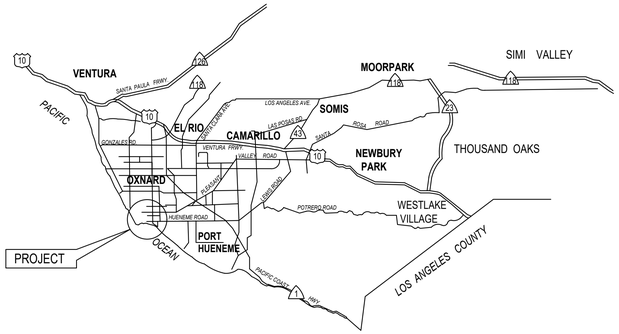
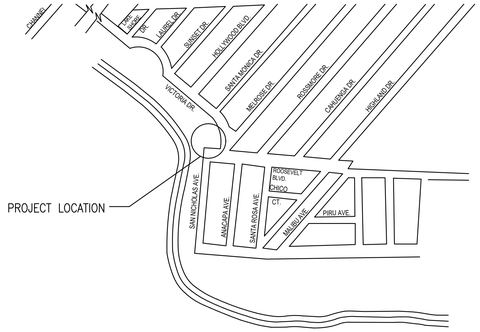
Exhibit 6

VENTURA COUNTY, PUBLIC WORKS AGENCY
DIVERSION CONCEPT PLAN PER THE MAY 2023 KIDDIE BEACH BACTERIA TMDL REDUCTION FEASIBILITY ANALYSIS (KB STUDY)



VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

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OWNER ADDRESS
VENTURA COUNTY PUBLIC WORKS AGENCY
800 S VICTORIA AVE. VENTURA, CA 93009
CONTACT: HAYLEY LUNA, P.E.
(805)-662-6737

SAN NICHOLAS PUMP STATION
SITE ADDRESS
2721 VICTORIA AVE,
OXNARD, CA 93035

DESIGN ENGINEER
PACIFIC ADVANCED CIVIL ENGINEERING
17520 NEWHOPE STREET, SUITE 200
FOUNTAIN VALLEY, CA 92708
CONTACT: DUNCAN LEE, P.E.
(714) 481-0662

CONCEPT PLANS - ISSUED FOR REVIEW

NO	BY	DATE	REVISIONS	DATE	APP.

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PREPARED BY
DUNCAN S. LEE
PROJECT ENGINEER
R.C.E. NO. C#####
EXP. XX-XX-XX

DRAWN C.Z.
SCALE AS NOTED
DESIGNED D.L.
CHECKED D.L.
DATE MAY 2023

TITLE
TITLE SHEET

JOB
VENTURA COUNTY PUBLIC WORKS AGENCY - WATERSHED PROTECTION
DIVERSION CONCEPT PLAN PER KB STUDY
VENTURA CA

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P: (714) 481 - 7300 | www.pacewater.com

SHEET
G1.0
OF -- SHEETS

JOB NO. B804

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Xrefs: B804-02_36x24r.dwg
Dimscale = 24, LTscale = 1; PSltscale = 1; ACAD Ver. = 23.0s (LMS Tech), Viewtabs = 1

ABBREVIATIONS

A.B.	AGGREGATE BASE
A.C.	ASPHALT CONCRETE
AI	ANALOG INPUT
ALUM	ALUMINUM
APPROX	APPROXIMATELY
ARV	AIR RELEASE VALVE
AUTO	AUTOMATIC
AUX	AUXILARY
BO	BLOWOFF
BC	BEGINNING OF CURVE
BF	BLIND FLANGE
BLDG	BUILDING
BM	BEAM, BENCHMARK
BOT	BOTTOM
BVC	BEGIN VERTICAL CURVE
CFH	CUBIC FOOT PER HOUR
CFM	CUBIC FOOT PER MINUTE
CFS	CUBIC FOOT PER SECOND
CML&C	CEMENT MORTAR LINED & COATED
CML&EC	CEMENT MORTAR LINED & EPOXY COATED
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
CONT.	CONTINUOUS
COTG	CLEANOUT TO GRADE
CONST	CONSTRUCTION
CPLG	COUPLING
CTR	CENTER
CV	CHECK VALVE
DI	DIGITAL INPUT
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DTL	DETAIL
DWG	DRAWING
E	ELECTRICAL POWER
EA	EACH
EC	END OF CURVE
ECC	ECCENTRIC
EF	EACH FACE
EL.	ELEVATION
ELEC	ELECTRIC
ELECT	ELECTRICAL
EP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
E.W.	EACH WAY
EXH	EXHAUST
EXIST.	EXISTING
FC	FLEXIBLE COUPLING
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FG	FINISHED GROUND
FH	FIRE HYDRANT
FL	FLOW LINE
FLEX	FLEXIBLE
FLG	FLANGE
FM	FORCE MAIN
FLG'S	FLANGED
FPS	FEET PER SECOND
FT	FEET
FUT	FUTURE
G	GAS
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GB	GRADE BREAK
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
H/A	HAND-AUTOMATIC
HDPE	HIGH DENSITY POLYETHYLENE
H.H.W.L.	HIGH HIGH WATER LEVEL
HOA	HAND-OFF-AUTOMATIC
HORIZ.	HORIZONTAL
HP	HORSEPOWER
H.W.L.	HIGH WATER LEVEL
HZ	HERTZ
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCHES
INFL	INFLUENT
IRR	IRRIGATION
INV.	INVERT
JB	JUNCTION BOX
LBS	POUNDS
LBS/D	POUNDS PER DAY
LF	LINEAR FEET
LI	LEVEL INDICATOR
LP	LOW PRESSURE
LT	LEVEL TRANSDUCER
L.W.L.	LOW WATER LEVEL
MAX.	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MG/L	MILLIGRAMS PER LITER
MH	MANHOLE OR MAINTENANCE HOLE
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
NGVD	NATIONAL GEODETIC VERTICAL DATUM
N/C	NORMALLY CLOSED
N/O	NORMALLY OPEN
NTS	NOT TO SCALE
NWL	NORMAL WATER LEVEL
NPSH	NET POSITIVE SECTION HEAD
OC	ON CENTER
OD	OUTSIDE DIAMETER
PCC	PORTLAND CEMENT CONCRETE
PG	PRESSURE GAUGE
PI	POINT OF INTERSECTION
PLC	PROGRAMMABLE LOGIC CONTROLLER
PRC	POINT OF REVERSE CURVE
PRV	PRESSURE REGULATING (REDUCING) VALVE
PS	PRESSURE SWITCH, PIPE SUPPORT
P.S.	PUMP STATION
PSI	POUNDS PER SQUARE INCH
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
R	RADIUS
REF	REFERENCE
REQ'D	REQUIRED
RPM	REVOLUTIONS PER MINUTE
RW	RECLAIMED WATER
S	SLOPE
SCH.	SCHEDULE
SECT.	SECTION
SF.	SQUARE FEET
SHT.	SHEET
SPEC.	SPECIFICATION
SQ.	SQUARE
S. STL.	STAINLESS STEEL
ST	STREET
STA	STATION
T&B	TOP AND BOTTOM
TB	THRUST BLOCK
TC	TOP OF CURB
TBA	TO BE ABANDONED
TDH	TOTAL DYNAMIC HEAD
TEL	TELEPHONE
TG	TOP OF GRATE
TOS	TOP OF SLAB
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VAC	VOLTS ALTERNATING CURRENT
VERT.	VERTICAL
W	WATER
WAS	WASTE ACTIVATED SLUDGE
W.S.	WATER SURFACE
WWF	WELDED WIRE FABRIC

LEGEND

B / M6	DETAIL OR SECTION LETTER / SHEET WHERE DETAIL IS SHOWN
	PROPERTY BOUNDARY
	SETBACK
	EXISTING ACCESS ROAD
1555	EXISTING 5' CONTOUR
	EXISTING 1' CONTOUR
1555	PROPOSED 5' CONTOUR
	PROPOSED 1' CONTOUR
	PROPOSED FUTURE 5' CONTOUR
X X	EXISTING FENCE
X X	PROPOSED CHAINLINK FENCE
E	EXISTING UNDERGROUND ELECTRICAL CONDUIT
E	PROPOSED UNDERGROUND ELECTRICAL CONDUIT
W	EXISTING WATER LINE
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
XX	CONSTRUCTION NOTES INCL. FITTINGS, VALVES & MISC. EQUIPMENT (SEE THE SAME SHT.)
1	EQUIPMENT CALL OUT (SEE EQUIPMENT LIST)
	ASPHALT
	DECOMPOSED GRAVEL FILL
	CONCRETE
	BACKFILL
	ENGINEERED BACKFILL
	DEMO
	CONTROL PANEL
X / XX	DETAIL LETTER / SHEET #

CONCEPT PLANS - ISSUED FOR REVIEW

NO	BY	DATE	REVISIONS	DATE	APP.

PREPARED BY
DUNCAN S. LEE
PROJECT ENGINEER
R.C.E. NO. C#####
EXP. XX-XX-XX

DRAWN C.Z.
DESIGNED D.L.
CHECKED D.L.
SCALE AS NOTED
DATE MAY 2023

TITLE
ABBREVIATIONS AND SYMBOLS

JOB
VENTURA COUNTY PUBLIC WORKS AGENCY - WATERSHED PROTECTION
DIVERSION CONCEPT PLAN PER KB STUDY
VENTURA CA

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17520 Newhope Street, Suite 200 | Fountain Valley, CA 92708
P: (714) 481-7300 | www.pacewater.com

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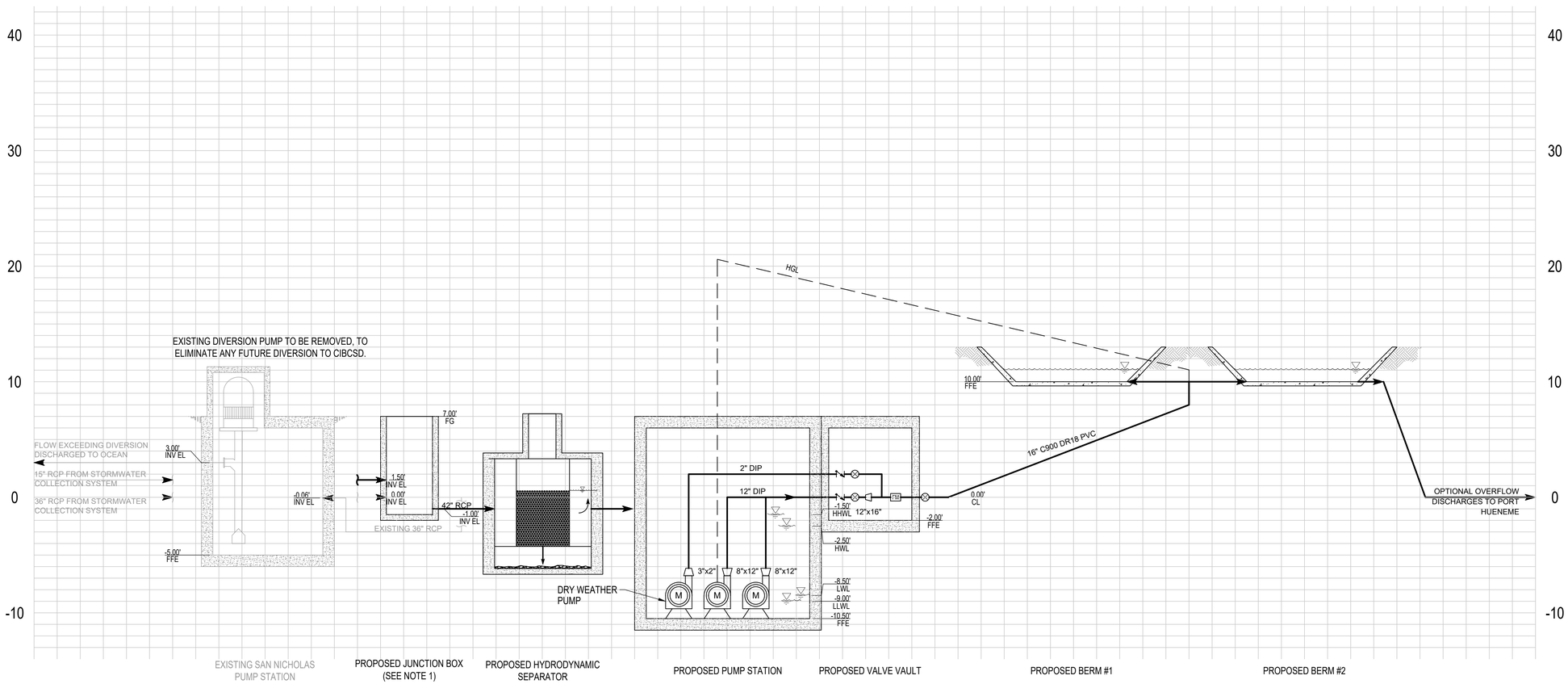

LEGEND

- VALVE
- FLOW METER
- CHECK VALVE
- REDUCER
- HYDRAULIC GRADE LINE
- PROPOSED PIPELINE
- EXISTING PIPELINE

HYDRAULIC PROFILE OPTION 1: DIVERT TO NAVY BERM

N.T.S.

