

Reviewed by:    City Administrator  
   City Attorney

Motion only  
 Public Hearing  
 Resolution  
 Ordinance  
 Information

**Submitted By:** Deborah Savage, Finance Manager

**Action Date:** April 4, 2018

**CITY COUNCIL AGENDA ITEM**

**SUBJECT:** **Resolution No. 18-5492** Amending Fiscal Year 2017-2018 Flood/Emergency Declaration Budget for approved FEMA 4301-DR-CA and FEMA 4308-DR-CA projects

**PRESENTED BY:** Deborah Savage, Finance Manager

**SUMMARY:** At the June 7, 2017 Council meeting, Resolution No. 17-5387 was adopted establishing a Flood/Emergency Declarations Budget for the 4301 and 4308 FEMA projects. FEMA has reviewed the City's cost proposals submitted on FEMA Form 90-91. We have attached a spreadsheet listing each project and the dollar amount requested. FEMA and Cal OES have issued payments to the City for emergency repairs during the initial event (\$37,139) for 4301 and (\$24,042) for 4308. The City is responsible for the remaining amounts (\$1,700.44) for 4301 and (\$1,101.97) for 4308. The City has also received the allocation for project LSSUG02- Golf Course and Airport in the amount of \$84,215 with the remaining \$5,615.17 being the responsibility of the City.

One project that was submitted as part of 4308 was LSSUF04 (Citywide Parks & Rec). This project included amounts for the golf course irrigation controller unit that was damaged in the storm. FEMA has reduced the requested \$121,943 project amount by (\$90,653) citing anticipated insurance coverage.

**FISCAL IMPACT:** FEMA approved project expenses of \$294,251.38 for FEMA-4301-DR-CA and \$88,884.10 for FEMA 4308-CR-CA. These expenses will be paid 93.75% by FEMA and Cal OES with the City responsible for 6.25%.

**ACTION REQUESTED:** Motion to approve Resolution No. 18-5492, Amending Fiscal Year 2017-2018 Flood/Emergency Declarations Budget in the amount of \$333,136 (Resolution No 17-5387 created the Flood/Emergency Declarations budget with a beginning balance of \$50,000)

**ATTACHMENTS:** Resolution No. 18-5492  
 Cal OES Notification of Obligation and Payment FEMA-4308-DR-CA  
 Cal OES Notification of Obligation and Payment FEMA-4301-DR-CA  
 FEMA Project Spreadsheet  
 Resolution No. 17-5387

**RESOLUTION NO. 18-5492  
AMENDING FISCAL YEAR 2017-2018 FLOOD/EMERGENCY DECLARATION  
BUDGET FOR APPROVED FEMA 4301-DR-CA AND FEMA 4308-DR-CA PROJECTS**

**WHEREAS**, the City experienced major storm damage during the months of January and February 2017; and

**WHEREAS**, a State of Emergency was declared for Lassen County; and

**WHEREAS**, the City has created a Flood/Emergency Declaration fund to capture expenses associated with projects FEMA 4301-DR-CA and FEMA 4308-DR-CA; and

**WHEREAS**, the City has received notification of obligation and payment for these projects; and

**WHEREAS**, an amendment is needed to increase the 2017-2018 Budget to include the approved project amounts.

**NOW, THEREFORE, BE IT RESOLVED** by the City Council of the City of Susanville approves amending Fiscal Year 2017-2018 Flood/Emergency Declaration budget in the amount of \$333,136 for FEMA-4301-DR-CA and FEMA 4308-DR-CA projects.

APPROVED: \_\_\_\_\_  
Kathie Garnier, Mayor

ATTEST: \_\_\_\_\_  
Gwenna MacDonald, City Clerk

The foregoing Resolution was adopted at a special meeting of the City Council of the City of Susanville held on the 4th day of April, 2018 by the following vote:

AYES:  
NOES:  
ABSENT:  
ABSTAINING:

\_\_\_\_\_  
Gwenna MacDonald, City Clerk

APPROVED AS TO FORM:

\_\_\_\_\_  
Jessica Ryan, City Attorney



March 8, 2018

Dan Newton  
Interim City Administrator  
Susanville, City of  
66 North Lassen Street  
Susanville, California 96130

Subject: Notification of Obligation and Payment  
Public Assistance and CDAA Grant Programs  
FEMA-4301-DR-CA, Cal OES ID: 035-77364

Dear Mr. Newton:

**Obligation Notification** The California Governor's Office of Emergency Services has attached the Grant Summary and the Project Application Summary for Federal Package #616, and the Exhibit C for State Supplement #1. Please see the table below for further obligation details.

Obligation Details	Package/Supplement Obligation Amount	Cumulative Amount Obligated
Federal-Public Assistance	\$67,372	\$96,501
State-California Disaster Assistance Act (CDAA)	\$18,527	\$26,537
<b>Total</b>	<b>\$85,899</b>	<b>\$123,038</b>

**Payment Process** For this disaster, funds will be paid in accordance with the following disbursement table:

Project Status	Federal Funds Disbursement Process	State Funds Disbursement Process
Small Projects less than 100% complete	Automatic advance of federal share and administrative allowance	Automatic advance of state share and administrative allowance. Retention held until 100% complete
Small Projects 100% complete	Automatic payment of federal share and administrative allowance	Automatic payment of state share and administrative allowance
Large Projects less than 100% complete	Advance administrative allowance only. All other funds (less retention) will be paid on a reimbursement basis	Advance administrative allowance only. All other funds (less retention) will be paid on a reimbursement basis
Large Projects 100% complete	Automatic payment of federal share and administrative allowance for entire project	Automatic payment of state share and administrative allowance

**Payment  
Process-  
Continued**

For this particular Package/Supplement, payment will be automatically disbursed as follows:

<b>Payment Details</b>	<b>Amount Automatically Paid</b>
Federal-Public Assistance	\$67,372
State-CDAA	\$16,843
<b>Total</b>	<b>\$84,215</b>

For those large projects with a work completion of less than 100 percent, a Large Project Reimbursement Request form has also been included with this Package/Supplement.

Federal and State funds will be issued separately by the State Controller's Office. Please be advised that state warrants have a one-year period of negotiability.

**Required  
Documents**

In order to receive funds, the following forms must be on file with our office:

<b>Form</b>	<b>Received by Cal OES?</b>
Project Application for Federal Assistance (OES 89)	Yes
Designation of Applicants Agent Resolution (OES 130)	Yes
Payee Data Record (STD. 204) - Private non profit organizations only	N/A

**Program  
Requirements-  
General**

As a requirement of this program, a special fund for the deposit of the state warrant must be established upon receipt of any advance funding. Under no circumstances are expenditures to be made for any damages other than those approved in this application. Any funds received in excess of current needs or approved amounts, or those found owed as a result of an audit or final inspection, must be refunded to the State within 30 days upon receipt of an invoice from the California Governor's Office of Emergency Services.

**Federal  
Program  
Audit  
Requirements**

As a recipient of federal funds, your organization is subject to the Federal Single Audit Act of 1984 and the Single Audit Act Amendments of 1996. Part of your report requirements under the Act and Amendments include the preparation of a Schedule of Expenditures of Federal awards. The following information is provided to assist in the accurate completion of the Schedule:

Mr. Newton  
Page Three  
March 8, 2018

<b>Federal Program Audit Requirements- Continued</b>	Federal Grantor Agency Pass-Through Agency Program Title Federal CFDA Number Pass-Through Grantor's Number	U.S. Department of Homeland Security - Federal Emergency Management Agency California Governor's Office of Emergency Services Public Assistance Grants 97.036 FEMA-4301-DR-CA, Cal OES ID: 035-77364
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**Appeal  
Process**

Please compare the enclosed obligated Project Worksheet(s) (PW) with your copy of the original PW(s). In accordance with Title 44 Code of Federal Regulations, Section 206.206(a), if you disagree with FEMA's obligated amount(s) or scope of work for the Version 0 PW(s) addressed in this Package, you must appeal FEMA's determination within 60 days from receipt of this letter. The appeal must contain documented justification supporting your position and be addressed to the Assistant Director of Recovery. Please submit your letter of appeal to the following mailing address:

California Governor's Office of Emergency Services  
Recovery Division, Public Assistance  
3650 Schriever Avenue  
Mather, California 95655

Please note, for all other PW versions, you will receive notification under separate cover from Cal OES's Public Assistance Section.

**Questions and  
Inquiries**

For appeal assistance, contact Public Assistance at (916) 845-8200. For assistance regarding this letter, contact the Grants Processing Unit's main line at (916) 845-8110.

GRANTS PROCESSING UNIT

Enclosures  
c: Disaster Recovery Manager, FEMA  
Applicant's Federal File  
Applicant's State File

# PROJECT PAYMENT REPORT

Decl#: 4301      OES ID#: 035-77364      Federal Pkg#: 616 / CDAA Supp#: 1

Small Project Amt.: 123,101      Applicant Name: Susanville, City of

Payment ID#: 35298

OES Proj#	PW#	PW Ref#	Total Project Obligations to Date (Fed&CDAA)	Project Payments to Date (Fed&CDAA)	Reported Project Exp. to Date	Authorized Payment Amounts		Total Amount
						Federal Amount	CDAA Amount	
<b>OES#: 035-77364-00 Department: Susanville, City of</b>								
55225	1074	LSSUG02	84,215	0		67,372	15,159	82,531
<b>Total Project Payments for Susanville, City of:</b>						67,372	15,159	82,531
<b>Total Project Payments:</b>						67,372	15,159	82,531
<b>Total Admin Allowance:</b>						0	1,684	1,684
<b>Total Authorized Payments:</b>						67,372	16,843	84,215

Maring Lisovsky, JSM I

Please Note: This report only includes projects for which payment has been approved - for a complete listing of PWs in this obligation package, please refer to the attached obligation report

**APPLICANT HISTORY REPORT - FEDERAL OBLIGATION**

Decl Num: 4301 Cal OES ID#: 035-77364 Applicant Name: Susanville, City of

Pkg. Num: 616 Fema Share: 75%

Department: Susanville, City of Cal OES ID#: 035-77364-00

OES Project#	PW #	PW Ref#	Cat.	100% Elig.	FEMA Share	Ret %	Retention	Admin. Allowance	Available Amt.	% Complete
55225	1074-0	LSSUG02	G	89,829	67,372	0	0	0	67,372	0
<b>Department Total:</b>										
				89,829	67,372	0	0	0	67,372	0
<b>Package 616 Total:</b>										
				89,829	67,372	0	0	0	67,372	0

<b>Grand Total to Date:</b>	128,668	96,501	0	0	0	0	0	0	96,501	0
<b>Total Obligation:</b>									96,501	



**Cal OES**  
GOVERNOR'S OFFICE  
OF EMERGENCY SERVICES

Cal OES ID: 035-77364

Supplement Number: 1

Disaster Number: 4301

**PROJECT APPLICATION APPROVAL**  
**CALIFORNIA DISASTER ASSISTANCE ACT PROGRAM**

**1. SUBGRANTEE'S NAME AND ADDRESS**

Susanville, City of  
66 North Lassen Street  
Susanville, CA 96130

**2. AUTHORIZED AGENT**

Dan Newton  
Interim City Administrator

**3. PROJECT SUMMARY**

**CATEGORY OF WORK**

**AMOUNT APPROVED BY STATE**

A - DEBRIS REMOVAL	\$0
B - EMERGENCY PROTECTIVE MEASURES	\$0
C - ROAD SYSTEMS REPAIRS	\$0
D - DIKES, LEVEES & FLOOD CONTROL WORKS	\$0
E - PUBLIC BUILDINGS	\$0
F - UTILITIES	\$0
G - OTHER	\$16,843
H - FIRE SUPPRESSION	\$0
Z - FEDERAL ADMINISTRATIVE COSTS	\$0
 ADMINISTRATIVE ALLOWANCE	 \$1,684
TOTAL THIS SUPPLEMENT	\$18,527
TOTAL NOW APPROVED FOR APPLICATION	\$26,537

**4. Cal OES APPROVAL** (Approved in accordance with attached Exhibit "C".)

SIGNATURE Maring Lisovsky  
TITLE: MANAGER, GRANTS PROCESSING UNIT

DATE APPROVED February 28, 2018

CDAA No.: 035-77364  
 Applicant: Susanville, City of  
 FEMA-4301-DR-CA, FIPS# 035-77364

St. Supplement Date 02/15/18

St. Sup. #	Dam. Cat.	CDAA DSR#/PW#	FEMA DSR#/PW#	Total Obligation
1	G	2	1074-0	16,843
	<u>Desc:</u>			
			Subtotal for Category G	16,843
			Subtotal for Supplement No. 1	16,843
			Administrative Allowance (10%)	1,684
			Total Supplement No. 1	18,527
			Sup.1 Eligible Amount	16,843
			Sup.1 Administrative Allowance(10%)	1,684
			Total Sup.1	18,527
			Application Eligible Amount	24,125
			Application Administrative Allowance(10%)	2,412
			Total Application	26,537

35298

Report Generated on:	02/15/2018 23:54
Disaster Number:	4301
Applicants:	"035-77364-00"
Report Format:	Detail

Date: 02/15/2018 23:54

OK

Federal Emergency Management Agency  
Public Assistance Grant Summary (P.5)

Disaster: FEMA-4301-DR-CA

Number of Records: 2 035-77364-00  
Applicant ID: 035-77364-00

Applicant: SUSANVILLE

Bundle #	Date Approved	PW #	Cat	Cost Share	Project Amount (\$)	Federal Share (\$)	Subgrantee Admin (\$)	Total Approved (\$)
PA-09-CA-4301-PW-00181(145)	10-13-2017	PA-09-CA-4301-PW-00181(0)	B	N	38,839.44	29,129.58	0.00	29,129.58
Applicant Total in Bundle PA-09-CA-4301-PW-00181(145) (1 PW)					38,839.44	29,129.58	0.00	29,129.58
<del>V</del> PA-09-CA-4301-PW-01074(616)	02-15-2018	PA-09-CA-4301-PW-01074(0)	G	N	89,830.17	67,372.63	0.00	67,372.63
Applicant Total in Bundle PA-09-CA-4301-PW-01074(616) (1 PW)					89,830.17	67,372.63	0.00	67,372.63
APPLICANT TOTAL: 035-77364-00 (2 PWs)					128,669.61	96,502.21	0.00	96,502.21
TOTAL for report: (2 PWs)					128,669.61	96,502.21	0.00	96,502.21

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Report Generated on:	02/15/2018 23:55
Data Captured As Of:	02/15/2018 23:55
Disaster Number:	4301
Bundle:	PA-09-CA-4301-PW-01074
Applicant:	035-77364-00

Capture Date: 02/15/2018 23:55

**Federal Emergency Management Agency  
Project Application Grant Report (P.2)  
Disaster: FEMA-4301-DR-CA**

Number of Records: 1

Applicant ID: 035-77364-00  
Bundle # : PA-09-CA-4301-  
PW-01074(616)

Applicant: SUSANVILLE

PW #	Cat	Cost Share	Projected Completion Date	Approved PW Amount (\$)
PA-09-CA-4301-PW-01074(0)	G	N	08-14-2018	89,830.17

Facility Number: 1

Facility Name: Golf Course and Municipal Airport Structure Damage  
CITY MAINTAINED DRAINAGE FEATURES/SYSTEMS:

Applicant Physical Address: 66 North Lassen Street, Susanville, CA 96130.

Site: - GPS Coordinates: Start 40.37414, -120.56986, End 40.36467, -120.65697  
- Site is located within the City of Susanville CA. The damage perimeter includes existing and active Golfing Facilities and Features.

