September 11, 2020
Sacramento, California

In Compliance with CA Executive Orders N-25-20 and N-29-20 the Board of Trustees of the American River Flood Control District met in regular session at 11:00 a.m. on Friday, September 11, 2020 by teleconference. In attendance were Trustee Shah, Trustee Johns Trustee Holloway, Trustee L'Ecluse and Trustee Vander Werf. Trustee Shah presided. Also present from the District were General Manager (GM) Tim Kerr, Field Supervisor Scott Webb, Legal Counsel Rebecca Smith and Office Manager Malane Chapman. Three members of the public were present.

The meeting was called to order at 11:00 a.m. Roll call was taken and a quorum was present.

Item No. 1 Public Comments on Non-Agenda Items: No public comment on non-agenda items.

Item No. 2 Approval of Consent Agenda Items: On a motion by Trustee Johns seconded by Trustee Vander Weft, the Board unanimously approved items 2a) Minutes of Regular Meeting on August 14, 2020, 2b) Approval of Report of Investment Transactions July 2020 (City Pool, LAIF, River City) and Treasurer's Certification and 2c) District Financial Reports: Statement of Operations (August 2020) and Cash Flow Report
Roll Call Vote:

Trustee Shah:	AYE	Trustee Vander Werf:	AYE
Trustee L'Ecluse:	AYE	Trustee Johns:	AYE
Trustee Holloway:	AYE		

Item No. 2d Correspondence: MBK Engineers, Ric Reinhardt and City of Sacramento Police Department, Lieutenant Brian Ellis: Trustee Vander Werf inquired about the Districts response, if any, to the Sacramento Police Department. Following explanation by staff and discussion with the Board it was determined that no response was needed. Item 2d was purely for informational purposes. On a motion by Trustee Vander Werf seconded by Trustee Johns, the Board unanimously accepted the correspondence as presented without need for response.
Roll Call Vote:

Trustee Shah:	AYE	Trustee Vander Werf:	AYE
Trustee L'Ecluse:	AYE	Trustee Johns:	AYE
Trustee Holloway:	AYE		

Item No. 3 Accounts Payable and General Fund Expenses (August 2020): Trustee Vander Werf asked for clarification on payment made to Kent Arborist Services. Trustee Shah asked for clarification on payment made to SCI Consulting Group. Following explanation by staff and on a motion by Trustee Holloway seconded by Trustee L'Ecluse, the Board unanimously approved payments on the Schedule of Accounts Payable (August 2020) of $146,022.77 and General Fund Expenses of $92,325.91 (total aggregate sum $238,348.68).

Roll Call Vote:

Trustee Shah:	AYE	Trustee L'Ecluse:	AYE
Trustee Johns:	AYE	Trustee Vander Werf:	AYE
Trustee Holloway:	AYE		

Item No. 4 Administrative Staff Reports:

a) *General Manager Tim Kerr reported on the following:*
   - General Manager's August Meeting Summary: ARFCD Fire Extinguisher Training was discussed. Trustee L'Ecluse requested a count of fires within the last six months;
   - District Carbon Footprint: Trustee Vander Werf feels that it is a good idea for the District to learn about its carbon footprint, Trustee Johns recommended that the District meet with SMUD regarding fleet electric cars;
   - Board Encroachment Remediation Discussion: Board suggested sending letters to homeowners stating encroachments are creating a public safety issue;
   - MA9 – City of Sacramento – AR South SWIF Update: Successful submitting the update removed about one half of the items from previous inspections;
   - District Roof Repair/Replacement Update: Work started September 8 and currently part of the interior space doesn't have AC;
   - Hydrologic Conditions: Folsom Lake 47% of capacity with an outflow 2,479 cfs. The gauge at the I Street Bridge shows a water surface elevation of 6.5 feet above sea level;
   - Next Board Meeting is scheduled for October 16, 2020.

b) *Legal Counsel Rebecca Smith had nothing further to report.*

c) *Office Manager Malane Chapman thanked the Board again for moving the October 9, 2020 Board Meeting to October 16, 2020.*

Item No. 5 Operations and Maintenance Staff Reports:

a) *Superintendent Ross Kawamura, presented by Field Supervisor Scott Webb:*
   - Crew activities including slope repair, camp cuts, trash removal, vegetation removal, tree removal, created walking paths, mowing and practiced new grading techniques.

Item No. 6 Questions and Comments by Trustees: Trustee L'Ecluse asked how the District was doing in regard to disinfecting and PPEs. Field Supervisor Webb express his gratitude to Trustee L'Ecluse on providing the District with hand sanitizer during times when it was difficult to purchase through venders.

Item No. 7 Adjourn: There being no further business requiring action by the Board, the meeting was adjourned by Trustee Shah at 11:55 a.m.

Attest:

_____ _____

Secretary President

American River Flood Control District
Staff Report

Investment Transactions Summary; August 2020

LAIF:

- There were no transactions in this account during the month of August.

City Pool A

- Accrued Interest Receivable for the month of August was $10,836.29.
- As of August 31, 2020, the balance of Interest Receivable in this account was $22,530.34.

Interest Receivable is accrued and transferred to the Cash Balance at the discretion of the City.

River City Bank Money Market:

- On August 26, 2020 a transfer was sent to River City Checking in the amount of $235,765.00.
- On August 31, 2020 a monthly interest payment was deposited in the amount of $599.51.

River City Bank Checking:

- On August 7, 2020 a deposit was received from Sacramento County Tax Collector in the amount of $30,998.97.
- On August 20, 2020 a miscellaneous deposit was received in the amount of $51.83.
- On August 26, 2020 a transfer was received from River City Money Market in the amount of $235,765.00.
- On August 31, 2020 a monthly interest payment was deposited in the amount of $17.18.
- Total amount of Accounts Payable cleared during the month of August was $265,867.45.

American River Flood Control District

AMERICAN RIVER FLOOD CONTROL DISTRICT

MONTHLY REVIEW – AUGUST 2020

STRATEGY

The ARFCD funds are invested in the City of Sacramento's Pool A investment fund. The Fund is invested pursuant to the objectives and requirements set forth in the City's investment policy. The three objectives of the investment policy, in order of priority, are (1) the preservation of capital by the investment in safe instruments, (2) the liquidity needs of the City and pool participants so such parties will have access to cash when they need it, and (3) the maximizing of current income while remaining consistent with the other more important objectives. The City's investment policy incorporates applicable provisions of state law including, among other things, the prudent person standard and California Code Section 53601 pertaining to eligible investments.

PORTFOLIO STATISTICS

Beginning Balance	8,835,211
Contributions	-
Withdrawals	-
Interest Earned	10,836
Ending Balance	8,846,047

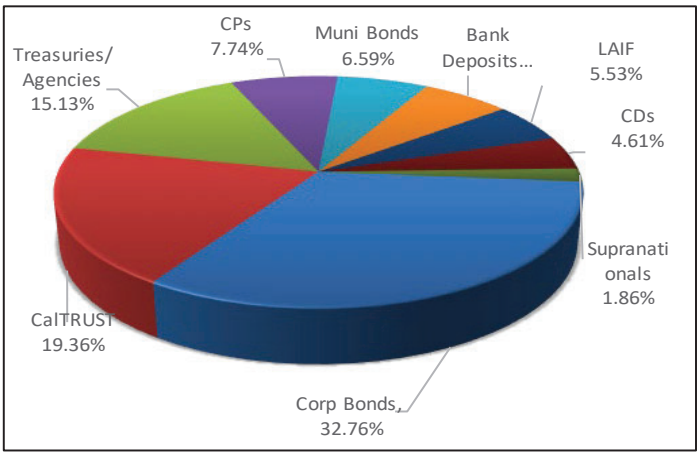
PERFORMANCE COMPARISON

City Pool A	1.44%
LAIF	0.78%
90 Day T-Bill	0.09%
Federal Funds	0.10%

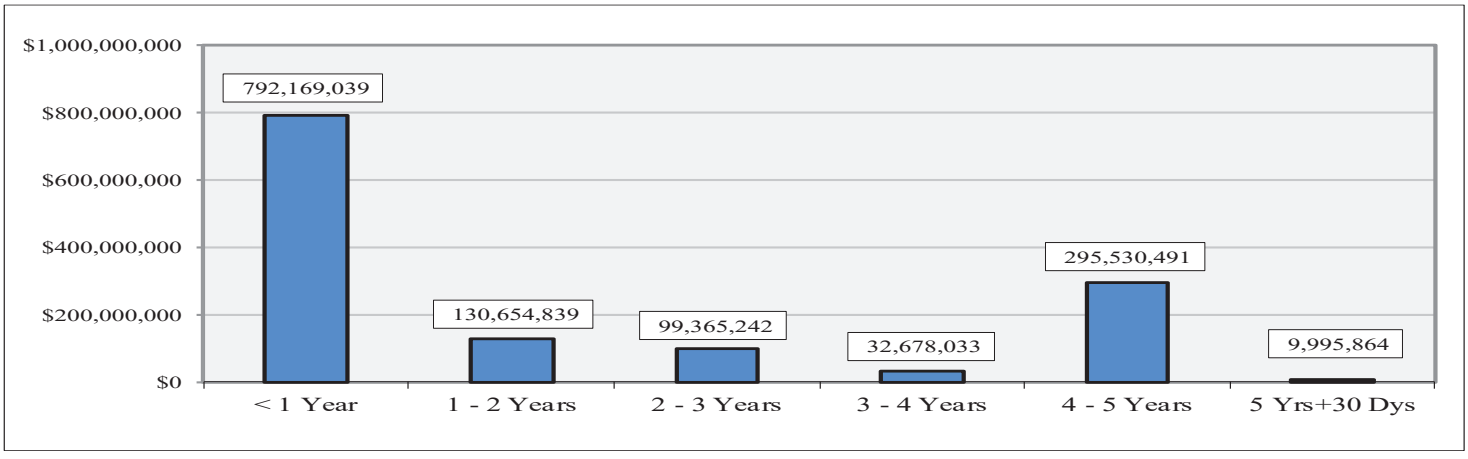
CITY POOL A MATURITY SCHEDULE

Maturity	Market Value	Pct. Holdings
< 1 Year	792,169,039	58.25%
1 - 2 Years	130,654,839	9.60%
2 - 3 Years	99,365,242	7.30%
3 - 4 Years	32,678,033	2.40%
4 - 5 Years	295,530,491	21.72%
5 Yrs+30 Dys	9,995,864	0.73%
Total	1,360,393,508	100.00%

CITY POOL A PORTFOLIO COMPOSITION



Asset Type	Pct. Assets	YTM
Corp Bonds	32.76%	2.16%
CalTRUST	19.36%	0.71%
Treasuries/Agencies	15.13%	1.12%
CPs	7.74%	1.45%
Muni Bonds	6.59%	2.17%
Bank Deposits	6.42%	0.92%
LAIF	5.53%	0.78%
CDs	4.61%	1.26%
Supranationals	1.86%	2.08%



City of Sacramento
CASH LEDGER
American River Flood Control District
From 08-01-20 To 08-31-20

All Cash Accounts

Trade Date	Settle Date	Tran Code	Quantity	Security	Amount	Cash Balance
Pool A Interest Receivable						
08-01-20				Beginning Balance		11,694.05
08-31-20	08-31-20	in		Pool A Cash	10,836.29	22,530.34
	Aug 2020 estimated Pool A interest					
					10,836.29	
08-31-20				**Ending Balance**		**22,530.34**
Pool A Cash						
08-01-20				Beginning Balance		8,823,516.56
08-31-20				**Ending Balance**		**8,823,516.56**

California State Treasurer
Fiona Ma, CPA

Local Agency Investment Fund
P.O. Box 942809
Sacramento, CA 94209-0001
(916) 653-3001

September 01, 2020

LAIF Home
PMIA Average Monthly Yields

AMERICAN RIVER FLOOD CONTROL DISTRICT

DISTRICT ENGINEER/MANAGER
165 COMMERCE CIRCLE, SUITE D
SACRAMENTO, CA 95815

Tran Type Definitions

Account Number: 90-34-002

August 2020 Statement

Account Summary

Total Deposit:	0.00	Beginning Balance:	465,223.75
Total Withdrawal:	0.00	Ending Balance:	465,223.75

River City Bank
WWW.RIVERCITYBANK.COM
PO Box 15247, Sacramento, CA 95851-0247
Return Service Requested

Last statement: July 31, 2020
This statement: August 31, 2020
Total days in statement period: 31

AMERICAN RIVER FLOOD CONTROL DISTRICT
C/O ROBERT MERRITT, CPA
4000 MAGNOLIA HILLS DR
EL DORADO HILLS CA 95762-6561

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0811100952
(0)

Direct inquiries to:
916-567-2836

Public Fund Money Market

Account number	0811100952	Beginning balance	$1,235,765.26
Low balance	$1,000,000.26	Total additions	599.51
Average balance	$1,190,133.32	Total subtractions	235,765.00
Avg collected balance	$1,190,133	Ending balance	$1,000,599.77
Interest paid year to date	$3,661.21		

DEBITS

Date	Description	Subtractions
08-26	' Cash Mgmt Trsfr Dr REF 2391401L FUNDS TRANSFER TO DEP XXXXX0736 FROM	235,765.00

CREDITS

Date	Description	Additions
08-31	' Interest Credit	599.51

DAILY BALANCES

Date	Amount	Date	Amount	Date	Amount
07-31	1,235,765.26	08-26	1,000,000.26	08-31	1,000,599.77

INTEREST INFORMATION

Annual percentage yield earned	0.60%
Interest-bearing days	31
Average balance for APY	$1,190,133.32
Interest earned	$599.51

OVERDRAFT/RETURN ITEM FEES

	Total for this period	Total year-to-date
Total Overdraft Fees	$0.00	$0.00
Total Returned Item Fees	$0.00	$0.00

River City Bank
WWW.RIVERCITYBANK.COM
PO Box 15247, Sacramento, CA 95851-0247
Return Service Requested

Last statement: July 31, 2020
This statement: August 31, 2020
Total days in statement period: 31

AMERICAN RIVER FLOOD CONTROL DISTRICT
C/O ROBERT MERRITT, CPA
4000 MAGNOLIA HILLS DR
EL DORADO HILLS CA 95762-6561

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0811090736
(58)

Direct inquiries to:
916-567-2836

Public Fund Interest Checking

Account number	0811090736	Beginning balance	$208,978.86
Enclosures	58	Total additions	266,832.98
Low balance	$66,026.70	Total subtractions	265,867.45
Average balance	$203,890.98	Ending balance	$209,944.39
Avg collected balance	$203,889		

CHECKS

Number	Date	Amount	Number	Date	Amount
7666	08-31	24,658.27	7742	08-24	530.67
7683 *	08-11	851.00	7743	08-24	4,356.39
7722 *	08-24	1,374.11	7744	08-31	130.00
7723	08-25	31,333.87	7745	08-21	99.06
7724	08-25	12,051.47	7746	08-20	25,000.00
7725	08-27	71.72	7747	08-25	1,083.15
7726	08-25	691.22	7748	08-28	3,150.51
7727	08-25	367.02	7749	08-20	4,090.60
7728	08-24	220.34	7750	08-25	2,085.00
7729	08-26	158.06	7751	08-21	1,020.69
7730	08-28	43.28	7752	08-21	1,055.75
7731	08-21	350.00	7753	08-21	600.00
7732	08-24	10,866.50	7754	08-24	499.83
7733	08-31	690.42	7755	08-21	30.00
7734	08-25	85.16	7756	08-25	366.12
7735	08-27	92.00	7757	08-24	188.52
7736	08-26	1,072.51	7758	08-24	826.95
7737	08-21	836.00	7759	08-20	968.41
7738	08-24	386.60	7760	08-24	1,500.00
7739	08-21	1,370.35	7762 *	08-25	1,574.88
7740	08-24	3,120.90	7763	08-24	368.60
7741	08-24	5,960.25	7764	08-26	979.88

Number	Date	Amount	Number	Date	Amount
7765	08-21	1,062.85	7771	08-31	1,341.27
7766	08-25	200.00	7772	08-25	568.68
7767	08-28	13,639.92	7773	08-26	532.43
7768	08-21	5,782.96	7774	08-24	737.32
7769	08-27	183.66	7775	08-26	615.54
7770	08-24	519.00	* Skip in check sequence		

DEBITS

Date	Description	Subtractions
08-04	' ACH Withdrawal CALPERS 1900 100000016126545	3,119.44
08-04	' ACH Withdrawal CALPERS 1900 100000016125629	127.94
08-04	' ACH Withdrawal CALPERS 3100 100000016063812	2,274.21
08-04	' ACH Withdrawal CALPERS 3100 100000016063767	3,660.81
08-04	' ACH Withdrawal CALPERS 1900 100000016125622	6,404.99
08-05	' ACH Withdrawal HEALTHEQUITY INC HealthEqui 200805	150.00
08-07	Incoming Wire Fee 202008070031564 COUNTY OF SACRAMENSACRAMENTO CA 9581 PROPERTY TAX DISTR	15.00
08-14	' ACH Withdrawal INTUIT PAYROLL S QUICKBOOKS 200814 946000047	32,734.70
08-20	' ACH Withdrawal INTUIT PAYROLL S QUICKBOOKS 200820 946000047	535.65
08-27	' ACH Withdrawal CALPERS 1900 100000016149287	700.00
08-27	' ACH Withdrawal CALPERS 3100 100000016101094	1,895.17
08-27	' ACH Withdrawal CALPERS 3100 100000016101060	3,402.21
08-28	' ACH Withdrawal HEALTHEQUITY INC HealthEqui 200828	152.95
08-28	' ACH Withdrawal CALPERS 1900 100000016153443	3,012.04
08-31	' ACH Withdrawal INTUIT PAYROLL S QUICKBOOKS 200831 946000047	35,339.99
08-31	' Service Charge ADDITIONAL DEBITS	2.66

CREDITS

Date	Description	Additions
08-07	Incoming Wire	30,998.97
	202008070031564 COUNTY OF SACRAMENSACRAMENTO CA 9581 PROPERTY TAX DISTR	
08-20	Deposit	51.83
08-26	' Cash Mgmt Trsfr Cr	235,765.00
	REF 2391401L FUNDS TRANSFER FRMDEP XXXXX0952 FROM	
08-31	' Interest Credit	17.18

DAILY BALANCES

Date	Amount	Date	Amount	Date	Amount
07-31	208,978.86	08-14	190,639.74	08-26	298,433.28
08-04	193,391.47	08-20	160,096.91	08-27	292,088.52
08-05	193,241.47	08-21	147,889.25	08-28	272,089.82
08-07	224,225.44	08-24	116,433.27	08-31	209,944.39
08-11	223,374.44	08-25	66,026.70		

INTEREST INFORMATION

Annual percentage yield earned	0.10%
Interest-bearing days	31
Average balance for APY	$203,889.30
Interest earned	$17.18

OVERDRAFT/RETURN ITEM FEES

	Total for this period	Total year-to-date
Total Overdraft Fees	$0.00	$0.00
Total Returned Item Fees	$0.00	$0.00

CERTIFICATION

The American River Flood Control District's investment portfolio[__**X**__] is [____is not] in compliance with the District's Financial Management Investments Plan.

The District's investment portfolio is not in compliance in the following respects:

_____
_____
_____

A cash flow analysis confirms that the District [__**X**__is] [____is not] expected to be able to meet its expenditure requirements for the next six months.

The District's cash is insufficient to meet obligations for the next six months as a result of the following:

_____
_____
_____

Attached hereto are the most recent statements of accounts of the following District accounts:

LAIF Account, State Treasurer's Office	**Dated August 2020**
Investment Pool A Account, City of Sacramento	**Dated August 2020**
District Checking Account, River City Bank	**Dated August 2020**
District Repurchase Account, River City Bank	**Dated August 2020**

Certified by:_____ Date: _____
Rachelanne Vander Werf, District Treasurer

American River Flood Control District
Statement of Operations
July 1, 2020 to September 30, 2020 (Three Months Ending of Fiscal 2021)
For Internal Use Only

	Year to Date July 1, 2020 to September 30, 2020	Budget	Percent of Budget
Revenues			
Benefit assessment	$ -	$ 1,429,793	0.00%
Consolidated capital assessment	-	980,000	0.00%
Interest	24,781	77,267	32.07%
O & M agreements	-	231,801	0.00%
Miscellaneous	-	-	Not budgeted
Total Revenues	24,781	2,718,861	0.91%
M & O Expenses			
Salaries and wages	231,382	833,238	27.77%
Payroll tax expense	17,509	66,659	26.27%
Pension expense	50,157	189,428	26.48%
Compensation insurance	-	41,662	0.00%
Medical/dental/vision	78,296	216,125	36.23%
Fuel/oil reimbursement	5,269	35,000	15.05%
Equipment rental	5,960	20,000	29.80%
Equipment repairs/parts	16,736	50,000	33.47%
Equipment purchases (< $5,000)	-	15,000	0.00%
Shop supplies	13,978	20,000	69.89%
Levee maint. (supp. & material)	6,014	20,000	30.07%
Levee maint. chemicals	14,872	27,500	54.08%
Levee maint. services	52,036	80,000	65.05%
Rodent abatement (supplies & materials)	880	10,000	8.80%
Employee uniforms	5,119	7,500	68.25%
Staff training	1,175	7,500	15.67%
Regulation Compliance (OSHA)	-	6,000	0.00%
Miscellaneous	-	2,000	0.00%
Small tools & equipment	274	7,500	3.65%
Emergency preparedness program	4,200	35,000	12.00%
Engineering services	3,294	20,000	16.47%
Environmental services/studies	-	5,000	0.00%
Encroachment remediation	-	15,000	0.00%
Urban camp cleanup	6,044	50,000	12.09%
Total M & O Expenses	513,195	1,780,112	28.83%
Administration Expenses			
Board of trustees compensation	1,558	7,600	20.50%
Trustee expenses	-	2,400	0.00%
Trustee training	-	5,000	0.00%
Accounting services	700	15,000	4.67%
Legal services (general)	3,733	50,000	7.47%
Utilities	8,369	40,000	20.92%
Telephone	2,970	25,000	11.88%
Retiree benefits	46,171	143,000	32.29%
Office/shop/yard lease	1,800	7,200	25.00%
Office equipment/furniture	479	7,500	6.39%
Office supplies	-	-	Not budgeted
Auto allowance	1,775	6,600	26.89%
Parking reimbursement	-	500	0.00%
General office expense	1,740	15,000	11.60%
Technology and software	5,724	10,000	57.24%
Legislative services	-	-	Not budgeted
Dues and associations	14,221	25,000	56.88%
Property and liability insurance	10,786	42,000	25.68%
Conference/workshop/seminar	-	-	Not budgeted
Public relations/information	-	30,000	0.00%
Miscellaneous	881	5,000	17.62%
Election expense	-	99,723	0.00%
Employee morale/wellness	-	2,000	0.00%
Investment fees	-	20,000	0.00%
Community services	-	1,500	0.00%
Bookkeeping services	2,213	14,000	15.81%
Property taxes	-	3,000	0.00%
Building maintenance	156	10,000	1.56%
County Dtech fees for DLMS	31,669	55,000	57.58%
Interest expense	138	-	Not budgeted
Total Administration Expenses	135,083	642,023	21.04%
Special Projects Expenses			
Engineering studies/survey studies	-	170,000	0.00%
Levee standards compliance	-	25,000	0.00%
Encroachment remediation	-	-	Not budgeted
Vegetation management	-	-	Not budgeted
Small capital projects	-	50,000	0.00%
Total Special Project Expenses	-	245,000	0.00%
Capital Outlay			
Bank protection	-	-	Not budgeted
Magpie Creek	-	-	Not budgeted
Property acquisition	-	-	Not budgeted
Miscellaneous	-	-	Not budgeted
Equipment purchases (over $5,000)	-	100,000	0.00%
Total Capital Outlay	-	100,000	
Capital Outlay: District Headquarters Build-Out			
Building improvements/maintenance	1,575	700,000	0.23%
La Riviera improvements/maintenance	-	2,000	0.00%
	1,575	702,000	

Note: Amounts above are not audited

The above information is current through the last day of the previous month's bank activity.

Data has been verified by the bookkeeper and physical copies of checks have not been reviewed or received and some checks may not have cleared the bank account.

AMERICAN RIVER FLOOD CONTROL DISTRICT
Cash Flow Report
July 2020 through June 2021

Cash Flow Report

Maintenance and Operations Expens	20-Jul	20-Aug	20-Sep	20-Oct	20-Nov	20-Dec	21-Jan	21-Feb	21-Mar	21-Apr	21-May	21-Jun	TOTAL
500 · Salary/Wages	84,955.85	72,305.42	71,963.98	74,588.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	303,813.69
501 · Payroll Taxes	6,551.57	5,583.83	5,557.69	5,202.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22,895.90
502 · Pension	17,202.17	15,822.01	21,318.10	10,707.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65,049.67
503 · Compensation Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
504 · Medical/Dental/Vision	24,342.88	19,791.24	19,837.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63,971.36
508 · Fuel/Oil	2,345.10	4,356.39	2,664.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9,366.06
509 · Equipment Rental	0.00	5,960.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,960.25
510 · Equipment Purchase(< $5000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
511 · Equipment Repair/Parts	15,604.93	6,143.91	9,008.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30,756.86
512 · Shop Supplies	4,256.28	8,016.10	4,875.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17,147.69
514 · Levee Maint(Supplies&Materi	100.38	5,826.24	187.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6,114.31
515 · Levee Maintenance Services	2,200.00	25,393.37	26,643.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54,236.45
516 · Employee Uniforms	0.00	0.00	5,768.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,768.62
518 · Staff Training	1,529.00	0.00	525.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,054.00
519 · Miscellaneous O&M	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
521 · Small Tools & Equip	0.00	0.00	273.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	273.52
523 · Levee Maint. (Chemicals)	0.00	13,414.68	1,344.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14,759.42
525 · Emergency Preparedness Pr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530 · Encroachment Remediation M	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
532 · Rodent Abatement	0.00	225.24	766.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	992.04
533 · Urban Camp Cleanup	1,380.45	2,421.74	3,622.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7,424.62
605 · Engineering Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
615 · Survey Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
616 · Envionmental Services/Studi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total M&O Expense	160,468.61	185,260.42	174,356.79	90,498.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	610,584.46

Administrative Expenses	20-Jul	20-Aug	20-Sep	20-Oct	20-Nov	20-Dec	21-Jan	21-Feb	21-Mar	21-Apr	21-May	21-Jun	TOTAL
505 · Telephone	1,521.70	1,626.92	1,545.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,694.45
506 · Utility Charges	3,362.49	4,354.93	3,882.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11,599.66
507 · Office/Shop Lease	600.00	600.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,800.00
513 · Office Supplies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517 · Auto Allowance	550.00	550.00	550.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,200.00
520 · Retiree Benefits	11,542.63	11,542.63	11,542.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34,627.89
522 · Office Equipment/Furniture	129.24	0.00	478.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	607.74
526 · Mileage/Parking Reimbursem	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
527 · General Office Expense	1,081.26	1,386.08	951.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,419.25
529 · Pre-funding Retiree Benefits	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
531 · Technology & Software	467.39	1,139.73	5,407.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7,014.94
600 · Board of Trustees Compensa	1,380.45	2,421.74	3,622.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7,424.62
601 · Trustee Expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
602 · Accounting Services	475.00	475.00	475.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,425.00
603 · Legal Fees (General)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
604 · Flood Litigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
606 · Legislative Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
607 · Dues and Assoc. Expenes	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	700.00
608 · Insurance Premiums	4,832.00	11,702.50	3,733.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20,267.50
609 · Conference /Workshops/Sem	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
610 · Public Relations Information	3,591.00	4,090.60	3,294.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10,975.60
611 · Election Expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
612 · District Annexations	0.00	0.00	5,862.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,862.00
613 · Community Services	0.00	12,051.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12,051.47
614 · Miscellaneous Admin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
617 · Investment Fees	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
618 · Property Tax	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
619 · Building Maintenance	3,579.77	238.25	172.36	34.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,024.38
620 · Bookkeeping Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
621 · County Assessment Fees	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
622 · County DTech Fees for DLMS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AMERICAN RIVER FLOOD CONTROL DISTRICT
Cash Flow Report
July 2020 through June 2021

623 · Employee Morale/Wellness	0.00	4,391.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,391.00
Total Administrative	33,112.93	57,270.85	42,117.72	584.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	133,085.50

Special Projects Expenses	**20-Jul**	**20-Aug**	**20-Sep**	**20-Oct**	**20-Nov**	**20-Dec**	**21-Jan**	**21-Feb**	**21-Mar**	**21-Apr**	**21-May**	**21-Jun**	**TOTAL**
702 · Engineering/Survey Studies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
703 · Encroachment Remediation S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
704 · Vegetation Management	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
705 · Small Capital Projects	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
707 · Levee Standards Compliance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Special Projects	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Capital Outlay: Flood Control	**20-Jul**	**20-Aug**	**20-Sep**	**20-Oct**	**20-Nov**	**20-Dec**	**21-Jan**	**21-Feb**	**21-Mar**	**21-Apr**	**21-May**	**21-Jun**	**TOTAL**
700 · Bank Protection	0.00	0.00	31,669.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31,669.50
701 · Magpie Creek	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
706 · Property Acquisition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
709 · Equipment Purchase (> $500(	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Capital Outlay: Flood Control	0.00	0.00	31,669.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31,669.50

Income													
120 · Benefit Assessment	0.00	30,998.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30,998.97
122 · SAFCA CAD4	980,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	980,000.00
123 · Interest	2,388.20	616.69	328.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,333.74
124 · O&M Agreements	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126 · Miscellaneous Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Income	982,388.20	31,615.66	328.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,014,332.71

Fund Balance

District Operations Fund	**Jul 20**	**Aug 20**	**Sept 20**	**Oct 20**	**Nov 20**	**Dec 20**	**Jan 21**	**Feb 21**	**Mar 21**	**Apr 21**	**May 21**	**Jun 21**
Beginning Balance	1,665,499.72	2,804,306.38	2,593,390.77	2,377,245.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Income	1,332,388.20	31,615.66	328.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Expenses	193,581.54	242,531.27	216,474.51	91,082.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72,000.00
Ending Balance	2,804,306.38	2,593,390.77	2,377,245.11	2,286,162.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(72,000.00)
Capital Outlay Reserve Fund												
Beginning Balance	1,270,000.00	920,000.00	920,000.00	920,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Expenses	350,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Ending Balance	920,000.00	920,000.00	920,000.00	920,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retiree Health Benefit Reserve Fund												
Beginning Balance	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72,000.00
Expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending Balance	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72,000.00
Flood Emergency Response Reserve Fund												
Beginning Balance	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending Balance	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emergency Repair Reserve Fund												
Beginning Balance	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending Balance	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Balance	10,276,320.38	10,065,404.77	9,849,259.11	9,758,176.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

September 2020
Submitted: October 16, 2020

American River Flood Control District
Schedule of Accounts Payable

	Acct. #	Paid to	Memo	Amount	Chk. #	
		ARFCD General Fund	September Expenses	$ 93,992.34		
1	607	ACWA	Dues and Assoc. Expenses	$ 9,735.00		
2	504	ACWA JPIA	Medical/Dental/Vision	$ 19,791.24		$ 31,333.87
3	520	ACWA JPIA	Retiree Benefits	$ 11,542.63		
4	608	ACWA Insurance	Insurance Premiums	$ 23,586.93		
5	527	Alhambra/Sierra Springs	General Office Expense	$ 85.20		
6	505	AT&T	Telephone	$ 691.22		
7	505	AT&T Analog	Telephone	$ 367.78		
8	512	Barnes Welding Supply	Shop Supplies	$ 351.67		
9	515	Bell Marine Co.	Levee Maintenance Services	$ 1,071.34		
10	527	Blue Ribbon Maintenance	General Office Expense	$ 350.00		
11	511	Bobcat Central	Equipment Repair/Parts	$ 97.22		
12	603	Boutin Jones, Inc	Legal Fees (General)	$ 2,420.50		
13	512	Cintas	Shop Supplies	$ 348.04		
14	527	Clark Pest Control	General Office Expense	$ 184.00		
15	603	Downey Brand	Legal Fees (General)	$ 1,927.00		
16	800	Firecode	Building Improvements/Maint	$ 1,161.03		$ 1,400.39
17	518	Firecode	Staff Training	$ 239.36		
18	511	Fluid Tech Hydraulics, Inc	Equipment Repair/Parts	$ 477.52		
19	505	Gaynor Telesystems, Inc	Telephone	$ 290.00		
20	511	GCR Sacramento Tire Centers	Equipment Repair/Parts	$ 696.96		
21	512	Grainger Inc	Shop Supplies	$ 1,637.58		$ 1,772.98
22	514	Grainger Inc	Levee Maint(Supplies&Materials)	$ 135.40		
23	512	Home Depot	Shop Supplies	$ 262.17		
24	508	Hunt & Sons	Fuel/Oil	$ 2,714.69		
25	527	KBA Document Solutions	General Office Expense	$ 85.70		
26	515	Kent Arborist Services	Levee Maintenance Services	$ 7,500.00		
27	516	Kombat Ink	Employee Uniforms	$ 280.37		
28	533	L and D Landfill	Urban Camp Cleanup	$ 150.00		
29	607	LAFCO	Dues and Assoc. Expenses	$ 289.00		
30	511	Les Schwab Tire Center	Equipment Repair/Parts	$ 2,030.79		
31	902	Lionakis	Architect/Building Design	$ 3,915.00		
32	512	Mahaney Co., John F.	Shop Supplies	$ 596.73		
33	702	Mead & Hunt	Engineering/Survey Studies	$ 1,473.75		
34	512	Motion Industries, Inc.	Shop Supplies	$ 130.63		
35	531	Muller & Associates, Inc.	Technology & Software	$ 114.19		
36	512	Napa Auto Parts	Shop Supplies	$ 1,327.54		
37	518	Occupational Safety	Staff Training	$ 900.00		
38	527	Office Depot	General Office Expense	$ 597.71		
39	514	Pacific Coast Seed	Levee Maint(Supplies&Materials)	$ 522.41		
40	527	Pacific Records Management	General Office Expense	$ 30.00		
41	527	Pitney Bowes, Inc	General Office Expense	$ 61.70		
42	511	Porters Old 2 New Automotive	Equipment Repair/Parts	$ 739.99		
43	511	Riverview International Trucks, LLC	Equipment Repair/Parts	$ 733.28		
44	620	Robert Merritt, CPA	Bookkeeping Services	$ 337.50		
45	602	Roeder Financial	Accounting Services	$ 2,175.00		
46	800	Rua & Son Mechanical, Inc.	Building Improvements/Maint	$ 169,669.80		
47	533	Sacramento County MSA	Urban Camp Cleanup	$ (155.55)		
48	618	Sacramento County Tax Collector	Property Tax	$ 1,709.68		
49	506	Sacramento Utilities	Utility Charges	$ 1,343.28		
50	515	Sierra Waste Recycling & Transfer Station	Levee Maintenance Services	$ 526.50		
51	506	SMUD	Utility Charges	$ 1,074.69		
52	506	Sonitrol	Utility Charges	$ 848.04		
53	511	State Board of Equalization	Equipment Repair/Parts	$ 306.89		
54	531	Streamline	Technology & Software	$ 200.00		
55	527	TIAA Bank	General Office Expense	$ 203.66		
56	511	US Bank	Equipment Repair/Parts (Redding Fasteners)	$ 391.43		$ 1,767.92
57	512	US Bank	Shop Supplies (Harbor Freight Tools, JMZ Steel)	$ 275.42		
58	518	US Bank	Staff Training (CSDA)	$ 475.00		
59	527	US Bank	General Office Expense (Costco, Pitney Bowes, FMCSA)	$ 125.38		
60	531	US Bank	Technology & Software (Crashpla, MSFT, Gotomeeting)	$ 121.19		
61	533	US Bank	Urban Camp Cleanup (United Site Service)	$ 259.50		
62	607	US Bank	Dues and Assoc. Expenses (CA Dept of Pest Regs)	$ 120.00		
63	511	Valley Truck & Tractor Co.	Equipment Repair/Parts	$ 50.35		
64	505	Verizon Wireless	Telephone	$ 434.83		
65	506	Waste Management of Sacramento	Utility Charges	$ 519.68		
66	514	White Cap	Levee Maint(Supplies&Materials)	$ 2,164.83		
67	532	White Cap	Rodent Abatement	$ 4,130.07		
			Accounts Payable Subtotal	$ 288,950.44		
			Accounts Payable and General Fund Aggregate Total:	**$ 382,942.78**		

Invoices Paid

		DATE	AMOUNT	CHECK #
Quickbooks (Employees)		9/15/20	$35.75	EFT
Quickbooks (Trustees)		9/17/20	$16.25	EFT
HSA (Employee)		9/23/20	$195.00	EFT
HSA (Miscellaneous Expense)		9/23/20	$2.95	EFT
Quickbooks (Employees)		9/30/20	$114.75	EFT
HSA (Employee)		9/30/20	$150.00	EFT
		Total	**$514.70**	

Trustee Compensation

	DATE	GROSS	NET	CHK#
9/11/2020 Board Meeting				
Holloway, Brian F	9/18/20	$95.00	$86.78	Direct Dep
Johns, Steven T	9/18/20	$95.00	$86.79	Direct Dep
L'Ecluse, Tamika AS	9/18/20	$95.00	$86.79	Direct Dep
Shah, Cyril A	9/18/20	$95.00	$86.79	Direct Dep
Vander Werf, Rachelanne	9/18/20	$95.00	$86.78	Direct Dep
	Total	**$475.00**	**$433.93**	

Trustee Taxes

		DATE	AMOUNT	CHK#
9/11/2020 Board Meeting				
Federal Tax Payment		9/17/20	$72.64	EFT
CA Withholding & SDI		9/17/20	$4.75	EFT
CA UI & ETT		9/17/20	$8.08	EFT
		Total	**$85.47**	

Payroll Summary

	DATE	GROSS	NET	CHK#
PP ending 9/15/2020				
Malane Chapman	9/16/20	3446.96	2135.45	Direct Dep
Elvin Diaz	9/16/20	1595.44	1223.78	Direct Dep
David Diaz	9/16/20	2599.52	1548.20	Direct Dep
Gilberto Gutierrez	9/16/20	2834.48	1746.07	Direct Dep
Ross Kawamura	9/16/20	4360.46	2263.70	Direct Dep
Lucas Kelley	9/16/20	2376.88	1581.56	Direct Dep
Tim Kerr	9/16/20	7466.41	5498.74	Direct Dep
Victor Palacios	9/16/20	2042.48	1801.02	Direct Dep
Erich Quiring	9/16/20	2710.40	1767.36	Direct Dep
Jose Ramirez	9/16/20	2781.68	2035.12	Direct Dep
Scott Webb	9/16/20	3311.44	2119.69	Direct Dep
PP ending 9/30/2020				
Malane Chapman	10/1/20	3446.96	2135.46	Direct Dep
Elvin Diaz	10/1/20	2279.20	1720.90	Direct Dep
David Diaz	10/1/20	2599.52	1548.22	Direct Dep
Gilberto Gutierrez	10/1/20	2834.48	1746.05	Direct Dep
Ross Kawamura	10/1/20	4360.46	2263.68	Direct Dep
Lucas Kelley	10/1/20	2376.88	1581.56	Direct Dep
Tim Kerr	10/1/20	7466.41	5538.07	Direct Dep
Victor Palacios	10/1/20	2042.48	1801.04	Direct Dep
Erich Quiring	10/1/20	2710.40	1767.35	Direct Dep
Jose Ramirez	10/1/20	2781.68	2035.12	Direct Dep
Scott Webb	10/1/20	3311.44	2119.69	Direct Dep
	Total	**$71,736.06**	**$47,977.83**	

Employee & Relief GM Taxes

		DATE	AMOUNT	CHK#
PP ending 9/15/2020				
Federal Tax Payment		9/15/20	$8,883.54	EFT
CA Withholding & SDI		9/15/20	$1,639.57	EFT
CA UI & ETT		9/15/20	$0.00	EFT
PP ending 9/30/2020				
Federal Tax Payment		9/30/20	$8,991.50	EFT
CA Withholding & SDI		9/30/20	$1,691.90	EFT
CA UI & ETT		9/30/20	$0.00	EFT
		Total	**$21,206.51**	

		DATE	AMOUNT	CHK#
Employee Pension				
PP endin 9/15/2020				
PERS Retirement Contribution (Unfunded Liability)		9/8/20	$6,532.93	EFT
PERS Retirement Contribution		9/16/20	$5,493.10	EFT
457 Deferred Comp (Employee Paid)		9/16/20	$2,985.74	EFT
457 District Contribution		9/16/20	$80.00	EFT
PP ending 9/30/2020				
PERS Retirement Contribution		10/1/20	$5,616.40	EFT
457 Deferred Comp (Employee Paid)		10/1/20	$2,985.74	EFT
457 District Contribution		10/1/20	$80.00	EFT
		Total	**$23,773.90**	

Total of Invoices Paid and Payroll	**$93,992.34**

American River Flood Control District
Central Valley Flood Protection Board Permit Application
Sump 103 Modifications (City of Sacramento)
Staff Report

Discussion:

The City of Sacramento submitted this encroachment permit application to modify facilities at their Sump 103 Pump Station. The work proposed is to remove and replace approximately 50 ft of two (2) 36” welded steel pipes at the pump discharge location and outfall structure.

Sump 103 is located adjacent to the Arcade Creek North Levee and is just west of the bike trail bridge crossing.

These modifications are required to upgrade the pipe outfall system at the pump station. Recent work conducted by SAFCA under the North Area Streams Project replaced only the segments of pipe that crossed through the levee. This work will complete the upgrade to the facility by replacing the pipe discharge sections at the pumps and also the pipe outfall sections and flap gates.

These modifications will be routine construction installations and do not present considerable engineering challenges. It is not anticipated that this work will pose significant operations and maintenance impacts to the District.

Recommendation:

The General Manager recommends that the Board of Trustees endorse the CVFPB permit application.

State of California | DEPARTMENT OF WATER RESOURCES
CENTRAL VALLEY FLOOD PROTECTION BOARD | California Natural Resources Agency

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

Application No. _____
(For Office Use Only)

1. Description of proposed work being specific to include all items that will be covered under the issued permit.
Sump 103 Modifications: Remove and replace approximately 50 ft of two (2) 36" welded steel pipes at the pump discharge location and outfall structure.

2. Project Location: Sacramento County, in Section See Attachment A
Township: See Attachment A (N) (S), Range: See Attachment A (E) (W), M. D. B. & M.
Latitude: 38.62590 Longitude: -121.44775
Stream: Arcade Creek , Levee : Right Bank Designated Floodway: Arcade Creek
APN: See Attachment A

3. Raymond Kong, PE (Name of Applicant / Land *Owner*) of 1395 35th Ave (Address)
Sacramento (City) CA (State) 95822 (Zip Code) (916) 808-1435 (Telephone Number)
RKong@cityofsacramento.org (E-mail)

4. Ashley Smith, PE (Name of Applicant's Representative) of Peterson Brustad Inc. (Company)
Folsom (City) CA (State) 95630 (Zip Code) (916) 608-2212 x 123 (Telephone Number)
asmith@pbieng.com (E-mail)

5. Endorsement of the proposed project from the Local Maintaining Agency (LMA):

We, the Trustees of American River Flood Control District (Name of LMA) approve this plan, subject to the following conditions:

☐ Conditions listed on back of this form ☐ Conditions Attached ☐ No Conditions

Trustee _____ Date _____ Trustee _____ Date _____

Trustee _____ Date _____ Trustee _____ Date _____

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

6. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If additional space is required, list names and addresses on back of the application form or an attached sheet.

Name	Address	Zip Code
See Attachment A		

7. Has an environmental determination been made of the proposed work under the California Environmental Quality Act of 1970? ☐ Yes ☐ No ☑ Pending

If yes or pending, give the name and address of the lead agency and State Clearinghouse Number:

City of Sacramento
1395 35th Avenue
Sacramento, CA 95822

SCH No. Pending

8. When is the project scheduled for construction? April 2021

9. Please check exhibits accompanying this application.

A. ☑ Regional and vicinity maps showing the location of the proposed work.

B. ☑ Drawings showing plan view(s) of the proposed work to include map scale.

C. ☑ Drawings showing the cross section dimensions and elevations (vertical datum?) of levees, berms, stream banks, flood plain,

D. ☑ Drawings showing the profile elevations (vertical datum?) of levees, berms, flood plain, low flow, etc.

E. ☑ A minimum of four photographs depicting the project site.

Signature of Applicant Date

Include any additional information:

A summary of the Project and a description of the proposed methods are provided in Attachment A. Attachment B includes relevant plan sheets which are an excerpt from a larger plan set. Attachment C includes the categorical permission checklist. The intent of this application is to modify the existing encroachment permit. The existing Permit number for Sump 103 is 16687.

Attachment A – Summary of Proposed Work

CITY OF SACRAMENTO PUMP OUTFALLS PROJECT:

CENTRAL VALLEY FLOOD PROTECTION BOARD ENCROACHMENT PERMIT

SUMMARY OF PROPOSED WORK

September 15, 2020

INTRODUCTION

As mandated by the Sacramento Area Flood Control Agency (SAFCA) and the U.S. Army Corps of Engineers (USACE), sump station outfalls that penetrate and cross major levees are inspected on a 5-year cycle. The project entails the complete replacement of the pump discharge for three (3) drainage sump station facilities and partial replacement of the pump discharge pipe for five (5) drainage sump station facilities. The following information pertains to a partial replacement sump (Sump 103) that will need an updated Encroachment Permit from the CVFPB.

APN Parcels

Sump	Existing Permit #	APN
103	16687	250-0270-012-0000, 263-0010-015-0000, 263-0010-016-0000

ADJACENT PARCELS

All of the parcels adjacent to the Sump to be modified are listed in the table presented below as provided by the Sacramento County Assessor's Office.

APN	Address	Owner	Owner Address	City	Zip
250-0270-009-0000	ALTOS AVE	CITY OF SACRAMENTO	915 I ST FL5	SACRAMENTO	95814
250-0260-014-0000	760 CARROLL AVE	JAGDISH PRASAD	1237 BELL AVE	SACRAMENTO	95838
250-0260-019-0000	3241 ALTOS AVE	CHARLES E CHASE	3241 ALTOS AVE	SACRAMENTO	95838
250-0260-016-0000	3233 ALTOS AVE	SYED ISHAQ HAMDANI	3233 ALTOS AVE	SACRAMENTO	95838
263-0041-019-0000	813 ARCADE BLVD	SHARON LEE NAYLOR	813 ARCADE BLVD	SACRAMENTO	95815
263-0260-010-0000	TRACTION AVE	CITY OF SACRAMENTO	915 I ST FL5	SACRAMENTO	95814

TOWNSHIP AND RANGE INFORMATION

Note that gaps exist in Townships and Ranges within the project area. Land not covered by T9N R5E has been in private ownership since before California joined the United States and therefore is not part of the Township and Range system, which was a survey of federal lands.

SITE PHOTOGRAPHS

Attached to this Summary of Proposed Work are photographs showing levee and channel areas representative of proposed work sites.

Figure 1: Arcade Creek north levee near Sump 103 looking south west

Figure 2: View looking west on the land side of the levee.

Figure 3: View looking northwest toward the Sump 103 outfall as it enters Arcade Creek

Figure 4: View looking south toward the Sump 103 outfall as it enters Arcade Creek.

Attachment B – Plan Sheets

(Excerpt from larger plan set for Pump Outfalls Replacement Project – A)

HOR SCALE: 1"=10'
10 5 0 10
5 2.5 0 5
VERT SCALE: 1"=5'

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

65% SUBMITTAL

REVISIONS			
NO.	DESCRIPTION	DATE	BY
△			
△			
△			
△			
△			

BENCH MARK ELEV. 44.82
DESCRIPTION:
CP/RBR&CAP

FIELD BOOK 0000
SCALE:
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V: V:

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA
DATE: 09/15/20
DESIGNED BY: B. JENSEN
R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH
R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 103
DEMO PLAN

PN: W14130615
DWG. NO. C21
SHEET 24 OF 47

HOR SCALE: 1"=10'
10 5 0 10
5 2.5 0 5
VERT SCALE: 1"=5'

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 44.82
DESCRIPTION:
CP/RBR&CAP

FIELD BOOK 0000
SCALE:
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1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA
DATE: 09/15/20
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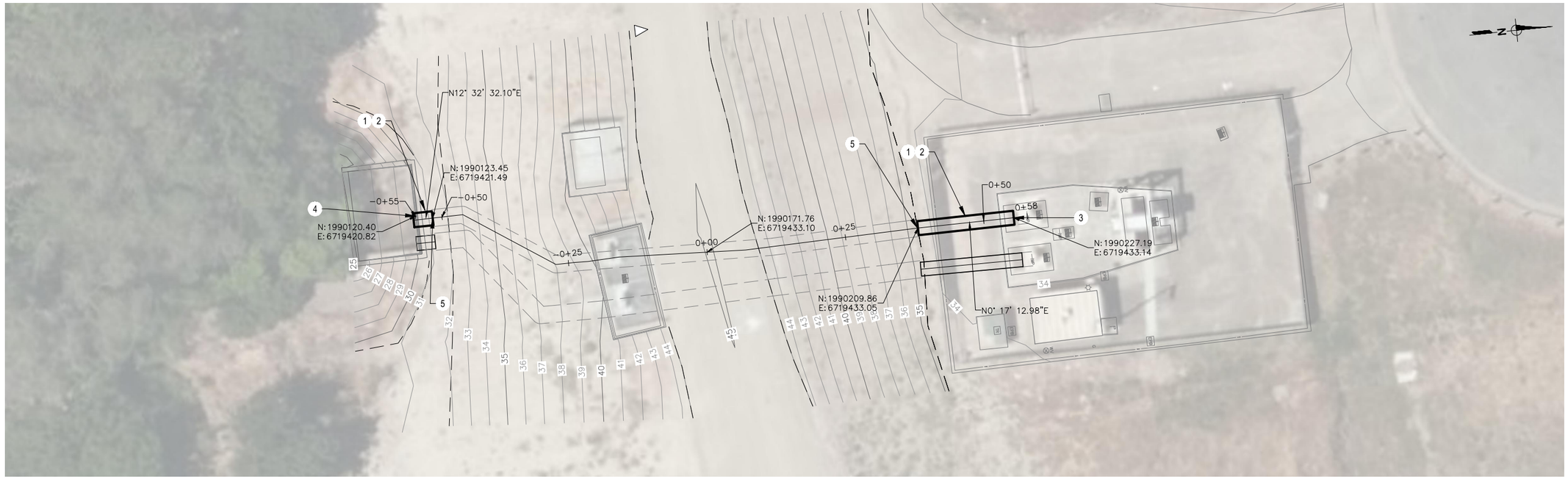
R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH
R.C.E. NO. C86512 DATE: 03/31/21

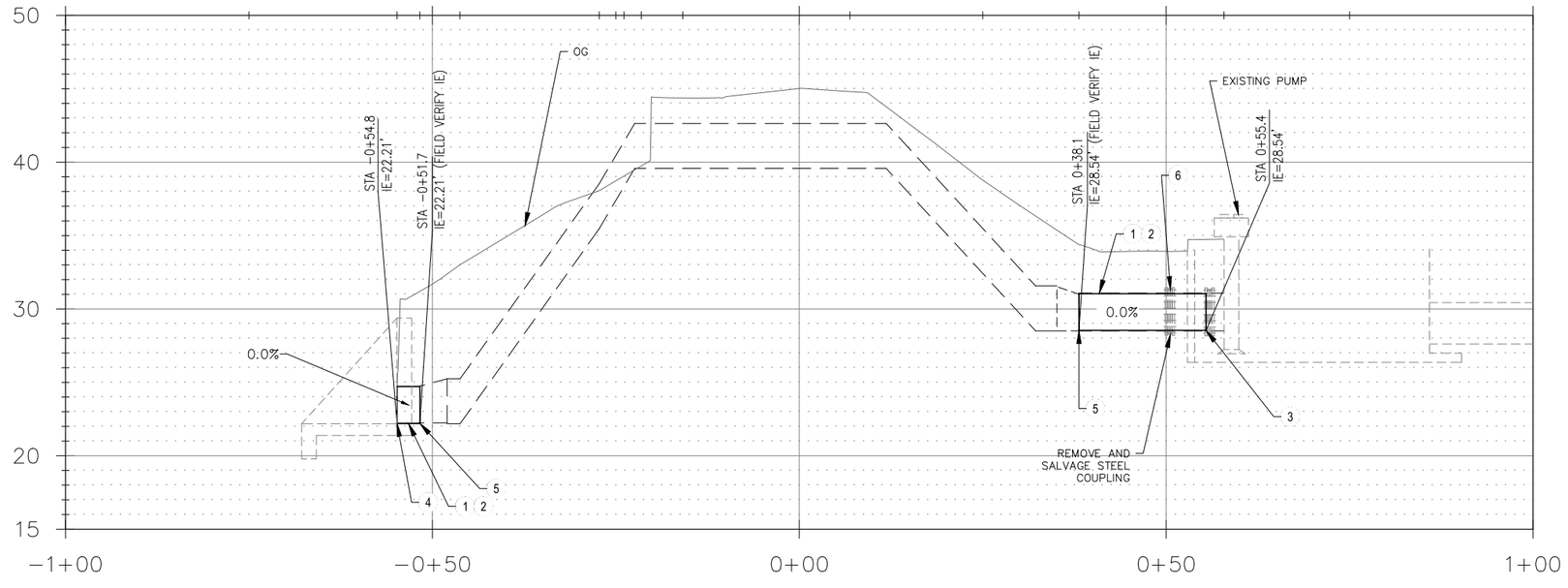
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 103
SITE PLAN

PN: W14130615
DWG. NO. C22
SHEET 25 OF 47

PN: W14130615





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 30" WSP AND APPURTENANCES FROM STA -0+54.8 TO STA -0+51.7 AND STA 0+38.1 TO STA 0+55.4 PER DETAIL 2/C38
2. INSTALL 30" WSP FROM STA -0+54.8 TO STA -0+51.7 AND STA 0+38.1 TO STA 0+55.4 PER DETAIL 3/C38
3. CONNECT TO EXISTING STEEL COUPLING
4. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
5. CONNECT TO EXISTING PIPE PER DETAIL 3/C37
6. REMOVE AND SALVAGE STEEL COUPLING
7. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
10 5 0 10
VERT SCALE: 1"=5'
5 2.5 0 5

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 44.82
DESCRIPTION: CP/RBR&CAP

FIELD BOOK 0000
SCALE: H: V:

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

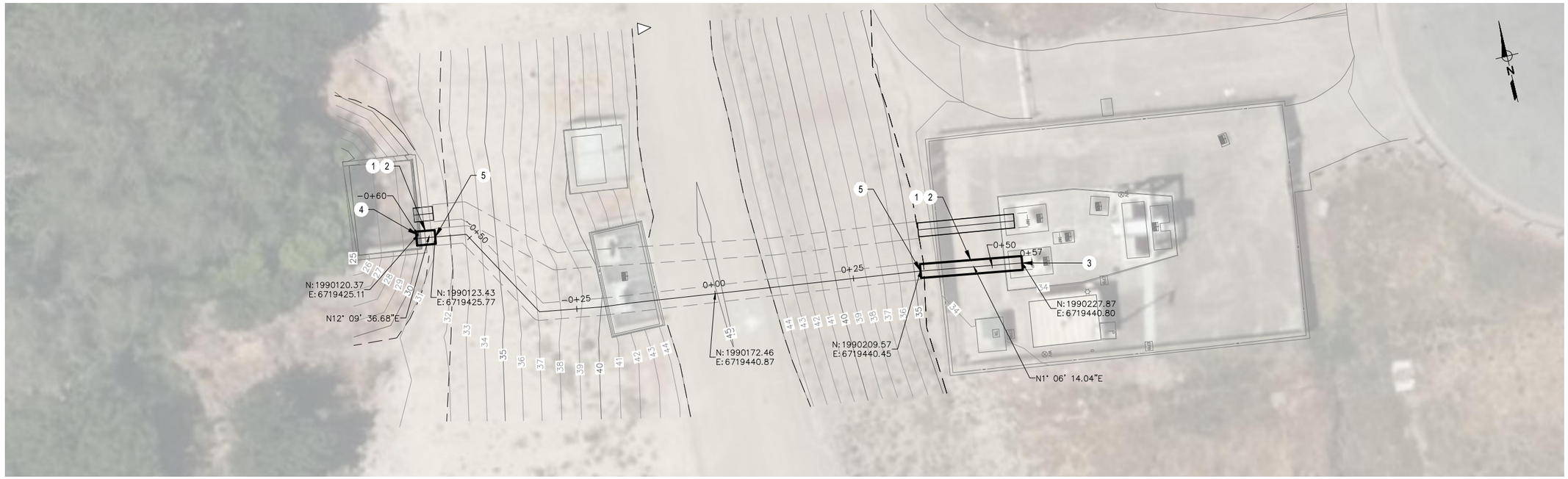
REGISTERED PROFESSIONAL ENGINEER MARC B. BRENNER No. C86512 CIVIL STATE OF CALIFORNIA
PRELIMINARY

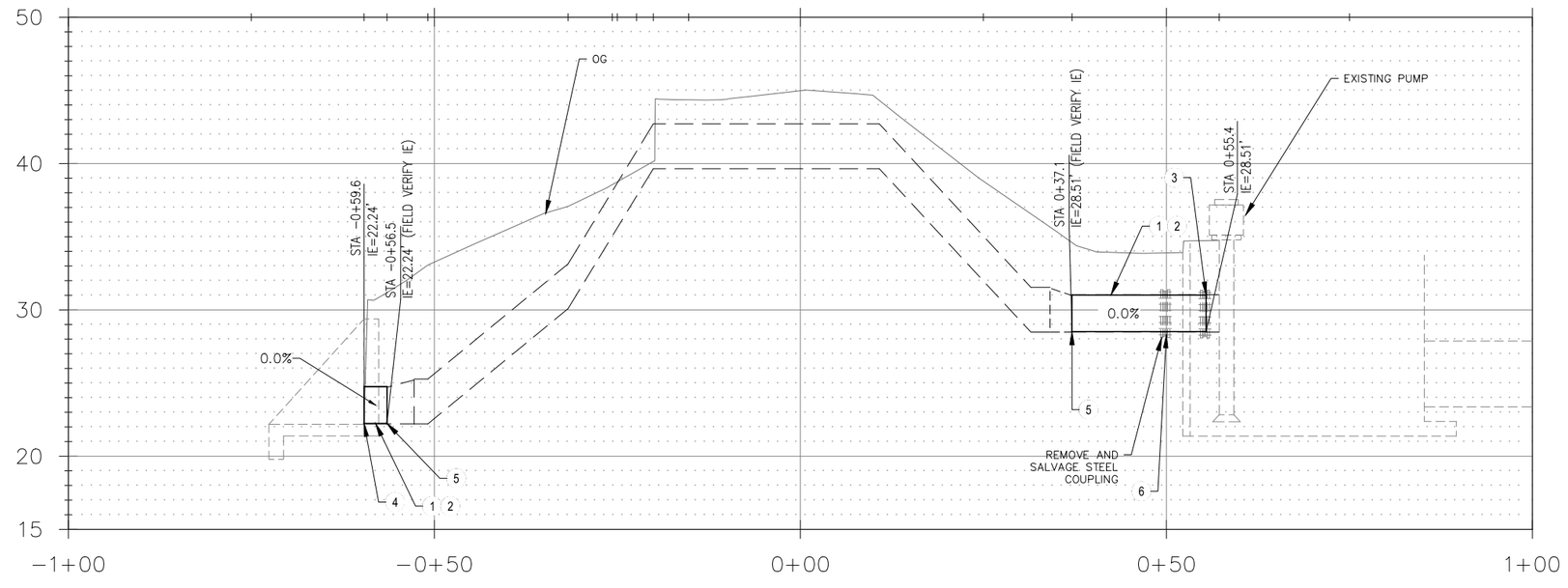
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 103
PLAN AND PROFILE 1 – 30" WSP

Page 13

PN: W14130615 DWG. NO. C23 SHEET 26 OF 47

PN: W14130615





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 30" WSP AND APPURTENANCES FROM STA -0+59.6 TO STA -0+56.5 AND STA 0+37.1 TO STA 0+55.4 PER DETAIL 2/C38
2. INSTALL 30" WSP FROM STA -0+54.8 TO STA -0+51.7 AND STA 0+37.1 TO STA 0+55.4 PER DETAIL 3/C38
3. CONNECT TO EXISTING STEEL COUPLING
4. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
5. CONNECT TO EXISTING PIPE PER DETAIL 3/C37
6. REMOVE AND SALVAGE STEEL COUPLING
7. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
10 5 0 10
VERT SCALE: 1"=5'
5 2.5 0 5

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 44.82
DESCRIPTION: CP/RBR&CAP

FIELD BOOK 0000
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1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

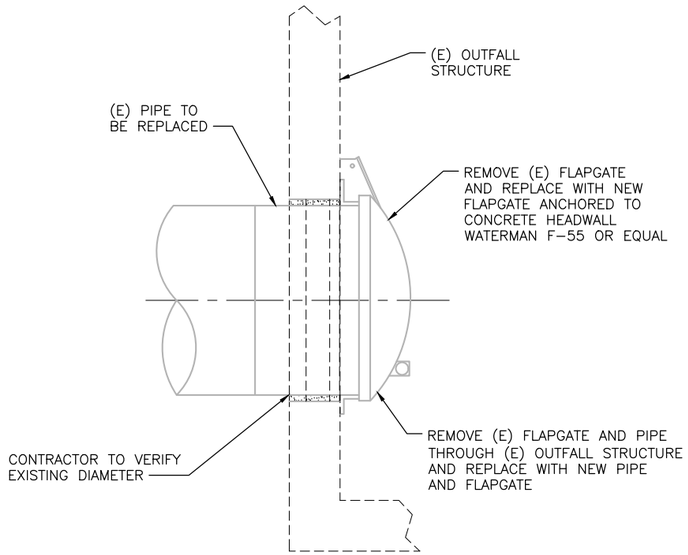
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER MARK B. BRENNER No. C90949 CIVIL STATE OF CALIFORNIA 03/31/22
PRELIMINARY

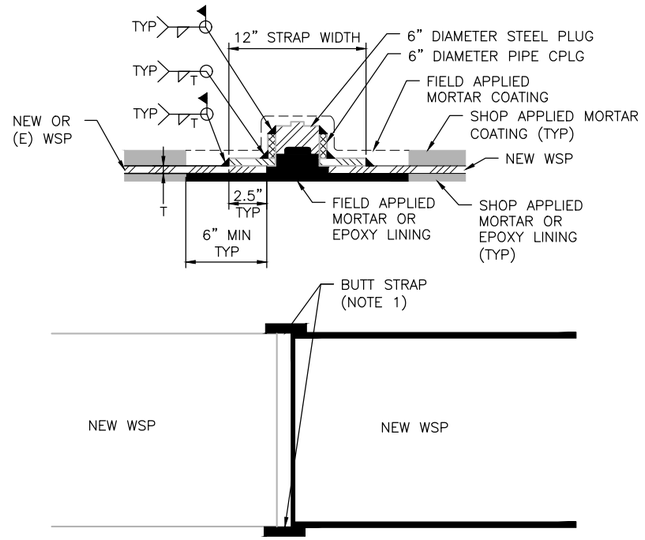
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 103
PLAN AND PROFILE 2 – 30" WSP

PN: W14130615 DWG. NO. C24 SHEET 27 OF 47

PN: W14130615



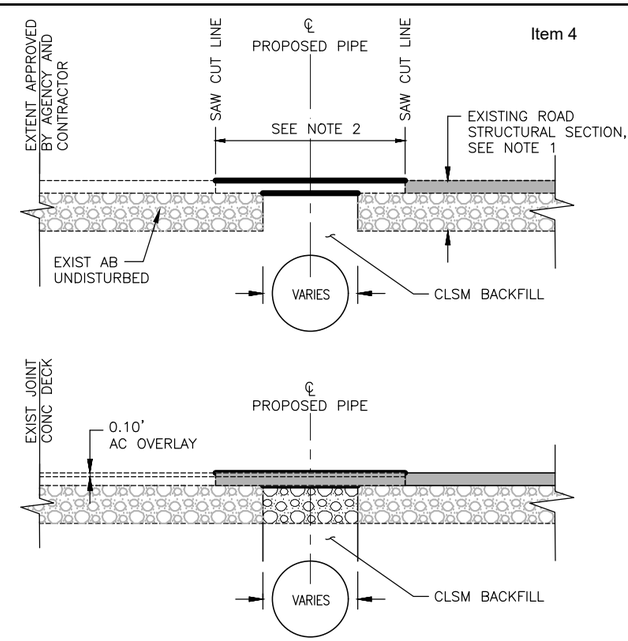
OUTFALL STRUCTURE CONNECTION DETAIL 1
NTS



NOTES:
1. PROVIDE HAND HOLES AS NEEDED TO INSTALL FIELD LINING. WELD HAND HOLE CLOSED WHEN COMPLETE. HAND HOLES NOT REQUIRED AT OUTLETS IF ACCESSIBLE THROUGH FLAP GATE.

NEW OR EXISTING STEEL

PIPE CONNECTION DETAIL 2
NTS



TRENCH SECTION AND SEQUENCING 3
NTS

NOTES:

1. CONTRACTOR SHALL REPLACE EXISTING PAVEMENT IN KIND. BASED ON LIMITED FIELD INVESTIGATIONS, EXISTING PAVEMENT SECTION ARE ASSUMED 2" AC ON 6" AB
2. THE OWNER AND THE CONTRACTOR SHALL JOINTLY DETERMINE THE FINAL WIDTH AND LENGTH OF THE BIKE PATH CROSSING BASED ON FIELD CONDITIONS AND CONSTRUCTION PROCEDURES.
3. CONTRACTOR SHALL REMOVE EXISTING BIKE PATH AS NEEDED TO CONSTRUCT PROPOSED PIPE. IMPACTED AREAS SHALL BE REPLACED IN ACCORDANCE WITH CITY OF SACRAMENTO STANDARD DETAIL T-21

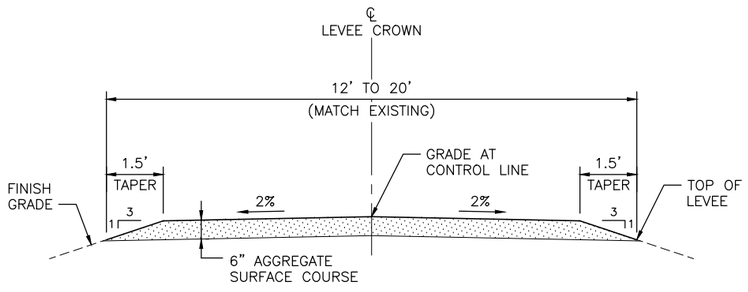
CONSTRUCTION SEQUENCE:

STEP 1: SAWCUT LIMITS O9F TRENCH EXCAVATION TO CLEAN CUT LIMITS. REMOVE EXISTING ASPHALT CONCRETE TO THE MIN EXTENT REQUIRED TO CONSTRUCT PROPOSED PIPE. PROPOSED PIPE SHALL BE CONSTRUCTED A MIN OF 2' FROM FG. TRENCH PLATES SHALL BE PROVIDED TO MAINTAIN ACCESS OVER CUTOFF WALL DURING CONSTRUCTION IN ACCORDANCE WITH THE SPECIFICATIONS.

STEP 2: PLACE AB TO MATCH EXISTING THICKNESS. PLACE AC OVERLAY FROM EXTENT APPROVED BY AGENCY AND CONTRACTOR TO LIMITS OF SAWCUT. PROVIDE PAVEMENT MARKING AND STRIPING TO MATCH EXISTING.

LEGEND:

EXISTING		PROPOSED
	GRIND AND OVERLAY ASPHALT CONCRETE	
	AGGREGATE BASE (AB)	
	ASPHALT CONCRETE (AC)	



CROWN SURFACING DETAIL 4
NTS

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. _____
DESCRIPTION: _____

FIELD BOOK 0000
SCALE:
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V: _____

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

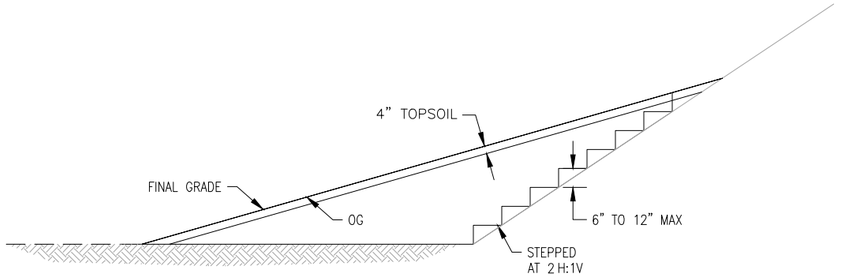
REGISTERED PROFESSIONAL ENGINEER MATT B. BROWN No. C86512 CIVIL STATE OF CALIFORNIA
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
MISCELLANEOUS DETAILS I

Page 15

PN: W14130615 | DWG. NO. C37 | SHEET 40 OF 47

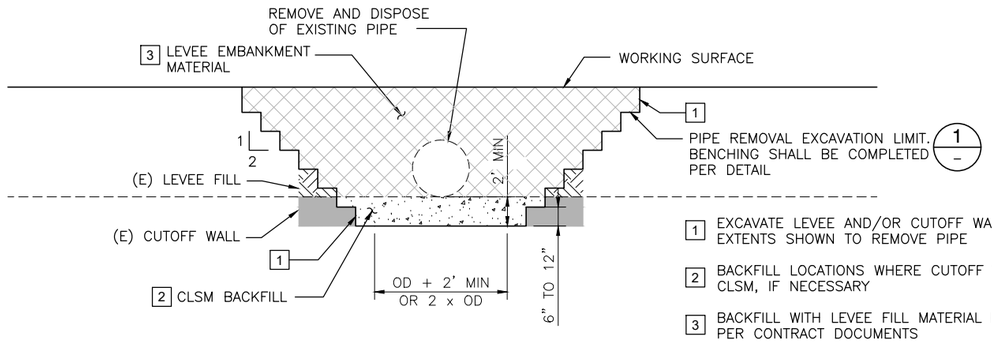
PN: W14130615



TYPICAL SLOPE BENCHING NOTES:

1. PLACE FILL IN HORIZONTAL LIFTS AGAINST VERTICAL FACES CUT INTO EXISTING LEVEE MATERIAL.
2. THE BOTTOM OF THE KEY TRENCH SHALL BE SCARIFIED TO A DEPTH OF 8 INCHES AND RECOMPACTED TO 95% MAX DENSITY PER ASTM D698.