NOTES:

1. PER KB STUDY, TWO HYDRODYNAMIC SEPARATORS WERE SHOWN WITHIN PRELIMINARY CONCEPT FIGURES. PENDING FURTHER DESIGN AND ANALYSIS OF LONG-TERM COST EFFECTIVENESS, FOR CONCEPT LEVEL DESIGN, PER REQUEST OF THE COUNTY, AN ALTERNATIVE JUNCTION STRUCTURE FOR THE TWO INLET PIPES IS SHOWN PRECEDING A SINGULAR HYDRODYNAMIC SEPARATOR FOR BOTH OPTIONS.
2. ALL ELEVATIONS ARE GENERATED FROM COUNTY PROVIDED RECORD DRAWINGS (NGVD 29).
3. NOTE THAT THE HGL REPRESENTS THE AVERAGE SLOPE OF MAJOR AND MINOR LOSSES ALONG PIPELINE.
4. DRY WEATHER DIVERSION LINE AT SAME ELEVATION AS 16" LINE. HYDRAULIC PROFILE SHOWS LINE SLIGHTLY HIGHER FOR SAKE OF CLARITY.

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DUNCAN S. LEE
PROJECT ENGINEER
R.C.E. NO. C######
EXP. XX-XX-XX

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SCALE AS NOTED
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CHECKED D.L.
DATE MAY 2023

TITLE
OPTION 1 HYDRAULIC PROFILE NAVY BERM

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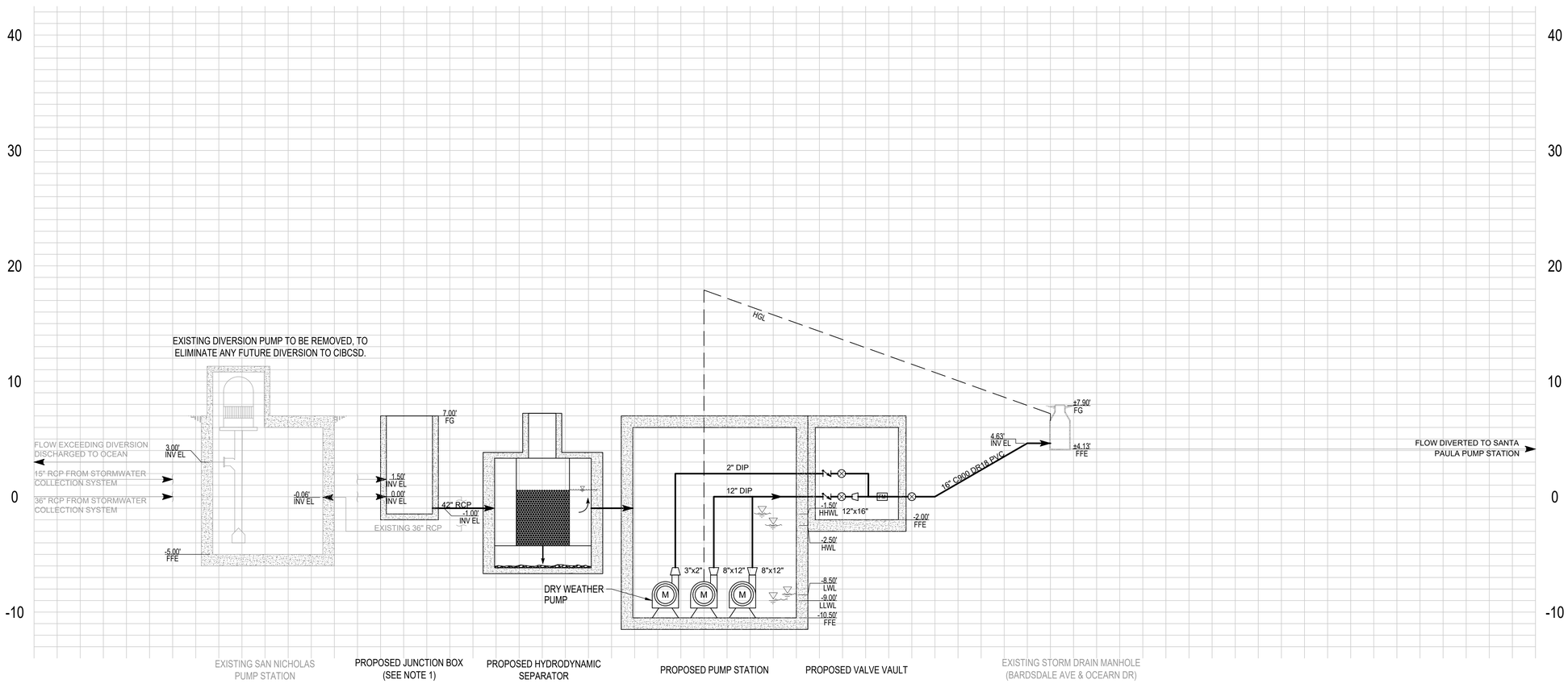

LEGEND

- VALVE
- FLOW METER
- CHECK VALVE
- REDUCER
- HYDRAULIC GRADE LINE
- PROPOSED PIPELINE
- EXISTING PIPELINE

HYDRAULIC PROFILE OPTION 2: DIVERT TO SANTA PAULA PUMP STATION

N.T.S.

NOTES:

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3. NOTE THAT THE HGL REPRESENTS THE AVERAGE SLOPE OF MAJOR AND MINOR LOSSES ALONG PIPELINE.
4. DRY WEATHER DIVERSION LINE AT SAME ELEVATION AS 16" LINE. HYDRAULIC PROFILE SHOWS LINE SLIGHTLY HIGHER FOR SAKE OF CLARITY.

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DUNCAN S. LEE
PROJECT ENGINEER
R.C.E. NO. C#####
EXP. XX-XX-XX

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SCALE AS NOTED
DESIGNED D.L.
CHECKED D.L.
DATE MAY 2023

TITLE
OPTION 2 HYDRAULIC PROFILE SANTA PAULA PUMP STATION

JOB
VENTURA COUNTY PUBLIC WORKS AGENCY - WATERSHED PROTECTION
DIVERSION CONCEPT PLAN PER KB STUDY
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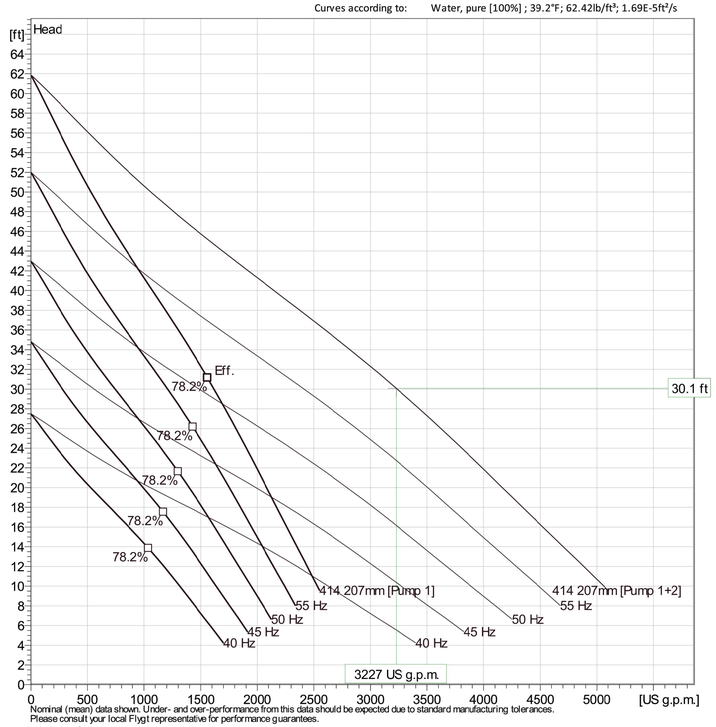
NP 3153 LT 3~ 414

Duty Analysis

Curves according to: Water, pure [100%] ; 39.2°F; 62.42lb/ft³; 1.69E-5ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Operating characteristics

Pumps / Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Spec. Energy	NPSHre
	US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
2 / 1	1610	30.1	15.7	3230	30.1	31.5	78.1 %	131	29.5
1 / 1	1930	23.3	15.5	1930	23.3	15.5	73.4 %	108	30.5

Project		**Created by**	Curtis Zimmerman		
Block	Xylect-20642730	**Created on**	5/30/2023	**Last update**	5/30/2023

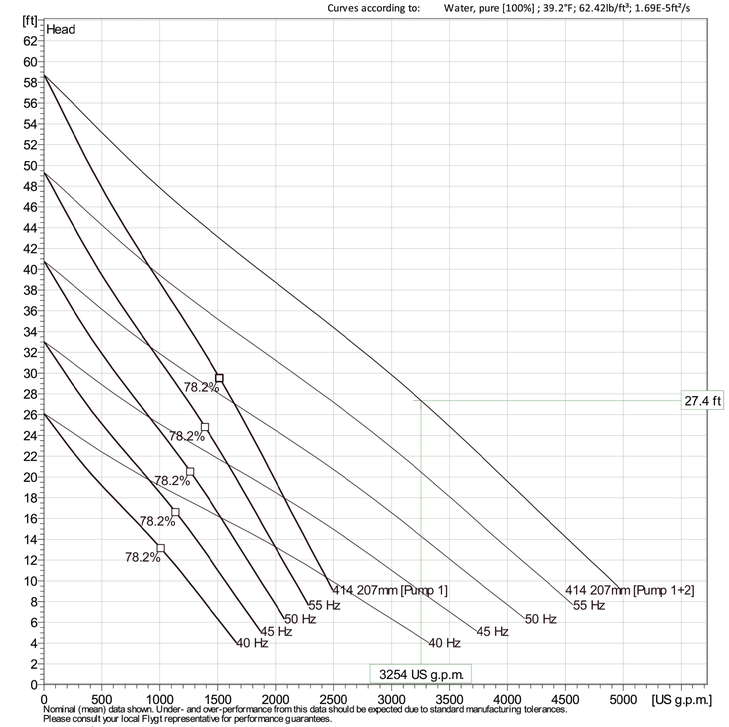
Program version: 68.0 - 4.21.0.23 (Build 149)
Data version: 5.22.2023 9:54 A5P5
User group(s): Xylem:USA - EXT

OPTION 1: DIVERT TO NAVY BERM PUMP SELECTION
(MOTOR NUMBER: N3153.820 21-18-4XS-W IE3 17HP)

NP 3153 LT 3~ 414

Duty Analysis

Curves according to: Water, pure [100%] ; 39.2°F; 62.42lb/ft³; 1.69E-5ft²/s



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Operating characteristics

Pumps / Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Spec. Energy	NPSHre
	US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
2 / 1	1630	27.4	14.5	3250	27.4	29	77.7 %	128	28
1 / 1	2060	18.2	14	2060	18.2	14	67.7 %	97.6	30.5

Project		**Created by**	Curtis Zimmerman		
Block	Xylect-20571648	**Created on**	5/16/2023	**Last update**	5/16/2023

Program version: 68.0 - 4.21.0.23 (Build 149)
Data version: 4.28.2023 9:04 A4P4
User group(s): Xylem:USA - EXT

OPTION 2: DIVERT TO SANTA PAULA PUMP STATION PUMP SELECTION
(MOTOR NUMBER: N3153.185 21-15-4AA-W 15HP)

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PREPARED BY
DUNCAN S. LEE
PROJECT ENGINEER
R.C.E. NO. C######
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TITLE: PUMP SELECTION BOTH OPTIONS

JOB: VENTURA COUNTY PUBLIC WORKS AGENCY - WATERSHED PROTECTION
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SHEET G3.2 OF -- SHEETS

