUIPMENT SUPPLIER PROVIDES ALL NECESSARY ELECTRICAL INFORMATION TO HIS ELECTRICAL SUBCONTRACTOR FOR INCLUSION OF COSTS IN BID PACKAGE. ALL NECESSARY MATERIALS AND LABOR TO COMPLETE ELECTRICAL INSTALLATION SHALL BE PROVIDED WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH ALL CODES AND STANDARDS PER SPEC. SECTIONS DIVISION 16.
3. ALL EQUIPMENT DIMENSIONS SHOWN ON PLANS AND ELEVATIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL USE THE SHOP DRAWINGS FOR PROPER LAYOUT, FOUNDATION AND PAD, ETC. FOR FINAL INSTALLATION. WITHOUT ANY ADDITIONAL COST TO THE OWNER.
4. SWITCHGEAR, SWITCHBOARD, MOTOR CONTROL CENTER AND ALL FREE STANDING PANEL SHALL BE SET ON CONCRETE PAD AND LEVELING CHANNELS EMBEDDED IN THE PAD UNLESS OTHERWISE NOTED.
5. ALL EQUIPMENT OR CUSTOM-MADE PANELS SHALL BE 'UL' LISTED OR CERIFIED BY A TESTING AGENCY ACCEPTABLE TO BUILDING DEPARTMENT.

SCHEMATIC DIAGRAMS

1. ALL CONTROLS ARE SHOWN DE-ENERGIZED
2. ALL CONTROL DIAGRAMS SHOW CONTROL FUNCTION ONLY. CONTRACTOR SHALL INCORPORATE OTHER NECESSARY FUNCTIONS FOR PROPER OPERATIONS AND PROTECTION ON THE SYSTEM.
3. SLAVE RELAY SHALL BE ADDED WHERE REQUIRED TO PROVIDE ALL NECESSARY CONTACTS FOR THE SCHEMATIC DIAGRAMS SHOWN.
4. ALL DEVICES SHOWN ON MOTOR STARTER SCHEMATIC DIAGRAMS SHALL BE MOUNTED IN THE MOTOR STARTER CUBICLES UNLESS OTHERWISE NOTED.
5. ALL DEVICES SHOWN IN THE CONTROL PANEL OR CABINET SHALL BE MOUNTED IN THE CONTROL PANEL OR CABINET UNLESS OTHERWISE NOTED.
6. ALL MOTOR OPERATED VALVES ARE SHOWN FULLY OPEN.

MISCELLANEOUS

1. IN CASE OF INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND THE OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING AND ENGINEER SHALL REVIEW THE PROPOSED CHANGES BEFORE THEY ARE MADE.
2. ALL RECEPTACLES SHALL BE MOUNTED 15" ABOVE FLOOR SURFACE UNLESS OTHERWISE NOTED.
3. ALL RECEPTACLES IN OUTDOOR AND ANTICIPATED WET AREA SHALL BE GROUND FAULT INTERRUPTER RECEPTACLES.
4. ALL OUTDOOR DEVICES SHALL BE WEATHERPROOF TYPE.
5. LOCATION OF MANHOLES AND PULLBOXES ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF MANHOLES AND PULLBOXES WITH MECHANICAL AND CIVIL WORK.
6. CONTRACTOR SHALL PROVIDE ADDITIONAL MANHOLES OR PULLBOXES TO THOSE SHOWN WHERE THEY ARE REQUIRED TO MAKE A WORKABLE INSTALLATION.
7. CIRCUITS OF DIFFERENT SERVICE VOLTAGE SHALL BE INSTALLED IN SEPARATE RACEWAYS, MANHOLES, HANDHOLES, PULLBOXES AND JUNCTION BOXES. THE VOLTAGE AND SERVICE LEVELS ARE:
   1. 12KV, 13.2KV, 16.5KV, 21KV
   2. 2.4KV, 5KV
   3. 120V-480VOLT
   4. INSTRUMENTATION LESS THAN 50VDC
   5. TELEPHONE AND COMMUNICATIONS.

KYU DAI CHUN — No. 12470 — Exp 9-30-03 — ELECTRICAL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

PAUL F. WARNICKE — No. C43137 — Exp 03-31-04 — CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

Plot Date: 12-DEC-2000 14:24
File: p:\Projects\4SR\general details\ele\neighbor\4srnge02.div
Job No: MW Job #

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED N. CONCEPCION
DRAWN N. CHRAKIAN
CHECKED K.D. CHUN

SUBMITTED BY
PROJECT MANAGER — LICENSE NO. 58602 — DATE 12/13/00
COMPANY OFFICER — LICENSE NO. 33699 — DATE 12/13/00

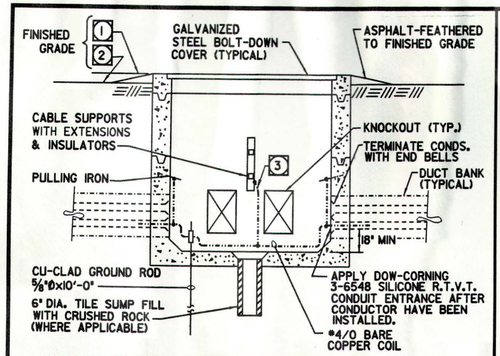
MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — DATE 8.29.01

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
ELECTRICAL ABBREVIATIONS AND GENERAL NOTES

SHEET GE-2 OF • SHEETS



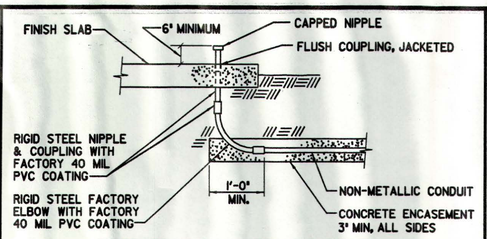
NOTE: PULLBOX INSTALLATION TO BE WATERTIGHT AFTER CONDUITS HAVE BEEN INSTALLED.

1 AT PAVED AREAS

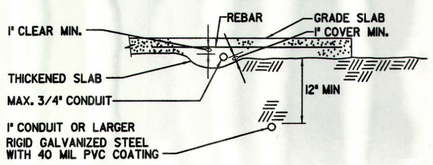
2 AT PARKWAYS

3 GROUND ALL METAL FRAMES AND SUPPORTS

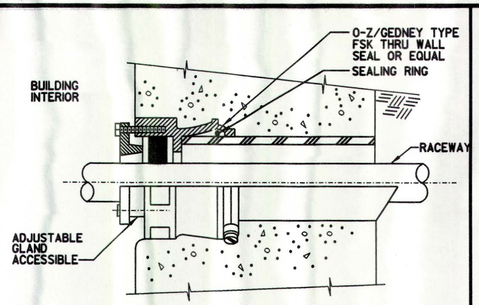
TYPICAL PULLBOX — E-102



RISER FROM NON-METALLIC DUCT

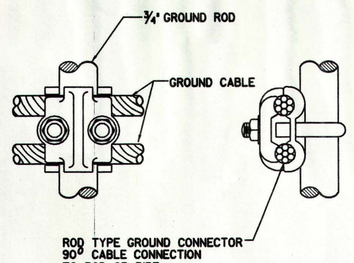


CONDUIT PLACEMENT — E-205

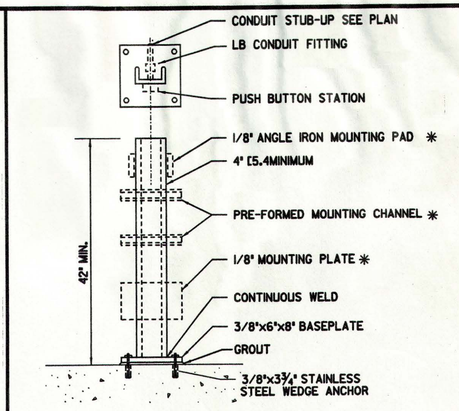


NOTE:
USE WATERTIGHT CONDUIT SEAL WHERE CONDUIT PENETRATIONS OF BUILDING EXTERIOR WALLS ARE BELOW GRADE.

WATERTIGHT WALL CONDUIT SEAL — E-213

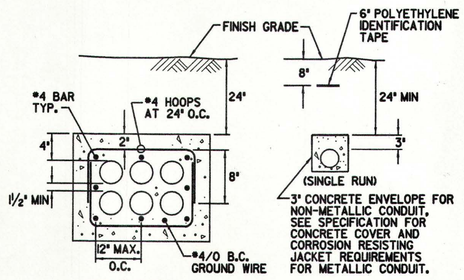


CABLE TO ROD CONNECTION — E-309



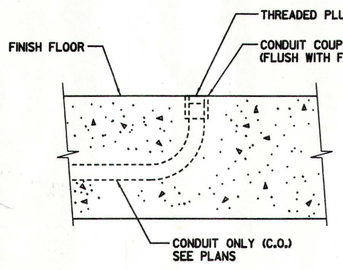
PEDESTAL MOUNTED CONTROL STATION — E-405

* PROVIDE MOUNTING ACCESSORY TO SUIT EQUIPMENT STEEL CONSTRUCTION, HOT-DIPPED GALVANIZED AFTER CONSTRUCTION.

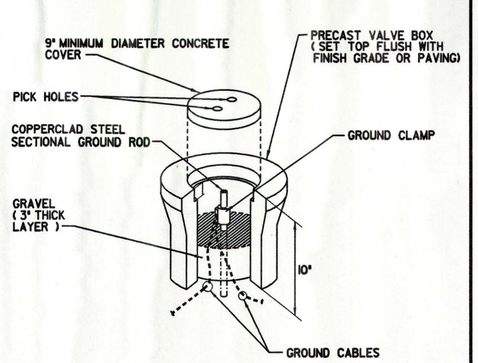


NOTES:
1. COLOR OF CONCRETE ENCASEMENT PER SPECS.
2. NUMBER AND SIZE OF CONDUITS PER PLAN AND CONDUIT SCHEDULES.

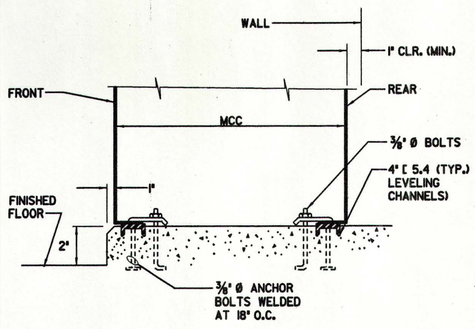
TYPICAL DUCT BANK — E-103



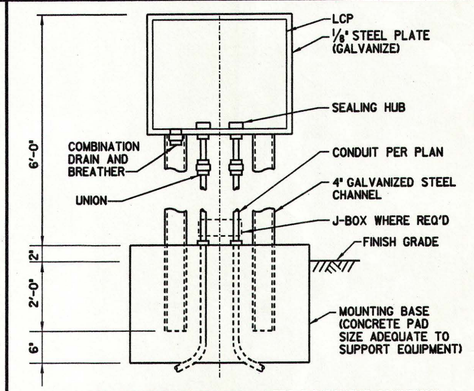
CONDUIT TERMINATION FOR FUTURE EQUIPMENT — E-206



GROUND ROD INSTALLATION — E-302

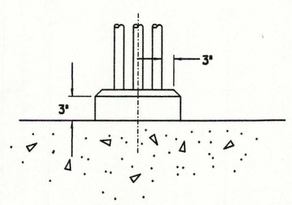


SWITCHBOARD (MCC) MOUNTING — E-400



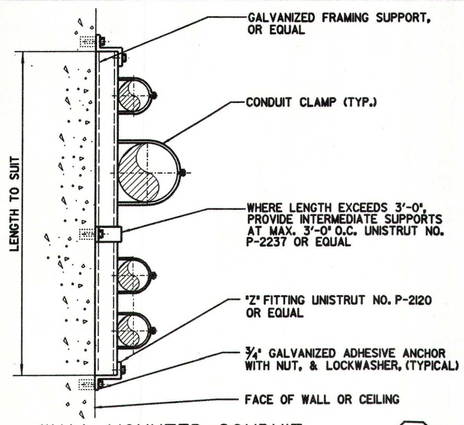
1. LOCAL CONTROL PANEL SHALL MEET ENVIROMENT CONDITIONS.
2. NO. AND SIZE OF CONDUITS PER PLAN DWGS.

