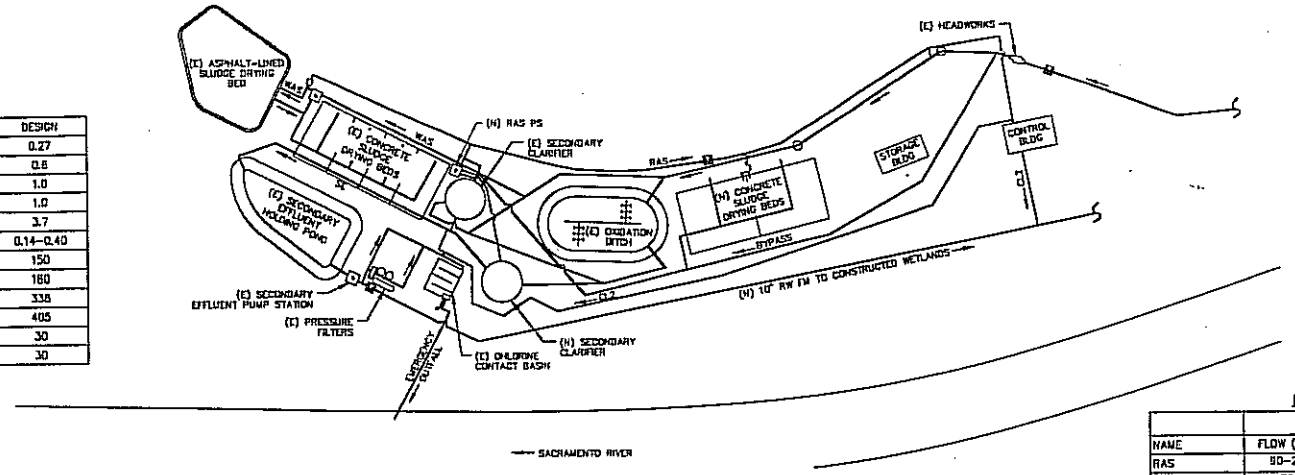
DESIGN CRITERIA

DESIGN CRITERIA	CURRENT 2012	DESIGN
ADWF (MGD)	0.13	0.27
MWF (MGD)	0.37	0.8
MDF (MGD)	0.72	1.0
PWWF (MGD)	0.77	1.0
PWWF : ADWF	5.9	3.7
Q RAS (MGD)	~0.11	0.14–0.40
INF BOD ADWF (MG/L)	130	150
INF SS ADWF (MG/L)	177	180
INF BOD ADWF (LBS/DAY)	139	338
INF SS ADWF (LBS/DAY)	190	405
MAX EFF BOD (MG/L)	30	30
MAX EFF SS (MG/L)	30	30