SLOPE BENCHING (LANDSIDE OR WATERSIDE) DETAIL 1/–
NTS

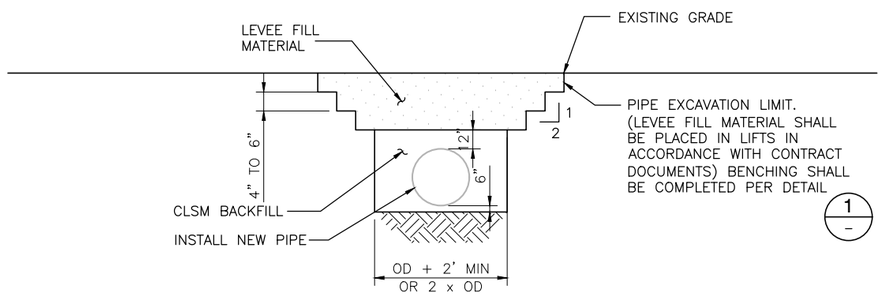


1 EXCAVATE LEVEE AND/OR CUTOFF WALL MATERIAL TO EXTENTS SHOWN TO REMOVE PIPE

2 BACKFILL LOCATIONS WHERE CUTOFF WAS REMOVED WITH CLSM, IF NECESSARY

3 BACKFILL WITH LEVEE FILL MATERIAL PLACED IN LIFTS PER CONTRACT DOCUMENTS

TYPICAL REMOVAL OF EXISTING PIPE DETAIL 2/–
NTS



INSTALLATION OF NEW PIPE DETAIL 3/–
NTS

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. _____
DESCRIPTION: _____

FIELD BOOK 0000
SCALE: H: _____ V: _____

1" — ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER KAREL B. BRADLEY No. C86512 EXP. 03/31/22 CIVIL STATE OF CALIFORNIA — PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
MISCELLANEOUS DETAILS II

PN: W14130615 | DWG. NO. C38 | SHEET 41 OF 47

PN: W14130615

Attachment C – Categorical Permission Checklist

Categorical Permission Alteration Description – 16. Pressurized Pipes

The categorical permission covers the installation, modification, and replacement of pressurized pipes that comply with certain terms and conditions. Particularly, all pressurized pipes must be designed and installed in accordance with current USACE standards. The total area of disturbance, including staging and access areas, must not exceed 5 acres. Pressurized pipes must also be designed to prevent, (1) flotation from uplift, (2) scour or erosion, (3) damage from debris on the waterside, particularly during flood flows, (4) leakage, (5) seepage along proposed pipes, (6) corrosion, and (7) damage from vehicular loads.

All new pressurized pipes should go up and over the levee DWSE. Pressurized pipes passing over or within the freeboard zone of a levee (i.e., above the levee DWSE), should be made of metal, preferably ductile iron or coated steel, suitable for use with flexible couplings.

Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM). Pipes that pass above the DWSE must have 2 feet of cover (low permeability or CLSM) to prevent damage by vehicles and equipment. Cover material on the levee crown must be placed at a ratio of 10H:1V, in the upstream/downstream direction of the levee. Pipes on the sides of the levee should be covered with a minimum of 1 foot of low permeability material, compacted in 4- to 6-inch lifts or CLSM to protect them from debris during high water (waterside) or to keep them from interfering with or being damaged by operations or maintenance of the levee (landside). Fill must be free of deleterious materials and construction debris and placed in 4- to 6-inch-thick loose lifts and compacted to not less than 95% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D698 (USACE preferred method), or alternately, 90% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D1557. At the sponsor and levee maintaining agency's discretion, pipes on the levee slopes may be left exposed.

Only suitable material must be used as levee fill materials. Fill must be free from: roots and other organic matter, contaminated hazardous or toxic material, trash, debris, and frozen materials. Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve.

Pressurized pipes terminating in the channel require a positive closure device on the waterside that is accessible from the levee crown. Pressurized pipes transporting product completely across or through the federal project easement require positive closure devices located landward of any levees and channel. The positive closure device shall be located within one mile on both sides of the federal project. If the invert of the pipe is over the levee crown, the combination of a pump station on the waterside and a siphon breaker is considered an appropriate means of closure. Pipes located within or beneath a levee must have watertight joints that can accommodate movements resulting from settlement.

All pressurized pipes that cross the levee foundation at a depth less than or equal to two times the height of the levee should be evaluated for uplift. Pipes crossing the surface of the levee must be designed to counteract buoyancy forces of an empty pipe, with water at the DWSE.

Pressurized pipelines running parallel to flood risk management projects should be located at least 15 feet beyond the levee toes. Pipe location and orientation must be clearly marked in the field so they can be easily identified for flood fighting crews.

If appropriate, the requester should prepare an excavation plan demonstrating the effects of excavation on the stability of the embankments.

The site layout should provide adequate access for maintenance vehicles to refill fuel tanks and service/replace pumps, generators, etc. Pressurized pipes must also allow easy access for rapid closure in the event of leakage or rupture.

No plastic pipes (HDPE, PVC, etc.) are allowed in the levee embankment or its foundation unless they are embedded in concrete.

If an electrochemical or chemical reaction between the substratum or groundwater and pipe materials is expected, the pipe and pipe couplings must be protected.

After installation of pressurized pipes, the requester must demonstrate 0% pipe leakage in pipes in the levee. Pipes must be pressure tested to industry standards. Pipes must be regularly inspected, including the interior, if possible, looking for signs of maintenance issues. If an inspection indicates corrosion, alignment sag or heave, or separation at joints, corrective action must be taken as soon as possible to avoid failure. Pipe valves must be periodically inspected and pressure tested to ensure that they are functioning properly. Pressure tests must show no significant loss in pressure. Leaks and other deficiencies must be addressed as soon as possible. All replacement parts must be of equivalent or better quality than those being replaced.

The preferred method for abandoning pipes that pass through or over a levee is complete removal. If removal is not feasible, the pipes and other structures may be filled with a cement/bentonite-based grout or flowable fill. The grout needs to be sufficiently fluid so that it can be pumped to completely fill the pipe leaving no voids.

Categorical Permission Alteration Checklist – 16. Pressurized Pipes

Note: The following checklist is intended for planning purposes only, and includes information that USACE reviewers look for when considering a Section 408 request for pressurized pipes under the Categorical Permission. To be reviewed under the Categorical Permission, the proposed project must adhere to all requirements of the Categorical Permission, including the full alteration description (see previous page). The plans and narrative project description should reflect this information.

1.	☐ New Construction ☒ Replacement ☐ Modification ☐ Authorize Existing
2.	Maximum total area of disturbance is 5 acres: Yes ☒ No ☐ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: Area of disturbance is 0.006 acre.
3.	Pipes are designed to prevent flotation from uplift, scour or erosion, damage from debris on the waterside (particularly during flood flows), seepage along proposed pipes, corrosion, leakage, and damage from vehicular loads: Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41. Comment: [Click to enter rationale, explanation, unique situation, etc.]
4.	Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM): Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41 Comment: [Click to enter rationale, explanation, unique situation, etc.]
5.	Pipes passing over the DWSE will have a minimum of 2 feet of cover (low permeability or CLSM): Yes ☐ N/A ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: [Click to enter rationale, explanation, unique situation, etc.]
6.	If material must be added to the levee crown, the added material must be sloped at a ratio of 10H:1V horizontal to vertical, in the upstream/downstream direction to prevent a “speed bump” effect and facilitate vehicle access: Yes ☐ N/A ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment:
7.	Fill will be compacted to at least 95% of maximum density as determined by ASTM D698, between -2 and +3% of optimum moisture content: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 3.6B. Comment: [Click to enter rationale, explanation, unique situation, etc.]
8.	Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 2.2A. Comment: [Click to enter rationale, explanation, unique situation, etc.]
9.	All fill will be free of organics or other inappropriate materials: Yes ☒ N/A ☐ Reference: Refer to Spec section 31 00 00 3.9.B.1.6. Comment: [Click to enter rationale, explanation, unique situation, etc.]

10. Pipes terminating in the channel have a positive closure device on the waterside that is accessible from the levee crown: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

11. Pipes transporting product completely across the federal project have a positive closure devices located within 1 mile on both sides of the federal project: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

12. Pipes located within or beneath a levee have watertight joints that can accommodate movements resulting from settlement: Yes ☒ No ☐
Reference: Refer to detail 2 on Sheet 40
Comment: [Click to enter rationale, explanation, unique situation, etc.]

13. Pipes crossing the surface of the levee are designed to counteract buoyancy forces of an empty pipe, with water at the DWSE: Yes ☒ N/A ☐
Reference: Refer to detail 3 on sheet 41
Comment: [Click to enter rationale, explanation, unique situation, etc.]

14. Pipe location and orientation will be clearly marked in the field: Yes ☒ No ☐
Reference: pipe location and orientation can be identified by vault structure and outfall location
Comment: [Click to enter rationale, explanation, unique situation, etc.]

15. Pipes will allow easy access for rapid closure: Yes ☒ No ☐
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: Positive valve closures on the levee crest will ensure easy access for rapid closure.

16. Plastic pipes within the levee embankment or its foundation are embedded in concrete: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

17. If a chemical or electrochemical reaction is expected, the pipe and pipe couplings must be protected: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

18. Any work within the levee embankment or foundation? Yes ☐ No ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

19. Any work ≤50 feet beneath the channel invert? Yes ☐ No ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

20. Hydraulic blockage calculation ≥1%? Yes ☐ No ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

21. Hydraulic model used for hydraulic analysis? Yes ☐ No ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

– For Official Use Only below this line –

Comment

CP Eligibility Review

Yes	No	Add'l. Info Requested		
☐	☐	☐	Environmental Reviewer: _____	Date: Click date
☐	☐	☐	Engineering Reviewer: _____	Date: Click date

American River Flood Control District
Central Valley Flood Protection Board Permit Application
Sump 151 Modifications (City of Sacramento)
Staff Report

Discussion:

The City of Sacramento submitted this encroachment permit application to modify facilities at their Sump 151 Pump Station. The work proposed is to remove and replace approximately 140 ft of one (1) 54” welded steel pipe, 140 ft of one (1) 42” HDPE pipe, 140 ft of one (1) 42” welded steel pipe, 280 ft of two (2) 30” welded steel pipes, and 140 ft of one (1) 16” welded steel pipe. Install positive closure vault at top of levee hinge-point. Replace approximately 2,250 square feet of asphalt paving at the south end of the sump station and bike path.

Sump 151 is located adjacent to the American River North Levee and off Canterbury Road (near Costco).

These modifications are required to upgrade the pipe outfall system at the pump station. The current system does not meet modern U.S. Army Corps of Engineers’ standards. The USACE now requires that all pressurized pipes cross the levee at or above the 200-year flood elevation for the adjacent channel and that the pipes each have a positive closure device (shut-off valve) at the waterside crown hinge point. The proposed work will upgrade the facility to meet all State and Federal requirements.

Once the work is complete, it is not anticipated that this work will pose significant operations and maintenance impacts to the District. There will be temporary loss of access and thoroughfare for the District during construction.

Recommendation:

The General Manager recommends that the Board of Trustees endorse the CVFPB permit application.

State of California

DEPARTMENT OF WATER RESOURCES
CENTRAL VALLEY FLOOD PROTECTION BOARD

California Natural Resources Agency

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

Application No. _____
(For Office Use Only)

1. Description of proposed work being specific to include all items that will be covered under the issued permit.

Sump 151 Modifications: Remove and replace approximately 140 ft of one (1) 54" welded steel pipe, 140 ft of one (1) 42" HDPE pipe, 140 ft of one (1) 42" welded steel pipe, 280 ft of two (2) 30" welded steel pipes, and 140 ft of one (1) 16" welded steel pipe. Install positive closure vault at top of levee hinge-point. Replace approximately 2,250 square feet of asphalt paving at the south end of the sump station and bike path.

2. Project Location: Sacramento County, in Section 32

Township: 9N (N) (S), Range: 5E (E) (W), M. D. B. & M.

Latitude: 38.59587 Longitude: -121.45773

Stream: American River , Levee : Right Bank Designated Floodway: American River

APN: See Attachment A

3. Raymond Kong, PE (Name of Applicant / Land *Owner*) of 1395 35th Ave (Address)

Sacramento (City) CA (State) 95822 (Zip Code) (916) 808-1435 (Telephone Number)

RKong@cityofsacramento.org (E-mail)

4. Ashley Smith, PE (Name of Applicant's Representative) of Peterson Brustad Inc. (Company)

Folsom (City) CA (State) 95630 (Zip Code) (916) 608-2212 x 123 (Telephone Number)

asmith@pbieng.com (E-mail)

5. Endorsement of the proposed project from the Local Maintaining Agency (LMA):

We, the Trustees of American River Flood Control District (Name of LMA) approve this plan, subject to the following conditions:

☐ Conditions listed on back of this form ☐ Conditions Attached ☐ No Conditions

Trustee	Date	Trustee	Date
Trustee	Date	Trustee	Date

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

6. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If additional space is required, list names and addresses on back of the application form or an attached sheet.

Name	Address	Zip Code
See Attachment A		

7. Has an environmental determination been made of the proposed work under the California Environmental Quality Act of 1970? ☐ Yes ☐ No ☑ Pending

If yes or pending, give the name and address of the lead agency and State Clearinghouse Number:

City of Sacramento
1395 35th Avenue
Sacramento, CA 95822

SCH No. Pending

8. When is the project scheduled for construction? April 2021

9. Please check exhibits accompanying this application.

A. ☑ Regional and vicinity maps showing the location of the proposed work.

B. ☑ Drawings showing plan view(s) of the proposed work to include map scale.

C. ☑ Drawings showing the cross section dimensions and elevations (vertical datum?) of levees, berms, stream banks, flood plain,

D. ☑ Drawings showing the profile elevations (vertical datum?) of levees, berms, flood plain, low flow, etc.

E. ☑ A minimum of four photographs depicting the project site.

Signature of Applicant Date

Include any additional information:

A summary of the Project and a description of the proposed methods are provided in Attachment A. Attachment B includes relevant plan sheets which are an excerpt from a larger plan set. Attachment C includes the categorical permission checklist. The intent of this application is to modify the existing encroachment permit. The existing Permit number for Sump 151 is 5365.

Attachment A – Summary of Proposed Work

CITY OF SACRAMENTO PUMP OUTFALLS PROJECT:

CENTRAL VALLEY FLOOD PROTECTION BOARD ENCROACHMENT PERMIT

SUMMARY OF PROPOSED WORK

September 15, 2020

INTRODUCTION

As mandated by the Sacramento Area Flood Control Agency (SAFCA) and the U.S. Army Corps of Engineers (USACE), sump station outfalls that penetrate and cross major levees are inspected on a 5-year cycle. The project entails the complete replacement of the pump discharge for three (3) drainage sump station facilities and partial replacement of the pump discharge pipe for five (5) drainage sump station facilities. The following information pertains to a complete replacement sump (Sump 151) that will need an updated Encroachment Permit from the CVFPB.

APN Parcels

Sump	Existing Permit #	APN
151	5365	275-0270-036-0000

ADJACENT PARCELS

All of the parcels adjacent to the Sump to be modified are listed in the table presented below as provided by the Sacramento County Assessor's Office.

APN	Address	Owner	Owner Address	City	Zip
275-0260-007-0000	CANTERBURY RD	SOUTHERN PACIFIC	1400 DOUGLAS ST	OMAHA	68179
275-0260-014-0000	CANTERBURY RD	CITY OF SACRAMENTO	915 I ST FL5	SACRAMENTO	95814
275-0260-015-0000	CANTERBURY RD	CITY OF SACRAMENTO	915 I ST FL5	SACRAMENTO	95814
275-0260-023-0000	CANTERBURY RD	COUNTY OF SACRAMENTO	10361 ROCKINGHAM DR #100	SACRAMENTO	95827
275-0270-035-0000	236 LATHROP WAY	COUNTY OF SACRAMENTO	10361 ROCKINGHAM DR #100	SACRAMENTO	95827
275-0300-008-0000	281 LATHROP WAY	281 LATHROP CAPITAL LLC	2699 AZALEA RD	SACRAMENTO	95864

SITE PHOTOGRAPHS

Attached to this Summary of Proposed Work are photographs showing levee and channel areas representative of proposed work sites.

Figure 1: View of pump station

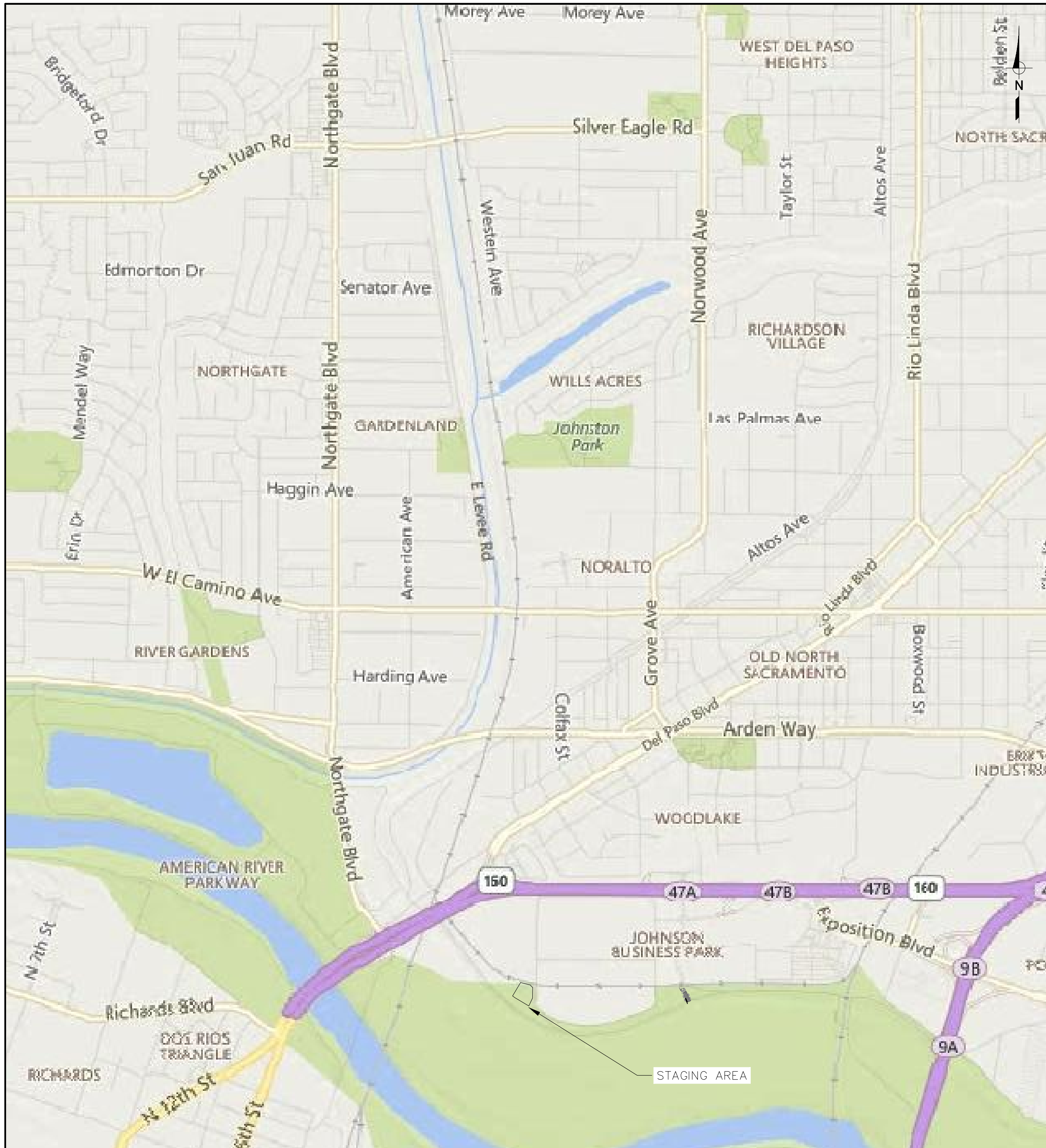
Figure 2: View of landside levee slope

Figure 3: View from crest of Levee facing eastward

Figure 4: View of outfall structure into American River

Attachment B – Plan Sheets

(Excerpt from larger plan set for Pump Outfalls Replacement Project – A)



PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

65% SUBMITTAL

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 46.60
DESCRIPTION:
SPINDLE

FIELD BOOK 0000
SCALE:
H: NTS
V: NTS

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

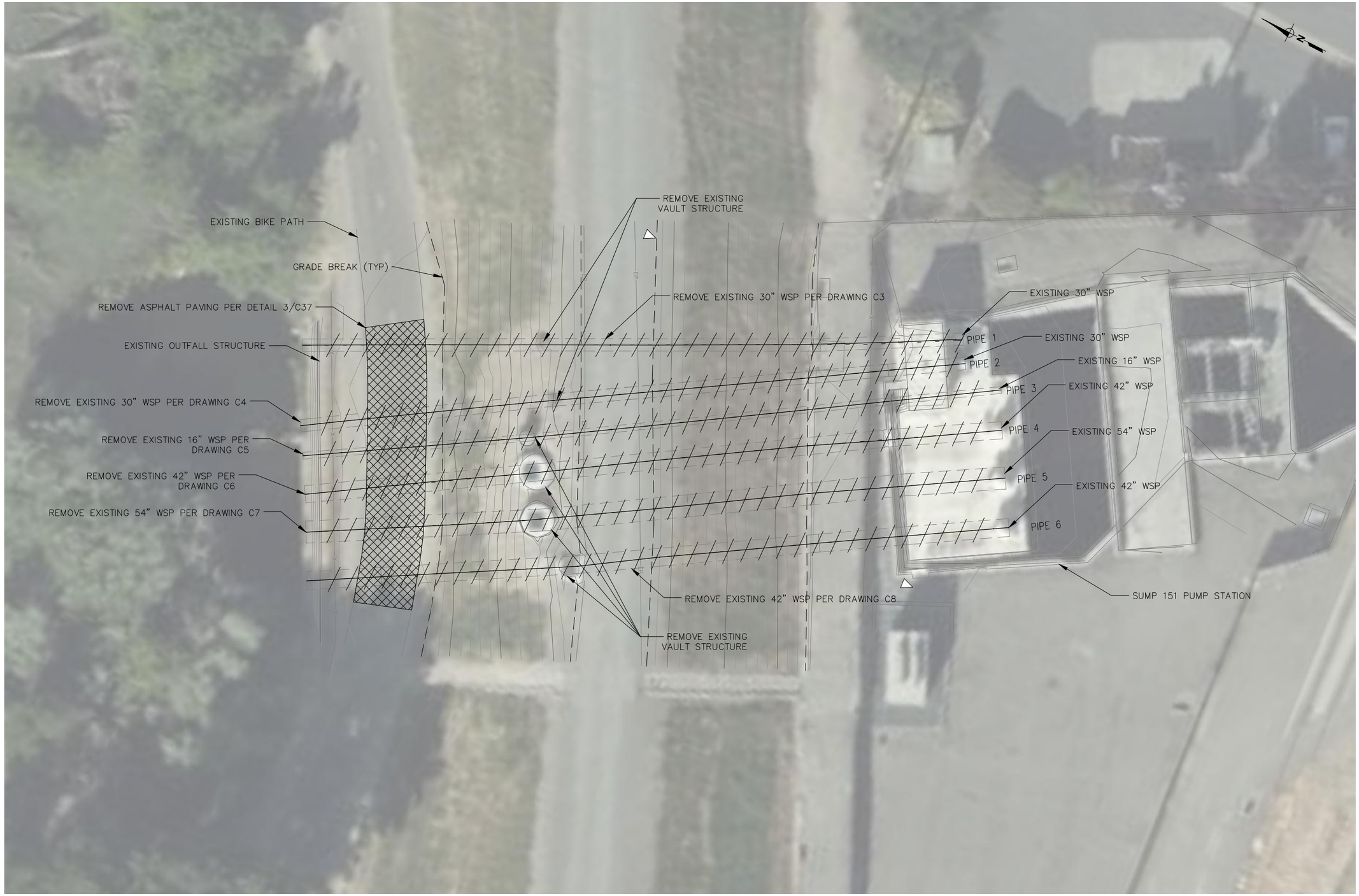
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA
DATE: 09/15/20
DESIGNED BY: B. JENSEN
R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH
R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
STAGING AREA

PN: W14130615
DWG. NO. G3
SHEET 3 OF 47



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VERT SCALE: 1"=5'
5 2.5 0 5

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 46.60
DESCRIPTION:
SPINDLE

FIELD BOOK 0000
SCALE:
H: 1"=10"
V: 1"=5"

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

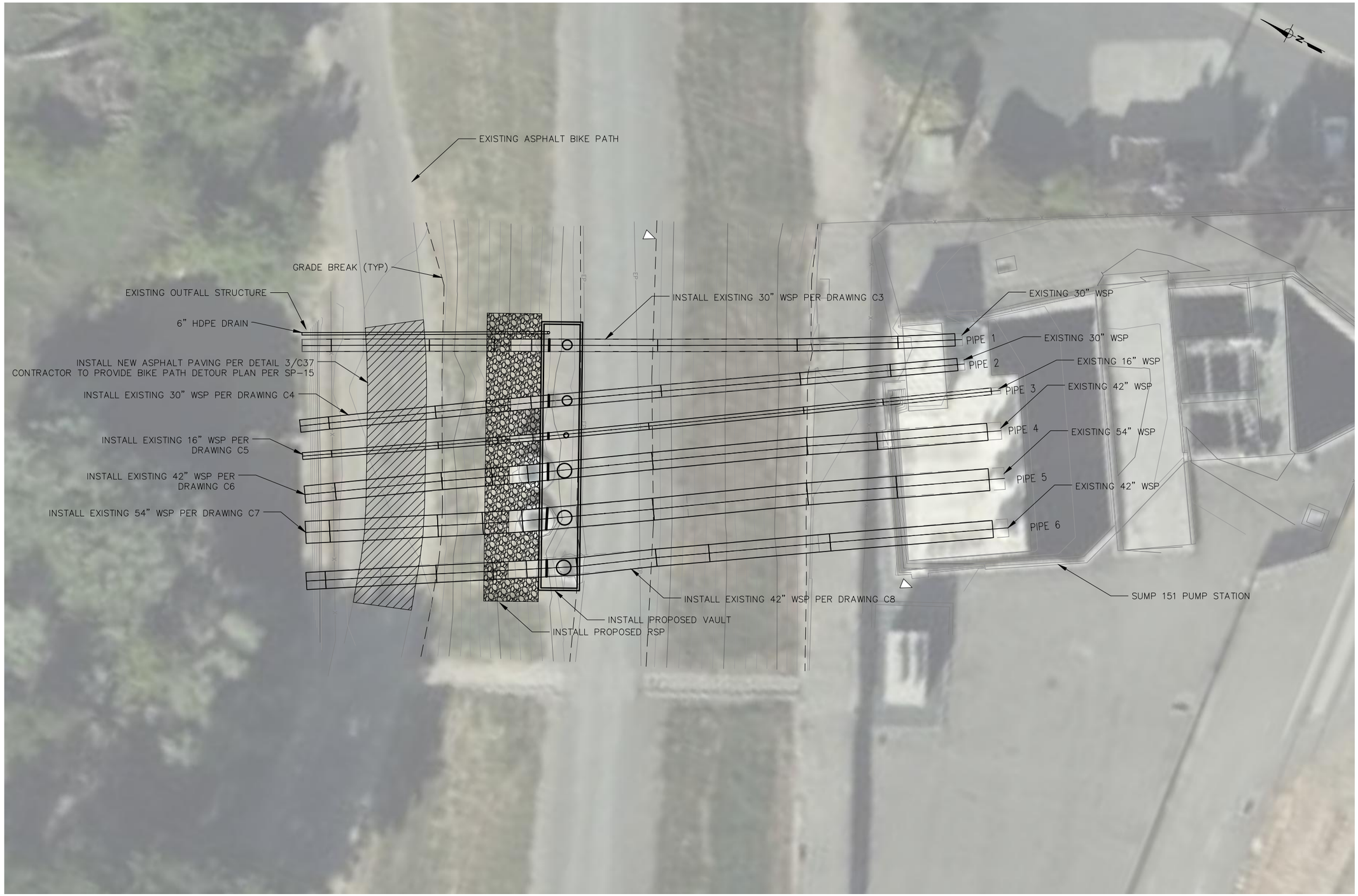
REGISTERED PROFESSIONAL ENGINEER MARC B. BRUNO C90949 03/31/22 CIVIL STATE OF CALIFORNIA
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 151
DEMO PLAN

Page 12

PN: W14130615
DWG. NO. C1
SHEET 4 OF 47

PN: W14130615



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VERT SCALE: 1"=5'
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65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 46.60
DESCRIPTION:
SPINDLE

FIELD BOOK 0000
SCALE:
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V: 1"=5"

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

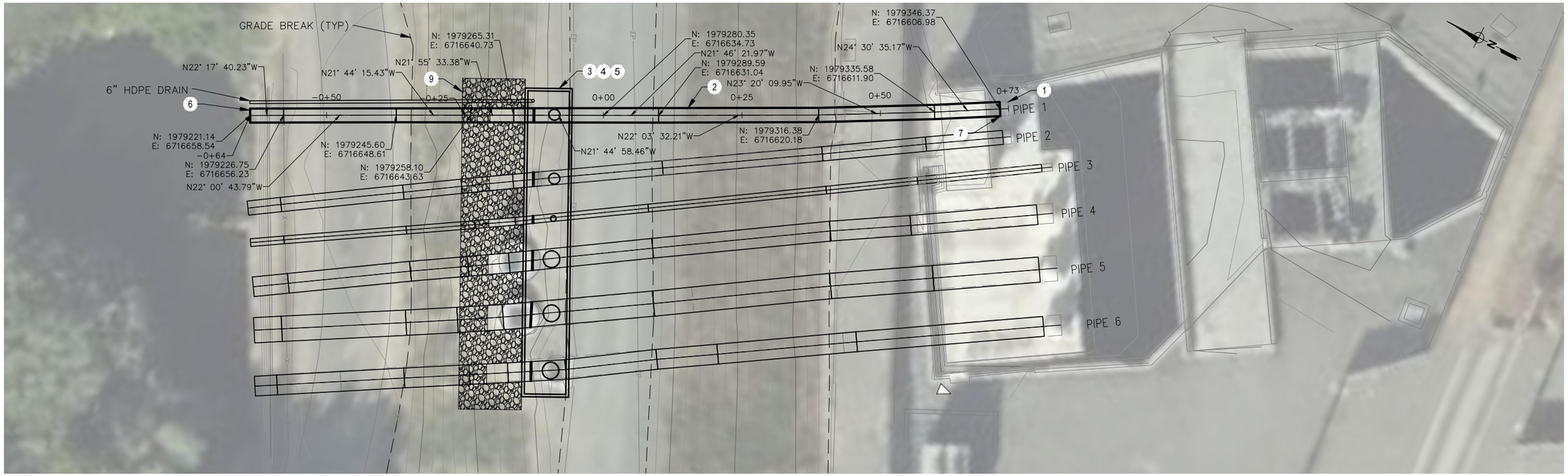
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

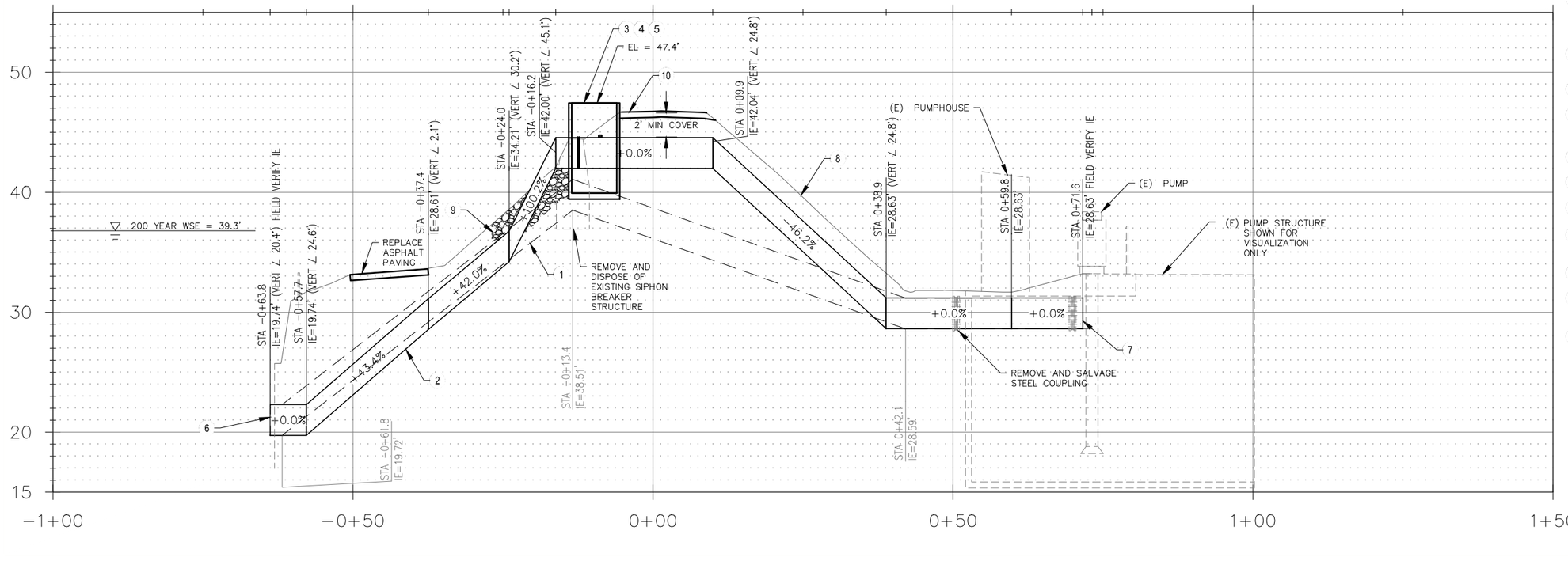
REGISTERED PROFESSIONAL ENGINEER KARL B. BRADLEY No. C86512 CIVIL STATE OF CALIFORNIA
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 151
SITE PLAN

PN: W14130615
DWG. NO. C2
SHEET 5 OF 47

PN: W14130615





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 30" WSP AND APPURTENANCES FROM STA −0+63.9 TO STA 0+71.6 PER DETAIL 2/C38
2. INSTALL 30" WSP FROM STA −0+63.9 TO STA 0+71. PER DETAIL 3/C38
3. INSTALL 42" FL x FL KNIFE GATE VALVE
4. INSTALL COMBINATION ANTI−SIPHON AND AIR RELIEF VALVE PER DETAIL 3/C35
5. INSTALL ANTI−SIPHON VAULT PER DETAIL 1/C9
6. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
7. CONNECT TO EXISTING STEEL COUPLING
8. RECONSTRUCT LEVEE EMBANKMENT WITH LEVEE FILL MATERIAL PER DETAIL 2/C38
9. INSTALL RSP PER DETAIL 1/C35
10. REPLACE EXISTING AGGREGATE SURFACE COURSE PER DETAIL 4/C37
11. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
10 5 0 10
VERT SCALE: 1"=5'
5 2.5 0 5

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 46.60
DESCRIPTION:
SPINDLE

FIELD BOOK 0000
SCALE:
H: 1'=10"
V: 1'=5"

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

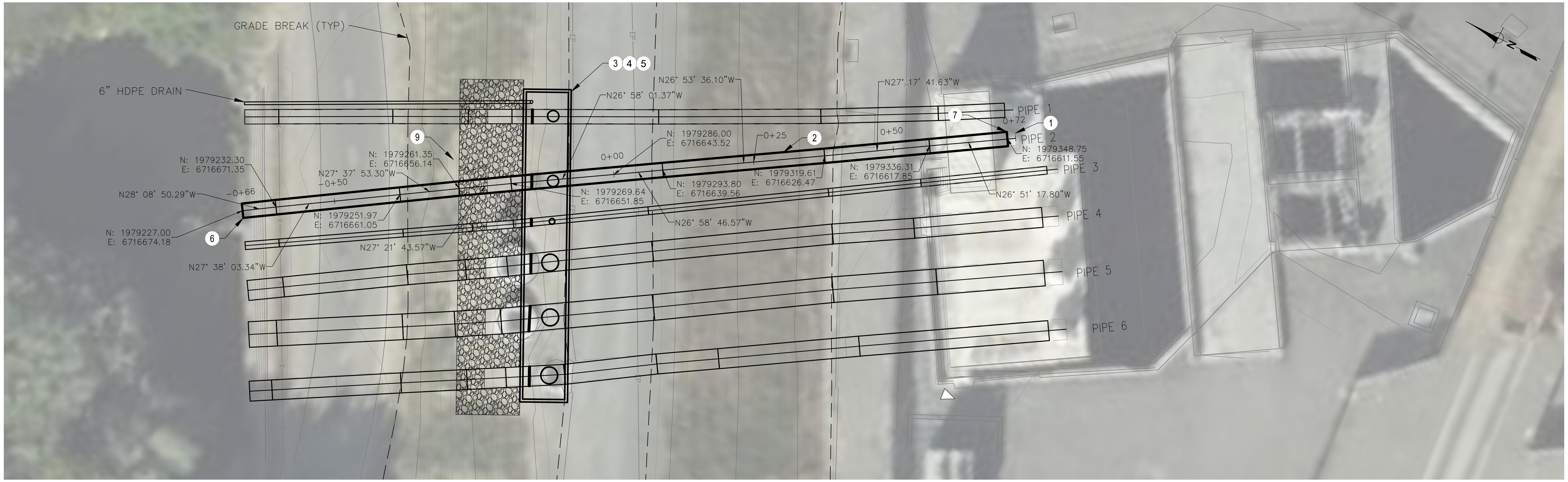
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

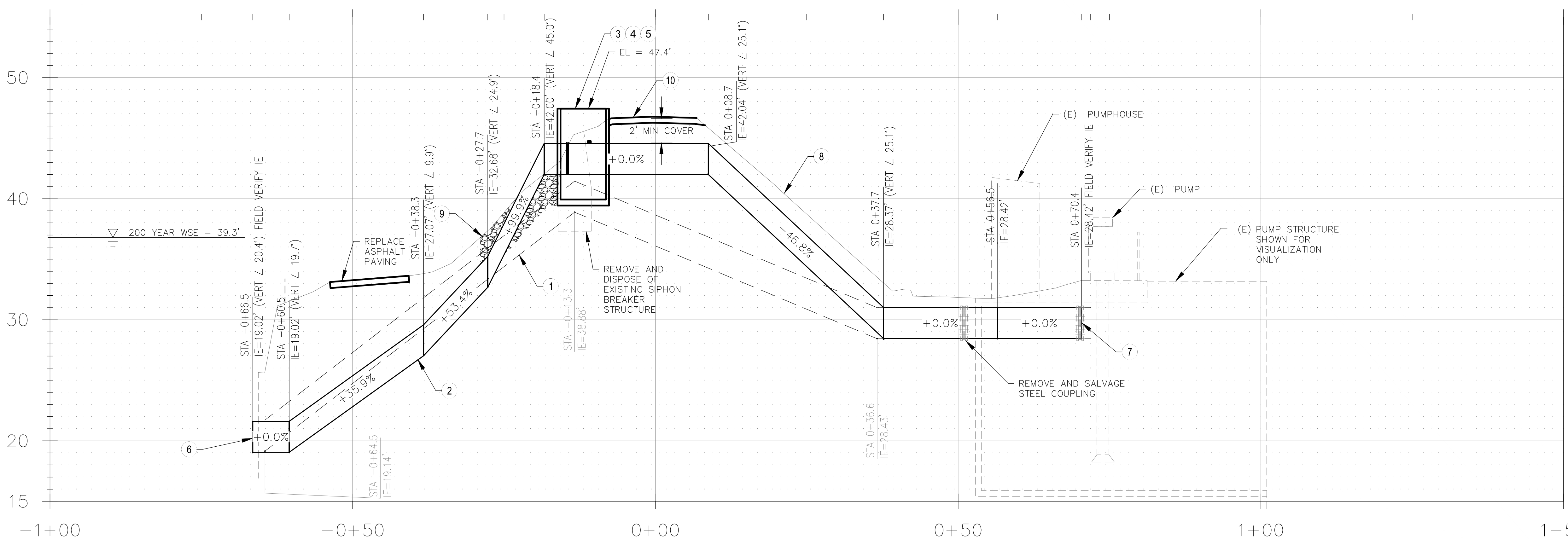
REGISTERED PROFESSIONAL ENGINEER MARK B. BRADLEY No. C90949 CIVIL STATE OF CALIFORNIA
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT − A
SUMP 151
PLAN AND PROFILE 1 − 30" WSP

PN: W14130615
DWG. NO. C3
SHEET 6 OF 47

PN: W14130615





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 30" WSP AND APPURTENANCES FROM STA -0+66.5 TO STA 0+70.4 PER DETAIL 2/C38
2. INSTALL 30" WSP FROM STA -0+66.5 TO STA 0+70.4 PER DETAIL 3/C38
3. INSTALL 42" FL x FL KNIFE GATE VALVE
4. INSTALL COMBINATION ANTI-SIPHON AND AIR RELIEF VALVE PER DETAIL 3/C35
5. INSTALL ANTI-SIPHON VAULT PER DETAIL 1/C9
6. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
7. CONNECT TO EXISTING STEEL COUPLING
8. RECONSTRUCT LEVEE EMBANKMENT WITH LEVEE FILL MATERIAL PER DETAIL 2/C38
9. INSTALL RSP PER DETAIL 1/C35
10. REPLACE EXISTING AGGREGATE SURFACE COURSE PER DETAIL 4/C37
11. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
VERT SCALE: 1"=5'

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK — ELEV. 46.60
DESCRIPTION: SPINDLE

FIELD BOOK 0000
SCALE: H: 1"=10" V: 1"=5"

ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

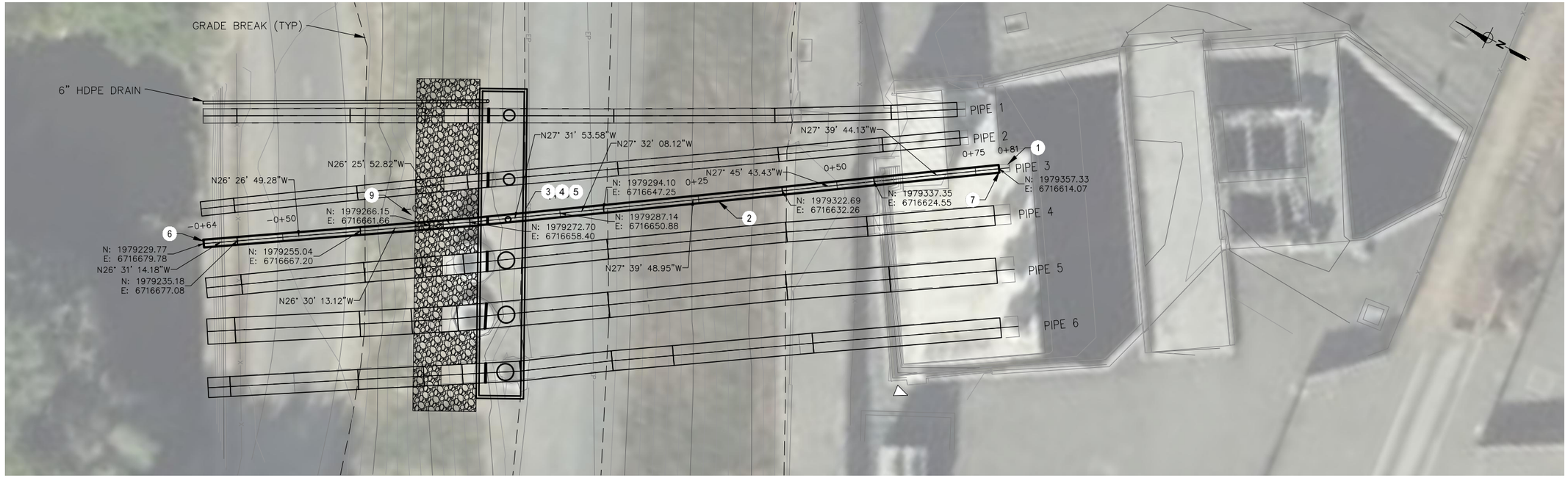
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

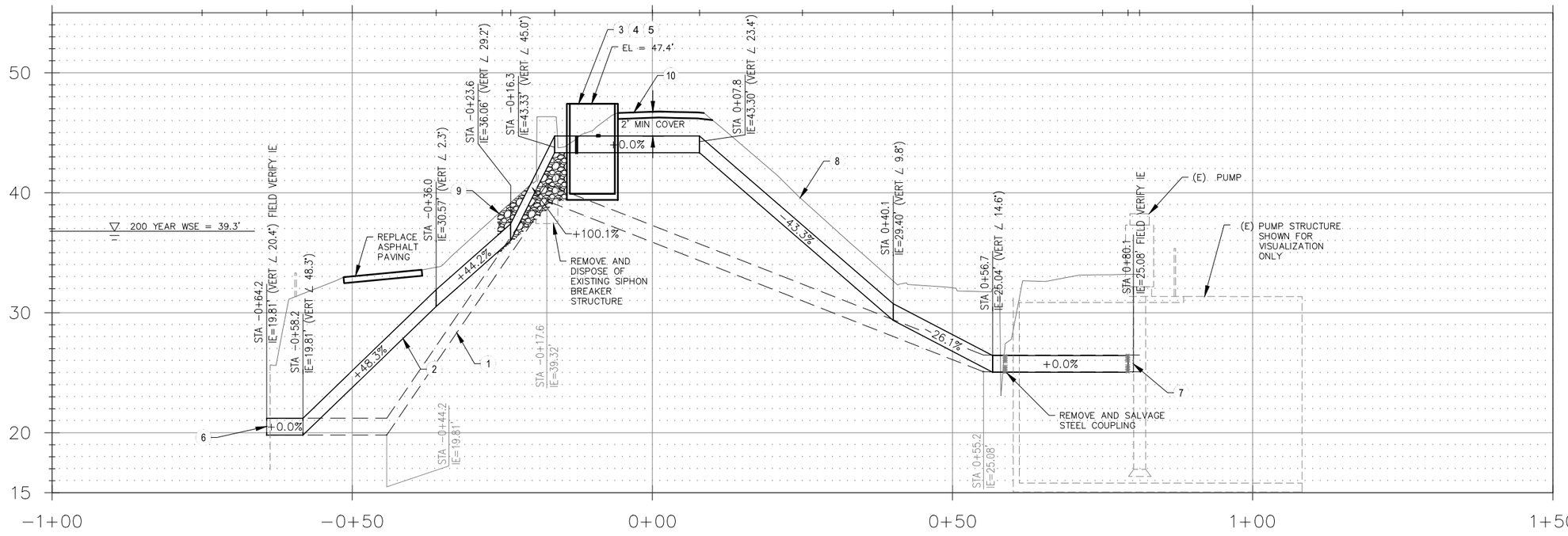
DRAWN BY: E. TUTEJA — DATE: 09/15/20
DESIGNED BY: B. JENSEN — R.C.E. NO. C90949 — DATE: 03/31/22
CHECKED BY: A. SMITH — R.C.E. NO. C86512 — DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT - A
SUMP 151
PLAN AND PROFILE 2 - 30" WSP

PN: W14130615
DWG. NO. C4
SHEET 7 OF 47





NOTES:

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2 INSTALL 16" WSP FROM STA -0+64.2 TO STA 0+80.1 PER DETAIL 3/C38

3 INSTALL 42" FL x FL KNIFE GATE VALVE

4 INSTALL COMBINATION ANTI-SIPHON AND AIR RELIEF VALVE PER DETAIL 3/C35

5 INSTALL ANTI-SIPHON VAULT PER DETAIL 1/C9

6 CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37

7 CONNECT TO EXISTING STEEL COUPLING

8 RECONSTRUCT LEVEE EMBANKMENT WITH LEVEE FILL MATERIAL PER DETAIL 2/C38

9 INSTALL RSP PER DETAIL 1/C35

10 REPLACE EXISTING AGGREGATE SURFACE COURSE PER DETAIL 4/C37

11 LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
10 5 0 10
VERT SCALE: 1"=5'
5 2.5 0 5

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 46.60
DESCRIPTION: SPINDLE

FIELD BOOK 0000
SCALE: H: 1"=10' V: 1"=5"

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

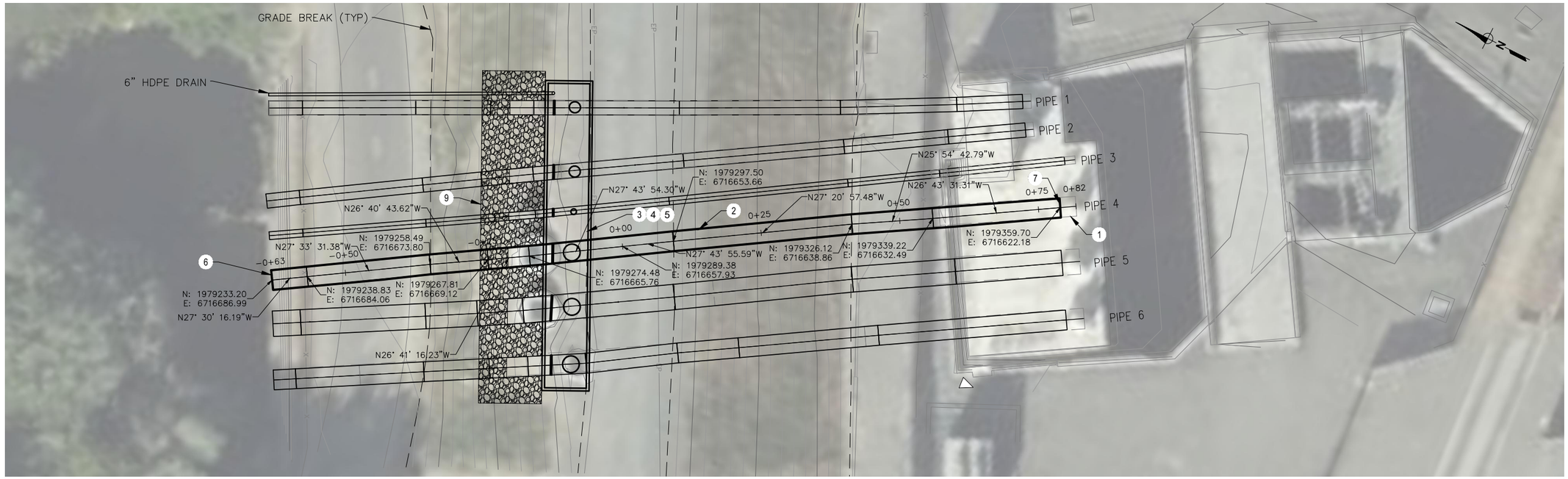
PRELIMINARY

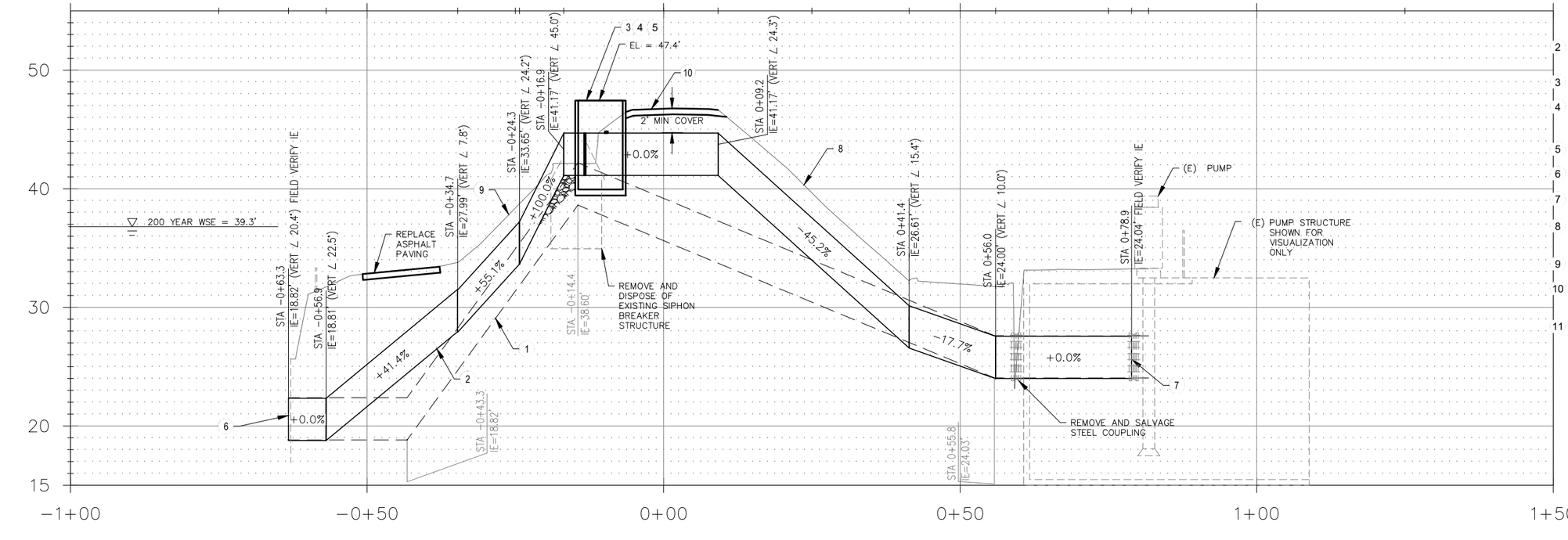
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 151
PLAN AND PROFILE 3 – 16" WSP

Page 16

PN: W14130615 DWG. NO. C5 SHEET 8 OF 47

PN: W14130615





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 42" WSP AND APPURTENANCES FROM STA -0+63.3 TO STA 0+78.9 PER DETAIL 2/C38
2. INSTALL 42" WSP FROM STA -0+63.3 TO STA 0+78.9 PER DETAIL 3/C38
3. INSTALL 42" FL x FL KNIFE GATE VALVE
4. INSTALL COMBINATION ANTI-SIPHON AND AIR RELIEF VALVE PER DETAIL 3/C35
5. INSTALL ANTI-SIPHON VAULT PER DETAIL 1/C9
6. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
7. CONNECT TO EXISTING STEEL COUPLING
8. RECONSTRUCT LEVEE EMBANKMENT WITH LEVEE FILL MATERIAL PER DETAIL 2/C38
9. INSTALL RSP PER DETAIL 1/C35
10. REPLACE EXISTING AGGREGATE SURFACE COURSE PER DETAIL 4/C37
11. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
10 5 0 10
5 2.5 0 5
VERT SCALE: 1"=5'

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 46.60
DESCRIPTION: SPINDLE

FIELD BOOK 0000
SCALE: H: 1'=10" V: 1'=5"

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

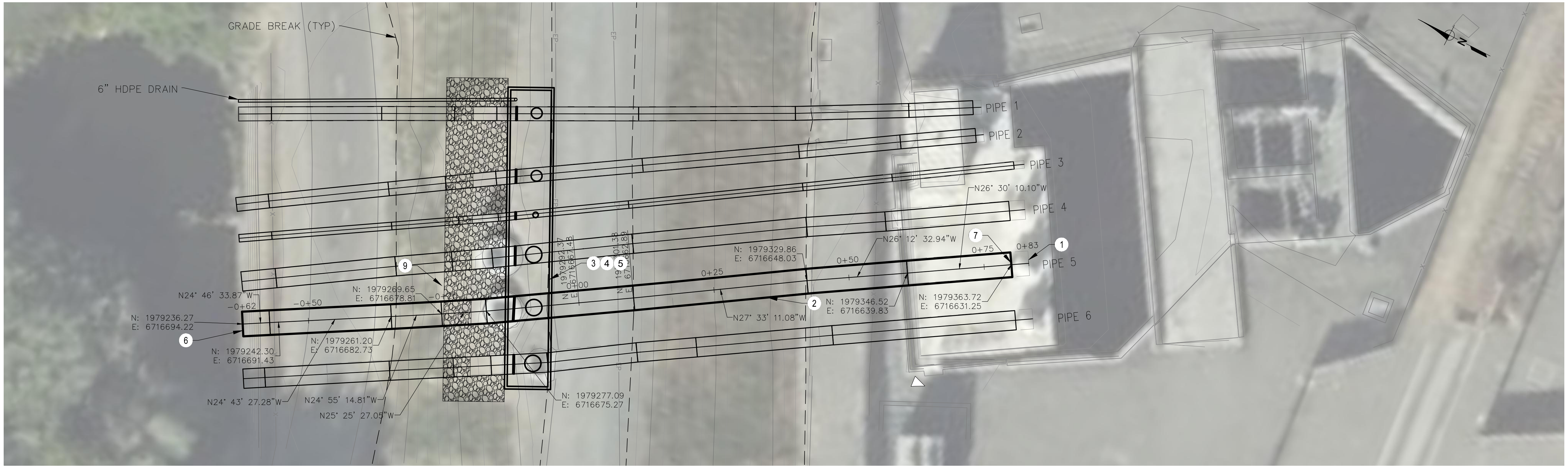
REGISTERED PROFESSIONAL ENGINEER KARL B. BRADLEY No. C90949 CIVIL STATE OF CALIFORNIA
PRELIMINARY

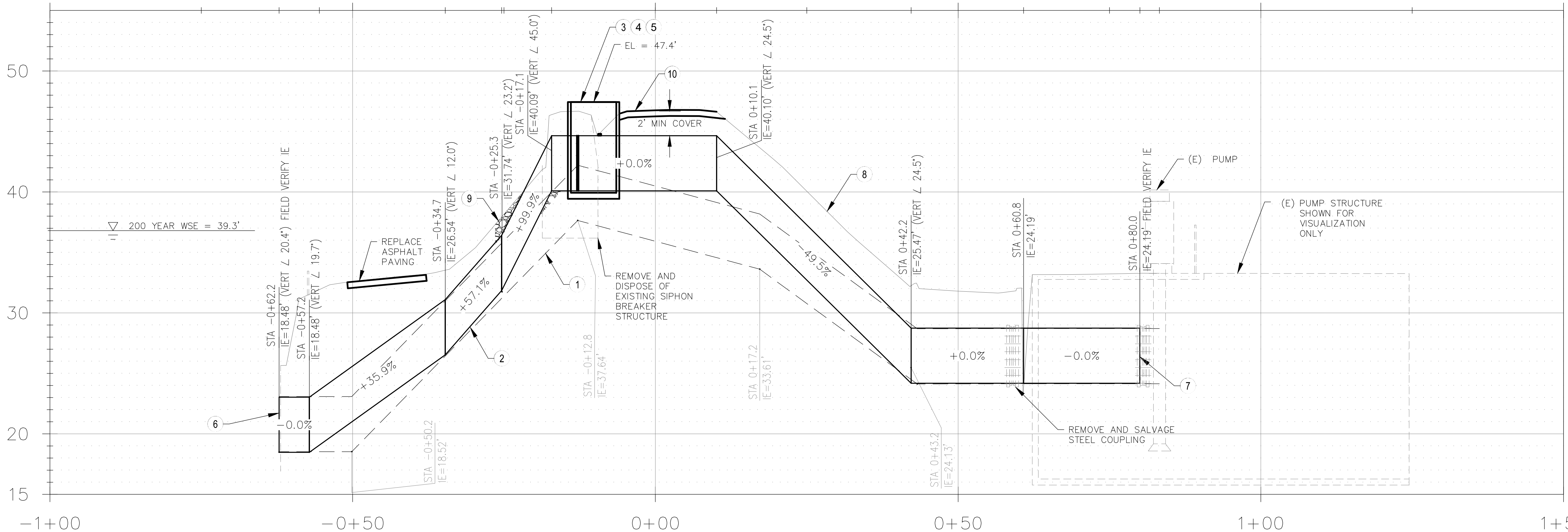
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 151
PLAN AND PROFILE 4 – 42" WSP

PN: W14130615 DWG. NO. C6 SHEET 9 OF 47

PN: W14130615

Item 5





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 54" WSP AND APPURTENANCES FROM STA −0+62.2 TO STA 0+80.0 PER DETAIL 2/C38
2. INSTALL 54" WSP FROM STA −0+62.2 TO STA 0+80.0 PER DETAIL 3/C38
3. INSTALL 42" FL x FL KNIFE GATE VALVE
4. INSTALL COMBINATION ANTI-SIPHON AND AIR RELIEF VALVE PER DETAIL 3/C35
5. INSTALL ANTI-SIPHON VAULT PER DETAIL 1/C9
6. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
7. CONNECT TO EXISTING STEEL COUPLING
8. RECONSTRUCT LEVEE EMBANKMENT WITH LEVEE FILL MATERIAL PER DETAIL 2/C38
9. INSTALL RSP PER DETAIL 1/C35
10. REPLACE EXISTING AGGREGATE SURFACE COURSE PER DETAIL 4/C37
11. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'

VERT SCALE: 1"=5'

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 46.60
DESCRIPTION: SPINDLE

FIELD BOOK 0000

SCALE: H: 1"=10" V: 1"=5"

ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

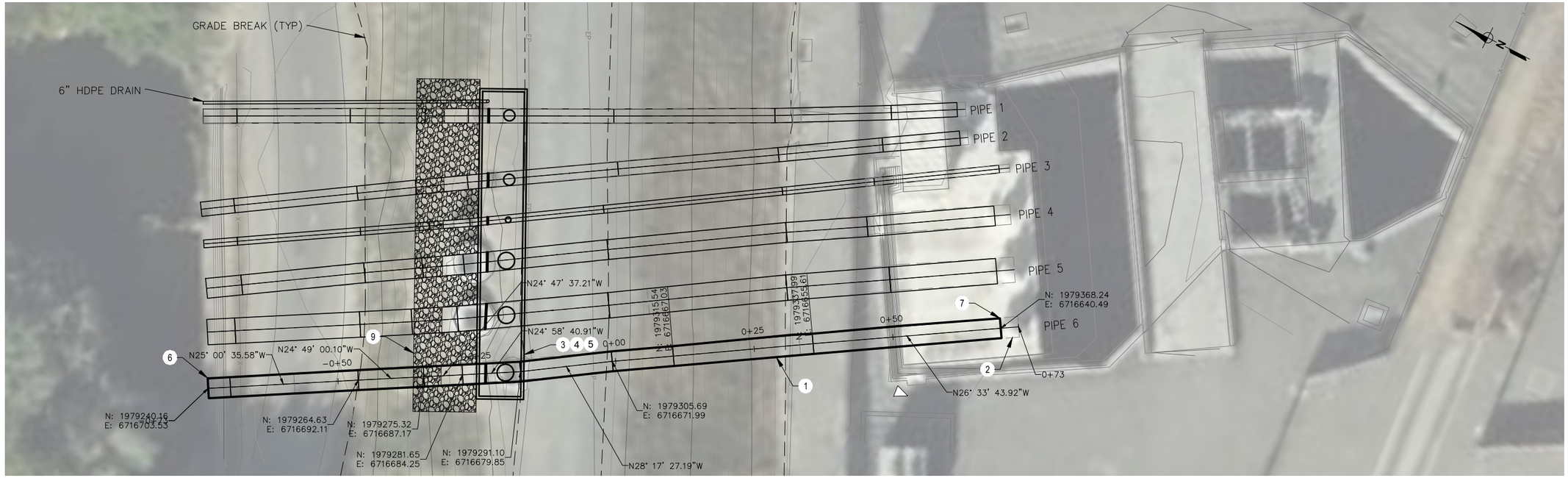
PRELIMINARY

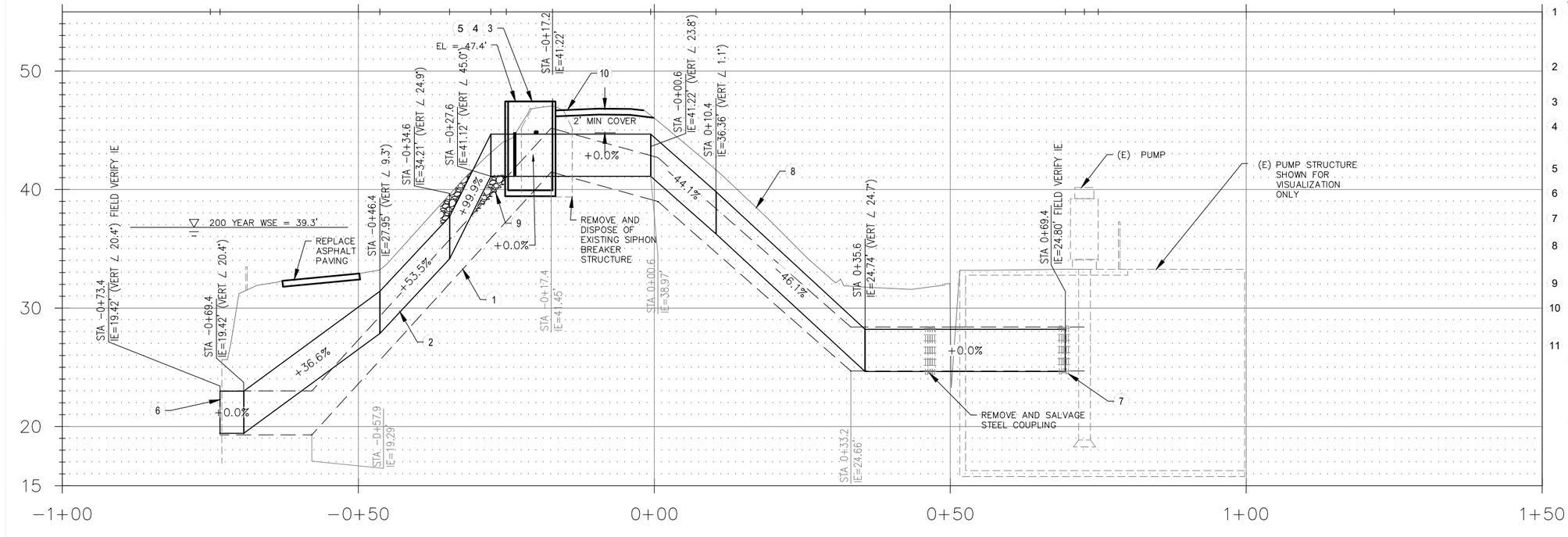
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 151
PLAN AND PROFILE 5 – 54" WSP

PN: W14130615

DWG. NO. C7
SHEET 10 OF 47

PN: W14130615





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 42" WSP AND APPURTENANCES FROM STA −0+73.4 TO STA 0+69.4 PER DETAIL 2/C38
2. INSTALL 42" WSP FROM STA −0+73.4 TO STA 0+69.4 PER DETAIL 3/C38
3. INSTALL 42" FL x FL KNIFE GATE VALVE
4. INSTALL COMBINATION ANTI−SIPHON AND AIR RELIEF VALVE PER DETAIL 3/C35
5. INSTALL ANTI−SIPHON VAULT PER DETAIL 1/C9
6. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
7. CONNECT TO EXISTING STEEL COUPLING
8. RECONSTRUCT LEVEE EMBANKMENT WITH LEVEE FILL MATERIAL PER DETAIL 2/C38
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HOR SCALE: 1"=10'
VERT SCALE: 1"=5'

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 46.60
DESCRIPTION: SPINDLE

FIELD BOOK 0000
SCALE: H: 1'=10" V: 1'=5'

1" — ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

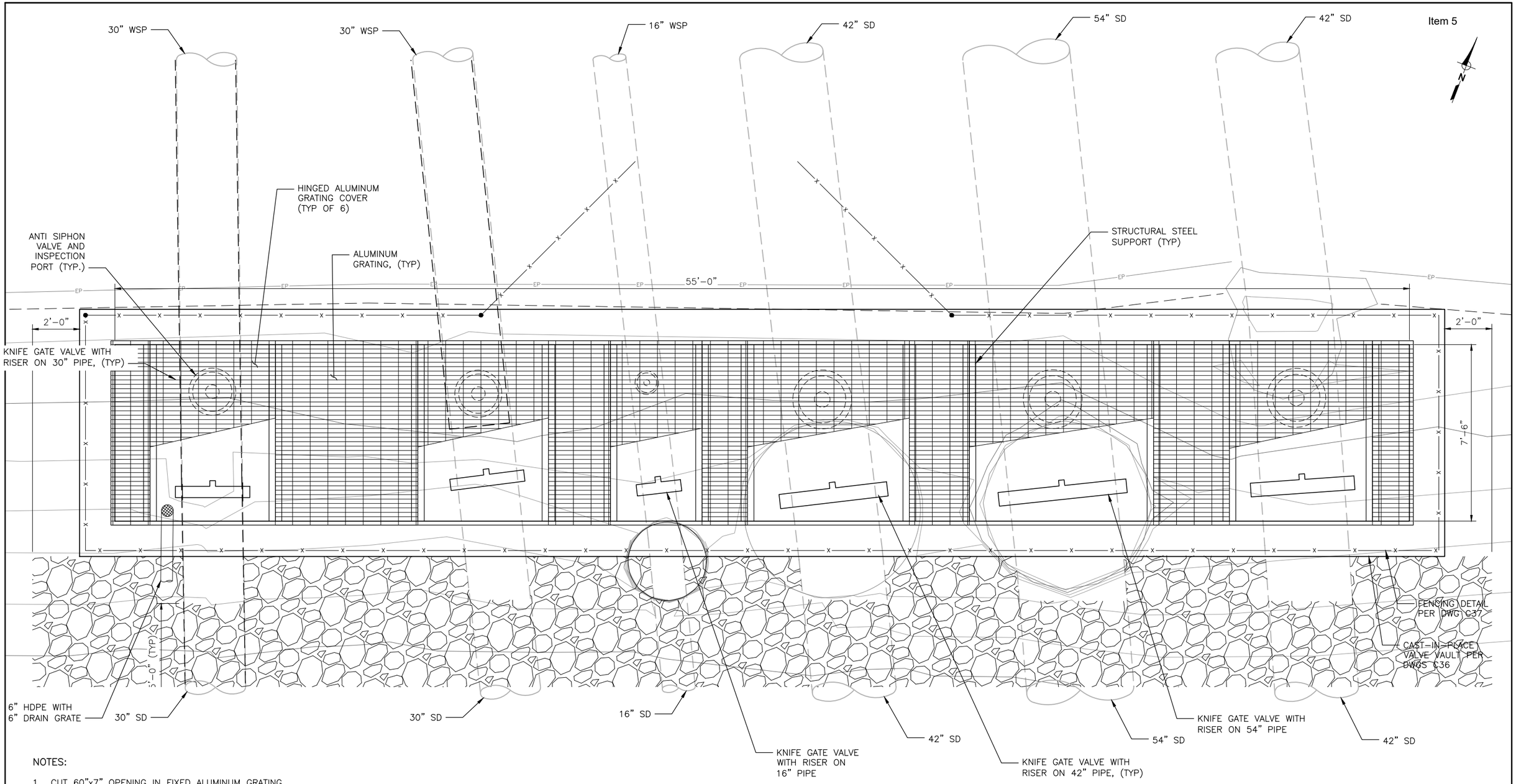
REGISTERED PROFESSIONAL ENGINEER KARL B. BRADLEY No. C90949 CIVIL STATE OF CALIFORNIA 03/31/22
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 151
PLAN AND PROFILE 6 – 42" WSP

PN: W14130615 DWG. NO. C8 SHEET 11 OF 47

PN: W14130615

Item 5



NOTES:

1. CUT 60"x7" OPENING IN FIXED ALUMINUM GRATING FOR 54" KNIFE GATE VALVE.
2. CUT 48"x7" OPENING IN FIXED ALUMINUM GRATING FOR 42" KNIFE GATE VALVE.
3. CUT 36"x7" OPENING IN FIXED ALUMINUM GRATING FOR 30" KNIFE GATE VALVE.
4. CUT 22"x7" OPENING IN FIXED ALUMINUM GRATING FOR 16" KNIFE GATE VALVE.