LOCAL CONTROL PANEL INSTALLATION — E-418

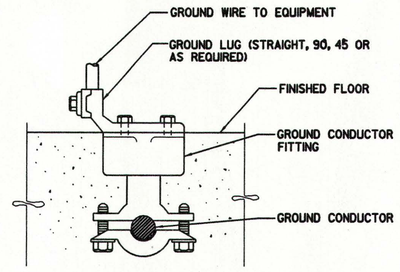


NOTES:
1. HOUSEKEEPING CURB REQUIRED, AT ALL INTERIOR WALL LOCATIONS FOR SINGLE & MULTIPLE RISERS. RISERS SHALL BE GROUPED SO THAT SINGLE RISERS ARE SIX FT. APART MINIMUM.
2. CONCRETE HOUSEKEEPING CURB REQUIRED AT ALL CONDUIT STUB-UP IN INDOOR AND OUTDOOR LOCATIONS, NOT CONCEALED BY EQUIPMENT ENCLOSURES.
3. CONDUIT FITTINGS AND COUPLINGS SHALL BE INSTALLED ABOVE HOUSEKEEPING CURB.

CONCRETE HOUSEKEEPING CURB — E-203

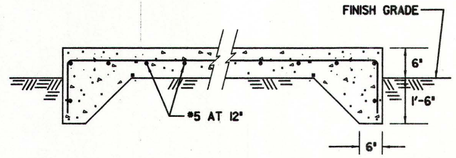


WALL MOUNTED CONDUIT SUPPORT — E-212



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

GROUNDING INSERT — E-308



NOTE:
OVERALL PAD DIMENSIONS SHALL BE DETERMINED FROM ELECTRICAL PLANS AND ADJUSTED AS REQ'D. TO SUIT EQUIPMENT FURNISHED.

ELECTRICAL EQUIPMENT PAD — E-403

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PBS & J

Date 8/23/01 By

KYU DAI CHUN — No. 12470 — Exp 3-30-03 — ELECTRICAL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

PAUL F. WARD — No. C43087 — Exp 03-31-03 — CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED N. CONCEPCION
DRAWN N. CHRAKIAN
CHECKED K.D. CHUN

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

NEIGHBORHOOD NO. 1 PUMP STATION
ELECTRICAL STANDARD DETAILS - 1

SHEET GE-3 OF • SHEETS

Job No: MW Job #
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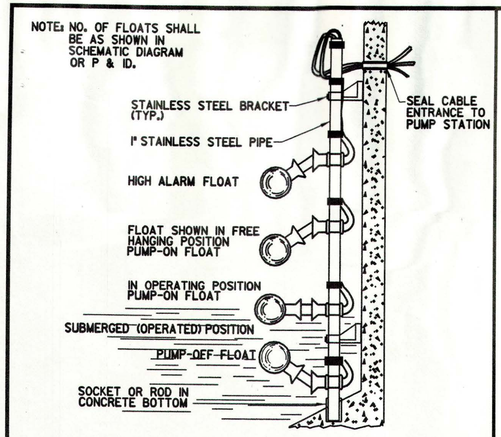
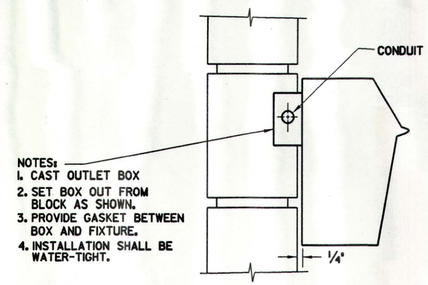
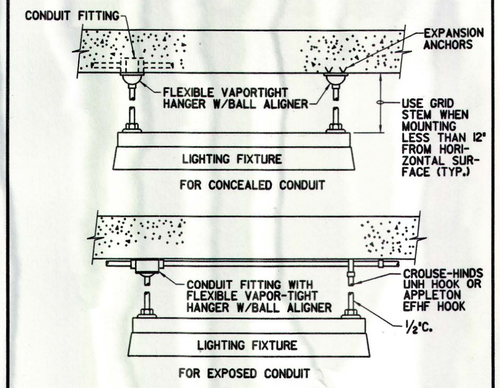
Plot Date: 12-DEC-2000 14:24



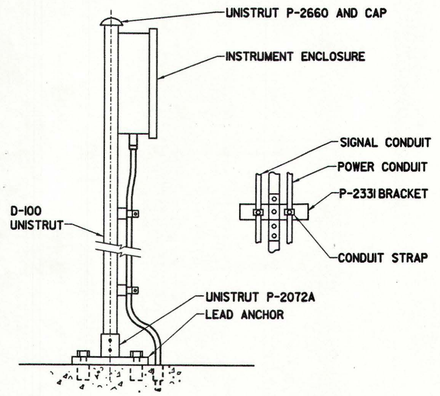
FLOAT SWITCH INSTALLATION E-423



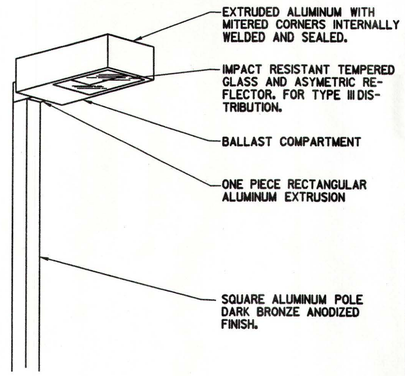
WALL HUNG FIXTURE MOUNTING E-605



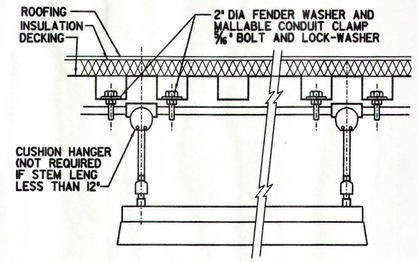
FIXTURE MOUNTING DETAIL E-614



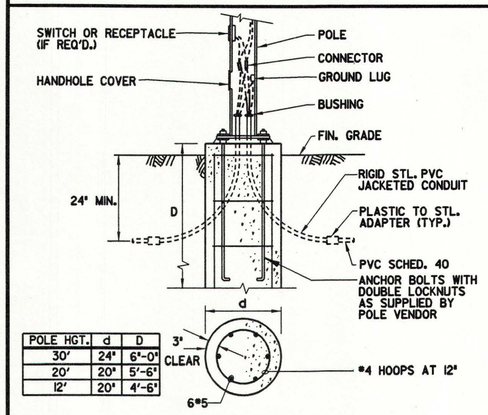
INSTRUMENT ENCLOSURE MOUNTING DETAIL E-502



AREA LUMINAIRE E-606

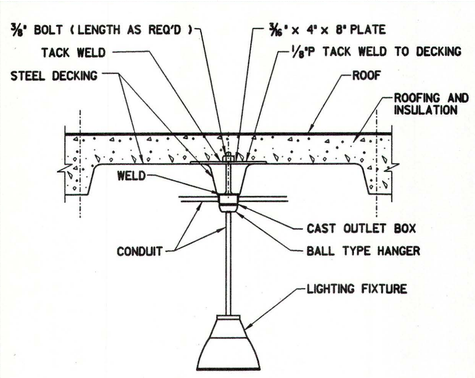


FIXTURE MOUNTING DETAIL E-623
CONCEALED CONDUIT

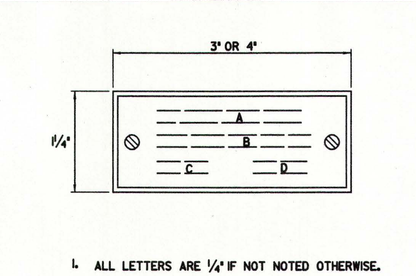


POLE HGT.	d	D
30'	24"	6'-0"
20'	20"	5'-6"
12'	20"	4'-6"

LIGHTING POLE FOUNDATION E-600
NOTE: EXPOSED FOUNDATION CAPS SHALL BE FORMED TO MATCH THE OUTLINE OF POLE BASEPLATE.



FIXTURE HANGING TO STEEL DECK DETAIL E-607



1. ALL LETTERS ARE 1/4" IF NOT NOTED OTHERWISE.
2. ALL NAMEPLATES TO BE MOUNTED ON VERTICAL CENTER LINE OF THEIR CUBICLE OR DEVICE.
3. ATTACH ALL NAMEPLATES WITH BRASS SCREWS.
4. PROVIDE BLANK NAMEPLATES FOR ALL SPARE AND FUTURE CIRCUITS.

NAMEPLATE E-708

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with: (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER NYU DAI CHUN No. 12470 EXP 9-30-03 ELECTRICAL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL F. WALKER No. C43137 EXP 03-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K.D. CHUN
DRAWN N. CHRAKIAN
CHECKED K.D. CHUN

SUBMITTED BY
PROJECT MANAGER — 50602 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

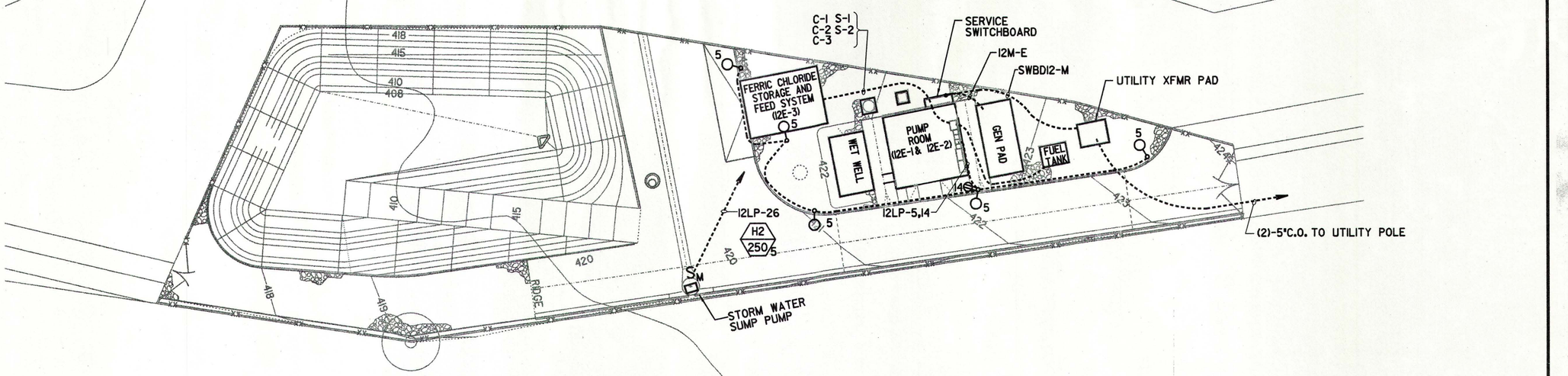
NEIGHBORHOOD NO. 1 PUMP STATION ELECTRICAL STANDARD DETAILS - 2

SHEET GE-4 OF • SHEETS

Plot Date: 12-DEC-2000 14:25
File: p:\Projects\45R\general details\ele\neighbor\4srnge04.dlv
Job No: MW Job #

NOTES:

1. ELECTRIC SERVICE AND TRANSFORMER PAD SHALL COMPLY WITH SDG & E SERVICE REQUIREMENTS.
2. TELEPHONE SERVICE SHALL COMPLY WITH TEL. CO SERVICE REQUIREMENTS.
3. CONDUIT FOR ROADWAY LIGHTING SHALL BE 1" MINIMUM AND WIRES SHALL BE #10 AWG MINIMUM.