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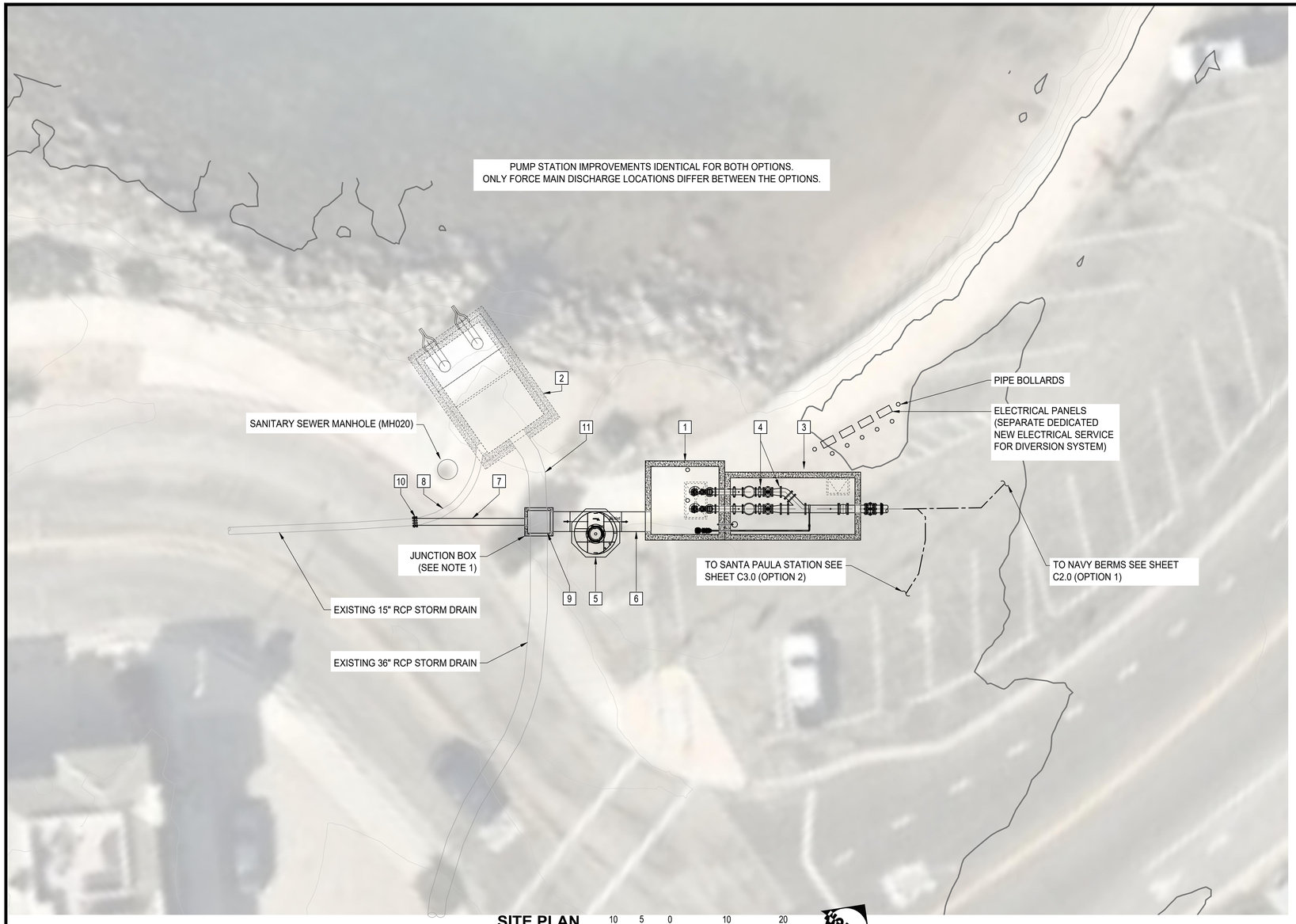

SITE PLAN

SCALE: 1" = 10'-0"

10 5 0 10 20

NORTH

CONSTRUCTION NOTES

1. INSTALL 12'L x 12'W x 16.5'D CAST IN PLACE WET WELL.
2. EXISTING SAN NICHOLAS STATION TO BE PROTECTED IN PLACE.
3. INSTALL 22'L x 10'W x 8'D CAST IN PLACE VALVE VAULT.
4. INSTALL PUMP STATION PROCESS EQUIPMENT PER SHEET M1.0.
5. INSTALL HYDRODYNAMIC SEPARATOR PER CONTECH, OR ENGINEER APPROVED EQUAL.
6. INSTALL 42" REINFORCED CONCRETE PIPE.
7. INSTALL 15" REINFORCED CONCRETE PIPE.
8. CAP BOTH ENDS OF EXISTING 15" PIPE DOWNSTREAM OF PROPOSED CONNECTION.
9. SAWCUT AND REMOVE EXISTING 36" REINFORCED CONCRETE PIPE WITHIN EXTENTS OF JUCTION BOX.
10. INSTALL 15" REPAIR COUPLING.
11. EXISTING 36" RCP LINE TO BE PROTECTED IN PLACE AFTER CONNECTION TO JUNCTION BOX.

LINE LEGEND

- EXISTING PIPELINE
- PROPOSED IMPROVEMENTS
- 1' CONTOURS
- 5' CONTOURS

NOTES:

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R.C.E. NO. C######
EXP. XX-XX-XX

DRAWN C.Z.
DESIGNED D.L.
CHECKED D.L.
SCALE AS NOTED
DATE MAY 2023

TITLE
SITE PLAN

JOB
VENTURA COUNTY PUBLIC WORKS
AGENCY - WATERSHED PROTECTION
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SHEET
C1.0
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Xrefs: B804-02_3Ik24v.dwg; B804-02_Civil1.dwg; B804-2.1_Topo.dwg; B804-2.1_Mech.dwg; B804-02_Pipe_Alignment.dwg; B804-02_Pipe_Alignment2.dwg
Dimscale = 24; LTscale = 1; PSltscale = 1; ACAD Ver = 23.0s (LMS Tech); Viewtain = 1
W:\B804\Engineering\B804-02 Kettle Beach Feasibility Study\sheets\B804-02 C1.0.dwg - Tab: C1.0 - by czimmerman on 07/26/23 at 4:55:53 PM

KIDDIE BEACH FORCE MAIN OPTION 1:

SCALE: 1"=50'-0"

50 25 0 50 100

NORTH

CONSTRUCTION NOTES

10 INSTALL 16" 11.25° DUCTILE IRON PIPE BEND (MJ x MJ).
11 INSTALL 16" 22.5° DUCTILE IRON PIPE BEND (MJ x MJ).
12 INSTALL 16" 45° DUCTILE IRON PIPE BEND (MJ x MJ).
13 INSTALL 16" DUCTILE IRON WYE PER DETAIL X, SHEET CX.X (MJ x MJ x MJ).
14 INSTALL PUSH ON JOINT. MAX DEFLECTION SHALL NOT EXCEED MANUFACTURER RECOMMENDATIONS.

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT
L1	56.12'	S42° 24' 50.13"E	N 1882650.55, E 6192998.25	N 1882609.12, E 6193036.10
L2	52.33'	S87° 24' 00.00"E	N 1882652.92, E 6192945.97	N 1882650.55, E 6192998.25
L3	18.50'	N47° 36' 06.76"E	N 1882640.45, E 6192932.31	N 1882652.92, E 6192945.97
L4	26.15'	N00° 48' 36.00"E	N 1882614.31, E 6192931.94	N 1882640.45, E 6192932.31
L5	68.30'	N44° 11' 24.00"W	N 1882565.34, E 6192979.55	N 1882614.31, E 6192931.94
L6	30.00'	N00° 48' 36.00"E	N 1882535.34, E 6192979.12	N 1882565.34, E 6192979.55
L7	17.55'	N45° 48' 36.00"E	N 1882523.11, E 6192966.54	N 1882535.34, E 6192979.12
L8	964.07'	S89° 11' 22.07"E	N 1882536.75, E 6192002.57	N 1882523.11, E 6192966.54
L9	6.44'	N30° 29' 51.90"E	N 1882531.20, E 6191999.30	N 1882536.75, E 6192002.57
L10	50.67'	N15° 41' 56.92"E	N 1882482.42, E 6191985.59	N 1882531.20, E 6191999.30
L11	13.87'	N60° 39' 49.52"E	N 1882475.63, E 6191973.50	N 1882482.42, E 6191985.59

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT
L12	52.33'	N02° 36' 13.52"E	N 1882652.92, E 6192945.97	N 1882705.20, E 6192948.35
L13	56.12'	N42° 22' 56.35"W	N 1882705.20, E 6192948.35	N 1882746.65, E 6192910.52

NO	BY	DATE	REVISIONS	DATE	APP.

PREPARED BY
DUNCAN S. LEE
PROJECT ENGINEER
R.C.E. NO. C#####
EXP. XX-XX-XX

DRAWN C.Z.
SCALE AS NOTED
DESIGNED D.L.
CHECKED D.L.
DATE MAY 2023

TITLE
OPTION 1 NAVY BERM PIPE ALIGNMENT

JOB
VENTURA COUNTY PUBLIC WORKS AGENCY - WATERSHED PROTECTION
DIVERSION CONCEPT PLAN PER KB STUDY
VENTURA CA

PACE
Advanced Water Engineering
17520 Newhope Street, Suite 200 | Fountain Valley, CA 92708
P: (714) 481-7300 | www.pacewater.com

SHEET
C2.0
OF -- SHEETS

JOB NO. B804

CONCEPT PLANS - ISSUED FOR REVIEW

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Xrefs: B804-02_3ftx3ft.dwg; B804-2.1_Mech.dwg; B804-2.1_Topo.dwg; B804-02_Civil.dwg; B804-02_Pipe_Alignment.dwg
Dimscale = 40; LTscale = 1; PSltscale = 1; ACAD Ver = 23.0s (LMS Tech); Viewtain = 1

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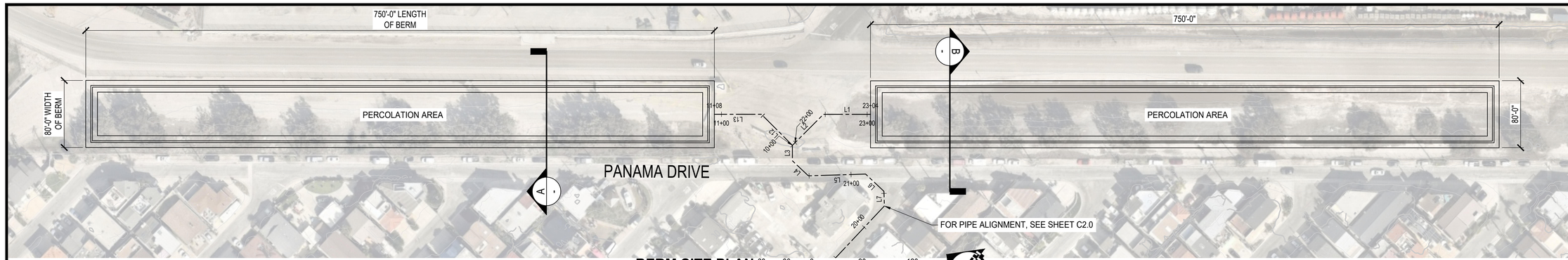
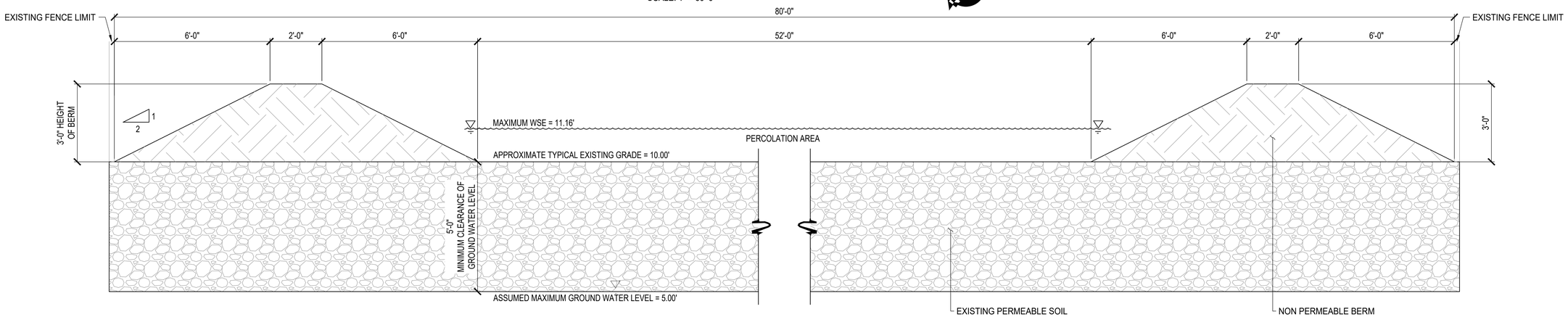


BERM SITE PLAN

SCALE: 1" = 60'-0"

60 30 0 60 120

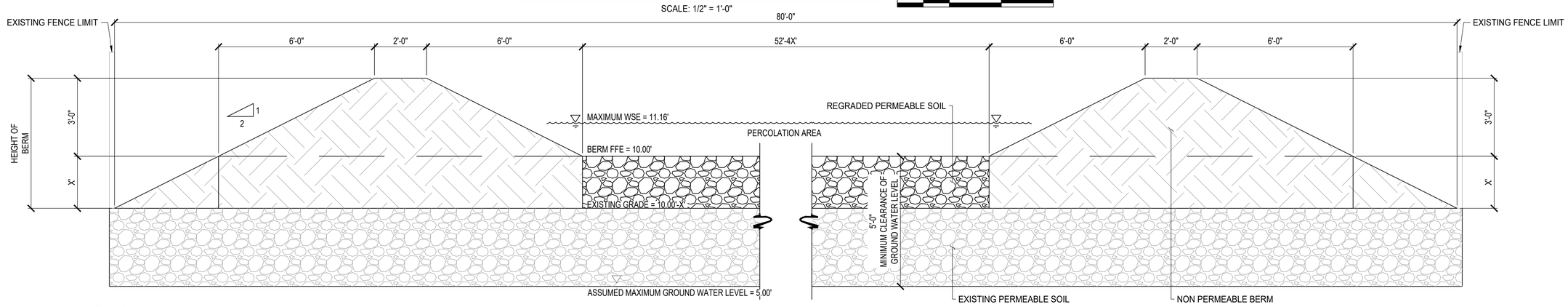
NORTH



SECTION: A - UNCHANGED NAVY SITE ELEVATION

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

2 1 0 2 4



SECTION: B - RAISED NAVY SITE ELEVATION

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

2 1 0 2 4

NOTES:

1. AVERAGE EXISTING GRADE ELEVATION ALONG PROPOSED LOCATIONS OF THE BERMS IS APPROXIMATELY 10'. PER KB STUDY, PERCOLATION WAS ASSUMED TO BE POSSIBLE AT AVERAGE EXISTING GRADE, WITH A 5' MINIMUM DISTANCE ABOVE GROUND WATER LEVEL. SEE **SECTION A** FOR TYPICAL SECTION OF EXISTING GRADE ELEVATIONS 10' AND HIGHER. ELEVATIONS MAY CHANGE IN LIEU OF TOPOGRAPHIC SURVEY AND GEOTECHNICAL INVESTIGATION.