Location:

Scope of Work:

Repairing/Restoring to Pre-disaster Design, Capacity and Function Condition:

Work to be completed:

1. Conventional equipment/tools and typical construction practices will be used for the repairs/restoration in accordance with applicable codes and regulations as well as any required permits.
2. Damages are to be reviewed by a Licensed Engineer to verify current Scope of Work (SOW) and modify if necessary. Proper Delineation of damages (based on described DDD) should be marked by Engineer/Surveyor to avoid making repairs that are not eligible or are considered post-damage and/or an improved project. Repair work will require evaluation and monitoring of subsurface conditions and construction feasibility in order to make the required repairs. Areas of Erosion and poor soil conditions will require undercut (removal of unsuitable materials) to achieve proper grade/subgrade bearing capacity. Sediment spills will require test pits to determine average depths and locations in order to remove the spill material while minimizing the cut of pre-disaster surface material/conditions.
3. The materials to be used for repairs/restoration are to be obtained from commercial businesses and local labor, cost/quotes provided by Competitive Bid Award. The Applicant provided description of "Engineered Fill" should be evaluated to determine the proper fill type required for replacement.
4. Soil and gravel material will require placement in small lifts (6 inches or less) over approved subsurface conditions and compacted to 95% or greater (Standard Proctor). Select locations will require Scarifying Techniques and/or Watering to achieve the appropriate Moisture Content to allow for a properly compacted material.
5. Specific Final surfaces will be graded and seeded (if possible), with erosion control matting installed. These locations will typically be located at the LOP 4 damage areas.
6. It is expected that water required for compaction (if necessary) will be taken from on-site man-made detention ponds. Any water removed from natural and/or man-made sources will require documentation determination and evaluation by FEMA/CalOES EHP (Environmental) Teams for proper permitting (if required) and any applicable forms, to include GPS locations and

Capture Date: 02/15/2018 23:55

Federal Emergency Management Agency  
Project Application Grant Report (P.2)  
Disaster: FEMA-4301-DR-CA

Number of Records: 1

volume expected to be removed/final volume removed.

7. Sediment removal will require documentation to be submitted to FEMA/CalOES EHP (Environmental Teams) that may include (but not limited to) an Engineering Study evaluating the geology and subsurface conditions/surveys (volumes) of sediment to be removed, and expected final disposal procedures and location of material ('cradle to grave' approach).

- \* Repair, Site 1: 86.67 CY Soil
- \* Repair, Site 2: 18.30 CY Engineered Fill (soil)
- \* Repair, Site 3: 77.80 CY Engineered Fill (soil)
- \* Repair, Site 4: 400 CY Engineered Fill (soil)
- \* Repair, Site 5: 94.40 CY Sediment Removal (soil/Pond deposits)
- \* Repair, Site 6: 46.30 CY Sediment Removal (soil/Pond deposits)
- \* Repair, Site 7: 55.60 CY Sediment Removal (soil/Pond deposits)
- \* Repair, Site 8: 31.10 CY Engineered Fill (soil/Pond deposits)  
31.10 CY Gravel

## COSTS:

Cost Estimate "Work to be Completed" -----\$ 64,424.95  
Estimated Direct Administrative Costs -----\$ 2,931.23

TOTAL COST -----\$ 67,356.18

## COST DESCRIPTION:

1. 3510 - Engineering Technician Services for Site Monitoring of undercut/fill activity, compaction testing, and truck-load counting for sediment removal. Costs based on 30-minute services per 100 Square Feet (SF) of fill placement, and 1-hour per truck load for sediment removal (estimating a 10-yard truck per load).
2. 3510 - Professional/License Engineer cost for Site Evaluation and Engineering Proposal/Report Writing.
3. 3020 - Fill (unclassified) cost for LOP 4 material replacement at existing galvanized steel fence system.
4. 3020 - Fill cost for Engineered Fill (type, gradation, engineering properties determines) for LOP 6 damages at Sites 2, 3, 4, and 8.
5. 4040 - Fill cost for Granular Material replacement at Site 8.
6. 3060 - Grading/Shaping of travel pathways at LOP 6, after fill placement, to achieve proper surface grades/shape for future water runoff.
7. 3061 - Scarifying costs for travel pathways at LOP 6.
8. 8251 - Bulldozer Equipment costs for placement of fill materials. Cost based on 100-120 yards placed per day.
9. 8280 - Excavator Equipment costs for removal of unsuitable soil at LOP 4 and 6, and sediment removal at LOP 6. Cost based on 100-120 yards removal per day for LOP 4 and 6, and filling one 10-yard truck per hour for sediment removal at LOP 6.
10. 8222 - Compaction costs for material placement. Cost based on compaction effort at 100 square feet (SF) per hour.
11. 9010 - Labor costs for Equipment use.
12. 9901 - Estimated DAC costs.

## Notes:

1. Engineering Professional Services should be hired by the Applicant to evaluate the Scope of Work in this Project Worksheet. Particular attention should be noted at LOP 4 - the fence-line foundations and areas of failure should be investigated to better estimate repairs and associated costs.
2. Cost Estimates based on FEMA codes and PDMG estimates.
3. Contract Labor cost for Material Placement based on PDMG estimates from local labor practices and Applicant suggested pricing; subject to increase/decrease.
4. The Sub-recipient is requesting reimbursement for Direct Administrative Costs associated with this project: 41 hours totaling \$ 2,931.23. Please see attached DAC summary sheet. Adjustments for actual DAC costs may be considered during project closeout.

Capture Date: 02/15/2018 23:55

## Federal Emergency Management Agency

## Project Application Grant Report (P.2)

Disaster: FEMA-4301-DR-CA

Number of Records: 1

SEE ATTACHED SCOPE NOTES FOR ADDITIONAL INFORMATION.

## Attachments:

1. Employee Manual
2. Insurance Document Part 1
3. Insurance Document Part 2

1 PW	PWs (\$)	Subgrantee Admin Exp. (\$)	Total (\$)
Amount Eligible (\$)	89,830.17	0.00	89,830.17
Federal Share (\$)	67,372.63	0.00	67,372.63

PA-09-CA-4301-PW-01074(0) P	
Applicant Name:	Application Title:
SUSANVILLE	LSSUG02 - Golf Course and Municipal Structure Damage
Period of Performance Start:	Period of Performance End:
02-14-2017	08-14-2018

### Subgrant Application - Entire Application

Application Title: LSSUG02 - Golf Course and Municipal Structure Damage  
 Application Number: PA-09-CA-4301-PW-01074(0)  
 Application Type: Subgrant Application (PW)

#### Preparer Information

Prefix  
 First Name CHRISTOPHER  
 Middle Initial  
 Last Name FREDETTE  
 Title Project Specialist  
 Agency/Organization Name NISTAC  
 Address 1 10000 Geolhe Road  
 Address 2  
 City Sacramento  
 State CA  
 Zip 95827  
 Email David.Gillings@CalOES.ca.gov

Is the application preparer the Point of Contact? No

#### Point of Contact Information

Prefix  
 First Name James  
 Middle Initial M  
 Last Name Moore  
 Title Fire Chief  
 Agency/Organization City of Susanville  
 Address 1 66 North Lassen Street  
 Address 2  
 City Susanville  
 State CA  
 ZIP 96130  
 Phone 530-257-1060  
 Fax  
 Email jmoore@cityofsusanville.org

#### Alternate Point of Contact Information

Prefix  
 First Name Jared  
 Middle Initial G  
 Last Name Hancock  
 Title City Administrator  
 Agency/Organization City of Susanville  
 Address 1 66 North Lassen Street  
 Address 2  
 City Susanville  
 State CA  
 ZIP 96130  
 Phone 530-252-5102  
 Fax  
 Email jhancock@cityofsusanville.org

#### Project Description

Disaster Number: 4301  
 Pre-Application Number: PA-09-CA-4301-RPA-0063

Applicant ID: 035-77364-00  
 Applicant Name: SUSANVILLE  
 Subdivision:  
 Project Number: LSSUG02  
 Standard Project Number/Title: 799 - Recreational or Other  
 Please Indicate the Project Type: Neither Alternate nor Improved  
 Application Title: LSSUG02 - Golf Course and Municipal Structure Damage  
 Category: G.RECREATIONAL OR OTHER  
 Percentage Work Completed? 0.0 %  
 As of Date: 12-07-2017

Comments
Attachments

Damage Facilities (Part 1 of 2)

Facility Number	Facility Name	Address	County	City	State	ZIP	Site Previously Damaged?	Action
1	Golf Course and Municipal Airport Structure Damage		Lassen	Susanville	CA		No	

Comments
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User	Date	Document Type	Description	Hard Copy File Reference	File Name	Action
CHRISTOPHER FREDETTE	12-01-2017	Floodplain	LSSUG02 Flood Map (LOP 4, Site 1)		LSSUG02_Lassen County_4301CA-FL-LOP#4, Site-1.pdf(840.48 kb)	<a href="#">View</a>
CHRISTOPHER FREDETTE	12-01-2017	Floodplain	LSSUG02 Flood Map (LOP 6, Site 2)		LSSUG02_Lassen County_4301CA-FL-LOP#6, Site-2.pdf(1.12 Mb)	<a href="#">View</a>
CHRISTOPHER FREDETTE	12-01-2017	Floodplain	LSSUG02 Flood Map (LOP 6, Site 3)		LSSUG02_Lassen County_4301CA-FL-LOP#6, Site-3.pdf(1.21 Mb)	<a href="#">View</a>
CHRISTOPHER FREDETTE	12-01-2017	Floodplain	LSSUG02 Flood Map (LOP 6, Site 4)		LSSUG02_Lassen County_4301CA-FL-LOP#6, Site-4.pdf(927.10 kb)	<a href="#">View</a>
CHRISTOPHER FREDETTE	12-01-2017	Floodplain	LSSUG02 Flood Map (LOP 6, Site 5)		LSSUG02_Lassen County_4301CA-FL-LOP#6, Site-5.pdf(901.65 kb)	<a href="#">View</a>
CHRISTOPHER FREDETTE	12-01-2017	Floodplain	LSSUG02 Flood Map (LOP 6, Site 6)		LSSUG02_Lassen County_4301CA-FL-LOP#6, Site-6.pdf(1.54 Mb)	<a href="#">View</a>
CHRISTOPHER FREDETTE	12-01-2017	Floodplain	LSSUG02 Flood Map (LOP 6, Site 7)		LSSUG02_Lassen County_4301CA-FL-LOP#6, Site-7.pdf(1.15 Mb)	<a href="#">View</a>
CHRISTOPHER FREDETTE	12-01-2017	Floodplain	LSSUG02 Flood Map (LOP 6, Site 8)		LSSUG02_Lassen County_4301CA-FL-LOP#6, Site-8.pdf(1.14 Mb)	<a href="#">View</a>
AYESHA BRIGHT	12-26-2017	Map	DR4301_SusanvilleCityof_LSSUG02_Site Map	DR4301_SusanvilleCityof_LSSUG02_Site Map	DR4301_SusanvilleCityof_LSSUG02_Site Map.pdf(1.26 Mb)	<a href="#">View</a>
AYESHA BRIGHT	12-26-2017	Photos	DR4301_SusanvilleCityof_LSSUG02 Site Inspection Photos	DR4301_SusanvilleCityof_LSSUG02 Site Inspection Photos	DR4301_SusanvilleCityof_LSSUG02 Site Inspection Photos.pdf(2.33 Mb)	<a href="#">View</a>

Facility Name:	Golf Course and Municipal Airport Structure Damage
Address 1:	
Address 2:	
County:	Lassen
City:	Susanville
State:	CA
ZIP:	
Was this site previously damaged?	No
Percentage Work Completed?	0.00 %
Location:	PA-09-CA-4301-PW-01074(0): CITY MAINTAINED DRAINAGE FEATURES/SYSTEMS: Applicant Physical Address: 66 North Lassen Street, Susanville, CA 96130. Site: - GPS Coordinates: Start 40.37414, -120.56986, End 40.36467, -120.65697 - Site is located within the City of Susanville CA. The damage perimeter includes existing and active Golfing Facilities and Features.

Damage Description and Dimensions:	<p>PA-09-CA-4301-PW-01074(0):  **** This PW Addresses Item: #4, 6 on the Applicants List of Projects for DR4301. The Applicant is Legally Responsible for All Repairs ****</p> <p>During the declared incident period of January 3 through January 12, 2017, The City of Susanville, located in Lassen County, CA experienced severe winter storms, flooding and storm surge, which put the City-maintained roads and streets, and public-use alleys/drives in the path of damage.</p> <p>This project includes damages sustained by the City of Susanville, documented at eight (8) sites.</p> <p>LOP #4: Municipal Airport - Perimeter Fence Line (Structural Damage - Chain Link Fence Foundation): Start (40.37414 -120.56986), End (40.37231 -120.56657).</p> <p>The Municipal Airport uses a Galvanized Steel Chain-Linked fence as a safety and security perimeter that runs along segments of the Runway. The Fence varies in height and is installed using concrete footings at specific spacing and depths. The damage sections run between a 1,000 foot length of the Fence-line.</p> <p>LOP #4: Site 1 - Municipal Airport: Runway Perimeter Fence (Galvanized Chain-Link Foundation) - Foundation Failure/Scour (Soil: (40.37414, -120.56986).</p> <p>Location A: 12 ft. L x 8 ft. W x 5 ft. D / 27 = 17.78 CY (soil)  Location B: 15 ft. L x 12 ft. W x 7 ft. D / 27 = 46.67 CY (soil)  Location C: 15 ft. L x 8 ft. W x 5 ft. D / 27 = 22.22 CY (soil)</p> <p>LOP #6: Public Golf Course: Course Pathways and Golfing Land-Features (Erosion, Scour Surface Material (Engineered Fill - soil/pond deposits), Sediment Spill: Start (40.36517, -120.65672), End (40.36874, -120.64099).</p> <p>The City of Susanville Public Golf Course is located South of Downtown Susanville, and is a full-service 18-hole course. Damages occurred across the entire site of the City Maintained property, mainly consisting of surface damages to dirt and gravel travel paths that provide access to the functional golfing areas. Typical travel paths are 10-12 feet in Width.</p> <p>LOP #6: Site 2 - Golf Cart Path at Hole 1 and 9 Tee-off - Erosion (Dirt Pathway): Start: (40.36394, -120.65036)  Dimensions: 495 ft. L X 2 ft. W X 0.5 ft. D / 27 = 18.30 CY  (Engineered Fill - soil).</p> <p>Site 3 - Golf Cart Path at Hole 2 and 8 Fairway - Erosion (Dirt Pathway): Start: (40.36236, -120.64853), End: (40.36367, -120.-120.64604)  Dimensions: 350 ft. L X 6 ft. W X 1 ft. D / 27 = 77.80 CY  (Engineered Fill - soil).</p> <p>Site 4: Golf Cart Path at Hole 4 between Fairway and Green - Erosion (Dirt Pathway): Start: (40.36874, -120.64099), End: (40.36886, -120.64422)  Dimensions: 900 ft. L X 12 ft. W X 1 ft. D / 27 = 400 CY  (Engineered Fill - soil).</p> <p>Site 5: 4th Fairway and Green - Spill/Sediment Deposits (sand, rock material): Start: (40.36893, -120.64457).  Dimensions: 85 ft. L X 45 ft. W X .667 ft. D / 27 = 94.40 CY  (spill - sediment).</p> <p>Site 6: 6th Fairway - Spill/Sediment Deposits (sand, rock material):  Start: (40.36314, -120.64492).  Dimensions: 125 ft. L X 30 ft. W X .333 ft. D / 27 = 46.30 CY  (spill - sediment)</p> <p>Site 7: 17th Fairway - Spill/Sediment Deposits (sand, rock material):  Start: (40.36517, -120.65672), End: (40.36467, -120.65697).  Dimensions: 100 ft. L X 30 ft. W X 0.5 ft. D / 27 = 55.60 CY  (spill - sediment)</p> <p>Site 8: Golf Cart Path at 17th Fairway - Erosion (Engineered Fill - Soil, and Gravel Pathway): Start: (40.36517, -120.65672), End (40.36467, -120.65697).  Location A: 210 ft. L X 8 ft. W X 0.5 ft. D / 27 = 31.10 CY (soil)  Location B: 210 ft. L X 8 ft. W X 0.5 ft. D / 27 = 31.10 CY (gravel)</p>
Scope of Work:	<p>PA-09-CA-4301-PW-01074(0):  Repairing/Restoring to Pre-disaster Design, Capacity and Function Condition:</p> <p>Work to be completed:</p> <ol style="list-style-type: none"> <li>1. Conventional equipment/tools and typical construction practices will be used for the repairs/restoration in accordance with applicable codes and regulations as well as any required permits.</li> <li>2. Damages are to be reviewed by a Licensed Engineer to verify current Scope of Work (SOW) and modify if necessary. Proper Delineation of damages (based on described DDD) should be marked by Engineer/Surveyor to avoid making repairs that are not eligible or are considered post-damage and/or an improved project. Repair work will require evaluation and monitoring of subsurface conditions and construction feasibility in order to make the required repairs. Areas of Erosion and poor soil conditions will require undercut (removal of unsuitable materials) to achieve proper grade/subgrade bearing capacity. Sediment spills will require test pits to determine average depths and locations in order to remove the spill material while minimizing the cut-of pre-disaster surface material/conditions.</li> <li>3. The materials to be used for repairs/restoration are to be obtained from commercial businesses and local labor, cost/quotes provided by Competitive Bid Award. The Applicant provided description of "Engineered Fill" should be evaluated to determine the proper fill type required for replacement.</li> <li>4. Soil and gravel material will require placement in small lifts (6 inches or less) over approved subsurface conditions and compacted to 95% or greater (Standard Proctor). Select locations will require Scarifying Techniques</li> </ol>