The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J

Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER — KYU DAI CHUN — No. 12470 — Exp. 9-30-03 — ELECTRICAL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL F. WALKER — No. 49357 — Exp. 03-31-04 — CIVIL — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: 1"=20'

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K. D. CHUN
DRAWN N. CHRAKIAN
CHECKED K. D. CHUN

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

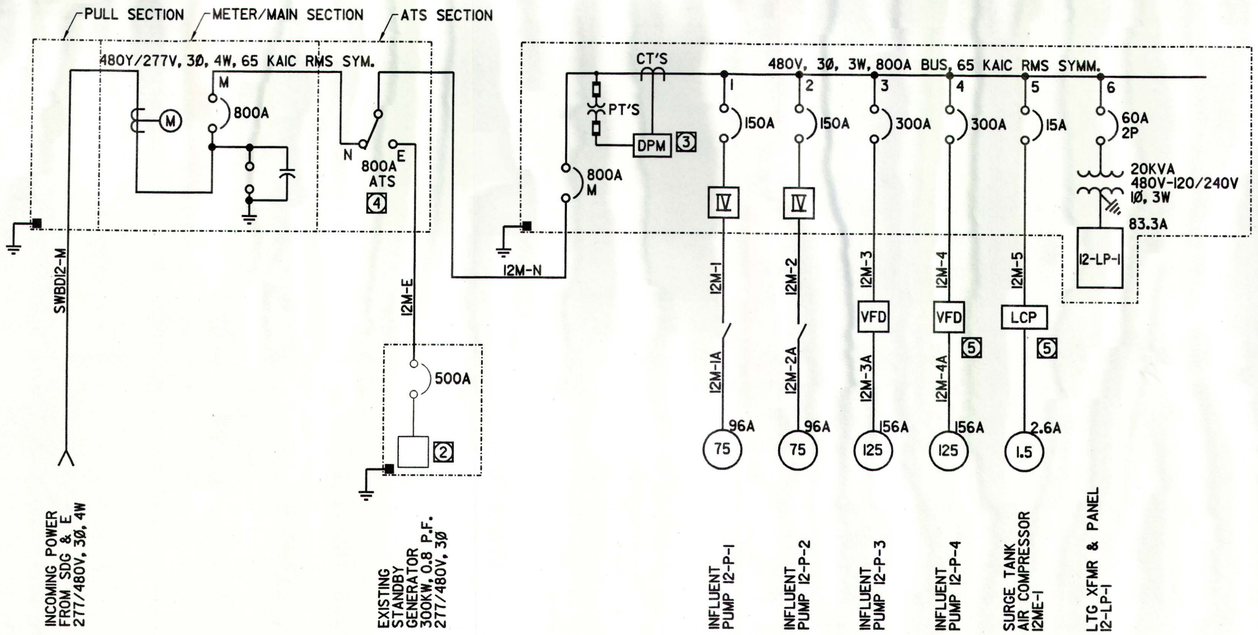
APPROVED
OLIVENHAIN MWD — 8.29.01 DATE
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

NEIGHBORHOOD NO. 1 PUMP STATION ELECTRICAL SITE PLAN

SHEET E-1 OF • SHEETS

Job No: MW Job # Files: p:\Projects\4SR\general details\ele\neighbor\4srne01.div Plot Date: 12-DEC-2000 14:25

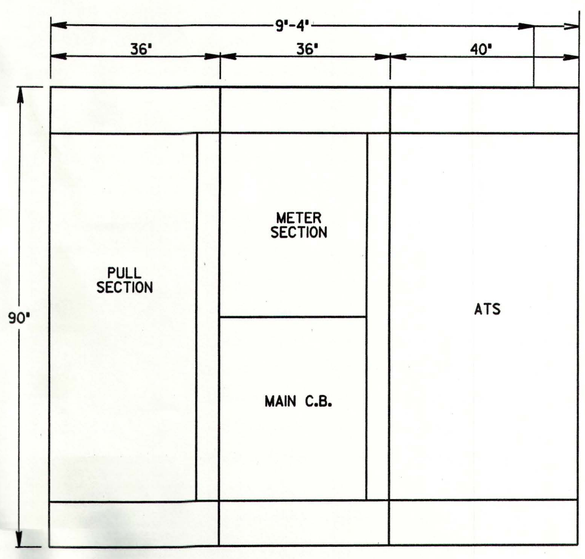


SERVICE SWITCHBOARD "SWBD-12"

MOTOR CONTROL CENTER "MCC-12M"

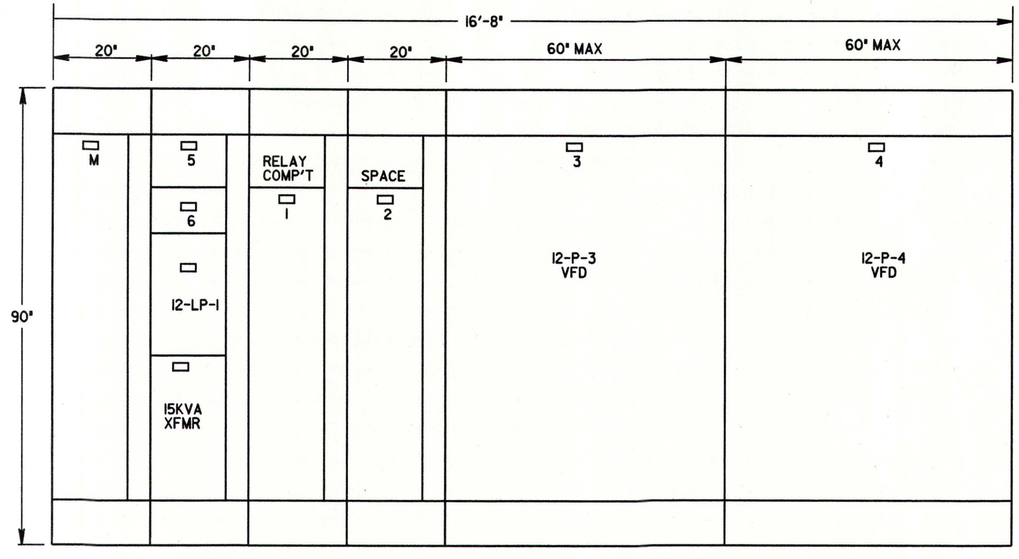
NOTES:

1. THE VFD SHALL BE 18 PULSE TYPE.
2. RELOCATED EXISTING GENERATOR.
3. DPM SHALL BE MULTILIN "PQM", SQUARE D, "POWERLOGIC" OR EQUAL.
4. ATS SHALL BE 4-POLE TYPE WITH DEFINITE NEUTRAL POSITION.
5. VFD SHALL BE RATED FOR 50 DEGREE C AMBIENT TEMEPERATUIRE



SERVICE SWITCHBOARD (SWBD-12)

(MCC-24" DEEP)



(MCC-24" DEEP)

(VFD - 30 " DEEP)

MOTOR CONTROL CENTER "MCC-12M"

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PBS & J

Date 8/23/01 By

REGISTERED PROFESSIONAL ENGINEER — KYU DAE CHUN — No. 12476 — ELECTRICAL — STATE OF CALIFORNIA — 9-30-03

REGISTERED PROFESSIONAL ENGINEER — PAUL F. WARD — No. C-51137 — Exp. 12-31-01 — CIVIL — STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K.D. CHUN
DRAWN N. CHRAKIAN
CHECKED K.D. CHUN

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

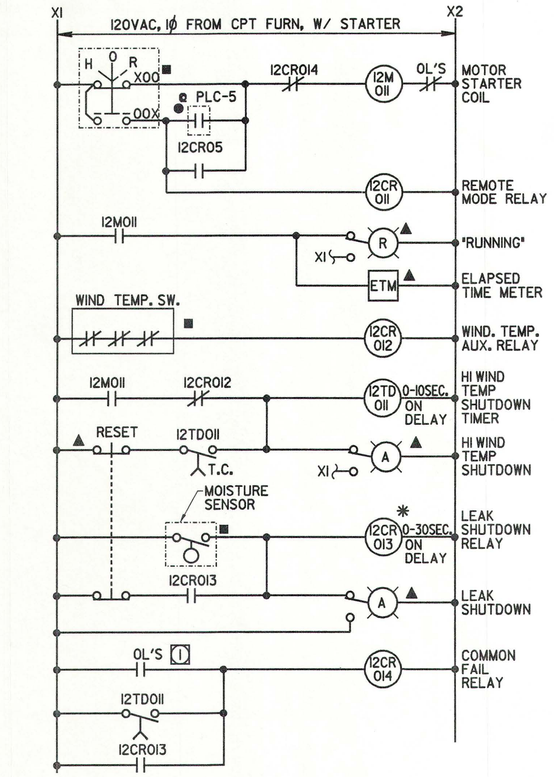
KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

NEIGHBORHOOD NO. 1 PUMP STATION
SINGLE LINE DIAGRAM AND EQUIPMENT ELEVATION

SHEET E-2 OF • SHEETS

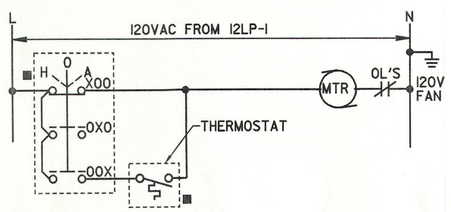
Plot Date: 12-DEC-2000 14:25

File: p:\Projects\4SR\general details\ele\neighbor\4srne02.dlv



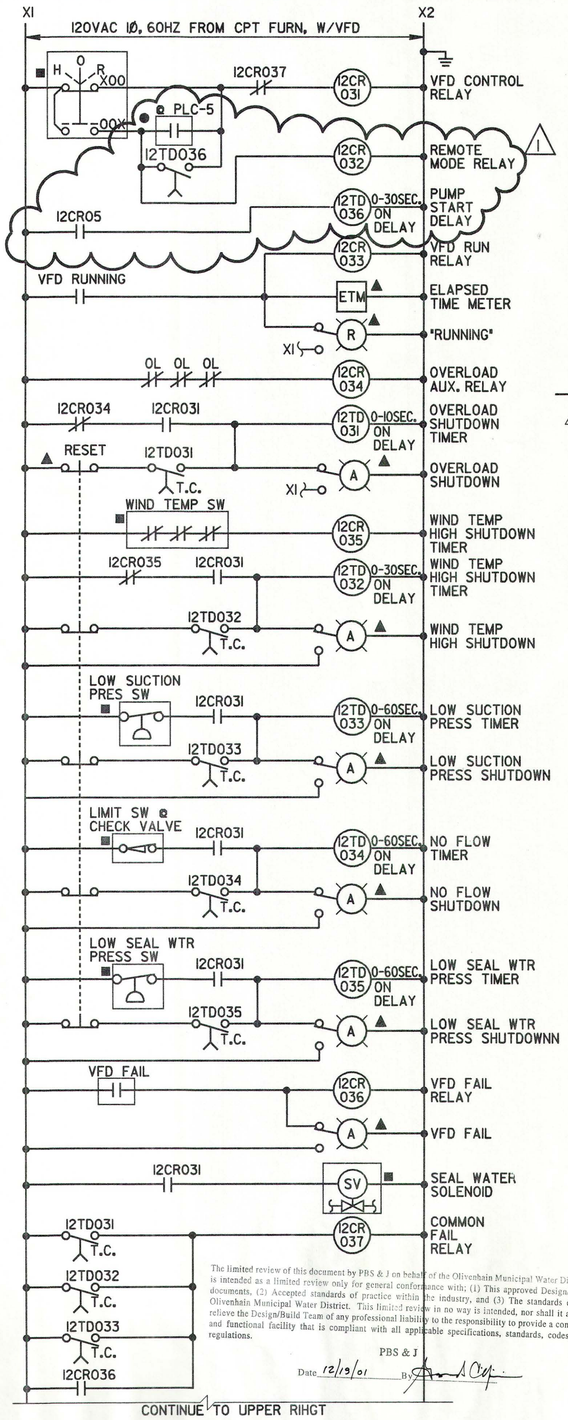
INFLUENT PUMP I2-P-I STARTER

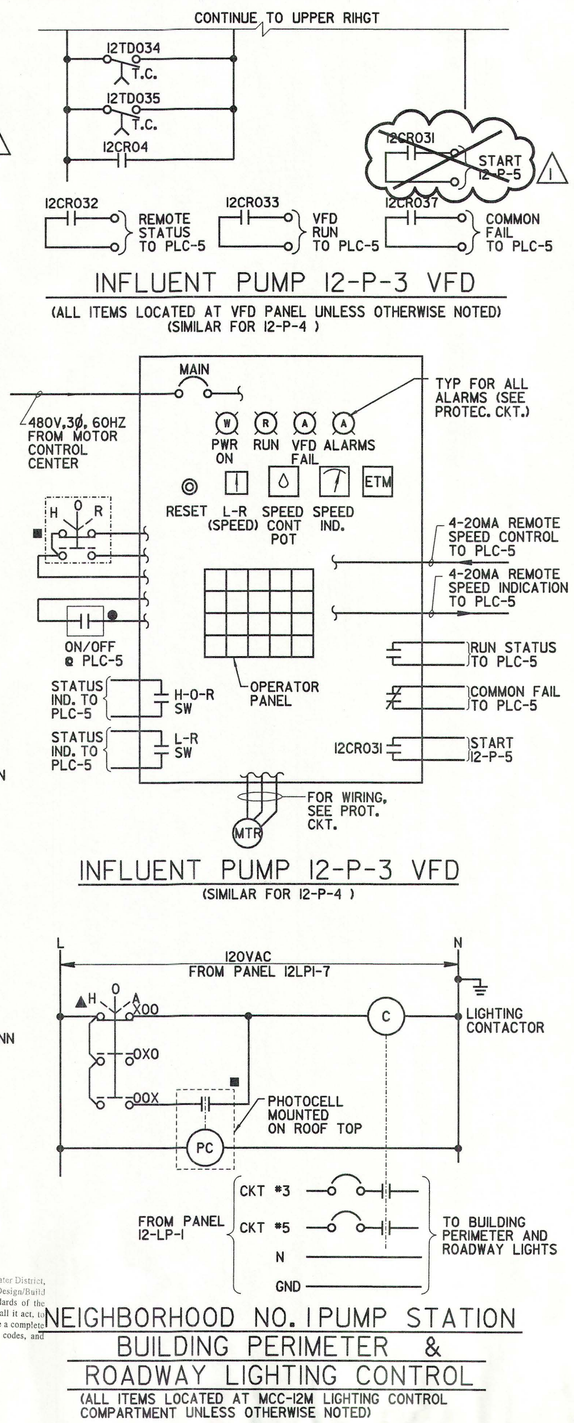
(SIMILAR I2-P-2)