2. EXISTING GRADE BELOW THE 10' AVERAGE WILL BE RAISED TO MATCH 10' ELEVATION SUCH THAT A MINIMUM OF 5' OF PERMEABLE SOIL IS ABOVE GROUND WATER LEVEL. SEE **SECTION B** FOR A TYPICAL SECTION OF THIS SCENARIO. NOTE THAT "X" REFERS TO THE DISTANCE BETWEEN THE EXISTING GRADE, AND THE REQUIRED 10' ELEVATION FOR EFFECTIVE PERCOLATION.

3. NOTE THAT FOR THE SCENARIO IN **SECTION B**, BERM HEIGHT NEEDS TO BE RAISED HIGHER THAN 3' FROM THE EXISTING GRADE. TO REMAIN WITHIN FENCE LIMITS, TOE TO TOE DISTANCE FOR PERCOLATION AREA WILL BE REDUCED 4 TIMES THE ELEVATION DIFFERENCE.

4. NOTE THAT VOLUME CONSTRAINTS RELATED TO HIGHER GROUND WATER LEVELS CAN BE ADDRESSED BY EXTENDING THE BERM LENGTHS OR ALLOWING HIGHER WATER LEVELS WITHIN THE PERCOLATION AREA. APPROXIMATELY 2' OF FREEBOARD WAS PURSUED FOR THIS CONCEPT DESIGN.

NO	BY	DATE	REVISIONS	DATE	APP.

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PREPARED BY
DUNCAN S. LEE
PROJECT ENGINEER
R.C.E. NO. C#####
EXP. XX-XX-XX

DRAWN C.Z. | SCALE AS NOTED
DESIGNED D.L.
CHECKED D.L. | DATE MAY 2023

TITLE: NAVY BERM PLAN AND SECTION

JOB: VENTURA COUNTY PUBLIC WORKS AGENCY - WATERSHED PROTECTION
DIVERSION CONCEPT PLAN PER KB STUDY
VENTURA CA

CONCEPT PLANS - ISSUED FOR REVIEW

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P: (714) 481 - 7300 | www.pacewater.com

SHEET C2.1 OF -- SHEETS

JOB NO. B804

Xrefs: B804-02_3Ds24v.dwg; B804-2.1_Mech.dwg; B804-2.1_Topo.dwg; B804-02_Civil1.dwg; B804-02_Pipe_Alignment.dwg
Dimscale = 40; LTscale = 1; PSltscale = 1; ACAD Ver = 23.0s (LMS Tech); Visretain = 1

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CONSTRUCTION NOTES

10 INSTALL 16" 11.25° PVC PIPE BEND (MJ x MJ).
11 INSTALL 16" 22.5° PVC PIPE BEND (MJ x MJ).
12 INSTALL 16" 45° PVC PIPE BEND (MJ x MJ).
13 NOT USED.
14 INSTALL PUSH ON JOINT. MAX DEFLECTION SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS

LINE TABLE

LINE #	LENGTH	DIRECTION	START POINT	END POINT
L1	2.60'	N61° 33' 46.49"E	N 1882475.70, E 6191973.43	N 1882476.94, E 6191975.72
L2	2.00'	S73° 24' 00.00"E	N 1882476.94, E 6191975.72	N 1882476.37, E 6191977.64
L3	4.08'	S28° 24' 00.00"E	N 1882476.37, E 6191977.64	N 1882472.78, E 6191979.57
L4	6.04'	N17° 09' 00.00"W	N 1882472.78, E 6191979.57	N 1882467.01, E 6191981.36
L5	152.59'	S04° 08' 24.00"W	N 1882467.01, E 6191981.36	N 1882314.82, E 6191970.34
L6	51.38'	S18° 21' 36.00"E	N 1882314.82, E 6191970.34	N 1882266.06, E 6191986.52
L7	150.96'	S32° 32' 35.39"E	N 1882266.06, E 6191986.52	N 1882138.81, E 6192067.73
L8	40.56'	S12° 27' 36.00"W	N 1882138.81, E 6192067.73	N 1882099.20, E 6192058.98
L9	490.68'	S57° 27' 24.61"W	N 1882099.20, E 6192058.98	N 1881835.24, E 6191645.34
L10	40.56'	S12° 27' 36.00"W	N 1881835.24, E 6191645.34	N 1881795.63, E 6191636.59
L11	119.66'	S32° 32' 24.00"E	N 1881795.63, E 6191636.59	N 1881694.76, E 6191700.95
L12	658.42'	S43° 08' 54.59"E	N 1881694.76, E 6191700.95	N 1881214.39, E 6192151.24

KIDDIE BEACH FORCE MAIN OPTION 2:

SCALE: 1"=50'-0"

50 25 0 50 100

NORTH

NO	BY	DATE	REVISIONS	DATE	APP.

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PREPARED BY
DUNCAN S. LEE
PROJECT ENGINEER
R.C.E. NO. C######
EXP. XX-XX-XX

DRAWN C.Z.
DESIGNED D.L.
CHECKED D.L.
SCALE AS NOTED
DATE MAY 2023

TITLE
OPTION 2 SANTA PAULA PIPE ALIGNMENT

JOB
VENTURA COUNTY PUBLIC WORKS AGENCY - WATERSHED PROTECTION
DIVERSION CONCEPT PLAN PER KB STUDY
VENTURA CA

CONCEPT PLANS - ISSUED FOR REVIEW

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JOB NO. B804

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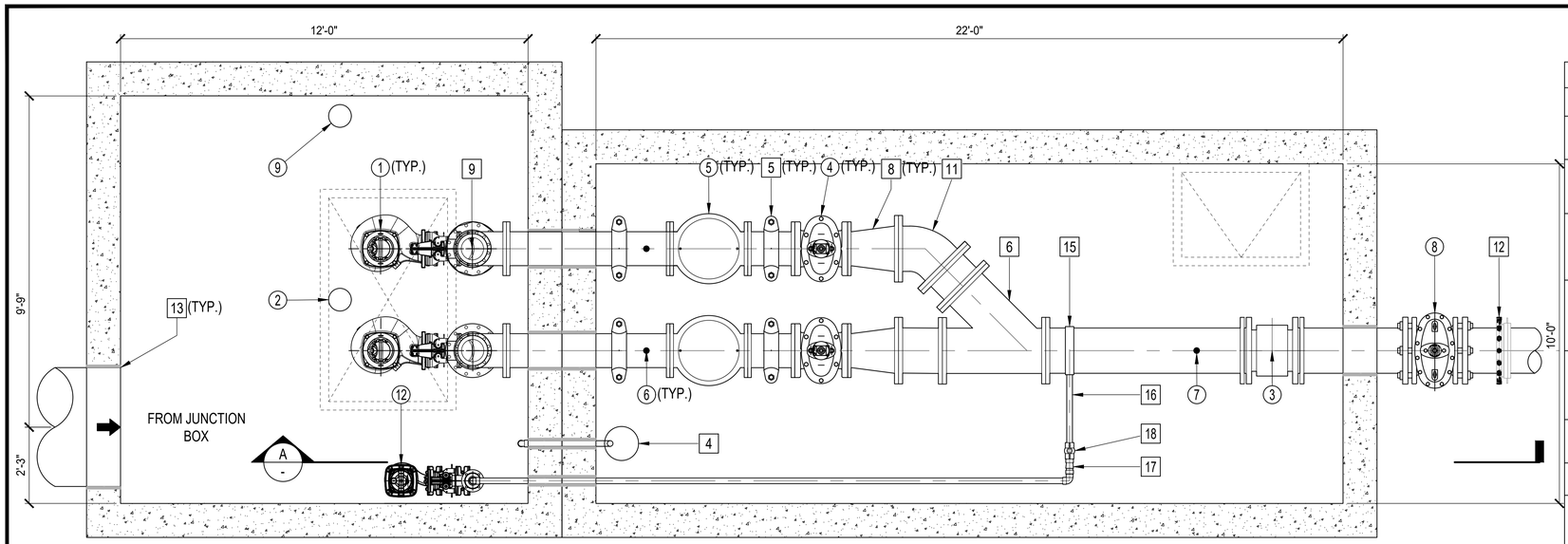
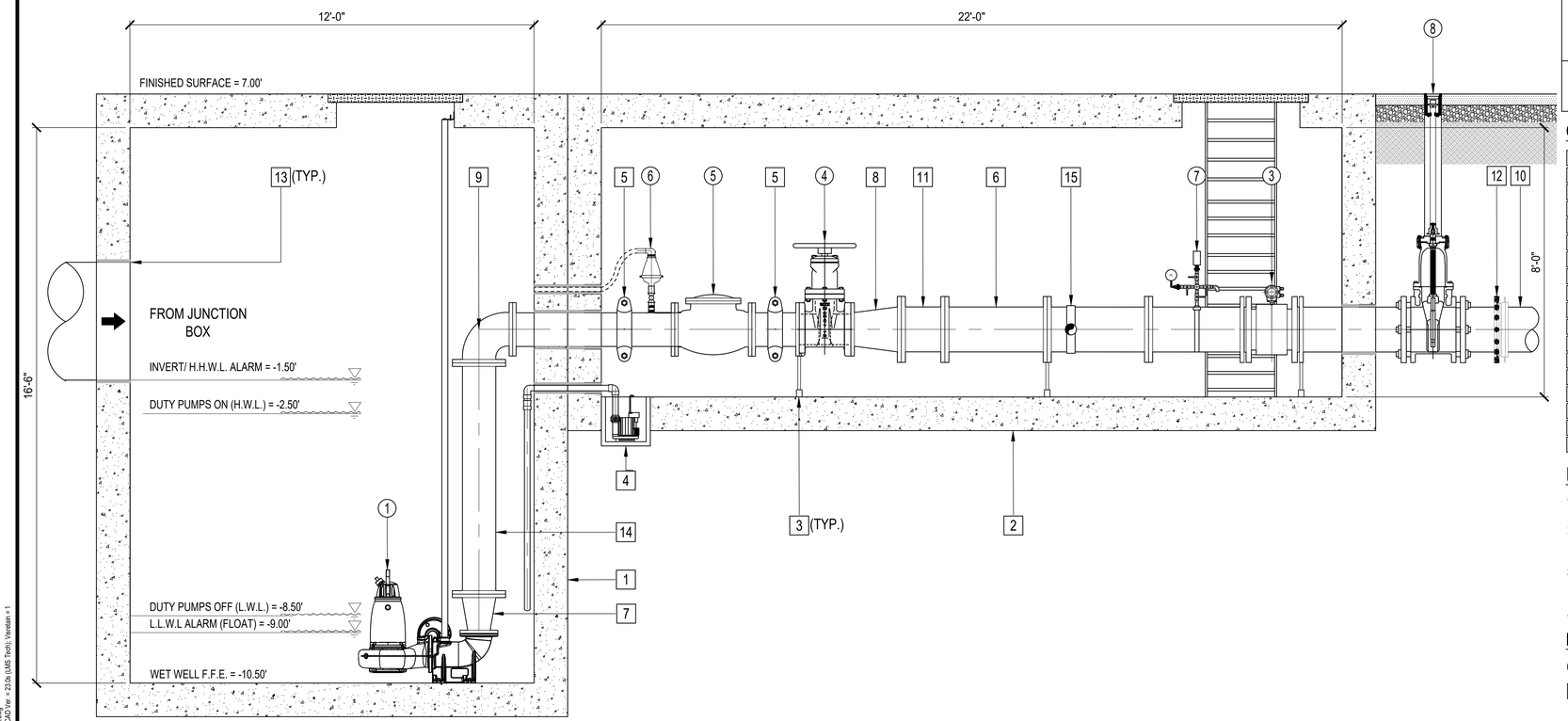
Xrefs: B804-02_3ftx24x.dwg; B804-02_Civil2.dwg; B804-2.1_Topo.dwg; B804-2.1_Mech.dwg; B804-02_Pipe_Alignment2.dwg
Dimscale = 24; LTscale = 1; PSltscale = 1; ACAD Ver. = 23.0s (LMS Tech); Vanstan = 1