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. _____
DESCRIPTION:

FIELD BOOK 0000
SCALE: H: 1"=10' V: _____

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER KARL B. BROWNWEED No. C90949 Exp. 12/31/22 STATE OF CALIFORNIA CIVIL
PRELIMINARY

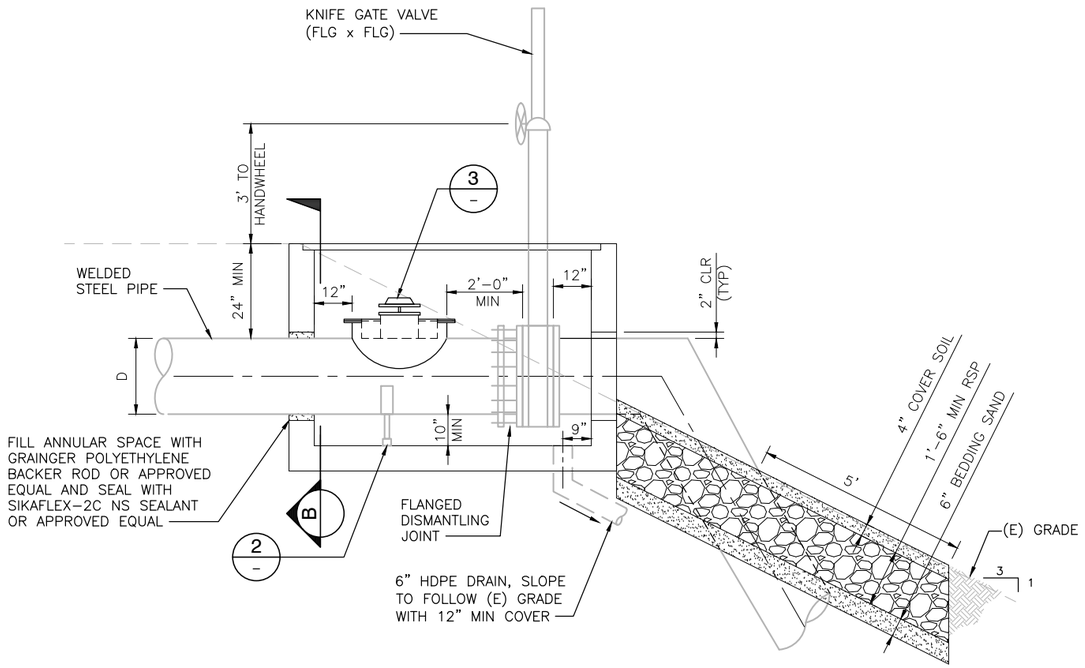
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 151
VAULT DETAIL

Page 20

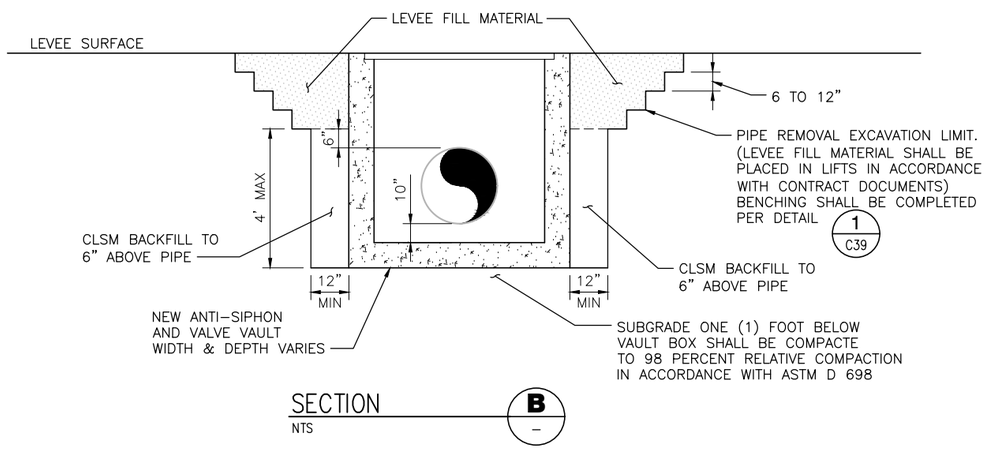
PN: W14130615

DWG. NO. C9
SHEET 12 OF 47

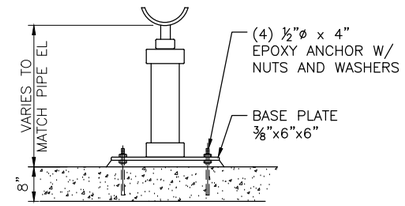
PN: W14130615



SUMP 155 ANTI SIPHON VAULT DETAIL **1**
NTS

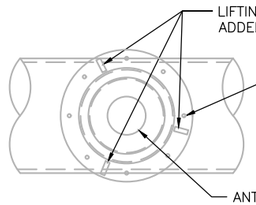


SECTION **B**
NTS

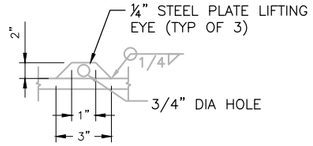


NOTE: PIPE SUPPORT TO BE STANDON S92 OR APPROVED EQUAL

PIPE SUPPORT **2**
NTS



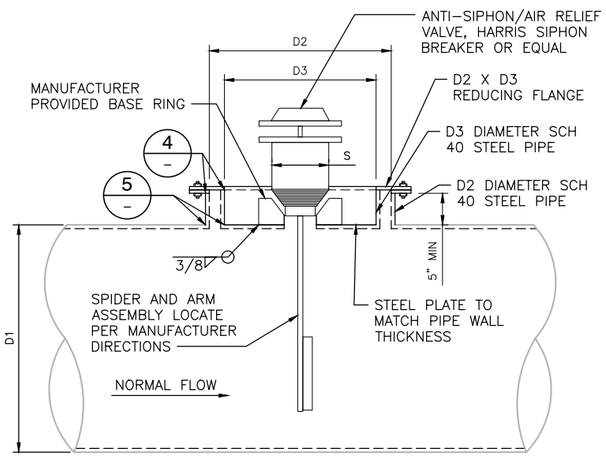
PLAN VIEW



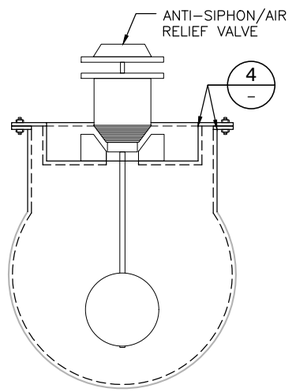
LIFTING EYE DETAIL

TYPICAL ANTI-SIPHON VALVE SIZE

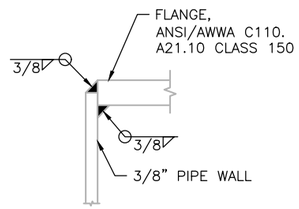
D1	D2	D3	S	MODEL
16"	12"	10"	3"	HSB-03-A-16
18"	16"	12"	3"	HSB-03-A-18
30"	24"	20"	7"	HSB-07-B-30
36"	30"	24"	5"	HSB-05-A-36
42"	30"	24"	8"	HSB-08-B-42
54"	30"	24"	8"	HSB-08-B-54



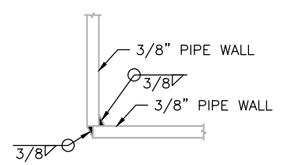
PROFILE VIEW



SECTION VIEW



WELD DETAIL **4**
NTS



WELD DETAIL **5**
NTS

ANTI-SIPHON AND AIR RELIEF VALVE CONNECTION DETAIL **3**
NTS

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. _____
DESCRIPTION: _____

FIELD BOOK 0000
SCALE: H: _____ V: _____

1" — ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER MARC B. JENSEN No. C90949 CIVIL STATE OF CALIFORNIA 03/31/22 PRELIMINARY

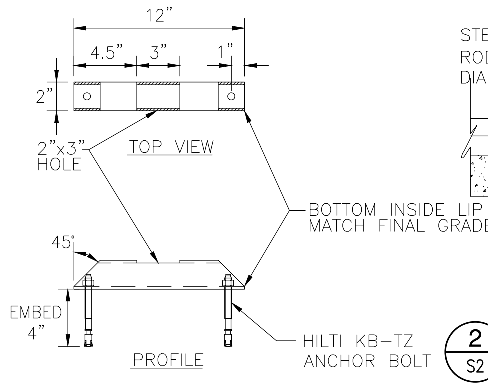
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
ANTI SIPHON AND VALVE VAULT
SECTION AND DETAILS

PN: W14130615 | DWG. NO. C35 | SHEET 38 OF 47

PN: W14130615

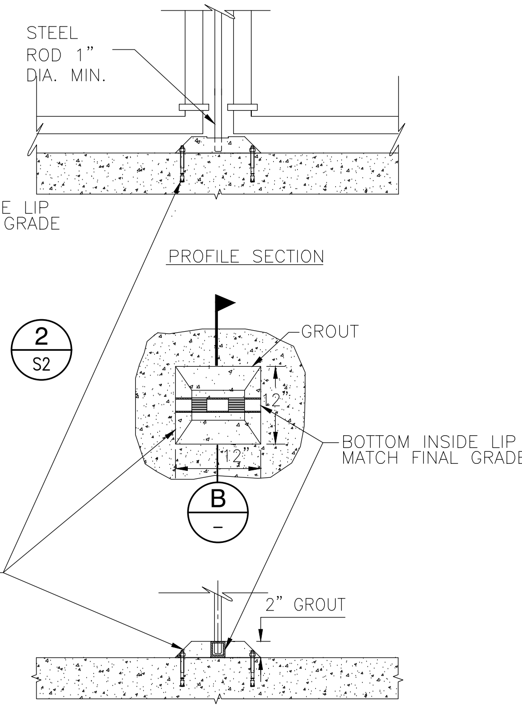
GENERAL NOTES:

1. LINE POSTS SHALL BE MIN 2½" O.D. SPACED AT MAX 10' O.C.
2. HORIZONTAL BRACE AND TOP RAIL SIZE SHALL BE MIN 1⅝" DIA.
3. END, CORNER, AND GATE POSTS SHALL BE MIN 2½" O.D. WITH 1⅝" O.D BRACE RAIL, ⅜" TRUSS ASSEMBLY, 12-GAUGE TENSION BANDS SECURED AT MAX 12" O.C.
4. GATE FRAME SHALL BE FABRICATED FROM 2½" O.D. OR 2½" SQUARE MEMBERS WELDED AT ALL CORNERS.
5. CHAIN LINK FABRIC SHALL BE SECURED TO LINE POST AND TOP RAIL USING 9-GAUGE TIE WIRE SPACED AT MAX 12" O.C.
6. 2-3/8" SHOULDERED EYE BOLT 3" LENGTH TO ANCHOR TENSION WIRE PER 10' SECTION EVENLY SPACED, SECURED WITH HOG RING CAPTURING FENCE FABRIC AND TENSION WIRE TO MAINTAIN DOWNWARD TENSION ON SECURITY FENCE SYSTEM.
7. PROVIDE "CITY UTILITY FACILITY – NO TRESPASSING" SIGNAGE GATE.



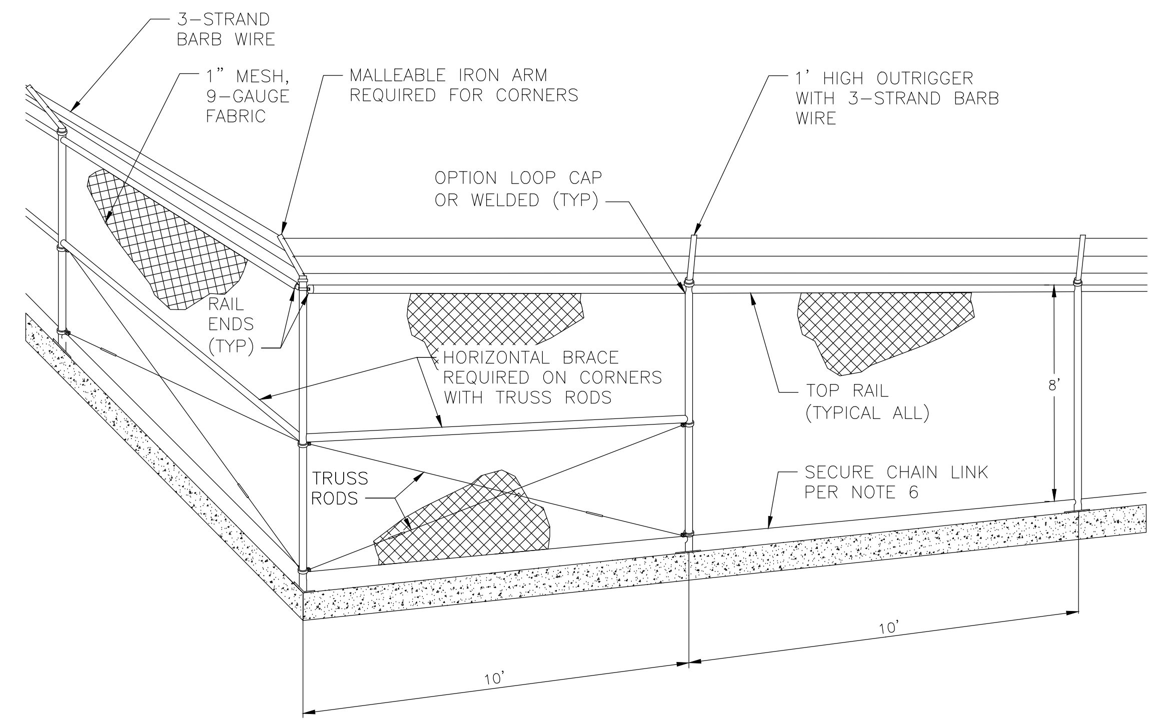
2" SQUARE TUBING DETAIL
NOT TO SCALE

2" (SQ. TUBING) x 0.250" WALL TH. x 12"L, CUT ONE 3" x 2" HOLE IN TOP AND ANGLE CUT BOTH ENDS 45° FROM HORIZONTAL. ANCHOR WITH HILTI KB-TZ ANCHOR BOLT SEE DETAIL ABOVE. BOTTOM INSIDE LIP OF SQUARE TUBING SHALL MATCH FINAL GRADE. "DO NOT BLOCK ENDS OF SQUARE TUBING WITH GROUT".

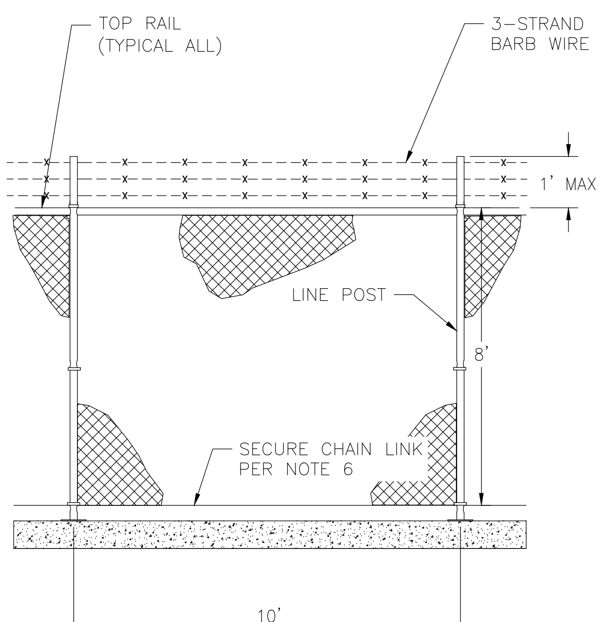


RIGHT SECTION **B**
NTS

GATE ANTI-SWING FOOTING DETAIL **1**
NTS

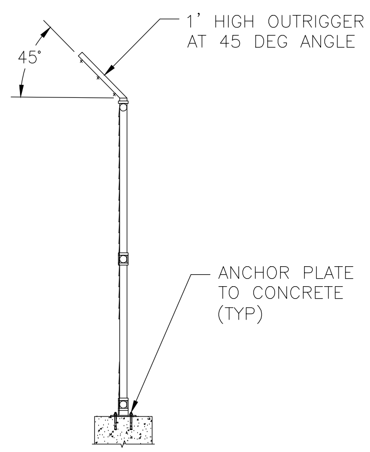


CORNER DETAIL **2**
NTS

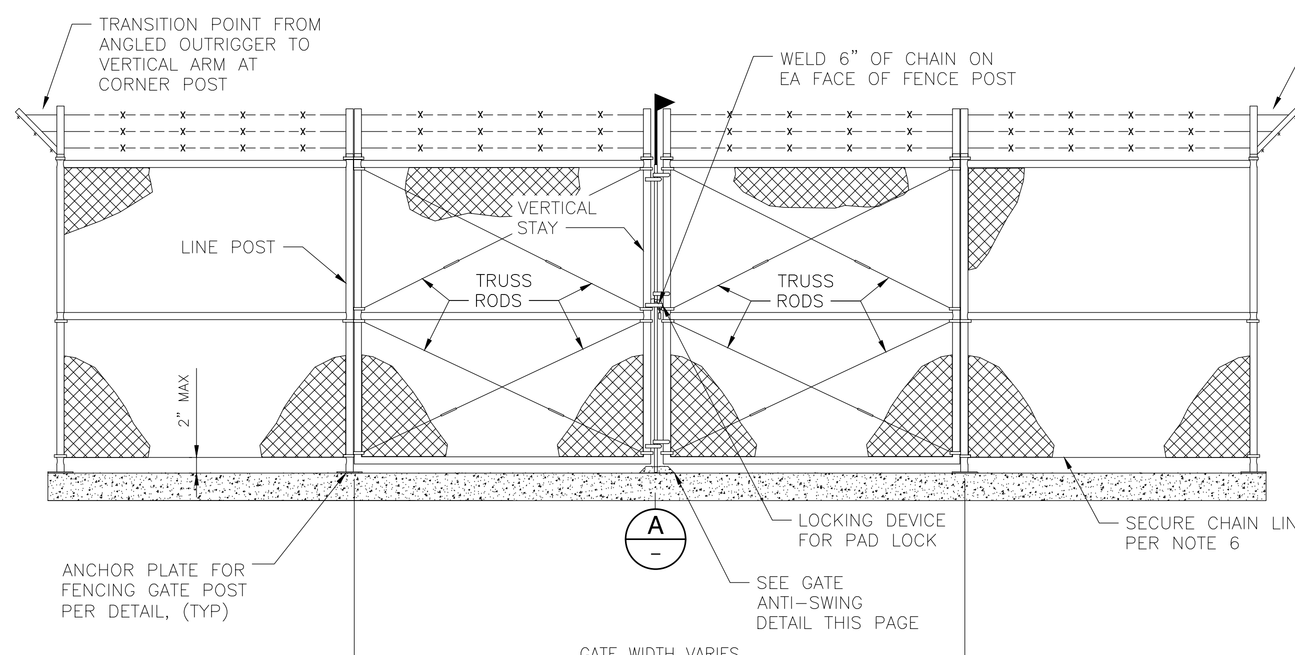


LINE POSTS AT 10' MAX INTERVALS, BRACED AND TRUSSED IN BOTH DIRECTIONS.

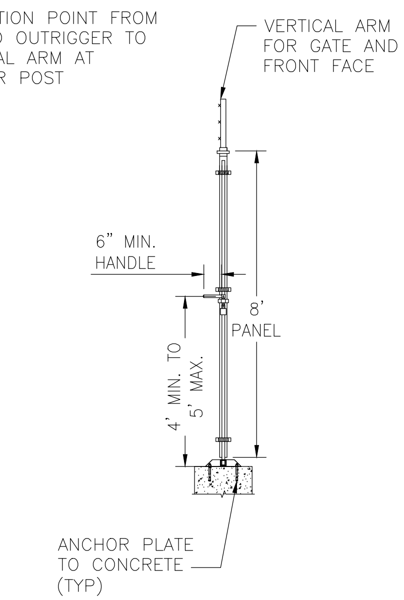
LINE POST DETAIL **3**
NTS



SIDE VIEW DETAIL **4**
NTS



MAINTENANCE GATE DETAIL **5**
NTS



GATE OPERATOR SECTION **A**
NTS

8 FOOT HIGH CHAIN LINK FABRIC WITH ANGLED OUTRIGGER AND 3 STRAND BARB WIRE (OUTSIDE) STANDARD FENCING DETAIL

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. ______
DESCRIPTION:

FIELD BOOK 0000
SCALE:
H: ______
V: ______

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

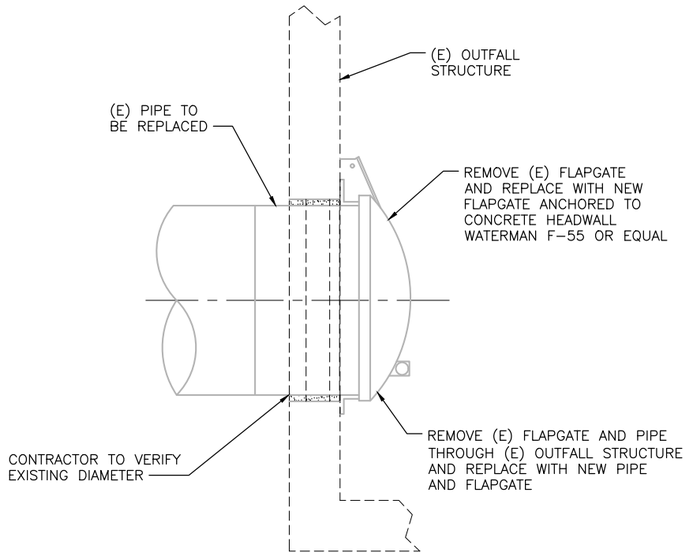
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

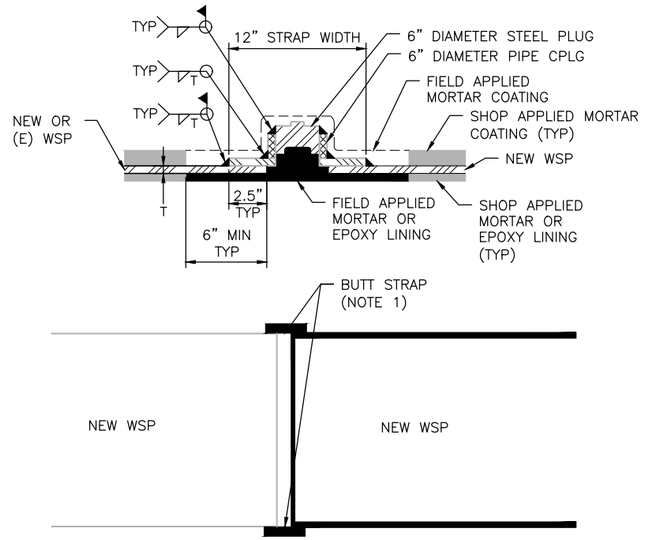
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
MISCELLANEOUS VAULT SECURITY DETAILS

PN: W14130615
DWG. NO. C36
SHEET 39 OF 47

PN: W14130615



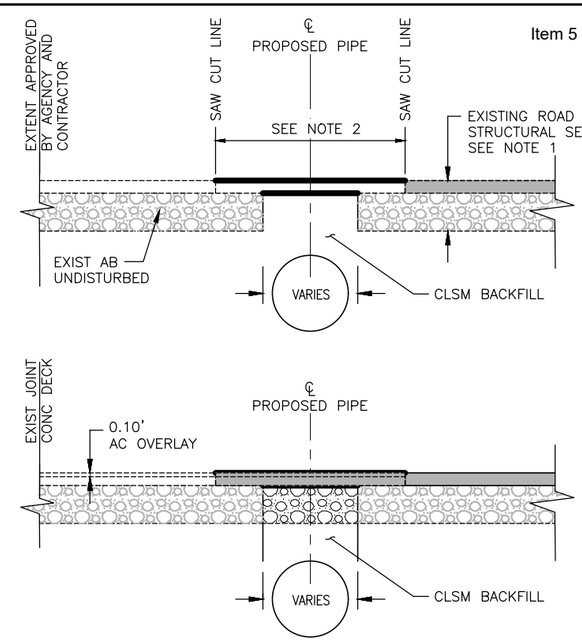
OUTFALL STRUCTURE CONNECTION DETAIL 1
NTS



NOTES:
1. PROVIDE HAND HOLES AS NEEDED TO INSTALL FIELD LINING. WELD HAND HOLE CLOSED WHEN COMPLETE. HAND HOLES NOT REQUIRED AT OUTLETS IF ACCESSIBLE THROUGH FLAP GATE.

NEW OR EXISTING STEEL

PIPE CONNECTION DETAIL 2
NTS



TRENCH SECTION AND SEQUENCING 3
NTS

NOTES:

1. CONTRACTOR SHALL REPLACE EXISTING PAVEMENT IN KIND. BASED ON LIMITED FIELD INVESTIGATIONS, EXISTING PAVEMENT SECTION ARE ASSUMED 2" AC ON 6" AB
2. THE OWNER AND THE CONTRACTOR SHALL JOINTLY DETERMINE THE FINAL WIDTH AND LENGTH OF THE BIKE PATH CROSSING BASED ON FIELD CONDITIONS AND CONSTRUCTION PROCEDURES.
3. CONTRACTOR SHALL REMOVE EXISTING BIKE PATH AS NEEDED TO CONSTRUCT PROPOSED PIPE. IMPACTED AREAS SHALL BE REPLACED IN ACCORDANCE WITH CITY OF SACRAMENTO STANDARD DETAIL T-21

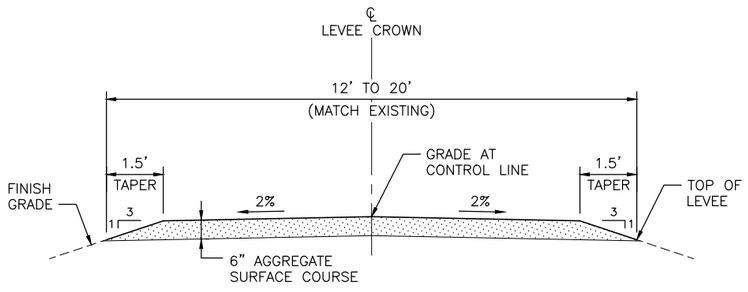
CONSTRUCTION SEQUENCE:

STEP 1: SAWCUT LIMITS O9F TRENCH EXCAVATION TO CLEAN CUT LIMITS. REMOVE EXISTING ASPHALT CONCRETE TO THE MIN EXTENT REQUIRED TO CONSTRUCT PROPOSED PIPE. PROPOSED PIPE SHALL BE CONSTRUCTED A MIN OF 2' FROM FG. TRENCH PLATES SHALL BE PROVIDED TO MAINTAIN ACCESS OVER CUTOFF WALL DURING CONSTRUCTION IN ACCORDANCE WITH THE SPECIFICATIONS.

STEP 2: PLACE AB TO MATCH EXISTING THICKNESS. PLACE AC OVERLAY FROM EXTENT APPROVED BY AGENCY AND CONTRACTOR TO LIMITS OF SAWCUT. PROVIDE PAVEMENT MARKING AND STRIPING TO MATCH EXISTING.

LEGEND:

EXISTING		PROPOSED
	GRIND AND OVERLAY ASPHALT CONCRETE	
	AGGREGATE BASE (AB)	
	ASPHALT CONCRETE (AC)	



CROWN SURFACING DETAIL 4
NTS

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. _____
DESCRIPTION: _____

FIELD BOOK 0000
SCALE:
H: _____
V: _____

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER MATT B. BROWN No. C86512 CIVIL STATE OF CALIFORNIA
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
MISCELLANEOUS DETAILS I
Page 23

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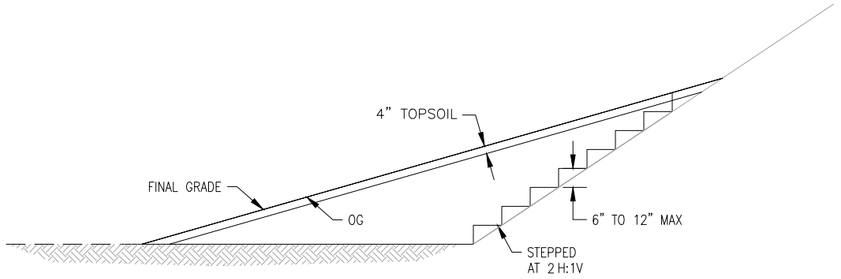
DWG. NO. C37
SHEET 40 OF 47

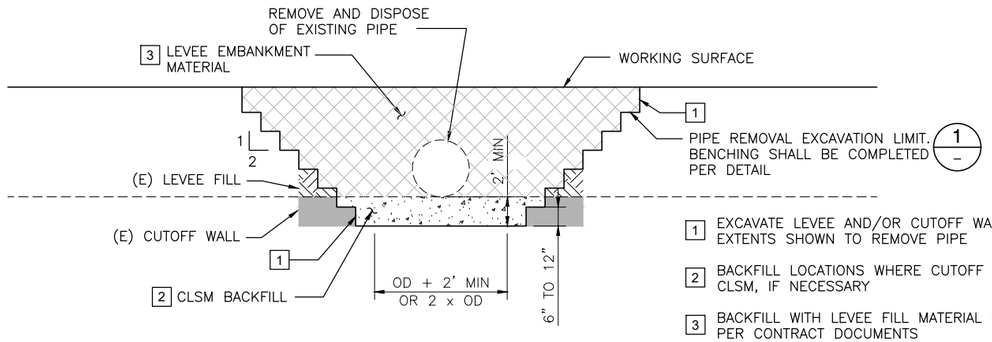
PN: W14130615



TYPICAL SLOPE BENCHING NOTES:

1. PLACE FILL IN HORIZONTAL LIFTS AGAINST VERTICAL FACES CUT INTO EXISTING LEVEE MATERIAL.
2. THE BOTTOM OF THE KEY TRENCH SHALL BE SCARIFIED TO A DEPTH OF 8 INCHES AND RECOMPACTED TO 95% MAX DENSITY PER ASTM D698.

SLOPE BENCHING (LANDSIDE OR WATERSIDE) DETAIL — 1/–
NTS

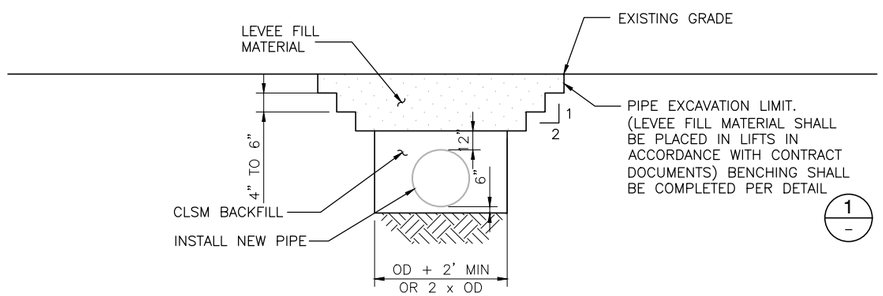


1 EXCAVATE LEVEE AND/OR CUTOFF WALL MATERIAL TO EXTENTS SHOWN TO REMOVE PIPE

2 BACKFILL LOCATIONS WHERE CUTOFF WAS REMOVED WITH CLSM, IF NECESSARY

3 BACKFILL WITH LEVEE FILL MATERIAL PLACED IN LIFTS PER CONTRACT DOCUMENTS

TYPICAL REMOVAL OF EXISTING PIPE DETAIL — 2/–
NTS



INSTALLATION OF NEW PIPE DETAIL — 3/–
NTS

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS				BENCH MARK	ELEV.	FIELD BOOK	1"
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CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER — KAREL B. BRADLEY — No. C86512 — EXP. 12/31/22 — STATE OF CALIFORNIA — CIVIL — PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
MISCELLANEOUS DETAILS II

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PN: W14130615

STRUCTURAL ABBREVIATIONS

@	AT
∠	ANGLE
ABV	ABOVE
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
ADDNL	ADDITIONAL
ADJ	ADJACENT
AISC	AMERICAN INSTITUTE FOR STEEL CONSTRUCTION
ALT	ALTERNATE
APPROX	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
AWS	AMERICAN WELDING SOCIETY
BLW	BELOW
BOC	BOTTOM OF CONCRETE
BOF	BOTTOM OF FOOTING
BOTT	BOTTOM
BTW	BETWEEN
BYD	BEYOND
CBC	CALIFORNIA BUILDING CODE
CCR	CALIFORNIA CODE OF REGULATIONS
CE	CIVIL ENGINEER
CJ	CONSTRUCTION JOINT
℄	CENTERLINE
CLR	CLEAR
CLSM	CONTROLLED LOW-STRENGTH MATERIAL
CONC	CONCRETE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE/COORDINATION
CTR	CENTER
CTRD	CENTERED
DBL	DOUBLE
DEG	DEGREE
DEPR	DEPRESSED
DIA (ø)	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DL	DEAD LOAD
DTL	DETAIL
DWG	DRAWING
EA	EACH
EF	EACH FACE
EE	EACH END
EJ	EXPANSION JOINT
EL	ELEVATION
ELEV	ELEVATION
EOS	EDGE OF SLAB
EOR	ENGINEER OF RECORD
EQ (=)	EQUAL
ES	EACH SIDE
EW	EACH WAY
EB	EXPANSION BOLT
EQUIP	EQUIPMENT
EXTR	EXTERIOR
FAB	FABRICATE
f'c	MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE
FD	FLOOR DRAIN
FF	FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FIN	FINISH
FLG	FLANGE
FND	FOUNDATION
FOC	FACE OF CONCRETE
FOW	FACE OF WALL
FT (')	FOOT/FEET
FTG	FOOTING
Fy	SPECIFIED YIELD STRENGTH OF REINFORCING, PSI OR SPECIFIED MINIMUM YIELD STRESS OF STEEL, KSI
GA	GAUGE
GALV	GALVANIZED
GRD	GRADE
GT	GROUT
HAS	HEADED ANCHOR STUD
HDG	HOT-DIPPED GALVANIZED
HK	HOOK
HORIZ	HORIZONTAL
HT	HEIGHT
HSB	HIGH STRENGTH BOLT
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
ICC	INTERNATIONAL CODE COUNCIL
IN (")	INCH
INFO	INFORMATION
INTR	INTERIOR
JT	JOINT
KSI	KIPS PER SQUARE INCH
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO. (#)	NUMBER OR POUNDS
NOM	NOMINAL
NS&FS	NEARSIDE & FARSIDE
NSG	NON SHRINK GROUT
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINSTRATION
OPG	OPENING
OPP	OPPOSITE
OH	OPPOSITE HAND
PCF	POUNDS PER CUBIC FOOT
PERP	PERPENDICULAR
ℙ	PLATE
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
PT	POINT
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REINF	REINFORCING/REINFORCEMENT
REQ	REQUIRED
SCHED	SCHEDULE
SE	STRUCTURAL ENGINEER
SEIS JT	SEISMIC JOINT
SEOR	STRUCTURAL ENGINEER OF RECORD
SHT	SHEET
SIM	SIMILAR
SJ	SHRINKAGE JOINT
SOG	SLAB ON GRADE
SPCG	SPACING
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STAG	STAGGER
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUC	STRUCTURAL
SYM	SYMMETRICAL
t_f	FLANGE THICKNESS
THRD	THREAD OR THREADED
THK	THICK/THICKNESS
T.O.	TOP OF
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING/ TOP OF FRAMING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TRAN	TRANSVERSE
TYP	TYPICAL
T&B	TOP & BOTTOM
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
WP	WORK POINT
WSP	WELDED STEEL PIPE
WT	WEIGHT

FOUNDATIONS:

1. FOUNDATION DESIGN IS BASED ON SOIL STRATA THAT IS UNDISTURBED, NON-ORGANIC NATIVE SOIL, CLASS 5 AS PER CBC CHAPTER 18 AND TABLE 1806.2, WITH A BEARING CAPACITY OF 1500 PSF. FOUNDATIONS SHALL BEAR ON FIRM FOUNDATION SOIL STRATA. EXPANSIVE, ORGANIC, LOOSE OR SOFT SOILS SHALL NOT BE UTILIZED FOR SUPPORT OF FOOTINGS OR SLABS ON GRADE. THE ENGINEER IS NOT RESPONSIBLE FOR SETTLEMENT DUE TO SOFT SOILS OR EFFECTS DUE TO EXPANSIVE SOILS. IT IS THE OWNER'S RESPONSIBILITY TO INSURE COMPLIANCE WITH THESE REQUIREMENTS.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SHORE AND BRACE AS REQUIRED. SEE SAFETY NOTES FOR ADDITIONAL INFORMATION.
3. ALL FOUNDATIONS ARE SHOWN AND DIMENSIONED AS BEING FORMED. FOUNDATIONS MAY BE PLACED IN NEAT EXCAVATIONS PROVIDED FOOTINGS ARE INCREASED 2" IN WIDTH, SEE TYPICAL UNFORMED FOOTING DETAIL.
4. EXCAVATIONS SHALL BE CLEANED OF ALL DEBRIS AND LOOSE SOIL. STANDING WATER SHALL BE REMOVED PRIOR TO CONCRETE PLACEMENT.
5. TOPS AND BOTTOMS OF ALL FOUNDATIONS SHALL BE LEVEL. SLOPING FOUNDATIONS ARE NOT PERMITTED.
6. FOOTINGS SHALL BE CENTERED UNDER WALLS AND/OR COLUMNS UNLESS OTHERWISE INDICATED ON DRAWINGS.
7. CONTRACTOR SHALL CHECK FOOTING FORMS TO VERIFY THAT THEY ARE SQUARE AND PLUMB. THE CONTRACTOR SHALL ALSO VERIFY THAT ALL INSERTS AND EMBEDS ARE IN THEIR CORRECT LOCATION AND ORIENTATION PRIOR TO PLACING CONCRETE.
8. NOTIFY THE STRUCTURAL ENGINEER 48 HOURS IN ADVANCE OF PLACING CONCRETE.

REINFORCING STEEL

1. REINFORCING SHALL CONFORM TO ASTM A706 - GRADE 60 UNO.
2. NO REINFORCING BARS ARE TO BE WELDED UNLESS SPECIFICALLY DETAILED IN CONTRACT DOCUMENTS. ALL BARS SO DETAILED TO BE WELDED SHALL BE ASTM A706 BARS.
3. ALL REBAR TO BE WELDED SHALL BE CONTINUOUSLY INSPECTED BY A QUALIFIED TESTING LABORATORY. CONTRACTOR MUST FURNISH TO THE LABORATORY MILL CERTIFICATES SHOWING CHEMICAL ANALYSIS. ALL PREHEATING AND WELDING SHALL BE DONE BY WELDERS CERTIFIED TO WELD REINFORCING BARS IN ACCORDANCE WITH AWS D1.4-11 STANDARDS.
4. E80xx ELECTRODE SHALL BE USED FOR ALL REBAR WELDING.
5. TACK WELDING TO REBAR IS STRICTLY PROHIBITED.
6. REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC. TO BE EMBEDDED SHALL BE SECURELY POSITIONED BEFORE PLACING CONCRETE. OBTAIN APPROVAL OF ALL AFFECTED TRADES PRIOR TO PLACING CONCRETE.
7. SEE CONCRETE NOTES AS APPLICABLE FOR ADDITIONAL REQUIREMENTS.
8. CONTRACTOR SHALL PROVIDE AN ALLOWANCE OF 2% OF THE BID FOR ALL REINFORCING STEEL TO BE USED AT THE DISCRETION OF THE STRUCTURAL ENGINEER. UNUSED AMOUNT TO REVERT TO THE OWNER UPON COMPLETION OF THE JOB.

REINFORCEMENT LAP SPLICE LENGTHS (IN INCHES)

f'c = 4000 PSI AT 28 DAYS

SPLICE CLASS	REINFORCEMENT LOCATION	REINFORCEMENT SIZE (GR60, UNO)								
		#3	#4	#5	#6	#7	#8	#9	#10	#11
B	TOP	24	32	40	48	70	80	91	102	113
	OTHER	19	25	31	37	54	62	70	79	87

FOOTNOTES:
1. TABLE ABOVE BASED ON UNCOATED REINFORCING.
2. TOP REINFORCING IS HORIZONTAL REINFORCEMENT THAT HAS MORE THAN TWELVE INCHES OF FRESH CONCRETE CAST BELOW IT.
3. FOR BARS WITH COVER LESS THAN 1 BAR DIAMETER OR WITH CLEAR SPACING LESS THAN 2 BAR DIAMETERS, INCREASE LAP SPLICE BY 50%.
4. FOR LIGHTWEIGHT AGGREGATE CONCRETE, (WT = 110 PCF) INCREASE LAP SPLICE BY 30%.
5. ALL LAP SPLICES SHALL BE CLASS B, UNO.

SPECIAL INSPECTIONS

X	REINFORCING PLACEMENT
X	CONCRETE PLACEMENT
X	CONCRETE ANCHORS

MATERIAL TESTS

X	CONCRETE: 7, 28 AND 56 DAY STRENGTH TESTS
X	CONCRETE ANCHORS

DESIGN CRITERIA (2016 CBC):

OCCUPANCY
RISK CATEGORY III

LIVE LOADS
SLAB ..... 100.0 PSF TYP

FLOOD DESIGN DATA
N/A

SPECIAL LOADS
SOIL LOADS TAKEN AS AT REST PRESSURE OF 75 PSF/FT OF DEPTH EQUIVALENT FLUID WEIGHT

SAFETY NOTES:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE PERTINENT SECTIONS OF THE "CONSTRUCTION SAFETY ORDERS" ISSUED BY THE STATE OF CALIFORNIA LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
2. THE STRUCTURAL ENGINEER DOES NOT ACCEPT ANY RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO COMPLY WITH THESE REQUIREMENTS.
3. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING FOR VERTICAL AND/OR LATERAL LOADS, SHORING AND LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER WILL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.

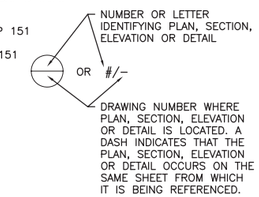
INSPECTION NOTES:

GENERAL:
IN ADDITION TO THE INSPECTIONS REQUIRED BY SECTION 110 OF THE 2019 CBC, THE OWNER SHALL EMPLOY A SPECIAL INSPECTOR TO PERFORM SPECIAL INSPECTIONS AND TESTS AS INDICATED ON THE STATEMENT OF SPECIAL INSPECTIONS.
1. INSPECTORS: ALL TESTS AND INSPECTIONS SHALL BE PERFORMED BY AN INDEPENDENT INSPECTION AGENCY WHICH IS IN THE EMPLOYMENT OF THE OWNER.
2. ALL SPECIAL INSPECTION AND TESTING AGENCIES SHALL BE QUALIFIED PER ASTM E329 AND APPROVED BY THE BUILDING DEPARTMENT.
3. PROVIDE INSPECTION REPORTS TO BUILDING DEPARTMENT, OWNER, ARCHITECT AND ENGINEER WITHIN TWO WEEKS OF PERFORMANCE OF INSPECTION OR TEST.
4. REFER TO CHAPTER 17 OF THE CODE FOR OTHER REQUIRED SPECIAL INSPECTIONS AND TESTS NOT LISTED.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT THE TESTS AND INSPECTIONS ARE PERFORMED. JOBSITE VISITS BY THE STRUCTURAL ENGINEER DO NOT CONSTITUTE AND ARE NOT A SUBSTITUTE FOR INSPECTIONS.
6. WHERE THE CONTRACTOR CHOOSES TO USE AN APPROVED ALTERNATIVE MEANS FOR FASTENING OR ANCHORING MATERIALS THAT REQUIRE SPECIAL FIELD INSPECTION, SUCH AS FIELD WELDING, ADHESIVE OR EXPANSION ANCHORS, ETC. ALL ADDITIONAL SPECIAL INSPECTION AND TESTING COSTS SHALL BE PAID BY THE OWNER AND DEDUCTED FROM THE CONTRACT AMOUNT.

GENERAL NOTES:

1. ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.
2. TYPICAL NOTES AND DETAILS SHALL APPLY UNLESS OTHERWISE SHOWN OR NOTED ON DRAWINGS.
3. DETAILS OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME NATURE AS SHOWN FOR SIMILAR CONDITION.
4. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE 2019 CALIFORNIA BUILDING CODE, CCR, TITLE 24, PART 2, VOLUME 2 WITH LATEST REVISIONS REFERRED TO HEREIN AS "THE CODE", AND OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK, INCLUDING THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY, AND THOSE CODES AND STANDARDS LISTED IN THESE NOTES AND SPECIFICATIONS.
5. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK. IF CONFLICTS OCCUR BETWEEN DRAWINGS AND SPECIFICATIONS, THE MOST EXPENSIVE MATERIALS OR METHODS SHALL PREVAIL (FOR BIDDING). STRUCTURAL ENGINEER SHALL BE NOTIFIED OF CONFLICTS AND THAT PORTION OF WORK SHOULD NOT PROCEED UNTIL CONFLICT IS RESOLVED.
6. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION.
7. ASTM SPECIFICATIONS ON THE DRAWINGS AND SPECIFICATIONS SHALL BE OF THE LATEST REVISION.
8. CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED ROOF OR FLOOR. LOAD SHALL NOT EXCEED DESIGN LIVE LOAD PER SQUARE FOOT. PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE STRUCTURE HAS NOT ATTAINED DESIGN STRENGTH.
9. HEAVY EQUIPMENT, CRANES AND MATERIAL STOCKPILES SHALL NOT BE LOCATED ON OR ADJACENT TO SHORING.
10. SUBSTITUTIONS FOR STRUCTURAL MEMBERS, HARDWARE, OR DETAILS SHALL BE REVIEWED BY THE ARCHITECT AND STRUCTURAL ENGINEER AND APPROVED BY THE APPROPRIATE AGENCY. FOR A SUBSTITUTION TO BE REVIEWED THE CONTRACTOR SHALL AGREE & COMPLY WITH THE FOLLOWING:
    A. THE CONTRACTOR SHALL BE BILLED ON A TIME AND MATERIALS BASIS FOR THE REVIEW OF THE SUBSTITUTION WITH NO GUARANTEE OF APPROVAL.
    B. VERIFY THAT THE SUBSTITUTION DOES NOT AFFECT DIMENSIONS SHOWN ON DRAWINGS.
    C. THE CONTRACTOR SHALL ALSO PAY FOR CHANGES TO THE BUILDING DESIGN, WHICH INCLUDES BUT IS NOT LIMITED TO; ENGINEERING DESIGN, DETAILING, APPROVAL AGENCY PROCESS AND CONSTRUCTION COSTS CAUSED BY THE REQUESTED SUBSTITUTION.
    D. THE PROPOSED SUBSTITUTION IS TO HAVE NO ADVERSE AFFECT ON OTHER TRADES, THE CONSTRUCTION SCHEDULE, OR THE SPECIFIED WARRANTY REQUIREMENTS.
11. NO STRUCTURAL MEMBERS SHALL BE CUT, NOTCHED OR OTHERWISE PENETRATED UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER IN ADVANCE OR SHOWN ON THESE DRAWINGS.
12. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. DIMENSIONS AND ELEVATIONS MUST BE VERIFIED WITH ARCHITECTURAL DRAWINGS. IN THE EVENT OF A CONFLICT, THE STRUCTURAL ENGINEER AND ARCHITECT ARE TO BE NOTIFIED IMMEDIATELY. DRAWING SCALES GIVEN ARE APPROXIMATE- DO NOT SCALE PLANS OR DETAILS.
13. SITE VISITS BY STRUCTURAL ENGINEER SHALL NOT BE IN LIEU OF INSPECTIONS.
14. SEE CIVIL DRAWINGS FOR THE FOLLOWING:
    - SIZE AND LOCATION OF ALL CONCRETE CURBS, EQUIPMENT PADS, PITS, FLOOR DRAINS, SLOPES AND DEPRESSED AREAS, CHANGE IN LEVEL, CHAMFERS, GROOVES, INSERTS, ETC.
    - SIZE AND LOCATION OF OPENINGS EXCEPT AS SHOWN.
    - FINISHES.
    - DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
15. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR THE FOLLOWING:
    - PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS, ETC EXCEPT AS SHOWN OR NOTED.
    - ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALL OR SLABS.
    - CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL OR PLUMBING FIXTURES.
    - SIZE AND LOCATION OF MACHINE OR EQUIPMENT BASES AND ANCHOR BOLTS FOR MOTOR MOUNTS.

STRUCTURAL SHEET INDEX:



REGISTERED PROFESSIONAL ENGINEER ARTHUR ERNEST CYS No. S2030 STRUCTURAL STATE OF CALIFORNIA

THESE DRAWINGS ARE PRELIMINARY AND NOT FOR CONSTRUCTION UNLESS STAMPED & SIGNED BY THE ENGINEER OF RECORD.

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(916) 920-2020 (916) 920-1336 Fax
www.cyseng.com

CYS Job No. 20054

65% SUBMITTAL

PN: W14130615

L:\Jobs20\20054 Pump Outfall Replacement Valve Vaults\ACAD\STRU\PKG A\S1_PKG A.dwg TimesSep14,2020-01:55pm Loginccamachom Dlmscale:1 LTScale:0.5

PN: W14130615 | PUMP OUTFALLS REPLACEMENT PROJECT | PN: W14130615

REVISIONS

NO.	DESCRIPTION	DATE	BY
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PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT - A
GENERAL STRUCTURAL NOTES & ABBREVIATIONS

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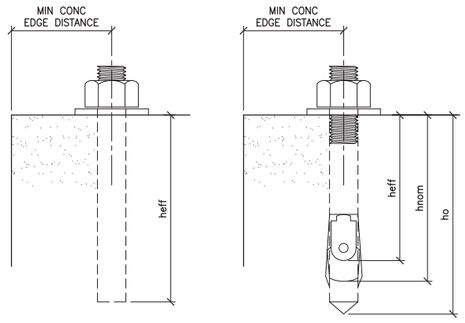
POST–INSTALLED ANCHORS:

1. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS GIVEN IN THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII) AND THE RESPECTIVE ICC OR IAPMO REPORT:
   A. CONCRETE ANCHORS:
      HILTI KWIK–BOLT TZ EXPANSION ANCHORS ESR–1917
      HILTI HIT–RE 500 V3 ADHESIVE ANCHORS ESR–3814
2. SPECIAL INSPECTION IS REQUIRED FOR ALL MECHANICAL AND ADHESIVE ANCHORS PER CBC SECTION 1705.3 AND THE REPORTS NOTED ABOVE, UNLESS NOTED OTHERWISE.
3. SEE ANCHOR SCHEDULE(S) AND DETAILS FOR TEST LOAD OR TORQUE VALUES, IN ACCORDANCE WITH CBC SECTION 1901.3.4.4. TESTING OF UNDERCUT ANCHORS THAT ALLOW VISUAL CONFIRMATION OF FULL SET IS NOT REQUIRED.
4. TEST EACH ANCHOR OF DIFFERENT DIAMETER AND EMBEDMENT DEPTH FOR EACH TYPE AND STRENGTH OF CONCRETE PER CBC SECTION 1901.3.4.3 AS FOLLOWS:
   A. ANCHORS USED FOR OTHER STRUCTURAL APPLICATIONS SHALL HAVE 100 PERCENT OF THE ANCHORS TENSION TESTED.
   B. ANCHORS USED FOR NON–STRUCTURAL APPLICATIONS SUCH AS EQUIPMENT ANCHORAGE SHALL HAVE 50 PERCENT OR ALTERNATE BOLTS IN A GROUP INCLUDING AT LEAST ONE–HALF THE ANCHORS IN EACH GROUP TENSION TESTED.
5. FAILURE/ACCEPTANCE CRITERIA. THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS PER CBC SECTION 1901.3.4.5:
   A. HYDRAULIC RAM METHOD: THE ANCHOR MUST MAINTAIN THE TEST LOAD FOR 15 SECONDS AND NOT EXHIBIT OBSERVABLE MOVEMENT AT THE APPLICABLE TEST LOAD. FOR WEDGE AND SLEEVE–TYPE ANCHORS, A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER UNDER THE NUT BECOMES LOOSE. DROP–IN ANCHORS ARE ONLY TO BE TESTED WITH THIS METHOD. FOR ADHESIVE ANCHORS, WHERE OTHER THAN BOND IS BEING TESTED, THE TESTING DEVICE SHALL NOT RESTRICT THE CONCRETE SHEAR CONE TYPE FAILURE MECHANISM FROM OCCURRING.
   B. TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE FOR WEDGE OR SLEEVE–TYPE ANCHORS MUST BE REACHED WITHIN THE FOLLOWING LIMITS, ONE–HALF (½) TURN OF THE NUT; ONE QUARTER (¼) TURN OF THE NUT FOR THE ⅜" SLEEVE ANCHOR ONLY.
   C. PER CBC SECTION 1901.3.4.1 IF ANCHOR FAILS TESTING, ALL ANCHORS OF THE SAME CATEGORY, NOT PREVIOUSLY TESTED, SHALL BE TESTED UNTIL 20 CONSECUTIVE ANCHORS PASS THE TEST REQUIREMENTS THEN INITIAL TESTING FREQUENCY SHALL THEN BE RESUMED.
6. WHEN INSTALLING DRILLED–IN ANCHORS IN EXISTING CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING EXISTING REINFORCING BARS.
7. THE TESTING OF THE ANCHORS SHALL BE DONE BY THE TESTING LABORATORY IN THE PRESENCE OF THE SPECIAL INSPECTOR AND A REPORT OF THE TEST RESULTS SHALL BE SUBMITTED TO THE GOVERNING AGENCY AND ARCHITECT/STRUCTURAL ENGINEER. TESTING SHALL OCCUR AT MINIMUM OF 24 HOURS AFTER THE INSTALLATION OF THE ANCHORS.
8. APPLY TENSION TEST LOADS TO EXPANSION OR ADHESIVE ANCHORS WITHOUT REMOVING THE NUT IF POSSIBLE. IF NOT POSSIBLE, REPLACE THE NUT WITH A THREADED COUPLER OF THE SAME DIAMETER AND TORQUE TO THE SAME LEVEL AS THE ORIGINAL NUT AND APPLY TEST LOAD.
9. REACTION LOADS FROM TEST FIXTURES SHALL NOT BE APPLIED CLOSE TO THE ANCHOR BEING TESTED.
10. TEST EQUIPMENT IS TO BE CALIBRATED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH STANDARD RECOGNIZED PROCEDURES.



HILTI HIT–RE 500 V3 ADHESIVE ANCHORS

HILTI KB–TZ EXPANSION ANCHORS

HILTI KB–TZ EXPANSION ANCHORS (ICC–ES ESR–1917)

ANCHOR DIA (INCH)	INSTALLATION EMBED (INCH) hnom	EFFECTIVE EMBED (INCH) heff	HOLE DEPTH (INCH) ho	MIN CONC THICKNESS (INCH) h	MIN CONC EDGE DISTANCE (INCH)	INSTALLATION TORQUE (FT–LBS)
1/2	3 5/8	3 1/4	4	12	6	40
5/8	4 7/16	4	4 3/4	12	SEE PLAN	60

HILTI HIT–RE 500 V3 ADHESIVE ANCHORS (ICC–ES ESR–3814)

ANCHOR DIA (INCH)	EFFECTIVE EMBED (INCH) heff	MIN CONC THICKNESS (INCH) h	MIN CONC EDGE DISTANCE (INCH)
5/8	SEE PLAN	SEE PLAN	SEE PLAN

POST INSTALLED ANCHOR SCHED (2 / –)

CONCRETE:

1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE CODE PER GENERAL NOTES.
2. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ASTM C94 AND ACI STANDARD 304. IN ADDITION, MAXIMUM FREE FALL OF CONCRETE SHALL BE 4'–0".
3. ALL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED BY SUITABLE MEANS DURING PLACEMENT AND SHALL BE THOROUGHLY WORKED AROUND REINFORCEMENT AND EMBEDDED FIXTURES AND INTO CORNERS OF FORMS.
4. THE MINIMUM 28 DAY STRENGTH SHALL BE PER MIX DESIGN SCHEDULE.
5. CEMENT SHALL CONFORM TO ASTM C150, TYPE I OR II.
6. CONCRETE AGGREGATES:
   A. NATURAL SAND AND ROCK AGGREGATES SHALL CONFORM TO ASTM C33.
   B. LIGHTWEIGHT AGGREGATES SHALL CONFORM TO ASTM C330.
7. MINERAL ADMIXTURES SHALL COMPLY WITH ASTM C618 CLASS F.
8. LIQUID ADMIXTURES SHALL COMPLY WITH THE FOLLOWING:
   A. WATER REDUCERS . . . . . ASTM C494 TYPE A
   B. MID–RANGE WATER REDUCERS . . . . . ASTM C494 TYPE A & F
   C. NON–CHLORIDE ACCELERATORS . . . . . ASTM C494 TYPE C OR C & E
   D. RETARDING ADMIXTURES . . . . . ASTM C494 TYPE B OR B & D
9. GENERAL:
   A. NO PIPES OR DUCT SHALL BE PLACED IN CONCRETE SLABS OR WALLS UNLESS SPECIFICALLY DETAILED.
   B. REFER TO ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS FOR ALL MOULDS, GROOVES, ORNAMENTS, CLIPS, ETC. TO BE CAST IN CONCRETE.
10. ALL CONSTRUCTION JOINTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 318 SECTION 26.5.6 AND THE TYPICAL CONSTRUCTION JOINT DETAILS SHOWN ON THE STRUCTURAL DRAWINGS. ALL SURFACES OF CONSTRUCTION JOINTS SHALL BE CLEANED TO REMOVE DUST, CHIPS, OR OTHER FOREIGN MATTER PRIOR TO PLACING THE ADJACENT CONCRETE. THE CONTRACTOR SHALL SUBMIT THE PROPOSED LOCATIONS OF CONSTRUCTION JOINTS TO THE ENGINEER FOR REVIEW BY THE STRUCTURAL ENGINEER BEFORE STARTING CONSTRUCTION.
11. REMOVE ALL DEBRIS AND EXCESS WATER FROM THE FORMS BEFORE PLACING ANY CONCRETE.
12. REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC. TO BE EMBEDDED IN CONCRETE SHALL BE SECURELY POSITIONED AND FREE OF EXCESSIVE SCALE, RUST, DIRT, GREASE, OIL OR ANY OTHER SUBSTANCES THAT WILL IMPAIR BOND WITH CONCRETE. OBTAIN APPROVAL OF ALL AFFECTED TRADES PRIOR TO PLACING CONCRETE.
13. WALLS SHALL BE PLACED IN HORIZONTAL LAYERS OF 2'–0" MAXIMUM DEPTH.
14. CONCRETE IN WALLS, PIERS OR COLUMNS SHALL SET AT LEAST 2 HOURS BEFORE PLACING CONCRETE IN BEAMS, SPANDRELS OR SLABS SUPPORTED THEREON.
15. NO WOOD SPREADERS ALLOWED. NO WOOD STAKES ALLOWED IN AREAS TO BE CONCRETED.
16. CONTRACTOR SHALL PREPARE AND SUBMIT CONCRETE MIX DESIGNS TO THE ARCHITECT/ ENGINEER OF RECORD FOR REVIEW PRIOR TO PLACEMENT OF ANY CONCRETE. CONCRETE MIX DESIGNS SHALL BE PER ACI 318 CHAPTER 26 AND ACI 301 SECTION 4. CALCIUM CHLORIDE OR ADMIXTURES WHICH ADD CHLORIDES ARE NOT PERMITTED.
17. NOTIFY THE ENGINEER OF RECORD (AND BUILDING OFFICIAL WHEN REQUIRED) 2 BUSINESS DAYS PRIOR TO PLACING CONCRETE.
18. CAST–IN–PLACE CONCRETE (NON–PRESTRESSED). THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . . 3"
   B. CONCRETE EXPOSED TO EARTH OR WEATHER:
      NO. 6 THROUGH NO. 11 BAR . . . . . 2"
      NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER . . . . . 1½"
19. A. ALL BARS SHALL HAVE A CLASS B MINIMUM SPLICE LAP UNO. SEE REINFORCEMENT LAP SPLICES TABLE.
   B. SPLICES IN ADJACENT BARS SHALL BE NOT LESS THAN 5'–0" APART. UNO.
   C. DOWEL ALL VERTICAL REINFORCING IN WALLS AND COLUMNS FROM FOUNDATION WITH THE SAME SIZE REINFORCING, UNO.
   D. SPLICE CONTINUOUS BARS IN SPANDRELS, GRADE BEAMS, WALL BEAMS, ETC. AS FOLLOWS: TOP BARS AT MID–SPAN, BOTTOM BARS AT CENTERLINE SUPPORT UNO.
20. HORIZONTAL WALL REINFORCING IN DOUBLE LAYER WALLS SHALL BE STAGGERED. USE #2 SPREADERS APPROXIMATELY EVERY THIRD INTERSECTION EACH DIRECTION FOR ALL DOUBLE LAYER WALLS.
21. MINIMUM WALL REINFORCING SHALL BE:

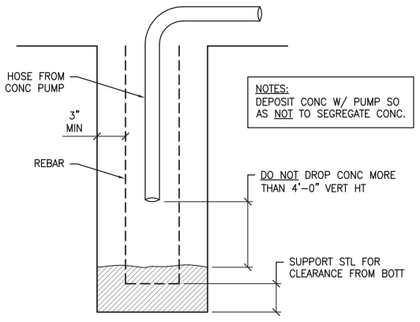
WALL THICKNESS	SINGLE LAYER	DOUBLE LAYER
7" OR LESS	#4 @ 12" OC EA WAY	
8"	#4 @ 10" OC EA WAY	
9" & 10"		#4 @ 16" OC EA WAY
11" & 12"		#4 @ 12" OC EA WAY

22. REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND INSTALLED IN ACCORDANCE WITH ACI 315. SEE REINFORCING STEEL NOTES FOR ADDITIONAL REQUIREMENTS.
23. FINAL PRODUCT AS INDICATED ON DRAWINGS SHALL COMPLY WITH THE FOLLOWING:
   A. ALL CONCRETE SHALL HAVE A "CLASS B" FINISH PER ACI 347 WITH GRADUAL IRREGULARITIES LIMITED TO ¼" IN 5'–0" AS MEASURED WITH A STRAIGHT EDGE.
   B. SURFACE IRREGULARITIES ATTRIBUTABLE TO PLACEMENT AND CONSOLIDATION DEFICIENCIES AS DEFINED IN ACI 309.2R (E.G., BUG HOLES, HONEYCOMB, ETC.) WILL BE REVIEWED BY THE ARCHITECT AND ENGINEER. UNSATISFACTORY WORK SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
   C. GRADUAL SURFACE IRREGULARITIES SHALL NOT BE CUMULATIVE.

MIX DESIGN SCHEDULE

TYPE	USE CLASS	STRENGTH "f'c" MIN @ 28 DAYS (PSI)	CONCRETE UNIT WEIGHT (PCF)	MAX AGGREGATE SIZE (IN)	MAX (5) SLUMP (IN)	MAX WATER TO CEMENT RATIO (%)	FLY ASH (7) REPLACEMENT (%)
A	SLAB ON GRADE	4000	150	1"±¼"	4"±1"	.40	15% MIN 25% MAX
B	FOUNDATIONS	4000	150	1"±¼"	4"±1"	.50	15% MIN 25% MAX
C	WALLS	4000	150	1"±¼"	4"±1"	.50	15% MIN 25% MAX
D	ELEVATED SLABS	4000	150	1"±¼"	4"±1"	.40	15% MIN 25% MAX

FOOTNOTES:
1. ADD WATER REDUCING ADMIXTURES PER SPECIFICATIONS FOR PLACING.
2. FOR HOT WEATHER CONCRETING REFER TO ACI 305R.
3. FOR COLD WEATHER CONCRETING REFER TO ACI 306R.
4. OTHER ADMIXTURES SHALL BE REVIEWED BY THE ENGINEER OF RECORD AND TESTING LABORATORY UPON CONCRETE MIX DESIGN SUBMITTAL.
5. SLUMPS SHALL NOT EXCEED 8"±1½" WHEN USING MID–RANGE WATER REDUCERS.
6. ADDITIONAL WATER SHALL NOT BE ADDED TO THE CONCRETE ONCE THE TRUCK LEAVES THE BATCH PLANT.
7. MIX DESIGN SHALL NOT BE PROPORTIONED WITHOUT FIELD EXPERIENCE OR TRIAL MIXTURES PER ACI 318, SECTION 26.4.3 WHEN USING MORE THAN 15% FLY ASH REPLACEMENT BY WEIGHT.



CONC PUMP HOSE PLACEMENT DETAIL (1 / –) NTS

SHOP DRAWINGS:

PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER:

1. THE CONTRACTOR AGREES THAT SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS.
2. THE CONTRACTOR AGREES THAT THE PURPOSE OF SHOP DRAWING SUBMITTALS IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN INTENT OF THE PROJECT AND COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS BY INDICATING WHICH MATERIAL THE CONTRACTOR INTENDS TO FURNISH AND INSTALL AND BY DETAILING THE FABRICATION AND INSTALLATION METHODS THE CONTRACTOR INTENDS TO USE.
3. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS ON THE SHOP DRAWINGS, WHICH MUST BE CONFIRMED AND CORRELATED AT THE JOB SITE, FOR COORDINATION OF HIS OR HER WORK WITH THAT OF ALL OTHER TRADES AND FOR PERFORMING WORK IN A SAFE AND SATISFACTORY MANNER.
4. THE CONTRACTOR IS RESPONSIBLE FOR MATERIAL QUANTITIES ON THE SHOP DRAWINGS.
5. THE CONTRACTOR IS TO REVIEW AND BE IN AGREEMENT WITH COMMENTS BY THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH FABRICATION.
6. THE SHOP DRAWINGS SHALL BE PREPARED FROM FRESH WORK. REPRODUCTIONS OF THE APPROVED DRAWINGS IS NOT PERMITTED.
7. PRIOR TO SUBMISSION THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND SHALL STAMP SUBMITTALS AS BEING "REVIEWED FOR CONFORMANCE".
8. ANY DETAIL ON THE SHOP DRAWING THAT DEVIATES FROM THE CONTRACT DOCUMENTS SHALL BE CLEARLY MARKED WITH THE NOTE "THIS IS A CHANGE". SEE GENERAL NOTES FOR MATERIAL SUBSTITUTIONS.
9. SHOP DRAWINGS OR CALCULATIONS SUBMITTED FOR REVIEW THAT REQUIRE MORE THAN ONE RESUBMITTAL FOR REVIEW SHALL BE BILLED HOURLY FOR SUCH TIME TO THE GENERAL CONTRACTOR. THE THIRD REVIEW WILL NOT PROCEED WITHOUT WRITTEN APPROVAL FROM THE GENERAL CONTRACTOR FOR ADDITIONAL ENGINEERING REVIEW SERVICES.
10. CAD FILES OF APPROVED DRAWINGS WILL NOT BE PROVIDED TO THE CONTRACTOR, SUBCONTRACTOR OR FABRICATOR FOR THE PREPARATION OF SHOP DRAWINGS.
11. SHOP DRAWING REVIEWS DO NOT CONSTITUTE AN APPROVAL FOR PURCHASE OR FABRICATION OF MATERIALS.

REGISTERED PROFESSIONAL ENGINEER ARTHUR ERNEST YEATS No. S2030 STRUCTURAL STATE OF CALIFORNIA

THESE DRAWINGS ARE PRELIMINARY AND NOT FOR CONSTRUCTION UNLESS STAMPED & SIGNED BY THE ENGINEER OF RECORD.

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CYS Job No. 20054

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT PN: W14130615

PN: W14130615

REVISIONS

NO.	DESCRIPTION	DATE	BY
1			
2			
3			
4			
5			

BENCH MARK ELEV. _____
DESCRIPTION: _____

FIELD BOOK 0000
SCALE: H: _____ V: _____

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

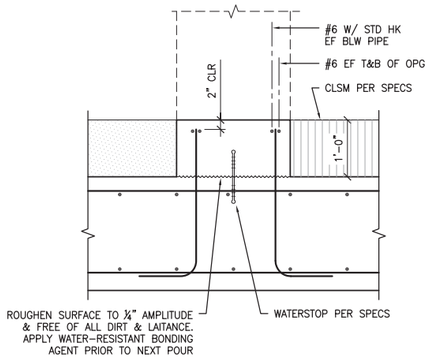
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
GENERAL STRUCTURAL NOTES & TYPICAL DETAILS

Page 26

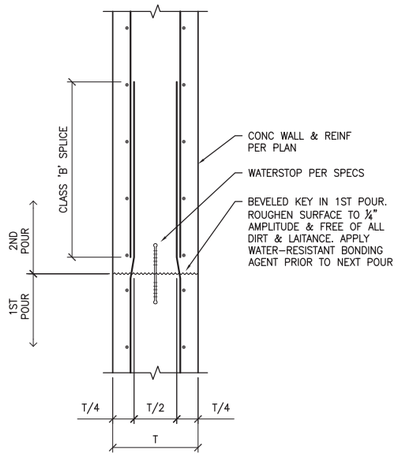
PN: W14130615

DWG. NO. S2
SHEET 43 OF 47

PN: W14130615

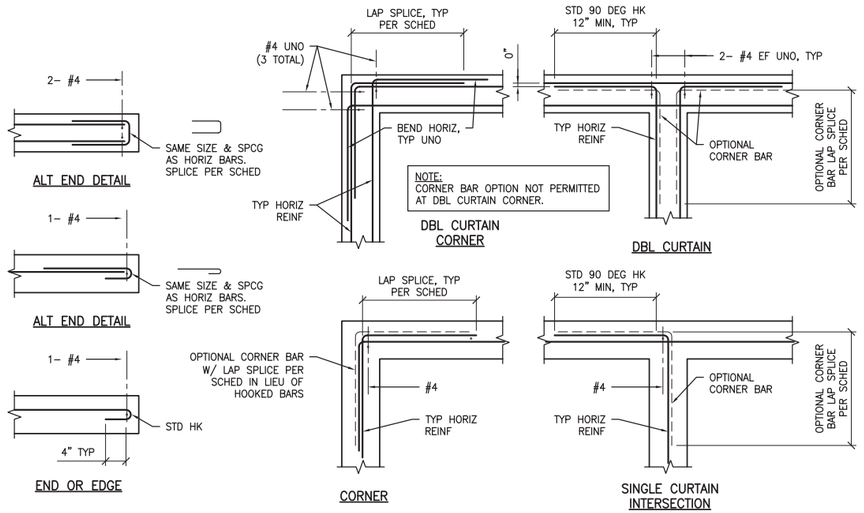


8 — DETAIL
3/4" = 1'-0"



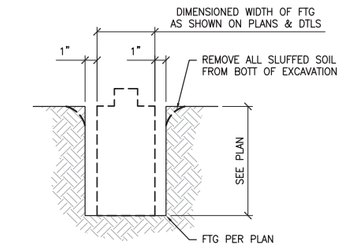
NOTE:
PROVIDE CONSTR JTS AS REQ AT LOCATIONS TO BE DETERMINED BY THE CONTRACTOR.

6 — CONC WALL CONSTR JT DETAIL
NTS

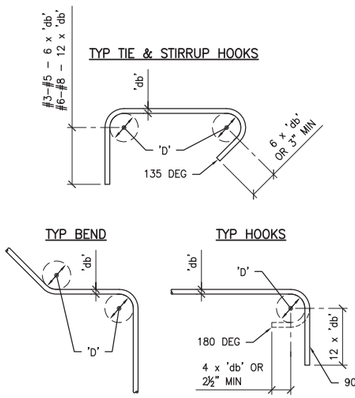


NOTES:
1. BAR INTERSECTIONS APPLY TO ALL SINGLE, DBL & MULTIPLE CURTAIN INTERSECTIONS & TO ALL VARIATIONS OF VERT & HORIZ REBAR POSITIONS.
2. TYP VERT REINF NOT SHOWN FOR CLARITY.
3. LAP SPLICES PER SCHED ON SHT C548.