EXHAUST FAN I2-EF-I

(SIMILAR FOR EXHAUST FAN I2-EF-2)





INFLUENT PUMP I2-P-3 VFD

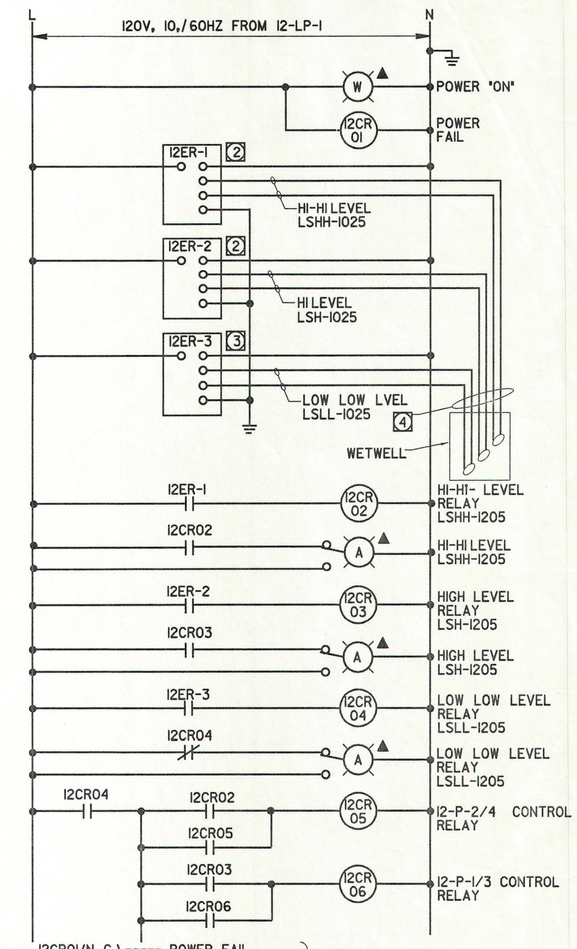
(ALL ITEMS LOCATED AT VFD PANEL UNLESS OTHERWISE NOTED)
(SIMILAR FOR I2-P-4)

INFLUENT PUMP I2-P-3 VFD

(SIMILAR FOR I2-P-4)

NEIGHBORHOOD NO. I PUMP STATION BUILDING PERIMETER & ROADWAY LIGHTING CONTROL

(ALL ITEMS LOCATED AT MCC-I2M LIGHTING CONTROL COMPARTMENT UNLESS OTHERWISE NOTED)



I2CR0I (N. C.) ----- POWER FAIL
I2CR02 (N. O) HI-HI LEVEL (LSHH-I025)
I2CR06 (N. O.) HI-LEVEL (LSH-I025)
I2CR04 (N. C.) LOW LEVEL (LSL-I025)
} TO PLC-5

3 I2CR05 (N. O.) ----- ON/OFF CONTROL
3 I2CR05 (N. O.) ----- SPEED RAMPUP CONTROL
} TO I2-P-4 VFD

I2CR05(N. O.) ----- ON/OFF CONTROL
I2CR04 (N. O.) ---- LOW LEVEL SHUTDOWN
} TO I2-P-2 STARTER

3 I2CR06 (N. O.) ----- ON/OFF CONTROL
3 I2CR06 (N. O.) ----- SPEED RAMPUP CONTROL
} TO I2-P-3 VFD

I2CR06 (N. O.) ---- ON/OFF CONTROL
I2CR04 (N. O.) ---- LOW LEVEL SHUTDOWN
} TO I2-P-I STARTER

2 INTRINSICALLY SAFE RELAY B/W CONTROLS SERIES 53 OR EQUAL.

3 WHEN THE VFD IS CONTROLLED BY FLOATS, THE VFD SHALL RUN AT FULL SPEED.

4 FLOAT SWITCHES LEVEL DETERMINED BY PROCESS REQUIREMENT.

WETWELL LEVEL CONTROL CIRCUIT

(ALL ITEMS LOCATED AT MCC RELAY COMPARTMENT UNLESS OTHERWISE NOTED)

REGISTERED PROFESSIONAL ENGINEER PAUL F. WALLACE No. 43137 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER KEVIN K. CHUN No. E016254 Exp. 12/31/04 ELECTRICAL STATE OF CALIFORNIA

11/5/01

REV	DATE	BY	OMWD	DESCRIPTION
1	10/2/01	PHP		REVISE SEAL WATER PUMP CONTROL

SCALE: NONE

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K.D. CHUN
DRAWN N. CHRAKIAN
CHECKED K.D. CHUN

SUBMITTED BY
PROJECT MANAGER — 43137 LICENSE NO. — 11/5/01 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 11/5/01 DATE

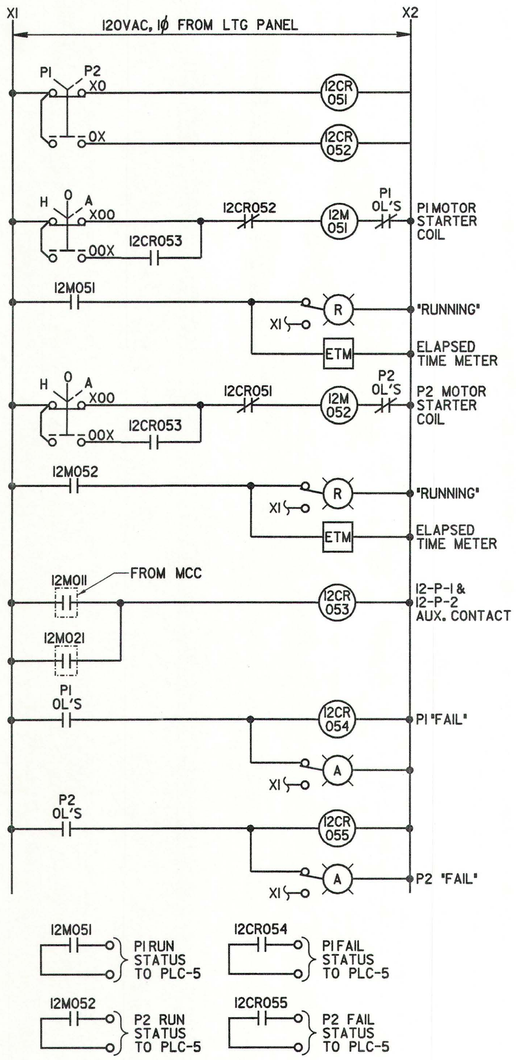
MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 1/2/02 DATE
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. I PUMP STATION
SCHEMATIC DIAGRAMS

SHEET E-5 OF

Job No: MW Job # — File: p:\Projects\4SR\general details\ele\neighbor\4srne03.dlv — Plot Date: 05-NOV-2001 14:51



SEAL WATER PUMP LCP

(12-P-5 & 12-P-6)

Job No: MW Job # File: p:\Projects\4SR\general details\ele\neighbor\4srne03_1.dlv Plot Date: 05-NOV-2001 15:08

REV	DATE	BY	OMWD	DESCRIPTION
1	10/2/01	PHP		REVISE SEAL WATER PUMP CONTROL

SCALE

WARNING
0 ½ 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED P. PHAM
DRAWN P. PHAM
CHECKED P. WALLACE

SUBMITTED BY
PROJECT MANAGER — 43137 LICENSE NO. — 11/6/01 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 11/5/01 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 1/2/02 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
SCHEMATIC DIAGRAMS - 2

REGISTERED PROFESSIONAL ENGINEER PAUL F. WALLACE No. C043[illegible] Exp 03-31-04 CIVIL STATE OF CALIFORNIA

11/5/01

REGISTERED PROFESSIONAL ENGINEER PATRICK H. [illegible] No. E016254 Exp. 12/31/04 ELECTRICAL STATE OF CALIFORNIA

CABLE NO.	CONDUITS NO.	CONDUITS SIZE	CONDUCTORS POWER	CONDUCTORS CONTROL	CONDUCTORS SIGNAL/STATUS	FROM	TO	ROUTE	REMARKS
	SWBD12-M	3-5"				SDG & E SERVICE TRANFORMER	SERVICE SWITCHBOARD		CABLE BY SDG & E
12M-N	12M-N	2-4"	3-600KCMIL & 1#1/0 GRD EACH CONDUIT			SERVICE SWITCHBOARD	MCC-12M		
12M-E	12M-E	2-4"	4-600KCMIL & 1#1/0 GRD EACH CONDUIT			SERVICE SWITCHBOARD	STANDBY GENERATOR		
12M-1	12M-1	1½"	3#1 & 1#6GRD			MCC-12M	12-P-1 SPLICE BOX		
12M-1A	12M-1A	(1)	VENDOR CABLES			12-P-1 SPLICE BOX	12-P-1		CONDUIT TO BE SIZED PER VENDOR RECOMMENDATION
12M-2	12M-2	1½"	3#1 & 1#6GRD			MCC-12M	12-P-2 SPLICE BOX		
12M-2A	12M-2A	(1)	VENDOR CABLES			12-P-2 SPLICE BOX	12-P-2		CONDUIT TO BE SIZED PER VENDOR RECOMMENDATION
12M-3	12M-3	2½"	3#3/0 & 1#2GRD			MCC-12M	12-P-3 VFD		
12M-3A	12M-3A	2½"	3#3/0 & 1#2GRD			12-P-3 VFD	12-P-3		
12M-4	12M-3	2½"	3#3/0 & 1#2GRD			MCC-12M	12-P-4 VFD		
12M-4A	12M-4A	2½"	3#3/0 & 1#2GRD			12-P-4 VFD	12-P-4		
12M-5	12M-5	1"	3#12 & 1#12 GRD			MCC-12M	12-ME-1 LCP		
C-1	C-1	1"		24#14		PLC-5	FERRIC CHLORIDE CHEMICAL FEED PANEL		
C-2	C-2		2#10 & 1#10GRD			PANEL 12-LP-1	↓		CKT. #11
C-3	C-3		2#12 & 1#12GRD			↓	LIT-1204		CKT. #8
C-4	C-4		5#10 & 1#10GRD			↓	GENERATOR		CKT. #16/18,20
C-5	C-5			8#14		PLC-5	↓		
C-6	C-6			6#14		ATS	↓		
C-7	C-7		3#12 & 1#12GRD			BATTERY CHARGER	GEN. START BATTERY		
C-8	C-8			8#14		PLC-5	F.O. TANK MONITOR		
C-9	C-9			2#14		LSH-1204	PLC-5		
C-10	C-10	↓		2#14		LSH-1205	PLC-5		
S-1	S-1	1"			(4) 2/C #16SHLD	PLC-5	FERRIC CHLORIDE CHEMICAL FEED PANEL		
S-2	S-2	1"			(1) 2/C #16SHLD	PLC-5	LIT-1204		

120/240 VOLTS 1 Ø 3 W — PANELBOARD 12-LP-1 — FEED
100A-2P MAIN — LOCATION MCC-12M — MTG

LOAD DESCRIPTION	VOLT AMPERE ØA	VOLT AMPERE ØB	LTG	REC	MIS	CIR	BKR	A	B	BKR	CIR	MIS	REC	LTG	VOLT AMPERE ØA	VOLT AMPERE ØB	LOAD DESCRIPTION
PUMP STATION LTG.	1200		12			1	20			20	2		2		400		PUMP STATION REC.
PUMP STATION PERIMETER LTG.		200	4			3					4		2			400	↓
ROADWAY LIGHTS	1000		4			5					6		2		400		
LIGHTING CONTROL		100			1	7					8	1				100	LIT-1204
LIT-1205	100				1	9					10	1			500		PLC-5
FERRIC CHLORIDE CHEMICAL FEED PANEL		1660			1	11					12	1				500	↓
SURGE TANK LCP	200				1	13					14		1		200		ROADWAY REC.
WETWELL LEVEL CONTROL		100			1	15					16	1				1000	GENERATOR ACCESSORIES
FIT-1212	200				1	17					18	1			1000		↓
BATTERY CHARGER		200				19					20	1				1000	
FUEL TANK MONITOR	600					21					22				800		12-EF-2
12-P-5		1128				23					24					800	12-EF-1
SPARE						25					26	1			1000		STORM WATER SUMP PUMP
						27					28						SPARE
						29	↓			↓	30						SPARE
	3300	3388				TOTAL				TOTAL					4300	3800	
	PHASE TOTAL		TOTAL LOAD														
	7600	7188	14.78 KVA (61.6 AMP)														

NOTES:

(1) CONDUITS SHALL BE SIZED PER PUMP VENDOR RECOMMENDATION

LIGHTING FIXTURE SCHEDULE

TYPE	WATTS	VOLTS	DESCRIPTION
F1	2-32W T-8	120	4' INDUSTRIAL FLUORESCENT LIGHT FIXTURE, HOUSING OF DIE-FORMED, PRIME QUALITY STEEL, WELDED SOCKET PLATE, PAINTED AFTER FABRICATION, WHITE BAKED ENAMEL FINISH. PRUDENTIAL CAT. * P-202-48CTE OR EQUAL.
H	70W	120	HIGH PRESSURE SODIUM (HPS). STANCHION MOUNT, INTEGRAL BALLAST, OUTDOOR WEATHERPROOF TYPE, PRISMATIC GLASS REFRACTOR. HOLOPHANE CAT. * PTA-70HP-12- OR EQUAL.
H1	50W HPS	120	HIGH PRESSURE SODIUM (HPS). WALL MOUNTING TYPE, INTEGRAL. BALLAST, OUTDOOR WEATHERPROOF TYPE. DIE CAST ALUMINUM HOUSING, TEXTURED BRONZE, THERMAL SHOCK RESISTANT, PRISMATIC GLASS REFRACTOR. HOLOPHANE CAT. * WP-1-A-050HP-12-BZ-F1 OR EQUAL.
H2	250W HPS	120	POLE MOUNTED HIGH PRESSURE SODIUM (HPS). FORMED ALUMINUM HOUSING WITH CAST ALUMINUM DOOR FRAME, PRISMATIC LENS, ALUMINUM REFLECTOR AND INTEGRAL BALLAST. HANDHOLE AND RECEPTACLE WHERE REQUIRED. HOLOPHANE CAT. * SMST-25AHP-12-BZ-PM-F1, POLE *CSZSQ20J/1A OR EQUAL.