MECHANICAL PLAN

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



SECTION: A

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

EQUIPMENT LIST

NO.	DESCRIPTION	Tag ID	MF'R	MODEL #	SPECIFICATION	QTY
1	SUBMERSIBLE PUMP	PMP-XXXXX, PMP-XXXXX	FLYGT	NP 3153 LT 3-414	1614 GPM at 30.1' of TDH 17 HP, 480 V, 18A, 3PH, 60HZ Submersible Pump w/ Guide Rail and Discharge Elbow Bracket	2
2	EMERGENCY CONTROL FLOAT SWITCH	LS- XXXXX, LS-XXXXX, LS-XXXXX, LS-XXXXX	CONERY	2900 SERIES	SPDT Polypropylene Mechanical Level Float, Non-Mercury, Explosion Proof, 316 Stainless Steel Hooks and Brackets Mounting Kit w/ Quick Connect Cables	4
3	ELECTROMAGNETIC FLOW METER	FE/FIT-XXXXX	TOSHIBA	LF620	16" Electromagnetic Flow Meter with Integral Transmitter, ANSI/ASME B16.5 Class 250 Flanged Connection, 120 VAC Power, 4-20 mA Output w/ Digital HART Protocol & Scalable Pulse	1
4	RESILIENT WEDGE GATE VALVE	V-XXXXX, V-XXXXX	MUELLER	A-2361	12" RWGV, ASME/ANSI B16.1 Class 250 Flanged Connection, Ductile Iron ANSI/AWWA C515, Triple O-ring Stuffing Box, Non-rising stem, 2" Square Wrench Nut with Handwheel, AWWA C550 Epoxy Coated	2
5	CHECK VALVE	CV-XXXXX, CV-XXXXX	VAL-MATIC	SWING-FLEX	12" Swing Check Valve w/ Mechanical Position Indicator, Ductile Iron ASTM A536 Grade 65-45-12 Body, ANSI/ASME B16.42 Class 250 Flanged Connection, Screw-Type Backflow Actuator, Epoxy Coated	2
6	NON SLAM COMBINATION AIR VALVE	ARV-XXXXX, ARV-XXXXX	A.R.I.	D-060	2" Ductile Iron Combination Air Valve w/ 316 Stainless Steel Non-Slam Disc, 2" Threaded NPT Connection, 3-230 psi	2
7	PRESSURE TRANSMITTER	PIT-XXXXX	E + H	CERABAR S	4-20 mA Output, 24 VDC Power 0.10% of Calibration Span Accuracy, LED Display	1
8	RESILIENT WEDGE GATE VALVE	V-XXXXX	MUELLER	A-2361	16" RWGV, ANSI/AWWA C111 Mechanical Joint Connection, Ductile Iron ANSI/AWWA C515, Triple O-ring Stuffing Box, Non-rising stem, 2" Square Wrench Nut with Wormgear Actuator, AWWA C550 Epoxy Coated	1
9	SUBMERSIBLE LEVEL TRANSDUCER	LT-XXXXX	E+H	FMB52	Hydrostatic Pressure Type Submersible Level Transducer w/ Intrinsically Safe Barrier, 316 Stainless Steel, 0-20 psi, 4-20 Ma Output	1
10	PLUG VALVE	V-XXXXX	DEZURIK	PEF	6" 100% Port Eccentric Plug Valve w/ Handwheel Actuator, Ductile Iron ASTM A536 Grade 65-45-12 Body, ANSI/ASME B16.42 Class 250 Flanged Connection, Epoxy Coated	1
11	CHECK VALVE	CV-XXXXX	VAL-MATIC	SWING-FLEX	6" Swing Check Valve w/ Mechanical Position Indicator, Ductile Iron ASTM A536 Grade 65-45-12 Body, ANSI/ASME B16.42 Class 250 Flanged Connection, Screw-Type Backflow Actuator, Epoxy Coated	1
12	SUBMERSIBLE PUMP	PMP-XXXXX	FLYGT	CONCERTOR DP N80-950	70 GPM at 23.5' of TDH 3 HP, 480 V, 18A, 3PH, 60HZ Submersible Pump w/ Guide Rail and Discharge Elbow Bracket	1

CONSTRUCTION NOTES

1. INSTALL 12' (W) x 12' (L) x 16.5' (D) CAST-IN-PLACE CONCRETE PUMP STATION PER STRUCTURAL.
2. INSTALL 10' (W) X 22' (L) X 8' (D) CAST-IN-PLACE CONCRETE VALVE VAULT PER STRUCTURAL.
3. INSTALL PIPE SUPPORT PER DETAIL X, SHEET MX.X.
4. INSTALL SUMP PUMP WITH REQUIRED PIPE AND FITTINGS.
5. INSTALL 12" VICTAULIC COUPLING.
6. INSTALL 16" x 16" x 16" DUCTILE IRON WYE (FLG x FLG x FLG).
7. INSTALL 8" x 12" DUCTILE IRON REDUCER (FLG x FLG).
8. INSTALL 12" x 16" REDUCER (FLG x FLG).
9. INSTALL 12" DUCTILE IRON 90° ELBOW (FLG x FLG).
10. INSTALL 16" C900 DR 18 PVC PIPE AND FITTINGS.
11. INSTALL 16" DUCTILE IRON 45° ELBOW (FLG x FLG).
12. INSTALL 16" FLANGE ADAPTER.
13. INSTALL PIPE PENETRATION PER DETAIL X, SHEET MX.X.
14. INSTALL 12" DUCTILE IRON PIPE.
15. INSTALL DUCTILE IRON SADDLE TAP.
16. INSTALL 2" PVC PIPE AND ASSOCIATED FITTINGS.
17. INSTALL 2" PVC SWING CHECK VALVE.
18. INSTALL 2" BALL VALVE.

NOTES:

1. CONTRACTOR SHALL PROVIDE SEISMIC ANCHORAGE CALCULATIONS FOR ALL EQUIPMENT.
2. CONTRACTOR SHALL COORDINATE & CONFIRM ALL ELEVATIONS PRIOR TO THE TEMPORARY SHUT DOWN OF THE EXISTING SYSTEM.
3. PUMP HORSEPOWER VARIES PER CONCEPT PLAN. REFER TO SHEET G3.2 FOR PUMP SELECTION PER CONCEPT. EQUIPMENT LIST SHOWING PUMP SELECTION FOR OPTION 1 NAVY BERM DIVERSION.
4. DRY WEATHER LINE CONNECTION NOT SHOWN IN SECTION FOR SIMPLICITY.

LEGEND:

(#) EQUIPMENT LIST CALL OUT

[#] CONSTRUCTION NOTE CALL OUT

CONCEPT PLANS - ISSUED FOR REVIEW

NO	BY	DATE	REVISIONS	DATE	APP.

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PREPARED BY
DUNCAN S. LEE
PROJECT ENGINEER
R.C.E. NO. C######
EXP. XX-XX-XX

DRAWN C.Z. | SCALE AS NOTED
DESIGNED D.L.
CHECKED D.L. | DATE MAY 2023

TITLE: BOTH OPTIONS MECHANICAL PLAN AND SECTION

JOB: VENTURA COUNTY PUBLIC WORKS AGENCY - WATERSHED PROTECTION
DIVERSION CONCEPT PLAN PER KB STUDY
VENTURA CA

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SHEET M1.0 OF -- SHEETS

JOB NO. B804

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Xrefs: B804-02_Site24x.dwg; B804-2.1_Mech.dwg
Dimscale = 24; LTscale = 1; PSltscale = 1; ACAD Ver. = 23.0s (LMS Tech); Viewtabs = 1

PLAN LEGEND

- EXPOSED CONDUIT
- EXISTING EXPOSED CONDUIT
- CONDUIT WITHIN CEILING, FLOOR, WALLS, OR UNDERGROUND
- EXIST. CONDUIT WITHIN CEILING, FLOOR, WALLS, OR UNDERGROUND
- GROUNDING ELECTRODE CONDUCTOR
- OHE — EXISTING OVERHEAD ELECTRIC
- CONDUIT BEND UP
- CONDUIT BEND DOWN
- FENCE
- FLOOR MOUNTED ETHERNET (10/100) OUTLET (RJ-45)
- TELEPHONE OUTLET (RJ-11)
- ETHERNET (10/100) OUTLET (RJ-45)
- COMBINATION TELEPHONE/ETHERNET (10/100) OUTLET (RJ-11 & RJ-45)
- 20 — 240V SIMPLEX RECEPTACLE (NUMBER DENOTES CIRCUIT AMPS)
- 20 — 480V SIMPLEX RECEPTACLE (NUMBER DENOTES CIRCUIT AMPS)
- 120V, 20A SIMPLEX RECEPTACLE
- 120V, 20A DUPLEX RECEPTACLE
- 120V, 20A QUADRAPLEX RECEPTACLE
- $ — 120V, 20A SPST SWITCH
- $M — MANUAL MOTOR STARTER
- $3 — 120V, 20A 3-WAY SWITCH
- $4 — 120V, 20A 4-WAY SWITCH
- AT — ANALYZER TRANSMITTER
- CS — CONDUCTIVITY SWITCH
- FS — FLOAT SWITCH
- J — ABOVE GROUND JUNCTION BOX
- LE — LEVEL ELEMENT
- LP — LEVEL PROBES
- LT — LEVEL TRANSPONDER
- PC — PHOTOCELL
- PS — PRESSURE SWITCH
- TS — TEMPERATURE SWITCH
- T — THERMOSTAT
- ZS — INTRUSION ALARM SWITCH
- JB — UNDERGROUND JUNCTION BOX
- MH — MANHOLE
- HH — HANDHOLE
- DISCONNECT SWITCH
- F — FUSED DISCONNECT SWITCH
- CB — ENCLOSED CIRCUIT BREAKER
- COMBINATION MOTOR STARTER
- MOTOR STARTER
- PUSHBUTTON CONTROL STATION
- CONDUIT SEAL-OFF FITTING
- S — SOLENOID VALVE (ENERGIZED TO CLOSE)
- S — SOLENOID VALVE (ENERGIZED TO OPEN)
- BUTTERFLY VALVE
- PLUG VALVE
- GATE VALVE
- H R — ALARM BEACON
- H — HORN