and/or Watering to achieve the appropriate Moisture Content to allow for a properly compacted material.

5. Specific Final surfaces will be graded and seeded (if possible), with erosion control matting installed. These locations will typically be located at the LOP 4 damage areas.

6. It is expected that water required for compaction (if necessary) will be taken from on-site man-made detention ponds. Any water removed from natural and/or man-made sources will require documentation determination and evaluation by FEMA/CalOES EHP (Environmental) Teams for proper permitting (if required) and any applicable forms, to include GPS locations and volume expected to be removed/final volume removed.

7. Sediment removal will require documentation to be submitted to FEMA/CalOES EHP (Environmental Teams) that may include (but not limited to) an Engineering Study evaluating the geology and subsurface conditions/surveys (volumes) of sediment to be removed, and expected final disposal procedures and location of material ('cradle to grave' approach).

- \* Repair, Site 1: 86.67 CY Soil
- \* Repair, Site 2: 18.30 CY Engineered Fill (soil)
- \* Repair, Site 3: 77.80 CY Engineered Fill (soil)
- \* Repair, Site 4: 400 CY Engineered Fill (soil)
- \* Repair, Site 5: 94.40 CY Sediment Removal (soil/Pond deposits)
- \* Repair, Site 6: 46.30 CY Sediment Removal (soil/Pond deposits)
- \* Repair, Site 7: 55.60 CY Sediment Removal (soil/Pond deposits)
- \* Repair, Site 8: 31.10 CY Engineered Fill (soil/Pond deposits)  
31.10 CY Gravel

**COSTS:**

Cost Estimate "Work to be Completed" ----- \$ 64,424.95  
 Estimated Direct Administrative Costs ----- \$ 2,931.23

TOTAL COST ----- \$ 67,356.18

**COST DESCRIPTION:**

1. 3510 - Engineering Technician Services for Site Monitoring of undercut/fill activity, compaction testing, and truck-load counting for sediment removal. Costs based on 30-minute services per 100 Square Feet (SF) of fill placement, and 1-hour per truck load for sediment removal (estimating a 10-yard truck per load).
2. 3510 - Professional/License Engineer cost for Site Evaluation and Engineering Proposal/Report Writing.
3. 3020 - Fill (unclassified) cost for LOP 4 material replacement at existing galvanized steel fence system.
4. 3020 - Fill cost for Engineered Fill (type, gradation, engineering properties determines) for LOP 6 damages at Sites 2, 3, 4, and 8.
5. 4040 - Fill cost for Granular Material replacement at Site 8.
6. 3060 - Grading/Shaping of travel pathways at LOP 6, after fill placement, to achieve proper surface grades/shape for future water runoff.
7. 3061 - Scarifying costs for travel pathways at LOP 6.
8. 8251 - Bulldozer Equipment costs for placement of fill materials. Cost based on 100-120 yards placed per day.
9. 8280 - Excavator Equipment costs for removal of unsuitable soil at LOP 4 and 6, and sediment removal at LOP 6. Cost based on 100-120 yards removal per day for LOP 4 and 6, and filling one 10-yard truck per hour for sediment removal at LOP 6.
10. 8222 - Compaction costs for material placement. Cost based on compaction effort at 100 square feet (SF) per hour.
11. 9010 - Labor costs for Equipment use.
12. 9901 - Estimated DAC costs.

**Notes:**

1. Engineering Professional Services should be hired by the Applicant to evaluate the Scope of Work in this Project Worksheet. Particular attention should be noted at LOP 4 - the fence-line foundations and areas of failure should be investigated to better estimate repairs and associated costs.
2. Cost Estimates based on FEMA codes and PDMG estimates.
3. Contract Labor cost for Material Placement based on PDMG estimates from local labor practices and Applicant suggested pricing; subject to increase/decrease.
4. The Sub-recipient is requesting reimbursement for Direct Administrative Costs associated with this project: 41 hours totaling \$ 2,931.23. Please see attached DAC summary sheet. Adjustments for actual DAC costs may be considered during project closeout.

SEE ATTACHED SCOPE NOTES FOR ADDITIONAL INFORMATION.

**Attachments:**

1. Employee Manual
2. Insurance Document Part 1
3. Insurance Document Part 2

**Hazard Mitigation Proposal**

\* Is effective mitigation feasible on this site?  Yes

If you answered Yes to the above question, the next question is required

Will mitigation be performed on this site?  Yes

If you answered Yes to the above question, the next question is required

Do you wish to attach a Hazard Mitigation Proposal?  Yes

If you answered Yes to the above question, the next two questions are required

Please provide the Scope of Work for the estimate:  
(maximum 4000 characters)

(II) Hazard Mitigation Proposal (HMP) Scope of Work: For erosion control and soil stabilization mitigation efforts are;

LOP#4-Site 1: proposed use of Rip Rap and Geo-Tech Fabric to ensure compaction in the sinkholes.

Rip Rap at (12ftx8ftx.66ft / 27 = 2.35 CY) + (15ftx12ftx.66ft / 27 = 4.4 CY) + (15ftx8ftx.66ft / 27 = 2.93 CY) Total = 10 CY @ \$260.39 = \$2,603.90 Caltrans 720116; Geo-Tech Fabric at (12ft x8ft/9= 10.66 SY) + (15ftx12ft/9 =20 SY) + (15ftx8ft/9= 13.33 SY) Total = 44 SY @ \$13.45 =

\$591.80 Caltrans 729012. Total mitigation this site = \$3,195.70 LOP#6-Site 3: Geo-synthetic Fabric at 350ft L x 6ft W / 9 = 233.33 SY @ \$13.45 per sy = \$3,138.29 Caltrans 729012 Site 4: Geo-synthetic fabric at 900ft L x 12ft W / 9 = 1,200 SY @ \$13.45 per sy = \$16,140 Caltrans 729012. Mitigation cost = \$22,473.99 (III) Hazard Mitigation Ratio (HMR): HMR = (Total Hazard Mitigation Cost/PW Total Cost of Damage Elements) X 100 HMR = \$22,473.99 / \$30,179.15 = 74.47% (IV) HMP Feasibility and Cost-Effectiveness: This Hazard Mitigation Proposal is 74.47% of the repair and restoration costs. The Hazard Mitigation Proposal is approved in accordance with Appendix J (100% rule), page 184, of the FEMA PA Program and Policy Guide. Appendix J items on this HMP include Building - mitigation measures may amount to up to 100% of the total eligible cost of the eligible work on a particular project. This HMP is cost effective. (V) Compliances and Assurances The applicant is responsible for permits and compliance with all regulatory codes and standards of the state California and the final design and choice of the contractors and vendors. The final design must be certified by a registered Professional Engineer/Architect per 44CFR60.3. FEMA will not pay for duplication in cost between repairs and mitigation measures. FEMA will pay only the incremental difference in cost between repairs and mitigation, and will not duplicate funding for repair or replacement of eligible work.		
Would you like to add the Hazard Mitigation Proposal as a cost line item to the project cost?	Yes	
GIS Coordinates		
Project Location	Latitude	Longitude
Site Damage	40.37414	-120.56986

Special Considerations

1. Does the damaged facility or item of work have insurance coverage and/or is it an insurable risk (e.g., buildings, equipment, vehicles, etc)? Yes  
 If you would like to make any comments, please enter them below.  
(maximum 4000 characters)  
 No Insurance Claims have been noted or provided to FEMA and CalOES for the damages in this PW.
2. Is the damaged facility located within a floodplain or coastal high hazard area and/or does it have an impact on a floodplain or wetland? No
3. Is the damaged facility or item of work located within or adjacent to a Coastal Barrier Resource System Unit or an Otherwise Protected Area? No
4. Will the proposed facility repairs/reconstruction change the pre-disaster conditions (e.g., footprint, material, location, capacity, use of function)? Yes  
 If you would like to make any comments, please enter them below.  
(maximum 4000 characters)  
 Future Professional Services may change the existing SOW, resulting in changes to the pre-disaster conditions.
5. Does the applicant have a hazard mitigation proposal or would the applicant like technical assistance for a hazard mitigation proposal? Yes  
 If you would like to make any comments, please enter them below.  
(maximum 4000 characters)  
 Mitigation Proposal attached.
6. Is the damaged facility on the National Register of Historic Places or the state historic listing? Is it older than 50 years? Are there more, similar buildings near the site? No
7. Are there any pristine or undisturbed areas on, or near, the project site? Are there large tracts of forestland? No
8. Are there any hazardous materials at or adjacent to the damaged facility and/or item of work? No
9. Are there any other environmental or controversial issues associated with the damaged facility and/or item of work? Yes  
 If you would like to make any comments, please enter them below.  
(maximum 4000 characters)  
 Existing on-site water sources may be used for compaction efforts.

Attachments						
User	Date	Document Type	Description	Hard Copy File Reference	File Name	Action
AYESHA BRIGHT	12-26-2017	Additional Information	DR4301_SusanvilleCityof_LSSUG02_Special Considerations	DR4301_SusanvilleCityof_LSSUG02_Special Considerations	DR4301_SusanvilleCityof_LSSUG02_Special Considerations.pdf(318.70 kb)	<a href="#">View</a>

For Category C, D, E, F, and G Projects only

- Is effective mitigation feasible on this project? Yes
- If you answered Yes to the above question, the next question is required
- Will mitigation be performed on any sites in this project? Yes
- If you answered Yes to the above question, the next question is required
- Do you wish to attach a Hazard Mitigation Proposal? Yes
- If you answered Yes to the above question, the next two questions are required
- Please provide the Scope of Work for the estimate: (I) Damages Description & Dimensions (DDD):  
 Disaster Number DR-4301-CA occurring during incident period: 03-Jan-2017 - 12-Jan-2017.  
 Heavy rains, flooding, high winds, and storm surge caused widespread damage throughout the State of California. This project includes damages sustained by the City of Susanville. Specific Damage:  
 City of Susanville Municipal Airport (LOP 4) fencing and Municipal Golf Course (LOP 6) facilities

lost due to storm surge and flooding.

LOP #4: Site 1 - Municipal Airport: Runway Perimeter Fence (Galvanized Chain-Link Foundation) - Foundation Failure/Scour (Soil: (40.37414, -120.56986). Location A: 12 ft. L x 8 ft. W x 5 ft. D / 27 = 17.78 CY (soil) Location B: 15 ft. L x 12 ft. W x 7 ft. D / 27 = 46.67 CY (soil) Location C: 15 ft. L x 8 ft. W x 5 ft. D / 27 = 22.22 CY (soil)

Total cost this site = \$3,900.15

LOP #6: Public Golf Course: Site 3 - Golf Cart Path at Hole 2 and 8 Fairway - Erosion (Dirt Pathway): Start: (40.36236, -120.64853), End: (40.36367, 120.64604)

Dimensions: 350 ft. L X 6 ft. W X 1 ft. D / 27 = 77.80 CY (Engineered Fill - soil).

Total cost this site = \$4,279

Site 4: Golf Cart Path at Hole 4 between Fairway and Green - Erosion (Dirt Pathway): Start: (40.36874, -120.64099), End: (40.36886, -120.64422)  
Dimensions: 900 ft. L X 12 ft. W X 1 ft. D / 27 = 400 CY (Engineered Fill - soil).

Total cost this site = \$22,000 PW total cost of damage elements for these sites is \$30,179.15

(II) Hazard Mitigation Proposal (HMP) Scope of Work: For erosion control and soil stabilization mitigation efforts are;

LOP#4-Site 1: proposed use of Rip Rap and Geo-Tech Fabric to ensure compaction in the sinkholes.

Rip Rap at (12ftx8ftx.66ft / 27 = 2.35 CY) + (15ftx12ftx.66ft / 27 = 4.4 CY) + (15ftx8ftx.66ft / 27 = 2.93 CY) Total = 10 CY @ \$260.39 = \$2,603.90  
Caltrans 720116; Geo-Tech Fabric at (12ft x8ft/9= 10.66 SY) + (15ftx12ft/9=20 SY) + (15ftx8ft/9= 13.33 SY) Total = 44 SY @ \$13.45 = \$591.80  
Caltrans 729012.

Total mitigation this site = \$3,195.70

LOP#6-Site 3: Geo-synthetic Fabric at 350ft L x 6ft W / 9 = 233.33 SY @ \$13.45 per sy = \$3,138.29 Caltrans 729012

Site 4: Geo-synthetic fabric at 900ft L x 12ft W / 9 = 1,200 SY @ \$13.45 per sy = \$16,140 Caltrans 729012

Mitigation cost = \$22,473.99

(III) Hazard Mitigation Ratio (HMR):  
HMR = (Total Hazard Mitigation Cost/PW Total Cost of Damage Elements) X 100  
HMR = \$22,473.99 / \$30,179.15 = 74.47%

(IV) HMP Feasibility and Cost-Effectiveness:  
This Hazard Mitigation Proposal is 74.47% of the repair and restoration costs. The Hazard Mitigation Proposal is approved in accordance with Appendix J (100% rule), page 184, of the FEMA PA Program and Policy Guide. Appendix J Items on this HMP include Building - mitigation measures may amount to up to 100% of the total eligible cost of the eligible work on a particular project. This HMP is cost effective.

Would you like to add the Hazard Mitigation Proposal as a cost line item to the project cost?