REGISTERED PROFESSIONAL ENGINEER KYU CAI CHUN No. 12470 Exp. 9-30-03 ELECTRICAL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PAUL F. WALLACE No. C43187 Exp. 03-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K.D CHUN
DRAWN N. CHRAKIAN
CHECKED K.D. CHUN

SUBMITTED BY
PROJECT MANAGER — 50602 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED George R Bunt — OLIVENHAIN MWD — 8.29.01 DATE
APPROVED — FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
PANEL, FIXTURE AND CONDUIT SCHEDULES

SHEET E-4 OF • SHEETS

Plot Date: 12-DEC-2000 14:30
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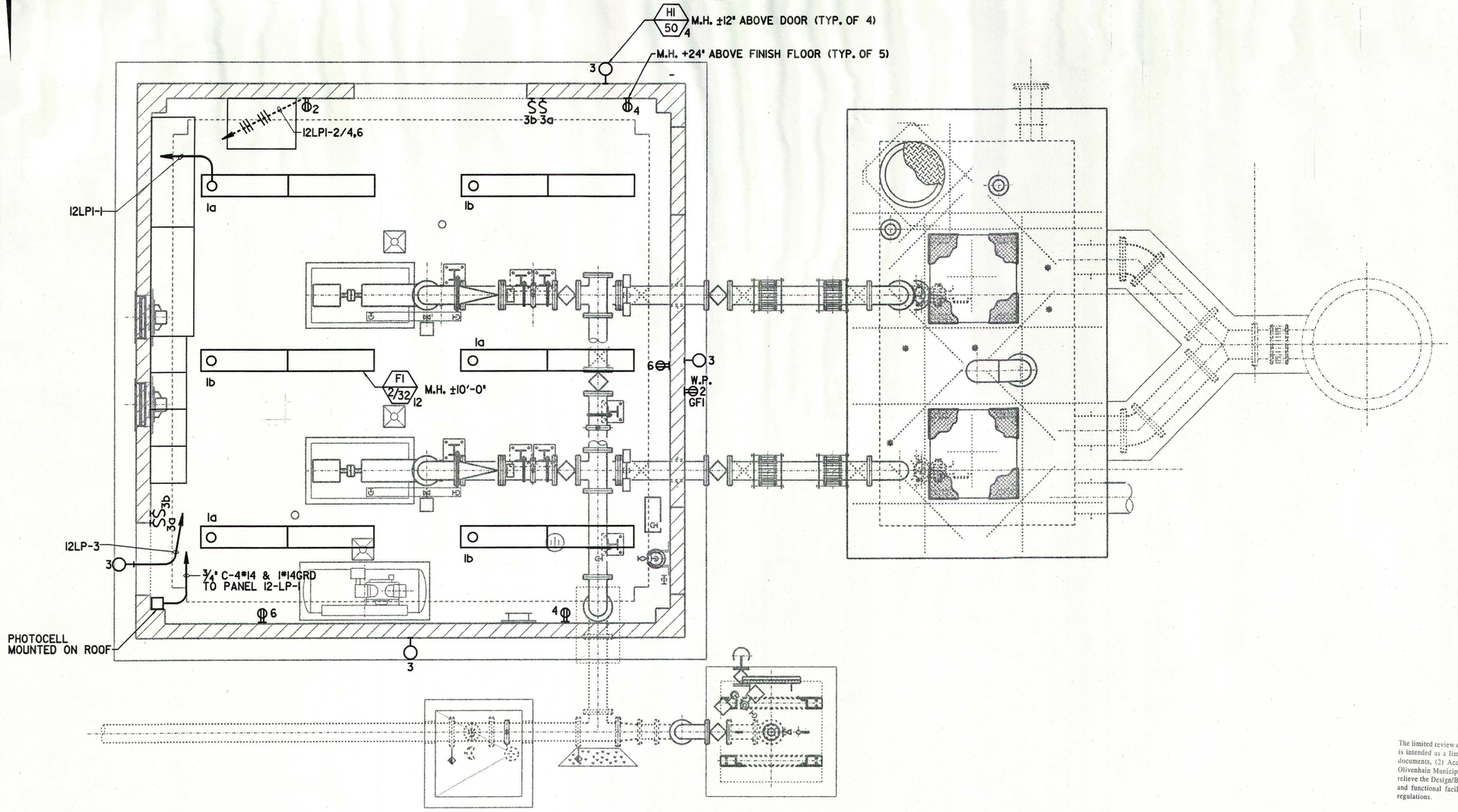
Job No: MW Job #



The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J

Date 8/29/01 By

REGISTERED PROFESSIONAL ENGINEER
KYU DAI CHUN
No. 12470
Exp. 9-30-03
ELECTRICAL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
DAVID F. WALKER
No. C 34437
Exp. 03-31-04
CIVIL
STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE 3/8" = 1'-0"

WARNING 0 ½ 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K.D. CHUN
DRAWN N. CHRAKIAN
CHECKED K.D. CHUN

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

NEIGHBORHOOD NO. 1 PUMP STATION
LIGHTING AND RECEPTACLE PLAN

SHEET 12E-1 OF • SHEETS

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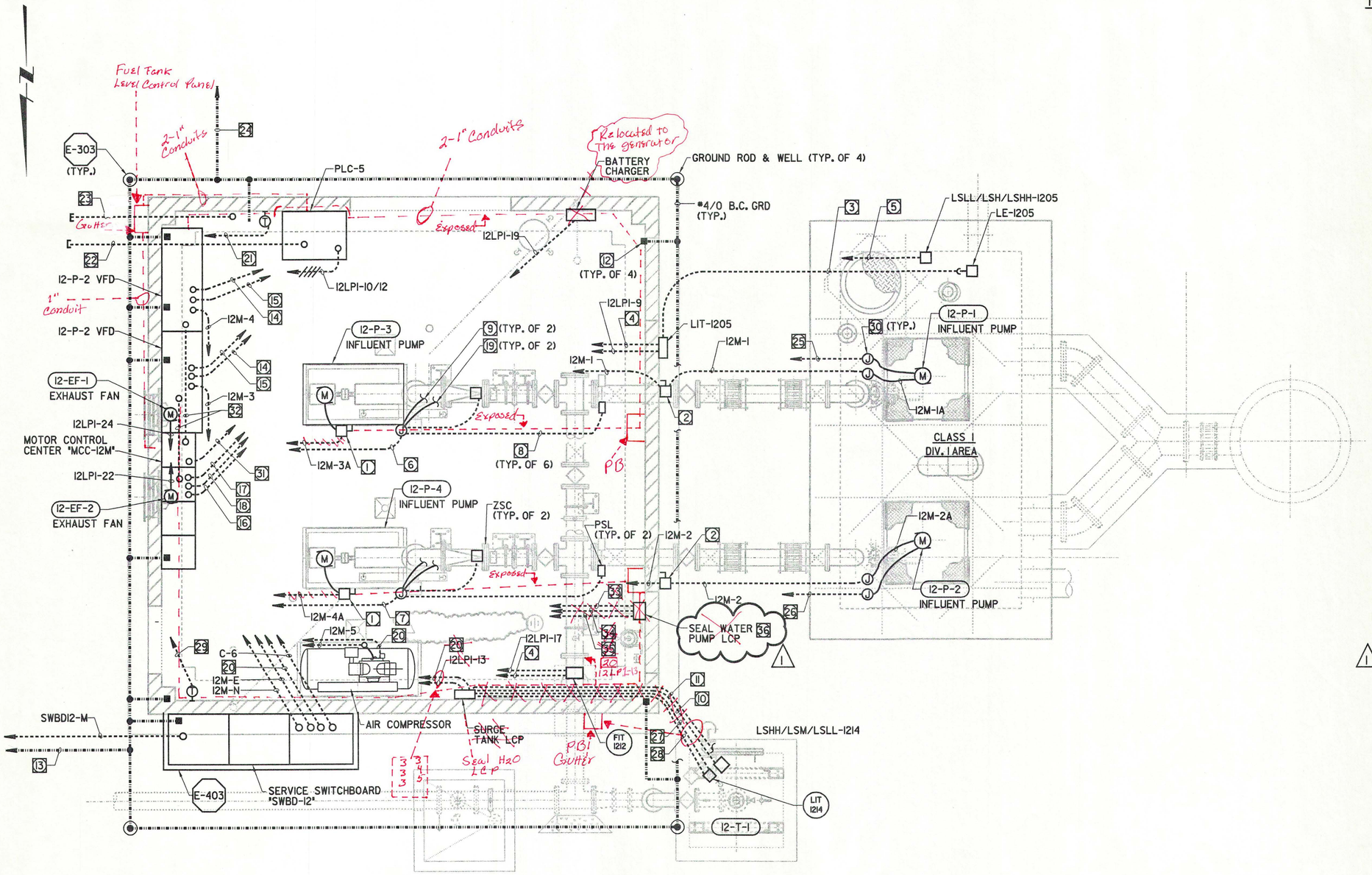


NOTES:

1. 400A, 3P, 480V DISCONNECT SW.
2. 200A, 3P, 480V DISCONNECT SW.
3. ¾" C WITH CABLE SUPPLIED BY INSTRUMENT SUPPLIER.
4. ¾" C-2/C*16SHIELDED TO PLC-5
5. ¾" C-6*14 & 1*14GRD TO MCC-I2M
6. 1" C-16*14 & 1*14GRD TO VFD-1.
7. 1" C-16*14 & 1*14GRD TO VFD-2.
8. ¾" C-2*14 & 1*14GRD.
9. ¾" C-5*14 TO SEAL WATER SOLENOID VALVE & PSL.
10. ¾" C-8*14 & 1*14GRD.
11. ¾" C-4*14 & 1*14GRD TO AIRLINE SOLENOID VALVE.
12. CONNECT TO FOUNDATION REBAR.
13. TO SERVICE TRANSFORMER GROUND.
14. ¾" C-(2) 2/C *16SHLD TO PL-5
15. ¾" C-14*14 TO PLC-5
16. ¾" C-2*14 TO PLC-5
17. ¾" C-12 *14 TO VFD-1.
18. ¾" C-12 *14 TO VFD-2.
19. ¾" C-4*14 & 1*14GRD TO MOTOR SPACE HEATER & WIND. TEMP. SW.
20. ¾" C-8*14 TO PLC.
21. ¾" C-4*14GRD TO I2-EF-1 CONTROL.
22. 2" C.O. (DATA HWY).
23. 2" C.O. TELEPHONE CONDUIT.
24. TO GENERATOR GROUND.
25. ¾" C-7*14 TO VFD-1.
26. ¾" C-7*14 TO VFD-2.
27. ¾" C-2*12 & 1*12GRD.
28. ¾" C-(1)-2/C*16SHLD.
29. ¾" C-2*14 & 1*14 TO I2-EF-2 CONTROL.
30. CABLE SPLICE BOX (NEMA -4X)
31. 1"C-20*14 TO PLC-5.
32. 1½"C-30*14.
33. 1"C-2*12 & 1*12GRD TO I2-LP-1.
34. ¾"C-4*14 TO MCC.
35. ¾"C-8*14 TO PLC-5.
36. SEAL WATER PUMP LCP. SEE CONTROL SCHEMATIC DIAGRAM.