SINGLE LINE DIAGRAM AND SCHEMATIC LEGEND

- FIELD WIRING
- PANEL WIRING
- COMMUNICATIONS WIRING
- CABLE (MULTICONDUTOR SHIELDED)
- R — PILOT LIGHT (LETTER DENOTES COLOR)
- H R — PUSH-TO-TEST PILOT LIGHT (LETTER DENOTES COLOR)
- CR — CONTROL RELAY
- PRESSURE SWITCH (N.O.) CLOSES ON RISING LEVEL
- PRESSURE SWITCH (N.C.) OPENS ON RISING LEVEL
- (N.O.T.C) NORMALLY OPEN, TIMED CLOSED TIMING RELAY CONTACT
- (N.C.T.O) NORMALLY CLOSED, TIMED OPEN TIMING RELAY CONTACT
- (N.O.T.O.) NORMALLY OPEN, TIMED OPEN TIMING RELAY CONTACT
- (N.C.T.C.) NORMALLY CLOSED, TIMED CLOSED TIMING RELAY CONTACT
- FLOW SWITCH (N.O.) CLOSES ON RISING LEVEL
- FLOW SWITCH (N.C.) OPENS ON RISING LEVEL
- FLOAT SWITCH (N.C.) OPENS ON RISING LEVEL
- FLOAT SWITCH (N.O.) CLOSES ON RISING LEVEL
- LIMIT SWITCH (N.C.)
- LIMIT SWITCH (N.O.)
- LIMIT SWITCH (N.C.)
- LIMIT SWITCH (N.O.)
- TEMPERATURE SWITCH (N.C.) OPENS ON RISING LEVEL
- TEMPERATURE SWITCH (N.O.) CLOSES ON RISING LEVEL
- CIRCUIT BREAKER WITH DOOR OPERATED HANDLE, 3P, 480V, THERM MAG TRIP, UNO
- 3P, 480V MOLDED CASE CIRCUIT BREAKER WITH THERMAL MAG TRIP, UNO
- CONTACT (N.O.)
- CONTACT (N.C.)
- PUSHBUTTON (N.O.) MOMENTARY CLOSE
- PUSHBUTTON (N.C.) MOMENTARY OPEN
- 2-POSITION SELECTOR SWITCH
- H O A — 3-POSITION SELECTOR SWITCH (HAND-OFF-AUTO)
- LO STOP — LOCKOUT STOP PUSHBUTTON
- PUSH-PULL EMERGENCY STOP PUSHBUTTON
- DISCONNECT SWITCH (N.O.)
- DISCONNECT SWITCH (N.C.)
- EARTH GROUND CONNECTION
- GROUND ROD AND WELL
- OVERLOAD (ELECTRONIC TYPE)
- THERMAL OVERLOAD (BI-METALLIC)
- FUSED TERMINAL BLOCK
- NEU — NEUTRAL BUS
- GND — GROUND BUS
- H — HORN
- BUZZER
- TERMINAL BLOCK
- FIELD TERMINATION
- MLO — MAIN LUG ONLY
- POWER DISTRIBUTION BLOCK
- COIL/INDUCTOR
- POWER TRANSFORMER
- HEATER
- M — MOTOR STARTER CONTACTOR COIL
- ETM — ELAPSED TIME METER
- M — METER & CURRENT TRANSFORMER
- WHM — WATT HOUR METER AND SOCKET
- PFR — PHASE FAILURE RELAY
- TR XX — TIME DELAY RELAY
- LR XX — LATCHING RELAY
- CR XX — CONTROL RELAY
- ISR XX — INTRINSICALLY SAFE RELAY
- EDGE CONNECTORS
- INTERNAL CONTACT (N.O.)
- INTERNAL CONTACT (N.C.)
- BATTERY
- CAPACITOR
- SOLENOID
- RESISTOR
- DIODE
- MOV — METAL OXIDE VARISTOR
- INDICATING FUSE HOLDER AMPERE SIZE SHOWN
- S LA — LIGHTNING ARRESTER
- CXXXX — CONDUIT DESIGNATION C-CONTROL P-POWER
- EQUIPMENT TAG REFERENCE
- I/O POINT REFERENCE PLC, I/O RACK, OR ENUNCIATOR PANEL
- DRAWING REFERENCE
- LOCATION SYMBOL
- SHEET NOTE TAG
- EDGE CONNECTOR
- INSTRUMENTATION
- $ — PHOTOCELL AND TIME CLOCK
- CONDUIT STUB-UP AND CAP
- INV — ACTIVE HARMONIC FILTER
- EYS CONDUIT SEAL FILLED WITH EXPLOSION PROOF COMPOUND
- EYS CONDUIT SEAL FILLED WITH NON-EXPLOSION PROOF COMPOUND

ABBREVIATION LIST

A, AMP	AMPERES
AM	AMMETER
AC	ALTERNATING CURRENT
AIC	AMPS INTERRUPTING CAPACITY
BAT	BATTERY BC BATTERY CHARGER
C	COMMON
CB	CIRCUIT BREAKER
CNTL	CONTROL
CPT	CONTROL POWER TRANSFORMER
CP	CONTROL PANEL
CR	CONTROL RELAY
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT
DR	DUPLEX RECEPTACLE
(E)	EXISTING
EC	EDGE CONNECTOR
EF	EXHAUST FAN
ETM	ELAPSED TIME METER
F	FUSE
FB	FUSE BLOCK
(F)	FUTURE
FLTR	FILTER
FS	FLOAT SWITCH
FVNR	FULL VOLTAGE NON REVERSING
FVR	FULL VOLTAGE REVERSING
G, GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HPS	HIGH PRESSURE SODIUM
HS	HAND SWITCH
ICP	INSTRUMENTATION CONTROL PANEL
ISR	INTRINSICALLY SAFE RELAY
I, IND	INDICATOR
INST	INSTANTANEOUS
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
LED	LIGHT EMITTING DIODE
LCD	LIQUID CRYSTAL DISPLAY
LA	LIGHTNING ARRESTER
LCP	LOCAL CONTROL PANEL
LPU	LIGHTNING PROTECTION UNIT
LOS	LOCK OUT STOP
LR	LATCH RELAY
LS	LOAD SPLITTER
MA	MILLIAMPERES
MB	MAIN BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MOT	MOTOR OVERTEMPERATURE
MMS	MOTOR MOISTURE SENSOR
MS	MOTOR STARTER
N	NEUTRAL
NA	NON AUTOMATIC
(N)	NEW
N.I.C.	NOT IN CONTRACT
NP	NAMEPLATE
OT	OVERTEMPERATURE
O/L	OVERLOAD DEVICE
PB	PUSHBUTTON
PCB	PRINTED CIRCUIT BOARD
PC	PROGRAMMABLE CONTROLLER
PLC	PROGRAMMABLE LOGIC CONTROLLER
PL-1	PILOT LIGHT 1
PFR	PHASE/POWER FAIL RELAY
PNL	PANEL
POT	POTENTIOMETER
PPM	POWER PHASE MONITOR
PR	PAIR CABLE
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PTT	PUSH TO TEST
PVC	POLYVINYL CHLORIDE
PWR	POWER
RR	RUN RELAY
RV	REDUCED VOLTAGE
RVAT	REDUCED VOLTAGE AUTO-TRANSFORMER
SSS	SOLID-STATE STARTER
SR	SIMPLEX RECEPTACLE
SS	SELECTOR SWITCH, SOFT STARTER
SP	SURGE PROTECTOR
SPD	SURGE PROTECTOR DEVICE
SV	SOLENOID VALVE
SWBD	SWITCHBOARD
TB	TERMINAL BLOCK
TR	TIME DELAY RELAY
TC	TIMECLOCK
TM	THERMAL MAGNETIC
TS	TEMPERATURE SWITCH
TSP	TWISTED SHIELDED PAIR
TWP	TWISTED PAIR
TYP	TYPICAL
UG	UNDERGROUND
V	VOLTS, VOLTAGE
VM	VOLTMETER
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
TR,XFMR	TRANSFORMER
XP	EXPLOSION PROOF
XMITR	TRANSMITTER/TRANSPONDER

CONCEPT PLANS - ISSUED FOR REVIEW

NO	BY	DATE	REVISIONS	DATE	APP.

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PREPARED BY
CHRIS NAJARIAN
PROJECT ENGINEER
R.E.E. NO. E22545
EXP. 12-31-24

DRAWN C.Z. | SCALE AS NOTED
DESIGNED G.T.
CHECKED C.N. | DATE MAY 2023

TITLE: ELECTRICAL LEGEND & ABBREVIATIONS

JOB: VENTURA COUNTY PUBLIC WORKS AGENCY - WATERSHED PROTECTION
DIVERSION CONCEPT PLAN PER KB STUDY
VENTURA CA

PACE
Advanced Water Engineering
17520 Newhope Street, Suite 200 | Fountain Valley, CA 92708
P: (714) 481-7300 | www.pacewater.com

SHEET E0.0
OF -- SHEETS
JOB NO. B804

Xrefs: B804-02_36x24v ELECTRICAL.dwg
Dimscale = 24(LTscale = 1; PSltscale = 1; ACAD Ver. = 23.0s (LMS Tech); Viewtem = 1

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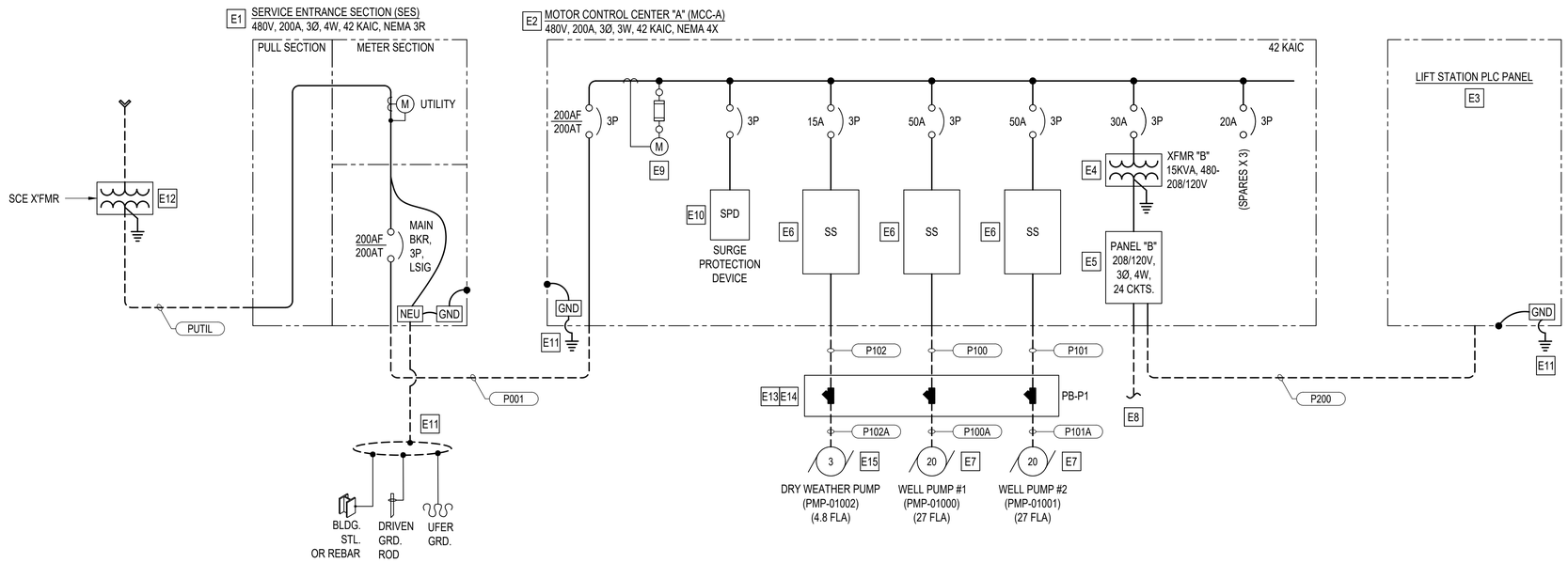

SINGLE LINE DIAGRAM
NTS

CONSTRUCTION NOTES:

- E1 SERVICE ENTRANCE SECTION (SES), 480V, 200A, 3 PHASE, 4 WIRE, NEMA 3R, 42KAIC.
- E2 MOTOR CONTROL CENTER "A", 480V, 200A, 200A MAIN CIRCUIT BREAKER, 3 PHASE, 3 WIRE, 42 KAIC, NEMA 4X, TYPE EATON FREEDOM OR APPROVED EQUAL.
- E3 LIFT STATION PLC PANEL, STAINLESS STEEL, HEAVY DUTY, FREESTANDING, NEMA 4X, DOUBLE DOOR, TYPE HOFFMAN OR APPROVED EQUAL.
- E4 15 KVA DRY TYPE TRANSFORMER "B", 480-208/120V, 3 PHASE, 4 WIRE, WITH PRIMARY AND SECONDARY CIRCUIT PROTECTION, #8 INSULATED GROUND TO GROUND BUS, MOUNTED IN MCC.
- E5 PANELBOARD 'B', 208/120V, 3 PHASE, 4 WIRE, 24 CIRCUITS, 100 AMP FRAME, 60 AMP MAIN BREAKER, MOUNTED IN MCC.
- E6 COMBINATION SOFT STARTER, 20HP, 480V, 3 PHASE, 3 WIRE, W/ DISCONNECT SWITCH AND OVERLOAD PROTECTION, SOFT STARTER TYPE EATON DS7-340SX024N0-L OR APPROVED EQUAL.
- E7 SUBMERSIBLE LIFT STATION PUMPS "PMP-01000" AND "PMP-01001", 460V, 3 PHASE, 3 WIRE, TYPE FLYGT NP 3153 LT 3 (SEE GENERAL/MECH SHEETS FOR PUMP OPTIONS) OR APPROVED EQUAL.
- E8 CONDUIT SCHEDULE, PLAN LAYOUTS, AND PANEL LOAD FOR ADDITIONAL CIRCUITS NOT SHOWN ON THIS DIAGRAM (TO BE INCLUDED IN FUTURE).
- E9 POWER QUALITY METER, ETHERNET, TYPE EATON POWER XPERT PXM OR ENGINEER APPROVED EQUAL.
- E10 INSTALL SURGE PROTECTIVE DEVICE AND SIZE SPD FEEDER PER MANUFACTURER SPECIFICATIONS, MINIMUM 100 KA PER PHASE.
- E11 GROUND AND BOND EQUIPMENT OR ENCLOSURE PER DETAILS AND GROUNDING PLAN.
- E12 CONTRACTOR TO COORDINATE WITH SCE THE INSTALLATION OF UTILITY TRANSFORMER AND CABLES/CONDUITS LEADING TO SERVICE ENTRANCE. COORDINATE ALL PERMITTING AND PLANS AS NECESSARY.
- E13 UNDERGROUND CONCRETE PULLBOX, LOCKABLE, H-20 RATED, SIZE 24" L x 24" W x 30" D MINIMUM. PROVIDE CONDUIT SEALS w/COMPOUND INSIDE PULLBOX.
- E14 CONDUIT SEALS SHALL BE INSTALLED ON ALL UNDERGROUND CONDUIT RUNS TO THE WET WELL PER NEC 501.15.
- E15 SUBMERSIBLE LIFT STATION PUMPS "PMP-01002", 460V, 3 PHASE, 3 WIRE, TYPE FLYGT CONCERTOR XPC N80-750 (SEE GENERAL/MECH SHEETS FOR PUMP OPTIONS) OR APPROVED EQUAL.