4 — TYP REINF SPLICED AT INTERSECTIONS OF WALLS & FTGS DETAIL
NTS



1 — UNFORMED FTG DETAIL
NTS

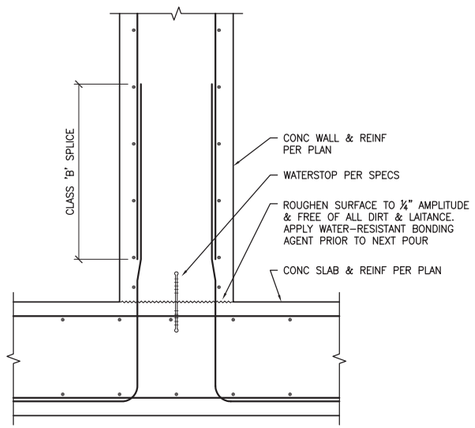


TIE & STIRRUP HOOKS	
REBAR	'D'
#3 – #5	4 x 'db'
#6 – #8	6 x 'db'

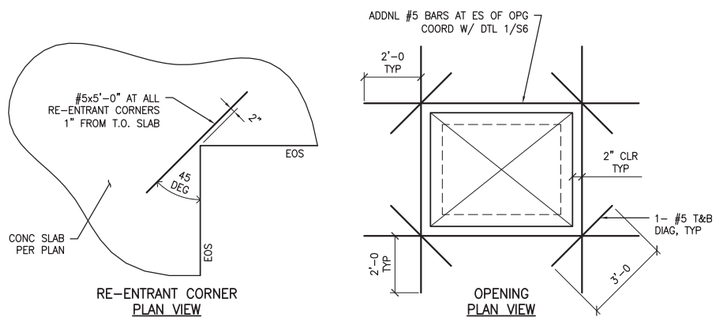
FOOTNOTES:
1. 'D' = DIA OF BEND
2. 'db' = DIA OF REBAR

BENDS & HOOKS	
REBAR	'D'
#3 – #8	6 x 'db'
#9 – #11	8 x 'db'
#14 – #18	10 x 'db'

2 — MIN REBAR BENDS DETAIL
NTS

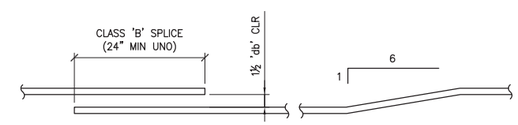


7 — CONC WALL CONSTR JT AT BOTT OF WALL DETAIL
NTS



NOTES:
1. DTL ONLY SHOWS THE ADDNL REINF. OTHER DTLS SUCH AS EOS ARE NOT SHOWN FOR CLARITY.
2. ALL OPGS W/ A DIM OF 12" OR GREATER SHALL BE TRIMMED.
3. THIS REINF IS IN ADDITION TO ANY REINF INDICATED ON THE PLANS.

5 — SLAB OPG & RE-ENTRANT CORNER DETAIL
NTS



NOTE:
1. 'db' = DIA OF REBAR.
2. FOR BEND & HK INFO NOT SHOWN, SEE TYP REINF BENDS DTL.

ALT:
PLACE BARS IN CONTACT & WIRE TOGETHER.

3 — TYP REINF DETAIL
NTS

REGISTERED PROFESSIONAL ENGINEER ARTHUR ERNEST ROSS No. S2030 STRUCTURAL STATE OF CALIFORNIA

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CYS Job No. 20054

65% SUBMITTAL

PN: W14130615

L:\Jobs\20\20054 Pump Outfall Replacement Valve Vaults\ACAD\STRUP\KG AIS3_PKG A.dwg TimesSep14,2020-02:50pm Login:camachom Dimscale:1 LTScale:8

PN: W14130615 | PUMP OUTFALLS REPLACEMENT PROJECT | PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY
1			
2			
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BENCH MARK ELEV. _____
DESCRIPTION: _____

FIELD BOOK 0000
SCALE: H: _____ V: _____

1" — ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

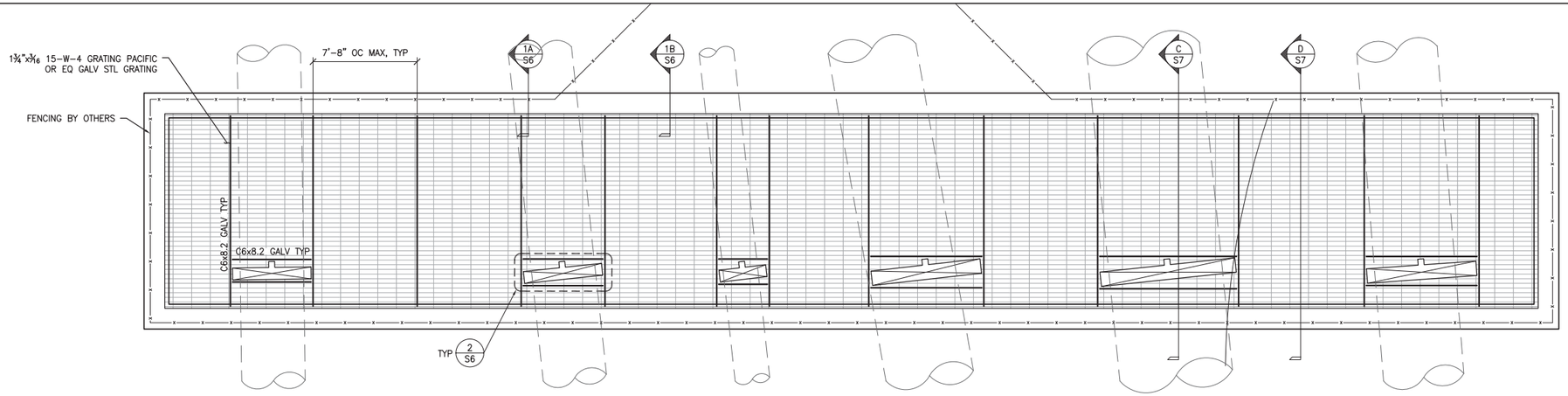
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

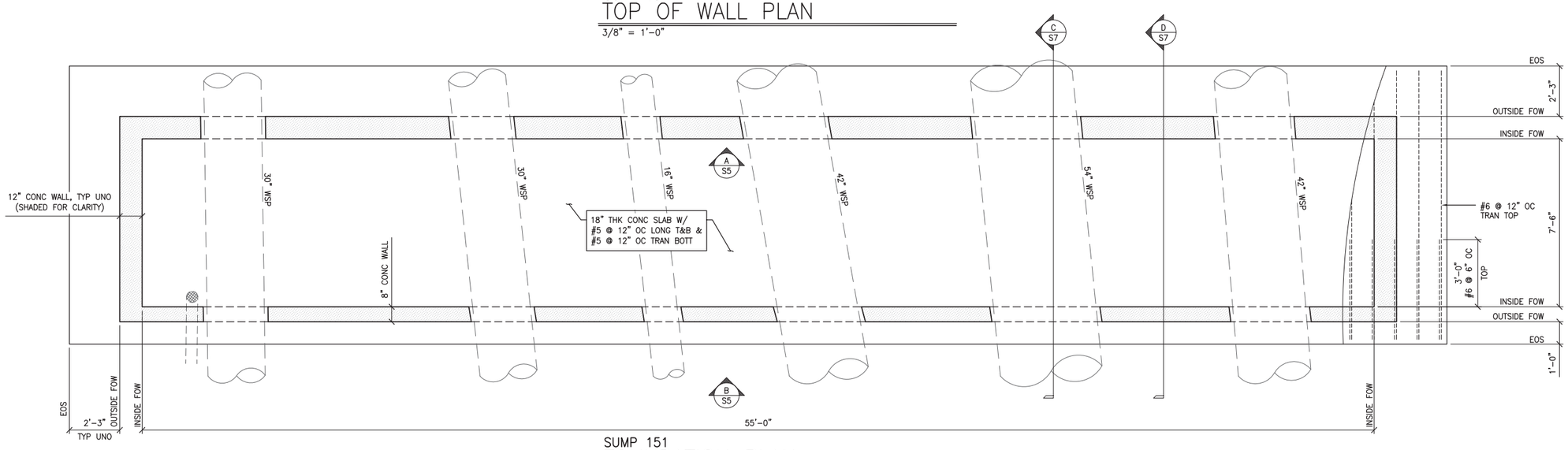
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
TYPICAL DETAILS - CONCRETE

PN: W14130615 | DWG. NO. S3 | SHEET 44 OF 47



SUMP 151
TOP OF WALL PLAN
3/8" = 1'-0"



SUMP 151
FOUNDATION PLAN
3/8" = 1'-0"

NOTES

1. SEE DWG S1 & S2 FOR GENERAL NOTES.
2. SEE DWG S3 FOR TYPICAL DETAILS.
3. SEE DWG S5 FOR SECTIONS.
4. SEE OTHER CONSULTANT DWGS FOR UTILITIES THAT WILL AFFECT FTGS & COMPLY W/ TYPICAL DETAILS.

REGISTERED PROFESSIONAL ENGINEER ARTHUR ERNEST JONES No. S2030 STRUCTURAL STATE OF CALIFORNIA

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CYS Job No. 20054

65% SUBMITTAL

PN: W14130615

L:\Jobs20\20054 Pump Outfall Replacement Valve Vaults\ACAD\STRU\PKG A\S4_PKG A.dwg TimeSep14,2020x04:51pm Logitxcamachom Dimscale:32 LTScale:16

PN: W14130615 PUMP OUTFALLS REPLACEMENT PROJECT PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY
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5			

BENCH MARK DESCRIPTION: ELEV.

FIELD BOOK 0000 SCALE: H: V:

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

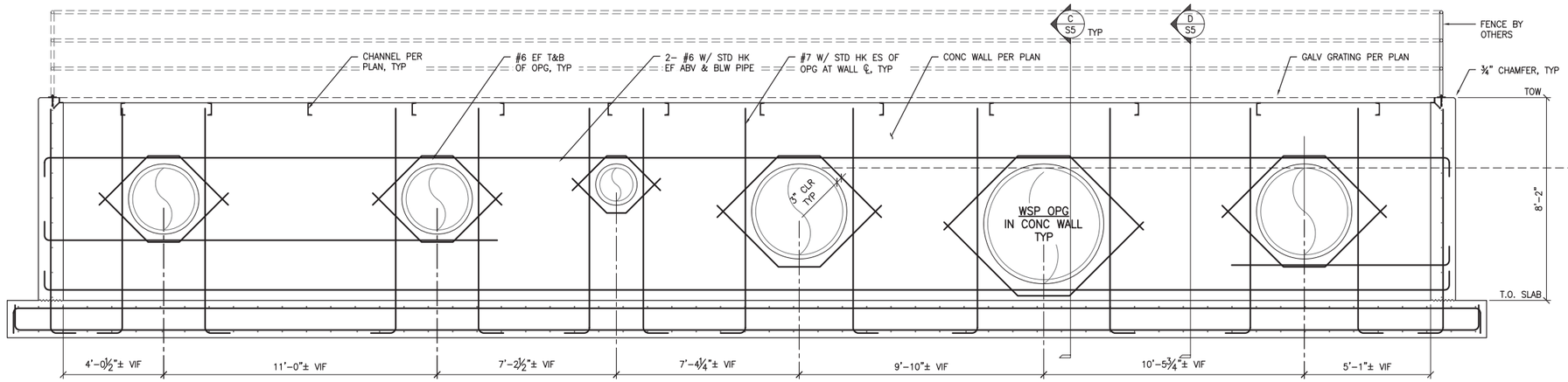
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

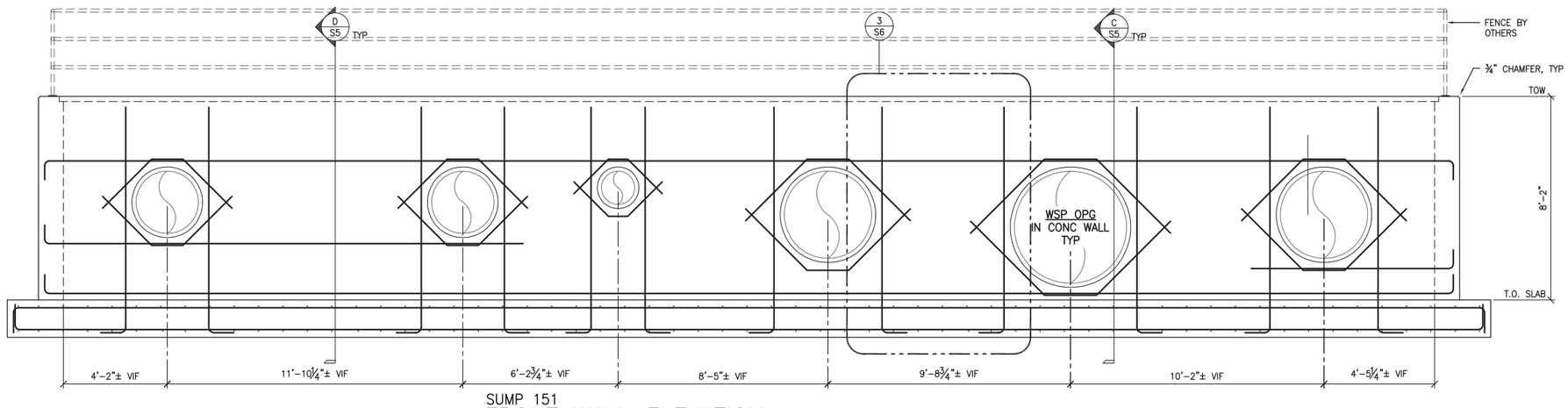
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
FOUNDATION & FRAMING PLANS
SUMP 151

PN: W14130615 DWG. NO. S4 SHEET 45 OF 47



NOTE:
TYP WALL REINF NOT SHOWN FOR CLARITY.

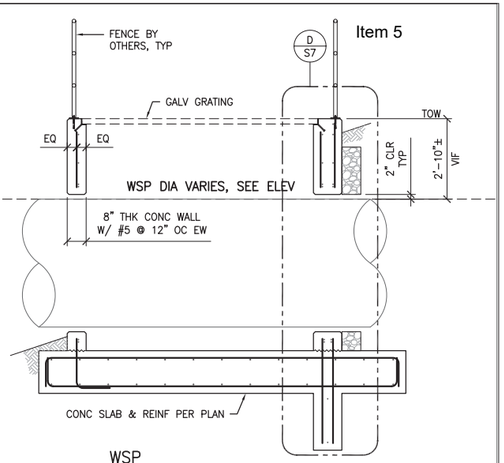
SUMP 151
REAR WALL ELEVATION
A / S5 — 3/8" = 1'-0"



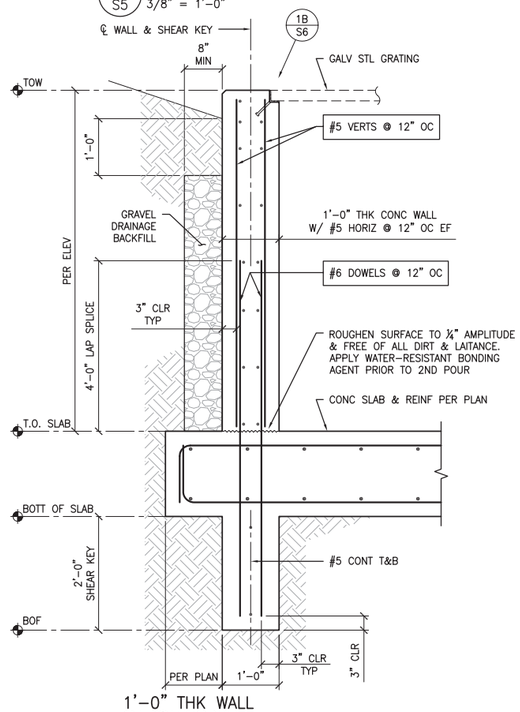
NOTE:
TYP WALL REINF NOT SHOWN FOR CLARITY.

SUMP 151
FRONT WALL ELEVATION
B / S5 — 3/8" = 1'-0"

Item 5



WSP
SECTION
C / S5 — 3/8" = 1'-0"



1'-0" THK WALL
SECTION
D / S5 — 3/8" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER — ARTHUR ERNEST BOSS — No. S2030 — STRUCTURAL — STATE OF CALIFORNIA

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CYS Job No. 20054

65% SUBMITTAL

PN: W14130615

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PUMP OUTFALLS REPLACEMENT PROJECT
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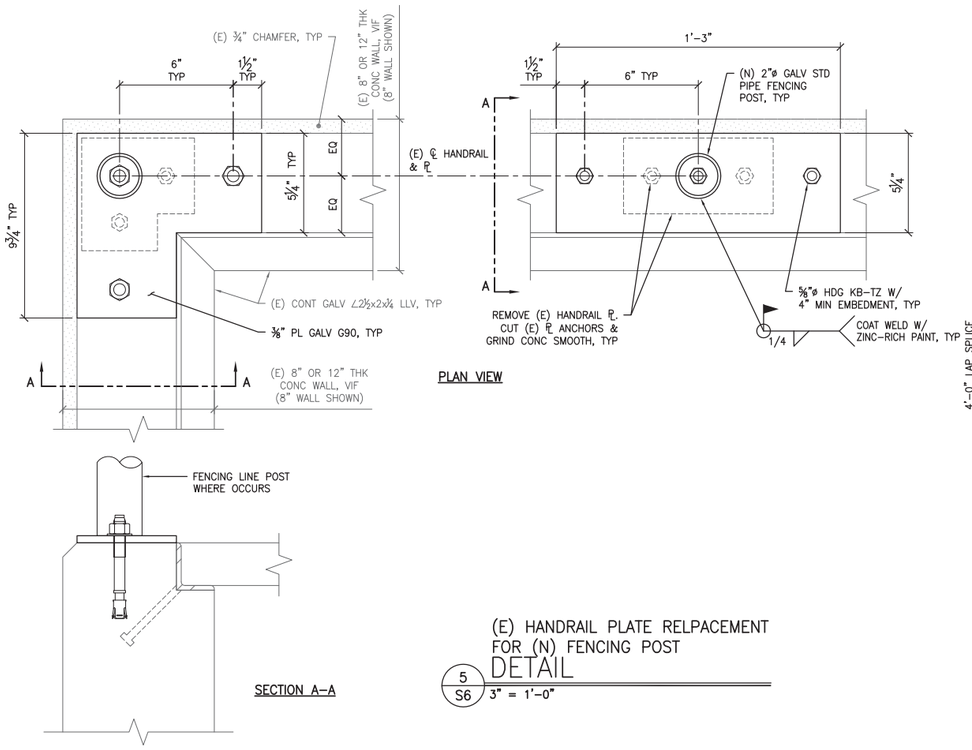
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
WALL ELEVATIONS & SECTIONS
SUMP 151

PN: W14130615
DWG. NO. S5
SHEET 46 OF 47



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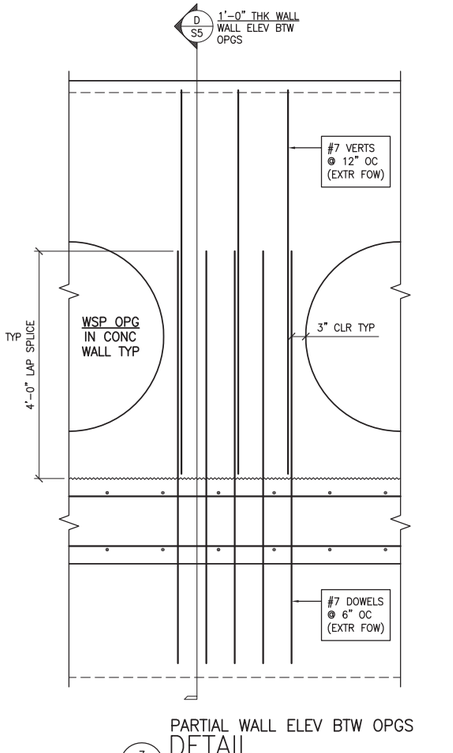
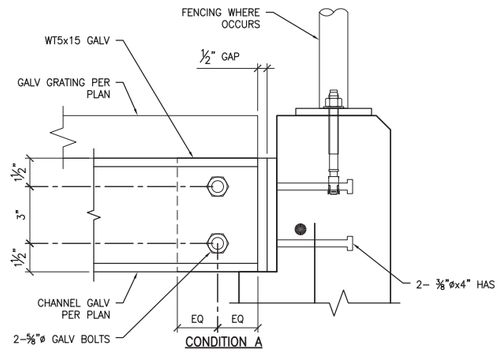
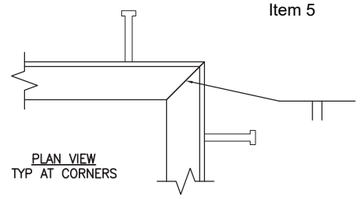
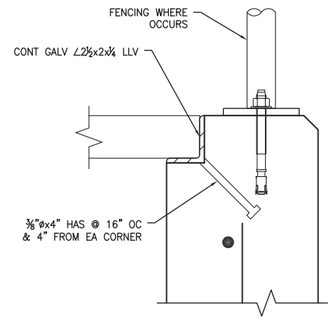


PARTIAL WALL ELEV BTW OPGS
3 / S6 DETAIL
3/4" = 1'–0"







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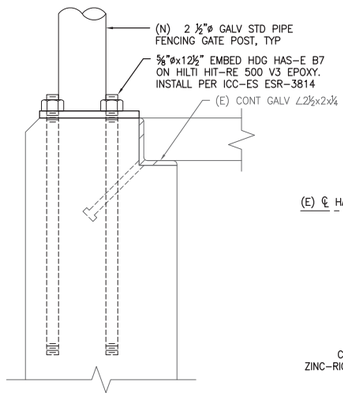

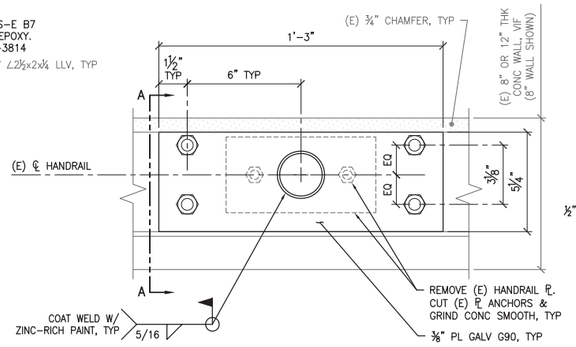

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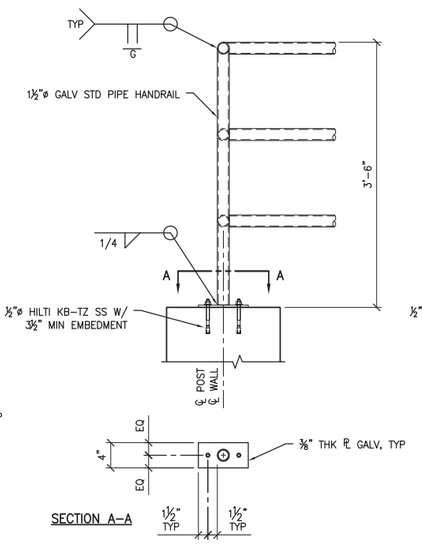

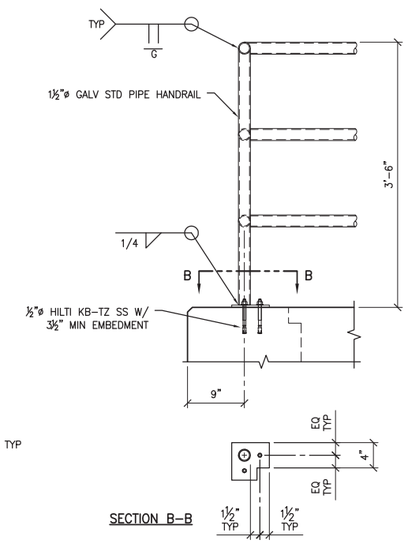

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4 / S6 DETAIL
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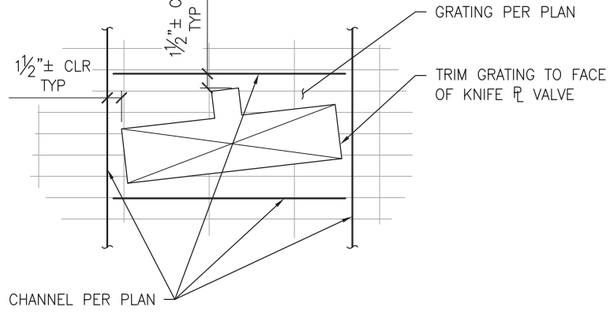

2 / S6 DETAIL
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REGISTERED PROFESSIONAL ENGINEER ARTHUR ERNEST SMITH No. S2030 STRUCTURAL STATE OF CALIFORNIA

THESE DRAWINGS ARE PRELIMINARY AND NOT FOR CONSTRUCTION UNLESS STAMPED & SIGNED BY THE ENGINEER OF RECORD.

CYS STRUCTURAL ENGINEERS INC.
2295 Natomas Park Drive, Suite 630
Sacramento, CA 95833
(916) 920-2020 (916) 920-1336 Fax
www.cyseng.com

CYS Job No. 20054

65% SUBMITTAL

PN: W14130615

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PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

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CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

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PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
DETAILS

PN: W14130615 DWG. NO. S6
SHEET 47 OF 47

Attachment C – Categorical Permission Checklist

Categorical Permission Alteration Description – 16. Pressurized Pipes

The categorical permission covers the installation, modification, and replacement of pressurized pipes that comply with certain terms and conditions. Particularly, all pressurized pipes must be designed and installed in accordance with current USACE standards. The total area of disturbance, including staging and access areas, must not exceed 5 acres. Pressurized pipes must also be designed to prevent, (1) flotation from uplift, (2) scour or erosion, (3) damage from debris on the waterside, particularly during flood flows, (4) leakage, (5) seepage along proposed pipes, (6) corrosion, and (7) damage from vehicular loads.

All new pressurized pipes should go up and over the levee DWSE. Pressurized pipes passing over or within the freeboard zone of a levee (i.e., above the levee DWSE), should be made of metal, preferably ductile iron or coated steel, suitable for use with flexible couplings.

Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM). Pipes that pass above the DWSE must have 2 feet of cover (low permeability or CLSM) to prevent damage by vehicles and equipment. Cover material on the levee crown must be placed at a ratio of 10H:1V, in the upstream/downstream direction of the levee. Pipes on the sides of the levee should be covered with a minimum of 1 foot of low permeability material, compacted in 4- to 6-inch lifts or CLSM to protect them from debris during high water (waterside) or to keep them from interfering with or being damaged by operations or maintenance of the levee (landside). Fill must be free of deleterious materials and construction debris and placed in 4- to 6-inch-thick loose lifts and compacted to not less than 95% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D698 (USACE preferred method), or alternately, 90% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D1557. At the sponsor and levee maintaining agency's discretion, pipes on the levee slopes may be left exposed.

Only suitable material must be used as levee fill materials. Fill must be free from: roots and other organic matter, contaminated hazardous or toxic material, trash, debris, and frozen materials. Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve.

Pressurized pipes terminating in the channel require a positive closure device on the waterside that is accessible from the levee crown. Pressurized pipes transporting product completely across or through the federal project easement require positive closure devices located landward of any levees and channel. The positive closure device shall be located within one mile on both sides of the federal project. If the invert of the pipe is over the levee crown, the combination of a pump station on the waterside and a siphon breaker is considered an appropriate means of closure. Pipes located within or beneath a levee must have watertight joints that can accommodate movements resulting from settlement.

All pressurized pipes that cross the levee foundation at a depth less than or equal to two times the height of the levee should be evaluated for uplift. Pipes crossing the surface of the levee must be designed to counteract buoyancy forces of an empty pipe, with water at the DWSE.

Pressurized pipelines running parallel to flood risk management projects should be located at least 15 feet beyond the levee toes. Pipe location and orientation must be clearly marked in the field so they can be easily identified for flood fighting crews.

If appropriate, the requester should prepare an excavation plan demonstrating the effects of excavation on the stability of the embankments.

The site layout should provide adequate access for maintenance vehicles to refill fuel tanks and service/replace pumps, generators, etc. Pressurized pipes must also allow easy access for rapid closure in the event of leakage or rupture.

No plastic pipes (HDPE, PVC, etc.) are allowed in the levee embankment or its foundation unless they are embedded in concrete.

If an electrochemical or chemical reaction between the substratum or groundwater and pipe materials is expected, the pipe and pipe couplings must be protected.

After installation of pressurized pipes, the requester must demonstrate 0% pipe leakage in pipes in the levee. Pipes must be pressure tested to industry standards. Pipes must be regularly inspected, including the interior, if possible, looking for signs of maintenance issues. If an inspection indicates corrosion, alignment sag or heave, or separation at joints, corrective action must be taken as soon as possible to avoid failure. Pipe valves must be periodically inspected and pressure tested to ensure that they are functioning properly. Pressure tests must show no significant loss in pressure. Leaks and other deficiencies must be addressed as soon as possible. All replacement parts must be of equivalent or better quality than those being replaced.

The preferred method for abandoning pipes that pass through or over a levee is complete removal. If removal is not feasible, the pipes and other structures may be filled with a cement/bentonite-based grout or flowable fill. The grout needs to be sufficiently fluid so that it can be pumped to completely fill the pipe leaving no voids.

Categorical Permission Alteration Checklist – 16. Pressurized Pipes

Note: The following checklist is intended for planning purposes only, and includes information that USACE reviewers look for when considering a Section 408 request for pressurized pipes under the Categorical Permission. To be reviewed under the Categorical Permission, the proposed project must adhere to all requirements of the Categorical Permission, including the full alteration description (see previous page). The plans and narrative project description should reflect this information.

1.	☐ New Construction ☒ Replacement ☐ Modification ☐ Authorize Existing
2.	Maximum total area of disturbance is 5 acres: Yes ☒ No ☐ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: Area of disturbance is 0.11 acre.
3.	Pipes are designed to prevent flotation from uplift, scour or erosion, damage from debris on the waterside (particularly during flood flows), seepage along proposed pipes, corrosion, leakage, and damage from vehicular loads: Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41. Comment: [Click to enter rationale, explanation, unique situation, etc.]
4.	Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM): Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41 Comment: [Click to enter rationale, explanation, unique situation, etc.]
5.	Pipes passing over the DWSE will have a minimum of 2 feet of cover (low permeability or CLSM): Yes ☒ N/A ☐ Reference: Refer to profiles on sheets 6-11 in Bid Set A Comment: [Click to enter rationale, explanation, unique situation, etc.]
6.	If material must be added to the levee crown, the added material must be sloped at a ratio of 10H:1V horizontal to vertical, in the upstream/downstream direction to prevent a “speed bump” effect and facilitate vehicle access: Yes ☐ N/A ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: [Click to enter rationale, explanation, unique situation, etc.]
7.	Fill will be compacted to at least 95% of maximum density as determined by ASTM D698, between -2 and +3% of optimum moisture content: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 3.6B. Comment: [Click to enter rationale, explanation, unique situation, etc.]
8.	Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 2.2A. Comment: [Click to enter rationale, explanation, unique situation, etc.]
9.	All fill will be free of organics or other inappropriate materials: Yes ☒ N/A ☐ Reference: Refer to Spec section 31 00 00 3.9.B.1.6. Comment: [Click to enter rationale, explanation, unique situation, etc.]

10. Pipes terminating in the channel have a positive closure device on the waterside that is accessible from the levee crown: Yes ☒ N/A ☐
    Reference: Refer to profiles on Sheets 6-11 and Detail 1 on Sheet 37 in Bid Set A.
    Comment: [Click to enter rationale, explanation, unique situation, etc.]
11. Pipes transporting product completely across the federal project have a positive closure devices located within 1 mile on both sides of the federal project: Yes ☐ N/A ☒
    Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
    Comment: [Click to enter rationale, explanation, unique situation, etc.]
12. Pipes located within or beneath a levee have watertight joints that can accommodate movements resulting from settlement: Yes ☒ No ☐
    Reference: Refer to detail 2 on Sheet 40
    Comment: [Click to enter rationale, explanation, unique situation, etc.]
13. Pipes crossing the surface of the levee are designed to counteract buoyancy forces of an empty pipe, with water at the DWSE: Yes ☒ N/A ☐
    Reference: Refer to detail 3 on sheet 41
    Comment: [Click to enter rationale, explanation, unique situation, etc.]
14. Pipe location and orientation will be clearly marked in the field: Yes ☒ No ☐
    Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
    Comment: Pipe location and orientation can be identified by vault structure and outfall location
15. Pipes will allow easy access for rapid closure: Yes ☒ No ☐
    Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
    Comment: Positive valve closures on the levee crest will ensure easy access for rapid closure.
16. Plastic pipes within the levee embankment or its foundation are embedded in concrete: Yes ☐ N/A ☒
    Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
    Comment: [Click to enter rationale, explanation, unique situation, etc.]
17. If a chemical or electrochemical reaction is expected, the pipe and pipe couplings must be protected: Yes ☐ N/A ☒
    Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
    Comment: [Click to enter rationale, explanation, unique situation, etc.]
18. Any work within the levee embankment or foundation? Yes ☒ No ☐
    Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
    Comment: [Click to enter rationale, explanation, unique situation, etc.]
19. Any work ≤50 feet beneath the channel invert? Yes ☐ No ☒
    Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
    Comment: [Click to enter rationale, explanation, unique situation, etc.]
20. Hydraulic blockage calculation ≥1%? Yes ☐ No ☒ N/A ☐
    Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
    Comment: Rip Rap cross-sectional area below ordinary high watermark is anticipated to be significantly less than the cross-sectional area of Morrison Creek and therefore negligible.
21. Hydraulic model used for hydraulic analysis? Yes ☐ No ☐ N/A ☒

Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]

Comment: [Click to enter rationale, explanation, unique situation, etc.]

– For Official Use Only below this line –

Comment

CP Eligibility Review

Yes	No	Add'l. Info Requested		
☐	☐	☐	Environmental Reviewer: _____	Date: Click date
☐	☐	☐	Engineering Reviewer: _____	Date: Click date

American River Flood Control District
Central Valley Flood Protection Board Permit Application
Sump 154 Modifications (City of Sacramento)
Staff Report

Discussion:

The City of Sacramento submitted this encroachment permit application to modify facilities at their Sump 154 Pump Station. The work proposed is to remove and replace approximately 160 ft of three (3) 36” welded steel pipes at the pump discharge locations and outfall structure.

Sump 154 is located adjacent to the Arcade Creek South Levee at the confluence with Steelhead Creek.

These modifications are required to upgrade the pipe outfall system at the pump station. Recent work conducted by SAFCA under the North Area Streams Project replaced only the segments of pipe that crossed through the levee. This work will complete the upgrade to the facility by replacing the pipe discharge sections at the pumps and also the pipe outfall sections and flap gates.

These modifications will be routine construction installations and do not present considerable engineering challenges. It is not anticipated that this work will pose significant operations and maintenance impacts to the District.

Recommendation:

The General Manager recommends that the Board of Trustees endorse the CVFPB permit application.

State of California

DEPARTMENT OF WATER RESOURCES
CENTRAL VALLEY FLOOD PROTECTION BOARD

California Natural Resources Agency

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

Application No. _____
(For Office Use Only)

1. Description of proposed work being specific to include all items that will be covered under the issued permit.
Sump 154 Modifications: Remove and replace approximately 160 ft of three (3) 36" welded steel pipes at the pump discharge locations and outfall structure.

2. Project Location: Sacramento County, in Section See Attachment A
Township: See Attachment A (N) (S), Range: See Attachment A (E) (W), M. D. B. & M.
Latitude: 38.61943 Longitude: -121.46703
Stream: Arcade Creek , Levee : Left Bank Designated Floodway: Arcade Creek
APN: See Attachment A

3. Raymond Kong, PE (Name of Applicant / Land *Owner*) of 1395 35th Ave (Address)
Sacramento (City) CA (State) 95822 (Zip Code) (916) 808-1435 (Telephone Number)
RKong@cityofsacramento.org (E-mail)

4. Ashley Smith, PE (Name of Applicant's Representative) of Peterson Brustad Inc. (Company)
Folsom (City) CA (State) 95630 (Zip Code) (916) 608-2212 x 123 (Telephone Number)
asmith@pbieng.com (E-mail)

5. Endorsement of the proposed project from the Local Maintaining Agency (LMA):

We, the Trustees of American River Flood Control District (Name of LMA) approve this plan, subject to the following conditions:

☐ Conditions listed on back of this form ☐ Conditions Attached ☐ No Conditions

Trustee _____ Date _____ Trustee _____ Date _____

Trustee _____ Date _____ Trustee _____ Date _____

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

6. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If additional space is required, list names and addresses on back of the application form or an attached sheet.

Name	Address	Zip Code
See Attachment A		

7. Has an environmental determination been made of the proposed work under the California Environmental Quality Act of 1970? ☐ Yes ☐ No ☑ Pending

If yes or pending, give the name and address of the lead agency and State Clearinghouse Number:

City of Sacramento
1395 35th Avenue
Sacramento, CA 95822

SCH No. Pending

8. When is the project scheduled for construction? April 2021

9. Please check exhibits accompanying this application.

A. ☑ Regional and vicinity maps showing the location of the proposed work.

B. ☑ Drawings showing plan view(s) of the proposed work to include map scale.

C. ☑ Drawings showing the cross section dimensions and elevations (vertical datum?) of levees, berms, stream banks, flood plain,

D. ☑ Drawings showing the profile elevations (vertical datum?) of levees, berms, flood plain, low flow, etc.

E. ☑ A minimum of four photographs depicting the project site.

Signature of Applicant Date

Include any additional information:

A summary of the Project and a description of the proposed methods are provided in Attachment A. Attachment B includes relevant plan sheets which are an excerpt from a larger plan set. Attachment C includes the categorical permission checklist. The intent of this application is to modify the existing encroachment permit. The existing Permit number for Sump 154 is 1845-1.

Attachment A – Summary of Proposed Work

CITY OF SACRAMENTO PUMP OUTFALLS PROJECT:

CENTRAL VALLEY FLOOD PROTECTION BOARD ENCROACHMENT PERMIT

SUMMARY OF PROPOSED WORK

September 15, 2020

INTRODUCTION

As mandated by the Sacramento Area Flood Control Agency (SAFCA) and the U.S. Army Corps of Engineers (USACE), sump station outfalls that penetrate and cross major levees are inspected on a 5-year cycle. The project entails the complete replacement of the pump discharge for three (3) drainage sump station facilities and partial replacement of the pump discharge pipe for five (5) drainage sump station facilities. The following information pertains to a partial replacement sump (Sump 154) that will need an updated Encroachment Permit from the CVFPB.

APN Parcels

Sump	Existing Permit #	APN
154	1845-1	263-0010-036-0000, 263-0051-001-0000, 263-0010-037-0000

ADJACENT PARCELS

All of the parcels adjacent to the Sump to be modified are listed in the table presented below as provided by the Sacramento County Assessor's Office.

APN	Address	Owner	Owner Address	City	Zip
263-0010-034-0000	NORWOOD AVE	SACTO & SAN JOAQUIN DRAINAGE DIS	PO BOX 942836	SACRAMENTO	94236
263-0051-030-0000	ARCADE BLVD	CITY OF SACRAMENTO	915 I ST FL5	SACRAMENTO	95814
263-0051-032-0000	75 ARCADE BLVD	ILSA MEDINA	75 ARCADE BLVD	SACRAMENTO	95815
263-0051-033-0000	83 ARCADE BLVD	ROHITESHWAR CHAND	83 ARCADE BLVD	SACRAMENTO	95815
263-0110-001-0000	N/A	CITY OF SACRAMENTO	915 I ST FL5	SACRAMENTO	95814
263-0260-008-0000	E LEVEE RD	WESTERN PACIFIC RAILROAD CO	1400 DOUGLAS ST 1640	OMAHA	68179
263-0260-021-0000	3201 NORWOOD AVE	WESTERN PACIFIC RAILROAD CO	1400 DOUGLAS ST 1640	OMAHA	68179
263-0341-001-0000	63 ARCADE BLVD	DAVID R BENNETTE	4813 HUTSON WAY	ELK GROVE	95757

TOWNSHIP AND RANGE INFORMATION

Note that gaps exist in Townships and Ranges within the project area. Land not covered by T9N R5E has been in private ownership since before California joined the United States and therefore is not part of the Township and Range system, which was a survey of federal lands.

SITE PHOTOGRAPHS

Attached to this Summary of Proposed Work are photographs showing levee and channel areas representative of proposed work sites.

Figure 1: Waterside toe near Sump 154 looking toward levee crest

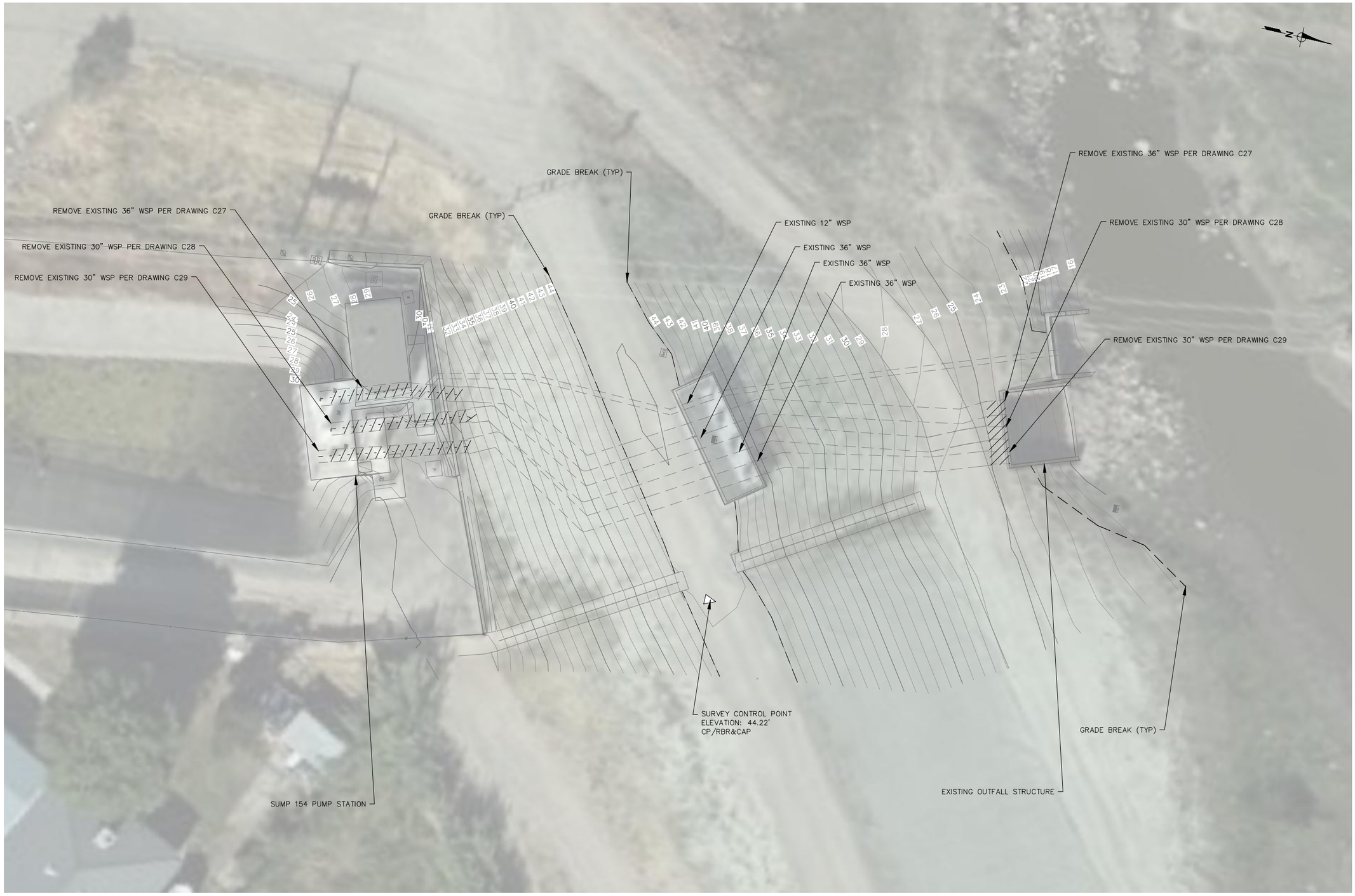
Figure 2: View looking southwest toward the fenced Sump 154 facility on the land side of the levee

Figure 3: View looking south toward the Sump 154
concrete outfall structures from the dry bed of Arcade Creek.

Figure 4: Waterside slope near Sump 154 looking east

Attachment B – Plan Sheets

(Excerpt from larger plan set for Pump Outfalls Replacement Project – A)



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REGISTERED PROFESSIONAL ENGINEER KARL B. BRENSING CIVIL STATE OF CALIFORNIA 03/31/22 PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 154
DEMO PLAN

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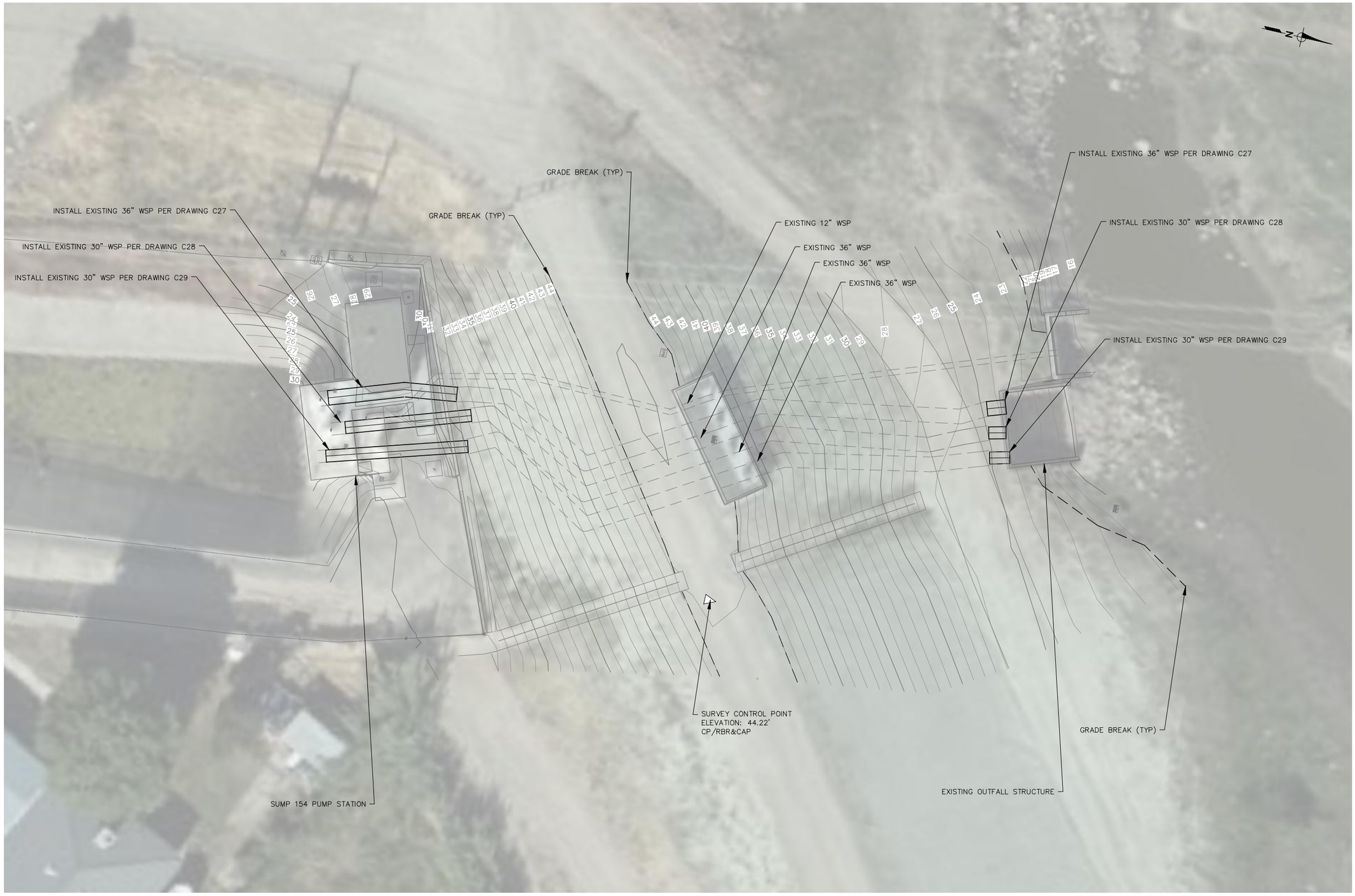
PN: W14130615
DWG. NO. C25
SHEET 28 OF 47

PN: W14130615



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IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 154
SITE PLAN

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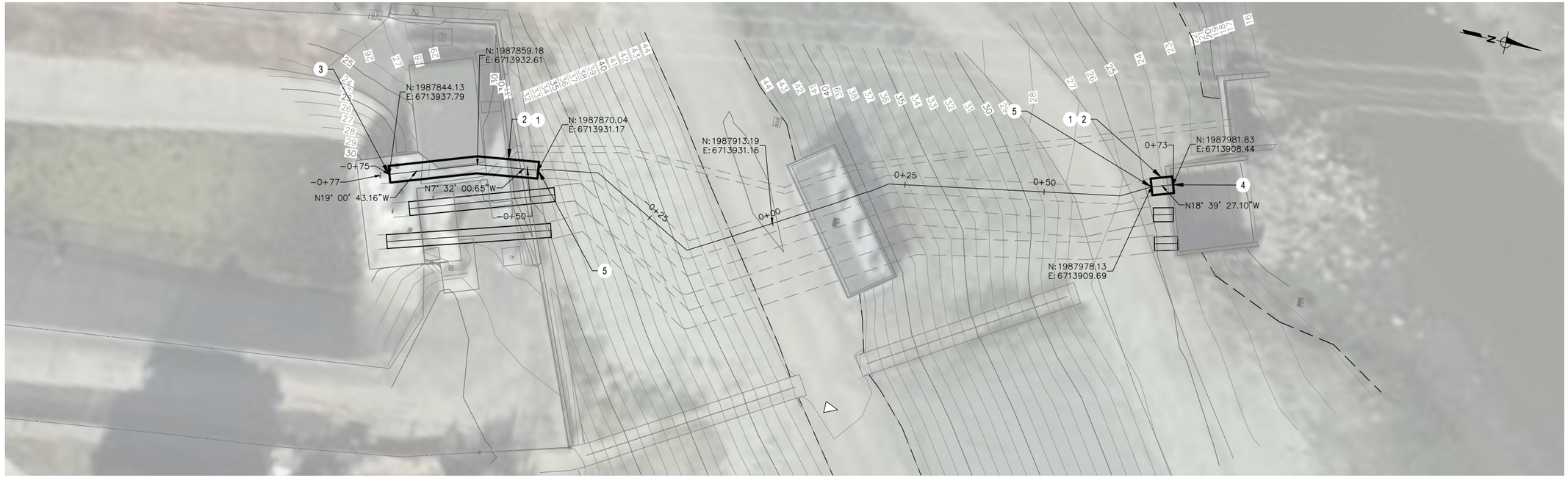
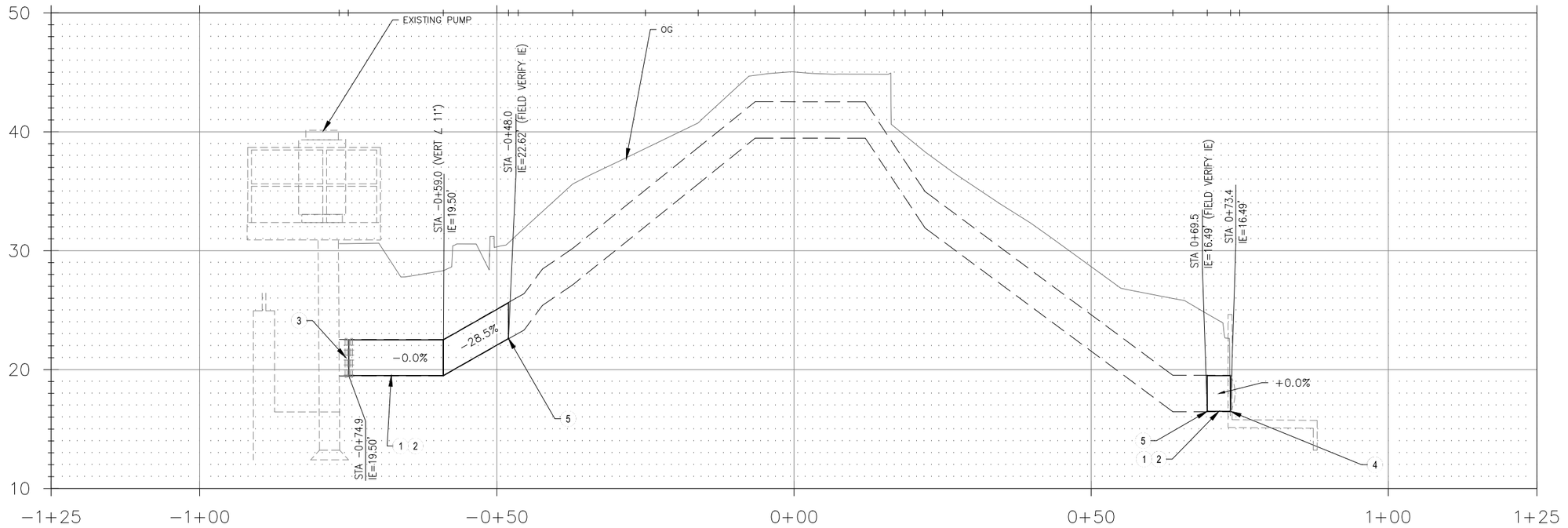
DWG. NO. C26
SHEET 29 OF 47

PN: W14130615





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 36" WSP AND APPURTENANCES FROM STA -0+74.9 TO STA -0+48.0 AND STA 0+69.5 TO STA 0+73.4 PER DETAIL 2/C38
2. INSTALL 36" WSP FROM STA -0+74.9 TO STA -0+48.0 AND STA 0+69.5 TO STA 0+73.4 PER DETAIL 3/C38
3. CONNECT TO EXISTING STEEL COUPLING
4. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
5. CONNECT TO EXISTING PIPE PER DETAIL 3/C37
6. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
10 5 0 10
5 2.5 0 5
VERT SCALE: 1"=5'

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 44.22
DESCRIPTION: CP/RBR&CAP

FIELD BOOK 0000
SCALE: H: H: V: V:

1" — ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

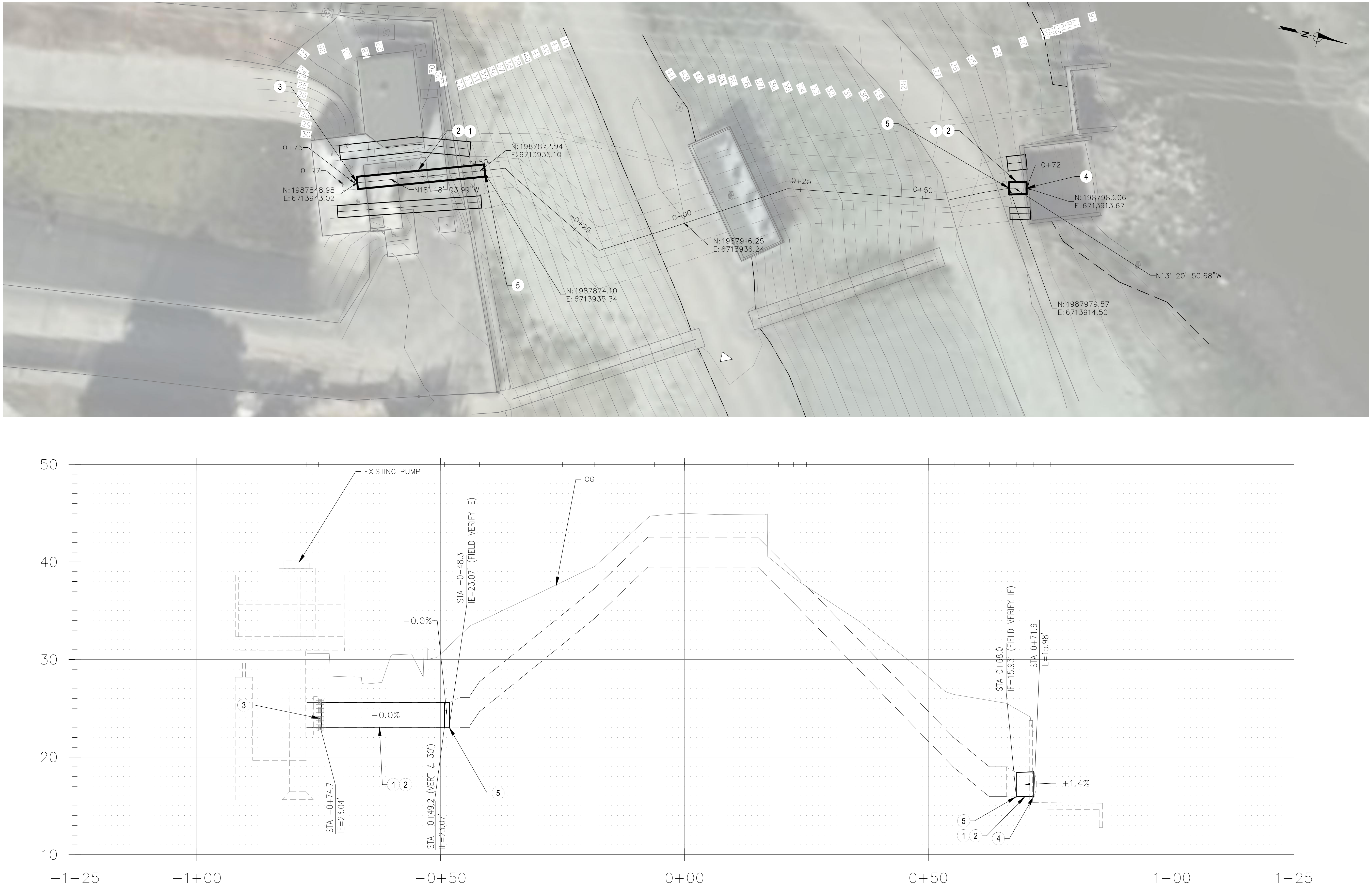
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER KARL B. BRAND No. C90949 03/31/22 STATE OF CALIFORNIA CIVIL
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 154
PLAN AND PROFILE 1 – 36" WSP

PN: W14130615 DWG. NO. C27 SHEET 30 OF 47

PN: W14130615



NOTES:

1. REMOVE AND DISPOSE OF EXISTING 30" WSP AND APPURTENANCES FROM STA −0+74.7 TO STA −0+48.3 AND STA 0+68.0 TO STA 0+71.6 PER DETAIL 2/C38
2. INSTALL 30" WSP FROM STA −0+74.7 TO STA −0+48.3 AND STA 0+68.0 TO STA 0+71.6 PER DETAIL 3/C38
3. CONNECT TO EXISTING STEEL COUPLING
4. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
5. CONNECT TO EXISTING PIPE PER DETAIL 3/C37
6. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
VERT SCALE: 1"=5'

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 44.22
DESCRIPTION: CP/RBR&CAP

FIELD BOOK 0000
SCALE: H: H: V: V:

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

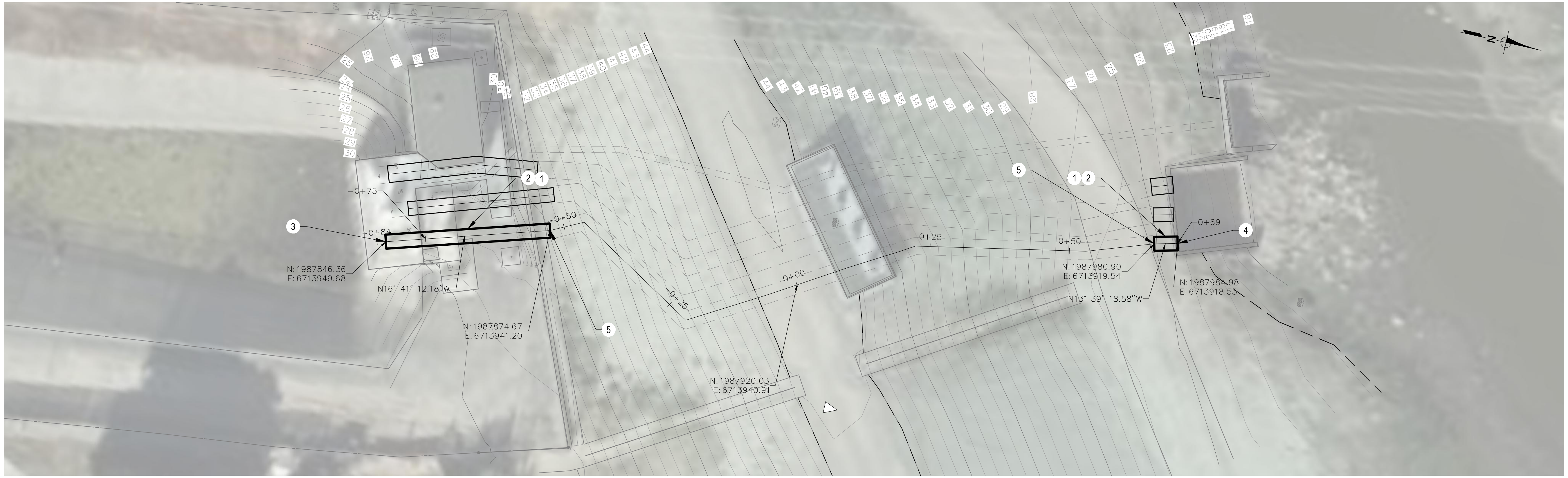
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

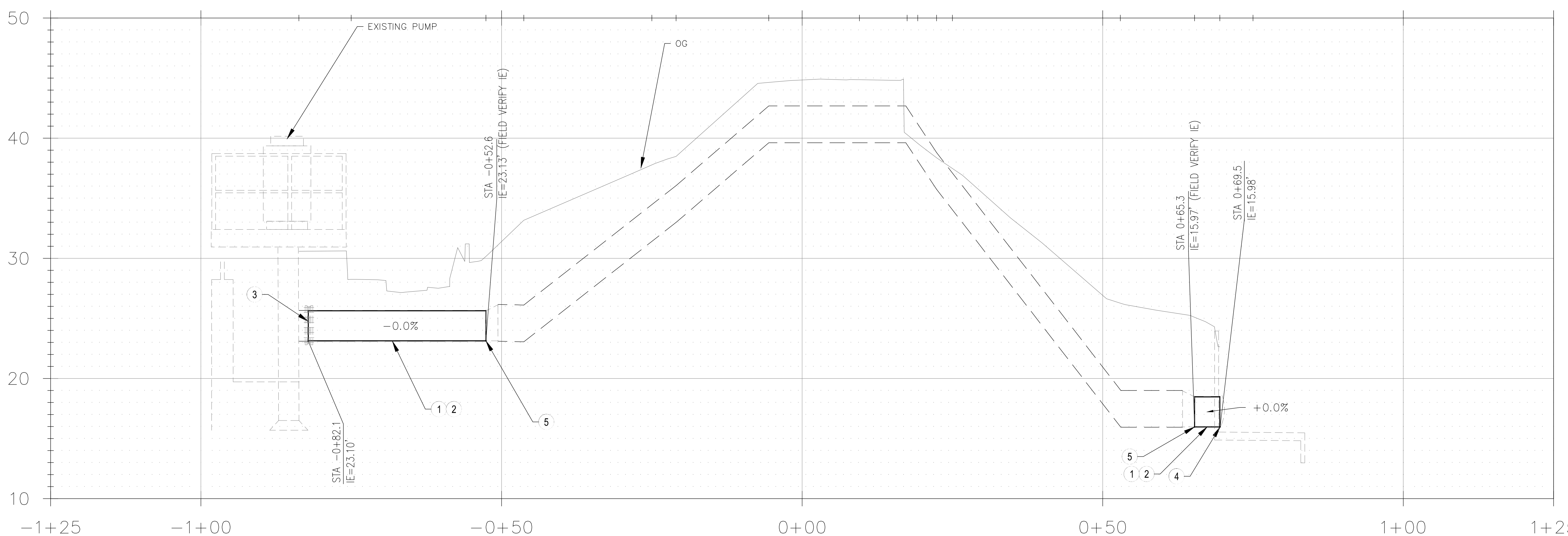
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT − A
SUMP 154
PLAN AND PROFILE 2 − 30" WSP

PN: W14130615
DWG. NO. C28
SHEET 31 OF 47

Item 6





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 30" WSP AND APPURTENANCES FROM STA -0+82.1 TO STA -0+52.6 AND STA 0+65.3 TO STA 0+69.5 PER DETAIL 2/C38
2. INSTALL 30" WSP FROM STA -0+82.1 TO STA -0+52.6 AND STA 0+65.3 TO STA 0+69.5 PER DETAIL 3/C38
3. CONNECT TO EXISTING STEEL COUPLING
4. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
5. CONNECT TO EXISTING PIPE PER DETAIL 3/C37
6. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
VERT SCALE: 1"=5'

65% SUBMITTAL

PN: W14130615

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 44.22
DESCRIPTION: CP/RBR&CAP

FIELD BOOK 0000
SCALE: H: H: V: V:

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

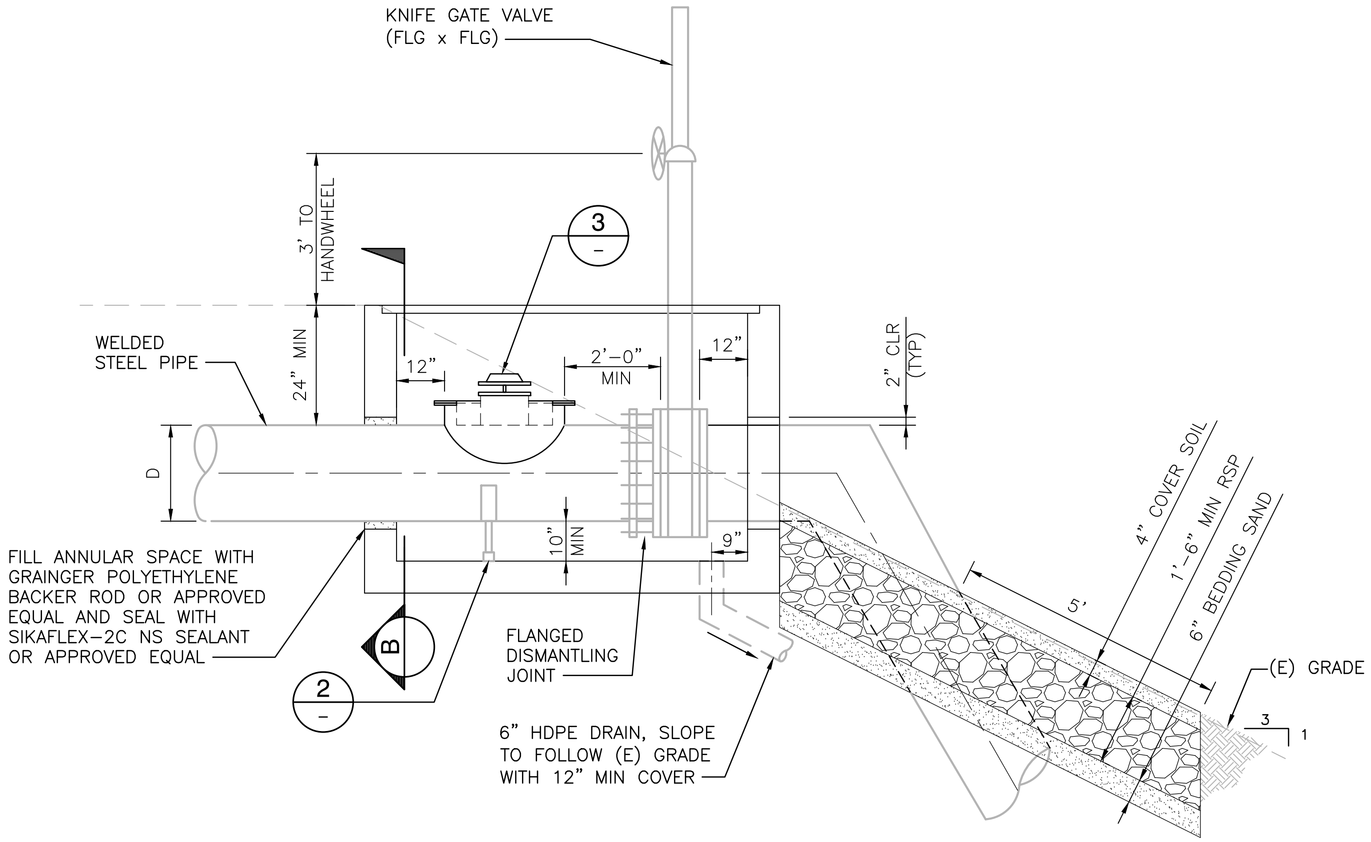
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

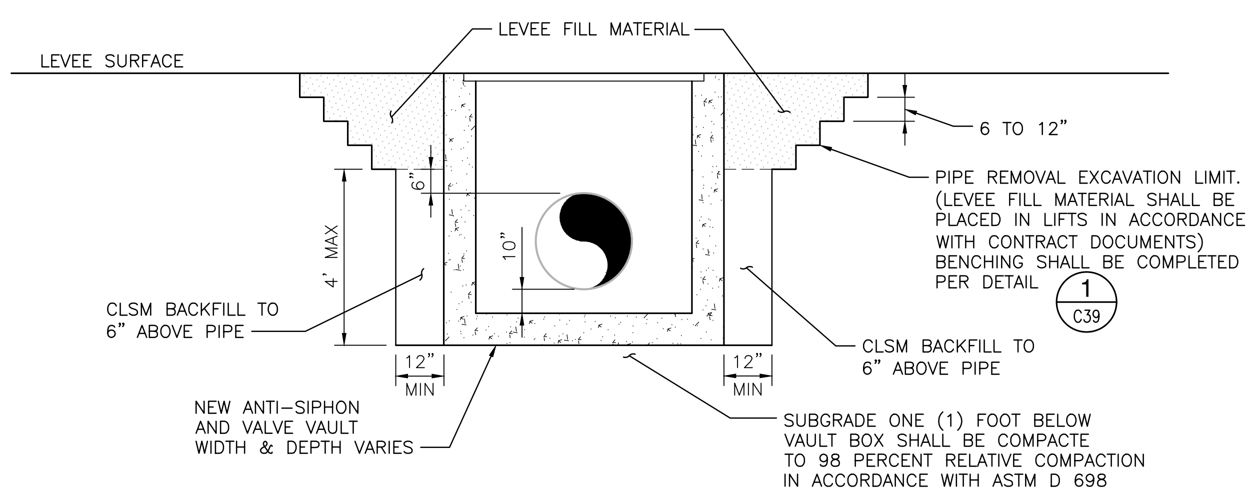
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT - A
SUMP 154
PLAN AND PROFILE 3 - 30" WSP

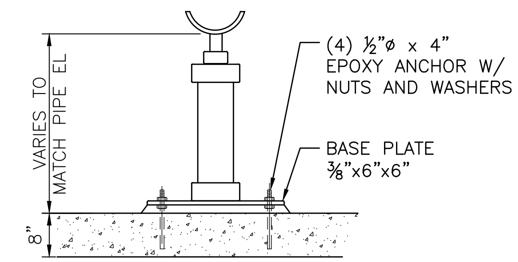
PN: W14130615
DWG. NO. C29
SHEET 32 OF 47



SUMP 155 ANTI SIPHON VAULT DETAIL — 1
NTS

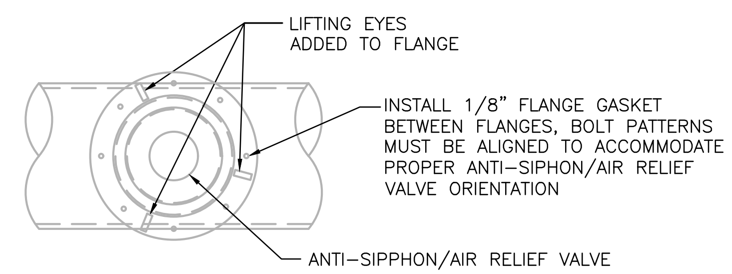


SECTION — B
NTS

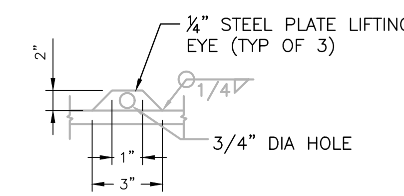


NOTE: PIPE SUPPORT TO BE STANDON S92 OR APPROVED EQUAL

PIPE SUPPORT — 2
NTS



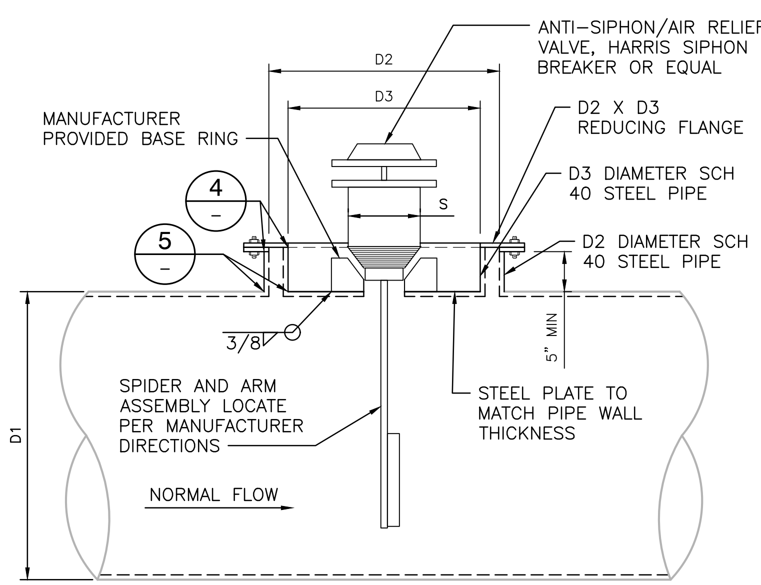
PLAN VIEW



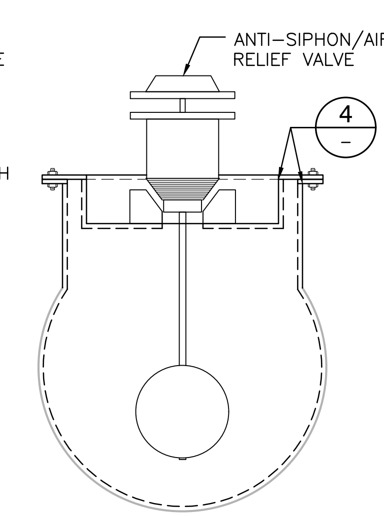
LIFTING EYE DETAIL

TYPICAL ANTI-SIPHON VALVE SIZE

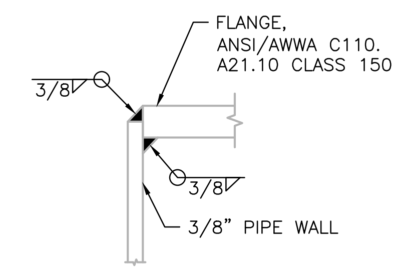
D1	D2	D3	S	MODEL
16"	12"	10"	3"	HSB-03-A-16
18"	16"	12"	3"	HSB-03-A-18
30"	24"	20"	7"	HSB-07-B-30
36"	30"	24"	5"	HSB-05-A-36
42"	30"	24"	8"	HSB-08-B-42
54"	30"	24"	8"	HSB-08-B-54



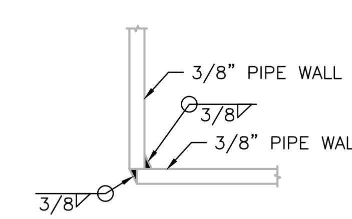
PROFILE VIEW



SECTION VIEW



WELD DETAIL — 4
NTS



WELD DETAIL — 5
NTS

ANTI-SIPHON AND AIR RELIEF VALVE CONNECTION DETAIL — 3
NTS

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. ______
DESCRIPTION:

FIELD BOOK 0000
SCALE:
H: ______
V: ______

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

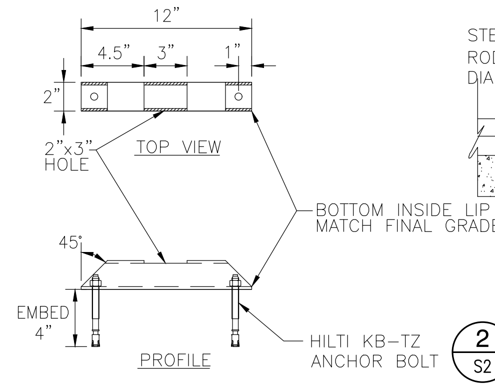
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
ANTI SIPHON AND VALVE VAULT
SECTION AND DETAILS

PN: W14130615
DWG. NO. C35
SHEET 38 OF 47

PN: W14130615

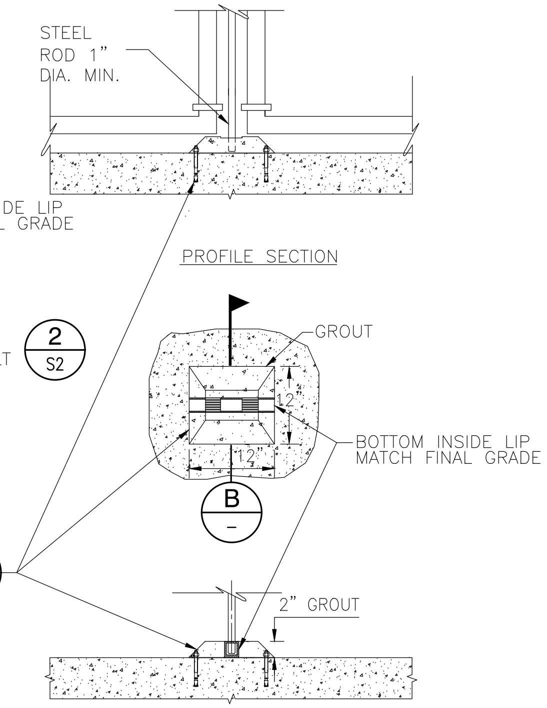
GENERAL NOTES:

1. LINE POSTS SHALL BE MIN 2½" O.D. SPACED AT MAX 10' O.C.
2. HORIZONTAL BRACE AND TOP RAIL SIZE SHALL BE MIN 1⅝" DIA.
3. END, CORNER, AND GATE POSTS SHALL BE MIN 2½" O.D. WITH 1⅝" O.D BRACE RAIL, ⅜" TRUSS ASSEMBLY, 12-GAUGE TENSION BANDS SECURED AT MAX 12" O.C.
4. GATE FRAME SHALL BE FABRICATED FROM 2½" O.D. OR 2½" SQUARE MEMBERS WELDED AT ALL CORNERS.
5. CHAIN LINK FABRIC SHALL BE SECURED TO LINE POST AND TOP RAIL USING 9-GAUGE TIE WIRE SPACED AT MAX 12" O.C.
6. 2-3/8" SHOULDERED EYE BOLT 3" LENGTH TO ANCHOR TENSION WIRE PER 10' SECTION EVENLY SPACED, SECURED WITH HOG RING CAPTURING FENCE FABRIC AND TENSION WIRE TO MAINTAIN DOWNWARD TENSION ON SECURITY FENCE SYSTEM.
7. PROVIDE "CITY UTILITY FACILITY – NO TRESPASSING" SIGNAGE GATE.