REGISTERED PROFESSIONAL ENGINEER — PAUL F. WALLACE — No. 43137 — Exp. 12-31-04 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — MIX — No. E018254 — Exp. 12/31/04 — ELECTRICAL — STATE OF CALIFORNIA

11/5/01

REV	DATE	BY	OMWD	DESCRIPTION
1	10/12/01	PHP		REVISE SEAL WATER PUMP CONTROL

SCALE 3/8" = 1'-0"

WARNING 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K.D. CHUN
DRAWN N. CHRAKIAN
CHECKED K.D. CHUN

SUBMITTED BY
PROJECT MANAGER — 43137 LICENSE NO. — 11/5/01 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 11/5/01 DATE

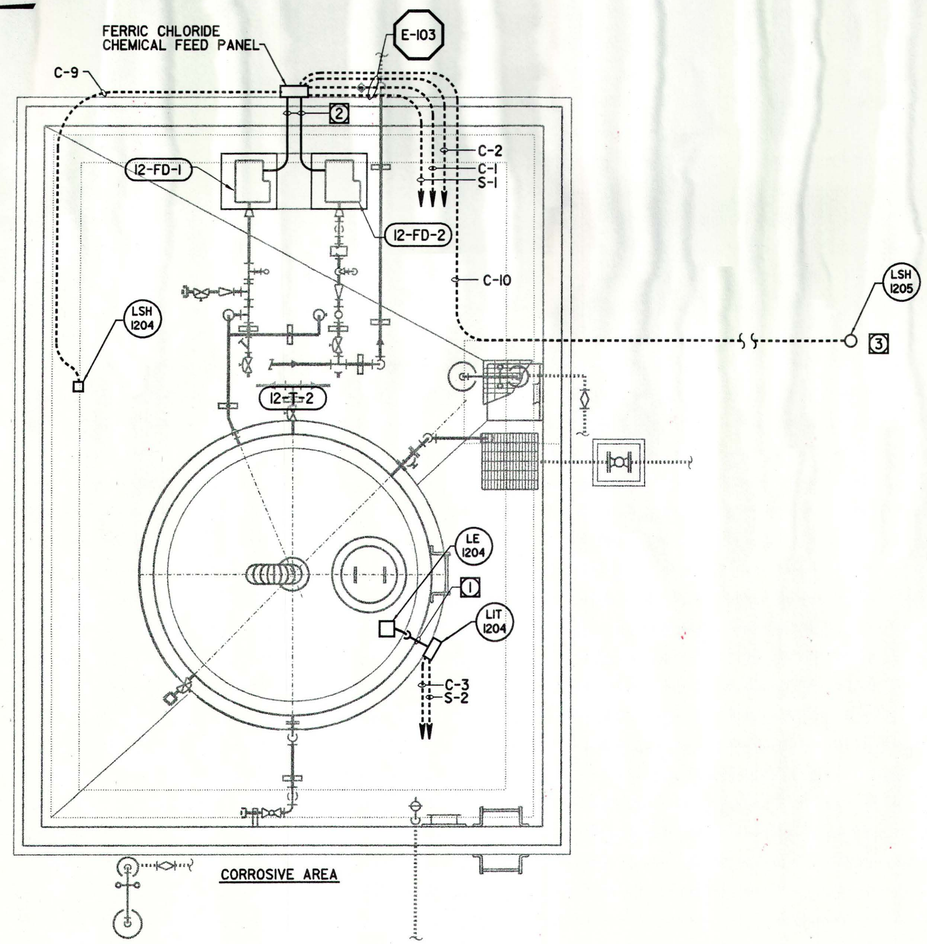
MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 12/02 DATE
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. I PUMP STATION
POWER AND CONTROL PLAN

SHEET 12E-2 OF • SHEETS

Job No: MW Job = File: p:\Projects\4SR\I2\ele\4srnI2e02.dlv Plot Date: 05-NOV-2001 14:51



NOTES:

1. 3/4" CONDUIT WITH CABLE BY INSTRUMENT SUPPLIER.
2. 3/4" C-4#12 & 1#12GRD.
3. CONTRACTOR SHALL FIELD LOCATE LS-1205 (LEAK DETECTOR) AT LOW POINT OF PIPING.
4. ALL AREAS SHOWN SHALL BE CORROSIVE AREAS AND ALL WORK SHALL COMPLY WITH THE SPECIFICATIONS.

FERRIC CHLORIDE FEED AND STORAGE FACILITY

REV	DATE	BY	OMWD	DESCRIPTION

SCALE 3/8" = 1'-0"

WARNING 0 1/2 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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DRAWN N. CHRAKIAN
CHECKED K.D. CHUN

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

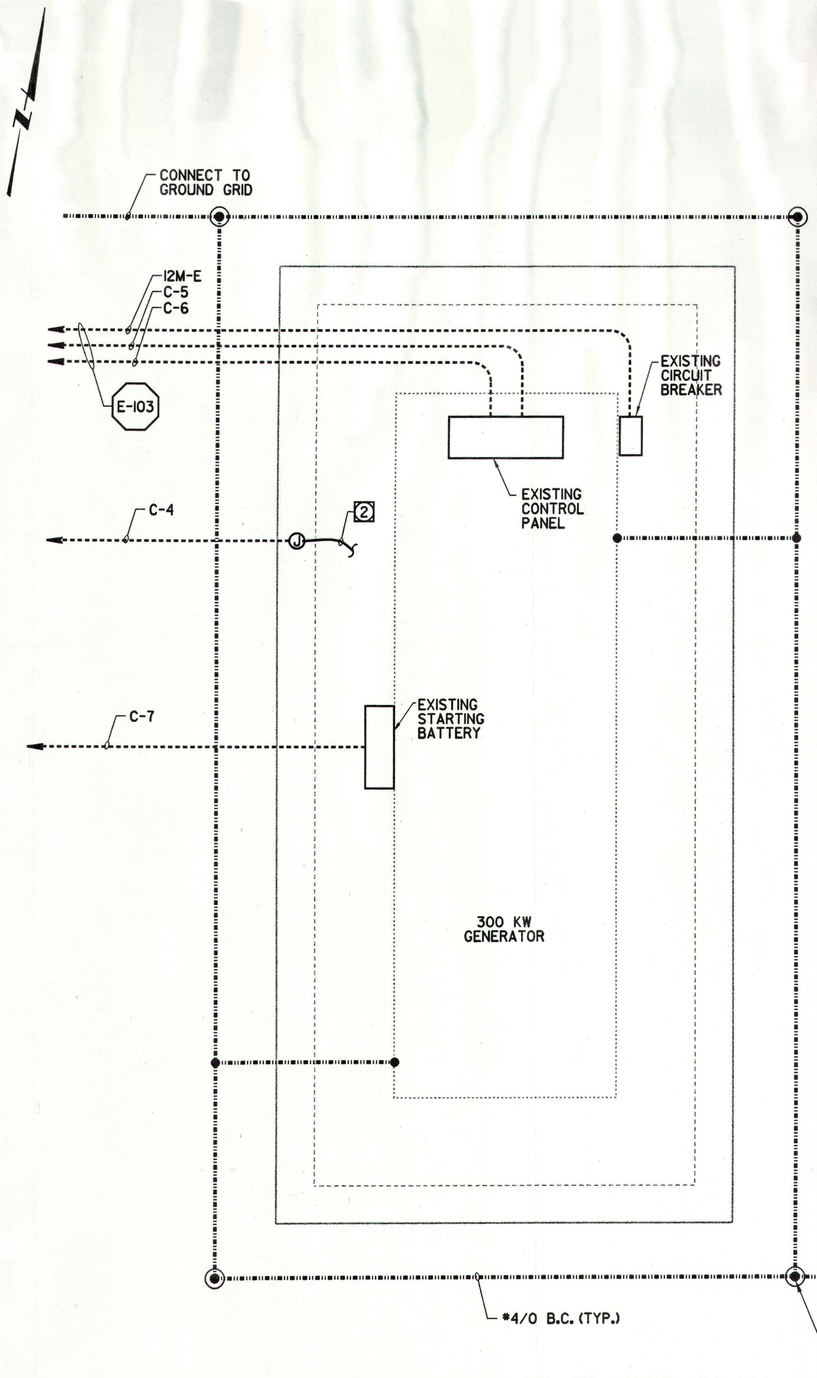
APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

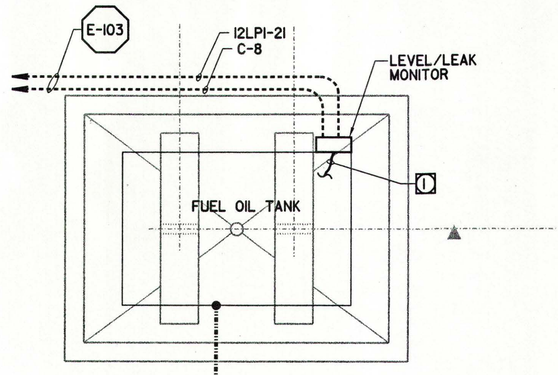
KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
FERRIC CHLORIDE FEED FACILITY - ELECTRICAL PLAN

SHEET 12E-3 OF • SHEETS

Job No: MW Job # Files: p:\Projects\45R\12\ele\4srnl2e03.dlv Plot Date: 12-DEC-2000 14:33



RELOCATED GENERATOR PLAN



RELOCATED FUEL TANK PLAN

NOTES:

1. COMPLETE WIRING FOR LEVEL AND LEAK SENSORS.
2. COMPLETE WIRING FOR CRANK CASE, HEATER, SPACE HEATER, ETC.

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PBS & J

Date 8/27/01 By

REGISTERED PROFESSIONAL ENGINEER — KYU DAI CHUN — No. 12470 — Exp. 9-30-03 — ELECTRICAL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL FA WAN — No. C-38... — Exp. 03-31-04 — CIVIL — STATE OF CALI...

REV	DATE	BY	OMWD	DESCRIPTION

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

WARNING: 0 1/2 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K.D. CHUN
DRAWN N. CHRAKIAN
CHECKED K.D. CHUN

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
GENERATOR PAD AND FUEL TANK - ELECTRICAL PLAN

SHEET 12E-4 OF • SHEETS

Plot Date: 12-DEC-2000 14:33
Files: p:\Projects\4SR\12\ele\4srn12e04.dlv
Job No: MW Job #

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

	PRIMARY LOCATION •••NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNT	AUXILIARY LOCATION •••NORMALLY ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	IPI••		
SHARED DISPLAY, SHARED CONTROL			
COMPUTER FUNCTION			
PROGRAMMABLE LOGIC CONTROL			

•• ABBREVIATIONS SUCH AS IPI (INSTRUMENT PANEL #1), IC2 (INSTRUMENT CONSOLE #2), CC3 (COMPUTER CONSOLE #3), ETC., ARE USED WHEN NECESSARY TO SPECIFY INSTRUMENT OR FUNCTION LOCATION

••• NORMALLY INACCESSIBLE OR BEHIND-THE-PANEL DEVICES OR FUNCTIONS ARE DEPICTED BY USING THE SAME SYMBOLS BUT WITH DASHED HORIZONTAL BARS, I.E.

SINGLE INSTRUMENT OR OTHER COMPONENT HAVING MULTIPLE FUNCTIONS.

(XXX) SOFTWARE OR LOGIC RESIDENT IN DISTRIBUTED CONTROL SYSTEM (DCS) AT PROCESS CONTROL MODULE (PCM) XX. SEE ASSOCIATED LOOP DESCRIPTION IN SPECIFICATIONS.

(XXX) DESIGNATIONS OF CONTROL FUNCTIONS ASSOCIATED INSTRUMENT OR OTHER COMPONENTS.

OCA - OPEN/CLOSE/AUTO
RSL - RAISE/STOP/LOWER
HOA - HAND/OFF/AUTO
AM - AUTO/MANUAL
LR - LOCAL/REMOTE
SD - SHUTDOWN
DEV - DEVIATION
RL - RAISE/LOWER
LOS - LOCKOUT STOP
OSC - OPEN/STOP/CLOSED
SS - STOP/START
SEL - SELECT
SP - SET POINT
02 - OXYGEN CONCENTRATION
03 - OZONE CONCENTRATION

FY INSTRUMENT PANEL MOUNTED WITH COMPUTING OR CONVERTING FUNCTION.