NOTES:

1. NOT ALL EQUIPMENT AND WIRING ARE SHOWN ON THIS DIAGRAM. REFERENCE DRAWINGS IN THE ELECTRICAL SET AND ENTIRE PROJECT TO COMPLETELY UNDERSTAND THE SCOPE OF ELECTRICAL WORK.
2. DRAWINGS ARE DIAGRAMMATIC AND DO NOT REFLECT ACTUAL ROUTING. CONTRACTOR SHALL INSTALL PULLPOINTS WHERE REQUIRED FOR PULLING TENSION AND MAINTAINING LESS THEN (4) 90 DEGREE BENDS.
3. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND NOTIFY THE ENGINEER AND THE COUNTY OF ANY DISCREPANCIES FOUND.
4. ALL EQUIPMENT AND WIRING METHODS SHALL BE RATED FOR CORROSIVE LOCATIONS. EXPOSED CONDUIT SHALL BE PVC COATED RIGID GALVANIZED STEEL. EXPOSED EQUIPMENT SHALL BE NEMA 4X CORROSION RESISTANT (PVC COATED OR STAINLESS STEEL) U.N.O.
5. CONTRACTOR SHALL PERFORM SAFE WORK IN ACCORDANCE WITH CAL/OSHA AND NFPA 70E STANDARDS.
6. WHEN REQUIRED CONTRACTOR SHALL PROVIDE STRUCTURAL DESIGN CALCULATIONS FOR MOUNTING AND ANCHORING OF FABRICATED ASSEMBLIES AND SUPPORT STRUCTURES, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER (CIVIL/STRUCTURAL) CURRENTLY LICENSED IN THE SAME STATE AS THE FINAL INSTALLATION. CALCULATIONS SHALL INCLUDE SEISMIC CONSIDERATIONS FOR THE LOCATION OF INSTALLATION.

BUS BRACING CALCULATION (WORST CASE SCENARIO)
MAIN CIRCUIT BREAKER - 200 AMPS

ASSUME 225 KVA UTILITY TRANSFORMER

FROM EATON, SHORT CIRCUIT CALCULATIONS, TABLE 1 - 225KVA TRANSFORMER EQUALS 25,088 SHORT CIRCUIT AMPS.

ADD MOTOR CONTRIBUTION

25,088 + 4 x 548.8= 25,323.2 AMPS

ADD 10% FOR VOLTAGE FLUCTUATIONS.

25,323.2 x 1.10 = 27,855.52 AMPS

BUS BRACING SHALL BE 42 KAIC

MOTOR CONTROL CENTER "A" (MCC-A) (MAIN BREAKER 200 AMPS @ 480V)		
LOAD DESCRIPTION	HP	ACTIVE AMPS @ 480V
PUMP #1 (PMP-01000)	20	27
PUMP #2 (PMP-01001)	20	27
DRY WEATHER PUMP (PUMP-01003)	3	4.8
XFMR-B 15KVA (MAX LOAD)	-	18.1
SUBTOTAL	43	76.9
25% LARGEST MOTOR LOAD	-	6.75
GRAND TOTAL (AMPS)	-	83.65

POWER CONDUIT & WIRE SCHEDULE						
CONDUIT		WIRE		FROM	TO	REMARKS
NO.	SIZE	POWER	GROUND			
PUTIL	TBD	TBD	TBD	UTILITY TRANSFORMER	SES	PER UTILITY COMPANY
P001	3"	3 - #4/0	1 - #4	SES	MCC-A	
P100	2"	3 - #8	1 - #8	SOFT STARTER - SUBMERSIBLE PUMP #1 (PMP-01000)	PULLBOX "PB-P1"	SOFT STARTER MOUNTED IN MCC-A
P100A	2"	FACT. CBL.		PULLBOX "PB-P1"	SUBMERSIBLE PUMP #1 (PMP-01000)	2 CONDUCTORS INCLUDED IN FACT. CBL. FOR TEMP/SEAL SENSORS
P101	2"	3 - #8	1 - #8	SOFT STARTER - SUBMERSIBLE PUMP #2 (PMP-01001)	PULLBOX "PB-P1"	SOFT STARTER MOUNTED IN MCC-A
P101A	2"	FACT. CBL.		PULLBOX "PB-P1"	SUBMERSIBLE PUMP #2 (PMP-01001)	2 CONDUCTORS INCLUDED IN FACT. CBL. FOR TEMP/SEAL SENSORS
P200	1"	2 - #12	1 - #12	PANEL-B CKT. (B-1)	LIFT STATION PLC	PANEL-B MOUNTED IN MCC-A

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TITLE
SINGLE LINE DIAGRAM

JOB
VENTURA COUNTY PUBLIC WORKS AGENCY - WATERSHED PROTECTION
DIVERSION CONCEPT PLAN PER KB STUDY
VENTURA CA

CONCEPT PLANS - ISSUED FOR REVIEW

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INSTRUMENT IDENTIFICATION LETTERS (FSS)

	FIRST – LETTER (F)		SUCCEEDING – LETTERS (SS)		
	MEASURED OF INITIATING VARIABLE	MODIFIER	READOUT PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROLLER	
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR, PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAUGE, GENERAL		GLASS VIEWING DEVICE		
H	HAND				HIGH, OPENED
I	CURRENT (ELEC.)		INDICATING, INDICATOR		
J	POWER		SCAN		
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW, CLOSED
M	MOISTURE, MOTION	MOMENTARY			MIDDLE
N	INTRUSION, STATUS	MOMENTARY	STATUS	USER'S CHOICE	USER'S CHOICE
O	OPERATOR, TORQUE		ORIFICE, RESTRICTION		USER'S CHOICE
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RESET, RADIATION		RECORD OR PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	SLOW
T	TEMPERATURE			TRANSDUCER, TRANSMITTER	TEST
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECH. ANALYSIS			VALVE, DAMPER LOUVER	
W	WEIGHT, FORCE		WELL		
X	SWITCH	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y AXIS	UNCLASSIFIED	RELAY, COMPUTE, CONVERT	
Z	POSITION DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

LINE NUMBERING

00" – INFLT – 001 (EXAMPLE)

- 001 – SEQUENTIAL LINE NO.
- INFLT – FLUID CODE
- 00" – NOMINAL LINE SIZE

EQUIPMENT NUMBERING

F SS – PP T NN (EXAMPLE)

- NN – ITEM NUMBER
- T – SERIES (TRAIN) LOCATION
- PP – PROCESS LOCATION
- SS – SUCCEEDING LETTERS (INSTRUMENT ID)
- F – FIRST LETTER (INSTRUMENT ID)

EXAMPLE:
LT-03121 = RAS/WAS PUMP STATION LEVEL TRANSDUCER #1

PROCESS LOCATION (PP)	
00	MISCELLANEOUS
01	BOOSTER PUMP STATION

SERIES LOCATION (TT)	
0	SHEET 0
1	SHEET 1
2	SHEET 2
3	SHEET 3
4	SHEET 4
5	SHEET 5
6	SHEET 6
7	SHEET 7

FLUID CODE ABBREVIATION	
2W	POTABLE WATER
3W	PLANT WATER
BP	BYPASS
BW	BACKWASH
CDS	CHEMICAL DOSING
CMPR	COMPRESSOR/CMPRSD AIR
CNTRT	CENTRATE
CVR	CONVEYOR
EFFLT	EFFLUENT
EXH	EXHAUST/EXHAUST FAN
FA	FOUL AIR
FLTRT	FILTRATE
FW	FILTERED WATER
INFLT	INFLUENT
MLSS	MIX LIQUOR
OVRFL	OVERFLOW
PA	PROCESS AIR
PRMT	PERMEATE
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RECYC	RECYCLE
RNS	RINSE
RW	RAW WATER
SECPR	SECONDARY PROCESS
SD	SLUDGE DISCHARGE
SPNAT	SUPERNATANT
SWR	SEWER
TERT	TERTIARY
WAS	WASTE ACTIVATED SLUDGE
WTR	WATER
WW	WASTE WATER

EQUIPMENT NUMBERS	
EQUIPMENT ABBREVIATIONS	# STARTING AT
PUMPS (PMP)	00–09
MOTORS (M/MXR/BLR)	10–19
VALVES (MV/V/SV)	20–29
LEVEL INST (LT/LS)	30–39
FLOW INST (FT/FS/FE/FIT)	40–49
PRESSURE INST (PT/PS/PG)	50–59
ANALYTICAL (AT)	60–69
MISCELLANEOUS (MISC)	70–79
BUBBLE DIFFUSER (BD)	80–89

LINE CODES

- MAJOR PROCESS LINE
- MINOR PROCESS LINE
- AIR
- ELECTRICAL
- PLC TO SCADA COMMUNICATION
- AUTO-DIALER AND PRIORITY LEVEL
- 00"-XXX — LINE SIZE & NUMBER
- DESCRIPTION 1 / DESCRIPTION 2 / REF SHT IXX.X — PROCESS CONTINUATION WITHIN SCOPE
- SENSOR OR CONTROL

INSTRUMENT NUMBERING

FSS / NPPNNN / XX

- FSS – FIRST LETTER (INSTRUMENT ID), SUCCEEDING LETTERS (INSTRUMENT ID)
- XX – DEVICE FUNCTION
- NPPNNN – EQUIPMENT NUMBER

LINE NUMBER GROUPS

000	OVERFLOW/ BYPASS/ DRAIN/ SUPERNATANT
100	INFLUENT/ MIX LIQUOR/ SECONDARY EFFLUENT / EFFLUENT
200	TERTIARY/ REUSE WATER/ BACKWASH/ RECYCLE WATER
300	PERMEATE/ FILTRATE/ CENTRATE
400	PROCESS AIR
500	CHEMICAL DOSING/ POLYMER
600	FOUL AIR
700	WATER/ TREATED WATER/ FILTERED WATER
800	RAS/ SOLIDS
900	WAS/ SCUM/ WASTE WATER/ RAW WATER

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

	FIELD MOUNTED	PRIMARY LOCATION ACCESSIBLE TO OPERATOR	PRIMARY LOCATION INACCESSIBLE TO OPERATOR	AUXILIARY LOCATION ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS				
SHARED DISPLAY SHARED CONTROL				
COMPUTER FUNCTION				
PROGRAMMABLE LOGIC CONTROL				

HARDWARE INTERLOCK

DCS "SOFT" INTERLOCK

VALVE SYMBOLS

NC NO

- GATE VALVE
- GATE VALVE
- BALL VALVE
- DIAPHRAGM VALVE
- PLUG VALVE
- Pinch VALVE
- 3-WAY BALL VALVE
- NEEDLE VALVE
- MUD VALVE
- FLANGED BUTTERFLY VALVE
- WAFER/LUGGED BUTTERFLY VALVE
- CHECK VALVE
- DOUBLE LEAF CHECK VALVE
- WEIR GATE/TELESCOPE VALVE

VALVE ACTUATORS

- DIAPHRAGM ACTUATOR
- MOTOR ACTUATOR
- SOLENOID ACTUATOR
- CYLINDER ACTUATOR
- LEVER
- HAND WHEEL
- CHAIN WHEEL

RELIEF DEVICES

- AIR/PRESSURE RELIEF
- VACUUM RELIEF
- RUPTURE DISK FOR PRESSURE RELIEF
- RUPTURE DISK FOR VACUUM RELIEF

REGULATORS

- PRESSURE REDUCING
- BACK PRESSURE
- REGULATOR WITH EXTERNAL PILOT
- DIFFERENTIAL PRESSURE

PIPING SYMBOLS

- Y STRAINER
- BLIND FLANGE
- PRESSURE DIAPHRAGM SEAL
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- EDUCTOR
- WELDED CAP
- WELDED PIPE END
- SCREWED CAP
- FLEXIBLE LINE
- CAMLOCK FITTING
- UNION
- SPECTACLE BLIND
- EXPANSION JOINT
- TIE-IN POINT
- AIR RELIEF VALVE