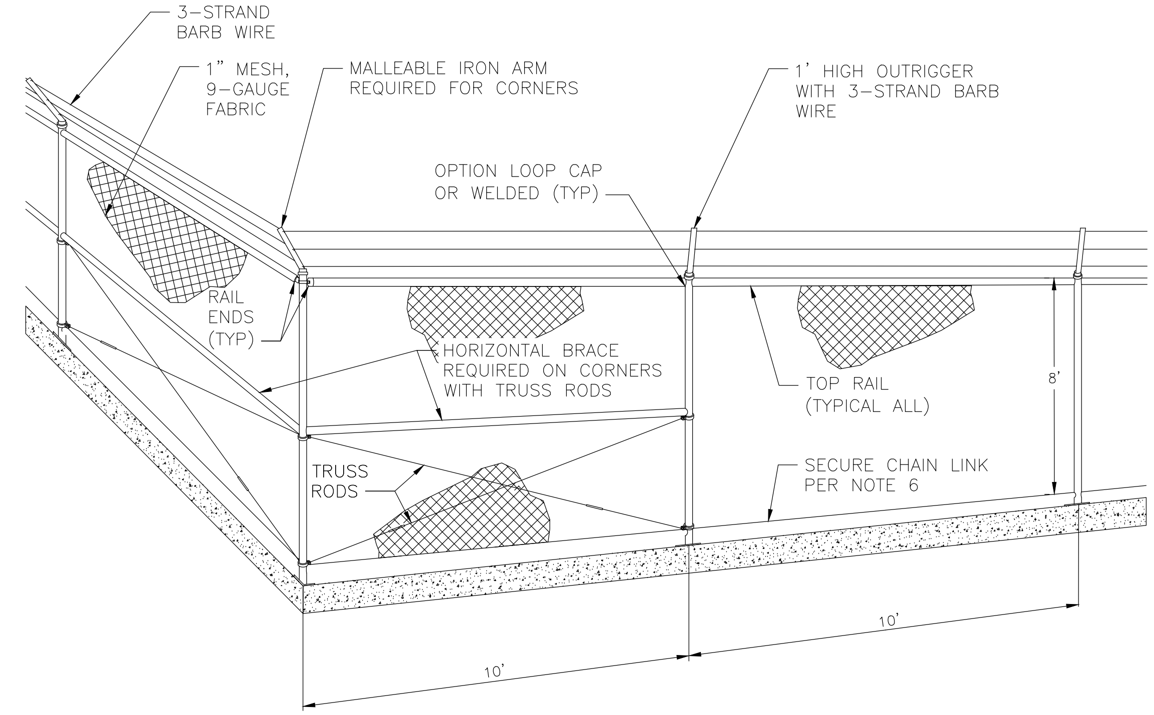
2" SQUARE TUBING DETAIL
NOT TO SCALE

2" (SQ. TUBING) x 0.250" WALL TH. x 12"L, CUT ONE 3" x 2" HOLE IN TOP AND ANGLE CUT BOTH ENDS 45° FROM HORIZONTAL. ANCHOR WITH HILTI KB-TZ ANCHOR BOLT SEE DETAIL ABOVE. BOTTOM INSIDE LIP OF SQUARE TUBING SHALL MATCH FINAL GRADE. "DO NOT BLOCK ENDS OF SQUARE TUBING WITH GROUT".

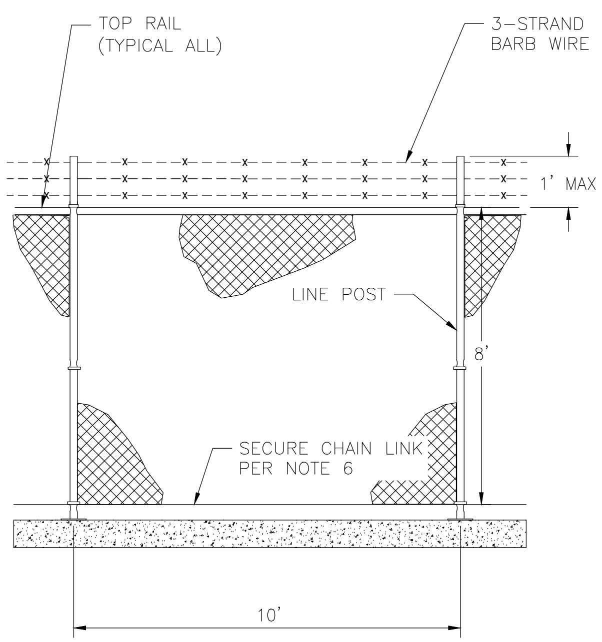


RIGHT SECTION B
NTS

GATE ANTI-SWING FOOTING DETAIL 1
NTS

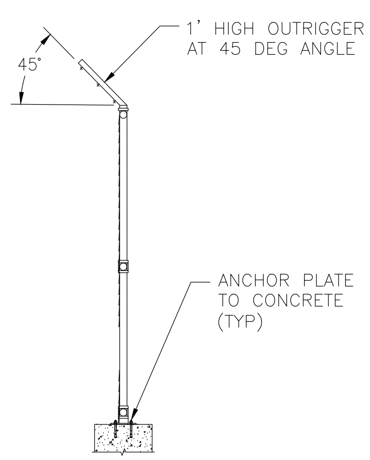


CORNER DETAIL 2
NTS

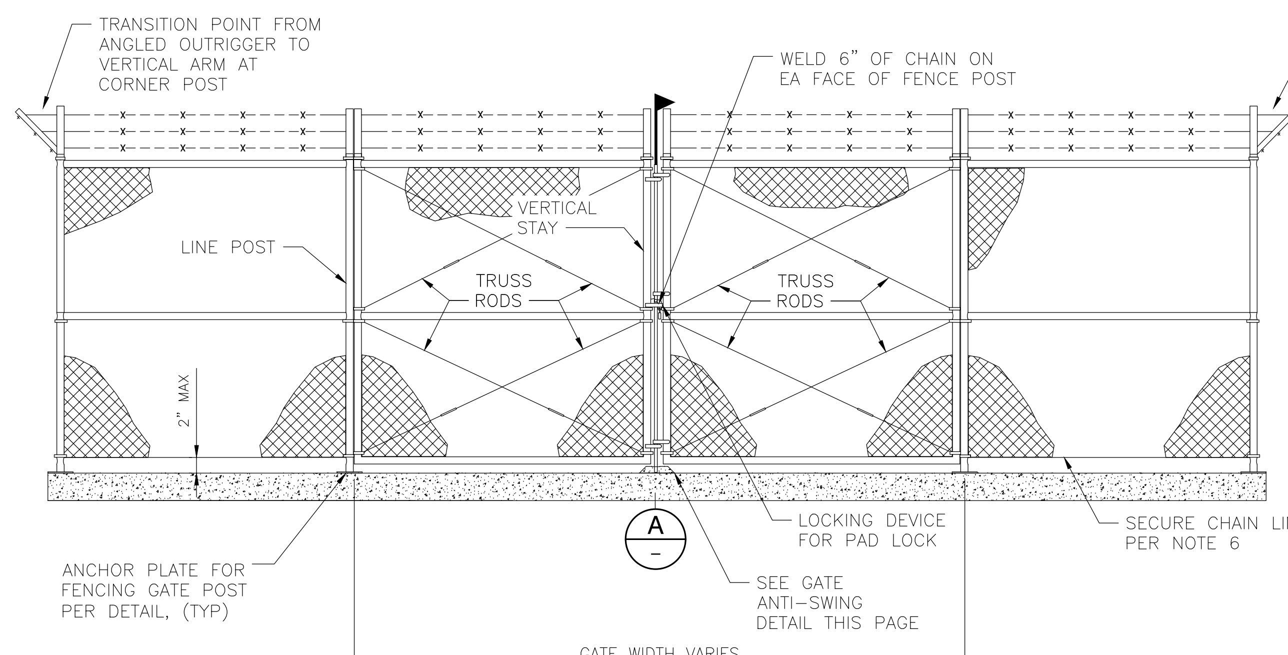


LINE POSTS AT 10' MAX INTERVALS, BRACED AND TRUSSED IN BOTH DIRECTIONS.

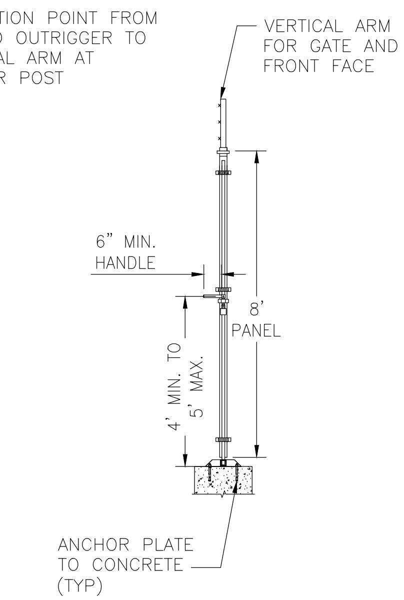
LINE POST DETAIL 3
NTS



SIDE VIEW DETAIL 4
NTS



MAINTENANCE GATE DETAIL 5
NTS

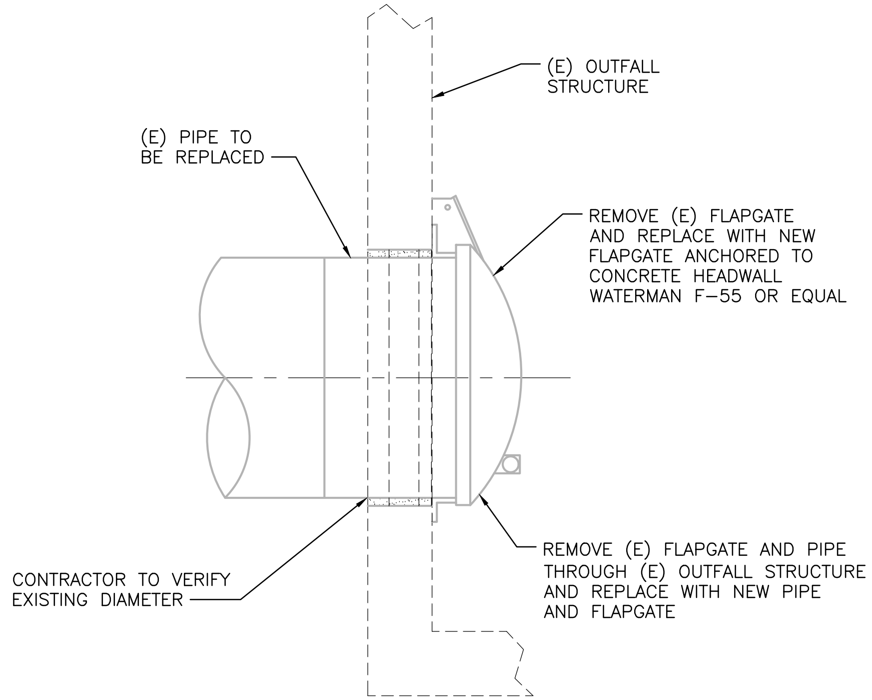


GATE OPERATOR SECTION A
NTS

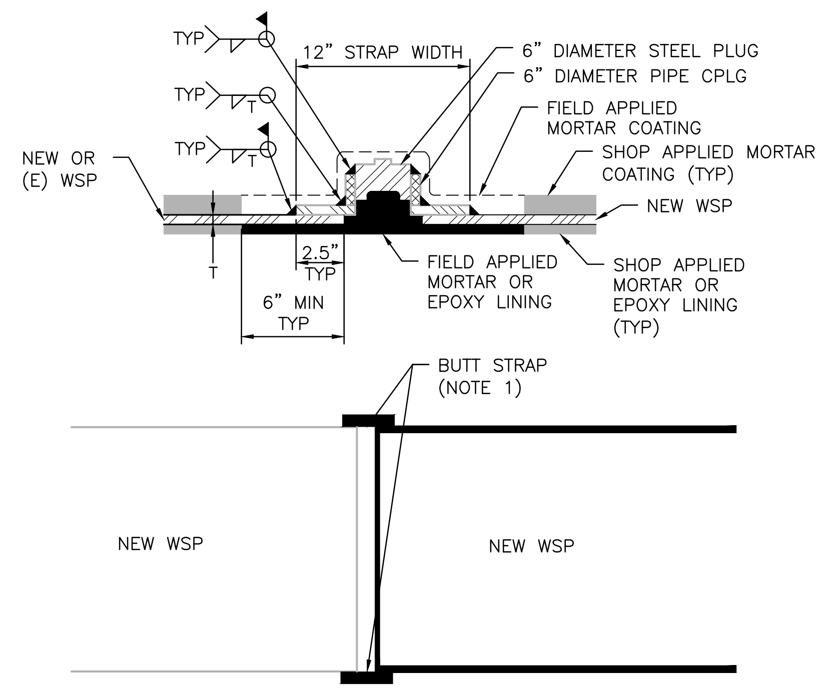
8 FOOT HIGH CHAIN LINK FABRIC WITH ANGLED OUTRIGGER AND 3 STRAND BARB WIRE (OUTSIDE) STANDARD FENCING DETAIL

65% SUBMITTAL

Item 6

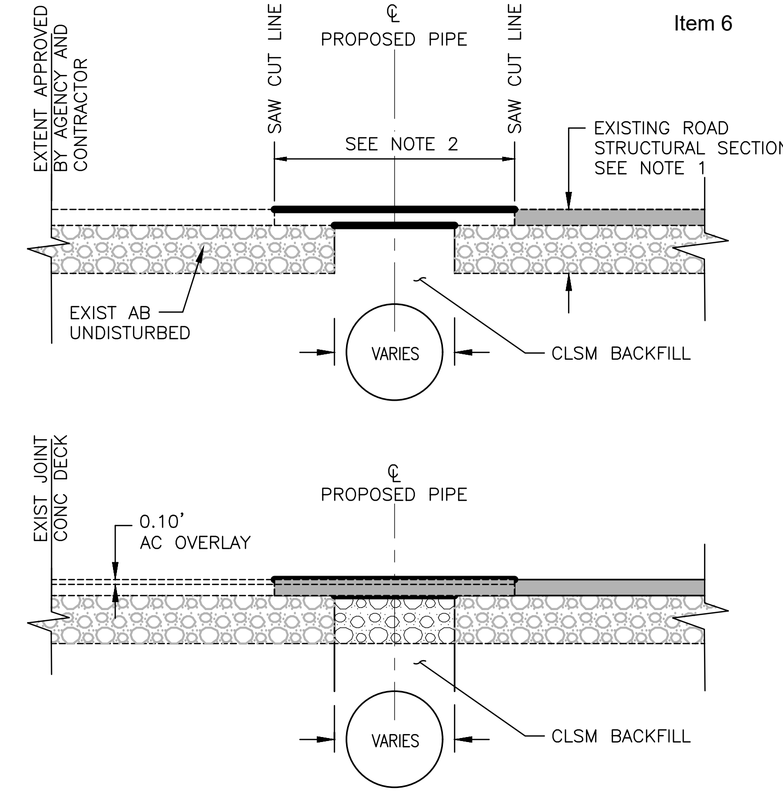


OUTFALL STRUCTURE CONNECTION DETAIL 1
NTS



NOTES:
1. PROVIDE HAND HOLES AS NEEDED TO INSTALL FIELD LINING. WELD HAND HOLE CLOSED WHEN COMPLETE. HAND HOLES NOT REQUIRED AT OUTLETS IF ACCESSIBLE THROUGH FLAP GATE.

NEW OR EXISTING STEEL
PIPE CONNECTION DETAIL 2
NTS



TRENCH SECTION AND SEQUENCING 3
NTS

NOTES:

1. CONTRACTOR SHALL REPLACE EXISTING PAVEMENT IN KIND. BASED ON LIMITED FIELD INVESTIGATIONS, EXISTING PAVEMENT SECTION ARE ASSUMED 2" AC ON 6" AB
2. THE OWNER AND THE CONTRACTOR SHALL JOINTLY DETERMINE THE FINAL WIDTH AND LENGTH OF THE BIKE PATH CROSSING BASED ON FIELD CONDITIONS AND CONSTRUCTION PROCEDURES.
3. CONTRACTOR SHALL REMOVE EXISTING BIKE PATH AS NEEDED TO CONSTRUCT PROPOSED PIPE. IMPACTED AREAS SHALL BE REPLACED IN ACCORDANCE WITH CITY OF SACRAMENTO STANDARD DETAIL T-21

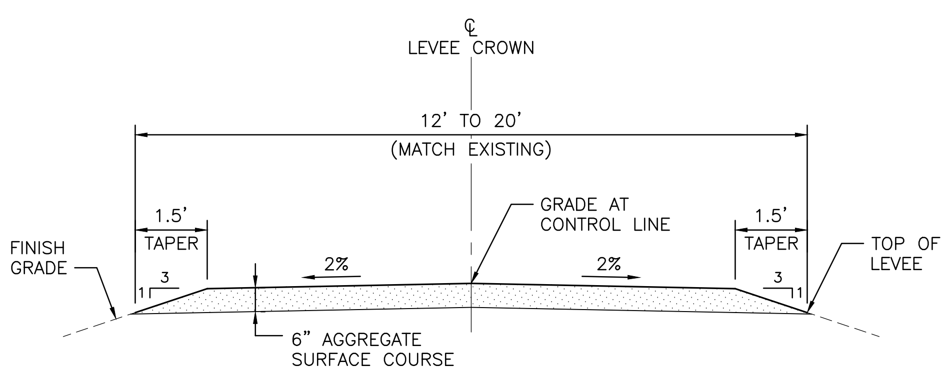
CONSTRUCTION SEQUENCE:

STEP 1: SAWCUT LIMITS O9F TRENCH EXCAVATION TO CLEAN CUT LIMITS. REMOVE EXISTING ASPHALT CONCRETE TO THE MIN EXTENT REQUIRED TO CONSTRUCT PROPOSED PIPE. PROPOSED PIPE SHALL BE CONSTRUCTED A MIN OF 2' FROM FG. TRENCH PLATES SHALL BE PROVIDED TO MAINTAIN ACCESS OVER CUTOFF WALL DURING CONSTRUCTION IN ACCORDANCE WITH THE SPECIFICATIONS.

STEP 2: PLACE AB TO MATCH EXISTING THICKNESS. PLACE AC OVERLAY FROM EXTENT APPROVED BY AGENCY AND CONTRACTOR TO LIMITS OF SAWCUT. PROVIDE PAVEMENT MARKING AND STRIPING TO MATCH EXISTING.

LEGEND:

EXISTING		PROPOSED
(hatched)	GRIND AND OVERLAY ASPHALT CONCRETE	
(pattern)	AGGREGATE BASE (AB)	(pattern)
(grey)	ASPHALT CONCRETE (AC)	(black)



CROWN SURFACING DETAIL 4
NTS

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

65% SUBMITTAL

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. ______
DESCRIPTION:

FIELD BOOK 0000
SCALE: H: ______ V: ______

1" — ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

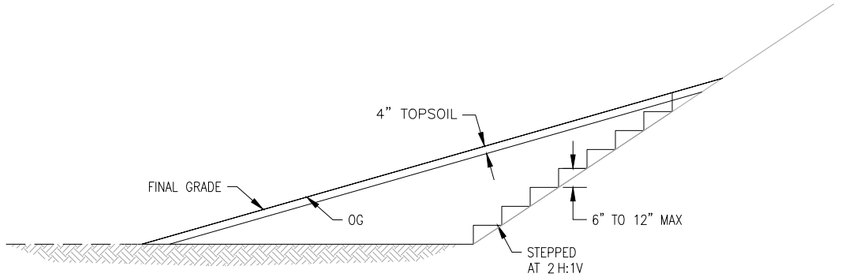
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
MISCELLANEOUS DETAILS I

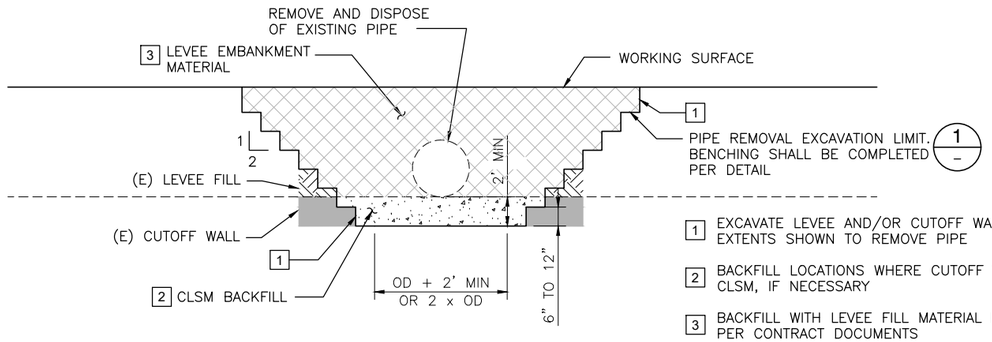
PN: W14130615
DWG. NO. C37
SHEET 40 OF 47



TYPICAL SLOPE BENCHING NOTES:

1. PLACE FILL IN HORIZONTAL LIFTS AGAINST VERTICAL FACES CUT INTO EXISTING LEVEE MATERIAL.
2. THE BOTTOM OF THE KEY TRENCH SHALL BE SCARIFIED TO A DEPTH OF 8 INCHES AND RECOMPACTED TO 95% MAX DENSITY PER ASTM D698.

SLOPE BENCHING (LANDSIDE OR WATERSIDE) DETAIL — 1/–
NTS

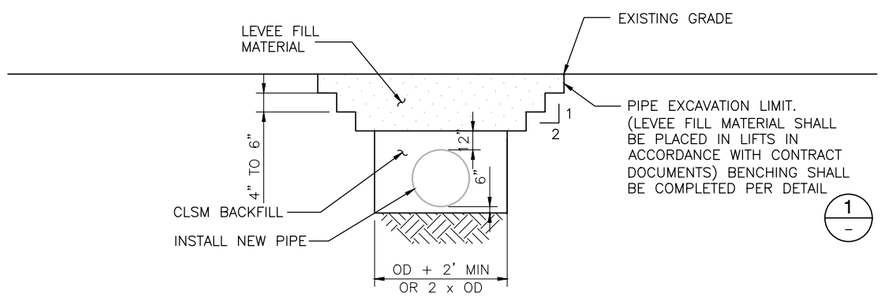


1 EXCAVATE LEVEE AND/OR CUTOFF WALL MATERIAL TO EXTENTS SHOWN TO REMOVE PIPE

2 BACKFILL LOCATIONS WHERE CUTOFF WAS REMOVED WITH CLSM, IF NECESSARY

3 BACKFILL WITH LEVEE FILL MATERIAL PLACED IN LIFTS PER CONTRACT DOCUMENTS

TYPICAL REMOVAL OF EXISTING PIPE DETAIL — 2/–
NTS



INSTALLATION OF NEW PIPE DETAIL — 3/–
NTS

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK — ELEV. _____
DESCRIPTION: _____

FIELD BOOK 0000
SCALE: H: _____ V: _____

1" — ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER — KAREL B. BRADLEY — No. C86512 — CIVIL — STATE OF CALIFORNIA — PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
MISCELLANEOUS DETAILS II

PN: W14130615 | DWG. NO. C38 | SHEET 41 OF 47

PN: W14130615

Attachment C – Categorical Permission Checklist

Categorical Permission Alteration Description – 16. Pressurized Pipes

The categorical permission covers the installation, modification, and replacement of pressurized pipes that comply with certain terms and conditions. Particularly, all pressurized pipes must be designed and installed in accordance with current USACE standards. The total area of disturbance, including staging and access areas, must not exceed 5 acres. Pressurized pipes must also be designed to prevent, (1) flotation from uplift, (2) scour or erosion, (3) damage from debris on the waterside, particularly during flood flows, (4) leakage, (5) seepage along proposed pipes, (6) corrosion, and (7) damage from vehicular loads.

All new pressurized pipes should go up and over the levee DWSE. Pressurized pipes passing over or within the freeboard zone of a levee (i.e., above the levee DWSE), should be made of metal, preferably ductile iron or coated steel, suitable for use with flexible couplings.

Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM). Pipes that pass above the DWSE must have 2 feet of cover (low permeability or CLSM) to prevent damage by vehicles and equipment. Cover material on the levee crown must be placed at a ratio of 10H:1V, in the upstream/downstream direction of the levee. Pipes on the sides of the levee should be covered with a minimum of 1 foot of low permeability material, compacted in 4- to 6-inch lifts or CLSM to protect them from debris during high water (waterside) or to keep them from interfering with or being damaged by operations or maintenance of the levee (landside). Fill must be free of deleterious materials and construction debris and placed in 4- to 6-inch-thick loose lifts and compacted to not less than 95% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D698 (USACE preferred method), or alternately, 90% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D1557. At the sponsor and levee maintaining agency's discretion, pipes on the levee slopes may be left exposed.

Only suitable material must be used as levee fill materials. Fill must be free from: roots and other organic matter, contaminated hazardous or toxic material, trash, debris, and frozen materials. Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve.

Pressurized pipes terminating in the channel require a positive closure device on the waterside that is accessible from the levee crown. Pressurized pipes transporting product completely across or through the federal project easement require positive closure devices located landward of any levees and channel. The positive closure device shall be located within one mile on both sides of the federal project. If the invert of the pipe is over the levee crown, the combination of a pump station on the waterside and a siphon breaker is considered an appropriate means of closure. Pipes located within or beneath a levee must have watertight joints that can accommodate movements resulting from settlement.

All pressurized pipes that cross the levee foundation at a depth less than or equal to two times the height of the levee should be evaluated for uplift. Pipes crossing the surface of the levee must be designed to counteract buoyancy forces of an empty pipe, with water at the DWSE.

Pressurized pipelines running parallel to flood risk management projects should be located at least 15 feet beyond the levee toes. Pipe location and orientation must be clearly marked in the field so they can be easily identified for flood fighting crews.

If appropriate, the requester should prepare an excavation plan demonstrating the effects of excavation on the stability of the embankments.

The site layout should provide adequate access for maintenance vehicles to refill fuel tanks and service/replace pumps, generators, etc. Pressurized pipes must also allow easy access for rapid closure in the event of leakage or rupture.

No plastic pipes (HDPE, PVC, etc.) are allowed in the levee embankment or its foundation unless they are embedded in concrete.

If an electrochemical or chemical reaction between the substratum or groundwater and pipe materials is expected, the pipe and pipe couplings must be protected.

After installation of pressurized pipes, the requester must demonstrate 0% pipe leakage in pipes in the levee. Pipes must be pressure tested to industry standards. Pipes must be regularly inspected, including the interior, if possible, looking for signs of maintenance issues. If an inspection indicates corrosion, alignment sag or heave, or separation at joints, corrective action must be taken as soon as possible to avoid failure. Pipe valves must be periodically inspected and pressure tested to ensure that they are functioning properly. Pressure tests must show no significant loss in pressure. Leaks and other deficiencies must be addressed as soon as possible. All replacement parts must be of equivalent or better quality than those being replaced.

The preferred method for abandoning pipes that pass through or over a levee is complete removal. If removal is not feasible, the pipes and other structures may be filled with a cement/bentonite-based grout or flowable fill. The grout needs to be sufficiently fluid so that it can be pumped to completely fill the pipe leaving no voids.

Categorical Permission Alteration Checklist – 16. Pressurized Pipes

Note: The following checklist is intended for planning purposes only, and includes information that USACE reviewers look for when considering a Section 408 request for pressurized pipes under the Categorical Permission. To be reviewed under the Categorical Permission, the proposed project must adhere to all requirements of the Categorical Permission, including the full alteration description (see previous page). The plans and narrative project description should reflect this information.

1.	☐ New Construction ☒ Replacement ☐ Modification ☐ Authorize Existing
2.	Maximum total area of disturbance is 5 acres: Yes ☒ No ☐ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: Area of disturbance is 0.02 acre.
3.	Pipes are designed to prevent flotation from uplift, scour or erosion, damage from debris on the waterside (particularly during flood flows), seepage along proposed pipes, corrosion, leakage, and damage from vehicular loads: Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41. Comment: [Click to enter rationale, explanation, unique situation, etc.]
4.	Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM): Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41 Comment: [Click to enter rationale, explanation, unique situation, etc.]
5.	Pipes passing over the DWSE will have a minimum of 2 feet of cover (low permeability or CLSM): Yes ☐ N/A ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: [Click to enter rationale, explanation, unique situation, etc.]
6.	If material must be added to the levee crown, the added material must be sloped at a ratio of 10H:1V horizontal to vertical, in the upstream/downstream direction to prevent a “speed bump” effect and facilitate vehicle access: Yes ☐ N/A ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment:
7.	Fill will be compacted to at least 95% of maximum density as determined by ASTM D698, between -2 and +3% of optimum moisture content: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 3.6B. Comment: [Click to enter rationale, explanation, unique situation, etc.]
8.	Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 2.2A. Comment: [Click to enter rationale, explanation, unique situation, etc.]
9.	All fill will be free of organics or other inappropriate materials: Yes ☒ N/A ☐ Reference: Refer to Spec section 31 00 00 3.9.B.1.6. Comment: [Click to enter rationale, explanation, unique situation, etc.]

10. Pipes terminating in the channel have a positive closure device on the waterside that is accessible from the levee crown: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

11. Pipes transporting product completely across the federal project have a positive closure devices located within 1 mile on both sides of the federal project: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

12. Pipes located within or beneath a levee have watertight joints that can accommodate movements resulting from settlement: Yes ☒ No ☐
Reference: Refer to detail 2 on Sheet 40
Comment: [Click to enter rationale, explanation, unique situation, etc.]

13. Pipes crossing the surface of the levee are designed to counteract buoyancy forces of an empty pipe, with water at the DWSE: Yes ☒ N/A ☐
Reference: Refer to detail 3 on sheet 41
Comment: [Click to enter rationale, explanation, unique situation, etc.]

14. Pipe location and orientation will be clearly marked in the field: Yes ☒ No ☐
Reference: pipe location and orientation can be identified by vault structure and outfall location
Comment: [Click to enter rationale, explanation, unique situation, etc.]

15. Pipes will allow easy access for rapid closure: Yes ☒ No ☐
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: Positive valve closures on the levee crest will ensure easy access for rapid closure.

16. Plastic pipes within the levee embankment or its foundation are embedded in concrete: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

17. If a chemical or electrochemical reaction is expected, the pipe and pipe couplings must be protected: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

18. Any work within the levee embankment or foundation? Yes ☐ No ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

19. Any work ≤50 feet beneath the channel invert? Yes ☐ No ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

20. Hydraulic blockage calculation ≥1%? Yes ☐ No ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

21. Hydraulic model used for hydraulic analysis? Yes ☐ No ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

– For Official Use Only below this line –

Comment

CP Eligibility Review

Yes	No	Add'l. Info Requested		
☐	☐	☐	Environmental Reviewer: _____	Date: Click date
☐	☐	☐	Engineering Reviewer: _____	Date: Click date

American River Flood Control District
Central Valley Flood Protection Board Permit Application
Sump 155 Modifications (City of Sacramento)
Staff Report

Discussion:

The City of Sacramento submitted this encroachment permit application to modify facilities at their Sump 155 Pump Station. The work proposed is to remove and replace approximately 360 ft of two (2) 36” welded steel pipes. Remove and replace approximately 120 ft of one (1) 42” Corrugated Metal Pipe.

Sump 155 is located adjacent to the American River South Levee and just north of the H Street Bridge in River Park.

These modifications are required to upgrade the pipe outfall system at the pump station. The current system does not meet modern U.S. Army Corps of Engineers’ standards. The USACE now requires that all pressurized pipes cross the levee at or above the 200-year flood elevation for the adjacent channel and that the pipes each have a positive closure device (shut-off valve) at the waterside crown hinge point. The proposed work will upgrade the facility to meet all State and Federal requirements.

Once the work is complete, it is not anticipated that this work will pose significant operations and maintenance impacts to the District. There will be temporary loss of access and thoroughfare for the District during construction.

Recommendation:

The General Manager recommends that the Board of Trustees endorse the CVFPB permit application.

State of California

DEPARTMENT OF WATER RESOURCES
CENTRAL VALLEY FLOOD PROTECTION BOARD

California Natural Resources Agency

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

Application No. _____
(For Office Use Only)

1. Description of proposed work being specific to include all items that will be covered under the issued permit.
Sump 155 Modifications: Remove and replace approximately 360 ft of two (2) 36" welded steel pipes. Remove and replace approximately 120 ft of one (1) 42" Corrugated Metal Pipe.

2. Project Location: Sacramento County, in Section See Attachment A
Township: See Attachment A (N) (S), Range: See Attachment A (E) (W), M. D. B. & M.
Latitude: 38.57020 Longitude: -121.42420
Stream: American River , Levee : Left Bank Designated Floodway: American River
APN: See Attachment A

3. Raymond Kong, PE (Name of Applicant / Land *Owner*) of 1395 35th Ave (Address)
Sacramento (City) CA (State) 95822 (Zip Code) (916) 808-1435 (Telephone Number)
RKong@cityofsacramento.org (E-mail)

4. Ashley Smith, PE (Name of Applicant's Representative) of Peterson Brustad Inc. (Company)
Folsom (City) CA (State) 95630 (Zip Code) (916) 608-2212 x 123 (Telephone Number)
asmith@pbieng.com (E-mail)

5. Endorsement of the proposed project from the Local Maintaining Agency (LMA):

We, the Trustees of American River Flood Control District (Name of LMA) approve this plan, subject to the following conditions:

☐ Conditions listed on back of this form ☐ Conditions Attached ☐ No Conditions

Trustee _____ Date _____ Trustee _____ Date _____

Trustee _____ Date _____ Trustee _____ Date _____

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

6. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If additional space is required, list names and addresses on back of the application form or an attached sheet.

Name	Address	Zip Code
See Attachment A		

7. Has an environmental determination been made of the proposed work under the California Environmental Quality Act of 1970? ☐ Yes ☐ No ☑ Pending

If yes or pending, give the name and address of the lead agency and State Clearinghouse Number:

City of Sacramento
1395 35th Avenue
Sacramento, CA 95822

SCH No. Pending

8. When is the project scheduled for construction? April 2021

9. Please check exhibits accompanying this application.

A. ☑ Regional and vicinity maps showing the location of the proposed work.

B. ☑ Drawings showing plan view(s) of the proposed work to include map scale.

C. ☑ Drawings showing the cross section dimensions and elevations (vertical datum?) of levees, berms, stream banks, flood plain,

D. ☑ Drawings showing the profile elevations (vertical datum?) of levees, berms, flood plain, low flow, etc.

E. ☑ A minimum of four photographs depicting the project site.

Signature of Applicant Date

Include any additional information:

A summary of the Project and a description of the proposed methods are provided in Attachment A. Attachment B includes relevant plan sheets which are an excerpt from a larger plan set. Attachment C includes the categorical permission checklist for pressurized pipe. Attachment D includes the categorical permission checklist for gravity pipe. Attachment E includes the Biological Assessment.

Attachment A – Summary of Proposed Work

CITY OF SACRAMENTO PUMP OUTFALLS PROJECT:

CENTRAL VALLEY FLOOD PROTECTION BOARD ENCROACHMENT PERMIT

SUMMARY OF PROPOSED WORK

September 15, 2020

INTRODUCTION

As mandated by the Sacramento Area Flood Control Agency (SAFCA) and the U.S. Army Corps of Engineers (USACE), sump station outfalls that penetrate and cross major levees are inspected on a 5-year cycle. The project entails the complete replacement of the pump discharge for three (3) drainage sump station facilities and partial replacement of the pump discharge pipe for five (5) drainage sump station facilities. The following information pertains to a complete replacement sump (Sump 155) that will need an updated Encroachment Permit from the CVFPB.

APN Parcels

Sump	Existing Permit #	APN
155	N/A	005-0010-024-0000, 005-0010-025-0000

ADJACENT PARCELS

All of the parcels adjacent to the Sump to be modified are listed in the table presented below as provided by the Sacramento County Assessor's Office.

APN	Address	Owner	Owner Address	City	Zip
005-0010-005-0000	SEWARD CT	STATE OF CALIFORNIA	N/A	SACRAMENTO	95826
005-0203-002-0000	250 SANDBURG DR	TIMOTHY C JOHNSON	250 SANDBURG DR	SACRAMENTO	95819
005-0203-003-0000	240 SANDBURG DR	MICHAEL L CHIECHI	240 SANDBURG DR	SACRAMENTO	95819
005-0203-004-0000	230 SANDBURG DR	OBRIEN FAMILY TRUST	230 SANDBURG DR	SACRAMENTO	95819
005-0203-005-0000	220 SANDBURG DR	SURVIVORS TRUST	220 SANDBURG DR	SACRAMENTO	95819
005-0203-006-0000	210 SANDBURG DR	DONALD T TERRELL	210 SANDBURG DR	SACRAMENTO	95819

005-0203-014-0000	E SANDBURG DR	AMERICAN RIVER FLOOD CONTROL DIST	165 COMMERCE CIR UNIT D	SACRAMENTO	95815
005-0203-018-0000	6005 CAMELLIA AVE	SEAN RANNEY	PO BOX 191334	SACRAMENTO	95819
005-0233-003-0000	6025 CAMELLIA AVE	CITY OF SACRAMENTO	915 I ST FL5	SACRAMENTO	95814
005-0233-004-0000	6009 CAMELLIA AVE	SCOTTISH GARDENS LLC	5813 W 2ND ST	RIO LINDA	95673
005-0233-006-0000	H ST	AMERICAN RIVER FLOOD CONTROL DIST	185 COMMERCE CIR	SACRAMENTO	95815

TOWNSHIP AND RANGE INFORMATION

Note that gaps exist in Townships and Ranges within the project area. Land not covered by T9N R5E has been in private ownership since before California joined the United States and therefore is not part of the Township and Range system, which was a survey of federal lands.

SITE PHOTOGRAPHS

Attached to this Summary of Proposed Work are photographs showing levee and channel areas representative of proposed work sites.

Figure 1: View of pump station

Figure 2: View from waterside TOE of Levee facing Levee crest (upstream)

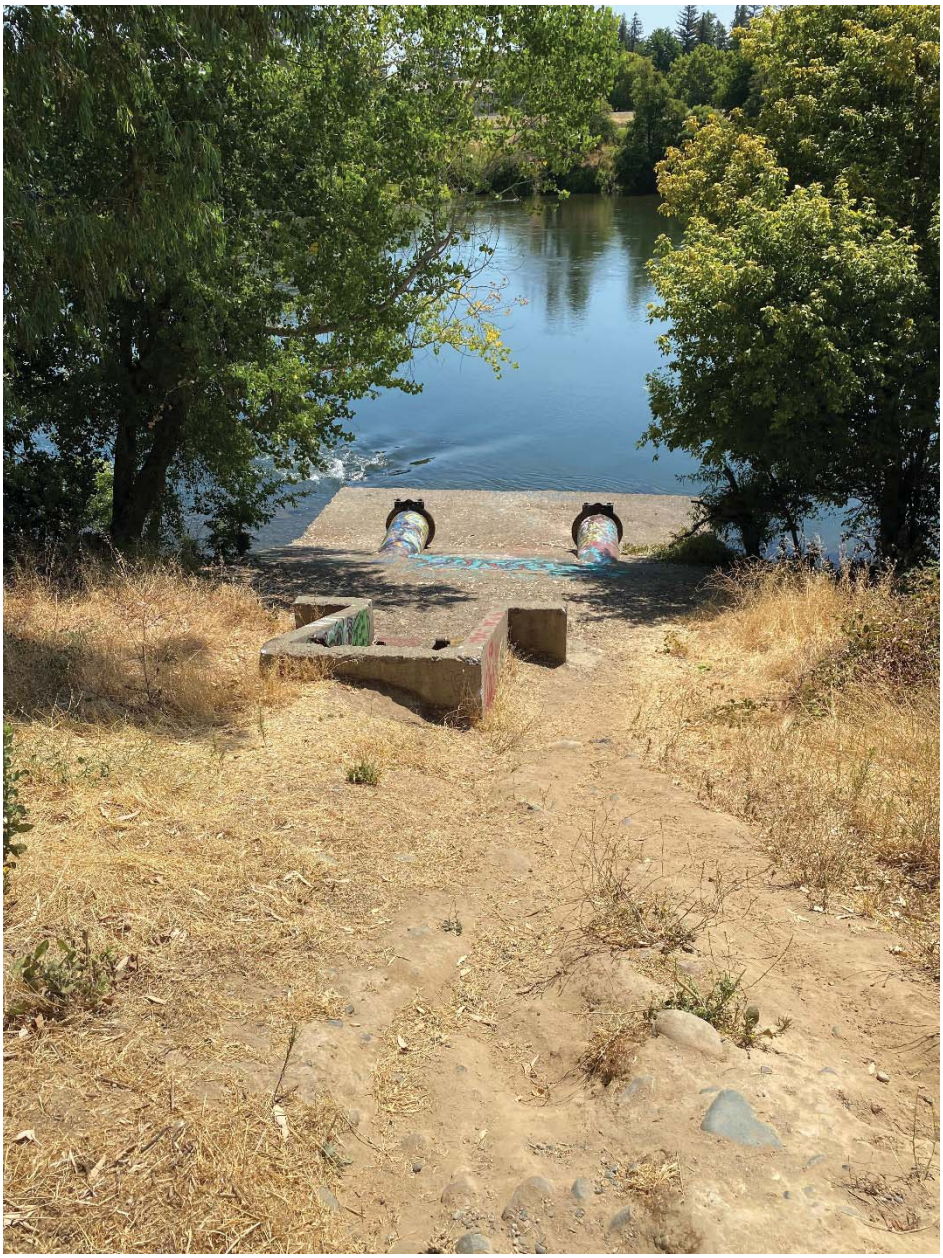
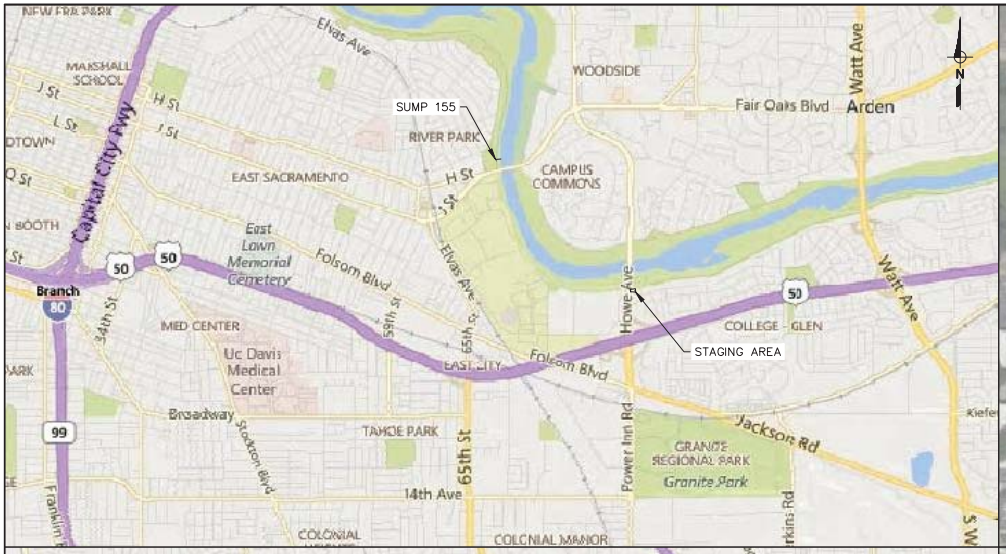


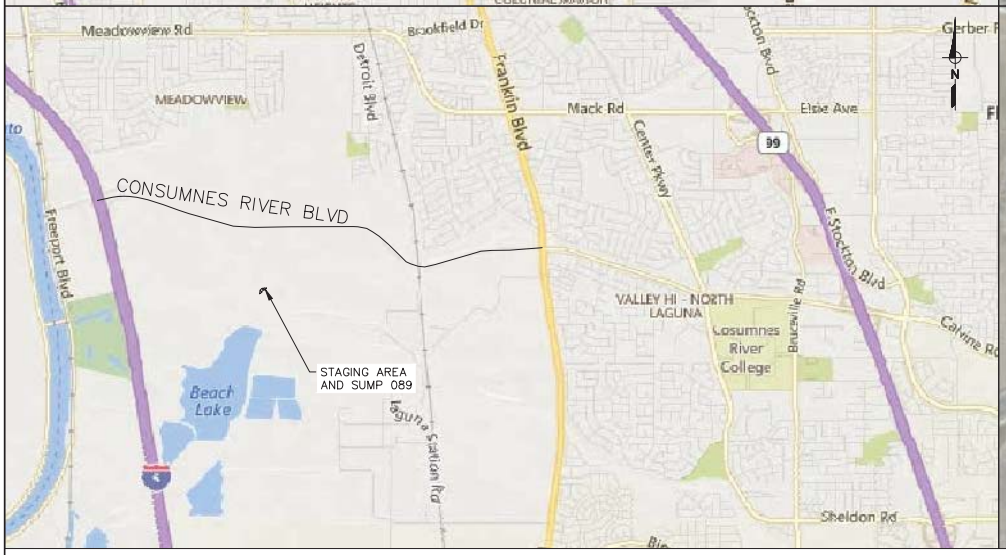
Figure 3: View from waterside slope of levee facing downstream towards American River

Figure 4: View of outfall structure with flapgates at the waterside slope of Levee

Attachment B – Plan Sheets

(Excerpt from larger plan set for Pump Outfalls Replacement Project – B)





65% SUBMITTAL

PN: W14130615 | PUMP OUTFALLS REPLACEMENT PROJECT PN: W14130615

REVISIONS DESCRIPTION	DATE	BY

BENCH MARK DESCRIPTION: ELEV.

FIELD BOOK 0000 SCALE: H: NTS V: NTS

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

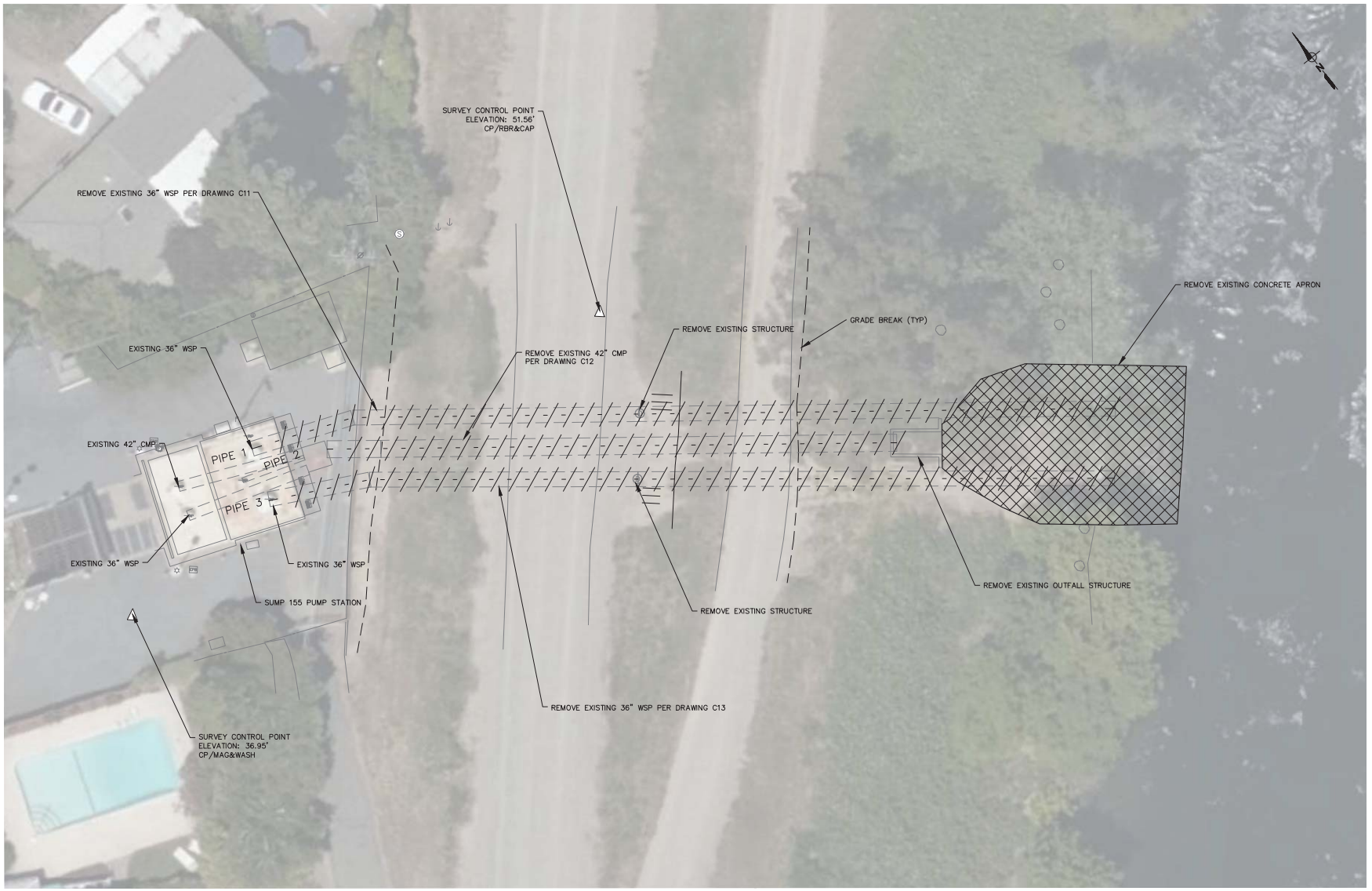
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
SUMP 089 AND 155
STAGING AREA

PN: W14130615 DWG. NO. 23 SHEET 30

Page 112



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5 2.5 0 5
VERT SCALE: 1"=5'

65% SUBMITTAL

PN: W14130615 PUMP OUTFALLS REPLACEMENT PROJECT

REVISIONS		
DESCRIPTION	DATE	BY

BENCH MARK ELEV. 36.95
DESCRIPTION:
MAGNETIC NAIL & WASHER

FIELD BOOK 0000
SCALE:
H: 1"=10'
V: 1"=5'

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

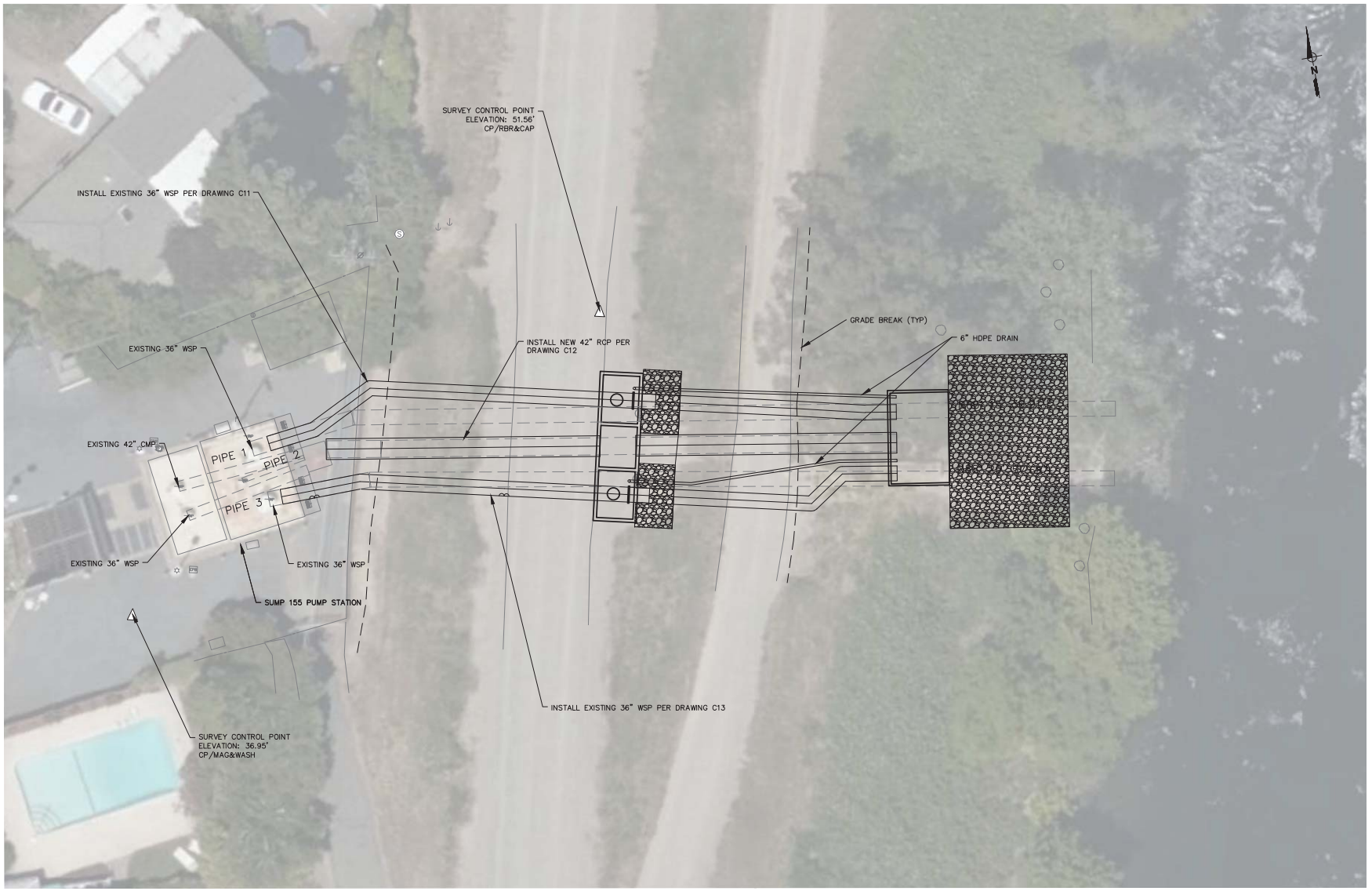
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
SUMP 155
DEMO PLAN

PN: W14130615
DWG. NO. 19
SHEET 12 OF 30

PN: W14130615



65% SUBMITTAL

PN: W14130615

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

REVISIONS		
DESCRIPTION	DATE	BY

BENCH MARK ELEV. 36.95
DESCRIPTION:
MAGNETIC NAIL & WASHER

FIELD BOOK 0000
SCALE:
H: 1"=10'
V: 1"=5'

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

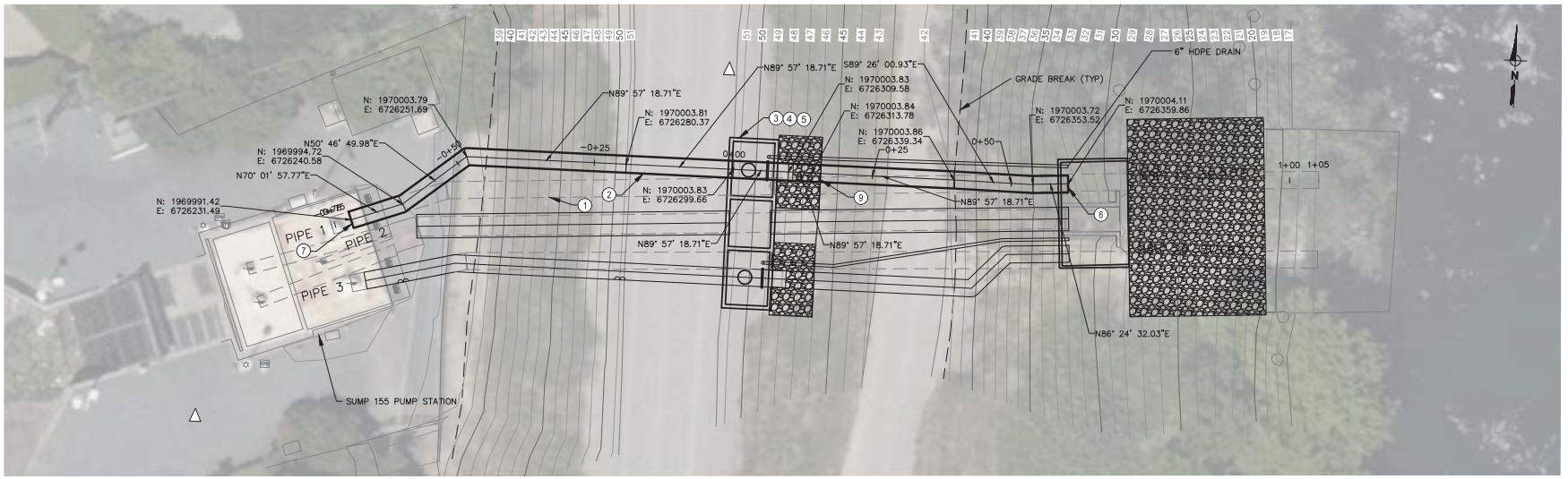
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

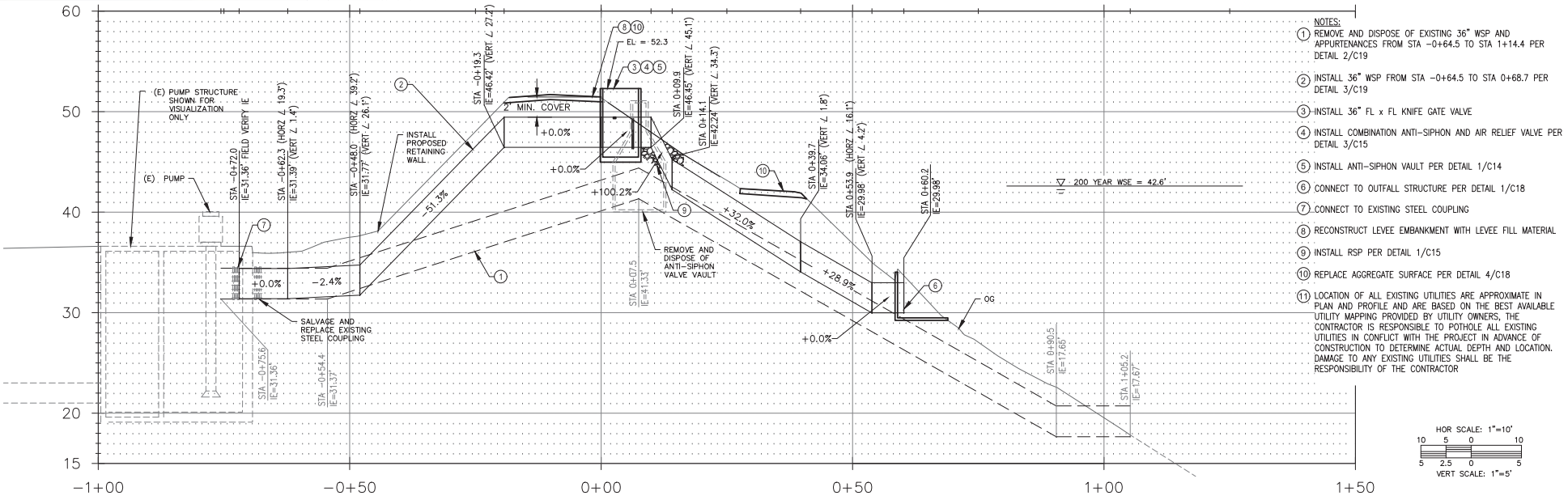
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
SUMP 155
SITE PLAN

PN: W14130615
DWG. NO. 10
SHEET 7 of 30

Page 141





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 36" WSP AND APPURTENANCES FROM STA −0+64.5 TO STA 1+14.4 PER DETAIL 2/C19
2. INSTALL 36" WSP FROM STA −0+64.5 TO STA 0+68.7 PER DETAIL 3/C19
3. INSTALL 36" FL x FL KNIFE GATE VALVE
4. INSTALL COMBINATION ANTI−SIPHON AND AIR RELIEF VALVE PER DETAIL 3/C15
5. INSTALL ANTI−SIPHON VAULT PER DETAIL 1/C14
6. CONNECT TO OUTFALL STRUCTURE PER DETAIL 1/C18
7. CONNECT TO EXISTING STEEL COUPLING
8. RECONSTRUCT LEVEE EMBANKMENT WITH LEVEE FILL MATERIAL
9. INSTALL RSP PER DETAIL 1/C15
10. REPLACE AGGREGATE SURFACE PER DETAIL 4/C18
11. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
10 5 0 10
VERT SCALE: 1"=5'
5 2.5 0 5

65% SUBMITTAL

PN: W14130615

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

REVISIONS		
DESCRIPTION	DATE	BY

BENCH MARK — ELEV. 36.95
DESCRIPTION: MAGNETIC NAIL & WASHER

FIELD BOOK 0000
SCALE: H: 1"=10' V: 1"=5'

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

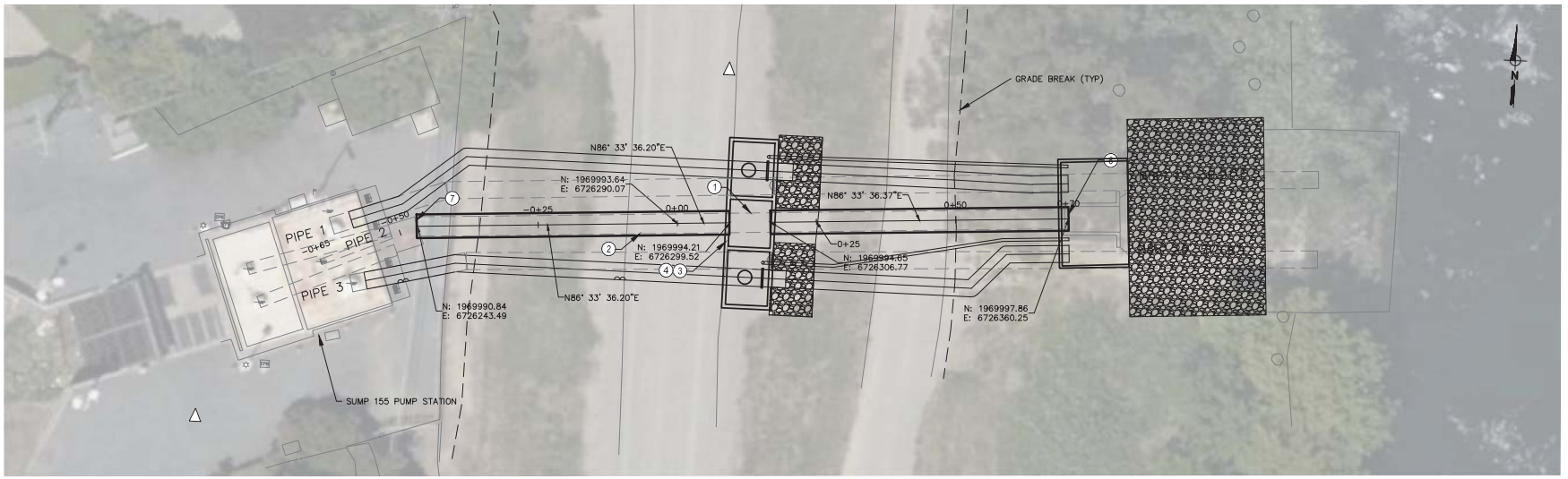
PRELIMINARY

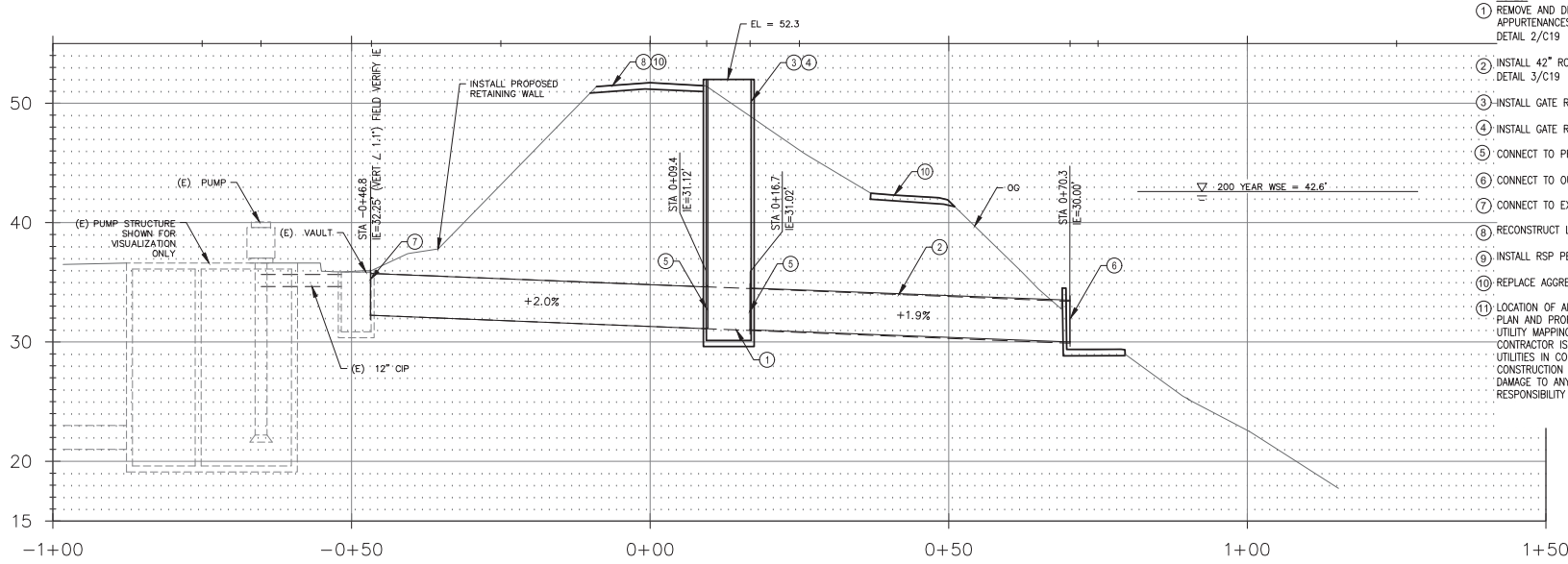
IMPROVEMENT PLANS FOR:

PUMP OUTFALLS REPLACEMENT PROJECT – B
SUMP 155
PLAN AND PROFILE 1 – 36" WSP

PN: W14130615 DWG. NO. 11 SHEET 44 OF 130

Page 115





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 42" CMP AND APPURTENANCES FROM STA -0+46.7 TO STA 0+70.3 PER DETAIL 2/C19
2. INSTALL 42" RCP FROM STA -0+46.7 TO STA 0+70.3 PER DETAIL 3/C19
3. INSTALL GATE RISER STRUCTURE PER DETAIL 1/ C17
4. INSTALL GATE RISER PER DETAIL 1/ C19
5. CONNECT TO PROPOSED GATE RISER STRUCTURE
6. CONNECT TO OUTFALL STRUCTURE PER DETAIL 1/C18
7. CONNECT TO EXISTING VAULT
8. RECONSTRUCT LEVEE EMBANKMENT WITH LEVEE FILL MATERIAL
9. INSTALL RSP PER DETAIL 1/C18
10. REPLACE AGGREGATE SURFACE PER DETAIL 4/C17
11. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
10 5 0 10
VERT SCALE: 1"=5'
5 2.5 0 5

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

REVISIONS		
DESCRIPTION	DATE	BY

BENCH MARK ELEV. 36.95
DESCRIPTION:
MAGNETIC NAIL & WASHER

FIELD BOOK 0000
SCALE:
H: 1"=10'
V: 1"=5'

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

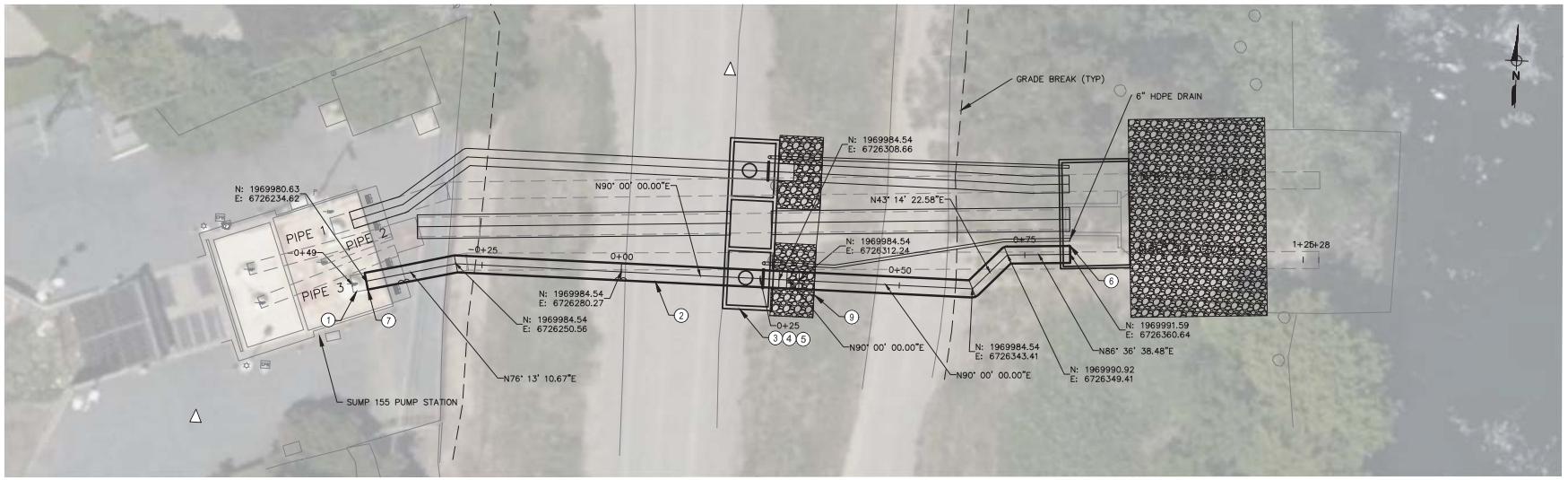
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

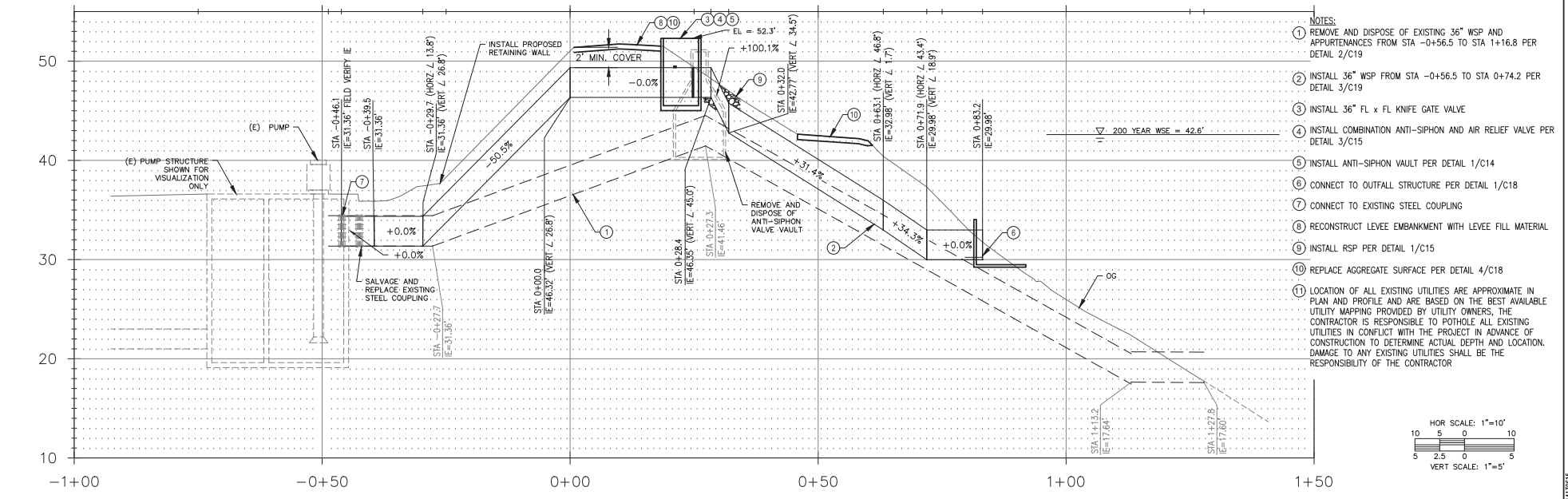
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
SUMP 155
PLAN AND PROFILE 2 – 42" RCP

PN: W14130615
DWG. NO. 12
SHEET 15
OF 30

Page 16





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 36" WSP AND APPURTENANCES FROM STA −0+56.5 TO STA 1+16.8 PER DETAIL 2/C19
2. INSTALL 36" WSP FROM STA −0+56.5 TO STA 0+74.2 PER DETAIL 3/C19
3. INSTALL 36" FL x FL KNIFE GATE VALVE
4. INSTALL COMBINATION ANTI-SIPHON AND AIR RELIEF VALVE PER DETAIL 3/C15
5. INSTALL ANTI-SIPHON VAULT PER DETAIL 1/C14
6. CONNECT TO OUTFALL STRUCTURE PER DETAIL 1/C18
7. CONNECT TO EXISTING STEEL COUPLING
8. RECONSTRUCT LEVEE EMBANKMENT WITH LEVEE FILL MATERIAL
9. INSTALL RSP PER DETAIL 1/C15
10. REPLACE AGGREGATE SURFACE PER DETAIL 4/C18
11. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
10 5 0 10
5 2.5 0 5
VERT SCALE: 1"=5'

65% SUBMITTAL

PN: W14130615

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

REVISIONS		
DESCRIPTION	DATE	BY

BENCH MARK ELEV. 36.95
DESCRIPTION:
MAGNETIC NAIL & WASHER

FIELD BOOK 0000
SCALE:
H: 1"=10'
V: 1"=5'

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

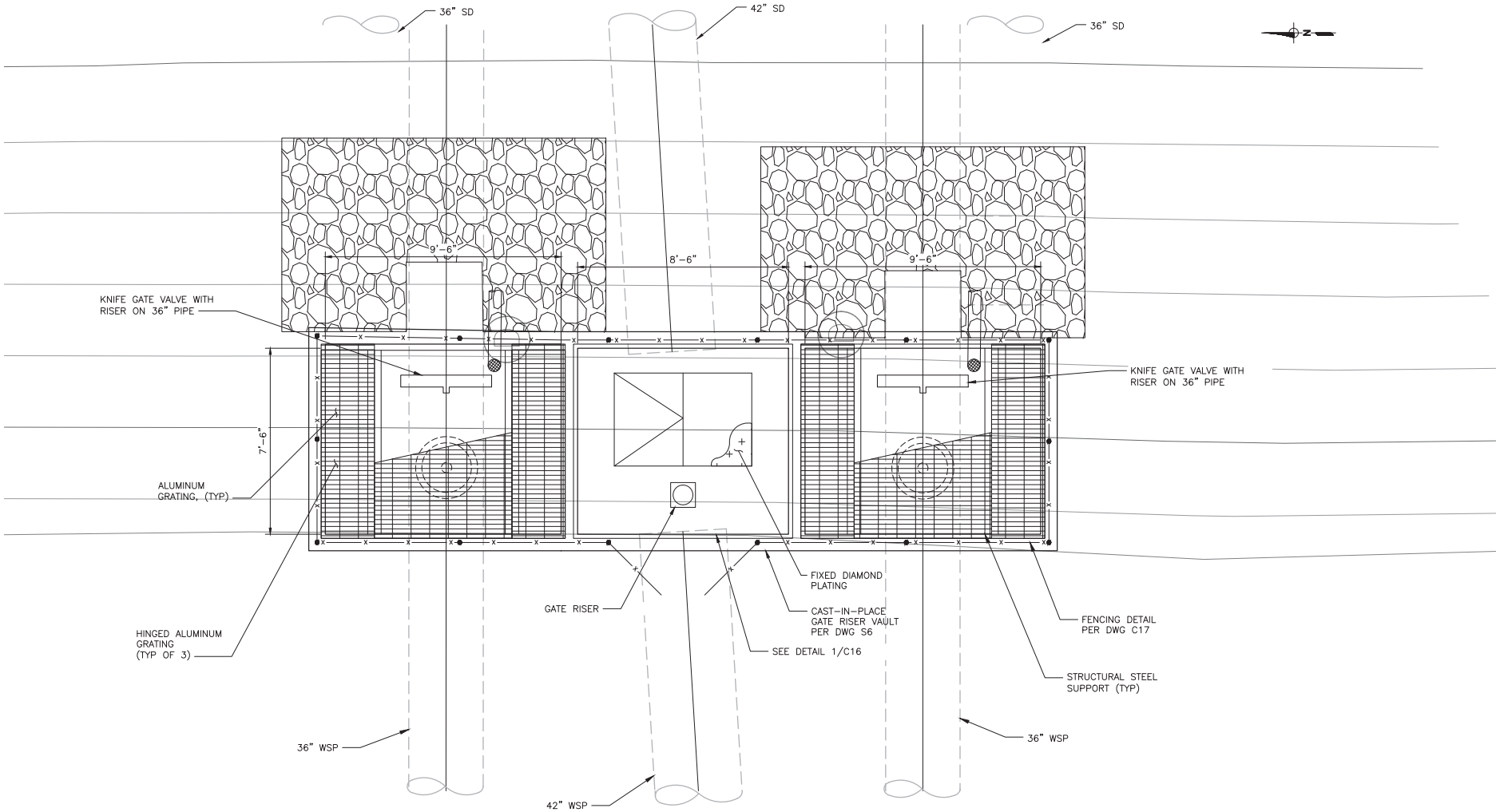
DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
SUMP 155
PLAN AND PROFILE 3 – 36" WSP

PN: W14130615
DWG. NO. 13
SHEET 6 OF 30

Page 117



NOTES:

1. CUT 48"x7" OPENING IN FIXED ALUMINUM GRATING FOR 42" KNIFE GATE VALVE.
2. CUT 42"x7" OPENING IN FIXED ALUMINUM GRATING FOR 36" KNIFE GATE VALVE.

65% SUBMITTAL

PN: W14130615

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

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REVISIONS			BENCH MARK	ELEV.	FIELD BOOK	1"
DESCRIPTION	DATE	BY	DESCRIPTION:		0000	ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"
					SCALE: H: 1"=10' V:	

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

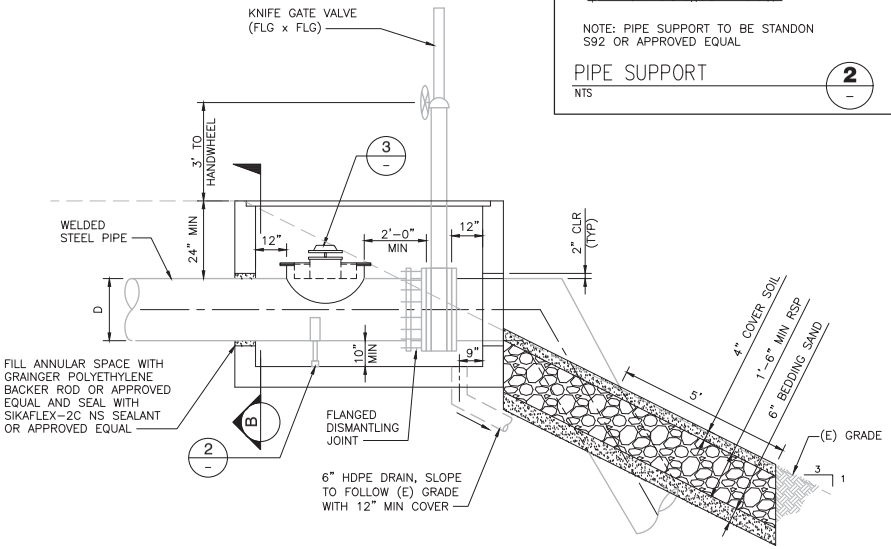
DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

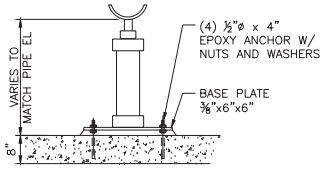
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
SUMP 155
VAULT DETAIL

PN: W14130615 | DWG. NO. 14 | SHEET 17 of 30

PN: W14130615

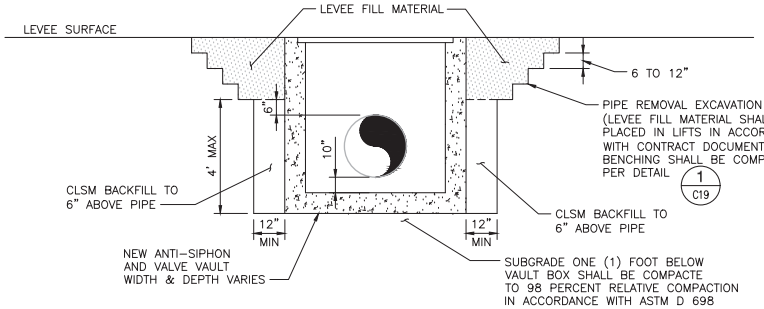


SUMP 155 ANTI SIPHON VAULT DETAIL **1**
NTS

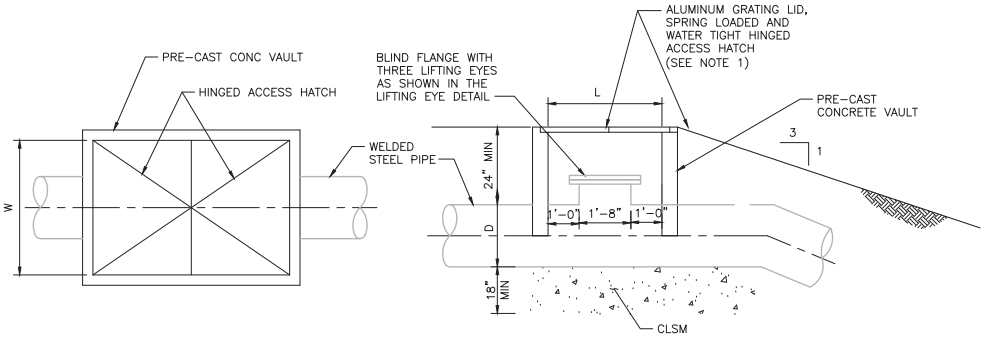


NOTE: PIPE SUPPORT TO BE STANDON S92 OR APPROVED EQUAL

PIPE SUPPORT **2**
NTS



SECTION **B**
NTS

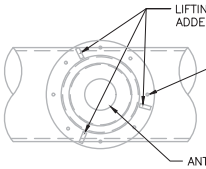


PLAN SECTION

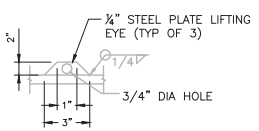
NOTE:
HATCH TO MEET H20 OR HL93 WHEEL LOADING REQUIREMENTS, WHICHEVER IS GREATER

D	L	W
18"	24"	24"
42"	42"	48"

SUMP 089 INSPECTION PORT WITH ANTI SIPHON VAULT PLAN **6**
NTS



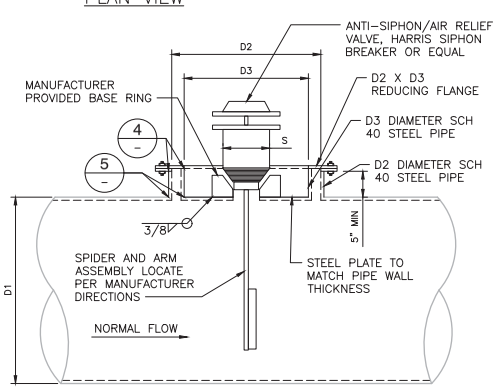
PLAN VIEW



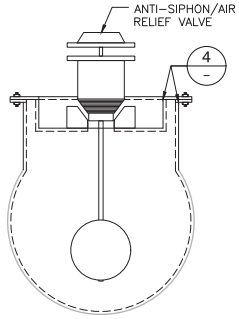
LIFTING EYE DETAIL

TYPICAL ANTI-SIPHON VALVE SIZE

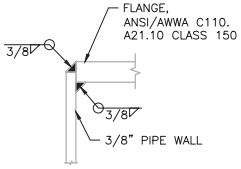
D1	D2	D3	S	MODEL
18"	16"	12"	3"	HSB-03-A-18
30"	24"	20"	7"	HSB-07-B-30
36"	30"	24"	5"	HSB-05-A-36
42"	30"	24"	8"	HSB-08-B-42



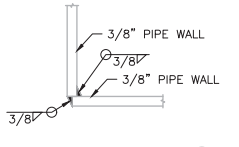
PROFILE VIEW



SECTION VIEW



WELD DETAIL **4**
NTS



WELD DETAIL **5**
NTS

ANTI-SIPHON AND AIR RELIEF VALVE CONNECTION DETAIL **3**
NTS

65% SUBMITTAL

PN: W14130615 PUMP OUTFALLS REPLACEMENT PROJECT PN: W14130615

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REVISIONS DESCRIPTION	DATE	BY

BENCH MARK ELEV. _____
DESCRIPTION:

FIELD BOOK 0000
SCALE: H: _____ V: _____

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

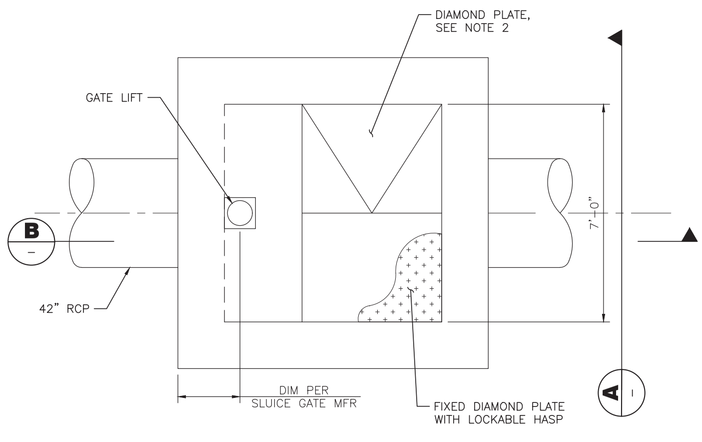
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
ANTI SIPHON AND VALVE VAULT
SECTIONS AND DETAILS

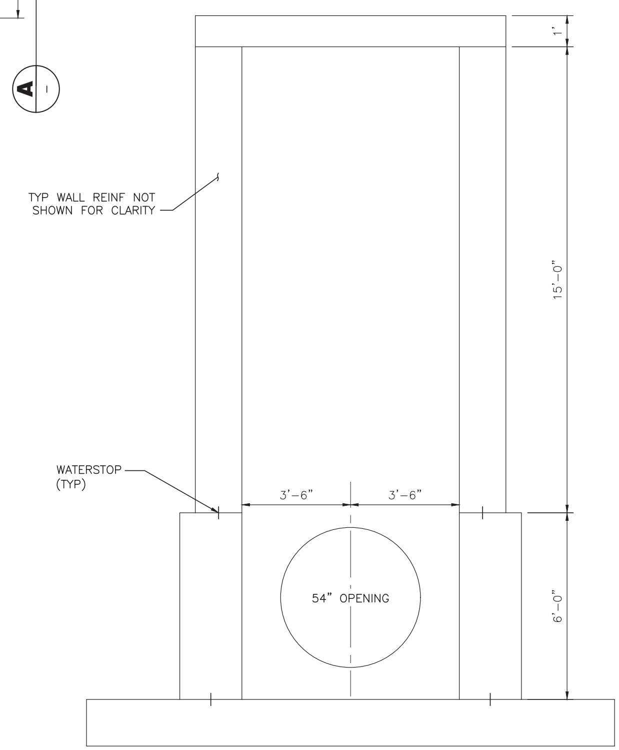
PN: W14130615 DWG. NO. 15 SHEET 18 OF 30

PN: W14130615

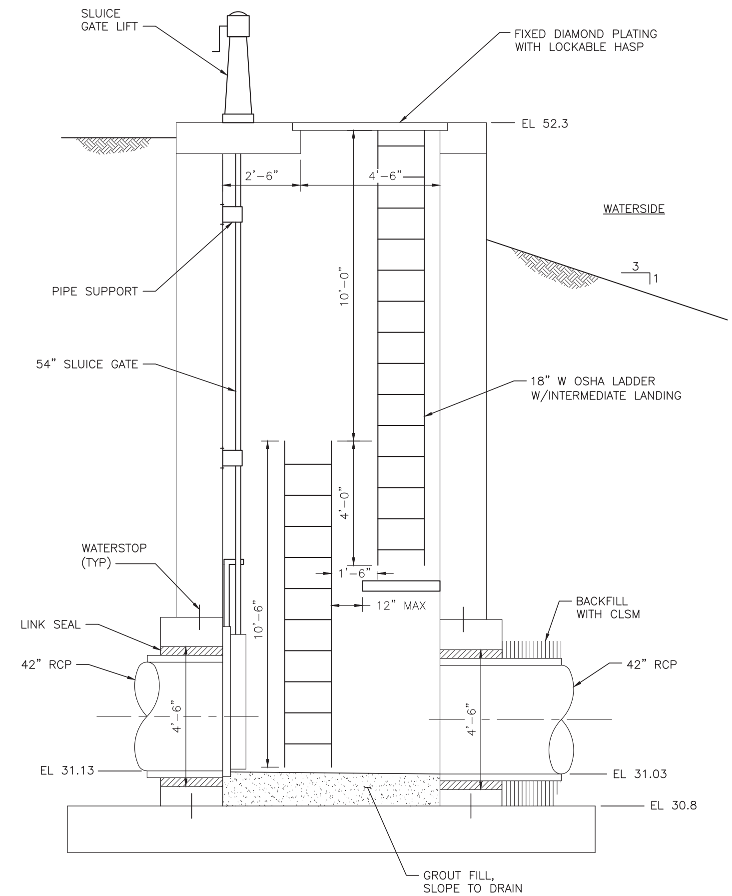
NOTES:
1. DETAILS FOR CAST IN PLACE STRUCTURE ARE SHOWN ON STRUCTURAL DRAWINGS. GATE RISER STRUCTURE MAY BE PRECAST AS AN ALTERNATIVE.
2. HINGED COVER SHALL HAVE TORSION ASSIST PER SPECIFICATION 05 50 00.



SUMP 155
GATE RISER STRUCTURE DETAIL (1)
1/2"=1'-0"



SECTION (A)
NTS



SECTION (B)
NTS

65% SUBMITTAL

REVISIONS			BENCH MARK	FIELD BOOK		
DESCRIPTION	DATE	BY	DESCRIPTION: ELEV.	0000 SCALE: H: V:	1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"	

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

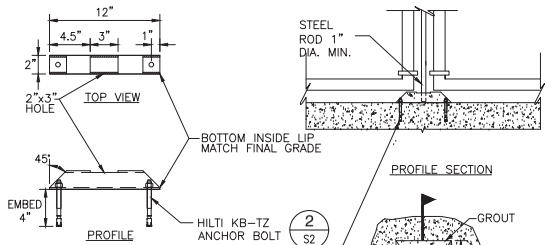
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
SUMP 155 GATE RISER ACCESS DETAIL AND SECTIONS

PN: W14130615
DWG. NO. 16
SHEET 19 OF 30

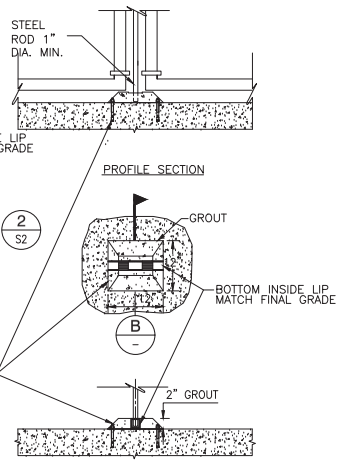
GENERAL NOTES:

1. LINE POSTS SHALL BE MIN 2½" O.D. SPACED AT MAX 10' O.C.
2. HORIZONTAL BRACE AND TOP RAIL SIZE SHALL BE MIN 1⅝" DIA.
3. END, CORNER, AND GATE POSTS SHALL BE MIN 2½" O.D. WITH 1⅝" O.D BRACE RAIL, ⅜" TRUSS ASSEMBLY, 12-GAUGE TENSION BANDS SECURED AT MAX 12" O.C.
4. GATE FRAME SHALL BE FABRICATED FROM 2½" O.D. OR 2½" SQUARE MEMBERS WELDED AT ALL CORNERS.
5. CHAIN LINK FABRIC SHALL BE SECURED TO LINE POST AND TOP RAIL USING 9-GAUGE TIE WIRE SPACED AT MAX 12" O.C.
6. 2-3/8" SHOULDERED EYE BOLT 3" LENGTH TO ANCHOR TENSION WIRE PER 10' SECTION EVENLY SPACED, SECURED WITH HOG RING CAPTURING FENCE FABRIC AND TENSION WIRE TO MAINTAIN DOWNWARD TENSION ON SECURITY FENCE SYSTEM.
7. PROVIDE "CITY UTILITY FACILITY – NO TRESPASSING" SIGNAGE GATE.

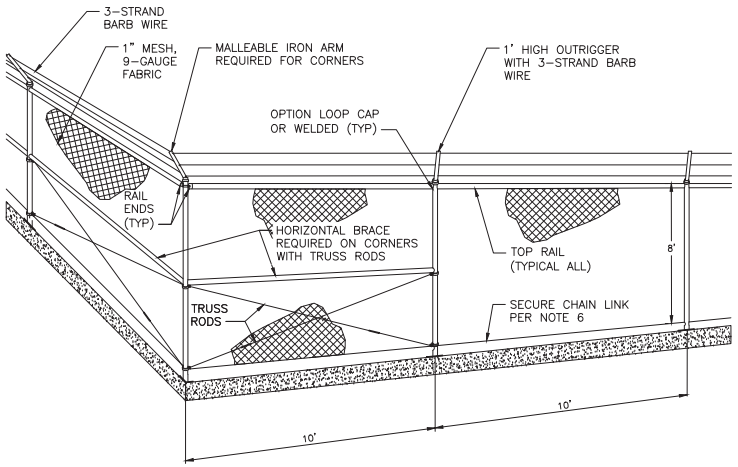


2" SQUARE TUBING DETAIL
NOT TO SCALE

2" (SQ. TUBING) x 0.250" WALL TH. x 12"L, CUT ONE 3" x 2" HOLE IN TOP AND ANGLE CUT BOTH ENDS 45° FROM HORIZONTAL. ANCHOR WITH HILTI KB-TZ ANCHOR BOLT SEE DETAIL ABOVE. BOTTOM INSIDE LIP OF SQUARE TUBING SHALL MATCH FINAL GRADE. "DO NOT BLOCK ENDS OF SQUARE TUBING WITH GROUT".

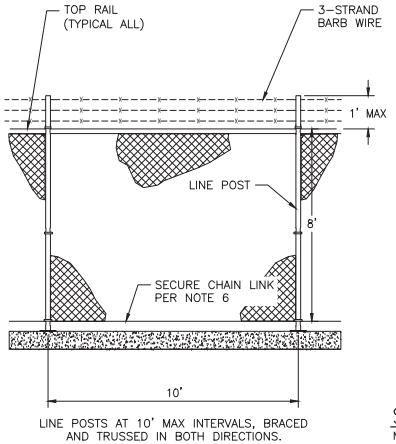


RIGHT SECTION B
NTS



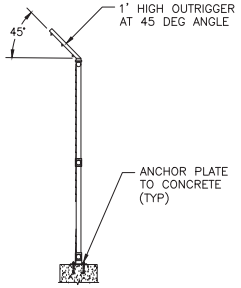
CORNER DETAIL 2
NTS

GATE ANTI-SWING FOOTING DETAIL 1
NTS

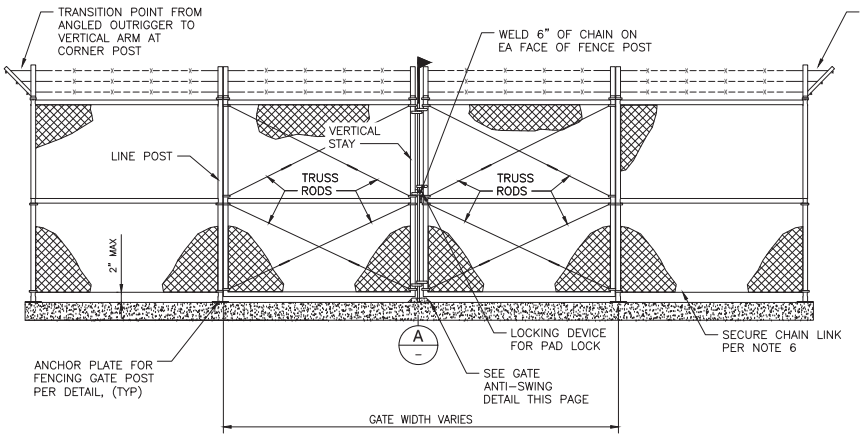


LINE POSTS AT 10' MAX INTERVALS, BRACED AND TRUSSED IN BOTH DIRECTIONS.

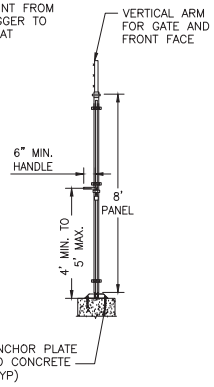
LINE POST DETAIL 3
NTS



SIDE VIEW DETAIL 4
NTS



MAINTENANCE GATE DETAIL 5
NTS



GATE OPERATOR SECTION A
NTS

8 FOOT HIGH CHAIN LINK FABRIC WITH ANGLED OUTRIGGER AND 3 STRAND BARB WIRE (OUTSIDE) STANDARD FENCING DETAIL

65% SUBMITTAL

REVISIONS DESCRIPTION	DATE	BY

BENCH MARK DESCRIPTION: ELEV.

FIELD BOOK 0000 SCALE: H: V:

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

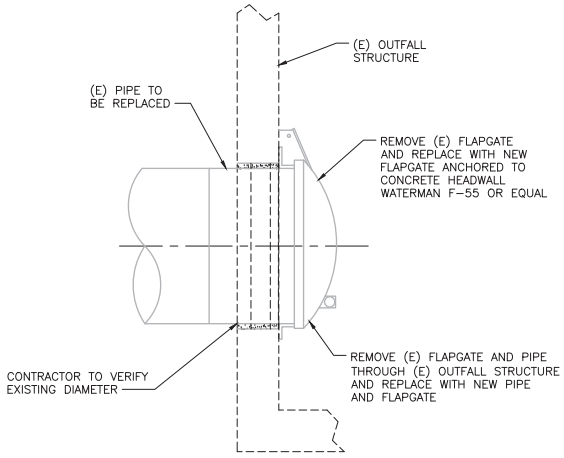
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
MISCELLANEOUS VAULT SECURITY DETAILS

PN: W14130615 DWG. NO. 17 SHEET 20 OF 30

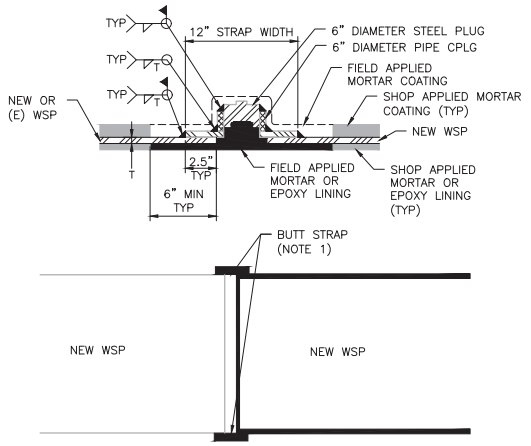
PUMP OUTFALLS REPLACEMENT PROJECT PN: W14130615

PN: W14130615

Page 21

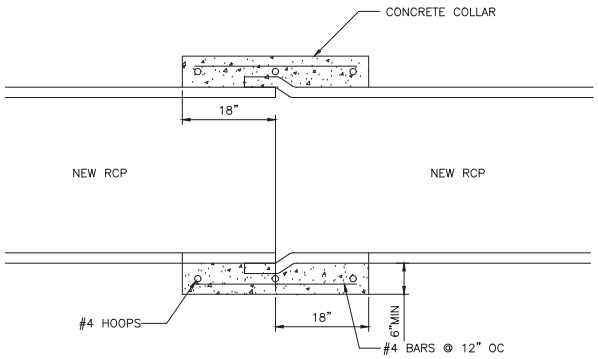


OUTFALL STRUCTURE CONNECTION DETAIL 1
NTS

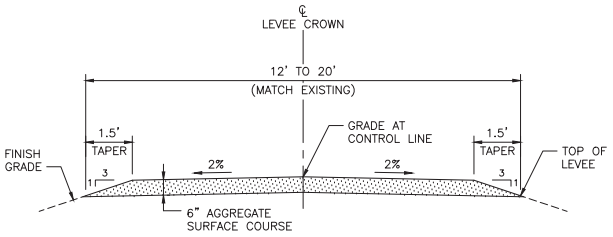


NOTES:
1. PROVIDE HAND HOLES AS NEEDED TO INSTALL FIELD LINING. WELD HAND HOLE CLOSED WHEN COMPLETE. HAND HOLES NOT REQUIRED AT OUTLETS IF ACCESSIBLE THROUGH FLAP GATE.

NEW OR EXISTING STEEL
PIPE CONNECTION DETAIL 2
NTS



NEW OR EXISTING RCP
PIPE CONNECTION DETAIL 3
NTS



CROWN SURFACING DETAIL 4
NTS

PN: W14130615 PUMP OUTFALLS REPLACEMENT PROJECT PN: W14130615

65% SUBMITTAL

PN: W14130615

REVISIONS DESCRIPTION	DATE	BY

BENCH MARK DESCRIPTION: ELEV.

FIELD BOOK 0000 SCALE: H: V:

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

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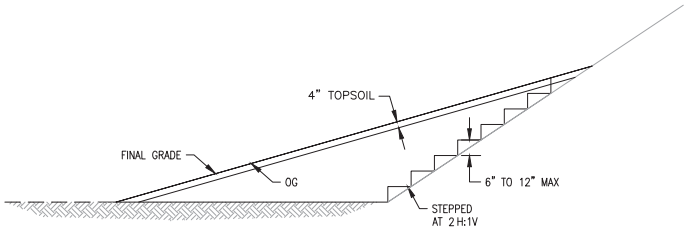
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
MISCELLANEOUS DETAILS I

PN: W14130615 DWG. NO. T18 SHEET 21 OF 30

Page 22

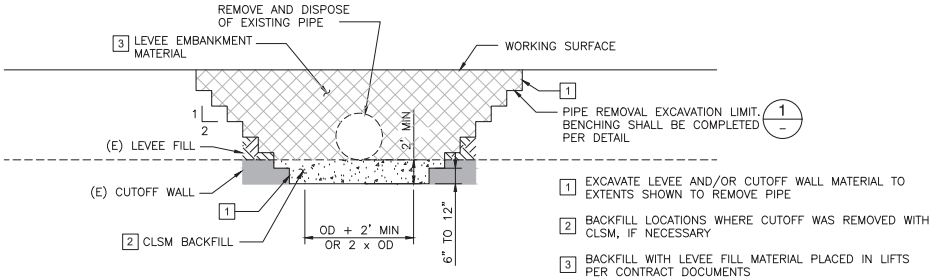


TYPICAL SLOPE BENCHING NOTES:

1. PLACE FILL IN HORIZONTAL LIFTS AGAINST VERTICAL FACES CUT INTO EXISTING LEVEE MATERIAL.
2. THE BOTTOM OF THE KEY TRENCH SHALL BE SCARIFIED TO A DEPTH OF 8 INCHES AND RECOMPACTED TO 95% MAX DENSITY PER ASTM D698.

SLOPE BENCHING (LANDSIDE OR WATERSIDE) DETAIL 1/–

NTS



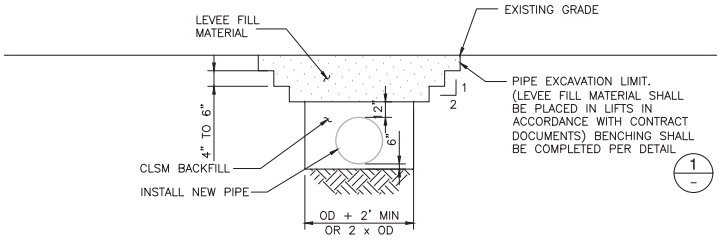
1 EXCAVATE LEVEE AND/OR CUTOFF WALL MATERIAL TO EXTENTS SHOWN TO REMOVE PIPE

2 BACKFILL LOCATIONS WHERE CUTOFF WAS REMOVED WITH CLSM, IF NECESSARY

3 BACKFILL WITH LEVEE FILL MATERIAL PLACED IN LIFTS PER CONTRACT DOCUMENTS

TYPICAL REMOVAL OF EXISTING PIPE DETAIL 2/–

NTS



INSTALLATION OF NEW PIPE DETAIL 3/–

NTS

65% SUBMITTAL

PN: W14130615

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

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REVISIONS DESCRIPTION	DATE	BY

BENCH MARK ELEV. _____
DESCRIPTION:

FIELD BOOK 0000
SCALE: H: _____ V: _____

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

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PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
MISCELLANEOUS DETAILS II

PN: W14130615
DWG. NO. 19
SHEET 22 OF 30

4/1/2021

STRUCTURAL ABBREVIATIONS

Abbreviation	Meaning
@	AT
∠	ANGLE
ABV	ABOVE
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
ADDNL	ADDITIONAL
ADJ	ADJACENT
AISC	AMERICAN INSTITUTE FOR STEEL CONSTRUCTION
ALT	ALTERNATE
APPROX	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
AWS	AMERICAN WELDING SOCIETY
BLW	BELOW
BOC	BOTTOM OF CONCRETE
BOF	BOTTOM OF FOOTING
BOTT	BOTTOM
BTW	BETWEEN
BYD	BEYOND
CBC	CALIFORNIA BUILDING CODE
CCR	CALIFORNIA CODE OF REGULATIONS
CE	CIVIL ENGINEER
CJ	CONSTRUCTION JOINT
℄	CENTERLINE
CLR	CLEAR
CLSM	CONTROLLED LOW–STRENGTH MATERIAL
CONC	CONCRETE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE/COORDINATION
CTR	CENTER
CTRD	CENTERED
DBL	DOUBLE
DEG	DEGREE
DEPR	DEPRESSED
DIA (ø)	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DL	DEAD LOAD
DTL	DETAIL
DWG	DRAWING
EA	EACH
EF	EACH FACE
EE	EACH END
EJ	EXPANSION JOINT
EL	ELEVATION
ELEV	ELEVATION
EOS	EDGE OF SLAB
EOR	ENGINEER OF RECORD
EQ (=)	EQUAL
ES	EACH SIDE
EW	EACH WAY
EB	EXPANSION BOLT
EQUIP	EQUIPMENT
EXTR	EXTERIOR
FAB	FABRICATE
f'c	MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE
FD	FLOOR DRAIN
FF	FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FIN	FINISH
FLG	FLANGE
FND	FOUNDATION
FOC	FACE OF CONCRETE
FOW	FACE OF WALL
FT (')	FOOT/FEET
FTG	FOOTING
Fy	SPECIFIED YIELD STRENGTH OF REINFORCING, PSI OR SPECIFIED MINIMUM YIELD STRESS OF STEEL, KSI
GA	GAUGE
GALV	GALVANIZED
GRD	GRADE
GT	GROUT
HAS	HEADED ANCHOR STUD
HDG	HOT–DIPPED GALVANIZED
HK	HOOK
HORIZ	HORIZONTAL
HT	HEIGHT
HSB	HIGH STRENGTH BOLT
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
ICC	INTERNATIONAL CODE COUNCIL
IN (")	INCH
INFO	INFORMATION
INTR	INTERIOR
JT	JOINT
KSI	KIPS PER SQUARE INCH
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO. (#)	NUMBER OR POUNDS
NOM	NOMINAL
NS&FS	NEARSIDE & FARSIDE
NSG	NON SHRINK GROUT
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINSTRATION
OPG	OPENING
OPP	OPPOSITE
OH	OPPOSITE HAND
PCF	POUNDS PER CUBIC FOOT
PERP	PERPENDICULAR
ℙ	PLATE
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
PT	POINT
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REINF	REINFORCING/REINFORCEMENT
REQ	REQUIRED
SCHED	SCHEDULE
SE	STRUCTURAL ENGINEER
SEIS JT	SEISMIC JOINT
SEOR	STRUCTURAL ENGINEER OF RECORD
SHT	SHEET
SIM	SIMILAR
SJ	SHRINKAGE JOINT
SOG	SLAB ON GRADE
SPCG	SPACING
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STAG	STAGGER
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUC	STRUCTURAL
SYM	SYMMETRICAL
t_f	FLANGE THICKNESS
THRD	THREAD OR THREADED
THK	THICK/THICKNESS
T.O.	TOP OF
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING/ TOP OF FRAMING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TRAN	TRANSVERSE
TYP	TYPICAL
T&B	TOP & BOTTOM
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
WP	WORK POINT
WSP	WELDED STEEL PIPE
WT	WEIGHT

FOUNDATIONS:

1. FOUNDATION DESIGN IS BASED ON SOIL STRATA THAT IS UNDISTURBED, NON–ORGANIC NATIVE SOIL, CLASS 5 AS PER CBC CHAPTER 18 AND TABLE 1806.2, WITH A BEARING CAPACITY OF 1500 PSF. FOUNDATIONS SHALL BEAR ON FIRM FOUNDATION SOIL STRATA. EXPANSIVE, ORGANIC, LOOSE OR SOFT SOILS SHALL NOT BE UTILIZED FOR SUPPORT OF FOOTINGS OR SLABS ON GRADE. THE ENGINEER IS NOT RESPONSIBLE FOR SETTLEMENT DUE TO SOFT SOILS OR EFFECTS DUE TO EXPANSIVE SOILS. IT IS THE OWNER'S RESPONSIBILITY TO INSURE COMPLIANCE WITH THESE REQUIREMENTS.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SHORE AND BRACE AS REQUIRED. SEE SAFETY NOTES FOR ADDITIONAL INFORMATION.
3. ALL FOUNDATIONS ARE SHOWN AND DIMENSIONED AS BEING FORMED. FOUNDATIONS MAY BE PLACED IN NEAT EXCAVATIONS PROVIDED FOOTINGS ARE INCREASED 2" IN WIDTH, SEE TYPICAL UNFORMED FOOTING DETAIL.
4. EXCAVATIONS SHALL BE CLEANED OF ALL DEBRIS AND LOOSE SOIL. STANDING WATER SHALL BE REMOVED PRIOR TO CONCRETE PLACEMENT.
5. TOPS AND BOTTOMS OF ALL FOUNDATIONS SHALL BE LEVEL. SLOPING FOUNDATIONS ARE NOT PERMITTED.
6. FOOTINGS SHALL BE CENTERED UNDER WALLS AND/OR COLUMNS UNLESS OTHERWISE INDICATED ON DRAWINGS.
7. CONTRACTOR SHALL CHECK FOOTING FORMS TO VERIFY THAT THEY ARE SQUARE AND PLUMB. THE CONTRACTOR SHALL ALSO VERIFY THAT ALL INSERTS AND EMBEDS ARE IN THEIR CORRECT LOCATION AND ORIENTATION PRIOR TO PLACING CONCRETE.
8. NOTIFY THE STRUCTURAL ENGINEER 48 HOURS IN ADVANCE OF PLACING CONCRETE.

REINFORCING STEEL

1. REINFORCING SHALL CONFORM TO ASTM A706 – GRADE 60 UNO.
2. NO REINFORCING BARS ARE TO BE WELDED UNLESS SPECIFICALLY DETAILED IN CONTRACT DOCUMENTS. ALL BARS SO DETAILED TO BE WELDED SHALL BE ASTM A706 BARS.
3. ALL REBAR TO BE WELDED SHALL BE CONTINUOUSLY INSPECTED BY A QUALIFIED TESTING LABORATORY. CONTRACTOR MUST FURNISH TO THE LABORATORY MILL CERTIFICATES SHOWING CHEMICAL ANALYSIS. ALL PREHEATING AND WELDING SHALL BE DONE BY WELDERS CERTIFIED TO WELD REINFORCING BARS IN ACCORDANCE WITH AWS D1.4–11 STANDARDS.
4. E80xx ELECTRODE SHALL BE USED FOR ALL REBAR WELDING.
5. TACK WELDING TO REBAR IS STRICTLY PROHIBITED.
6. REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC. TO BE EMBEDDED SHALL BE SECURELY POSITIONED BEFORE PLACING CONCRETE. OBTAIN APPROVAL OF ALL AFFECTED TRADES PRIOR TO PLACING CONCRETE.
7. SEE CONCRETE NOTES AS APPLICABLE FOR ADDITIONAL REQUIREMENTS.
8. CONTRACTOR SHALL PROVIDE AN ALLOWANCE OF 2% OF THE BID FOR ALL REINFORCING STEEL TO BE USED AT THE DISCRETION OF THE STRUCTURAL ENGINEER. UNUSED AMOUNT TO REVERT TO THE OWNER UPON COMPLETION OF THE JOB.

REINFORCEMENT LAP SPLICE LENGTHS (IN INCHES)

f'c = 4000 PSI AT 28 DAYS										
SPLICE CLASS	REINFORCEMENT LOCATION	REINFORCEMENT SIZE (GR60, UNO)								
		#3	#4	#5	#6	#7	#8	#9	#10	#11
B	TOP	24	32	40	48	70	80	91	102	113
	OTHER	19	25	31	37	54	62	70	79	87

FOOTNOTES:
1. TABLE ABOVE BASED ON UNCOATED REINFORCING.
2. TOP REINFORCING IS HORIZONTAL REINFORCEMENT THAT HAS MORE THAN TWELVE INCHES OF FRESH CONCRETE CAST BELOW IT.
3. FOR BARS WITH COVER LESS THAN 1 BAR DIAMETER OR WITH CLEAR SPACING LESS THAN 2 BAR DIAMETERS, INCREASE LAP SPLICE BY 50%.
4. FOR LIGHTWEIGHT AGGREGATE CONCRETE, (WT = 110 PCF) INCREASE LAP SPLICE BY 30%.
5. ALL LAP SPLICES SHALL BE CLASS B, UNO.

SPECIAL INSPECTIONS

X	REINFORCING PLACEMENT
X	CONCRETE PLACEMENT
X	CONCRETE ANCHORS

MATERIAL TESTS

X	CONCRETE: 7, 28 AND 56 DAY STRENGTH TESTS
X	CONCRETE ANCHORS

DESIGN CRITERIA (2016 CBC):

OCCUPANCY
RISK CATEGORY III

LIVE LOADS
SLAB .... 100.0 PSF TYP

FLOOD DESIGN DATA
N/A

SPECIAL LOADS
SOIL LOADS TAKEN AS AT REST PRESSURE OF 75 PSF/FT OF DEPTH EQUIVALENT FLUID WEIGHT

SAFETY NOTES:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE PERTINENT SECTIONS OF THE "CONSTRUCTION SAFETY ORDERS" ISSUED BY THE STATE OF CALIFORNIA LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
2. THE STRUCTURAL ENGINEER DOES NOT ACCEPT ANY RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO COMPLY WITH THESE REQUIREMENTS.
3. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING FOR VERTICAL AND/OR LATERAL LOADS, SHORING AND LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER WILL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.

INSPECTION NOTES:

GENERAL:
IN ADDITION TO THE INSPECTIONS REQUIRED BY SECTION 110 OF THE 2019 CBC, THE OWNER SHALL EMPLOY A SPECIAL INSPECTOR TO PERFORM SPECIAL INSPECTIONS AND TESTS AS INDICATED ON THE STATEMENT OF SPECIAL INSPECTIONS.

1. INSPECTORS: ALL TESTS AND INSPECTIONS SHALL BE PERFORMED BY AN INDEPENDENT INSPECTION AGENCY WHICH IS IN THE EMPLOYMENT OF THE OWNER.
2. ALL SPECIAL INSPECTION AND TESTING AGENCIES SHALL BE QUALIFIED PER ASTM E329 AND APPROVED BY THE BUILDING DEPARTMENT.
3. PROVIDE INSPECTION REPORTS TO BUILDING DEPARTMENT, OWNER, ARCHITECT AND ENGINEER WITHIN TWO WEEKS OF PERFORMANCE OF INSPECTION OR TEST.
4. REFER TO CHAPTER 17 OF THE CODE FOR OTHER REQUIRED SPECIAL INSPECTIONS AND TESTS NOT LISTED.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT THE TESTS AND INSPECTIONS ARE PERFORMED. JOBSITE VISITS BY THE STRUCTURAL ENGINEER DO NOT CONSTITUTE AND ARE NOT A SUBSTITUTE FOR INSPECTIONS.
6. WHERE THE CONTRACTOR CHOOSES TO USE AN APPROVED ALTERNATIVE MEANS FOR FASTENING OR ANCHORING MATERIALS THAT REQUIRE SPECIAL FIELD INSPECTION, SUCH AS FIELD WELDING, ADHESIVE OR EXPANSION ANCHORS, ETC. ALL ADDITIONAL SPECIAL INSPECTION AND TESTING COSTS SHALL BE PAID BY THE OWNER AND DEDUCTED FROM THE CONTRACT AMOUNT.

GENERAL NOTES:

1. ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.
2. TYPICAL NOTES AND DETAILS SHALL APPLY UNLESS OTHERWISE SHOWN OR NOTED ON DRAWINGS.
3. DETAILS OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME NATURE AS SHOWN FOR SIMILAR CONDITION.
4. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE 2019 CALIFORNIA BUILDING CODE, CCR, TITLE 24, PART 2, VOLUME 2 WITH LATEST REVISIONS REFERRED TO HEREIN AS "THE CODE", AND OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK, INCLUDING THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY, AND THOSE CODES AND STANDARDS LISTED IN THESE NOTES AND SPECIFICATIONS.
5. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK. IF CONFLICTS OCCUR BETWEEN DRAWINGS AND SPECIFICATIONS, THE MOST EXPENSIVE MATERIALS OR METHODS SHALL PREVAIL (FOR BIDDING). STRUCTURAL ENGINEER SHALL BE NOTIFIED OF CONFLICTS AND THAT PORTION OF WORK SHOULD NOT PROCEED UNTIL CONFLICT IS RESOLVED.
6. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION.
7. ASTM SPECIFICATIONS ON THE DRAWINGS AND SPECIFICATIONS SHALL BE OF THE LATEST REVISION.
8. CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED ROOF OR FLOOR. LOAD SHALL NOT EXCEED DESIGN LIVE LOAD PER SQUARE FOOT. PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE STRUCTURE HAS NOT ATTAINED DESIGN STRENGTH.
9. HEAVY EQUIPMENT, CRANES AND MATERIAL STOCKPILES SHALL NOT BE LOCATED ON OR ADJACENT TO SHORING.
10. SUBSTITUTIONS FOR STRUCTURAL MEMBERS, HARDWARE, OR DETAILS SHALL BE REVIEWED BY THE ARCHITECT AND STRUCTURAL ENGINEER AND APPROVED BY THE APPROPRIATE AGENCY. FOR A SUBSTITUTION TO BE REVIEWED THE CONTRACTOR SHALL AGREE & COMPLY WITH THE FOLLOWING:
    A. THE CONTRACTOR SHALL BE BILLED ON A TIME AND MATERIALS BASIS FOR THE REVIEW OF THE SUBSTITUTION WITH NO GUARANTEE OF APPROVAL.
    B. VERIFY THAT THE SUBSTITUTION DOES NOT AFFECT DIMENSIONS SHOWN ON DRAWINGS.
    C. THE CONTRACTOR SHALL ALSO PAY FOR CHANGES TO THE BUILDING DESIGN, WHICH INCLUDES BUT IS NOT LIMITED TO; ENGINEERING DESIGN, DETAILING, APPROVAL AGENCY PROCESS AND CONSTRUCTION COSTS CAUSED BY THE REQUESTED SUBSTITUTION.
    D. THE PROPOSED SUBSTITUTION IS TO HAVE NO ADVERSE AFFECT ON OTHER TRADES, THE CONSTRUCTION SCHEDULE, OR THE SPECIFIED WARRANTY REQUIREMENTS.
11. NO STRUCTURAL MEMBERS SHALL BE CUT, NOTCHED OR OTHERWISE PENETRATED UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER IN ADVANCE OR SHOWN ON THESE DRAWINGS.
12. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. DIMENSIONS AND ELEVATIONS MUST BE VERIFIED WITH ARCHITECTURAL DRAWINGS. IN THE EVENT OF A CONFLICT, THE STRUCTURAL ENGINEER AND ARCHITECT ARE TO BE NOTIFIED IMMEDIATELY. DRAWING SCALES GIVEN ARE APPROXIMATE– DO NOT SCALE PLANS OR DETAILS.
13. SITE VISITS BY STRUCTURAL ENGINEER SHALL NOT BE IN LIEU OF INSPECTIONS.
14. SEE CIVIL DRAWINGS FOR THE FOLLOWING:
    - SIZE AND LOCATION OF ALL CONCRETE CURBS, EQUIPMENT PADS, PITS, FLOOR DRAINS, SLOPES AND DEPRESSED AREAS, CHANGE IN LEVEL, CHAMFERS, GROOVES, INSERTS, ETC.
    - SIZE AND LOCATION OF OPENINGS EXCEPT AS SHOWN.
    - FINISHES.
    - DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
15. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR THE FOLLOWING:
    - PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS, ETC EXCEPT AS SHOWN OR NOTED.
    - ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALL OR SLABS.
    - CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL OR PLUMBING FIXTURES.
    - SIZE AND LOCATION OF MACHINE OR EQUIPMENT BASES AND ANCHOR BOLTS FOR MOTOR MOUNTS.

STRUCTURAL SHEET INDEX:

NUMBER OR LETTER IDENTIFYING PLAN, SECTION, ELEVATION OR DETAIL

OR #/–

DRAWING NUMBER WHERE PLAN, SECTION, ELEVATION OR DETAIL IS LOCATED. A DASH INDICATES THAT THE PLAN, SECTION, ELEVATION OR DETAIL OCCURS ON THE SAME SHEET FROM WHICH IT IS BEING REFERENCED.

REGISTERED PROFESSIONAL ENGINEER ARTHUR ERNEST ROSS No. S2030 STRUCTURAL STATE OF CALIFORNIA

THESE DRAWINGS ARE PRELIMINARY AND NOT FOR CONSTRUCTION UNLESS STAMPED & SIGNED BY THE ENGINEER OF RECORD.

CYS STRUCTURAL ENGINEERS INC.

CYS Job No. 20054

65% SUBMITTAL

PRELIMINARY

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. ______
DESCRIPTION:

FIELD BOOK 0000
SCALE:
H: ______
V: ______

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
GENERAL STRUCTURAL
NOTES & ABBREVIATIONS

DWG. NO. S1
SHEET 23 OF 30

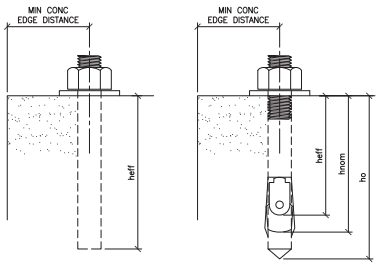
PN: W14130615

Item 7

PN: W14130615
PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

POST–INSTALLED ANCHORS:

1. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS GIVEN IN THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII) AND THE RESPECTIVE ICC OR IAPMO REPORT:
   A. CONCRETE ANCHORS:
      HILTI KWIK–BOLT TZ EXPANSION ANCHORS ESR–1917
      HILTI HIT–RE 500 V3 ADHESIVE ANCHORS ESR–3814
2. SPECIAL INSPECTION IS REQUIRED FOR ALL MECHANICAL AND ADHESIVE ANCHORS PER CBC SECTION 1705.3 AND THE REPORTS NOTED ABOVE, UNLESS NOTED OTHERWISE.
3. SEE ANCHOR SCHEDULE(S) AND DETAILS FOR TEST LOAD OR TORQUE VALUES, IN ACCORDANCE WITH CBC SECTION 1901.3.4.4. TESTING OF UNDERCUT ANCHORS THAT ALLOW VISUAL CONFIRMATION OF FULL SET IS NOT REQUIRED.
4. TEST EACH ANCHOR OF DIFFERENT DIAMETER AND EMBEDMENT DEPTH FOR EACH TYPE AND STRENGTH OF CONCRETE PER CBC SECTION 1901.3.4.3 AS FOLLOWS:
   A. ANCHORS USED FOR OTHER STRUCTURAL APPLICATIONS SHALL HAVE 100 PERCENT OF THE ANCHORS TENSION TESTED.
   B. ANCHORS USED FOR NON–STRUCTURAL APPLICATIONS SUCH AS EQUIPMENT ANCHORAGE SHALL HAVE 50 PERCENT OR ALTERNATE BOLTS IN A GROUP INCLUDING AT LEAST ONE–HALF THE ANCHORS IN EACH GROUP TENSION TESTED.
5. FAILURE/ACCEPTANCE CRITERIA. THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS PER CBC SECTION 1901.3.4.5:
   A. HYDRAULIC RAM METHOD: THE ANCHOR MUST MAINTAIN THE TEST LOAD FOR 15 SECONDS AND NOT EXHIBIT OBSERVABLE MOVEMENT AT THE APPLICABLE TEST LOAD. FOR WEDGE AND SLEEVE–TYPE ANCHORS, A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER UNDER THE NUT BECOMES LOOSE. DROP–IN ANCHORS ARE ONLY TO BE TESTED WITH THIS METHOD. FOR ADHESIVE ANCHORS, WHERE OTHER THAN BOND IS BEING TESTED, THE TESTING DEVICE SHALL NOT RESTRICT THE CONCRETE SHEAR CONE TYPE FAILURE MECHANISM FROM OCCURRING.
   B. TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE FOR WEDGE OR SLEEVE–TYPE ANCHORS MUST BE REACHED WITHIN THE FOLLOWING LIMITS, ONE–HALF (½) TURN OF THE NUT; ONE QUARTER (¼) TURN OF THE NUT FOR THE ⅜" SLEEVE ANCHOR ONLY.
   C. PER CBC SECTION 1901.3.4.1 IF ANCHOR FAILS TESTING, ALL ANCHORS OF THE SAME CATEGORY, NOT PREVIOUSLY TESTED, SHALL BE TESTED UNTIL 20 CONSECUTIVE ANCHORS PASS THE TEST REQUIREMENTS THEN INITIAL TESTING FREQUENCY SHALL THEN BE RESUMED.
6. WHEN INSTALLING DRILLED–IN ANCHORS IN EXISTING CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING EXISTING REINFORCING BARS.
7. THE TESTING OF THE ANCHORS SHALL BE DONE BY THE TESTING LABORATORY IN THE PRESENCE OF THE SPECIAL INSPECTOR AND A REPORT OF THE TEST RESULTS SHALL BE SUBMITTED TO THE GOVERNING AGENCY AND ARCHITECT/STRUCTURAL ENGINEER. TESTING SHALL OCCUR AT MINIMUM OF 24 HOURS AFTER THE INSTALLATION OF THE ANCHORS.
8. APPLY TENSION TEST LOADS TO EXPANSION OR ADHESIVE ANCHORS WITHOUT REMOVING THE NUT IF POSSIBLE. IF NOT POSSIBLE, REPLACE THE NUT WITH A THREADED COUPLER OF THE SAME DIAMETER AND TORQUE TO THE SAME LEVEL AS THE ORIGINAL NUT AND APPLY TEST LOAD.
9. REACTION LOADS FROM TEST FIXTURES SHALL NOT BE APPLIED CLOSE TO THE ANCHOR BEING TESTED.
10. TEST EQUIPMENT IS TO BE CALIBRATED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH STANDARD RECOGNIZED PROCEDURES.



HILTI HIT–RE 500 V3 ADHESIVE ANCHORS

HILTI KB–TZ EXPANSION ANCHORS

HILTI KB–TZ EXPANSION ANCHORS (ICC–ES ESR–1917)

ANCHOR DIA (INCH)	INSTALLATION EMBED (INCH) hnom	EFFECTIVE EMBED (INCH) heff	HOLE DEPTH (INCH) ho	MIN CONC THICKNESS (INCH) h	MIN CONC EDGE DISTANCE (INCH)	INSTALLATION TORQUE (FT–LBS)
1/2	3 5/8	3 1/4	4	12	6	40
5/8	4 7/16	4	4 3/4	12	SEE PLAN	60

HILTI HIT–RE 500 V3 ADHESIVE ANCHORS (ICC–ES ESR–3814)

ANCHOR DIA (INCH)	EFFECTIVE EMBED (INCH) heff	MIN CONC THICKNESS (INCH) h	MIN CONC EDGE DISTANCE (INCH)
5/8	SEE PLAN	SEE PLAN	SEE PLAN

POST INSTALLED ANCHOR SCHED
2

CONCRETE:

1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE CODE PER GENERAL NOTES.
2. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ASTM C94 AND ACI STANDARD 304. IN ADDITION, MAXIMUM FREE FALL OF CONCRETE SHALL BE 4'–0".
3. ALL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED BY SUITABLE MEANS DURING PLACEMENT AND SHALL BE THOROUGHLY WORKED AROUND REINFORCEMENT AND EMBEDDED FIXTURES AND INTO CORNERS OF FORMS.
4. THE MINIMUM 28 DAY STRENGTH SHALL BE PER MIX DESIGN SCHEDULE.
5. CEMENT SHALL CONFORM TO ASTM C150, TYPE I OR II.
6. CONCRETE AGGREGATES:
   A. NATURAL SAND AND ROCK AGGREGATES SHALL CONFORM TO ASTM C33.
   B. LIGHTWEIGHT AGGREGATES SHALL CONFORM TO ASTM C330.
7. MINERAL ADMIXTURES SHALL COMPLY WITH ASTM C618 CLASS F.
8. LIQUID ADMIXTURES SHALL COMPLY WITH THE FOLLOWING:
   A. WATER REDUCERS . . . . . ASTM C494 TYPE A
   B. MID–RANGE WATER REDUCERS . . . . . ASTM C494 TYPE A & F
   C. NON–CHLORIDE ACCELERATORS . . . . . ASTM C494 TYPE C OR C & E
   D. RETARDING ADMIXTURES . . . . . ASTM C494 TYPE B OR B & D
9. GENERAL:
   A. NO PIPES OR DUCT SHALL BE PLACED IN CONCRETE SLABS OR WALLS UNLESS SPECIFICALLY DETAILED.
   B. REFER TO ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS FOR ALL MOULDS, GROOVES, ORNAMENTS, CLIPS, ETC. TO BE CAST IN CONCRETE.
10. ALL CONSTRUCTION JOINTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 318 SECTION 26.5.6 AND THE TYPICAL CONSTRUCTION JOINT DETAILS SHOWN ON THE STRUCTURAL DRAWINGS. ALL SURFACES OF CONSTRUCTION JOINTS SHALL BE CLEANED TO REMOVE DUST, CHIPS, OR OTHER FOREIGN MATTER PRIOR TO PLACING THE ADJACENT CONCRETE. THE CONTRACTOR SHALL SUBMIT THE PROPOSED LOCATIONS OF CONSTRUCTION JOINTS TO THE ENGINEER FOR REVIEW BY THE STRUCTURAL ENGINEER BEFORE STARTING CONSTRUCTION.
11. REMOVE ALL DEBRIS AND EXCESS WATER FROM THE FORMS BEFORE PLACING ANY CONCRETE.
12. REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC. TO BE EMBEDDED IN CONCRETE SHALL BE SECURELY POSITIONED AND FREE OF EXCESSIVE SCALE, RUST, DIRT, GREASE, OIL OR ANY OTHER SUBSTANCES THAT WILL IMPAIR BOND WITH CONCRETE. OBTAIN APPROVAL OF ALL AFFECTED TRADES PRIOR TO PLACING CONCRETE.
13. WALLS SHALL BE PLACED IN HORIZONTAL LAYERS OF 2'–0" MAXIMUM DEPTH.
14. CONCRETE IN WALLS, PIERS OR COLUMNS SHALL SET AT LEAST 2 HOURS BEFORE PLACING CONCRETE IN BEAMS, SPANDRELS OR SLABS SUPPORTED THEREON.
15. NO WOOD SPREADERS ALLOWED. NO WOOD STAKES ALLOWED IN AREAS TO BE CONCRETED.
16. CONTRACTOR SHALL PREPARE AND SUBMIT CONCRETE MIX DESIGNS TO THE ARCHITECT/ ENGINEER OF RECORD FOR REVIEW PRIOR TO PLACEMENT OF ANY CONCRETE. CONCRETE MIX DESIGNS SHALL BE PER ACI 318 CHAPTER 26 AND ACI 301 SECTION 4. CALCIUM CHLORIDE OR ADMIXTURES WHICH ADD CHLORIDES ARE NOT PERMITTED.
17. NOTIFY THE ENGINEER OF RECORD (AND BUILDING OFFICIAL WHEN REQUIRED) 2 BUSINESS DAYS PRIOR TO PLACING CONCRETE.
18. CAST–IN–PLACE CONCRETE (NON–PRESTRESSED). THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . . 3"
   B. CONCRETE EXPOSED TO EARTH OR WEATHER:
      NO. 6 THROUGH NO. 11 BAR . . . . . 2"
      NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER . . . . . 1½"
19. A. ALL BARS SHALL HAVE A CLASS B MINIMUM SPLICE LAP UNO. SEE REINFORCEMENT LAP SPLICES TABLE.
   B. SPLICES IN ADJACENT BARS SHALL BE NOT LESS THAN 5'–0" APART. UNO.
   C. DOWEL ALL VERTICAL REINFORCING IN WALLS AND COLUMNS FROM FOUNDATION WITH THE SAME SIZE REINFORCING, UNO.
   D. SPLICE CONTINUOUS BARS IN SPANDRELS, GRADE BEAMS, WALL BEAMS, ETC. AS FOLLOWS: TOP BARS AT MID–SPAN, BOTTOM BARS AT CENTERLINE SUPPORT UNO.
20. HORIZONTAL WALL REINFORCING IN DOUBLE LAYER WALLS SHALL BE STAGGERED. USE #2 SPREADERS APPROXIMATELY EVERY THIRD INTERSECTION EACH DIRECTION FOR ALL DOUBLE LAYER WALLS.
21. MINIMUM WALL REINFORCING SHALL BE:

WALL THICKNESS	SINGLE LAYER	DOUBLE LAYER
7" OR LESS	#4 @ 12" OC EA WAY	
8"	#4 @ 10" OC EA WAY	
9" & 10"		#4 @ 16" OC EA WAY
11" & 12"		#4 @ 12" OC EA WAY

22. REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND INSTALLED IN ACCORDANCE WITH ACI 315. SEE REINFORCING STEEL NOTES FOR ADDITIONAL REQUIREMENTS.
23. FINAL PRODUCT AS INDICATED ON DRAWINGS SHALL COMPLY WITH THE FOLLOWING:
   A. ALL CONCRETE SHALL HAVE A "CLASS B" FINISH PER ACI 347 WITH GRADUAL IRREGULARITIES LIMITED TO ¼" IN 5'–0" AS MEASURED WITH A STRAIGHT EDGE.
   B. SURFACE IRREGULARITIES ATTRIBUTABLE TO PLACEMENT AND CONSOLIDATION DEFICIENCIES AS DEFINED IN ACI 309.2R (E.G., BUG HOLES, HONEYCOMB, ETC.) WILL BE REVIEWED BY THE ARCHITECT AND ENGINEER. UNSATISFACTORY WORK SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
   C. GRADUAL SURFACE IRREGULARITIES SHALL NOT BE CUMULATIVE.