Yes

Hazard Mitigation Proposal - 0909									
#	Code	Material and/or Description	Unit Quantity	Unit of Measure	Unit Price	Subgrant Budget Class	Type	Cost Estimate	Action
*** Version 0 ***									
1	0909	Mitigation	1	LS	\$ 22,473.99			\$ 22,473.99	
								<b>Total Cost: \$ 22,473.99</b>	

Comments

Attachments

Cost Estimate

Is this Project Worksheet for

(Preferred) Repair									
Sequence	Code	Material and/or Description	Unit Quantity	Unit of Measure	Unit Price	Subgrant Budget Class	Type	Cost Estimate	Action
*** Version 0 ***									
Work To Be Completed									
1	3510	Engineering And Design Services	100	HR	\$ 70.00	CONTRACTUAL	Work To Be Completed	\$ 7,000.00	
2	3510	Engineering And Design Services	20	HR	\$ 140.00	CONTRACTUAL	Work To Be Completed	\$ 2,800.00	
3	3020	Fill (Unclassified)	86.67	CY	\$ 45.00	CONSTRUCTION		\$ 3,900.15	

							Work To Be Completed	
4	3020	Fill (Unclassified)	527.2	CY	\$ 55.00	CONSTRUCTION	Work To Be Completed	\$ 28,996.00
5	4040	Fill (Granular)	31.1	CY	\$ 55.00	OTHER	Work To Be Completed	\$ 1,710.50
6	3060	Grading (Subgrade Shaping)	1917	SY	\$ 1.15	CONSTRUCTION	Work To Be Completed	\$ 2,204.55
7	3061	Scarifying	1917	SY	\$ 1.25	CONSTRUCTION	Work To Be Completed	\$ 2,396.25
8	8251	Dozer, Crawler - to 105 hp - 2015 - Equipment Schedule	60	HR	\$ 45.50	EQUIPMENT	Work To Be Completed	\$ 2,730.00
9	8280	Excavator, Hydraulic - to 45 hp; Bucket Capacity: 0.5 cy - 2015 - Equipment S	80	HR	\$ 20.00	EQUIPMENT	Work To Be Completed	\$ 1,600.00
10	8222	Compactor, Vibratory, Drum - to 75 hp- 2015 - Equipment Schedule	170	HR	\$ 28.75	EQUIPMENT	Work To Be Completed	\$ 4,887.50
11	9010	Laborer Regular Time	310	HR	\$ 20.00	PERSONNEL	Work To Be Completed	\$ 6,200.00
12	9901	Direct Administrative Costs (Subgrantee)	1	LS	\$ 2,931.23	INDIRECT CHARGES	Work To Be Completed	\$ 2,931.23
<b>Total Cost :</b>								<b>\$ 67,356.18</b>

Insurance Adjustments (Deductibles, Proceeds and Settlements) - 5900/5901									
Sequence	Code	Material and/or Description	Unit Quantity	Unit of Measure	Unit Price	Subgrant Budget Class	Type	Cost Estimate	Action
<b>Total Cost :</b>									<b>\$ 0.00</b>

Hazard Mitigation Proposal - 0909									
Sequence	Code	Material and/or Description	Unit Quantity	Unit of Measure	Unit Price	Subgrant Budget Class	Type	Cost Estimate	Action
*** Version 0 ***									
1	0909	Mitigation	1	LS	\$ 22,473.99			\$ 22,473.99	
<b>Total Cost :</b>									<b>\$ 22,473.99</b>

<b>Total Cost Estimate:</b>								<b>\$ 89,830.17</b>
(Preferred Estimate Type + Insurance Adjustments + Hazard Mitigation Proposal)								

Comments
1. 3510 - Engineering Technician Services for Site Monitoring of undercut/fill activity, compaction testing, and truck-load counting for sediment removal. Costs based on 30-minute services per 100 Square Feet (SF) of fill placement, and 1-hour per truck load for sediment removal (estimating a 10-yard truck per load). 2. 3510 - Professional/License Engineer cost for Site Evaluation and Engineering Proposal/Report Writing. 3. 3020 - Fill (unclassified) cost for LOP 4 material replacement at existing galvanized steel fence system. 4. 3020 - Fill cost for Engineered Fill (type, gradation, engineering properties determines) for LOP 6 damages at Sites 2, 3, 4, and 8. 5. 4040 - Fill cost for Granular Material replacement at Site 8. 6. 3060 - Grading/Shaping of travel pathways at LOP 6, after fill placement, to achieve proper surface grades/shape for future water runoff. 7. 3061 - Scarifying costs for travel pathways at LOP 6. 8. 8251 - Bulldozer Equipment costs for placement of fill materials. Cost based on 100-120 yards placed per day. 9. 8280 - Excavator Equipment costs for removal of unsuitable soil at LOP 4 and 6, and sediment removal at LOP 6. Cost based on 100-120 yards removal per day for LOP 4 and 6, and filling one 10-yard truck per hour for sediment removal at LOP 8. 10. 8222 - Compaction costs for material placement. Cost based on compaction effort at 100 square feet (SF) per hour. 11. 9010 - Labor costs for Equipment use. 12. 9901 - Estimated DAC costs.
Attachments

Existing Insurance Information						
Insurance Type	Policy No.	Bldg/Property Amount	Content Amount	Insurance Amount	Deductible Amount	Years Required
General	APIP 017471589/03	\$ 1,000,000,000.00	\$ 1,000,000,000.00		\$ 5,000.00	0

Comments
Alliant Property Insurance Program policy in the RPA attachments
Attachments

Name of Section	Comments and Attachments	Attachment
Damage Facilities		<a href="#">LSSUG02 Lassen County 4301CA-FL-LOP#4_Site-1.pdf (12-01-2017)</a>
		<a href="#">LSSUG02 Lassen County 4301CA-FL-LOP#6_Site-2.pdf (12-01-2017)</a>
		<a href="#">LSSUG02 Lassen County 4301CA-FL-LOP#6_Site-3.pdf (12-01-2017)</a>
		<a href="#">LSSUG02 Lassen County 4301CA-FL-LOP#6_Site-4.pdf (12-01-2017)</a>
		<a href="#">LSSUG02 Lassen County 4301CA-FL-LOP#6_Site-5.pdf (12-01-2017)</a>
		<a href="#">LSSUG02 Lassen County 4301CA-FL-LOP#6_Site-6.pdf (12-01-2017)</a>

Comments and Attachments

[LSSUG02 Lassen County 4301CA-FL-LOP#6\\_Site-7.pdf](#) (12-01-2017)

[LSSUG02 Lassen County 4301CA-FL-LOP#6\\_Site-6.pdf](#) (12-01-2017)

[DR4301 SusanvilleCityof LSSUG02 Site Map.pdf](#) (12-26-2017)

[DR4301 SusanvilleCityof LSSUG02 Site Inspection Photos.pdf](#) (12-26-2017)

[DR4301 SusanvilleCityof LSSUG02 Special Considerations.pdf](#) (12-26-2017)

Special Considerations

1. 3510 - Engineering Technician Services for Site Monitoring of undercut/fill activity, compaction testing, and truck-load counting for sediment removal. Costs based on 30-minute services per 100 Square Feet (SF) of fill placement, and 1-hour per truck load for sediment removal (estimating a 10-yard truck per load). 2. 3510 - Professional/License Engineer cost for Site Evaluation and Engineering Proposal/Report Writing. 3. 3020 - Fill (unclassified) cost for LOP 4 material replacement at existing galvanized steel fence system. 4. 3020 - Fill cost for Engineered Fill (type, gradation, engineering properties determines) for LOP 6 damages at Sites 2, 3, 4, and 8. 5. 4040 - Fill cost for Granular Material replacement at Site 8. 6. 3060 - Grading/Shaping of travel pathways at LOP 6, after fill placement, to achieve proper surface grades/shape for future water runoff. 7. 3061 - Scarifying costs for travel pathways at LOP 6. 8. 8251 - Bulldozer Equipment costs for placement of fill materials. Cost based on 100-120 yards placed per day. 9. 8280 - Excavator Equipment costs for removal of unsuitable soil at LOP 4 and 6, and sediment removal at LOP 6. Cost based on 100-120 yards removal per day for LOP 4 and 6, and filling one 10-yard truck per hour for sediment removal at LOP 8. 10. 8222 - Compaction costs for material placement. Cost based on compaction effort at 100 square feet (SF) per hour. 11. 9010 - Labor costs for Equipment use. 12. 9901 - Estimated DAC costs.

Cost Estimate

Insurance Information Alliant Property Insurance Program policy in the RPA attachments

Form 90-91

[DR4301 SusanvilleCityof LSSUG02 90-91 \(signed\).pdf](#) (12-26-2017)

Application Level

Based on the information provided, Cal OES concurs with FEMA's determination regarding the scope of work and costs described in the subgrant as written. Any change in the scope of work, if applicable, must be submitted to the Cal OES Public Assistance Officer and be approved before work begins. DThorpe 2/9/18

Bundle Reference # (Amendment #)	Date Awarded
PA-09-CA-4301-PW-01074(618)	02-15-2018

Subgrant Application - FEMA Form 90-91

Note: The Effective Cost Share for this application is 75%

FEDERAL EMERGENCY MANAGEMENT AGENCY  
PROJECT WORKSHEET

DISASTER FEMA 4301 - DR -CA	PROJECT NO. LSSUG02	PA ID NO. 035-77364-00	DATE 12-06-2017	CATEGORY G
APPLICANT: SUSANVILLE			WORK COMPLETE AS OF: 12-07-2017 : 0 %	
Site 1 of 1				
DAMAGED FACILITY: Golf Course and Municipal Airport Structure Damage			COUNTY: Lassen	
LOCATION: PA-09-CA-4301-PW-01074(0) CITY MAINTAINED DRAINAGE FEATURES/SYSTEMS Applicant Physical Address: 66 North Lassen Street, Susanville, CA 96130 Site - GPS Coordinates: Start 40.37414, -120.56986, End 40.36467, -120.65697 - Site is located within the City of Susanville CA. The damage perimeter includes existing and active Golfing Facilities and Features			LATITUDE: 40.37414	LONGITUDE: -120.56986
Current Version:				
DAMAGE DESCRIPTION AND DIMENSIONS: PA-09-CA-4301-PW-01074(0): **** This PW Addresses Item: #4, 6 on the Applicants List of Projects for DR4301 The Applicant is Legally Responsible for All Repairs **** During the declared incident period of January 3 through January 12, 2017, The City of Susanville, located in Lassen County CA experienced severe winter storms, flooding and storm surge, which put the City-maintained roads and streets, and public-use alleys/drives in the path of damage. This project includes damages sustained by the City of Susanville, documented at eight (8) sites. LOP #4. Municipal Airport - Perimeter Fence Line (Structural Damage - Chain Link Fence Foundation) Start (40.37414 -120.56986), End (40.37231 -120.56857). The Municipal Airport uses a Galvanized Steel Chain-Linked fence as a safety and security perimeter that runs along segments of the Runway. The Fence varies in height and is installed using concrete footings at specific spacing and depths. The damage sections run between a 1,000 foot length of the Fence-line. LOP #4. Site 1 - Municipal Airport: Runway Perimeter Fence (Galvanized Chain-Link Foundation) - Foundation Failure/Scour (Soil: (40.37414, -120.56986). Location A 12 ft L x 8 ft W x 5 ft D / 27 = 17.78 CY (soil) Location B 15 ft L x 12 ft W x 7 ft D / 27 = 46.67 CY (soil) Location C 15 ft L x 8 ft W x 5 ft D / 27 = 22.22 CY (soil) LOP #6 Public Golf Course Course Pathways and Golfing Land-Features (Erosion Scour Surface Material (Engineered Fill - soil/pond deposits), Sediment Spill: Start (40.36517, -120.85672), End (40.36874,				

-120.64099)

The City of Susanville Public Golf Course is located South of Downtown Susanville, and is a full-service 18-hole course. Damages occurred across the entire site of the City Maintained property, mainly consisting of surface damages to dirt and gravel travel paths that provide access to the functional golfing areas. Typical travel paths are 10-12 feet in Width

- LOP #6: Site 2 - Golf Cart Path at Hole 1 and 9 Tee-off - Erosion (Dirt Pathway): Start: (40.36394, -120.65036)  
Dimensions: 495 ft. L X 2 ft. W X 0.5 ft. D / 27 = 18.30 CY  
(Engineered Fill - soil).
- Site 3 - Golf Cart Path at Hole 2 and 8 Fairway - Erosion (Dirt Pathway): Start: (40.36236, -120.64853), End: (40.36367, -120.64604)  
Dimensions: 350 ft. L X 6 ft. W X 1 ft. D / 27 = 77.80 CY  
(Engineered Fill - soil).
- Site 4: Golf Cart Path at Hole 4 between Fairway and Green - Erosion (Dirt Pathway): Start: (40.36874, -120.64099), End: (40.36886, -120.64422)  
Dimensions: 900 ft. L X 12 ft. W X 1 ft. D / 27 = 400 CY  
(Engineered Fill - soil).
- Site 5: 4th Fairway and Green - Spill/Sediment Deposits (sand, rock material): Start: (40.36893, -120.64457).  
Dimensions: 85 ft. L X 45 ft. W X .667 ft. D / 27 = 94.40 CY  
(spill - sediment)
- Site 6: 6th Fairway - Spill/Sediment Deposits (sand, rock material):  
Start: (40.36314, -120.64492).  
Dimensions: 125 ft. L X 30 ft. W X .333 ft. D / 27 = 46.30 CY  
(spill - sediment)
- Site 7: 17th Fairway - Spill/Sediment Deposits (sand, rock material):  
Start: (40.36517, -120.65672), End: (40.36467, -120.65697).  
Dimensions: 100 ft. L X 30 ft. W X 0.5 ft. D / 27 = 55.60 CY  
(spill - sediment)
- Site 8: Golf Cart Path at 17th Fairway - Erosion (Engineered Fill - Soil, and Gravel Pathway): Start: (40.36517, -120.65672), End (40.36467, -120.65697)  
Location A: 210 ft. L X 8 ft. W X 0.5 ft. D / 27 = 31.10 CY (soil)  
Location B: 210 ft. L X 8 ft. W X 0.5 ft. D / 27 = 31.10 CY (gravel)

Current Version

SCOPE OF WORK:

PA-09-CA-4301-PW-01074(D)  
Repairing/Restoring to Pre-disaster Design Capacity and Function Condition.