MECHANICAL EQUIPMENT

- METERING PUMP
- CENTRIFUGAL PUMP OR BLOWER
- SUBMERSIBLE PUMP
- TURBINE PUMP
- ROTARY BLOWER
- MIXER
- PROGRESSIVE CAVITY PUMP
- AERATOR
- EXHAUST FAN
- DECANTER
- POSITIVE DISPLACEMENT PUMP
- ULTRA SONIC LEVEL TRANSMITTER
- CHEMICAL INJECTOR OR STATIC MIXER
- FLOW METER
- VENTURI
- VORTEX SHEDDING
- SONIC

NOTE: ALL PRESSURE GAUGES AND OTHER SMALL PROCESS MECHANICAL INSTRUMENT EQUIPMENT SHALL BE SUPPLIED WITH ISOLATION VALVES AND ADDITIONAL APPURTENANCES (E.G. PRESSURE PULSATION DAMPENERS/SNUBBERS) AS REQUIRED FOR PROPER OPERATION

ABBREVIATIONS

ACP	ACCESS CONTROL PANEL	OCA	OPEN–CLOSE–AUTO
AE	ANALYTICAL SENSOR	OCR	OPEN–CLOSE–REMOTE
AI	ANALOG INPUT	OIT	OPERATOR INTERFACE TERMINAL
AIT	ANALYTICAL INDICATOR TRANSMITTER	OO	ON/OFF (MAINTAINED)
AMP	AMPERE	OOA	ON–OFF–AUTO
AO	ANALOG OUTPUT	OOR	ON–OFF–REMOTE
AT	ANALYTICAL TRANSMITTER	OSC	OPEN–STOP–CLOSE
ATS	AUTOMATIC TRANSFER SWITCH	PE	PRESSURE SENSOR
BLR	BLOWER	PG	PRESSURE GAUGE
CB	CIRCUIT BREAKER	PH	POTENTIAL OF HYDROGEN
CBD	COARSE BUBBLE DIFFUSER	PI	PRESSURE INDICATOR / PULSE INPUT
CE	CONDUCTIVITY SENSOR (TDS)	PID	PROPORTIONAL–INTEGRAL–DERIVATIVE
CFR	CHEMICAL FEEDER	PIT	PRESSURE INDICATOR TRANSMITTER
CG	COMBUSTIBLE GASES	PLC	PROGRAMMABLE LOGIC CONTROLLER
CHV	CHECK VALVE	PMP	PUMP
CL2	CHLORINE	PNL	PANEL
CMP	COMPACTOR	PO	PULSE OUTPUT
CON	CONVEYOR	PPG	POUNDS PER GALLON
CWC	COMPACTOR/WASHER/CONVEYOR	PPH	POUNDS PER HOUR
DCS	DISTRIBUTED CONTROL SYSTEM	PPM	PARTS PER MILLION
DI	DIGITAL INPUT	PRESS	PRESSURE
DO	DISSOLVED OXYGEN / DIGITAL OUTPUT	PRV	PRESSURE RELIEF OR REDUCING VALVE
DRY	BIOSOLIDS DRYER	PSH	PRESSURE SWITCH HIGH
DSS	DISTRIBUTION SWITCHBOARD SECTION	PSI	POUNDS PER SQUARE INCH
DWG	DRAWING	PSL	PRESSURE SWITCH LOW
EDT	EDUCTOR TUBE	PT	PRESSURE TRANSMITTER
ETM	ELAPSED TIME METER	PV	PROCESS VARIABLE
EXIST	EXISTING	PW	POTABLE WATER
FBD	FINE BUBBLE DIFFUSER	REM	REMOTE
FC	FAIL CLOSED	RF	RADIO FREQUENCY
FCV	MODULATING CONTROL VALVE	RIO	REMOTE INPUT–OUTPUT
FE	FLOW SENSOR	RST	RESET
FeCL2	FERROUS CHLORIDE	RTU	REMOTE TELEMETRY UNIT
FI	FLOW INDICATOR	SES	SERVICE ENTRANCE SECTION
FIT	FLOW INDICATOR TRANSMITTER	SG	SLIDE GATE
FR	FORWARD–REVERSE	SHC	SODIUM HYPOCHLORITE (NaOCl)
FS	FINE SCREEN / FULL SPEED	SLC	SINGLE LOOP CONTROLLER
FT	FLOW TRANSMITTER	SLOS	START–LOCK–OFF–STOP
GDR	GRINDER	SO2	SULFUR D
GPD	GALLONS PER DAY	SMU	SUBMERGED MEMBRANE UNIT
GPH	GALLONS PER HOUR	SP	SETPOINT
GPM	GALLONS PER MINUTE	SPD	SPEED
GRC	GRIT CLASSIFIER	SPR	SPARE
H_2S	HYDROGEN SULFIDE	SS	START/STOP (MAINTAINED)
HMI	HUMAN MACHINE INTERFACE	SSS	SOLID STATE STARTER (SOFT START)
HOA	HAND–OFF–AUTO	STG	MANUAL STOP GATE
HOR	HAND–OFF–REMOTE	SUG	SLUICE GATE
JB	JUNCTION BOX	SV	SOLENOID VALVE
LAN	LOCAL AREA NETWORK	TC	TABLET CHLORINATOR
LCP	LOCAL CONTROL PANEL	TDS	TOTAL DISSOLVED SOLIDS
LE	LEVEL SENSOR	TE	TEMPERATURE SENSOR
LIT	LEVEL INDICATOR TRANSMITTER	TG	TEMPERATURE GAUGE
LOS	LOCK–OFF–STOP	TI	TEMPERATURE INDICATOR
LR	LOCAL / REMOTE	TIT	TEMPERATURE INDICATOR TRANSMITTER
LSH	LEVEL SWITCH HIGH	TNK	TANK
LSHH	LEVEL SWITCH HIGH HIGH	TS	TEMPERATURE SWITCH
LSL	LEVEL SWITCH LOW	TSH	TEMPERATURE SWITCH HIGH
LSLL	LEVEL SWITCH LOW LOW	TT	TEMPERATURE TRANSMITTER
LSM	LEVEL SWITCH MEDIUM	TV	TELESCOPING VALVE
LT	LEVEL TRANSMITTER	UPS	UNINTERRUPTIBLE POWER SUPPLY
MCAS	MINI CONTROL AND STATUS	UVU	ULTRAVIOLET UNIT
MCC	MOTOR CONTROL CENTER	V	MANUAL VALVE
ME	MOISTURE SENSOR	VFD	VARIABLE FREQUENCY DRIVE
MGD	MILLION GALLONS PER DAY	WE	WEIR
MGL	MILLIGRAM PER LITER	WEG	WEIR GATE
MOT	MOTOR	WR	ADJUSTABLE WEIR
MS	MOTOR STARTER	XV	AUTOMATED OPEN/CLOSE VALVE
MTU	MASTER TELEMETRY UNIT	ZS	SWITCH POSITION
MXR	MIXER		
NaHSO3	SODIUM BISULFITE		
NaOCL	SODIUM HYPOCHLORITE		
NTU	TURBIDITY		
OC	ODOR CONTROL		

CONCEPT PLANS - ISSUED FOR REVIEW

NO	BY	DATE	REVISIONS	DATE	APP.

PREPARED BY
DUNCAN S. LEE
PROJECT ENGINEER
R.C.E. NO. C#####
EXP. XX-XX-XX

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CHECKED D.L. | DATE MAY 2023

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Xrefs: B804-02_3lb24x.dwg B804-2 I_PAID.dwg
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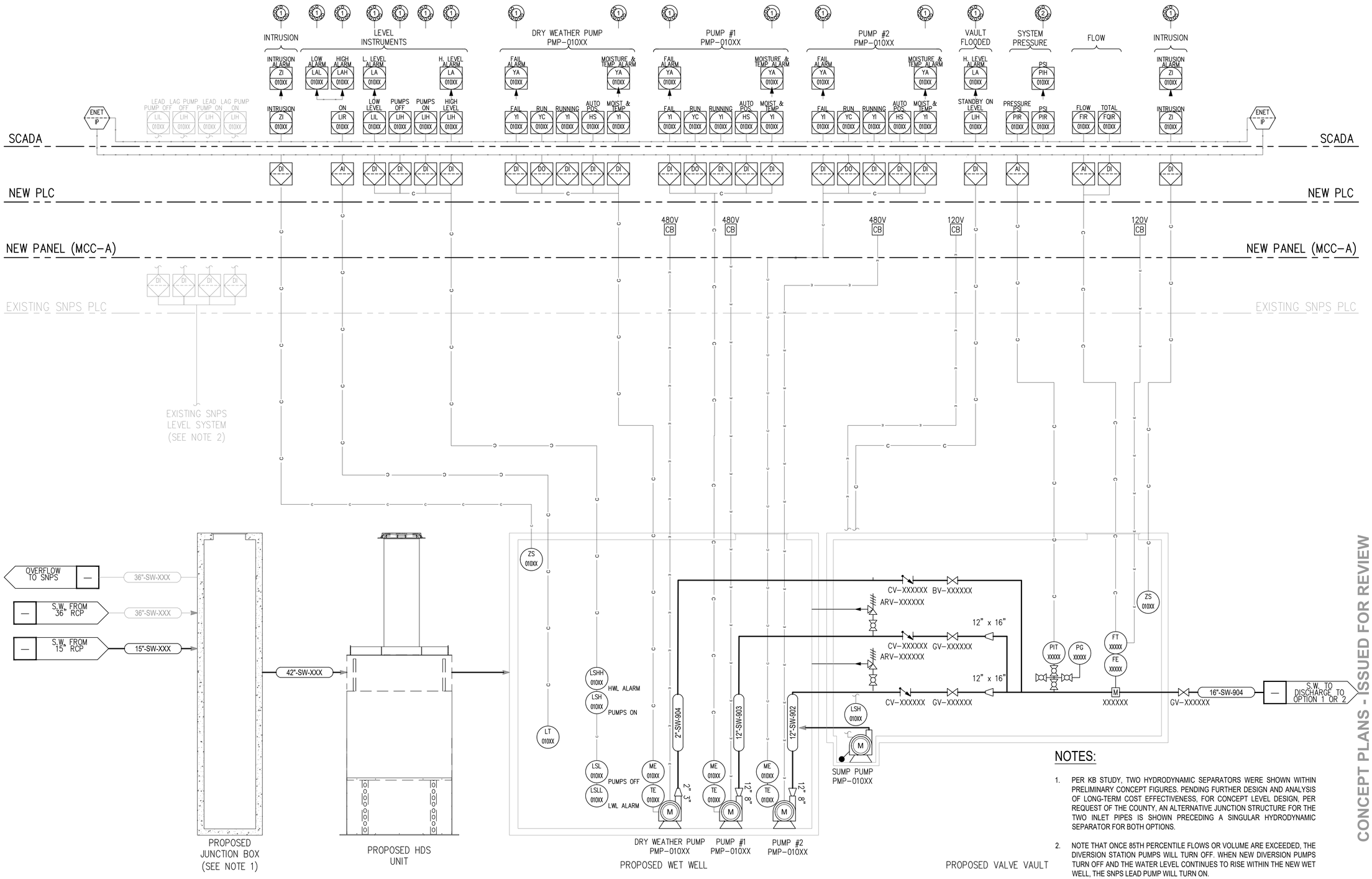

NOTES:

1. PER KB STUDY, TWO HYDRODYNAMIC SEPARATORS WERE SHOWN WITHIN PRELIMINARY CONCEPT FIGURES. PENDING FURTHER DESIGN AND ANALYSIS OF LONG-TERM COST EFFECTIVENESS, FOR CONCEPT LEVEL DESIGN, PER REQUEST OF THE COUNTY, AN ALTERNATIVE JUNCTION STRUCTURE FOR THE TWO INLET PIPES IS SHOWN PRECEDING A SINGULAR HYDRODYNAMIC SEPARATOR FOR BOTH OPTIONS.

2. NOTE THAT ONCE 85TH PERCENTILE FLOWS OR VOLUME ARE EXCEEDED, THE DIVERSION STATION PUMPS WILL TURN OFF. WHEN NEW DIVERSION PUMPS TURN OFF AND THE WATER LEVEL CONTINUES TO RISE WITHIN THE NEW WET WELL, THE SNPS LEAD PUMP WILL TURN ON.

PUMP STATION

CONCEPT PLANS - ISSUED FOR REVIEW

NO	BY	DATE	REVISIONS	DATE	APP.

PREPARED BY DUNCAN S. LEE
R.C.E. NO. PROJECT ENGINEER C#####
EXP. XX-XX-XX
DRAWN C.Z.
SCALE AS NOTED
DESIGNED D.L.
CHECKED D.L.
DATE MAY 2023

TITLE: PUMP STATION

JOB: VENTURA COUNTY PUBLIC WORKS AGENCY - WATERSHED PROTECTION
DIVERSION CONCEPT PLAN PER KB STUDY
VENTURA CA

PACE Advanced Water Engineering
17520 Newhope Street, Suite 200 | Fountain Valley, CA 92708
P: (714) 481-7300 | www.pacewater.com

SHEET I1.0 OF -- SHEETS

JOB NO. B804

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