MIX DESIGN SCHEDULE

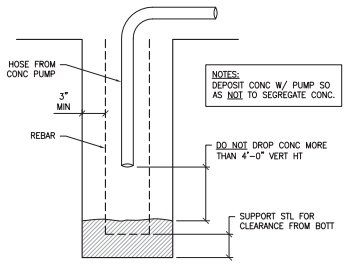
TYPE	USE CLASS	STRENGTH "f'c" MIN @ 28 DAYS (PSI)	CONCRETE UNIT WEIGHT (PCF)	MAX AGGREGATE SIZE (IN)	MAX[5] SLUMP (IN)	MAX WATER TO CEMENT RATIO (%)	FLY ASH[7] REPLACEMENT (%)
A	SLAB ON GRADE	4000	150	1"±¾"	4"±1"	.40	15% MIN 25% MAX
B	FOUNDATIONS	4000	150	1"±¾"	4"±1"	.50	15% MIN 25% MAX
C	WALLS	4000	150	1"±¾"	4"±1"	.50	15% MIN 25% MAX
D	ELEVATED SLABS	4000	150	1"±¾"	4"±1"	.40	15% MIN 25% MAX

FOOTNOTES:
1. ADD WATER REDUCING ADMIXTURES PER SPECIFICATIONS FOR PLACING.
2. FOR HOT WEATHER CONCRETING REFER TO ACI 305R.
3. FOR COLD WEATHER CONCRETING REFER TO ACI 306R.
4. OTHER ADMIXTURES SHALL BE REVIEWED BY THE ENGINEER OF RECORD AND TESTING LABORATORY UPON CONCRETE MIX DESIGN SUBMITTAL.
5. SLUMPS SHALL NOT EXCEED 8"± 1½" WHEN USING MID–RANGE WATER REDUCERS.
6. ADDITIONAL WATER SHALL NOT BE ADDED TO THE CONCRETE ONCE THE TRUCK LEAVES THE BATCH PLANT.
7. MIX DESIGN SHALL NOT BE PROPORTIONED WITHOUT FIELD EXPERIENCE OR TRIAL MIXTURES PER ACI 318, SECTION 26.4.3 WHEN USING MORE THAN 15% FLY ASH REPLACEMENT BY WEIGHT.

SHOP DRAWINGS:

PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER:

1. THE CONTRACTOR AGREES THAT SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS.
2. THE CONTRACTOR AGREES THAT THE PURPOSE OF SHOP DRAWING SUBMITTALS IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN INTENT OF THE PROJECT AND COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS BY INDICATING WHICH MATERIAL THE CONTRACTOR INTENDS TO FURNISH AND INSTALL AND BY DETAILING THE FABRICATION AND INSTALLATION METHODS THE CONTRACTOR INTENDS TO USE.
3. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS ON THE SHOP DRAWINGS, WHICH MUST BE CONFIRMED AND CORRELATED AT THE JOB SITE, FOR COORDINATION OF HIS OR HER WORK WITH THAT OF ALL OTHER TRADES AND FOR PERFORMING WORK IN A SAFE AND SATISFACTORY MANNER.
4. THE CONTRACTOR IS RESPONSIBLE FOR MATERIAL QUANTITIES ON THE SHOP DRAWINGS.
5. THE CONTRACTOR IS TO REVIEW AND BE IN AGREEMENT WITH COMMENTS BY THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH FABRICATION.
6. THE SHOP DRAWINGS SHALL BE PREPARED FROM FRESH WORK. REPRODUCTIONS OF THE APPROVED DRAWINGS IS NOT PERMITTED.
7. PRIOR TO SUBMISSION THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND SHALL STAMP SUBMITTALS AS BEING "REVIEWED FOR CONFORMANCE".
8. ANY DETAIL ON THE SHOP DRAWING THAT DEVIATES FROM THE CONTRACT DOCUMENTS SHALL BE CLEARLY MARKED WITH THE NOTE "THIS IS A CHANGE". SEE GENERAL NOTES FOR MATERIAL SUBSTITUTIONS.
9. SHOP DRAWINGS OR CALCULATIONS SUBMITTED FOR REVIEW THAT REQUIRE MORE THAN ONE RESUBMITTAL FOR REVIEW SHALL BE BILLED HOURLY FOR SUCH TIME TO THE GENERAL CONTRACTOR. THE THIRD REVIEW WILL NOT PROCEED WITHOUT WRITTEN APPROVAL FROM THE GENERAL CONTRACTOR FOR ADDITIONAL ENGINEERING REVIEW SERVICES.
10. CAD FILES OF APPROVED DRAWINGS WILL NOT BE PROVIDED TO THE CONTRACTOR, SUBCONTRACTOR OR FABRICATOR FOR THE PREPARATION OF SHOP DRAWINGS.
11. SHOP DRAWING REVIEWS DO NOT CONSTITUTE AN APPROVAL FOR PURCHASE OR FABRICATION OF MATERIALS.



CONC PUMP HOSE PLACEMENT DETAIL
1
NTS

REGISTERED PROFESSIONAL ENGINEER — CHRISTOPHER E. ERNESTO — No. S2030 — STRUCTURAL — STATE OF CALIFORNIA

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CYS STRUCTURAL ENGINEERS INC.

CYS Job No. 20054

65% SUBMITTAL

PN: W14130615 PUMP OUTFALLS REPLACEMENT PROJECT

PN: W14130615

Page 25

REVISIONS DESCRIPTION	DATE	BY

BENCH MARK ELEV. _____
DESCRIPTION: _____

FIELD BOOK 0000
SCALE: H: _____ V: _____

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

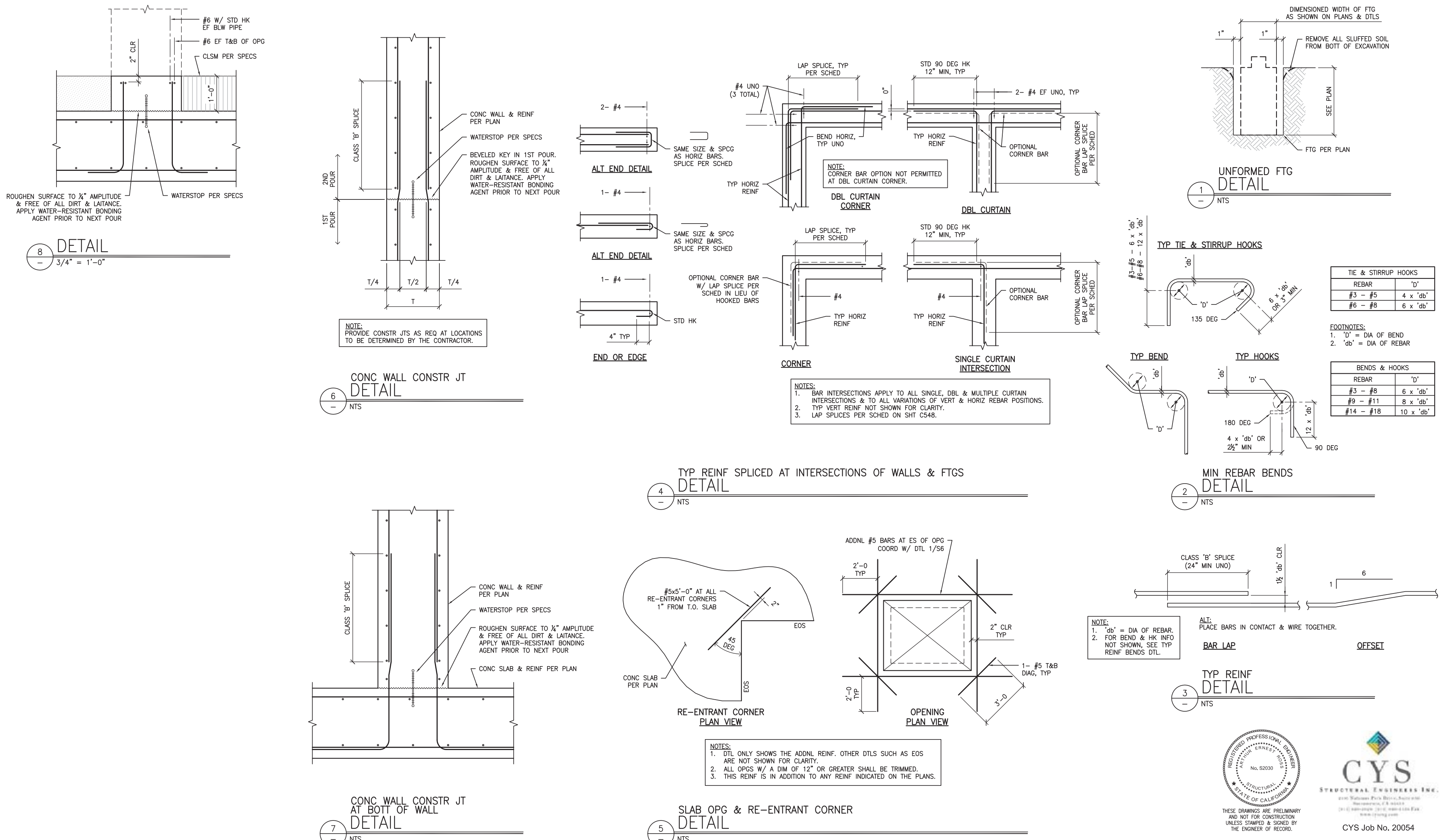
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
GENERAL STRUCTURAL NOTES & TYPICAL DETAILS

PN: W14130615
DWG. NO. S2
SHEET 4 OF 30

PN: W14130615


#6 W/ STD HK EF BLW PIPE
#6 EF T&B OF OPG
CLSM PER SPECS
2" CLR
1'-0"
ROUGHEN SURFACE TO ¼" AMPLITUDE & FREE OF ALL DIRT & LAITANCE. APPLY WATER-RESISTANT BONDING AGENT PRIOR TO NEXT POUR
WATERSTOP PER SPECS
8 DETAIL 3/4" = 1'-0"
CLASS 'B' SPLICE
2ND POUR
1ST POUR
CONC WALL & REINF PER PLAN
WATERSTOP PER SPECS
BEVELED KEY IN 1ST POUR. ROUGHEN SURFACE TO ¼" AMPLITUDE & FREE OF ALL DIRT & LAITANCE. APPLY WATER-RESISTANT BONDING AGENT PRIOR TO NEXT POUR
T/4
T/2
T/4
T
NOTE: PROVIDE CONSTR JTS AS REQ AT LOCATIONS TO BE DETERMINED BY THE CONTRACTOR.
6 CONC WALL CONSTR JT DETAIL NTS
2- #4
ALT END DETAIL
1- #4
ALT END DETAIL
1- #4
4" TYP
END OR EDGE
SAME SIZE & SPCG AS HORIZ BARS. SPLICE PER SCHED
SAME SIZE & SPCG AS HORIZ BARS. SPLICE PER SCHED
STD HK
LAP SPLICE, TYP PER SCHED
#4 UNO (3 TOTAL)
0"
BEND HORIZ, TYP UNO
TYP HORIZ REINF
NOTE: CORNER BAR OPTION NOT PERMITTED AT DBL CURTAIN CORNER.
DBL CURTAIN CORNER
STD 90 DEG HK 12" MIN, TYP
2- #4 EF UNO, TYP
TYP HORIZ REINF
OPTIONAL CORNER BAR
OPTIONAL CORNER BAR LAP SPLICE PER SCHED
DBL CURTAIN
LAP SPLICE, TYP PER SCHED
OPTIONAL CORNER BAR W/ LAP SPLICE PER SCHED IN LIEU OF HOOKED BARS
#4
TYP HORIZ REINF
CORNER
STD 90 DEG HK 12" MIN, TYP
#4
OPTIONAL CORNER BAR
TYP HORIZ REINF
OPTIONAL CORNER BAR LAP SPLICE PER SCHED
SINGLE CURTAIN INTERSECTION
NOTES:
1. BAR INTERSECTIONS APPLY TO ALL SINGLE, DBL & MULTIPLE CURTAIN INTERSECTIONS & TO ALL VARIATIONS OF VERT & HORIZ REBAR POSITIONS.
2. TYP VERT REINF NOT SHOWN FOR CLARITY.
3. LAP SPLICES PER SCHED ON SHT C548.
4 TYP REINF SPLICED AT INTERSECTIONS OF WALLS & FTGS DETAIL NTS
DIMENSIONED WIDTH OF FTG AS SHOWN ON PLANS & DTLS
1"
1"
REMOVE ALL SLUFFED SOIL FROM BOTT OF EXCAVATION
SEE PLAN
FTG PER PLAN
1 UNFORMED FTG DETAIL NTS
#3-#5 – 6 x 'db'
#6-#8 – 12 x 'db'
TYP TIE & STIRRUP HOOKS
'db'
'D'
135 DEG
6 x 'db' OR 3" MIN
TYP BEND
'db'
'D'
TYP HOOKS
'db'
'D'
180 DEG
4 x 'db' OR 2½" MIN
12 x 'db'
90 DEG
2 MIN REBAR BENDS DETAIL NTS
CONC WALL & REINF PER PLAN
WATERSTOP PER SPECS
ROUGHEN SURFACE TO ¼" AMPLITUDE & FREE OF ALL DIRT & LAITANCE. APPLY WATER-RESISTANT BONDING AGENT PRIOR TO NEXT POUR
CONC SLAB & REINF PER PLAN
CLASS 'B' SPLICE
7 CONC WALL CONSTR JT AT BOTT OF WALL DETAIL NTS
#5x5'-0" AT ALL RE-ENTRANT CORNERS 1" FROM T.O. SLAB
2"
45 DEG
EOS
EOS
CONC SLAB PER PLAN
RE-ENTRANT CORNER PLAN VIEW
ADDNL #5 BARS AT ES OF OPG COORD W/ DTL 1/S6
2'-0 TYP
2" CLR TYP
1- #5 T&B DIAG, TYP
2'-0 TYP
3'-0
OPENING PLAN VIEW
NOTES:
1. DTL ONLY SHOWS THE ADDNL REINF. OTHER DTLS SUCH AS EOS ARE NOT SHOWN FOR CLARITY.
2. ALL OPGS W/ A DIM OF 12" OR GREATER SHALL BE TRIMMED.
3. THIS REINF IS IN ADDITION TO ANY REINF INDICATED ON THE PLANS.
5 SLAB OPG & RE-ENTRANT CORNER DETAIL NTS
CLASS 'B' SPLICE (24" MIN UNO)
1½ 'db' CLR
1
6
NOTE:
1. 'db' = DIA OF REBAR.
2. FOR BEND & HK INFO NOT SHOWN, SEE TYP REINF BENDS DTL.
ALT: PLACE BARS IN CONTACT & WIRE TOGETHER.
BAR LAP
OFFSET
3 TYP REINF DETAIL NTS

TIE & STIRRUP HOOKS	
REBAR	'D'
#3 – #5	4 x 'db'
#6 – #8	6 x 'db'

FOOTNOTES:
1. 'D' = DIA OF BEND
2. 'db' = DIA OF REBAR

BENDS & HOOKS	
REBAR	'D'
#3 – #8	6 x 'db'
#9 – #11	8 x 'db'
#14 – #18	10 x 'db'

REGISTERED PROFESSIONAL ENGINEER ARTHUR ERNEST ROSS No. S2030 STRUCTURAL STATE OF CALIFORNIA

THESE DRAWINGS ARE PRELIMINARY AND NOT FOR CONSTRUCTION UNLESS STAMPED & SIGNED BY THE ENGINEER OF RECORD.

CYS STRUCTURAL ENGINEERS INC.

CYS Job No. 20054

65% SUBMITTAL

REVISIONS			BENCH MARK	ELEV.	FIELD BOOK 0000
NO. DESCRIPTION	DATE	BY	DESCRIPTION:		SCALE: H: V:

1" — ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

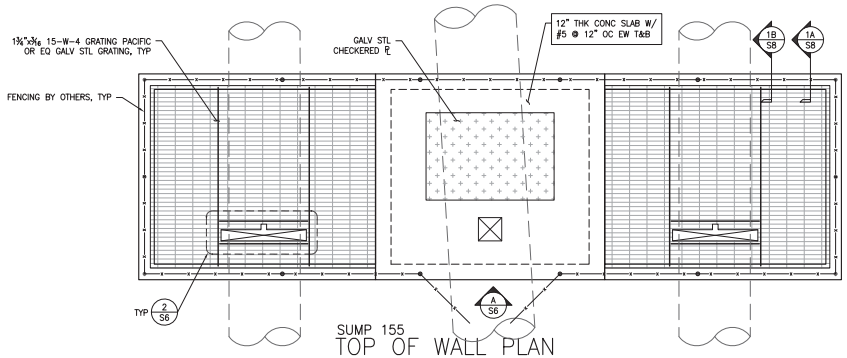
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B

TYPICAL DETAILS - CONCRETE

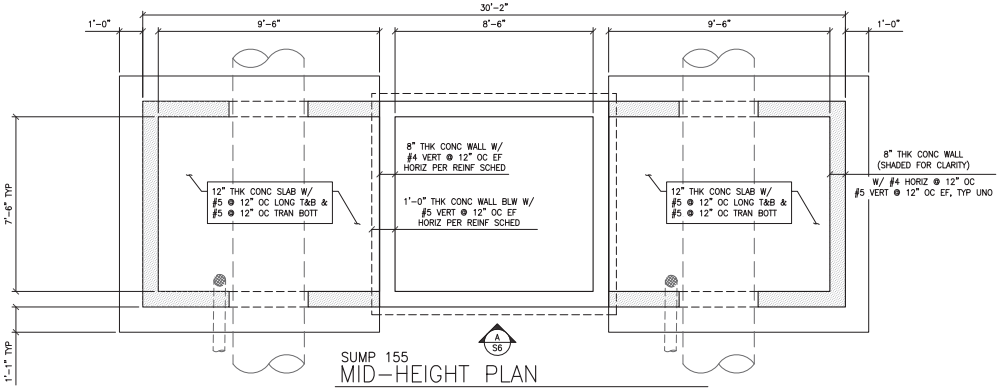
DWG. NO. S3
SHEET 25 OF 30

Item 7

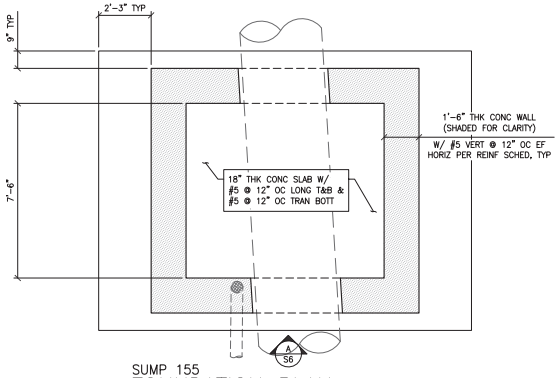
PN: W14130615



SUMP 155
TOP OF WALL PLAN
3/8" = 1'-0"



SUMP 155
MID-HEIGHT PLAN
3/8" = 1'-0"



SUMP 155
FOUNDATION PLAN
3/8" = 1'-0"

NOTES

1. SEE DWG S1 & S2 FOR GENERAL NOTES.
2. SEE DWG S3 FOR TYPICAL DETAILS.
3. SEE DWG S6 FOR SECTIONS.
4. SEE OTHER CONSULTANT DWGS FOR UTILITIES THAT WILL AFFECT FTGS & COMPLY W/ TYPICAL DETAILS.

REGISTERED PROFESSIONAL ENGINEER — ANTHONY CHRISTOPHER SMITH — No. S2030 — STRUCTURAL — STATE OF CALIFORNIA

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CYS STRUCTURAL ENGINEERS INC.

CYS Job No. 20054

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PN: W14130615

L:\Jobs\2020\20054 Pump Outfall Replacement Valve Vaults\ACAD\STRUP\PKG B\S4_PKG B.dwg Time:Sep15,2020-02:08pm Login:csamshom Dimscale:32 LTS:scale:16

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

Page 47 Item 7

REVISIONS			BENCH MARK	ELEV.	FIELD BOOK	1"
NO.	DESCRIPTION	DATE	BY	DESCRIPTION:	0000	ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"
					SCALE: H: V:	

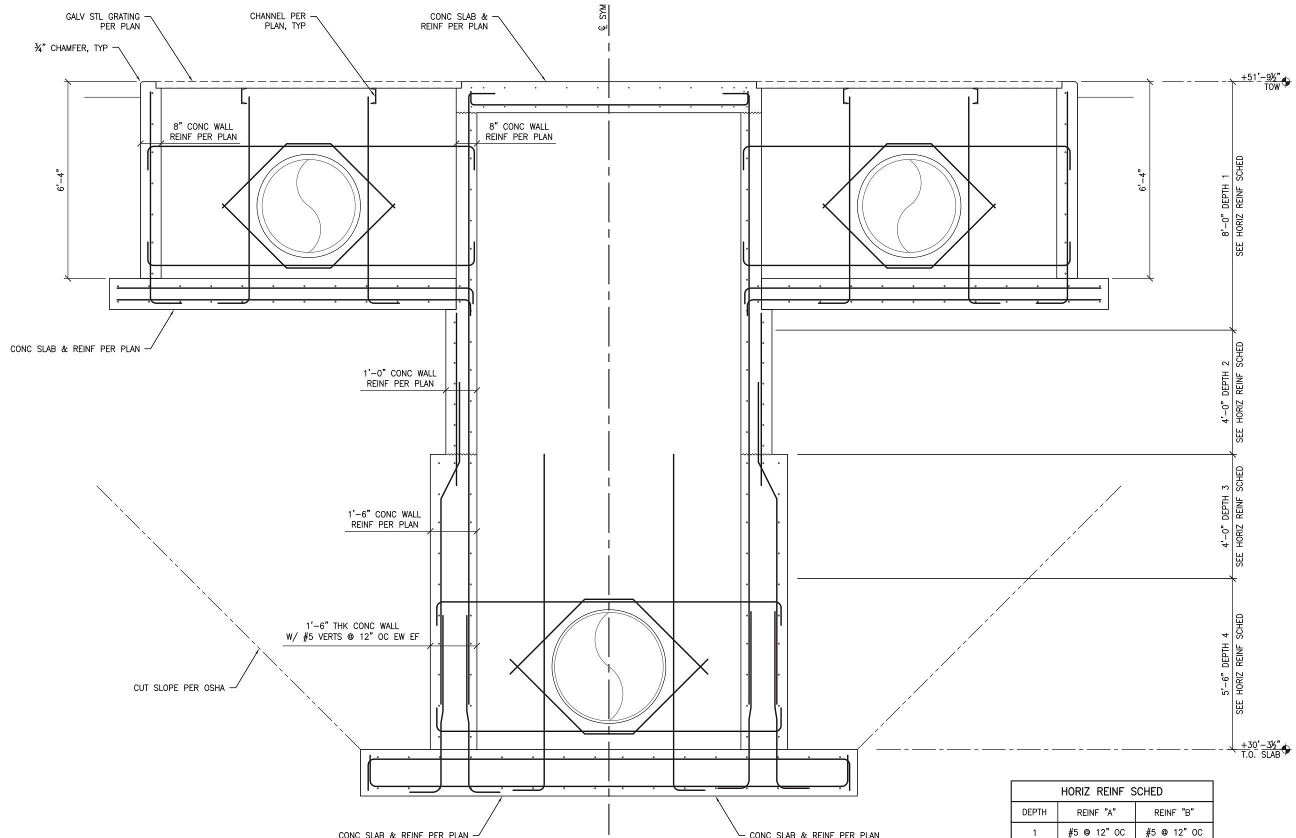
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA — DATE: 09/15/20
DESIGNED BY: B. JENSEN — R.C.E. NO. C90949 — DATE: 03/31/22
CHECKED BY: A. SMITH — R.C.E. NO. C86512 — DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
FOUNDATION & FRAMING PLANS
SUMP 155

PN: W14130615 — DWG. NO. S4 — SHEET 26 OF 30



SUMP 155
A/S6 WALL ELEVATION
1/2" = 1'-0"

HORIZ REINF SCHED		
DEPTH	REINF "A"	REINF "B"
1	#5 @ 12" OC	#5 @ 12" OC
2	#5 @ 8" OC	#5 @ 8" OC
3	#6 @ 12 OC	#6 @ 12" OC
4	#6 @ 8" OC	#6 @ 8" OC

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CYS Job No. 20054

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REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. ______
DESCRIPTION:

FIELD BOOK 0000
SCALE:
H: ______
V: ______

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

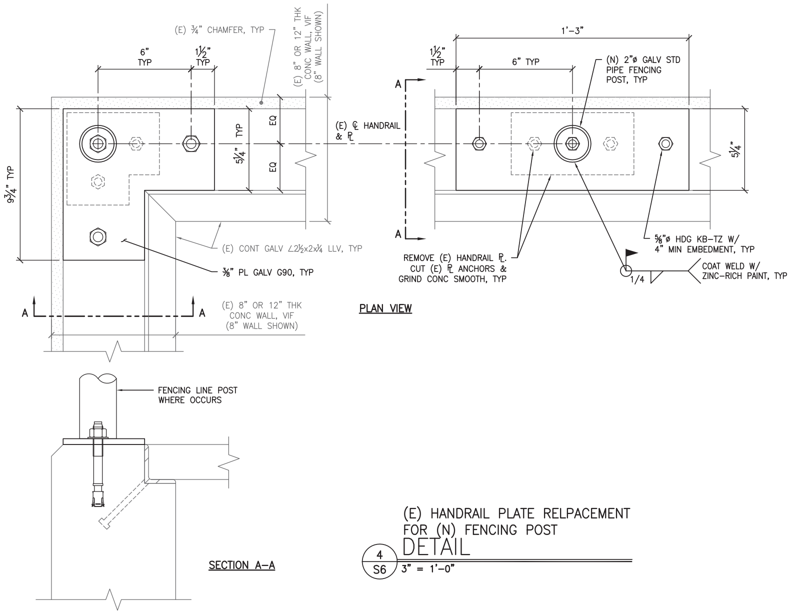
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

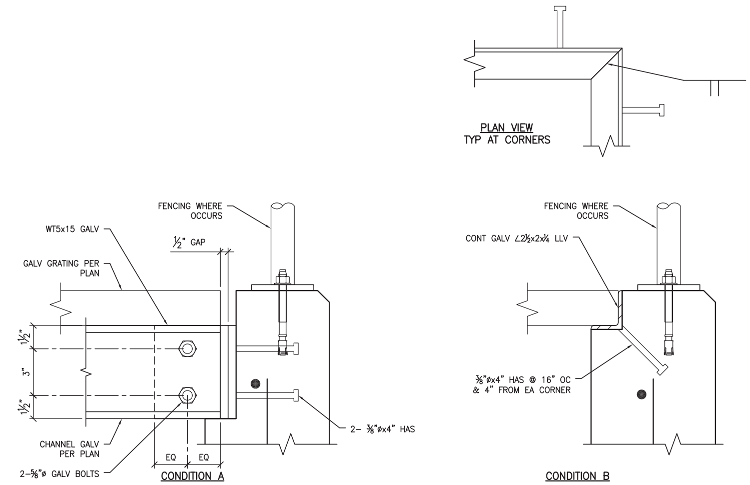
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
WALL ELEVATIONS & SECTIONS
SUMP 155

DWG. NO. S6
SHEET 28 OF 30
Item 7

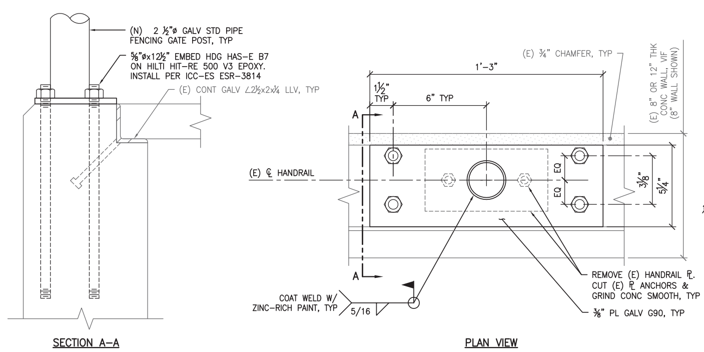
PN: W14130615



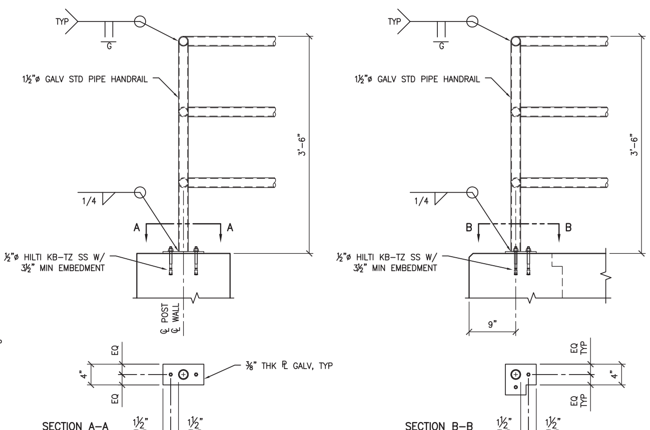
(E) HANDRAIL PLATE RELPACEMENT FOR (N) FENCING POST
4 / S6 DETAIL 3" = 1'-0"



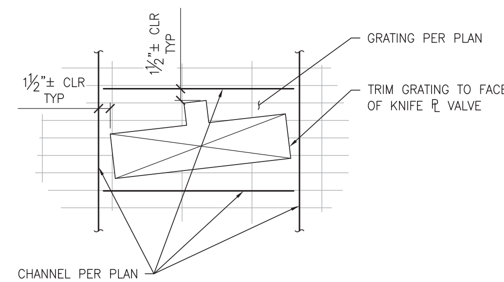
1 / S8 DETAIL 3" = 1'-0"



(E) HANDRAIL PLATE RELPACEMENT FOR (N) FENCING GATE POST
5 / S6 DETAIL 3" = 1'-0"



HANDRAIL
3 / S6 DETAIL 3" = 1'-0"



2 / S8 DETAIL 1 1/2" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER
ARTHUR ERNEST ROSS
No. S2030
STRUCTURAL
STATE OF CALIFORNIA

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CYS
STRUCTURAL ENGINEERS INC.

CYS Job No. 20054

65% SUBMITTAL

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. ______
DESCRIPTION:

FIELD BOOK 0000
SCALE:
H: ______
V: ______

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – B
DETAILS

DWG. NO. S8
SHEET 30 OF 30

PN: W14130615

Attachment C – Categorical Permission Checklist

(Pressurized Pipe)

Categorical Permission Alteration Description – 16. Pressurized Pipes

The categorical permission covers the installation, modification, and replacement of pressurized pipes that comply with certain terms and conditions. Particularly, all pressurized pipes must be designed and installed in accordance with current USACE standards. The total area of disturbance, including staging and access areas, must not exceed 5 acres. Pressurized pipes must also be designed to prevent, (1) flotation from uplift, (2) scour or erosion, (3) damage from debris on the waterside, particularly during flood flows, (4) leakage, (5) seepage along proposed pipes, (6) corrosion, and (7) damage from vehicular loads.

All new pressurized pipes should go up and over the levee DWSE. Pressurized pipes passing over or within the freeboard zone of a levee (i.e., above the levee DWSE), should be made of metal, preferably ductile iron or coated steel, suitable for use with flexible couplings.

Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM). Pipes that pass above the DWSE must have 2 feet of cover (low permeability or CLSM) to prevent damage by vehicles and equipment. Cover material on the levee crown must be placed at a ratio of 10H:1V, in the upstream/downstream direction of the levee. Pipes on the sides of the levee should be covered with a minimum of 1 foot of low permeability material, compacted in 4- to 6-inch lifts or CLSM to protect them from debris during high water (waterside) or to keep them from interfering with or being damaged by operations or maintenance of the levee (landside). Fill must be free of deleterious materials and construction debris and placed in 4- to 6-inch-thick loose lifts and compacted to not less than 95% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D698 (USACE preferred method), or alternately, 90% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D1557. At the sponsor and levee maintaining agency's discretion, pipes on the levee slopes may be left exposed.

Only suitable material must be used as levee fill materials. Fill must be free from: roots and other organic matter, contaminated hazardous or toxic material, trash, debris, and frozen materials. Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve.

Pressurized pipes terminating in the channel require a positive closure device on the waterside that is accessible from the levee crown. Pressurized pipes transporting product completely across or through the federal project easement require positive closure devices located landward of any levees and channel. The positive closure device shall be located within one mile on both sides of the federal project. If the invert of the pipe is over the levee crown, the combination of a pump station on the waterside and a siphon breaker is considered an appropriate means of closure. Pipes located within or beneath a levee must have watertight joints that can accommodate movements resulting from settlement.

All pressurized pipes that cross the levee foundation at a depth less than or equal to two times the height of the levee should be evaluated for uplift. Pipes crossing the surface of the levee must be designed to counteract buoyancy forces of an empty pipe, with water at the DWSE.

Pressurized pipelines running parallel to flood risk management projects should be located at least 15 feet beyond the levee toes. Pipe location and orientation must be clearly marked in the field so they can be easily identified for flood fighting crews.

If appropriate, the requester should prepare an excavation plan demonstrating the effects of excavation on the stability of the embankments.

The site layout should provide adequate access for maintenance vehicles to refill fuel tanks and service/replace pumps, generators, etc. Pressurized pipes must also allow easy access for rapid closure in the event of leakage or rupture.

No plastic pipes (HDPE, PVC, etc.) are allowed in the levee embankment or its foundation unless they are embedded in concrete.

If an electrochemical or chemical reaction between the substratum or groundwater and pipe materials is expected, the pipe and pipe couplings must be protected.

After installation of pressurized pipes, the requester must demonstrate 0% pipe leakage in pipes in the levee. Pipes must be pressure tested to industry standards. Pipes must be regularly inspected, including the interior, if possible, looking for signs of maintenance issues. If an inspection indicates corrosion, alignment sag or heave, or separation at joints, corrective action must be taken as soon as possible to avoid failure. Pipe valves must be periodically inspected and pressure tested to ensure that they are functioning properly. Pressure tests must show no significant loss in pressure. Leaks and other deficiencies must be addressed as soon as possible. All replacement parts must be of equivalent or better quality than those being replaced.

The preferred method for abandoning pipes that pass through or over a levee is complete removal. If removal is not feasible, the pipes and other structures may be filled with a cement/bentonite-based grout or flowable fill. The grout needs to be sufficiently fluid so that it can be pumped to completely fill the pipe leaving no voids.

Categorical Permission Alteration Checklist – 16. Pressurized Pipes

Note: The following checklist is intended for planning purposes only, and includes information that USACE reviewers look for when considering a Section 408 request for pressurized pipes under the Categorical Permission. To be reviewed under the Categorical Permission, the proposed project must adhere to all requirements of the Categorical Permission, including the full alteration description (see previous page). The plans and narrative project description should reflect this information.

1.	☐ New Construction ☒ Replacement ☐ Modification ☐ Authorize Existing
2.	Maximum total area of disturbance is 5 acres: Yes ☒ No ☐ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: Area of disturbance is 0.07 acre.
3.	Pipes are designed to prevent flotation from uplift, scour or erosion, damage from debris on the waterside (particularly during flood flows), seepage along proposed pipes, corrosion, leakage, and damage from vehicular loads: Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41. Comment: [Click to enter rationale, explanation, unique situation, etc.]
4.	Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM): Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41 Comment: [Click to enter rationale, explanation, unique situation, etc.]
5.	Pipes passing over the DWSE will have a minimum of 2 feet of cover (low permeability or CLSM): Yes ☒ N/A ☐ Reference: Refer to profiles on sheets 14-16 in Bid Set B Comment: [Click to enter rationale, explanation, unique situation, etc.]
6.	If material must be added to the levee crown, the added material must be sloped at a ratio of 10H:1V horizontal to vertical, in the upstream/downstream direction to prevent a “speed bump” effect and facilitate vehicle access: Yes ☐ N/A ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: [Click to enter rationale, explanation, unique situation, etc.]
7.	Fill will be compacted to at least 95% of maximum density as determined by ASTM D698, between -2 and +3% of optimum moisture content: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 3.6B. Comment: [Click to enter rationale, explanation, unique situation, etc.]
8.	Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 2.2A. Comment:
9.	All fill will be free of organics or other inappropriate materials: Yes ☒ N/A ☐ Reference: Refer to Spec section 31 00 00 3.9.B.1.6. Comment: [Click to enter rationale, explanation, unique situation, etc.]

10. Pipes terminating in the channel have a positive closure device on the waterside that is accessible from the levee crown: Yes ☒ N/A ☐
Reference: Refer to profiles on Sheets 14-16 and Detail 6 on Sheet 18 in Bid Set B
Comment: [Click to enter rationale, explanation, unique situation, etc.]

11. Pipes transporting product completely across the federal project have a positive closure devices located within 1 mile on both sides of the federal project: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

12. Pipes located within or beneath a levee have watertight joints that can accommodate movements resulting from settlement: Yes ☒ No ☐
Reference: Refer to detail 2 on Sheet 40
Comment: [Click to enter rationale, explanation, unique situation, etc.]

13. Pipes crossing the surface of the levee are designed to counteract buoyancy forces of an empty pipe, with water at the DWSE: Yes ☒ N/A ☐
Reference: Refer to detail 3 on sheet 41
Comment: [Click to enter rationale, explanation, unique situation, etc.]

14. Pipe location and orientation will be clearly marked in the field: Yes ☒ No ☐
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: Pipe location and orientation can be identified by vault structure and outfall location

15. Pipes will allow easy access for rapid closure: Yes ☒ No ☐
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: Positive valve closures on the levee crest will ensure easy access for rapid closure

16. Plastic pipes within the levee embankment or its foundation are embedded in concrete: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

17. If a chemical or electrochemical reaction is expected, the pipe and pipe couplings must be protected: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

18. Any work within the levee embankment or foundation? Yes ☒ No ☐
Reference: Detail 1 on Sheet 22 in Bid Set B
Comment: [Click to enter rationale, explanation, unique situation, etc.]

19. Any work ≤50 feet beneath the channel invert? Yes ☐ No ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

20. Hydraulic blockage calculation ≥1%? Yes ☐ No ☒ N/A ☐
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: Rip Rap cross-sectional area below ordinary high watermark is anticipated to be significantly less than the cross-sectional area of the American River and therefore negligible.

21. Hydraulic model used for hydraulic analysis? Yes ☐ No ☐ N/A ☒

Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]

Comment: [Click to enter rationale, explanation, unique situation, etc.]

– For Official Use Only below this line –

Comment

CP Eligibility Review

Yes	No	Add'l. Info Requested		
☐	☐	☐	Environmental Reviewer: _____	Date: Click date
☐	☐	☐	Engineering Reviewer: _____	Date: Click date

Attachment D – Categorical Permission Checklist

(Gravity Pipe)

Categorical Permission Alteration Description – 13. Gravity Pipes

The categorical permission covers the installation, modification, and replacement of gravity pipes and culverts that comply with certain terms and conditions. The total area of disturbance, including staging and access areas, must not exceed 5 acres.

Generally, cast-in-place reinforced concrete pipes are preferable for gravity lines where considerable settlement is expected. No plastic pipes are allowed in the levee embankment or its foundation unless they are embedded in concrete or encased in a steel conduit with the annular space completely grouted.

Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM).

Suitable material must be used as levee fill materials. Fill must be free from: roots and other organic matter, contaminated hazardous or toxic material, trash, debris, and frozen materials. Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve.

Fill must be free of deleterious materials and construction debris and placed in 4- to 6-inch-thick loose lifts and compacted to not less than 95% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D698 (USACE preferred method), or alternately, 90% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D1557.

Pipe joints must have sufficient flexibility to adjust under expected settlement and stretching of the pipe. Pipes should be designed to counteract uplift of the empty pipe at the design high water stage. If a chemical or electrochemical reaction is expected, the pipe and pipe couplings must be protected.

All new and existing gravity-flowing culverts must have a flap gate on the waterside end with provisions for positive closure (slide gate or sluice gate). The slide gate or sluice gate should be housed in a gatewell at the waterside edge of the levee crown to provide access.

Internal inspections must occur to ensure the pipes are in good condition. Video inspection of the internal condition of the pipe or pressure testing should be undertaken at least once every five years. Valves and gates should be periodically inspected and tested to ensure they are functioning properly. If the inspection indicates corrosion, alignment sag or heave, or separation at joints, corrective action must be taken as soon as possible. In most cases, once a pipe begins to oval or flatten at the crown or has lost more than 5% of its original interior height, it should be replaced.

Periodically, debris must be removed and corrosion or other damage on trash screens repaired.

If maintenance indicates that pipe replacement is necessary, all replacement parts must be of equivalent or better quality than those to be replaced. All repairs must restore pipes and associated equipment to the standards of the original design, or better.

Categorical Permission Alteration Checklist – 13. Gravity Pipes

Note: The following checklist is intended for planning purposes only, and includes information that USACE reviewers look for when considering a Section 408 request for gravity pipes under the Categorical Permission. To be reviewed under the Categorical Permission, the proposed project must adhere to all requirements of the Categorical Permission, including the full alteration description (see previous page). The plans and narrative project description should reflect this information.

1.	☐ New Installation ☒ Replacement ☐ Modification ☐ Authorize Existing
2.	Maximum total area of disturbance is 5 acres: ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: Area of disturbance is 0.07 acre.
3.	Plastic pipes within the levee embankment or foundation will be embedded in concrete or encased in a steel conduit with the annular space completely grouted: Yes ☐ N/A ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: [Click to enter rationale, explanation, unique situation, etc.]
4.	Pipe joints will have sufficient flexibility to adjust under the expected settlement and stretching of the pipe: ☒ Reference: Detail 3 on Sheet 21 (Bid Set B) Comment: [Click to enter rationale, explanation, unique situation, etc.]
5.	Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM): ☒ Reference: Refer to detail 3 on sheet 41 Comment: [Click to enter rationale, explanation, unique situation, etc.]
6.	Fill will be compacted to at least 95% of maximum density as determined by ASTM D698, between -2 and +3% of optimum moisture content: ☒ Reference: Refer to Spec section 31 00 00 3.6B. Comment: [Click to enter rationale, explanation, unique situation, etc.]
7.	Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve: ☒ Reference: Refer to Spec section 31 00 00 2.2A. Comment: [Click to enter rationale, explanation, unique situation, etc.]
8.	All fill will be free of organics or other inappropriate materials: ☒ Reference: Refer to Spec section 31 00 00 3.9.B.1.6. Comment: [Click to enter rationale, explanation, unique situation, etc.]
9.	New and existing gravity-flowing culverts will have a flap gate on the waterside end with provisions for positive closure: Yes ☒ N/A ☐ Reference: Detail 1 on Sheet 21 in Bid Set B Comment: 42” CMP pipe

- Continued on next page –

10.	If a chemical or electrochemical reaction is expected, the pipe and pipe couplings must be protected:	Yes ☐	N/A ☒
	Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]		
	Comment: [Click to enter rationale, explanation, unique situation, etc.]		
11.	Any work within the levee embankment or foundation?	Yes ☐	No ☒
	Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]		
	Comment: [Click to enter rationale, explanation, unique situation, etc.]		
12.	Hydraulic blockage calculation ≥1%?	Yes ☐ No ☒	N/A ☐
	Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]		
	Comment: Rip Rap cross-sectional area below ordinary high watermark is anticipated to be significantly less than the cross-sectional area of the American River and therefore negligible.		
13.	Hydraulic model used for hydraulic analysis?	Yes ☐ No ☐	N/A ☒
	Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]		
	Comment: [Click to enter rationale, explanation, unique situation, etc.]		

– For Official Use Only below this line –

Comment

CP Eligibility Review

Yes	No	Add'l. Info Requested		
☐	☐	☐	Environmental Reviewer: _____	Date: Click date
☐	☐	☐	Engineering Reviewer: _____	Date: Click date

American River Flood Control District
Central Valley Flood Protection Board Permit Application
Sump 159-1 Modifications (City of Sacramento)
Staff Report

Discussion:

The City of Sacramento submitted this encroachment permit application to modify facilities at their Sump 159 Pump Station. The work proposed is to remove and replace approximately 4 ft of one (1) 12” welded steel pipe at the pump outfall structure.

Sump 159 is located adjacent to the Arcade Creek South Levee and just west of the bike trail bridge crossing.

This modification is required to upgrade the pipe outfall system at the pump station. Recent work conducted by SAFCA under the North Area Streams Project replaced only the segments of pipe that crossed through the levee. This work will complete the upgrade to the facility by replacing the pipe outfall section and flap gate.

This modification will be a routine construction installation and does not present a considerable engineering challenge. It is not anticipated that this work will pose significant operations and maintenance impacts to the District.

Recommendation:

The General Manager recommends that the Board of Trustees endorse the CVFPB permit application.

State of California

DEPARTMENT OF WATER RESOURCES
CENTRAL VALLEY FLOOD PROTECTION BOARD

California Natural Resources Agency

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

Application No. _____
(For Office Use Only)

1. Description of proposed work being specific to include all items that will be covered under the issued permit.
Sump 159 Modifications: Remove and replace approximately 4 ft of one (1) 12" welded steel pipe at the pump outfall structure.

2. Project Location: Sacramento County, in Section See Attachment A
Township: See Attachment A (N) (S), Range: See Attachment A (E) (W), M. D. B. & M.
Latitude: 38.62504 Longitude: -121.44762
Stream: Arcade Creek , Levee : Left Bank Designated Floodway: Arcade Creek
APN: See Attachment A

3. Raymond Kong, PE (Name of Applicant / Land *Owner*) of 1395 35th Ave (Address)
Sacramento (City) CA (State) 95822 (Zip Code) (916) 808-1435 (Telephone Number)
RKong@cityofsacramento.org (E-mail)

4. Ashley Smith, PE (Name of Applicant's Representative) of Peterson Brustad Inc. (Company)
Folsom (City) CA (State) 95630 (Zip Code) (916) 608-2212 x 123 (Telephone Number)
asmith@pbieng.com (E-mail)

5. Endorsement of the proposed project from the Local Maintaining Agency (LMA):

We, the Trustees of American River Flood Control District (Name of LMA) approve this plan, subject to the following conditions:

☐ Conditions listed on back of this form ☐ Conditions Attached ☐ No Conditions

Trustee Date
Trustee Date
Trustee Date
Trustee Date

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

6. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If additional space is required, list names and addresses on back of the application form or an attached sheet.

Name	Address	Zip Code
See Attachment A		

7. Has an environmental determination been made of the proposed work under the California Environmental Quality Act of 1970? ☐ Yes ☐ No ☑ Pending

If yes or pending, give the name and address of the lead agency and State Clearinghouse Number:

City of Sacramento
1395 35th Avenue
Sacramento, CA 95822

SCH No. Pending

8. When is the project scheduled for construction? April 2021

9. Please check exhibits accompanying this application.

A. ☑ Regional and vicinity maps showing the location of the proposed work.

B. ☑ Drawings showing plan view(s) of the proposed work to include map scale.

C. ☑ Drawings showing the cross section dimensions and elevations (vertical datum?) of levees, berms, stream banks, flood plain,

D. ☑ Drawings showing the profile elevations (vertical datum?) of levees, berms, flood plain, low flow, etc.

E. ☑ A minimum of four photographs depicting the project site.

Signature of Applicant Date

Include any additional information:

A summary of the Project and a description of the proposed methods are provided in Attachment A. Attachment B includes relevant plan sheets which are an excerpt from a larger plan set. Attachment C includes the categorical permission checklist. The intent of this application is to modify the existing encroachment permit. The existing Permit number for Sump 159 is 4417-1.

Attachment A – Summary of Proposed Work

CITY OF SACRAMENTO PUMP OUTFALLS PROJECT:

CENTRAL VALLEY FLOOD PROTECTION BOARD ENCROACHMENT PERMIT

SUMMARY OF PROPOSED WORK

September 15, 2020

INTRODUCTION

As mandated by the Sacramento Area Flood Control Agency (SAFCA) and the U.S. Army Corps of Engineers (USACE), sump station outfalls that penetrate and cross major levees are inspected on a 5-year cycle. The project entails the complete replacement of the pump discharge for three (3) drainage sump station facilities and partial replacement of the pump discharge pipe for five (5) drainage sump station facilities. The following information pertains to a partial replacement sump (Sump 159) that will need an updated Encroachment Permit from the CVFPB.

APN Parcels

Sump	Existing Permit #	APN
159	4417-1	263-0260-010-0000, 263-0010-016-0000

ADJACENT PARCELS

All of the parcels adjacent to the Sump to be modified are listed in the table presented below as provided by the Sacramento County Assessor's Office.

APN	Address	Owner	Owner Address	City	Zip
250-0270-009-0000	ALTOS AVE	CITY OF SACRAMENTO	915 I ST FL5	SACRAMENTO	95814
250-0270-012-0000	ALTOS AVE	UNION PACIFIC RAILROAD CO	1400 DOUGLAS ST 1640	OMAHA	68179
251-0291-011-0000	RIO LINDA BLVD	AMERICAN RIVER FLOOD CONTROL DIST	165 COMMERCE CIR UNIT D	SACRAMENTO	95815
251-0291-012-0000	3201 RIO LINDA BLVD	CONIGLIO 2007 REVOCABLE TRUST	3201 RIO LINDA BLVD	SACRAMENTO	95815
251-0291-018-0000	RIO LINDA BLVD	SACTO & SAN JOAQUIN DRAINAGE DIS	3310 EL CAMINO AVE	SACRAMENTO	95821
263-0010-015-0000	FAIRBANKS AVE	SACTO & SAN JOAQUIN DRAINAGE DIS	3310 EL CAMINO AVE	SACRAMENTO	95821

263-0041-019-0000	813 ARCADE BLVD	SHARON LEE NAYLOR	813 ARCADE BLVD	SACRAMENTO	95815
263-0046-001-0000	3148 ALTOS AVE	IVAN PARRA	3148 ALTOS AVE	SACRAMENTO	95815
263-0046-002-0000	808 ARCADE BLVD	RUBEN O LUA	808 ARCADE BLVD	SACRAMENTO	95815
263-0260-020-0000	TRACTION AVE	CITY OF SACRAMENTO	915 I ST FL5	SACRAMENTO	95814
265-0011-001-0000	3141 RIO LINDA BLVD	S M U D	PO BOX 15830	SACRAMENTO	95852
265-0011-002-0000	3139 RIO LINDA BLVD	JAMES RODARAKIS	205 ARCADE BLVD	SACRAMENTO	95815

TOWNSHIP AND RANGE INFORMATION

Note that gaps exist in Townships and Ranges within the project area. Land not covered by T9N R5E has been in private ownership since before California joined the United States and therefore is not part of the Township and Range system, which was a survey of federal lands.

SITE PHOTOGRAPHS

Attached to this Summary of Proposed Work are photographs showing levee and channel areas representative of proposed work sites.

Figure 1: Sump 159 looking North West

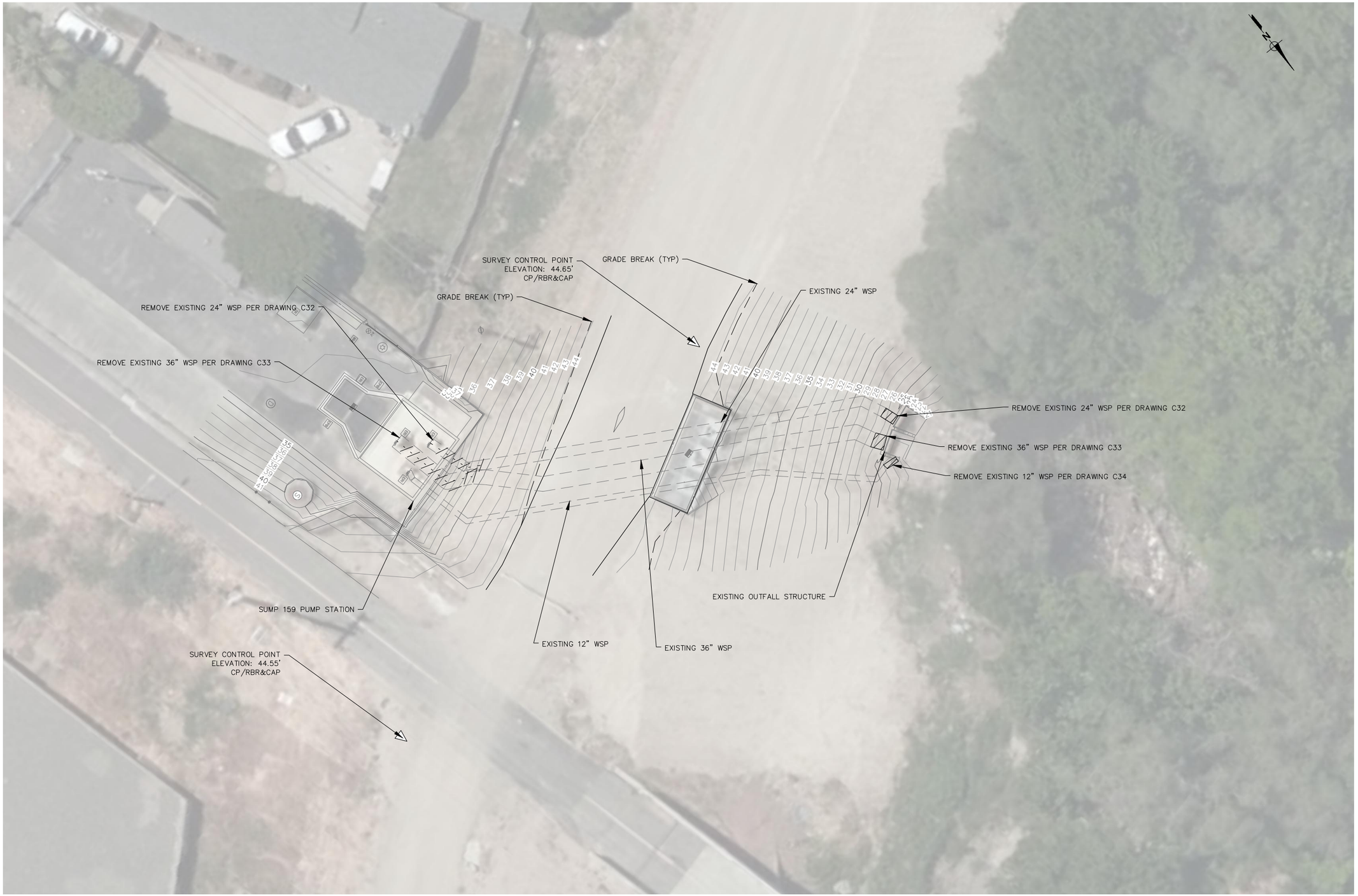
Figure 2: Landside slope near Sump 159

Figure 3: Siphon breaker vaults on levee crest near Sump 159

Figure 4: View looking southwest toward the Sump 159 outfall into Arcade Creek

Attachment B – Plan Sheets

(Excerpt from larger plan set for Pump Outfalls Replacement Project – A)



65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 44.65
DESCRIPTION: CP/RBR&CAP

FIELD BOOK 0000
SCALE: H: V:

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER MARC B. CRAIG CIVIL STATE OF CALIFORNIA PRELIMINARY

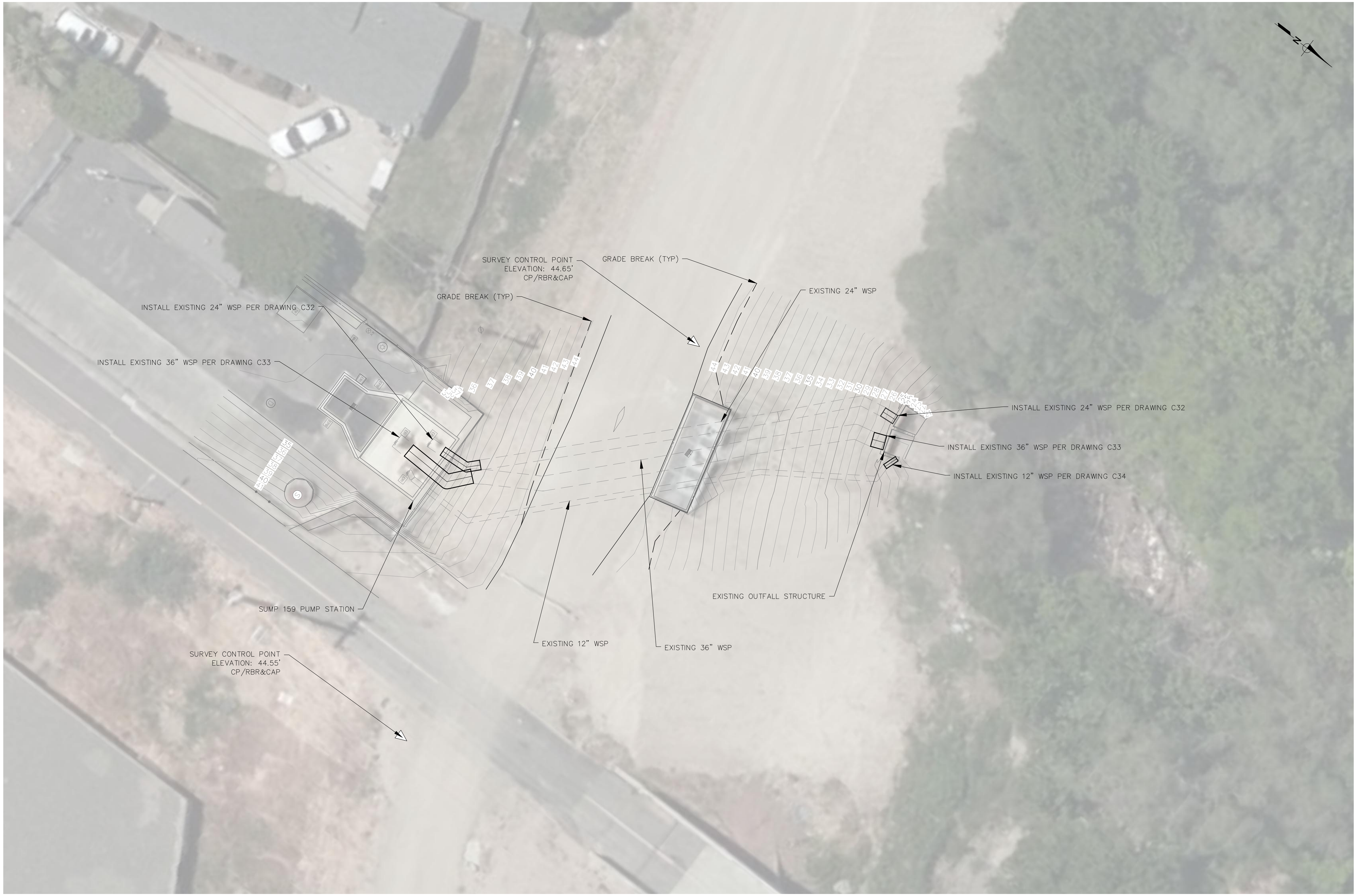
IMPROVEMENT PLANS FOR:

PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 159
DEMO PLAN

Page 12

PN: W14130615 DWG. NO. C30 SHEET 33 OF 47

PN: W14130615



HOR SCALE: 1"=10'
10 5 0 10
5 2.5 0 5
VERT SCALE: 1"=5'

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY
△			
△			
△			
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△			

BENCH MARK ELEV. 44.65
DESCRIPTION:
CP/RBR&CAP

FIELD BOOK 0000
SCALE:
H: H:
V: V:

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

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CHECKED BY: A. SMITH
R.C.E. NO. C86512 DATE: 03/31/21

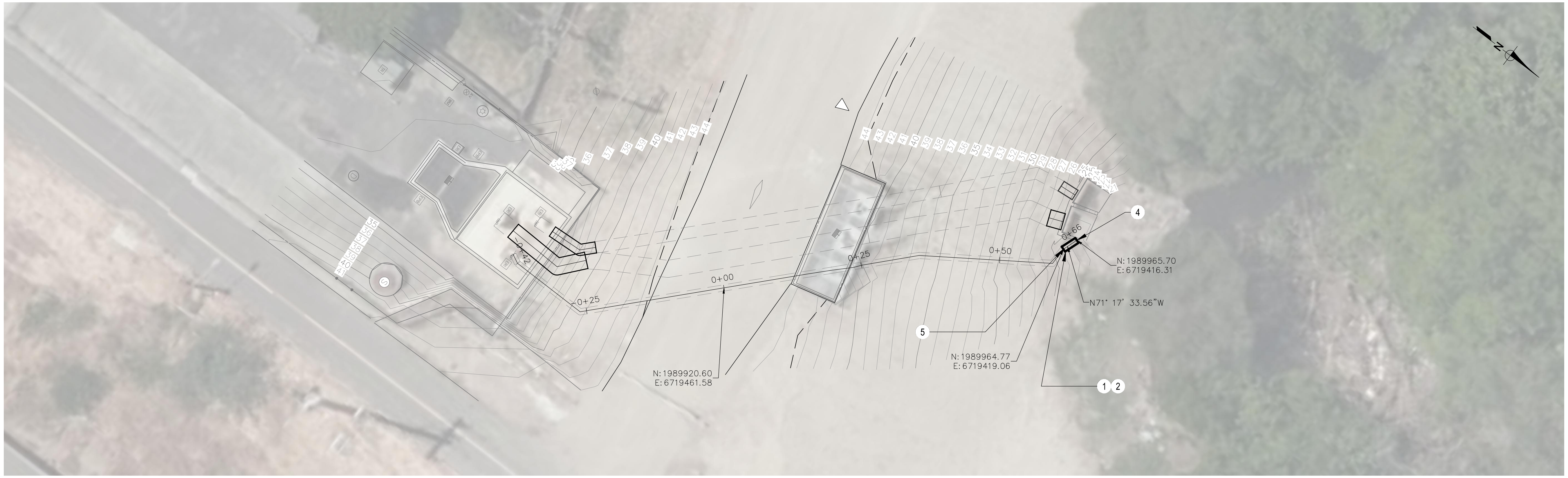
PRELIMINARY

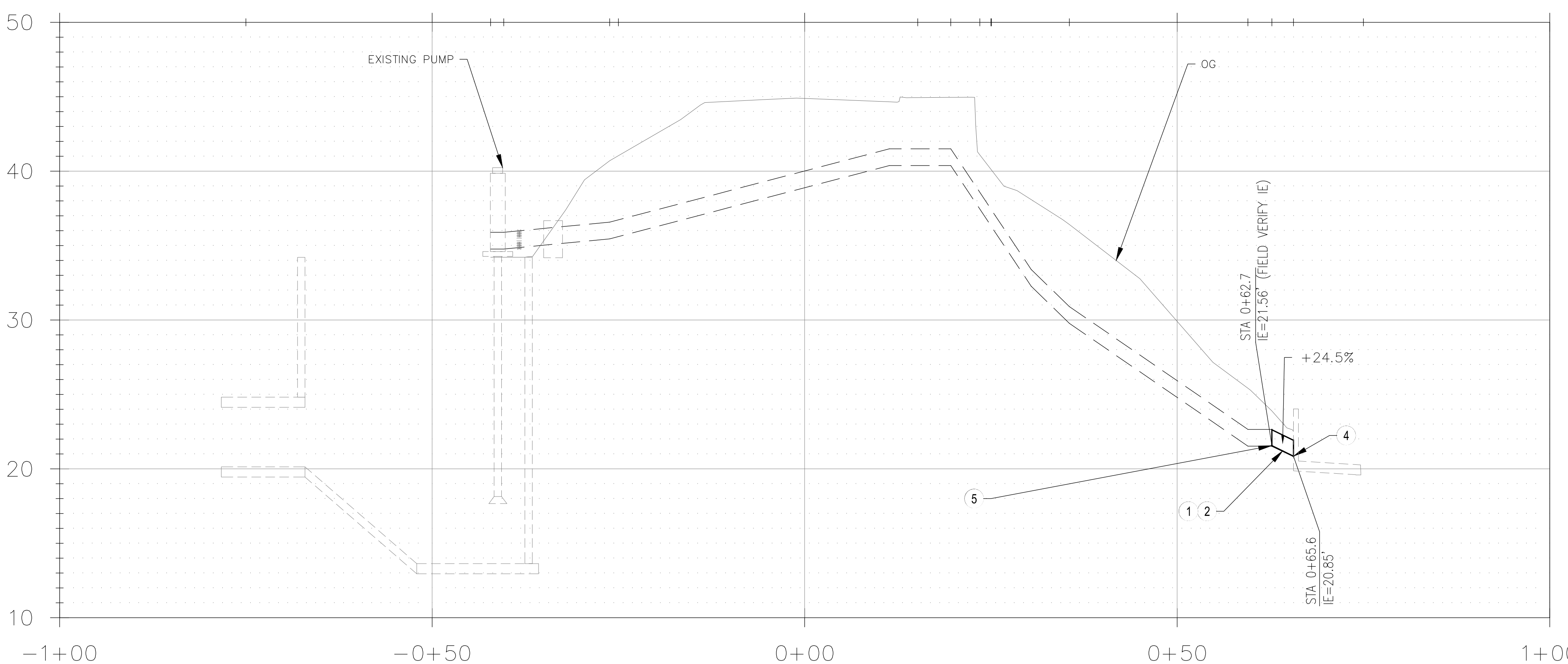
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 159
SITE PLAN

DWG. NO. C31
SHEET 34 OF 47

PN: W14130615

PN: W14130615





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 12" WSP AND APPURTENANCES FROM STA 0+62.7 TO STA 0+65.6 PER DETAIL 2/C38
2. INSTALL 12" WSP FROM STA 0+62.7 TO STA 0+65.6 PER DETAIL 3/C38
3. CONNECT TO EXISTING STEEL COUPLING
4. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
5. CONNECT TO EXISTING PIPE PER DETAIL 3/C37
6. REMOVE AND SALVAGE STEEL COUPLING
7. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
10 5 0 10
5 2.5 0 5
VERT SCALE: 1"=5'

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 44.65
DESCRIPTION: CP/RBR&CAP

FIELD BOOK 0000
SCALE: H: H: V: V:

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

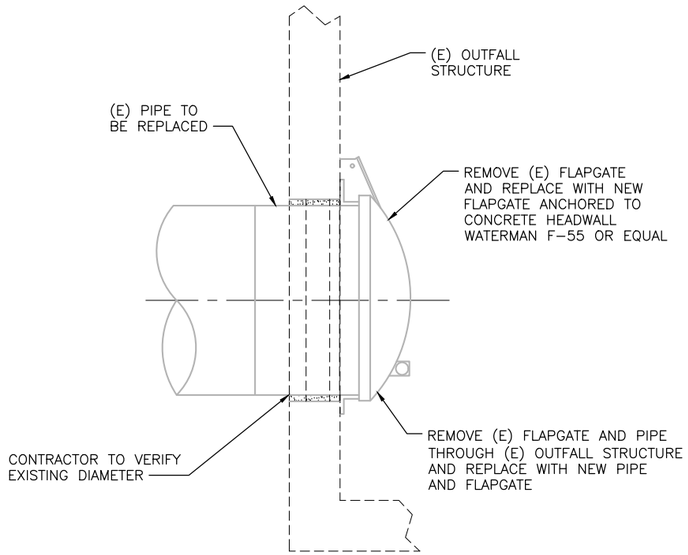
DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

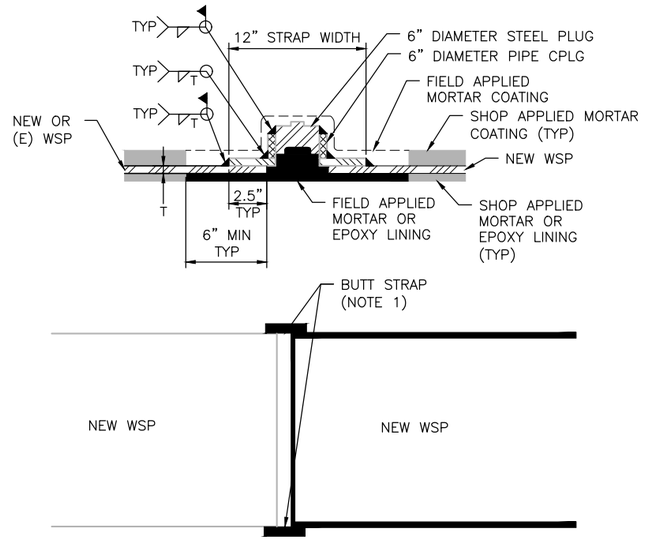
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 159
PLAN AND PROFILE 3 – 12" WSP

PN: W14130615
DWG. NO. C34
SHEET 37 OF 47

PN: W14130615



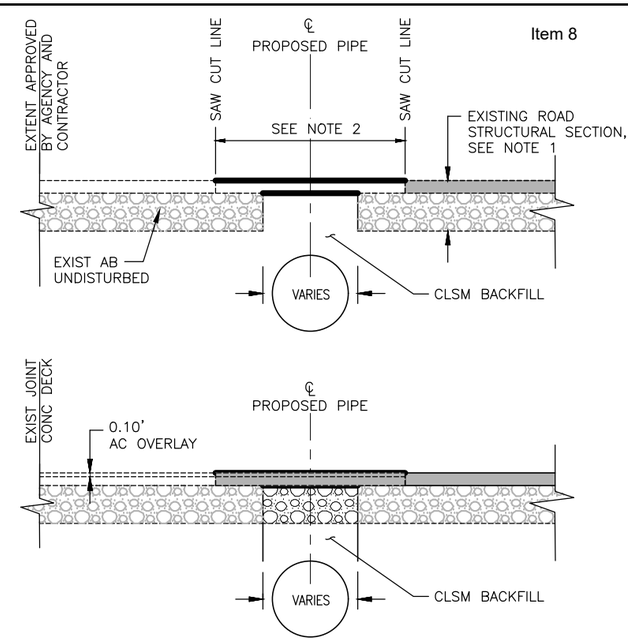
OUTFALL STRUCTURE CONNECTION DETAIL 1
NTS



NOTES:
1. PROVIDE HAND HOLES AS NEEDED TO INSTALL FIELD LINING. WELD HAND HOLE CLOSED WHEN COMPLETE. HAND HOLES NOT REQUIRED AT OUTLETS IF ACCESSIBLE THROUGH FLAP GATE.

NEW OR EXISTING STEEL

PIPE CONNECTION DETAIL 2
NTS



TRENCH SECTION AND SEQUENCING 3
NTS

NOTES:

1. CONTRACTOR SHALL REPLACE EXISTING PAVEMENT IN KIND. BASED ON LIMITED FIELD INVESTIGATIONS, EXISTING PAVEMENT SECTION ARE ASSUMED 2" AC ON 6" AB
2. THE OWNER AND THE CONTRACTOR SHALL JOINTLY DETERMINE THE FINAL WIDTH AND LENGTH OF THE BIKE PATH CROSSING BASED ON FIELD CONDITIONS AND CONSTRUCTION PROCEDURES.
3. CONTRACTOR SHALL REMOVE EXISTING BIKE PATH AS NEEDED TO CONSTRUCT PROPOSED PIPE. IMPACTED AREAS SHALL BE REPLACED IN ACCORDANCE WITH CITY OF SACRAMENTO STANDARD DETAIL T-21

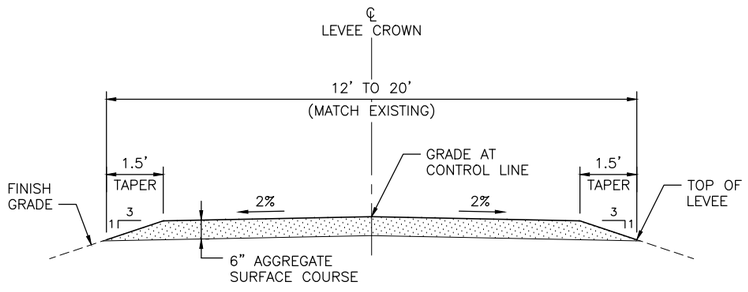
CONSTRUCTION SEQUENCE:

STEP 1: SAWCUT LIMITS O9F TRENCH EXCAVATION TO CLEAN CUT LIMITS. REMOVE EXISTING ASPHALT CONCRETE TO THE MIN EXTENT REQUIRED TO CONSTRUCT PROPOSED PIPE. PROPOSED PIPE SHALL BE CONSTRUCTED A MIN OF 2' FROM FG. TRENCH PLATES SHALL BE PROVIDED TO MAINTAIN ACCESS OVER CUTOFF WALL DURING CONSTRUCTION IN ACCORDANCE WITH THE SPECIFICATIONS.