Work to be completed:

1. Conventional equipment/tools and typical construction practices will be used for the repairs/restoration in accordance with applicable codes and regulations as well as any required permits.
2. Damages are to be reviewed by a Licensed Engineer to verify current Scope of Work (SOW) and modify if necessary. Proper Delineation of damages (based on described DDD) should be marked by Engineer/Surveyor to avoid making repairs that are not eligible or are considered post-damage and/or an improved project. Repair work will require evaluation and monitoring of subsurface conditions and construction feasibility in order to make the required repairs. Areas of Erosion and poor soil conditions will require undercut (removal of unsuitable materials) to achieve proper grade/subgrade bearing capacity. Sediment spills will require test pits to determine average depths and locations in order to remove the spill material while minimizing the cut of pre-disaster surface material/conditions.
3. The materials to be used for repairs/restoration are to be obtained from commercial businesses and local labor, cost/quotes provided by Competitive Bid Award. The Applicant provided description of "Engineered Fill" should be evaluated to determine the proper fill type required for replacement.
4. Soil and gravel material will require placement in small lifts (6 inches or less) over approved subsurface conditions and compacted to 95% or greater (Standard Proctor). Select locations will require Scarifying Techniques and/or Watering to achieve the appropriate Moisture Content to allow for a properly compacted material.
5. Specific Final surfaces will be graded and seeded (if possible), with erosion control matting installed. These locations will typically be located at the LOP 4 damage areas.
6. It is expected that water required for compaction (if necessary) will be taken from on-site man-made detention ponds. Any water removed from natural and/or man-made sources will require documentation determination and evaluation by FEMA/CalOES EHP (Environmental Teams) for proper permitting (if required) and any applicable forms, to include GPS locations and volume expected to be removed/final volume removed.
7. Sediment removal will require documentation to be submitted to FEMA/CalOES EHP (Environmental Teams) that may include (but not limited to) an Engineering Study evaluating the geology and subsurface conditions/surveys (volumes) of sediment to be removed, and expected final disposal procedures and location of material ('cradle to grave' approach)
  - \* Repair, Site 1: 86.67 CY Soil
  - \* Repair, Site 2: 18.30 CY Engineered Fill (soil)
  - \* Repair, Site 3: 77.80 CY Engineered Fill (soil)
  - \* Repair, Site 4: 400 CY Engineered Fill (soil)
  - \* Repair, Site 5: 94.40 CY Sediment Removal (soil/Pond deposits)
  - \* Repair, Site 6: 46.30 CY Sediment Removal (soil/Pond deposits)
  - \* Repair, Site 7: 55.60 CY Sediment Removal (soil/Pond deposits)
  - \* Repair, Site 8: 31.10 CY Engineered Fill (soil/Pond deposits)
  - 31.10 CY Gravel

COSTS:

Cost Estimate "Work to be Completed" -----\$ 64,424.95  
 Estimated Direct Administrative Costs -----\$ 2,931.23  
 TOTAL COST -----\$ 67,356.18

COST DESCRIPTION:

1. 3510 - Engineering Technician Services for Site Monitoring of undercut/fill activity, compaction testing, and truck-load counting for sediment removal. Costs based on 30-minute services per 100 Square Feet (SF) of fill placement, and 1-hour per truck load for sediment removal (estimating a 10-yard truck per load).
2. 3510 - Professional/License Engineer cost for Site Evaluation and Engineering Proposal/Report Writing
3. 3020 - Fill (unclassified) cost for LOP 4 material replacement at existing galvanized steel fence system.
4. 3020 - Fill cost for Engineered Fill (type, gradation, engineering properties determined) for LOP 6 damages at Sites 2, 3, 4, and 8.
5. 4040 - Fill cost for Granular Material replacement at Site 8.
6. 3060 - Grading/Shaping of travel pathways at LOP 6, after fill placement, to achieve proper surface grades/shape for future water runoff.
7. 3061 - Scarifying costs for travel pathways at LOP 6.
8. 8251 - Bulldozer Equipment costs for placement of fill materials. Cost based on 100-120 yards placed per day.
9. 8260 - Excavator Equipment costs for removal of unsuitable soil at LOP 4 and 6, and sediment removal at LOP 6. Cost based on 100-120 yards removal per day for LOP 4 and 6, and filling one 10-yard truck per hour for sediment removal at LOP 6.
10. 8222 - Compaction costs for material placement. Cost based on compaction effort at 100 square feet (SF) per hour.
11. 9010 - Labor costs for Equipment use.
12. 9901 - Estimated DAC costs

Notes:

1. Engineering Professional Services should be hired by the Applicant to evaluate the Scope of Work in this Project Worksheet. Particular attention should be noted at LOP 4 - the fence-line foundations and areas of failure should be investigated to better estimate repairs and associated costs.
2. Cost Estimates based on FEMA codes and PDGM estimates.
3. Contract Labor cost for Material Placement based on PDGM estimates from local labor practices and Applicant suggested pricing, subject to increase/decrease.
4. The Sub-recipient is requesting reimbursement for Direct Administrative Costs associated with this project; 41 hours totaling \$ 2,931.23. Please see attached DAC summary sheet. Adjustments for actual DAC costs may be considered during project closeout.

SEE ATTACHED SCOPE NOTES FOR ADDITIONAL INFORMATION.

Attachments:

- 1 Employee Manual
- 2 Insurance Document Part 1
- 3 Insurance Document Part 2

Current Version.

Does the Scope of Work change the pre-disaster conditions at the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Special Considerations included? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hazard Mitigation proposal included? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Is there insurance coverage on this facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
PROJECT COST			
ITEM	CODE	NARRATIVE	COST
		*** Version 0 ***	
		Work To Be Completed	
			100/HR
			\$ 70.00
			\$ 7,000.00
1	3510	Engineering And Design Services	20/HR
			\$ 140.00
			\$ 2,800.00
2	3510	Engineering And Design Services	86.67/CY
			\$ 45.00
			\$ 3,900.15
3	3020	Fill (Unclassified)	527.2/CY
			\$ 55.00
			\$ 28,996.00
4	3020	Fill (Unclassified)	31.1/CY
			\$ 55.00
			\$ 1,710.50
5	4040	Fill (Granular)	1917/SY
			\$ 1.15
			\$ 2,204.55
6	3060	Grading (Subgrade Shaping)	1917/SY
			\$ 1.25
			\$ 2,396.25
7	3061	Scarifying	60/HR
			\$ 45.50
			\$ 2,730.00
8	8251	Dozer, Crawler - to 105 hp - 2015 - Equipment Schedule	80/HR
			\$ 20.00
			\$ 1,600.00
9	8280	Excavator, Hydraulic - to 45 hp; Bucket Capacity: 0.5 cy - 2015 - Equipment S	170/HR
			\$ 28.75
			\$ 4,887.50
10	8222	Compactor, Vibratory, Drum - to 75 hp- 2015 - Equipment Schedule	310/HR
			\$ 20.00
			\$ 6,200.00
11	9010	Laborer Regular Time	1/LS
			\$ 2,931.23
			\$ 2,931.23
12	9901	Direct Administrative Costs (Subgrantee)	1/LS
			\$ 22,473.99
			\$ 22,473.99
13	0909	Hazard Mitigation Proposal	
			TOTAL COST
			\$ 89,830.17
PREPARED BY CHRISTOPHER FREDETTE		TITLE Project Specialist	SIGNATURE
APPLICANT REP. James M Moore		TITLE Fire Chief	SIGNATURE

SUSANVILLE : PA-09-CA-4301-PW-01074					
Conditions Information					
Review Name	Condition Type	Condition Name	Description	Monitored	Status
Final Review	Other (EHP)	Executive Order 11990 - Wetlands	Condition 4. Permitting The Sub-Grantee is responsible for proper identification of wetlands. Under EO11990 - Protection of Wetlands. The Sub-Grantee is responsible for coordinating with and obtaining any required Section 404 Permit(s) from the United States Army Corps of Engineers (USACE) prior to initiating work. The Sub-Grantee shall comply with all conditions of the required permit. All coordination pertaining to these activities shall be documented and copies forwarded to the California Office of Emergency Services and the FEMA Public Assistance Program as part of the permanent project files.	No	Approved
Final Review	Other (EHP)	Standard Condition #3	If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.	No	Approved
Final Review	Other (EHP)	Standard Condition #2	This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.	No	Approved
Final Review	Other (EHP)	Standard Condition #1	Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.	No	Approved
Final Review	Other (EHP)	National Historic Preservation Act (NHPA)	If borrow material for this project is not disaster-displaced material reclaimed from the immediate area, not obtained from a standard commercial borrow source, not obtained from a permitted borrow-pit (and a permit number is provided), or not obtained from a Sub-Grantee owned pre-existing stockpile (and the coordinates provided), the Sub-Grantee must notify FEMA and the California Office of Emergency Services (Cal OES) prior to commencing borrow extraction, so that compliance with Section 106 of the National Historic Preservation Act can be accomplished. Non-compliance with this requirement may jeopardize the receipt of federal funding.	Yes	Approved
Final Review	Other (EHP)	Executive Order 11990 - Wetlands	Condition 4. Best Management Practices The Sub-Grantee shall ensure that best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. This includes equipment storage and staging of construction to prevent erosion and sedimentation to ensure that wetlands are not adversely impacted per the Clean Water Act and Executive Order 11990.	No	Approved
EHP Review	Other (EHP)	Standard Condition #3	If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.	No	Recommended
EHP Review	Other (EHP)	Standard Condition #2	This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.	No	Recommended
EHP Review	Other (EHP)	Standard Condition #1	Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.	No	Recommended
EHP Review	Other (EHP)	National Historic Preservation Act (NHPA)	If borrow material for this project is not disaster-displaced material reclaimed from the immediate area, not obtained from a standard commercial borrow source, not obtained from a permitted borrow-pit (and a permit number is provided), or not obtained from a Sub-Grantee owned pre-existing stockpile (and the coordinates provided), the Sub-Grantee must notify FEMA and the California Office of Emergency Services (Cal OES) prior to commencing borrow extraction, so that compliance with Section 106 of the	Yes	Recommended

SUSANVILLE : PA-09-CA-4301-PW-01074

Conditions Information

			National Historic Preservation Act can be accomplished. Non-compliance with this requirement may jeopardize the receipt of federal funding.		
EHP Review	Other (EHP)	Executive Order 11990 - Wetlands	Condition 4 Best Management Practices The Sub-Grantee shall ensure that best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. This includes equipment storage and staging of construction to prevent erosion and sedimentation to ensure that wetlands are not adversely impacted per the Clean Water Act and Executive Order 11990.	No	Recommended
EHP Review	Other (EHP)	Executive Order 11990 - Wetlands	Condition 4 Permitting The Sub-Grantee is responsible for proper identification of wetlands. Under EO 11990 - Protection of Wetlands. The Sub-Grantee is responsible for coordinating with and obtaining any required Section 404 Permit(s) from the United States Army Corps of Engineers (USACE) prior to initiating work. The Sub-Grantee shall comply with all conditions of the required permit. All coordination pertaining to these activities shall be documented and copies forwarded to the California Office of Emergency Services and the FEMA Public Assistance Program as part of the permanent project files.	No	Recommended
Insurance Review	Program Terms (Grant Specific)	No Insurance Obtain and Maintain Condition	As detailed in FEMA Recovery Policy FP 206-086-1, Part 1(A)(2), the requirement to obtain and maintain insurance as a condition of receiving Public Assistance funding from FEMA applies to buildings, contents in a building, vehicles, and equipment. The items described in this Subgrant Application do not fall in one of these categories. There is no insurance purchase requirement.	No	Recommended

Internal Comments

No.	Queue	User	Date/Time	Reviewer Comments
8	<u>Grantee Review</u>	Thorpe Daniel	02-10-2018 12:12 AM GMT	Based on the information provided, Cal OES concurs with FEMA's determination regarding the scope of work and costs described in the subgrant as written. Any change in the scope of work, if applicable, must be submitted to the Cal OES Public Assistance Officer and be approved before work begins. DThorpe 2/9/18
7	EHP Review	THOMACK CINDY	02-09-2018 10:24 PM GMT	<p>CAT G, 0% complete, City of Susanville, Lassen County, CA (LOP 4: Municipal Airport; Runway Perimeter Fence (40.37414 -120.56986 to 40.37231 -120.56657); and LOP 6: Public Golf Course (40.36517, -120.65672 to 40.36674, -120.64099). Utilize force account materials and contract services to repair foundation failure/scour at perimeter chain link fence line at the Municipal Airport, and surface damages to dirt and gravel travel paths that provide access to functional golfing areas. Approximately 791.87 CY of soil and 31.10 CY of gravel will be used to restore areas. All repairs will be to pre-disaster conditions and using in-kind materials as well as new materials per hazard mitigation.</p> <p>The following hazard mitigation proposal is included; erosion control and soil stabilization mitigation efforts: LOP 4 Site 1; proposed use of 10 CY of Rip Rap, and 44 SY of Geo-Tech Fabric to ensure compaction in the sinkholes, and LOP #6 Site 3; at 233.33 SY of Geo-synthetic Fabric and LOP #6 Site 4: 1200 SY of Geo-synthetic fabric.</p> <p>This project has been determined to be Statutorily Excluded from NEPA review in accordance with Section 316 of the Stafford Act. Particular attention should be given to the project conditions before and during project implementation. Failure to comply with these conditions may jeopardize federal assistance including funding.</p> <p>- tnewson - 02/02/2018 15:53:32 GMT The project is located in Lassen County that is within an attainment area for all criteria pollutants according to the U. S. Environmental Protection Agency (USEPA): <a href="https://www.epa.gov/green-book">https://www.epa.gov/green-book</a> updated December 31, 2017. The SOW associated with this undertaking is exempt from a conformity determination under the General Conformity Rule. - tnewson - 02/02/2018 15:55:57 GMT the U.S. Fish and Wildlife Service Wetland Mapper viewed on 1/31/2018, the project sites: Municipal Airport and the Public Golf course is adjacent to a designated wetland. The proposed action is not likely to result in any potential direct impacts that will adversely affect the natural values and function of wetlands. Initial Disaster Public Notice was published on 2/14/2017 See Conditions. - tnewson - 02/02/2018 15:58:49 GMT Based on the type of activities as described in the scope of work, this project has been determined to have no effect on Federally listed threatened and endangered species or critical habitat. - tnewson - 02/02/2018 15:54:16 GMT Activities associated with this undertaking do not have the potential to take migratory birds. WSRA - tnewson - 02/02/2018 15:56:41 GMT PER Flood Insurance Rate Map (06035C) panels (2225D and 2200D) dated (September 03, 2010 ) site is located outside the Special Flood Area (100-year flood plain, base floodplain) and the activity does not adversely affect the flood plain values. - nmorale3 - 02/05/2018 23:33:54 GMT The Undertaking was reviewed by Courtney Doyle, who meets the applicable Secretary of the Interiors Professional</p>

Internal Comments				
No.	Queue	User	Date/Time	Reviewer Comments
				Qualifications Standards in accordance with Stipulation I.B.1.a. of the Programmatic Agreement among the Federal Emergency Management Agency (FEMA), State Historic Preservation Office (SHPO) and California Office of Emergency Services (Cal OES) signed October 30, 2014. The Undertaking complies with Second Tier Programmatic Allowances II.A.1.(a) (In-kind repairs, or replacement, and minor upgrades to recreational facilities and features (e.g. athletic fields, pathways) and II.A.1.(b) (In-kind repair, replacement, and minor upgrades to landscaping elements (e.g. fencing) (Appendix B) of the Agreement. Thus, the Undertaking does not require SHPO review or notification per Stipulation II.A.1. of the Agreement. See Condition. - cdoyl1 - 02/01/2018 18:21:55 GMT
6	<a href="#">Mitigation Review</a>	ROBERTSON JAMES	12-19-2017 04:37 PM GMT	Proposed mitigation is technically feasible and cost effective per Public Assistance Program and Policy Guide FP-104-006-2, Appendix J. 100% rule HMP is approved. James Robertson HM 406
5	<a href="#">Insurance Review</a>	SMITH ROGER	12-18-2017 06:07 PM GMT	12/18/17 The applicant has coverage with Alliant Property Insurance Program (APIP). The APIP policy excludes damages caused by the peril of flood. The policy also excludes damage to land. There is no duplication of benefits.  Roger Smith, Insurance Specialist
4	<a href="#">Initial Review</a>	RENTSCHLER BRIAN	12-13-2017 05:43 PM GMT	Hold released 12/11/17 - BM
3	<a href="#">Initial Review</a>	MASSAQUOI BENNEH	12-12-2017 12:44 AM GMT	Hold released 12/11/17 - BM
2	<a href="#">Initial Review</a>	MASSAQUOI BENNEH	12-12-2017 12:40 AM GMT	Hold pending documentation submittal - 12/06/17 - BM
1	<a href="#">Initial Review</a>	MASSAQUOI BENNEH	12-06-2017 05:26 PM GMT	Hold pending documentation submittal - 12/06/17 - BM

[Go Back](#)



March 12, 2018

Dan Newton  
Interim City Administrator  
Susanville, City of  
66 North Lassen Street  
Susanville, California 96130

**Subject:** Notification of Obligation and Payment  
Public Assistance and CDAA Grant Programs  
FEMA-4308-DR-CA, Cal OES ID: 035-77364

Dear Mr. Newton:

**Obligation Notification** The California Governor's Office of Emergency Services has attached the Grant Summary and the Project Application Summary for Federal Package #643, and the Exhibit C for State Supplement #1. Please see the table below for further obligation details.