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

COMPUTE
SUMMING
SUBTRACTOR
MUTIPLYING
DIVIDING
ROOT EXTRACTION
PROPORTIONAL
DERIVITIVE
AVERAGING
RATIO
DIFFERENCE
HIGH SELECTING
LOW SELECTING
INTEGRAL

IDENTIFICATION LETTERS

	FIRST-LETTER		SUCCEEDING-LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C				CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G			GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOTOR	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE				
O			ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MALFUNCTION	MALFUNCTION	MALFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X		X AXIS			
Y	EVENT, STATE OR PRESENCE	Y AXIS		COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

INSTRUMENT LINE SYMBOLS

INSTRUMENT OR CONNECTION TO PROCESS•
PNEUMATIC SYMBOL ••
ELECTRIC SYMBOL
HYDRAULIC SYMBOL
CAPILLARY TUBE
ELECTROMAGNETIC OR SONIC SIGNAL ••• (GUIDED)
ELECTROMAGNETIC OR SONIC SIGNAL ••• (NOT GUIDED)
INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)
MECHANICAL LINK
PNEUMATIC BINARY SIGNAL
ELECTRIC BINARY SIGNAL ····\·\···· OR -//-//-

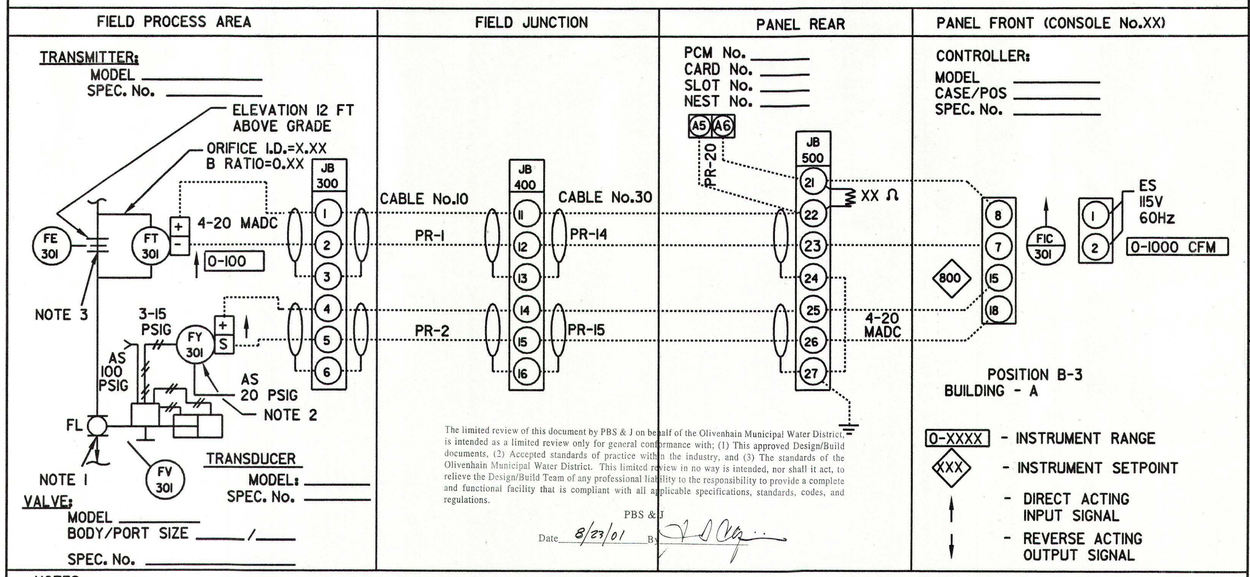
• THE FOLLOWING ABBREVIATIONS ARE USED TO DENOTE THE TYPES OF POWER SUPPLY. THEY MAY ALSO TO PURGE FLUID SUPPLY

AS - AIR SUPPLY
IA - INSTRUMENT AIR
PA - PLANT AIR
ES - ELECTRIC SUPPLY
GS - GAS SUPPLY
HS - HYDRAULIC SUPPLY
NS - NITROGEN SUPPLY
SS - STEAM SUPPLY
WS - WATER SUPPLY

•• THE PNEUMATIC SIGNAL SYMBOLS APPLIES TO A SIGNAL, NOT A SUPPLY SOURCE, USING ANY GAS AS A MEDIUM. IF A GAS OTHER THAN AIR IS USED, THE GAS IS IDENTIFIED BY A NOTE ON THE SIGNAL.

••• ELECTROMAGNETIC PHENOMENA INCLUDE HEAT, RADIO WAVES, NUCLEAR RADIATION, AND LIGHT.

SAMPLE LOOP DIAGRAM ISA EXPANDED FORMAT



The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J
Date 8/29/01 By

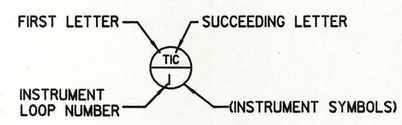
NOTES:
1. FV-301 FULLY OPEN AT 3 PSIG AND FULLY CLOSED AT 15 PSIG.
2. STAND MOUNT PER INSTRUMENT STANDARD XXXX NEAR, BUT NOT ON THE CONTROL VALVE.
3. FE-301 REQUIRES 20 PIPE DIAMETERS UPSTREAM AND 5 PIPE DIAMETERS DOWNSTREAM OF STRAIGHT PIPE.

EXAMPLE: TYPICAL TAG NUMBER

TIC-1 - INSTRUMENT IDENTIFICATION OR TAG NUMBER
TIC - FUNCTIONAL IDENTIFICATION
T - FIRST-LETTER
IC - SUCCEEDING-LETTER(S)
1 - LOOP NUMBER

EXPANDED TAG NUMBER

10-PAH-1A — TAG NUMBER
10 — OPTIONAL PREFIX
A — OPTIONAL SUFFIX



INTERFACING SYMBOLS

XX-X PROCESS/SIGNAL INTERFACE WITHIN THIS PROJECT
DRAWING NO.

PROCESS INTERFACE CONNECTION POINT NOT SHOWN IN DRAWINGS

X SIGNAL INTERFACE WITHIN THE SAME SHEET

PAUL F. WALKER No. M31211 Exp 12-31-03 REGISTERED PROFESSIONAL ENGINEER CIVIL
No. C36837 Exp 03-31-04 REGISTERED PROFESSIONAL ENGINEER CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING 0 ½ 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED B. ZINN
DRAWN G.KHOUDANIAN
CHECKED L. YAUSSI

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33679 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
INSTRUMENTATION ABBREVIATIONS & SYMBOLS - 1

SHEET GI-1 OF • SHEETS

Job No: MW Job # File: P:\Projects\4SRV12\Ins\4srni2gl01.div Plot Date: 12-DEC-2000 11:14

VALVE SYMBOLS


BUTTERFLY


GLOBE


ROTARY VALVE

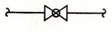

ANGLE

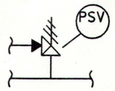

SWING CHECK VALVE


BALL CHECK VALVE

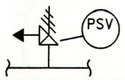

GATE VALVE


PLUG VALVE

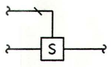

BALL VALVE



VACUUM RELIEF VALVE

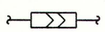


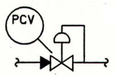
PRESSURE RELIEF OR SAFETY VALVE



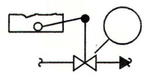
SOLENOID VALVE

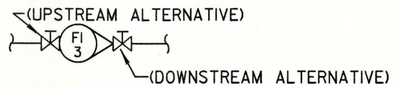

BACKPRESSURE REGULATOR


BACKFLOW PREVENTOR



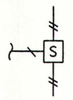
PRESSURE-REDUCING REGULATOR


LEVEL CONTROL VALVE
LINKAGE



INDICATING VARIABLE AREA METER

VALVE ACTUATORS

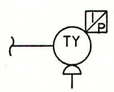


SOLENOID


DIAPHRAGM PRESSURE-BALANCED

ELECTROHYRAULIC

ROTARY MOTOR (SHOWN TYPICALLY WITH ELECTRIC SIGNAL. MAY BE HYDRAULIC OR PNEUMATIC)



VALVE ACTUATOR WITH ATTACHED ELECTRO-PNEUMATIC CONVERTER

DIGITAL

WITH OR WITHOUT POSITIONER OR OTHER PILOT

PREFERED FOR DIAPHRAGM ASSEMBLED WITH PILOT. ONE INPUT SHOWN (TYP. WITH ELECTRIC INPUT)

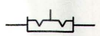
DIAPHRAGM, SPRING-OPPOSED OR UNSPECIFIED ACTUATOR

PUMP AND COMPRESSOR SYMBOLS

CENTRIFUGAL PUMP


CENTRIFUGAL WET PIT PUMP OR TURBINE PUMP


CHEMICAL FEED PUMP


DIAPHRAGM PUMP


GEAR PUMP OR BLOWER (POSITIVE DISPLACMENT)

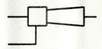

PISTON PUMP


PROGRESSIVE CAVITY PUMP

SUBMERSIBLE SUMP PUMP


COMPRESSOR (CENTRIFUGAL), OR TURBINE MOTOR


COMPRESSOR (PISTON)


EJECTOR

BLOWER

MISCELLANEOUS SYMBOLS


DIAPHRAGM SEAL

NOTES

1. ADDITIONAL INSTRUMENTATION AND CONTROL SYMBOLS MAY BE USED AS REQUIRED. SYMBOLS AND NOMENCLATURE ARE BASED ON ISA STANDARDS S5.1, S5.2, S5.4.
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. VALVE, PUMP ETC.) SEE PROCESS AND INSTRUMENTATION DIAGRAMS, MECHANICAL DRAWINGS AND SPECIFICATION.
4. POWER SUPPLIES FOR LOOPS OR SYSTEMS SHALL BE FURNISHED BY THE INSTRUMENTATION SUPPLIER TO MEET THE PARTICULAR CHARACTERISTICS (E.G. VOLTAGE AND CURRENT REQUIREMENTS) OF COMPONENTS IN EACH LOOP OR SYSTEM.

REV	DATE	BY	OMWD	DESCRIPTION

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED B. ZINN
DRAWN G. KHOUDANIAN
CHECKED L. YAUSSI

SUBMITTED BY
PROJECT MANAGER — 50802 LICENSE NO. — 12/13/00 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 12/13/00 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 8.29.01 DATE
APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
INSTRUMENTATION ABBREVIATIONS & SYMBOLS - II

SHEET GI-2 OF • SHEETS

Plot Date: 12-DEC-2000 11:14
Job No: MW Job # Files: P:\Projects\45R\12\Ins\4srni2gi02.dlv

LOCAL OPERATOR INTERFACE & MMI

PLC

FIELD

FILL & DRAW AND LEVEL CONTROL INTERFACE SEE SPEC. SECTION 17300 FOR DETAILS

LAHH I205B | LAH I205B | LALL I205B | LI I205B

RUN YL I220B | FAIL YA I220B | AUTO ZL I220B | HS I220C S/S | HS I220B A/M

MISC. XX | MISC. XX

HS I206B 12, 21, AUTO

OO HS I210E | AM HS I210F | MAN. SPD. SK I210C | SPEED SI I210C | RUN YL I210C | FAIL YA I210C | AUTO ZL I210B

LAHH I205A | LAH I205A | LALL I205A | LI I205A

YL I220A | YA I220A | ZL I220A | HS I220A

HS I210D | SK I210B | SI I210B | YL I210B | YA I210B | ZL I210A

FEED BACK

P

LC I205

LEAD START

LAG START

PUMP START STOP LOGIC SEE SPEC. SECTION 17300 FOR DETAILS

PUMP SELECT/ ALTERNATION LOGIC

PAIR 2 AUTO START

PAIR 1 AUTO START

AUTO SPEED

PAIR 2 AUTO START A | I21-2

AUTO SPEED B | I21-2

OVERFLOW LEVEL (LEAD PUMPS START)

OVERFLOW LEVEL (LAG PUMPS START)

LO-LO-LEVEL (PUMP CUT-OFF)

RUN | FAIL | AUTO | START/STOP

MCC (SEE DRAWING E-*)

TYPICAL FOR PUMPS 12-P-1 LOOP I220 12-P-2 LOOP I230

OR

AUTO START

TO SEAL WATER PUMPS H | I21-4

RUN STATUS FROM 12-P-2

TO 12-P-2

ON/OFF | SPEED | SPEED | RUN | FAIL | HOA IN AUTO

PAL I210A | YA I210A | SK I210A | SI I210A | PAL I210B SEAL WATER

YL I210A | PAH I210A | HS I210C HOA

VFD

START 12-P-2 AND 12-P-4

START 12-P-1 AND 12-P-3

SHUTDOWN

START 12-P-2 AND 12-P-4 C | I21-2

SHUTDOWN D | I21-2

MCC

INTRINSICALLY SAFE

PI I210A | PSL I210A | PI I210B | ZSC I210

E | I21-2

M

12-P-3

PSL I210B | S | FI I210

NORMALLY CLOSED

12-V-5

1"UW

121-4 J

G | I21-2

LSHH I205 | LSH I205 | LSLL I205

LIT I205 | LE I205

MSH I220 | MSH I230

12-P-1 | 12-P-2

SANITARY SEWER LINE

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PBS & J

Date 12/19/01 By

REGISTERED PROFESSIONAL ENGINEER LOUIS A. YAUSSI No. 18642 Exp 12/31/02 CONTROL SYSTEMS STATE OF CALIFORNIA

11/05/01

REGISTERED PROFESSIONAL ENGINEER PAUL F. WILLIAMS No. C43137 Exp 03-31-04 CIVIL STATE OF CALIFORNIA

REV	DATE	BY	OMWD	DESCRIPTION
1	10/4/01	LY		REVISE SEAL WATER CONTROLS

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED B. ZINN
DRAWN G. KHOUDANIAN
CHECKED L. YAUSSI

SUBMITTED BY
PROJECT MANAGER — 43137 LICENSE NO. — 11/5/01 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 11/5/01 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED
OLIVENHAIN MWD — 1/2/02 DATE