STEP 2: PLACE AB TO MATCH EXISTING THICKNESS. PLACE AC OVERLAY FROM EXTENT APPROVED BY AGENCY AND CONTRACTOR TO LIMITS OF SAWCUT. PROVIDE PAVEMENT MARKING AND STRIPING TO MATCH EXISTING.

LEGEND:

EXISTING		PROPOSED
	GRIND AND OVERLAY ASPHALT CONCRETE	
	AGGREGATE BASE (AB)	
	ASPHALT CONCRETE (AC)	



CROWN SURFACING DETAIL 4
NTS

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. _____
DESCRIPTION: _____

FIELD BOOK 0000
SCALE: H: _____ V: _____

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

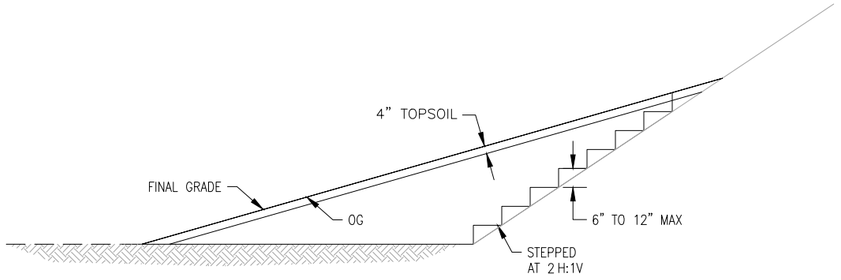
REGISTERED PROFESSIONAL ENGINEER MATT B. BROWN No. C86512 CIVIL STATE OF CALIFORNIA
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
MISCELLANEOUS DETAILS I

Page 15

PN: W14130615 | DWG. NO. C37 | SHEET 40 OF 47

PN: W14130615

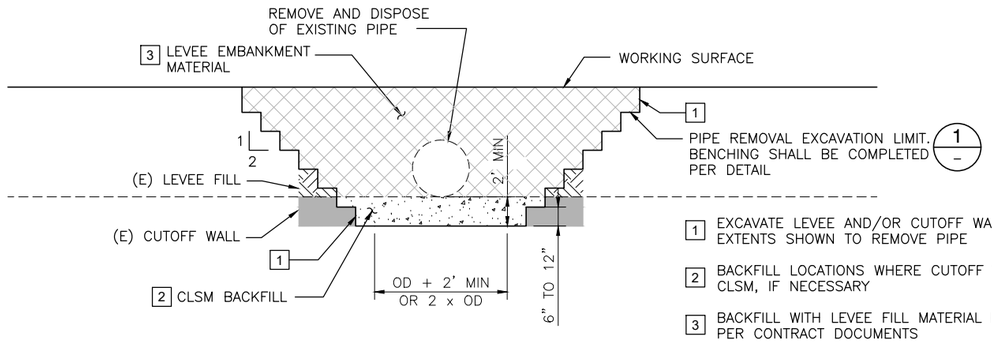


TYPICAL SLOPE BENCHING NOTES:

1. PLACE FILL IN HORIZONTAL LIFTS AGAINST VERTICAL FACES CUT INTO EXISTING LEVEE MATERIAL.
2. THE BOTTOM OF THE KEY TRENCH SHALL BE SCARIFIED TO A DEPTH OF 8 INCHES AND RECOMPACTED TO 95% MAX DENSITY PER ASTM D698.

SLOPE BENCHING (LANDSIDE OR WATERSIDE) DETAIL — 1/–

NTS



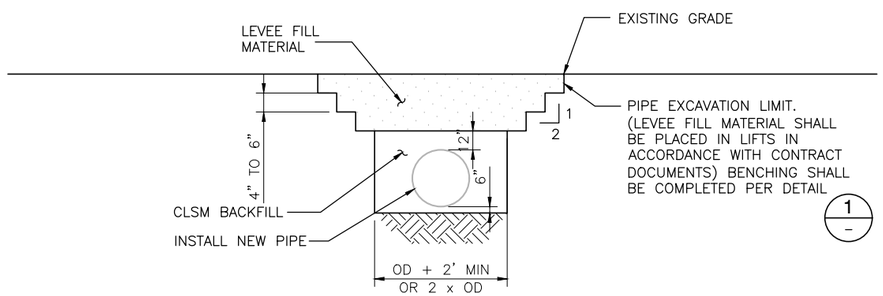
1 EXCAVATE LEVEE AND/OR CUTOFF WALL MATERIAL TO EXTENTS SHOWN TO REMOVE PIPE

2 BACKFILL LOCATIONS WHERE CUTOFF WAS REMOVED WITH CLSM, IF NECESSARY

3 BACKFILL WITH LEVEE FILL MATERIAL PLACED IN LIFTS PER CONTRACT DOCUMENTS

TYPICAL REMOVAL OF EXISTING PIPE DETAIL — 2/–

NTS



INSTALLATION OF NEW PIPE DETAIL — 3/–

NTS

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK — ELEV. _____
DESCRIPTION:

FIELD BOOK 0000
SCALE: H: _____ V: _____

1" — ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER — KAREL B. BRADLEY — No. C86512 — EXP. 12/31/22 — STATE OF CALIFORNIA — CIVIL — PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
MISCELLANEOUS DETAILS II

PN: W14130615 | DWG. NO. C38 | SHEET 41 OF 47

PN: W14130615

Attachment C – Categorical Permission Checklist

Categorical Permission Alteration Description – 16. Pressurized Pipes

The categorical permission covers the installation, modification, and replacement of pressurized pipes that comply with certain terms and conditions. Particularly, all pressurized pipes must be designed and installed in accordance with current USACE standards. The total area of disturbance, including staging and access areas, must not exceed 5 acres. Pressurized pipes must also be designed to prevent, (1) flotation from uplift, (2) scour or erosion, (3) damage from debris on the waterside, particularly during flood flows, (4) leakage, (5) seepage along proposed pipes, (6) corrosion, and (7) damage from vehicular loads.

All new pressurized pipes should go up and over the levee DWSE. Pressurized pipes passing over or within the freeboard zone of a levee (i.e., above the levee DWSE), should be made of metal, preferably ductile iron or coated steel, suitable for use with flexible couplings.

Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM). Pipes that pass above the DWSE must have 2 feet of cover (low permeability or CLSM) to prevent damage by vehicles and equipment. Cover material on the levee crown must be placed at a ratio of 10H:1V, in the upstream/downstream direction of the levee. Pipes on the sides of the levee should be covered with a minimum of 1 foot of low permeability material, compacted in 4- to 6-inch lifts or CLSM to protect them from debris during high water (waterside) or to keep them from interfering with or being damaged by operations or maintenance of the levee (landside). Fill must be free of deleterious materials and construction debris and placed in 4- to 6-inch-thick loose lifts and compacted to not less than 95% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D698 (USACE preferred method), or alternately, 90% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D1557. At the sponsor and levee maintaining agency's discretion, pipes on the levee slopes may be left exposed.

Only suitable material must be used as levee fill materials. Fill must be free from: roots and other organic matter, contaminated hazardous or toxic material, trash, debris, and frozen materials. Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve.

Pressurized pipes terminating in the channel require a positive closure device on the waterside that is accessible from the levee crown. Pressurized pipes transporting product completely across or through the federal project easement require positive closure devices located landward of any levees and channel. The positive closure device shall be located within one mile on both sides of the federal project. If the invert of the pipe is over the levee crown, the combination of a pump station on the waterside and a siphon breaker is considered an appropriate means of closure. Pipes located within or beneath a levee must have watertight joints that can accommodate movements resulting from settlement.

All pressurized pipes that cross the levee foundation at a depth less than or equal to two times the height of the levee should be evaluated for uplift. Pipes crossing the surface of the levee must be designed to counteract buoyancy forces of an empty pipe, with water at the DWSE.

Pressurized pipelines running parallel to flood risk management projects should be located at least 15 feet beyond the levee toes. Pipe location and orientation must be clearly marked in the field so they can be easily identified for flood fighting crews.

If appropriate, the requester should prepare an excavation plan demonstrating the effects of excavation on the stability of the embankments.

The site layout should provide adequate access for maintenance vehicles to refill fuel tanks and service/replace pumps, generators, etc. Pressurized pipes must also allow easy access for rapid closure in the event of leakage or rupture.

No plastic pipes (HDPE, PVC, etc.) are allowed in the levee embankment or its foundation unless they are embedded in concrete.

If an electrochemical or chemical reaction between the substratum or groundwater and pipe materials is expected, the pipe and pipe couplings must be protected.

After installation of pressurized pipes, the requester must demonstrate 0% pipe leakage in pipes in the levee. Pipes must be pressure tested to industry standards. Pipes must be regularly inspected, including the interior, if possible, looking for signs of maintenance issues. If an inspection indicates corrosion, alignment sag or heave, or separation at joints, corrective action must be taken as soon as possible to avoid failure. Pipe valves must be periodically inspected and pressure tested to ensure that they are functioning properly. Pressure tests must show no significant loss in pressure. Leaks and other deficiencies must be addressed as soon as possible. All replacement parts must be of equivalent or better quality than those being replaced.

The preferred method for abandoning pipes that pass through or over a levee is complete removal. If removal is not feasible, the pipes and other structures may be filled with a cement/bentonite-based grout or flowable fill. The grout needs to be sufficiently fluid so that it can be pumped to completely fill the pipe leaving no voids.

Categorical Permission Alteration Checklist – 16. Pressurized Pipes

Note: The following checklist is intended for planning purposes only, and includes information that USACE reviewers look for when considering a Section 408 request for pressurized pipes under the Categorical Permission. To be reviewed under the Categorical Permission, the proposed project must adhere to all requirements of the Categorical Permission, including the full alteration description (see previous page). The plans and narrative project description should reflect this information.

1.	☐ New Construction ☒ Replacement ☐ Modification ☐ Authorize Existing
2.	Maximum total area of disturbance is 5 acres: Yes ☒ No ☐ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: Area of disturbance is 0.0002 acre.
3.	Pipes are designed to prevent flotation from uplift, scour or erosion, damage from debris on the waterside (particularly during flood flows), seepage along proposed pipes, corrosion, leakage, and damage from vehicular loads: Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41. Comment: [Click to enter rationale, explanation, unique situation, etc.]
4.	Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM): Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41 Comment: [Click to enter rationale, explanation, unique situation, etc.]
5.	Pipes passing over the DWSE will have a minimum of 2 feet of cover (low permeability or CLSM): Yes ☐ N/A ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: [Click to enter rationale, explanation, unique situation, etc.]
6.	If material must be added to the levee crown, the added material must be sloped at a ratio of 10H:1V horizontal to vertical, in the upstream/downstream direction to prevent a “speed bump” effect and facilitate vehicle access: Yes ☐ N/A ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment:
7.	Fill will be compacted to at least 95% of maximum density as determined by ASTM D698, between -2 and +3% of optimum moisture content: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 3.6B. Comment: [Click to enter rationale, explanation, unique situation, etc.]
8.	Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 2.2A. Comment: [Click to enter rationale, explanation, unique situation, etc.]
9.	All fill will be free of organics or other inappropriate materials: Yes ☒ N/A ☐ Reference: Refer to Spec section 31 00 00 3.9.B.1.6. Comment: [Click to enter rationale, explanation, unique situation, etc.]

10. Pipes terminating in the channel have a positive closure device on the waterside that is accessible from the levee crown: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

11. Pipes transporting product completely across the federal project have a positive closure devices located within 1 mile on both sides of the federal project: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

12. Pipes located within or beneath a levee have watertight joints that can accommodate movements resulting from settlement: Yes ☒ No ☐
Reference: Refer to detail 2 on Sheet 40
Comment: [Click to enter rationale, explanation, unique situation, etc.]

13. Pipes crossing the surface of the levee are designed to counteract buoyancy forces of an empty pipe, with water at the DWSE: Yes ☒ N/A ☐
Reference: Refer to detail 3 on sheet 41
Comment: [Click to enter rationale, explanation, unique situation, etc.]

14. Pipe location and orientation will be clearly marked in the field: Yes ☒ No ☐
Reference: pipe location and orientation can be identified by vault structure and outfall location
Comment: [Click to enter rationale, explanation, unique situation, etc.]

15. Pipes will allow easy access for rapid closure: Yes ☒ No ☐
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: Positive valve closures on the levee crest will ensure easy access for rapid closure.

16. Plastic pipes within the levee embankment or its foundation are embedded in concrete: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

17. If a chemical or electrochemical reaction is expected, the pipe and pipe couplings must be protected: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

18. Any work within the levee embankment or foundation? Yes ☐ No ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

19. Any work ≤50 feet beneath the channel invert? Yes ☐ No ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

20. Hydraulic blockage calculation ≥1%? Yes ☐ No ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

21. Hydraulic model used for hydraulic analysis? Yes ☐ No ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

– For Official Use Only below this line –

Comment

CP Eligibility Review

Yes	No	Add'l. Info Requested		
☐	☐	☐	Environmental Reviewer: _____	Date: Click date
☐	☐	☐	Engineering Reviewer: _____	Date: Click date

American River Flood Control District
Central Valley Flood Protection Board Permit Application
Sump 159-2 Modifications (City of Sacramento)
Staff Report

Discussion:

The City of Sacramento submitted this encroachment permit application to modify facilities at their Sump 159 Pump Station. The work proposed is to remove and replace approximately 40 ft of one (1) 36” welded steel pipe and approximately 30 ft of one (1) 24” welded steel pipe at the pump discharge location and outfall structure.

Sump 159 is located adjacent to the Arcade Creek South Levee and just west of the bike trail bridge crossing.

These modifications are required to upgrade the pipe outfall system at the pump station. Recent work conducted by SAFCA under the North Area Streams Project replaced only the segments of pipe that crossed through the levee. This work will complete the upgrade to the facility by replacing the pipe discharge sections at the pumps and also the pipe outfall sections and flap gates.

These modifications will be routine construction installations and do not present considerable engineering challenges. It is not anticipated that this work will pose significant operations and maintenance impacts to the District.

Recommendation:

The General Manager recommends that the Board of Trustees endorse the CVFPB permit application.

State of California

DEPARTMENT OF WATER RESOURCES
CENTRAL VALLEY FLOOD PROTECTION BOARD

California Natural Resources Agency

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

Application No. _____
(For Office Use Only)

1. Description of proposed work being specific to include all items that will be covered under the issued permit.

Sump 159 Modifications: Remove and replace approximately 40 ft of one (1) 36" welded steel pipe and approximately 30 ft of one (1) 24" welded steel pipe at the pump discharge location and outfall structure.

2. Project Location: Sacramento County, in Section See Attachment A

Township: See Attachment A (N) (S), Range: See Attachment A (E) (W), M. D. B. & M.

Latitude: 38.62504 Longitude: -121.44762

Stream: Arcade Creek , Levee : Left Bank Designated Floodway: Arcade Creek

APN: See Attachment A

3. Raymond Kong, PE (Name of Applicant / Land *Owner*) of 1395 35th Ave (Address)

Sacramento (City) CA (State) 95822 (Zip Code) (916) 808-1435 (Telephone Number)

RKong@cityofsacramento.org (E-mail)

4. Ashley Smith, PE (Name of Applicant's Representative) of Peterson Brustad Inc. (Company)

Folsom (City) CA (State) 95630 (Zip Code) (916) 608-2212 x 123 (Telephone Number)

asmith@pbieng.com (E-mail)

5. Endorsement of the proposed project from the Local Maintaining Agency (LMA):

We, the Trustees of American River Flood Control District (Name of LMA) approve this plan, subject to the following conditions:

☐ Conditions listed on back of this form ☐ Conditions Attached ☐ No Conditions

Trustee _____ Date _____ Trustee _____ Date _____

Trustee _____ Date _____ Trustee _____ Date _____

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

6. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If additional space is required, list names and addresses on back of the application form or an attached sheet.

Name	Address	Zip Code
See Attachment A		

7. Has an environmental determination been made of the proposed work under the California Environmental Quality Act of 1970? ☐ Yes ☐ No ☑ Pending

If yes or pending, give the name and address of the lead agency and State Clearinghouse Number:

City of Sacramento
1395 35th Avenue
Sacramento, CA 95822

SCH No. Pending

8. When is the project scheduled for construction? April 2021

9. Please check exhibits accompanying this application.

A. ☑ Regional and vicinity maps showing the location of the proposed work.

B. ☑ Drawings showing plan view(s) of the proposed work to include map scale.

C. ☑ Drawings showing the cross section dimensions and elevations (vertical datum?) of levees, berms, stream banks, flood plain,

D. ☑ Drawings showing the profile elevations (vertical datum?) of levees, berms, flood plain, low flow, etc.

E. ☑ A minimum of four photographs depicting the project site.

Signature of Applicant Date

Include any additional information:

A summary of the Project and a description of the proposed methods are provided in Attachment A. Attachment B includes relevant plan sheets which are an excerpt from a larger plan set. Attachment C includes the categorical permission checklist. The intent of this application is to modify the existing encroachment permit. The existing Permit number for Sump 159 is 3216-1.

Attachment A – Summary of Proposed Work

CITY OF SACRAMENTO PUMP OUTFALLS PROJECT:

CENTRAL VALLEY FLOOD PROTECTION BOARD ENCROACHMENT PERMIT

SUMMARY OF PROPOSED WORK

September 15, 2020

INTRODUCTION

As mandated by the Sacramento Area Flood Control Agency (SAFCA) and the U.S. Army Corps of Engineers (USACE), sump station outfalls that penetrate and cross major levees are inspected on a 5-year cycle. The project entails the complete replacement of the pump discharge for three (3) drainage sump station facilities and partial replacement of the pump discharge pipe for five (5) drainage sump station facilities. The following information pertains to a partial replacement sump (Sump 159) that will need an updated Encroachment Permit from the CVFPB.

APN Parcels

Sump	Existing Permit #	APN
159	3216-1	263-0260-010-0000, 263-0010-016-0000

ADJACENT PARCELS

All of the parcels adjacent to the Sump to be modified are listed in the table presented below as provided by the Sacramento County Assessor's Office.

APN	Address	Owner	Owner Address	City	Zip
250-0270-009-0000	ALTOS AVE	CITY OF SACRAMENTO	915 I ST FL5	SACRAMENTO	95814
250-0270-012-0000	ALTOS AVE	UNION PACIFIC RAILROAD CO	1400 DOUGLAS ST 1640	OMAHA	68179
251-0291-011-0000	RIO LINDA BLVD	AMERICAN RIVER FLOOD CONTROL DIST	165 COMMERCE CIR UNIT D	SACRAMENTO	95815
251-0291-012-0000	3201 RIO LINDA BLVD	CONIGLIO 2007 REVOCABLE TRUST	3201 RIO LINDA BLVD	SACRAMENTO	95815
251-0291-018-0000	RIO LINDA BLVD	SACTO & SAN JOAQUIN DRAINAGE DIS	3310 EL CAMINO AVE	SACRAMENTO	95821
263-0010-015-0000	FAIRBANKS AVE	SACTO & SAN JOAQUIN DRAINAGE DIS	3310 EL CAMINO AVE	SACRAMENTO	95821

263-0041-019-0000	813 ARCADE BLVD	SHARON LEE NAYLOR	813 ARCADE BLVD	SACRAMENTO	95815
263-0046-001-0000	3148 ALTOS AVE	IVAN PARRA	3148 ALTOS AVE	SACRAMENTO	95815
263-0046-002-0000	808 ARCADE BLVD	RUBEN O LUA	808 ARCADE BLVD	SACRAMENTO	95815
263-0260-020-0000	TRACTION AVE	CITY OF SACRAMENTO	915 I ST FL5	SACRAMENTO	95814
265-0011-001-0000	3141 RIO LINDA BLVD	S M U D	PO BOX 15830	SACRAMENTO	95852
265-0011-002-0000	3139 RIO LINDA BLVD	JAMES RODARAKIS	205 ARCADE BLVD	SACRAMENTO	95815

TOWNSHIP AND RANGE INFORMATION

Note that gaps exist in Townships and Ranges within the project area. Land not covered by T9N R5E has been in private ownership since before California joined the United States and therefore is not part of the Township and Range system, which was a survey of federal lands.

SITE PHOTOGRAPHS

Attached to this Summary of Proposed Work are photographs showing levee and channel areas representative of proposed work sites.

Figure 1: Sump 159 looking North West

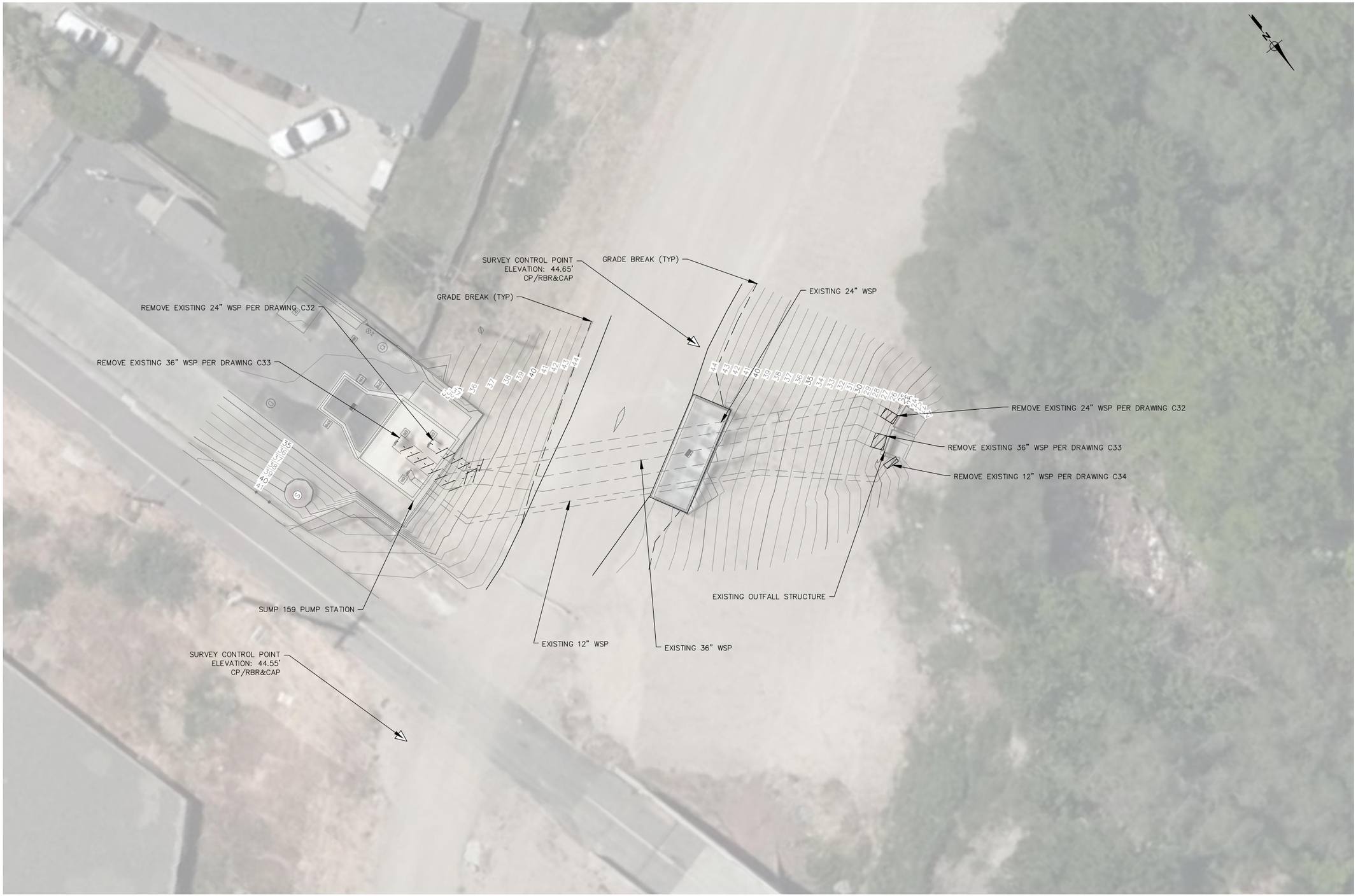
Figure 2: Landside slope near Sump 159

Figure 3: Siphon breaker vaults on levee crest near Sump 159

Figure 4: View looking southwest toward the Sump 159 outfall into Arcade Creek

Attachment B – Plan Sheets

(Excerpt from larger plan set for Pump Outfalls Replacement Project – A)



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VERT SCALE: 1"=5'
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65% SUBMITTAL

PN: W14130615

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 44.65
DESCRIPTION: CP/RBR&CAP

FIELD BOOK 0000
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1"
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CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

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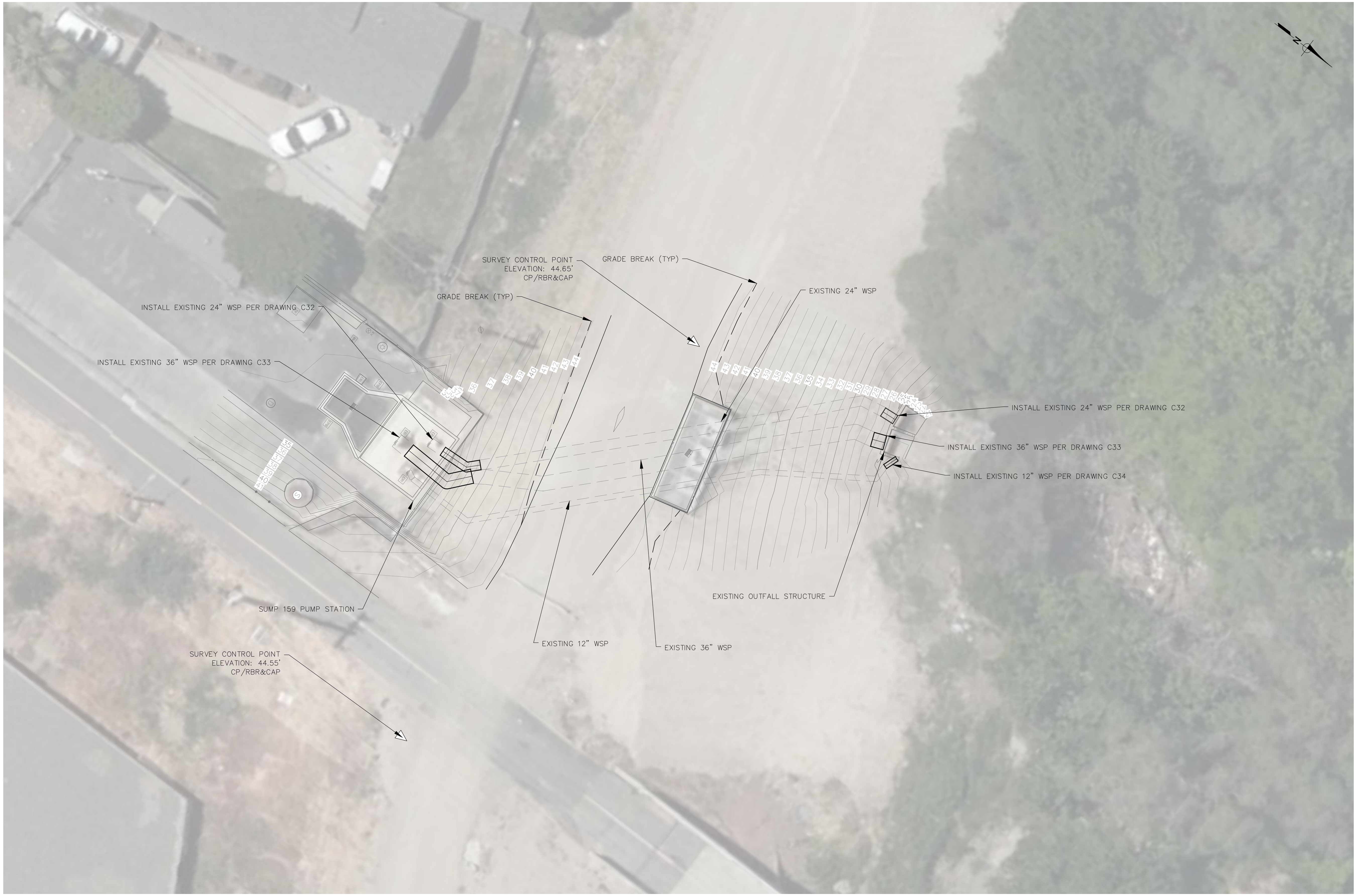
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER MARC B. CRAIG CIVIL STATE OF CALIFORNIA PRELIMINARY

IMPROVEMENT PLANS FOR:

PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 159
DEMO PLAN

PN: W14130615 DWG. NO. C30 SHEET 33 OF 47



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VERT SCALE: 1"=5'

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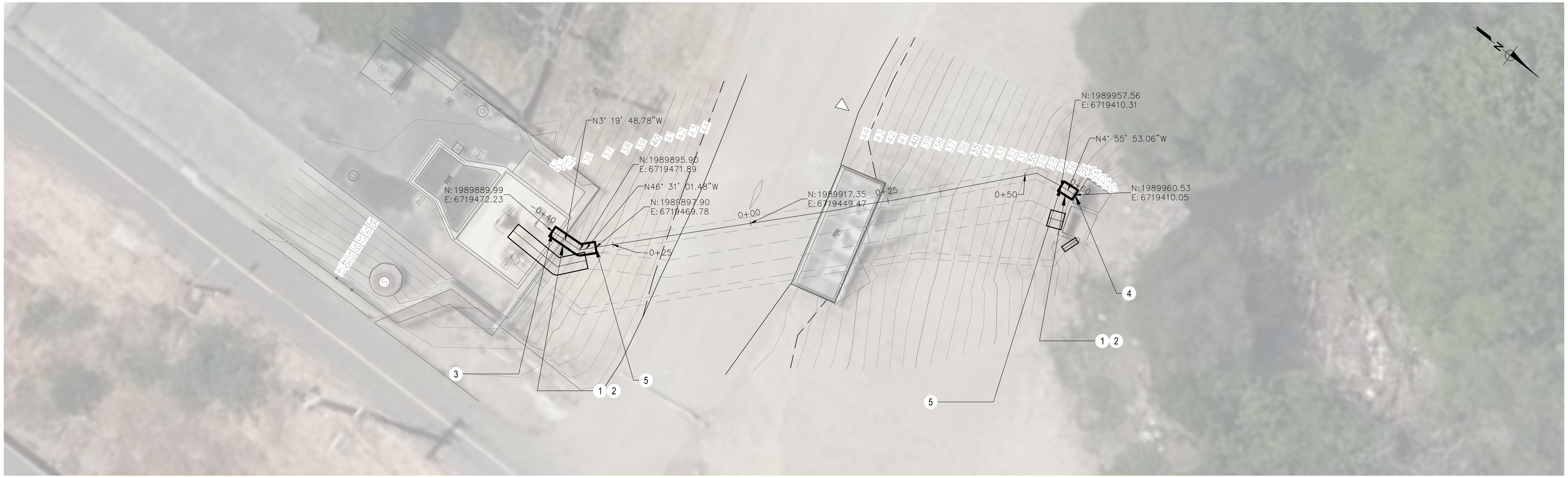
PRELIMINARY

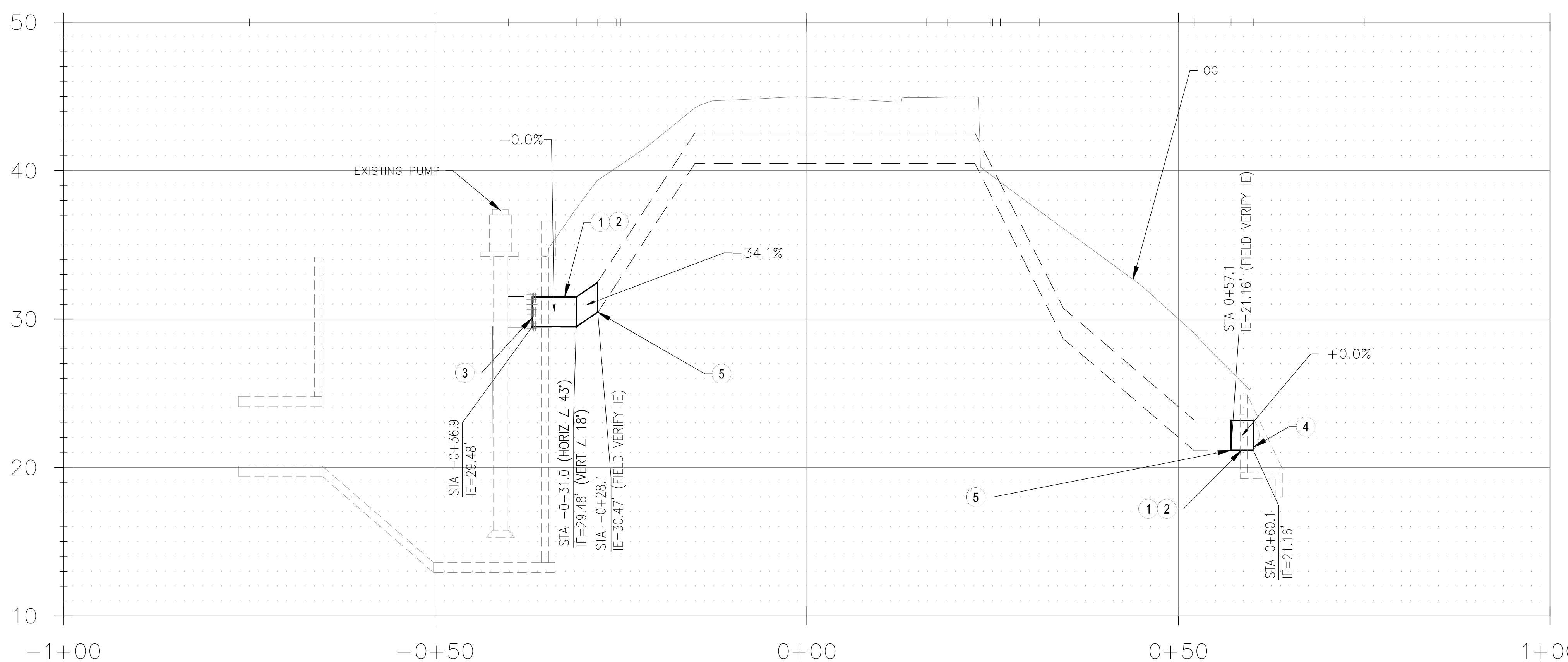
IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 159
SITE PLAN

PN: W14130615

DWG. NO. C31
SHEET 34 OF 47

PN: W14130615





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 24" WSP AND APPURTENANCES FROM STA -0+36.9 TO STA -0+28.1 AND STA 0+57.1 TO STA 0+60.1 PER DETAIL 2/C38
2. INSTALL 24" WSP FROM STA -0+40.2 TO STA -0+28.1 AND STA 0+57.1 TO STA 0+60.1 PER DETAIL 3/C38
3. CONNECT TO EXISTING STEEL COUPLING
4. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
5. CONNECT TO EXISTING PIPE PER DETAIL 3/C37
6. REMOVE AND SALVAGE STEEL COUPLING
7. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
VERT SCALE: 1"=5'

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

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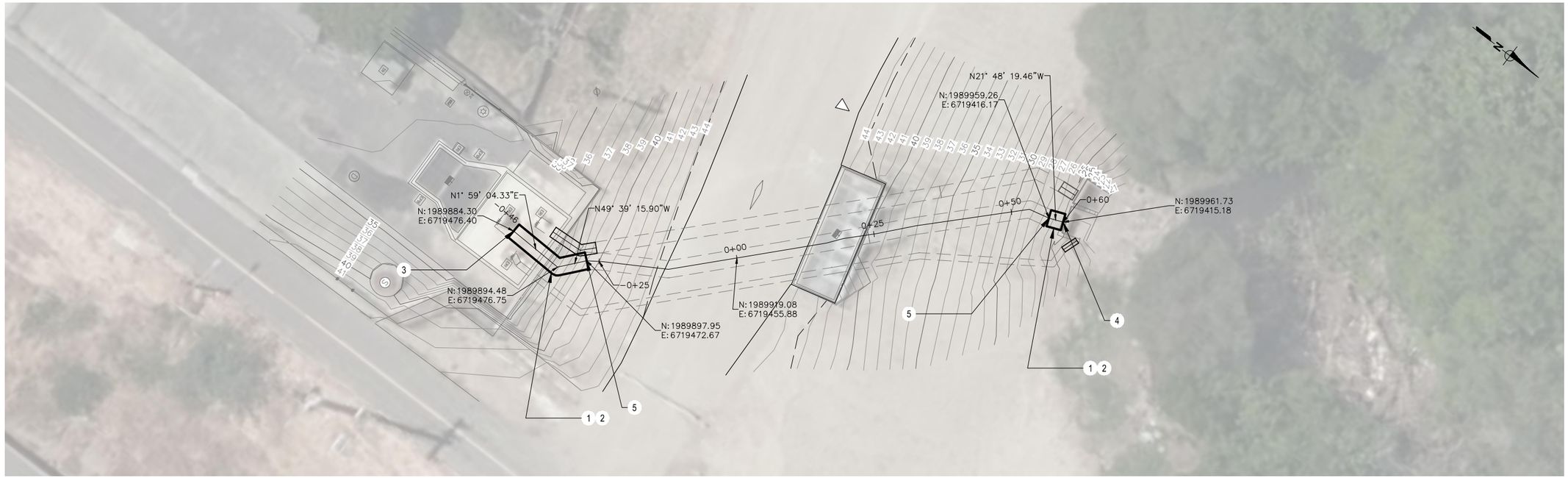
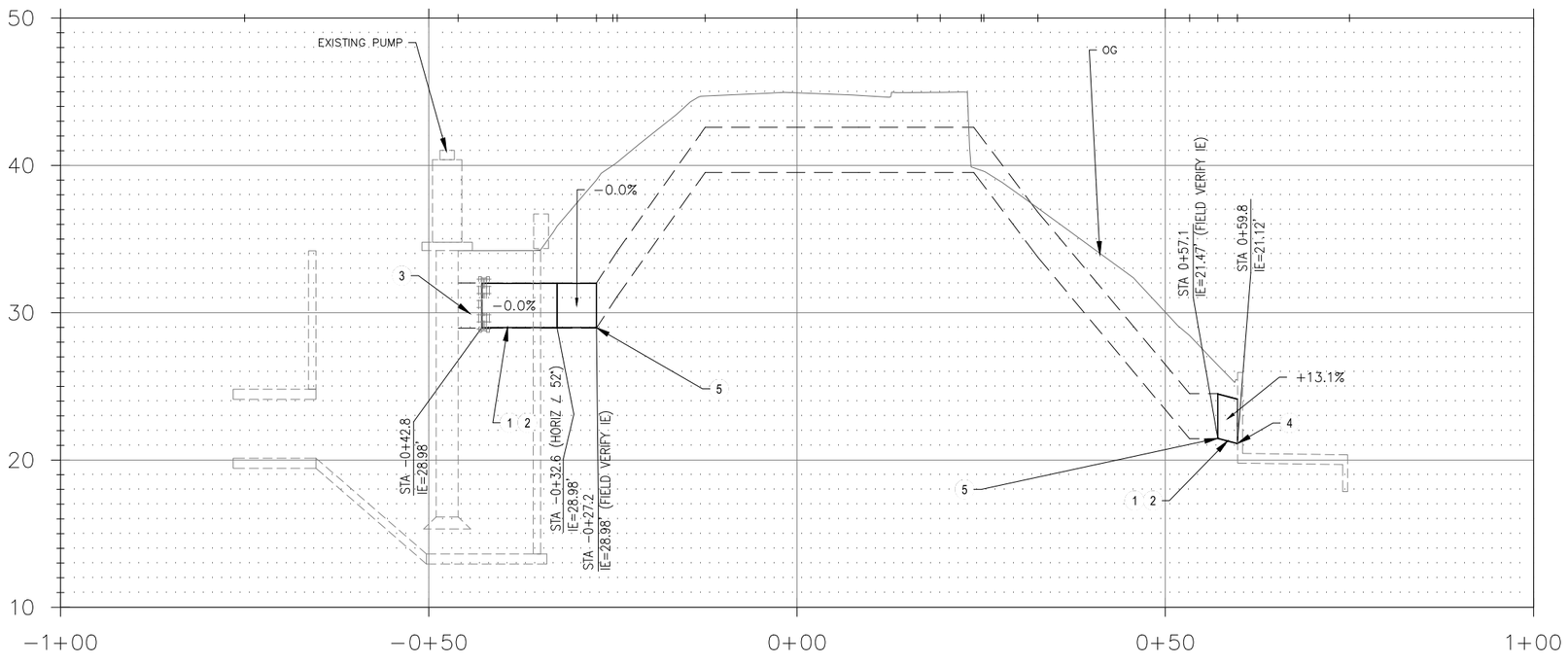
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT - A
SUMP 159
PLAN AND PROFILE 1 - 24" WSP

PN: W14130615
DWG. NO. C32
SHEET 35 OF 47





NOTES:

1. REMOVE AND DISPOSE OF EXISTING 24" WSP AND APPURTENANCES FROM STA −0+42.8 TO STA −0+27.2 AND STA 0+57.1 TO STA 0+59.8 PER DETAIL 2/C38
2. INSTALL 24" WSP FROM STA −0+42.8 TO STA −0+27.2 AND STA 0+57.1 TO STA 0+59.8 PER DETAIL 3/C38
3. CONNECT TO EXISTING STEEL COUPLING
4. CONNECT TO EXISTING OUTFALL STRUCTURE PER DETAIL 1/C37
5. CONNECT TO EXISTING PIPE PER DETAIL 3/C37
6. REMOVE AND SALVAGE STEEL COUPLING
7. LOCATION OF ALL EXISTING UTILITIES ARE APPROXIMATE IN PLAN AND PROFILE AND ARE BASED ON THE BEST AVAILABLE UTILITY MAPPING PROVIDED BY UTILITY OWNERS, THE CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL EXISTING UTILITIES IN CONFLICT WITH THE PROJECT IN ADVANCE OF CONSTRUCTION TO DETERMINE ACTUAL DEPTH AND LOCATION. DAMAGE TO ANY EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

HOR SCALE: 1"=10'
10 5 0 10
5 2.5 0 5
VERT SCALE: 1"=5'

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS

NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 44.65
DESCRIPTION: CP/RBR&CAP

FIELD BOOK 0000
SCALE: H: H: V: V:

1" ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

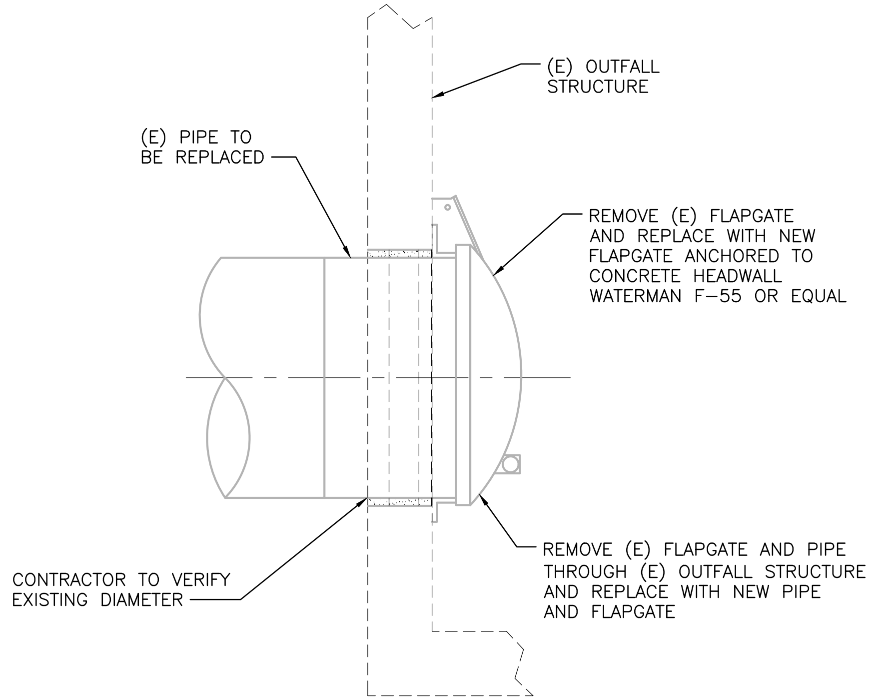
REGISTERED PROFESSIONAL ENGINEER KARL B. BROWN No. C90949 EXP. 12/31/22 CIVIL STATE OF CALIFORNIA
PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
SUMP 159
PLAN AND PROFILE 2 – 36" WSP

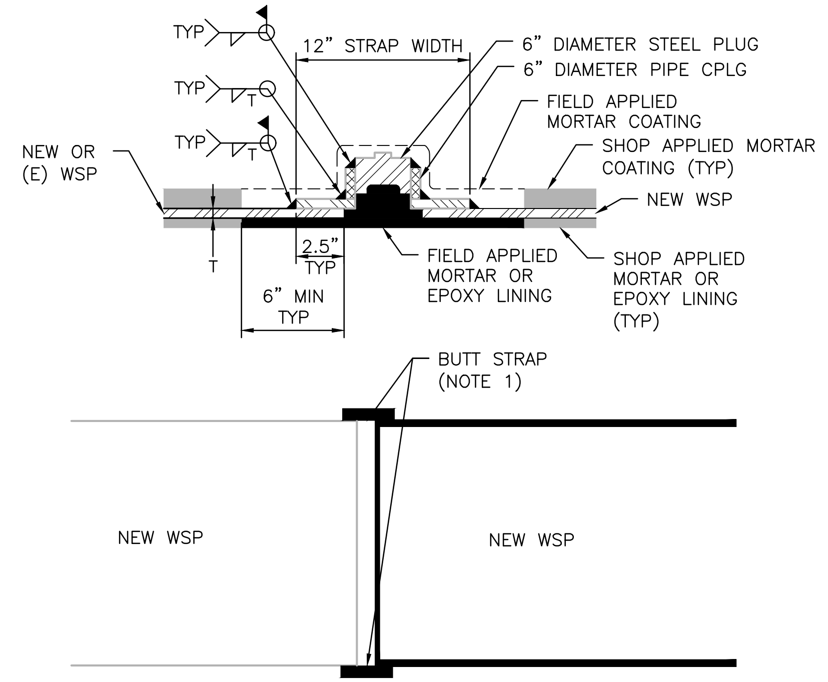
Page 15

PN: W14130615
DWG. NO. C33
SHEET 36 OF 47

PN: W14130615

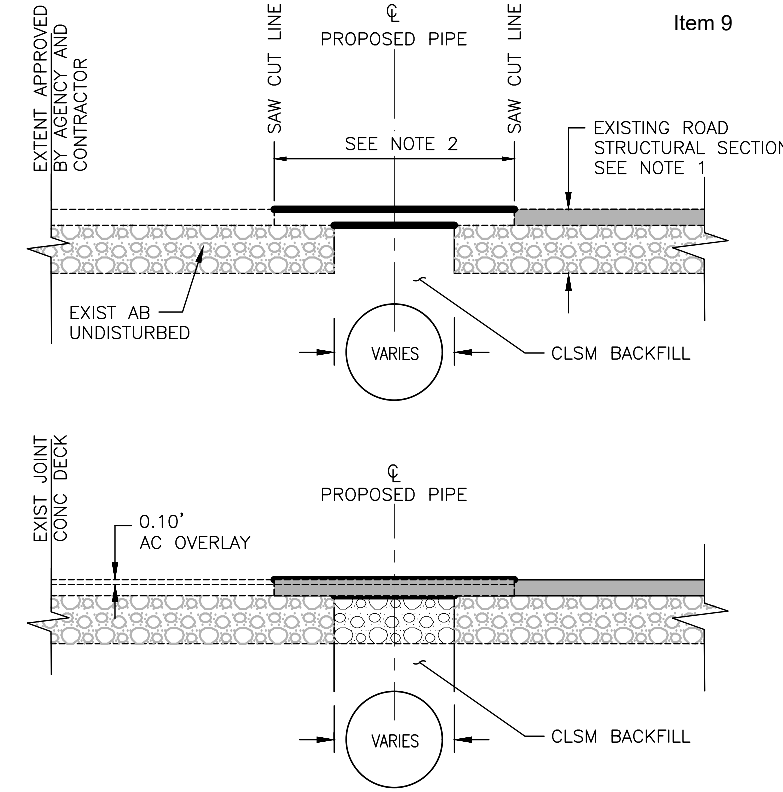


OUTFALL STRUCTURE CONNECTION DETAIL 1
NTS



NOTES:
1. PROVIDE HAND HOLES AS NEEDED TO INSTALL FIELD LINING. WELD HAND HOLE CLOSED WHEN COMPLETE. HAND HOLES NOT REQUIRED AT OUTLETS IF ACCESSIBLE THROUGH FLAP GATE.

NEW OR EXISTING STEEL
PIPE CONNECTION DETAIL 2
NTS



TRENCH SECTION AND SEQUENCING 3
NTS

NOTES:

1. CONTRACTOR SHALL REPLACE EXISTING PAVEMENT IN KIND. BASED ON LIMITED FIELD INVESTIGATIONS, EXISTING PAVEMENT SECTION ARE ASSUMED 2" AC ON 6" AB
2. THE OWNER AND THE CONTRACTOR SHALL JOINTLY DETERMINE THE FINAL WIDTH AND LENGTH OF THE BIKE PATH CROSSING BASED ON FIELD CONDITIONS AND CONSTRUCTION PROCEDURES.
3. CONTRACTOR SHALL REMOVE EXISTING BIKE PATH AS NEEDED TO CONSTRUCT PROPOSED PIPE. IMPACTED AREAS SHALL BE REPLACED IN ACCORDANCE WITH CITY OF SACRAMENTO STANDARD DETAIL T-21

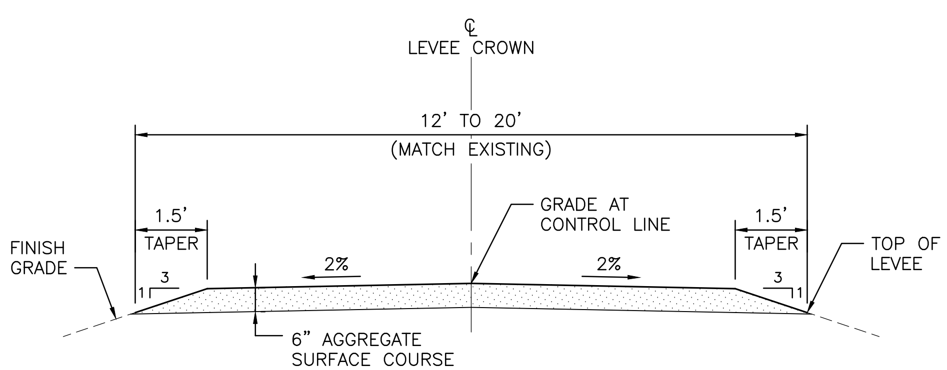
CONSTRUCTION SEQUENCE:

STEP 1: SAWCUT LIMITS O9F TRENCH EXCAVATION TO CLEAN CUT LIMITS. REMOVE EXISTING ASPHALT CONCRETE TO THE MIN EXTENT REQUIRED TO CONSTRUCT PROPOSED PIPE. PROPOSED PIPE SHALL BE CONSTRUCTED A MIN OF 2' FROM FG. TRENCH PLATES SHALL BE PROVIDED TO MAINTAIN ACCESS OVER CUTOFF WALL DURING CONSTRUCTION IN ACCORDANCE WITH THE SPECIFICATIONS.

STEP 2: PLACE AB TO MATCH EXISTING THICKNESS. PLACE AC OVERLAY FROM EXTENT APPROVED BY AGENCY AND CONTRACTOR TO LIMITS OF SAWCUT. PROVIDE PAVEMENT MARKING AND STRIPING TO MATCH EXISTING.

LEGEND:

EXISTING		PROPOSED
(hatched)	GRIND AND OVERLAY ASPHALT CONCRETE	
(aggregate)	AGGREGATE BASE (AB)	(aggregate)
(grey)	ASPHALT CONCRETE (AC)	(black)



CROWN SURFACING DETAIL 4
NTS

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV.
DESCRIPTION:

FIELD BOOK 0000
SCALE: H: V:

1"
ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"

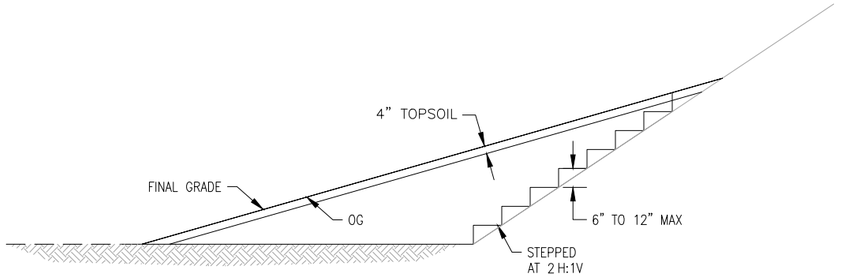
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA DATE: 09/15/20
DESIGNED BY: B. JENSEN R.C.E. NO. C90949 DATE: 03/31/22
CHECKED BY: A. SMITH R.C.E. NO. C86512 DATE: 03/31/21

PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT - A
MISCELLANEOUS DETAILS I

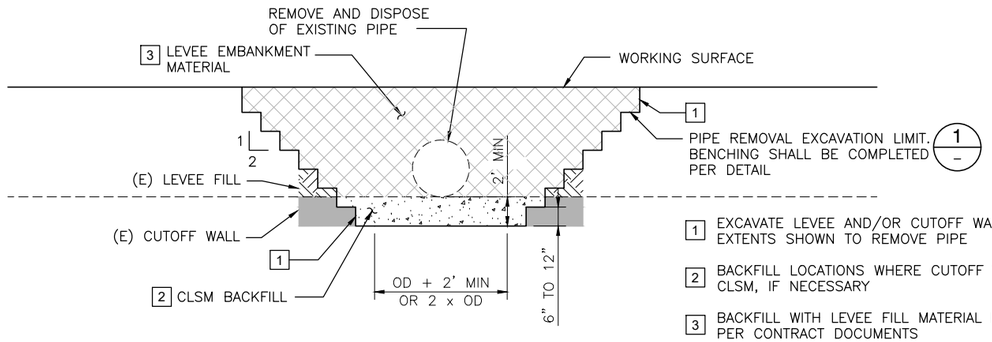
PN: W14130615
DWG. NO. C37
SHEET 40 OF 47



TYPICAL SLOPE BENCHING NOTES:

1. PLACE FILL IN HORIZONTAL LIFTS AGAINST VERTICAL FACES CUT INTO EXISTING LEVEE MATERIAL.
2. THE BOTTOM OF THE KEY TRENCH SHALL BE SCARIFIED TO A DEPTH OF 8 INCHES AND RECOMPACTED TO 95% MAX DENSITY PER ASTM D698.

SLOPE BENCHING (LANDSIDE OR WATERSIDE) DETAIL — 1/–
NTS

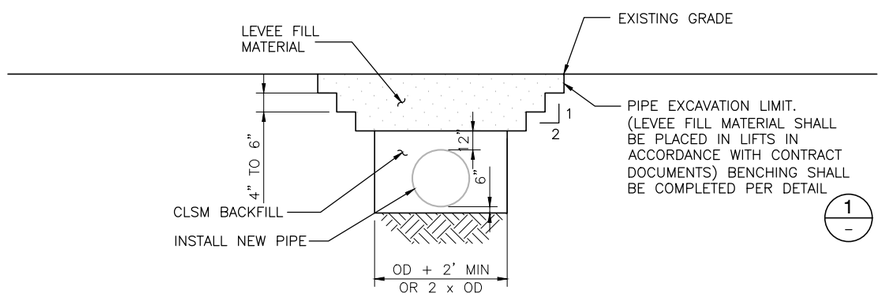


1 EXCAVATE LEVEE AND/OR CUTOFF WALL MATERIAL TO EXTENTS SHOWN TO REMOVE PIPE

2 BACKFILL LOCATIONS WHERE CUTOFF WAS REMOVED WITH CLSM, IF NECESSARY

3 BACKFILL WITH LEVEE FILL MATERIAL PLACED IN LIFTS PER CONTRACT DOCUMENTS

TYPICAL REMOVAL OF EXISTING PIPE DETAIL — 2/–
NTS



INSTALLATION OF NEW PIPE DETAIL — 3/–
NTS

65% SUBMITTAL

PUMP OUTFALLS REPLACEMENT PROJECT
PN: W14130615

PN: W14130615

REVISIONS				BENCH MARK	ELEV.	FIELD BOOK	1"
NO.	DESCRIPTION	DATE	BY	DESCRIPTION:		0000	
						SCALE:	ON ORIGINAL SCALE DRAWING ADJUST SCALED DIMENSIONS IF THIS DOES NOT SCALE AT 1"
						H:	
						V:	

CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

DRAWN BY: E. TUTEJA	DESIGNED BY: B. JENSEN	CHECKED BY: A. SMITH
DATE: 09/15/20	R.C.E. NO. C90949 DATE: 03/31/22	R.C.E. NO. C86512 DATE: 03/31/21

REGISTERED PROFESSIONAL ENGINEER — KAREL B. BRADLEY — No. C86512 — CIVIL — STATE OF CALIFORNIA — PRELIMINARY

IMPROVEMENT PLANS FOR:
PUMP OUTFALLS REPLACEMENT PROJECT – A
MISCELLANEOUS DETAILS II

PN: W14130615 | DWG. NO. C38 | SHEET 41 OF 47

PN: W14130615

Attachment C – Categorical Permission Checklist

Categorical Permission Alteration Description – 16. Pressurized Pipes

The categorical permission covers the installation, modification, and replacement of pressurized pipes that comply with certain terms and conditions. Particularly, all pressurized pipes must be designed and installed in accordance with current USACE standards. The total area of disturbance, including staging and access areas, must not exceed 5 acres. Pressurized pipes must also be designed to prevent, (1) flotation from uplift, (2) scour or erosion, (3) damage from debris on the waterside, particularly during flood flows, (4) leakage, (5) seepage along proposed pipes, (6) corrosion, and (7) damage from vehicular loads.

All new pressurized pipes should go up and over the levee DWSE. Pressurized pipes passing over or within the freeboard zone of a levee (i.e., above the levee DWSE), should be made of metal, preferably ductile iron or coated steel, suitable for use with flexible couplings.

Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM). Pipes that pass above the DWSE must have 2 feet of cover (low permeability or CLSM) to prevent damage by vehicles and equipment. Cover material on the levee crown must be placed at a ratio of 10H:1V, in the upstream/downstream direction of the levee. Pipes on the sides of the levee should be covered with a minimum of 1 foot of low permeability material, compacted in 4- to 6-inch lifts or CLSM to protect them from debris during high water (waterside) or to keep them from interfering with or being damaged by operations or maintenance of the levee (landside). Fill must be free of deleterious materials and construction debris and placed in 4- to 6-inch-thick loose lifts and compacted to not less than 95% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D698 (USACE preferred method), or alternately, 90% of the maximum density at moistures between -2 and +3 percent of optimum moisture content obtained from ASTM D1557. At the sponsor and levee maintaining agency's discretion, pipes on the levee slopes may be left exposed.

Only suitable material must be used as levee fill materials. Fill must be free from: roots and other organic matter, contaminated hazardous or toxic material, trash, debris, and frozen materials. Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve.

Pressurized pipes terminating in the channel require a positive closure device on the waterside that is accessible from the levee crown. Pressurized pipes transporting product completely across or through the federal project easement require positive closure devices located landward of any levees and channel. The positive closure device shall be located within one mile on both sides of the federal project. If the invert of the pipe is over the levee crown, the combination of a pump station on the waterside and a siphon breaker is considered an appropriate means of closure. Pipes located within or beneath a levee must have watertight joints that can accommodate movements resulting from settlement.

All pressurized pipes that cross the levee foundation at a depth less than or equal to two times the height of the levee should be evaluated for uplift. Pipes crossing the surface of the levee must be designed to counteract buoyancy forces of an empty pipe, with water at the DWSE.

Pressurized pipelines running parallel to flood risk management projects should be located at least 15 feet beyond the levee toes. Pipe location and orientation must be clearly marked in the field so they can be easily identified for flood fighting crews.

If appropriate, the requester should prepare an excavation plan demonstrating the effects of excavation on the stability of the embankments.

The site layout should provide adequate access for maintenance vehicles to refill fuel tanks and service/replace pumps, generators, etc. Pressurized pipes must also allow easy access for rapid closure in the event of leakage or rupture.

No plastic pipes (HDPE, PVC, etc.) are allowed in the levee embankment or its foundation unless they are embedded in concrete.

If an electrochemical or chemical reaction between the substratum or groundwater and pipe materials is expected, the pipe and pipe couplings must be protected.

After installation of pressurized pipes, the requester must demonstrate 0% pipe leakage in pipes in the levee. Pipes must be pressure tested to industry standards. Pipes must be regularly inspected, including the interior, if possible, looking for signs of maintenance issues. If an inspection indicates corrosion, alignment sag or heave, or separation at joints, corrective action must be taken as soon as possible to avoid failure. Pipe valves must be periodically inspected and pressure tested to ensure that they are functioning properly. Pressure tests must show no significant loss in pressure. Leaks and other deficiencies must be addressed as soon as possible. All replacement parts must be of equivalent or better quality than those being replaced.

The preferred method for abandoning pipes that pass through or over a levee is complete removal. If removal is not feasible, the pipes and other structures may be filled with a cement/bentonite-based grout or flowable fill. The grout needs to be sufficiently fluid so that it can be pumped to completely fill the pipe leaving no voids.

Categorical Permission Alteration Checklist – 16. Pressurized Pipes

Note: The following checklist is intended for planning purposes only, and includes information that USACE reviewers look for when considering a Section 408 request for pressurized pipes under the Categorical Permission. To be reviewed under the Categorical Permission, the proposed project must adhere to all requirements of the Categorical Permission, including the full alteration description (see previous page). The plans and narrative project description should reflect this information.

1.	☐ New Construction ☒ Replacement ☐ Modification ☐ Authorize Existing
2.	Maximum total area of disturbance is 5 acres: Yes ☒ No ☐ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: Area of disturbance is 0.008 acre.
3.	Pipes are designed to prevent flotation from uplift, scour or erosion, damage from debris on the waterside (particularly during flood flows), seepage along proposed pipes, corrosion, leakage, and damage from vehicular loads: Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41. Comment: [Click to enter rationale, explanation, unique situation, etc.]
4.	Backfill under and around (to 1 foot over) the proposed pipe must be controlled low-strength material (CLSM): Yes ☒ No ☐ Reference: Refer to detail 3 on sheet 41 Comment: [Click to enter rationale, explanation, unique situation, etc.]
5.	Pipes passing over the DWSE will have a minimum of 2 feet of cover (low permeability or CLSM): Yes ☐ N/A ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment: [Click to enter rationale, explanation, unique situation, etc.]
6.	If material must be added to the levee crown, the added material must be sloped at a ratio of 10H:1V horizontal to vertical, in the upstream/downstream direction to prevent a “speed bump” effect and facilitate vehicle access: Yes ☐ N/A ☒ Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.] Comment:
7.	Fill will be compacted to at least 95% of maximum density as determined by ASTM D698, between -2 and +3% of optimum moisture content: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 3.6B. Comment: [Click to enter rationale, explanation, unique situation, etc.]
8.	Satisfactory fill material must have a plasticity index between 8 and 25, have a liquid limit less than 45, a minimum fines content of 20%, and 100% passing the 3-inch sieve: Yes ☒ No ☐ Reference: Refer to Spec section 31 00 00 2.2A. Comment: [Click to enter rationale, explanation, unique situation, etc.]
9.	All fill will be free of organics or other inappropriate materials: Yes ☒ N/A ☐ Reference: Refer to Spec section 31 00 00 3.9.B.1.6. Comment: [Click to enter rationale, explanation, unique situation, etc.]

10. Pipes terminating in the channel have a positive closure device on the waterside that is accessible from the levee crown: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

11. Pipes transporting product completely across the federal project have a positive closure devices located within 1 mile on both sides of the federal project: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

12. Pipes located within or beneath a levee have watertight joints that can accommodate movements resulting from settlement: Yes ☒ No ☐
Reference: Refer to detail 2 on Sheet 40
Comment: [Click to enter rationale, explanation, unique situation, etc.]

13. Pipes crossing the surface of the levee are designed to counteract buoyancy forces of an empty pipe, with water at the DWSE: Yes ☒ N/A ☐
Reference: Refer to detail 3 on sheet 41
Comment: [Click to enter rationale, explanation, unique situation, etc.]

14. Pipe location and orientation will be clearly marked in the field: Yes ☒ No ☐
Reference: pipe location and orientation can be identified by vault structure and outfall location
Comment: [Click to enter rationale, explanation, unique situation, etc.]

15. Pipes will allow easy access for rapid closure: Yes ☒ No ☐
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: Positive valve closures on the levee crest will ensure easy access for rapid closure.

16. Plastic pipes within the levee embankment or its foundation are embedded in concrete: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

17. If a chemical or electrochemical reaction is expected, the pipe and pipe couplings must be protected: Yes ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

18. Any work within the levee embankment or foundation? Yes ☐ No ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

19. Any work ≤50 feet beneath the channel invert? Yes ☐ No ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

20. Hydraulic blockage calculation ≥1%? Yes ☐ No ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

21. Hydraulic model used for hydraulic analysis? Yes ☐ No ☐ N/A ☒
Reference: [Click to enter document source. Example – plan sheet (p. 4), specs, report.]
Comment: [Click to enter rationale, explanation, unique situation, etc.]

– For Official Use Only below this line –

Comment

CP Eligibility Review

Yes	No	Add'l. Info Requested		
☐	☐	☐	Environmental Reviewer: _____	Date: Click date
☐	☐	☐	Engineering Reviewer: _____	Date: Click date

General Manager's Meeting Summary
September 2020

9/11: American River Flood Control District Board of Trustees meeting. The Board met in regular session. The agendized items included correspondence from the City of Sacramento Police Department regarding extensive camping along the roadways of the Johnston Business Park, a discussion on the District's carbon footprint, and addressing permitted encroachments in River Park.

9/14: DWR Deferred Maintenance Project meeting. I met via web conference with staff from DWR to learn about the extension of the Deferred Maintenance Project grant program. The District has funding available to inspect or repair levee pipes in 2021.

9/15: Sacramento County Local Hazard Mitigation Plan Kick-off meeting. I attended this meeting via teleconference with representatives from the County of Sacramento and numerous Special Districts to discuss the 2021 update to the Local Hazard Mitigation Plan.

9/16: Central Valley Flood Control Association Board of Directors meeting. This meeting was held via web teleconference. Topics of discussion included the State's regional meetings on the Sacramento San Joaquin Drainage District assessment, extension of the Flood Maintenance Assistance Program, and a legislative update on bills for 2020.

9/16: Field Visit for Kelton Way Pedestrian Access. Superintendent Kawamura and I met with residents that use the levee along Robla Creek for exercise and recreation. They requested the meeting to ask if the District could install a recreation trail along the levee similar to the American River Parkway.

9/16: ARFCD Quarterly Safety meeting. The Safety Committee met to discuss safety items for the District. Items of discussion included the OSH Act of 1970, clearance zones around electrical equipment in the warehouse, Firecode training, and the Cintas training program.

9/21: Phone Meeting with Dude Solutions. I met with staff from Dude Solutions to discuss implementation of the workflow tracking software, Asset Essentials. Sara Poffenbarger from Dude is our implementation consultant and she is able to walk clients through the steps to set-up the software specific to our District.

9/23: ARFCD Roof Repair/Replacement Pre-Construction Meeting. I met with Don Mariano from Lionakis and Dennis Philips from Rua and Son to discuss progress on the roof project. Two-thirds of the old roof has been removed and the crews are constructing framing for the new HVAC unit. Two sections of dry-rot were removed and repaired along the west wall.

9/28: Steelhead Creek Clean-up Meeting. Superintendent Kawamura and I met with the Central Valley Regional Water Quality Control Board to discuss the annual clean-up effort in Steelhead Creek. This year, the City will distribute trash bags prior to the clean-up and RD 1000 and ARFCD will use equipment to load and haul-off the filled bags.

Request for Porta-potties at District's Lathrop Way Parcel

District staff received a request from a neighboring business owner for the District to consider placing porta-potties on our Lathrop Way parcel. The narrow parcel lies between the levee and the roadside curb on Lathrop way and extends for roughly 2,000-feet.

The Board reviewed a letter from Sacramento PD at their September meeting regarding the extensive parking of RVs along this part of the Johnston Business Park.

Louis Warfield, from Rhino Designs, requested that the District consider placing porta-potties on this parcel to assist the camping population and to reduce the amount of bathroom breaks the campers are making next to adjacent businesses. Mr. Warfield indicated that Rocket Restrooms can provide two porta-potties at a cost of $450/month. Mr. Warfield also indicated he is considering providing a dumpster adjacent to his business for the campers to use.

Staff is looking into costs for United Rentals to provide porta-potties and is thinking through complications from removing trash and debris deposited into the porta-potty. It is also possible that the Central Valley Flood Protection Board would require an encroachment permit to place the porta-potties adjacent to the levee.

District parcel along Lathrop Way (apn 275-0300-009)


SOUTHWIND
211

Fires 2020

C st
Dry Creek Rd
Sumatra Dr
Top of Main
Lower Main
North Market Blvd
South I80
Silver Eagle
West End Hagginwood x3
West End Hagginwood x2
West End Hagginwood
Lindley Dd
Arcade Blvd
Riverine Way
Across Rusty Duck
NSacLandCo
160
Sutters Landing around tracks
Campus Commons Loop
Northrup
South Watt
Waterton
Kadema Access
North Howe under power lines
around power lines
North Highlands
Foothill Farms
McClellan Park
Arden-Arcade
Carmichael
Rosemont
Rancho Cordov
West Sacramento
Sacramento

N

4 mi

American River Flood Control District

Homeless Camp Cost

January 1, 2020 – June 30, 2020

Cost Code Summary	
Bell Marine Co.	$844.15
HercRentals	$1,657.74
Home Depot	$181.42
L and D Landfill	$3,479.72
Mahaney Co., John F.	$903.99
Sacramento County MSA	$900.30
Sacramento County Sheriff, Work Release	$13,706.00
Sierra Waste Recycling & Transfer Station	$121.60
Teichert & Son, Inc	$1,916.78
United Site Services	$259.50
US Bank	$1,451.28
Wilson Bohannan Padlock Co.	$860.77
Total	**$26,283.25**

Unit	Hours	Costs $56/Hour
1	206	$11,536
2	81	$4,536
3	16	$896
4	144	$8,064
5	256	$14,336
6	16	$896
7	109	$6,104
Total	**828**	**$46,368**