Obligation Details	Package/Supplement Obligation Amount	Cumulative Amount Obligated
Federal-Public Assistance	\$25,465	\$44,322
State-California Disaster Assistance Act (CDAA)	\$7,003	\$12,188
<b>Total</b>	<b>\$32,468</b>	<b>\$56,510</b>

**Payment Process** For this disaster, funds will be paid in accordance with the following disbursement table:

Project Status	Federal Funds Disbursement Process	State Funds Disbursement Process
Small Projects less than 100% complete	Automatic advance of federal share and administrative allowance	Automatic advance of state share and administrative allowance. Retention held until 100% complete
Small Projects 100% complete	Automatic payment of federal share and administrative allowance	Automatic payment of state share and administrative allowance
Large Projects less than 100% complete	Advance administrative allowance only. All other funds (less retention) will be paid on a reimbursement basis	Advance administrative allowance only. All other funds (less retention) will be paid on a reimbursement basis
Large Projects 100% complete	Automatic payment of federal share and administrative allowance for entire project	Automatic payment of state share and administrative allowance

3650 SCHRIEVER AVENUE • MATHER, CA 95655  
GRANTS PROCESSING UNIT  
(916) 845-8110 • (916) 636-3880 FAX

**Payment  
Process-  
Continued**

For this particular Package/Supplement, payment will be automatically disbursed as follows:

<b>Payment Details</b>	<b>Amount Automatically Paid</b>
Federal-Public Assistance	\$25,465
State-CDAA	\$6,366
<b>Total</b>	<b>\$31,831</b>

For those large projects with a work completion of less than 100 percent, a Large Project Reimbursement Request form has also been included with this Package/Supplement.

Federal and State funds will be issued separately by the State Controller's Office. Please be advised that state warrants have a one-year period of negotiability.

**Required  
Documents**

In order to receive funds, the following forms must be on file with our office:

<b>Form</b>	<b>Received by Cal OES?</b>
Project Application for Federal Assistance (OES 89)	Yes
Designation of Applicants Agent Resolution (OES 130)	Yes
Payee Data Record (STD. 204) - Private non profit organizations only	N/A

**Program  
Requirements-  
General**

As a requirement of this program, a special fund for the deposit of the state warrant must be established upon receipt of any advance funding. Under no circumstances are expenditures to be made for any damages other than those approved in this application. Any funds received in excess of current needs or approved amounts, or those found owed as a result of an audit or final inspection, must be refunded to the State within 30 days upon receipt of an invoice from the California Governor's Office of Emergency Services.

**Federal  
Program  
Audit  
Requirements**

As a recipient of federal funds, your organization is subject to the Federal Single Audit Act of 1984 and the Single Audit Act Amendments of 1996. Part of your report requirements under the Act and Amendments include the preparation of a Schedule of Expenditures of Federal awards. The following information is provided to assist in the accurate completion of the Schedule:

Mr. Newton  
Page Three  
March 12, 2018

<b>Federal Program Audit Requirements- Continued</b>	Federal Grantor Agency Pass-Through Agency Program Title Federal CFDA Number Pass-Through Grantor's Number	U.S. Department of Homeland Security - Federal Emergency Management Agency California Governor's Office of Emergency Services Public Assistance Grants 97.036 FEMA-4308-DR-CA, Cal OES ID: 035-77364
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**Appeal  
Process**

Please compare the enclosed obligated Project Worksheet(s) (PW) with your copy of the original PW(s). In accordance with Title 44 Code of Federal Regulations, Section 206.206(a), if you disagree with FEMA's obligated amount(s) or scope of work for the Version 0 PW(s) addressed in this Package, you must appeal FEMA's determination within 60 days from receipt of this letter. The appeal must contain documented justification supporting your position and be addressed to the Assistant Director of Recovery. Please submit your letter of appeal to the following mailing address:

California Governor's Office of Emergency Services  
Recovery Division, Public Assistance  
3650 Schriever Avenue  
Mather, California 95655

Please note, for all other PW versions, you will receive notification under separate cover from Cal OES's Public Assistance Section.

**Questions and  
Inquiries**

For appeal assistance, contact Public Assistance at (916) 845-8200. For assistance regarding this letter, contact the Grants Processing Unit's main line at (916) 845-8110.

GRANTS PROCESSING UNIT

Enclosures  
c: Disaster Recovery Manager, FEMA  
Applicant's Federal File  
Applicant's State File

# PROJECT PAYMENT REPORT

Decl#: 4308      OES ID#: 035-77364      Federal Pkg#: 643 / CDAA Supp#: 1

Small Project Amt.: 123,101      Applicant Name: Susanville, City of

Payment ID#: 35395

OES Proj#	PW#	PW Ref#	Total Project Obligations to Date (Fed&CDAA)	Project Payments to Date (Fed&CDAA)	Reported Project Exp. to Date	Authorized Payment Amounts		Total Amount
						Federal Amount	CDAA Amount	
OES#: 035-77364-00      Department: Susanville, City of								
55403	1357	LSSUG04	31,831	0		25,465	5,729	31,194
<b>Total Project Payments for Susanville, City of:</b>							25,465	31,194
Total Project Payments:							25,465	31,194
Total Admin Allowance:							0	637
<b>Total Authorized Payments:</b>							<b>25,465</b>	<b>31,831</b>

Maring K. Lovelady, DSM I

Please Note: This report only includes projects for which payment has been approved - for a complete listing of PWS in this obligation package, please refer to the attached obligation report

**APPLICANT HISTORY REPORT - FEDERAL OBLIGATION**

Decl Num: 4308 Cal OES ID#: 035-77364 Applicant Name: Susanville, City of

Pkg. Num: 643 Fema Share: 75%

Department: Susanville, City of Cal OES ID#: 035-77364-00

OES Project#	PW #	PW Ref#	Cat.	100% Elig.	FEMA Share	Ret %	Retention	Admin. Allowance	Available Amt.	% Complete
55403	1357-0	LSSUG04	G	33,953	25,465	0	0	0	25,465	0
Department Total:										
				33,953	25,465	0	0	0	25,465	0
Package 643 Total:										
				33,953	25,465	0	0	0	25,465	0

**Grand Total to Date: 59,096 44,322 0 0 44,322**

**Total Obligation: 44,322**



**Cal OES**  
GOVERNOR'S OFFICE  
OF EMERGENCY SERVICES

Cal OES ID: 035-77364Supplement Number: 1Disaster Number: 4308

**PROJECT APPLICATION APPROVAL**  
**CALIFORNIA DISASTER ASSISTANCE ACT PROGRAM**

**1. SUBGRANTEE'S NAME AND ADDRESS**

Susanville, City of  
66 North Lassen Street  
Susanville, CA 96130

**2. AUTHORIZED AGENT**

Dan Newton  
Interim City Administrator

**3. PROJECT SUMMARY  
CATEGORY OF WORK****AMOUNT APPROVED BY STATE**

A - DEBRIS REMOVAL	\$0
B - EMERGENCY PROTECTIVE MEASURES	\$0
C - ROAD SYSTEMS REPAIRS	\$0
D - DIKES, LEVEES & FLOOD CONTROL WORKS	\$0
E - PUBLIC BUILDINGS	\$0
F - UTILITIES	\$0
G - OTHER	\$6,366
H - FIRE SUPPRESSION	\$0
Z - FEDERAL ADMINISRATIVE COSTS	\$0
 ADMINISTRATIVE ALLOWANCE	 \$637
TOTAL THIS SUPPLEMENT	\$7,003
TOTAL NOW APPROVED FOR APPLICATION	\$12,188

**4. Cal OES APPROVAL** (Approved in accordance with attached Exhibit "C".)

SIGNATURE *Maring Lyevsky* DATE APPROVED March 6, 2018  
TITLE: MANAGER, GRANTS PROCESSING UNIT

CDAA No.: 035-77364  
 Applicant: Susanville, City of  
 FEMA-4308-DR-CA, FIPS# 035-77364

St. Supplement Date 03/01/18

St. Sup. #	Dam. Cat.	CDAA DSR#/PW#	FEMA DSR#/PW#	Total Obligation
1	G	2	1357-0	6,366
	<u>Desc:</u>			
			Subtotal for Category G	6,366
			Subtotal for Supplement No. 1	6,366
			Administrative Allowance (10%)	637
			Total Supplement No. 1	7,003
			Sup.1 Eligible Amount	6,366
			Sup.1 Administrative Allowance(10%)	637
			Total Sup.1	7,003
			Application Eligible Amount	11,080
			Application Administrative Allowance(10%)	1,108
			Total Application	12,188

Report Generated on:	03/01/2018 19:53
Disaster Number:	4308
Applicants:	"035-77364-00"
Report Format:	Detail

# 35395

Date: 03/01/2018 19:53

*ok*

Federal Emergency Management Agency  
Public Assistance Grant Summary (P.5)

Disaster: FEMA-4308-DR-CA

Number of Records: 2 *035-77364-00*  
Applicant ID: 035-77364-00

Applicant: SUSANVILLE

Bundle #	Date Approved	PW #	Cat	Cost Share	Project Amount (\$)	Federal Share (\$)	Subgrantee Admin (\$)	Total Approved (\$)
PA-09-CA-4308-PW-01013(343)	01-05-2018	PA-09-CA-4308-PW-01013(0)	B	N	25,143.97	18,857.98	0.00	18,857.98
Applicant Total in Bundle PA-09-CA-4308-PW-01013(343) (1 PW)					25,143.97	18,857.98	0.00	18,857.98
* PA-09-CA-4308-PW-01357(643)	03-01-2018	PA-09-CA-4308-PW-01357(0)	G	N	33,954.29	25,465.72	0.00	25,465.72
Applicant Total in Bundle PA-09-CA-4308-PW-01357(643) (1 PW)					33,954.29	25,465.72	0.00	25,465.72
APPLICANT TOTAL: 035-77364-00 (2 PWs)					59,098.26	44,323.70	0.00	44,323.70
TOTAL for report: (2 PWs)					59,098.26	44,323.70	0.00	44,323.70

RECEIVED  
MAR 01 2018  
*650834*  
GRANTS PROCESSING UNIT

Report Generated on:	03/01/2018 19:54
Data Captured As Of:	03/01/2018 19:54
Disaster Number:	4308
Bundle:	PA-09-CA-4308-PW-01357
Applicant:	035-77364-00

Capture Date: 03/01/2018 19:54

**Federal Emergency Management Agency  
Project Application Grant Report (P.2)  
Disaster: FEMA-4308-DR-CA**

Number of Records: 1

Applicant ID: 035-77364-00  
 &nbsp;Bundle # : PA-09-CA-4308-  
 PW-01357(643)

Applicant: SUSANVILLE

PW #	Cat	Cost Share	Projected Completion Date	Approved PW Amount (\$)
PA-09-CA-4308-PW-01357(0)	G	N	10-01-2018	33,954.29

Facility Number:

1

Facility Name:

Citywide Parks and Recreation

PARKS AND RECREATION DAMAGE:

Applicant Physical Address: 66 North Lassen Street, Susanville, CA 96130.

Site: - GPS Coordinates: Start 40.40956, -120.66395 End 40.41365, -120.64885

- Site is located within the City of Susanville CA. The damage perimeter includes existing park and recreational facilities, and recreational trails.

Location:

Scope of Work:

Repairing/Restoring to Pre-disaster Design, Capacity and Function Condition:

Work Completed: The damages for LOP 9, 10 were repaired/restored by the City using Volunteer Labor and Donated Materials; no cost reimbursements are being claimed by the Applicant. Specific damages at LOP 13 were repaired, with no cost reimbursements being claimed by the Applicant, with the exception of the Embankment locations.

Work to be Completed (Summary):

1. Conventional equipment/tools and typical construction practices will be used for the repairs/restoration in accordance with applicable codes and regulations.
2. Embankment, Picnic Area and Trail Repair work will require evaluating the existing ground surfaces in regards to subsurface conditions, slope stability and construction feasibility in order to make the required repairs. Areas of Erosion and Scour will require undercut (removal of unsuitable surface materials) to achieve proper subgrade bearing capacity, and damaged slopes will require subgrade preparation from the crest to the bottom elevations of damaged sections.
3. The materials to be used for repairs/restoration are to be obtained from commercial businesses based on local bid.
4. Fill material (Soil and rock) will require placement in small lifts (8 inches or less) and compacted to 95% or greater (Standard Proctor). The final surface will be graded and seeded (if possible), with erosion control matting installed.
5. Asphalt material will require placement on approved subgrade, ideally over a compacted base course material (ABC stone or approved equivalent), and installed by an experienced contractor with appropriate equipment.
6. LOP 15: Electrical/Control Unit products are to be installed using factory or approved technicians, following manufacturer procedures and recommendations.

COSTS

Capture Date: 03/01/2018 19:54

Federal Emergency Management Agency  
 Project Application Grant Report (P.2)  
 Disaster: FEMA-4308-DR-CA

Number of Records: 1

FEMA CODES:

- 3510 - Professional Engineering Services for Consulting and Report Writing.
- 3510 - Engineering Technician Services for Site Inspection/Testing (if required).
- 9001 - LOP 8 Contract Costs (Estimates)for Asphalt Repairs/Replacement.
- 3011 - LOP 13 Costs for replacing similar-type material at Embankment locations.
- 4030 - LOP 8, 14 Costs for fill placement at trail and picnic area(s).
- 3050 - LOP 8 Costs for excavation (equipment and labor) of documented damage materials (unsuitable), and backfill operations.
- 3060 - LOP 8, 14 Costs for grading/shaping final surface.
- 9001 - LOP 15 Contract Cost (Estimate/Quote - Irrigation System Repairs).
- 8280 - LOP 8, 13, 14 Costs for small excavator to place material (estimated at 50 yard placement per day).
- 9007 - Labor Costs for Equipment use.
- 9901 - Estimated DAC Costs.

RSM MEANS:

- LOP 8: Asphalt (labor, materials, installation), Caltrans Code 0120 - \$ 11,997
- Asphalt (material delivery), Caltrans Code 1100 ----- \$ 94

TOTAL Cost Estimate "Work to be Completed" -----\$ 119,673.47  
 Estimated Direct Administrative Costs -----\$ 2,269.46

Notes:

1. Cost Estimates based on FEMA codes and PDMG estimates.
2. Contract Labor cost for Material Placement based on PDMG estimates from local labor practices; subject to increase/decrease.

SEE ATTACHED SCOPE NOTES FOR ADDITIONAL INFORMATION.