APPROVED
FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
P & ID - 1

SHEET 121-1 OF * SHEETS

Plot Date: 05-NOV-2001 15:08
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Job No: MW Job #

Plot Date: 05-NOV-2001 15:07

File: p:\Projects\4SRN12\Ins\4srni2102.dlv

Job No: MW Job #

LOCAL OPERATOR INTERFACE & MMI

PLC

FIELD

HS 1211E — OO — HS 1211F — AM — SK 1211C MAN. SPD. — RUN YL 1211C — FAIL YA 1211C — AUTO ZL 1211C

A 121-1 — AUTO START — I

B 121-1 — AUTO SPEED — I

HS 1211D — SK 1211B — YL 1211B — YA 1211B — ZL 1211B

ON/OFF — SPEED — RUN — FAIL — HOA IN AUTO

C 121-1 START

D 121-1 SHUTDOWN

PAL 1211A — YA 1211A — SK 1211A — SI 1211A — PAL 1211B SEAL WATER — YL 1211A — PAH 1211A — HS 1211C HOA — VFD

E 121-1

PI 1211A — PSL 1211A — PI 1211B — ZSC 1211

G 121-1

K 121-4 I"UW

PSL 1211B — S — FI 1211 — M — 12-P-4

HS 1212 RESET — FQI 1212 TOTALIZER — FI 1212B

FLOW PACING SIGNAL TO FERRIC FEED SYSTEM — A 121-3

FI 1212A

FIT 1212 — M

COMPRESSOR TROUBLE YA 1213B — TROUBLE YA 1214B — YL 1250B — YA 1250B

YA 1213A — YA 1214A — YL 1250A — YA 1250A

FROM EXISTING GENERATOR RELOCATED TO NEIGHBORHOOD PUMP STATION NO.1

PAL 1213 — YA 1213 OL — LAL 1213 OIL

SURGE TANK CONTROL PANEL

SEE SPEC. SEC. 13655

AIR COMPRESSOR LOCAL CONTROL PANEL

PSL 1213

ATM. — COMPRESSOR — RECEIVER TANK — S — S

LE 1214

SURGE TANK — 12-T-1

LSLL 1214 — LSHH 1214 — LSM 1214 — LSL 1214

FROM FERRIC CHLORIDE FEED PUMPS 121-3

TO WASTEWATER TREATMENT PLANT

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REGISTERED PROFESSIONAL ENGINEER — PAUL F. WALKER — No. 043137 — Exp. 03-31-04 — CIVIL — STATE OF CALIFORNIA — 11/05/01

REGISTERED PROFESSIONAL ENGINEER — LOUIS A. YAUSSI — No. 33699 — Exp. 12/31/02 — CIVIL — STATE OF CALIFORNIA — 11/05/01

REV	DATE	BY	OMWD	DESCRIPTION
1	10/4/01	LY		REVISE SEAL WATER CONTROLS

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED B. ZINN

DRAWN G. KHOUDANIAN

CHECKED L. YAUSSI

SUBMITTED BY PROJECT MANAGER — 43137 LICENSE NO. — 11/5/01 DATE

COMPANY OFFICER — 33699 LICENSE NO. — 11/5/01 DATE

MONTGOMERY WATSON
Pasadena, California

APPROVED OLIVENHAIN MWD — 1/2/02 DATE

APPROVED FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
P & ID - 11

SHEET 121-2 OF • SHEETS

NOTE:

1. PLC SHALL AUTOMATICALLY ALTERNATE THE DUTY AND STANDBY PUMPS.
2. THE PLC SHALL CALCULATE AND DISPLAY THE PUMP FEED FLOW BASED ON PUMP CHARACTERISTICS AND SPEED.

LOCAL OPERATOR INTERFACE & MMI

PLC

FERRIC LEVEL LI 1204B, LAH 1204B

DOSAGE SETPOINT DK 1204

% CONC. OF FERRIC CK 1204

2 FI 1201 FLOW, FY 1201, SI 1201B

YA 1201 NOT IN REM, ZL 1201B REM, YL 1201B RUN

2 FI 1202 FLOW, FY 1202, SI 1202B

YA 1202 NOT IN REM, ZL 1202B REM, YL 1202B RUN

HS 1203 1,2,AUTO

1 PUMP 1 CALL, PUMP 2 CALL, DUTY PUMP ALTERNATOR LOGIC

YA 1205B

A 121-2 FLOW SIGNAL

FY 1204 SPEED CONTROL

SPEED/DOSAGE CALCULATOR

LI 1204A, LAH 1204A

SK 1201, SI 1201A, ZL 1201A REM, HS 1201 START/STOP, YL 1201A RUN

SK 1202, SI 1202A, ZL 1202A REM, HS 1202 START/STOP, YL 1202A RUN

YA 1205A

FIELD

SPEED CONTROL, SPEED, SPEED CONTROL, SPEED, LEAK

FERRIC CHLORIDE CHEMICAL FEED PANEL

SEE SPEC. SECTION 11269

LCP

CALIBRATION COLUMN (TYP.)

FLUSHING CONN. (TYP.)

PI 1201

PULSATION DAMPENER (TYP.)

I"FC

12-FD-1

D

PI 1202

12-FD-2

INFLUENT PUMP STATION DISCHARGE 121-2

LS 1205 LEAK DETECTION

LE 1204, LIT 1204

12-T-2

LSH 1204

FERRIC CHLORIDE TRUCK LOADING STATION

CONTAINMENT SUMP

The limited review of this document by PBS & J on behalf of the Olivenhain Municipal Water District, is intended as a limited review only for general conformance with; (1) This approved Design/Build documents, (2) Accepted standards of practice within the industry, and (3) The standards of the Olivenhain Municipal Water District. This limited review in no way is intended, nor shall it act, to relieve the Design/Build Team of any professional liability to the responsibility to provide a complete and functional facility that is compliant with all applicable specifications, standards, codes, and regulations.

PBS & J

Date 12/19/01 By

Registered Professional Engineer — Louis A. Yaussi — No. 43137 — Exp. 12/31/04 — Control Systems — State of California — 11/05/01

Registered Professional Engineer — Paul F. Wallace — No. C43137 — Exp. 03-31-04 — Civil — State of California

REV	DATE	BY	OMWD	DESCRIPTION
1	10/4/01	PFW		EDIT NOTE

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE ½ THEN DRAWING IS NOT TO SCALE

DESIGNED B. ZINN
DRAWN G. KHOUDANIAN
CHECKED L. YAUSSI

SUBMITTED BY
PROJECT MANAGER — 43137 LICENSE NO. — 11/5/01 DATE
COMPANY OFFICER — 33699 LICENSE NO. — 11/5/01 DATE

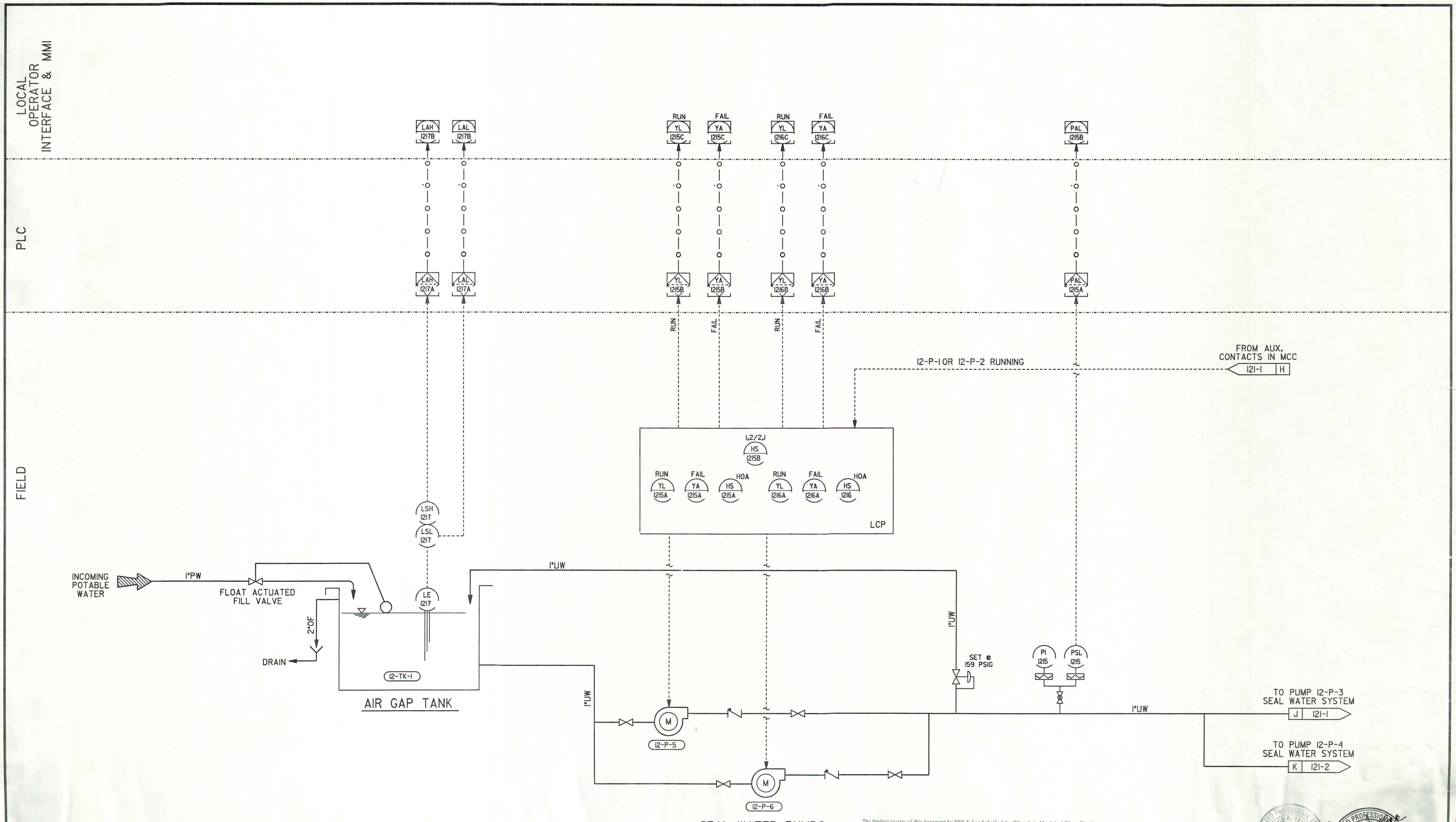
MONTGOMERY WATSON
Pasadena, California

APPROVED OLIVENHAIN MWD — 1/2/02 DATE
APPROVED FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD
NEIGHBORHOOD NO. 1 PUMP STATION
FERRIC CHLORIDE FEED SYSTEM - P & ID

SHEET 121-3 OF • SHEETS

Plot Date: 05-NOV-2001 15:07
File: p:\Projects\4SR\12\Ins\4srni2103.dlv
Job No: MW Job #



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PBS & J

Date 12/19/01 By [signature]

REV	DATE	BY	OMWD	DESCRIPTION
1	10/4/01	LY		NEW SHEET

SCALE: NONE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED L. YAUSSI
DRAWN G. KHOUDANIAN
CHECKED L. YAUSSI

SUBMITTED BY
PROJECT MANAGER [signature] — LICENSE NO. 43137 — DATE 11/5/01
COMPANY OFFICER [signature] — LICENSE NO. 33699 — DATE 11/5/01

MONTGOMERY WATSON
Pasadena, California

APPROVED [signature] OLIVENHAIN MWD — DATE 1/2/02
APPROVED FILANC CONSTRUCTION CO. — DATE

KELWOOD DEVELOPMENT COMPANY
4S RANCH SANITATION DISTRICT
WASTEWATER TREATMENT PLANT EXPANSION TO 2.0 MGD

UTILITY WATER SYSTEM
P & ID

SHEET 121-4 OF SHE

Job No: MW Job # File: D:\Projects\4SR\12\Ins\4srni2104.dlv Plot Date: 05-NOV-2001 15:07