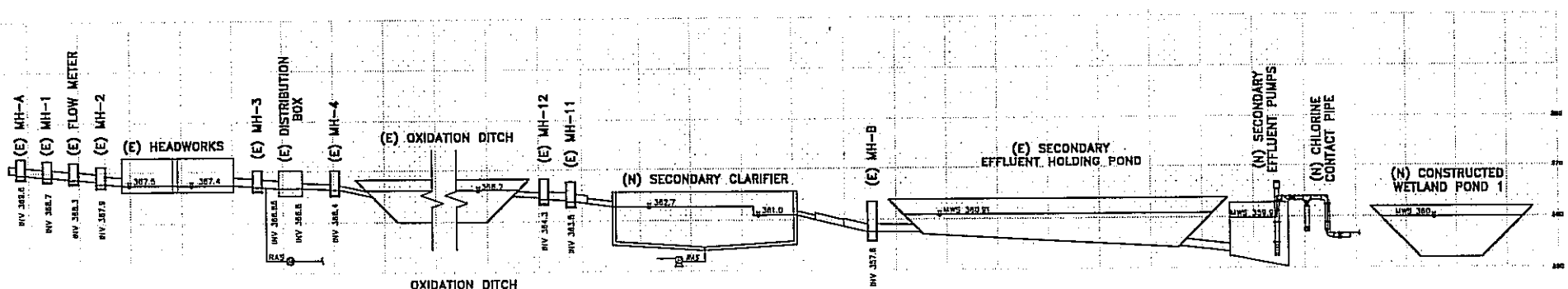


LEGEND
- CL2 = CHLORINE SOLUTION
- E = EXISTING
- FM = FORCE MAIN
- M = FLOW METER
- N = NEW
- PS = PUMP STATION
- RAS = RETURN ACTIVATED SLUDGE
- RW = RECYCLED WATER
- SE = SECONDARY EFFLUENT
- WAS = WASTE ACTIVATED SLUDGE

PUMP STATION DATA

	CAPACITY		SPEED CONTROL	
NAME	FLOW (GPM)	TDH (FT)	FIXED OR VFD	HP
RAS	90–280	7–15	VFD	5
EFFLUENT	750	126	VFD	40

PROCESS DIAGRAM
NTS



HEAD WORKS

NUMBER OF COMMINUTORS	1
COMMINUTOR MAX CAPACITY (MGD)	5
NUMBER OF BYPASS TRASH RACK CHANNELS	1
CHANNEL WIDTH (FT)	2
MIN CLEARANCE BETWEEN BARS (IN)	1
PALMER-BOWLUS METER	1
MAX MEASURABLE FLOW (MGD)	2.5

OXIDATION DITCH

EFFECTIVE VOLUME (CF)	33,680
MLSS (MG/L)	2,000
RAS (MG/L)	5,600
SVI (ML/GM)	120
LOADING OVERALL (LBS BOD/1000 CF/DAY)	10.0
HYDRAULIC RETENTION TIME @ ADWF (HR)	22
MCRT (DAYS)	13
TEMPERATURE SUMMER-WINTER (C)	20–9
BRUSH AERATORS (NO.)	2
AERATOR MOTOR HORSEPOWER (HP)	25
OXYGEN TRANSFER CAPACITY (LBS O2/HP/HR)	1.5
OXYGEN SUPPLIED W/ONE AERATOR IN SERVICE (LBS/DAY)	900

HYDRAULIC PROFILE
SCALE: HORIZ: NONE
VERT: 1" = 10'

CLARIFIER

DIAMETER (FT)	2-36
SIDE WATER DEPTH (FT)	8, 14
SURFACE AREA OF CLARIFIER (SF)	2,035
OVERFLOW RATE @ ADWF (GPD/SF)	133
OVERFLOW RATE @ PWWF (GPD/SF)	491
SOLIDS LOADING @ ADWF (LBS/SF/DAY) W/ QRAS	3.3
SOLIDS LOADING @ PWWF (LBS/SF/DAY) W/ QRAS	12
WEIR OVERFLOW RATE @ PWWF (GPD/LF)	4,423

SECONDARY EFFLUENT HOLDING POND

NUMBER	1
CAPACITY (GAL)	180,000
DETENTION PERIOD @ PWWF (HRS)	5.6

CHLORINE CONTACT PIPE

DIAMETER (IN)	10
LENGTH (FT)	12,500
VOLUME (GAL)	50,970
CONTACT TIME @ 750 GPM PUMPING RATE (MIN)	68

NOTES:
1. LOADING CRITERIA WITH (N) FACILITIES IN OPERATION AT ADWF UNO.
2. HYDRAULIC PROFILE BASED UPON DESIGN PWWF.

CONFORMED RECORD DRAWINGS

BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

REVISIONS

NO	DATE	

PACE ENGINEERING
REDDING, CALIFORNIA
DES LM | CHKD TBW | JOB NO. 2118.02
DRN LM | DATE 5/5/2018

5/5/18

RIO ALTO WATER DISTRICT
WASTEWATER TREATMENT PLANT & CONSTRUCTED WETLANDS PROJECT

HYDRAULIC PROFILE & PROCESS DIAGRAM

SHEET C1
PG 3 OF 42