Attachments:

1. Employee Payroll Data (details attached)
2. Employee Manual
3. Insurance Document Part 1
4. Insurance Document Part 2
5. Invoices
6. Mitigation (HMP) Proposal(s)

1 PW	PWs (\$)	Subgrantee Admin Exp. (\$)	Total (\$)
Amount Eligible (\$)	33,954.29	0.00	33,954.29
Federal Share (\$)	25,465.72	0.00	25,465.72

PA-09-CA-4308-PW-01357(0) <u>P</u>	
Applicant Name:	Application Title:
SUSANVILLE	LSSUG04 Citywide Parks and Recreation Damage
Period of Performance Start:	Period of Performance End:
04-01-2017	10-01-2018

### Subgrant Application - Entire Application

Application Title: LSSUG04 Citywide Parks and Recreation Damage

Application Number: PA-09-CA-4308-PW-01357(0)

Application Type: Subgrant Application (PA)

#### Preparer Information

Prefix  
 First Name CHRISTOPHER  
 Middle Initial  
 Last Name FREDETTE  
 Title Project Specialist  
 Agency/Organization Name NISTAC  
 Address 1 10000 Geothe Road  
 Address 2  
 City Sacramento  
 State CA  
 Zip 95827  
 Email David.Gillings@CalOES.ca.gov

Is the application preparer the Point of Contact? No

#### Point of Contact Information

Prefix  
 First Name James  
 Middle Initial M  
 Last Name Moore  
 Title Fire Chief  
 Agency/Organization City of Susanville  
 Address 1 66 North Lassen Street  
 Address 2  
 City Susanville  
 State CA  
 ZIP 96130  
 Phone 530-257-1060  
 Fax  
 Email jmoore@cityofsusanville.org

#### Alternate Point of Contact Information

Prefix  
 First Name Jared  
 Middle Initial G  
 Last Name Hancock  
 Title City Administrator  
 Agency/Organization City of Susanville  
 Address 1 66 North Lassen Street  
 Address 2  
 City Susanville  
 State CA  
 ZIP 96130  
 Phone 530-252-5102  
 Fax  
 Email jhancock@cityofsusanville.org

Project Description

Disaster Number: 4308  
 Pre-Application Number: PA-09-CA-4308-RPA-0179  
 Applicant ID: 035-77364-00  
 Applicant Name: SUSANVILLE  
 Subdivision:  
 Project Number: LSSUG04  
 Standard Project Number/Title: 799 - Recreational or Other  
 Please Indicate the Project Type: Neither Alternate nor Improved  
 Application Title: LSSUG04 Citywide Parks and Recreation Damage  
 Category: G.RECREATIONAL OR OTHER  
 Percentage Work Completed? 0.0 %  
 As of Date: 12-20-2017

Comments

Attachments

Damage Facilities (Part 1 of 2)

Facility Number	Facility Name	Address	County	City	State	ZIP	Site Previously Damaged?	Action
1	Citywide Parks and Recreation	720 South Street	Lassen	Susanville	CA		No	

Comments

User	Date	Document Type	Description	Hard Copy File Reference	File Name	Action
AYESHA BRIGHT	01-10-2018	Map	DR4308_SusanvilleCityof_LSSUG04_Site Map	DR4308_SusanvilleCityof_LSSUG04_Site Map	DR4308_SusanvilleCityof_LSSUG04_Site Map.pdf(786.42 kb)	<a href="#">View</a>
AYESHA BRIGHT	01-10-2018	Photos	DR4308_LSSUG04_Damage Photos (1 of 2)	DR4308_LSSUG04_Damage Photos (1 of 2)	DR4308_LSSUG04_Damage Photos (1 of 2).pdf(740.98 kb)	<a href="#">View</a>
AYESHA BRIGHT	01-10-2018	Photos	DR4308 LSSUG04_Damage Photo (2 of 2)	DR4308 LSSUG04_Damage Photo (2 of 2)	DR4308 LSSUG04_Damage Photo (2 of 2).pdf(482.87 kb)	<a href="#">View</a>

Facility Name:	Citywide Parks and Recreation
Address 1:	720 South Street
Address 2:	
County:	Lassen
City:	Susanville
State:	CA
ZIP:	
Was this site previously damaged?	No
Percentage Work Completed?	0.00 %
Location:	PA-09-CA-4308-PW-01357(0): PARKS AND RECREATION DAMAGE: Applicant Physical Address: 66 North Lassen Street, Susanville, CA 96130 Site - GPS Coordinates: Start 40 40956, -120.66395 End 40.41365, -120.64885 - Site is located within the City of Susanville CA. The damage perimeter includes existing park and recreational facilities, and recreational trails.
Damage Description and Dimensions:	PA-09-CA-4308-PW-01357(0): **** This PW addresses Item: #8, 9, 10, 13, 14, 15 on the Applicant's List of Projects for DR-4308 **** The Applicant is Legally Responsible for All Repairs During the incident period of 2/1/17 through 2/23/17, the City of Susanville experienced severe winter storms and flooding which caused extensive damage to the City's Parks and Recreational Property As a direct result of the declared incident, damages to the City of Susanville maintained Roads are as follows:

LOP #8 Riverside Trail (Recreational Trail) - Erosion: (40.41350, -120.65019)

Riverside Trail is a City-maintained public-use trail system with varying width segments (6 ft. and/or less) of asphalt and/or natural/native soil surfaces. Four (4) sites were identified on the trail system and/or Right-of-Way/Easement that incurred damage during the disaster period from High water and turbulent flow.

Site 8A: 1. Trail - Erosion (Natural Soil and Asphalt Surface):(40.41350, -120.65020)

Natural Soil Surface: 65 ft. L x 6 ft. W x 3 ft. D/27 = 43.3 CY  
 Asphalt Surface: 65 ft. L x 6 ft. W x 0.17 ft. D/27 = 2.5 CY

2. Trail - Erosion (Asphalt Surface):(40.41365, -120.64885)  
 Asphalt Surface: 60 ft. L x 6 ft. W x .17 ft. D/27 = 2.3 CY

3. Trail - Erosion (Natural Soil and Asphalt Surface):(40.41380, -120.64690)  
 Natural Soil Surface: 30 ft. L x 10 ft. W x 1 ft. D/27 = 11.1 CY  
 Asphalt Surface: 30 ft. L x 6 ft. W x 0.17 ft. D/27 = 1.1 CY

4. Trail - Erosion (Natural Soil and Asphalt Surface):(40.40801, -120.64114)  
 Natural Soil (trail edge): 7 ft. L x 4 ft. W x 2 ft. D/27 = 2.1 CY  
 Asphalt Surface: 60 ft. L x 6 ft. W x 0.17 ft. D/27 = 2.2 CY

LOP #9, 10 Baseball Fields (structures, fields, equipment) - flooding: (40.41349,-120.64767)

Little League facility with four ball fields with fencing, storage and concession building, bleachers and a parking lot.

Damages: repaired/replaced by Applicant using volunteers (no cost being claimed/submitted).

LOP #13 City Baseball Field - Erosion: Start (40.41794,-120.65475), End (40.41768, -120.65472)

The natural Park Maintained embankment at the edge of Paiute Creek breached in two locations causing floodwaters to cover the park and ball field with silt and debris. Lassen Community College uses the city's ball field for their sporting events. Because of timing and loss of income from the ball field, the community college used student volunteer labor and donated material to bring certain damages to pre-disaster condition. Embankment damages were not repaired.

Site 13A 1:Embankment breach 40.417936, -120.654753  
 15 ft. L X 10 ft. W X 2 ft D/27 = 11.1 CY Natural/Native rock.

2:Embankment breach 40.417680, -120.654723  
 20 ft. L X 10 ft. W X 2 ft. D/27 = 14.8 CY Natural/Native rock

LOP #14 Picnic area - Erosion/Scour: (40.41461, -120.65799)

High water elevations and turbulent water flow resulted in erosion and scour.

Site 14A. 1: Erosion/Scour (surface grade - soil): (40.41461, -120.65799).  
 40 ft. L X 30 ft. W X 1 ft. D/27 = 44.4 CY

LOP #15 Golf Course/Club House (Irrigation System - electrical damage: (40.36569, -120.65134).

The Public-open Diamond View Golf Course experienced flooding in the Irrigation Control Building and ancillary structures/rooms, located adjacent to the Main Building/Pro Shop. Heavy winds damaged the structures, resulting in openings in the side and roof framing material. Heavy rains entered the Irrigation Control areas, from the wind damage, and caused electrical equipment to fail. Damaged electrical equipment was evaluated by the original manufacturer and installed (Turf-Star), which classified the damaged components as a complete failure, requiring new equipment and installation.

Site 15A. 1: Electrical Damage (Irrigation Control Computer with Controller Board, ancillary equipment - water damage): (40.36569, -120.65134).

- Computer System,
- Controller Board(s),
- Transformer(s),
- Antennae,
- Antennae Cables,
- Power Supply,
- Ancillary Equipment/Support (Radios for remote control/access)

Scope of Work

PA-09-CA-4308-PW-01357(0):  
 Repairing/Restoring to Pre-disaster Design, Capacity and Function Condition:

Work Completed: The damages for LOP 9, 10 were repaired/restored by the City using Volunteer Labor and Donated Materials, no cost reimbursements are being claimed by the Applicant. Specific damages at LOP 13 were repaired, with no cost reimbursements being claimed by the Applicant, with the exception of the Embankment locations

Work to be Completed (Summary)

1. Conventional equipment/tools and typical construction practices will be used for the repairs/restoration in accordance with applicable codes and regulations.
2. Embankment, Picnic Area and Trail Repair work will require evaluating the existing ground surfaces in regards to subsurface conditions, slope stability and construction feasibility in order to make the required repairs. Areas of Erosion and Scour will require undercut (removal of unsuitable surface materials) to achieve proper subgrade bearing capacity, and damaged slopes will require subgrade preparation from the crest to the bottom elevations of damaged sections.
3. The materials to be used for repairs/restoration are to be obtained from commercial businesses based on local bid.
4. Fill material (Soil and rock) will require placement in small lifts (8 inches or less) and compacted to 95% or greater (Standard Proctor). The final surface will be graded and seeded (if possible), with erosion control matting installed.
5. Asphalt material will require placement on approved subgrade, ideally over a compacted base course material (ABC stone or approved equivalent), and installed by an experienced contractor with appropriate equipment.
6. LOP 15: Electrical/Control Unit products are to be installed using factory or approved technicians, following manufacturer procedures and recommendations.

**COSTS**

**FEMA CODES:**

- 3510 - Professional Engineering Services for Consulting and Report Writing.
- 3510 - Engineering Technician Services for Site Inspection/Testing (if required).
- 9001 - LOP 8 Contract Costs (Estimates)for Asphalt Repairs/Replacement.
- 3011 - LOP 13 Costs for replacing similar-type material at Embankment locations.
- 4030 - LOP 8, 14 Costs for fill placement at trail and picnic area(s).
- 3050 - LOP 8 Costs for excavation (equipment and labor) of documented damage materials (unsuitable), and backfill operations.
- 3060 - LOP 8, 14 Costs for grading/shaping final surface.
- 9001 - LOP 15 Contract Cost (Estimate/Quote - Irrigation System Repairs).
- 8280 - LOP 8, 13, 14 Costs for small excavator to place material (estimated at 50 yard placement per day).
- 9007 - Labor Costs for Equipment use.
- 9901 - Estimated DAC Costs.

**RSM MEANS:**

- LOP 8: Asphalt (labor, materials, installation), Caltrans Code 0120 - \$ 11,997
- Asphalt (material delivery), Caltrans Code 1100 ----- \$ 94

TOTAL Cost Estimate "Work to be Completed" ----- \$ 119,673.47  
 Estimated Direct Administrative Costs ----- \$ 2,269.46

**Notes:**

1. Cost Estimates based on FEMA codes and PDMG estimates.
2. Contract Labor cost for Material Placement based on PDMG estimates from local labor practices; subject to increase/decrease.

**SEE ATTACHED SCOPE NOTES FOR ADDITIONAL INFORMATION.**

**Attachments:**

1. Employee Payroll Data (details attached)
2. Employee Manual
3. Insurance Document Part 1
4. Insurance Document Part 2
5. Invoices
6. Mitigation (HMP) Proposal(s)

**Hazard Mitigation Proposal**

Is effective mitigation feasible on this site?	Yes
If you answered Yes to the above question, the next question is required	
Will mitigation be performed on this site?	Yes
If you answered Yes to the above question, the next question is required	
Do you wish to attach a Hazard Mitigation Proposal?	Yes
If you answered Yes to the above question, the next two questions are required	
Please provide the Scope of Work for the estimate:	(II) Hazard Mitigation Proposal (HMP) Scope of Work: LOP 8 Site 1: proposed Geo-Tech fabric and Small RSP along trail. RSP at 65ft L x 6ft W x .5ft D / 27 = 7CY @ \$183 = \$1,281 and Fabric at 65ft x 6ft / 9 = 43.33 SY @ \$13.45 = \$582.79 Site 4. proposed Rip Rap at 7ft L x 4ft W x 2ft D / 27 = 2 CY @ \$117.52 = \$235.02

LOP 13. Site 1: proposed Geo-Tech Fabric and Hydro seed at 15ft x 10 ft / 9 = 17 SY Fabric @ \$13.45 = \$228.65 & 17 SY Hydro seed @ \$1.05 = \$17.85 Site 2: proposed Geo-Tech Fabric and Hydro seed at 20ft x 10 ft / 9 = 22 SY Fabric @ \$13.45 = \$295.90 & 22 SY Hydro seed @ \$1.05 = \$23.10 Mitigation cost = \$2,664.33		
Would you like to add the Hazard Mitigation Proposal as a cost line item to the project cost?		
No		
GIS Coordinates		
Project Location	Latitude	Longitude
Damage Site	40.40956	-120.66395

Special Considerations

1. Does the damaged facility or item of work have insurance coverage and/or is it an insurable risk (e.g., buildings, equipment, vehicles, etc)? Yes

If you would like to make any comments, please enter them below.

(maximum 4000 characters)

Insurance Documents attached. Project Specialist/PDMG has not been provided with any Insurance Claim information.

2. Is the damaged facility located within a floodplain or coastal high hazard area and/or does it have an impact on a floodplain or wetland? Yes

If you would like to make any comments, please enter them below.

(maximum 4000 characters)

Specific damage locations are located within a Flood Plain, and are documented in the attached Site Map.

3. Is the damaged facility or item of work located within or adjacent to a Coastal Barrier Resource System Unit or an Otherwise Protected Area? No

4. Will the proposed facility repairs/reconstruction change the pre-disaster conditions (e.g., footprint, material, location, capacity, use of function)? No

5. Does the applicant have a hazard mitigation proposal or would the applicant like technical assistance for a hazard mitigation proposal? Yes

If you would like to make any comments, please enter them below.

(maximum 4000 characters)

HMP proposal is attached to this PW.

6. Is the damaged facility on the National Register of Historic Places or the state historic listing? Is it older than 50 years? Are there more, similar buildings near the site? No

7. Are there any pristine or undisturbed areas on, or near, the project site? Are there large tracts of forestland? No

8. Are there any hazardous materials at or adjacent to the damaged facility and/or item of work? No

9. Are there any other environmental or controversial issues associated with the damaged facility and/or item of work? Yes

If you would like to make any comments, please enter them below.

(maximum 4000 characters)

Work at Embankment locations will require review from EHP Team.

Attachments

For Category C, D, E, F, and G Projects only

Is effective mitigation feasible on this project? Yes

If you answered Yes to the above question, the next question is required

Will mitigation be performed on any sites in this project? Yes

If you answered Yes to the above question, the next question is required

Do you wish to attach a Hazard Mitigation Proposal? Yes

If you answered Yes to the above question, the next two questions are required

Please provide the Scope of Work for the estimate.

(I) Damages Description & Dimensions (DDD): During the incident period of 2/1 through 2/23 every storms, heavy rain and strong winds caused extensive flooding of Paiute Creek and the Susan River.  
 LOP 8 Floodwaters and debris eroded the Susanville Riverside Trail in four sections  
 Site 1 @ 40.413504, -120.650199 sustained erosion of 65 feet long X 6 feet wide X 3 feet deep = 43.3 cy native soil,  
 Site 4 @ 40.408005, -120.641141 sustained trail compromise of 60 feet long X 6 feet wide X 0.167 feet deep = 2.2 asphalt, this will bring to pre-disaster condition. There is also a slip out on the West side of trail that is threatening the trail. Suggest rip rap in 7 feet long X 4 feet wide X 2 feet deep = 2.1 cy and move the trail over to the East 2 feet for the Safety of the general public.  
 LOP 13 The levee at Paiute Creek breached in two locations causing floodwaters to cover the entire park and ball field with silt and debris.  
 Site 1 levee breach @ 40.417936, -120.654753, 15 feet long X 10 feet wide X 2 feet deep = 11.1 cy Natural soil and rock. Hazard mitigation of fabric mat and hydro seed is requested.  
 Site 2 levee breach @ 40.417680, -120.654723, 20 feet long X 10 feet wide X 2 feet deep = 14.8 cy Natural soil and rock. Hazard mitigation of fabric mat and hydro seed of embankment is requested.  
 PW total cost of damage elements for this site is \$25,260.50  
 (II) Hazard Mitigation Proposal (HMP) Scope of Work:  
 LOP 8 Site 1: proposed Geo-Tech fabric and Small RSP along trail RSP at 65ft L x 6ft W x .5ft D / 27 = 7CY @ \$183 = \$1,281 and Fabric at 65ft x 6ft / 9 = 43.33 SY @ \$13.45 = \$582.79  
 Site 4: proposed Rip Rap at 7ft L x 4ft W x 2ft D / 27 = 2 CY @ \$117.52 = \$235.02  
 LOP 13. Site 1: proposed Geo-Tech Fabric and Hydro seed at 15ft x 10 ft / 9 = 17 SY Fabric @ \$13.45 = \$228.65 & 17 SY Hydro seed @ \$1.05 = \$17.85

Site 2: proposed Geo-Tech Fabric and Hydro seed at 20ft x 10 ft / 9 = 22 SY  
 Fabric @ \$13.45 = \$295.90 & 22 SY Hydro seed @ \$1.05 = \$23.10  
 Mitigation cost = \$2,664.33

(III) Hazard Mitigation Ratio (HMR):  
 HMR = (Total Hazard Mitigation Cost/PW Total Cost of Damage Elements) X 100  
 HMR = \$2,664.33 / \$25,260.50 x 100 = 10.55%

(IV) HMP Feasibility and Cost-Effectiveness:  
 This Hazard Mitigation Proposal is 10.55% of the repair and restoration costs. The Hazard Mitigation Proposal is approved in accordance with the 15% Rule of the FEMA PA Program and Policy Guide. This HMP is cost effective.

(V) Compliances and Assurances  
 The applicant is responsible for permits and compliance with all regulatory codes and standards of the state of California and the final design and choice of the contractors and vendors. The final design must be certified by a registered Professional Engineer/Architect per 44CFR60.3. FEMA will not pay for duplication in cost between repairs and mitigation measures. FEMA will pay only the incremental difference in cost between repairs and mitigation, and will not duplicate funding for repair or replacement of eligible work.

Would you like to add the Hazard Mitigation Proposal as a cost line item to the project cost? Yes

Hazard Mitigation Proposal - 0909									
#	Code	Material and/or Description	Unit Quantity	Unit of Measure	Unit Price	Subgrant Budget Class	Type	Cost Estimate	Action
*** Version 0 ***									
1	0909	Mitigation	1	LS	\$ 2,664.33	OTHER		\$ 2,664.33	
								<b>Total Cost: \$ 2,664.33</b>	

Comments

Attachments

User	Date	Document Type	Description	Hard Copy File Reference	File Name	Action
JOHN MILLER	11-08-2017	Mitigation Proposal	HMP-4308-LSSUG04		HMP-4308-LSSUG04.xlsm(155.41 kb)	<a href="#">View</a>

Cost Estimate

Is this Project Worksheet for

(Preferred) Repair									
Sequence	Code	Material and/or Description	Unit Quantity	Unit of Measure	Unit Price	Subgrant Budget Class	Type	Cost Estimate	Action
*** Version 0 ***									
Work To Be Completed									
1	<u>3510</u>	Engineering And Design Services	12	HR	\$ 140.00	CONTRACTUAL	Work To Be Completed	\$ 1,680.00	
2	<u>3510</u>	Engineering And Design Services	30	HR	\$ 70.00	CONTRACTUAL	Work To Be Completed	\$ 2,100.00	
3	<u>9001</u>	Contract	1	LS	\$ 12,091.00	CONTRACTUAL	Work To Be Completed	\$ 12,091.00	
4	<u>3011</u>	Aggregate Surface Course	25.9	CY	\$ 50.00	CONSTRUCTION	Work To Be Completed	\$ 1,295.00	
5	<u>4030</u>	Fill (Compacted Clay)	101	CY	\$ 50.00	CONSTRUCTION	Work To Be Completed	\$ 5,050.00	
6	<u>3050</u>	Excavation & Backfill (Small Unclassified)	56.6	CY	\$ 7.50	CONSTRUCTION	Work To Be Completed	\$ 424.50	
7	<u>3060</u>	Grading (Subgrade Shaping)	300	SY	\$ 0.60	CONSTRUCTION	Work To Be Completed	\$ 180.00	
8	<u>9001</u>	Contract	1	LS	\$ 95,652.97	CONTRACTUAL	Work To Be Completed	\$ 95,652.97	
9	<u>8230</u>	Excavator, Hydraulic - to 45 hp, Bucket Capacity: 0.5 cy - 2015 - Equipment S	30	HR	\$ 20.00	EQUIPMENT	Work To Be Completed	\$ 600.00	
10	<u>9007</u>	Labor	30	LS	\$ 20.00	PERSONNEL	Work To Be Completed	\$ 600.00	
Direct Subgrantee Admin Cost									
11	<u>9901</u>	Direct Administrative Costs (Subgrantee)	1	LS	\$ 2,269.46	INDIRECT CHARGES	Direct Subgrantee Admin Cost	\$ 2,269.46	

Total Cost : \$ 121,942.93

Insurance Adjustments (Deductibles, Proceeds and Settlements) - 5900/5901									
Sequence	Code	Material and/or Description	Unit Quantity	Unit of Measure	Unit Price	Subgrant Budget Class	Type	Cost Estimate	Action
*** Version 0 ***									
1	5901	Deduct Anticipated Insurance Proceeds	1	LS	\$ -90,652.97			\$ -90,652.97	
								<b>Total Cost : \$ -90,652.97</b>	

Hazard Mitigation Proposal - 0909									
Sequence	Code	Material and/or Description	Unit Quantity	Unit of Measure	Unit Price	Subgrant Budget Class	Type	Cost Estimate	Action
*** Version 0 ***									
1	0909	Mitigation	1	LS	\$ 2,664.33	OTHER		\$ 2,664.33	
								<b>Total Cost : \$ 2,664.33</b>	

<b>Total Cost Estimate:</b>								<b>\$ 33,954.29</b>	
(Preferred Estimate Type + Insurance Adjustments + Hazard Mitigation Proposal)									

**Comments**  
 3510 - Professional Engineering Services for Consulting and Report Writing. 3510 - Engineering Technician Services for Site Inspection/Testing (if required). 9001 - LOP 8 Contract Costs (Estimates)for Asphalt Repairs/Replacement. 3011 - LOP 13 Costs for replacing similar-type material at Embankment locations. 4030 - LOP 8, 14 Costs for fill placement at trail and picnic area(s) 3050 - LOP 8 Costs for excavation (equipment and labor) of documented damage materials (unsuitable), and backfill operations. 3060 - LOP 14 Costs for grading/shaping final surface. 9001 - LOP 15 Contract Cost (Estimate/Quote - Irrigation System Repairs). 8280 - LOP 8, 13, 14 Costs for small excavator to place material (estimated at 50 yard placement per day). 9007 - Labor Costs for Equipment use. 9901 - Estimated DAC Costs.

**Attachments**

Existing Insurance Information

Insurance Type	Policy No.	Bldg/Property Amount	Content Amount	Insurance Amount	Deductible Amount	Years Required
Wind	017471589/03 Dec04	\$ 1,000,000,000.00	\$ 0.00	\$ 0.00	\$ 5,000.00	0

Insurance Adjustments (Deductibles, Proceeds and Settlements) - 5900/5901									
#	Code	Material and/or Description	Unit Quantity	Unit of Measure	Unit Price	Subgrant Budget Class	Type	Cost Estimate	Action
*** Version 0 ***									
1	5901	Deduct Anticipated Insurance Proceeds	1	LS	\$ -90,652.97			\$ -90,652.97	
								<b>Total Cost: \$ -90,652.97</b>	

**Comments**  
 Alliant Property Insurance Program policy in the RPA attachments

**Attachments**

Comments and Attachments

Name of Section	Comment	Attachment
Preparer Information		<a href="#">DR4308_SusanvilleCityof_LSSUG04_Procurement_Res+16-5281+Rates+and+Fees.pdf (10-31-2017)</a> <a href="#">DR4308_Susanville_LSSUG04_Employee_Manual.pdf (10-31-2017)</a> <a href="#">DR4308_SusanvilleCityof_LSSUG04_Site_Map.pdf (01-10-2018)</a>
Damage Facilities		<a href="#">DR4308_LSSUG04_Damage_Photos (1 of 2).pdf (01-10-2018)</a> <a href="#">DR4308_LSSUG04_Damage_Photo (2 of 2).pdf (01-10-2018)</a>
Mitigation		<a href="#">HMP-4308-LSSUG04.xlsx (11-08-2017)</a>
Cost Estimate	3510 - Professional Engineering Services for Consulting and Report Writing 3510 - Engineering Technician Services for Site Inspection/Testing (if required). 9001 - LOP 8 Contract Costs (Estimates)for Asphalt Repairs/Replacement. 3011 - LOP 13 Costs for replacing similar-type material at Embankment locations 4030 - LOP 8, 14 Costs for fill placement at trail and picnic area(s). 3050 - LOP 8 Costs for excavation (equipment and labor) of documented damage materials (unsuitable), and backfill operations. 3060 - LOP 14 Costs for grading/shaping final surface. 9001 - LOP 15 Contract Cost (Estimate/Quote - Irrigation System Repairs). 8280 - LOP 8, 13, 14 Costs for small excavator to place material (estimated at 50	

Comments and Attachments

yard placement per day) 9007 - Labor Costs for Equipment use. 9901 - Estimated DAC Costs.

Insurance Information Alliant Property Insurance Program policy in the RPA attachments

[4308 LSSUG04 Applicant Signed HMP and DAC.pdf](#) (01-04-2018)

[4308 LSSUG04 Applicant Signed Scope Notes.pdf](#) (01-04-2018)

Form 90-91

[4308 LSSUG04 Applicant State PDMG Signed 90-91.pdf](#) (01-04-2018)

Application Level  
Based on the information provided, Cal OES concurs with FEMA's determination regarding the scope of work and costs described in the subgrant as written. Any change in the scope of work, if applicable, must be submitted to the Cal OES Public Assistance Officer and be approved before work begins. DThorpe 2/22/18

Bundle Reference # (Amendment #)	Date Awarded
PA-09-CA-4308-PW-01357(643)	03-01-2018

**Subgrant Application - FEMA Form 90-91**

Note: The Effective Cost Share for this application is 75%

FEDERAL EMERGENCY MANAGEMENT AGENCY  
PROJECT WORKSHEET

DISASTER FEMA 4308 - DR -CA	PROJECT NO LSSUG04	PA ID NO. 035-77364-00	DATE 12-14-2017	CATEGORY G
APPLICANT SUSANVILLE			WORK COMPLETE AS OF 12-20-2017 : 0 %	
Site 1 of 1				
DAMAGED FACILITY: Citywide Parks and Recreation			COUNTY: Lassen	
LOCATION: PA-09-CA-4308-PW-01357(0). PARKS AND RECREATION DAMAGE: Applicant Physical Address: 66 North Lassen Street, Susanville, CA 96130. Site - GPS Coordinates: Start 40.40956, -120.66395 End 40.41365, -120.64885 - Site is located within the City of Susanville CA. The damage perimeter includes existing park and recreational facilities, and recreational trails			LATITUDE: 40.40956	LONGITUDE: -120.66395
Current Version: DAMAGE DESCRIPTION AND DIMENSIONS PA-09-CA-4308-PW-01357(0). **** This PW addresses Item #8, 9, 10, 13, 14, 15 on the Applicant's List of Projects for DR-4308 **** The Applicant is Legally Responsible for All Repairs During the incident period of 2/11/17 through 2/23/17, the City of Susanville experienced severe winter storms and flooding, which caused extensive damage to the City's Parks and Recreational Property As a direct result of the declared incident, damages to the City of Susanville maintained Roads are as follows LOP #8 Riverside Trail (Recreational Trail) - Erosion: (40 41350, -120 65019) Riverside Trail is a City-maintained public-use trail system with varying width segments (6 ft and/or less) of asphalt and/or natural/native soil surfaces. Four (4) sites were identified on the trail system and/or Right-of-Way/Easement that incurred damage during the disaster period from High water and turbulent flow Site 8A 1 Trail - Erosion (Natural Soil and Asphalt Surface) (40 41350, -120.65020) Natural Soil Surface 65 ft L x 6 ft W x 3 ft D/27 = 43.3 CY Asphalt Surface 65 ft L x 6 ft W x 0.17 ft D/27 = 2.5 CY 2 Trail - Erosion (Asphalt Surface) (40 41365, -120.64885) Asphalt Surface: 60 ft L x 6 ft W x 17 ft D/27 = 2.3 CY 3 Trail - Erosion (Natural Soil and Asphalt Surface) (40.41380, -120.64690) Natural Soil Surface 30 ft L x 10 ft W x 1 ft D/27 = 11.1 CY Asphalt Surface: 30 ft L x 6 ft W x 0.17 ft D/27 = 1.1 CY 4 Trail - Erosion (Natural Soil and Asphalt Surface) (40 40801, -120.64114) Natural Soil (trail edge) 7 ft L x 4 ft W x 2 ft D/27 = 2.1 CY Asphalt Surface 60 ft L x 6 ft W x 0.17 ft D/27 = 2.2 CY LOP #9 10 Baseball Fields (structures, fields, equipment) - flooding (40 41349 -120 64767) Little League facility with four ball fields with fencing storage and concession building bleachers and a parking lot. Damages repaired/replaced by Applicant using volunteers (no cost being claimed/submitted) LOP #13 City Baseball Field - Erosion Start (40 41794, -120 65475) End (40 41768, -120 65472) The natural Park Maintained embankment at the edge of Paute Creek breached in two locations causing floodwaters to cover the park and ball field with silt and debris Lassen Community College uses				

the city's ball field for their sporting events. Because of timing and loss of income from the ball field, the community college used student volunteer labor and donated material to bring certain damages to pre-disaster condition. Embankment damages were not repaired.

Site 13A 1:Embankment breach 40 417936, -120 654753  
15 ft. L X 10 ft. W X 2 ft. D/27 = 11.1 CY Natural/Native rock

2:Embankment breach 40 417680, -120 654723  
20 ft. L X 10 ft. W X 2 ft. D/27 = 14.8 CY Natural/Native rock

LOP #14 Picnic area - Erosion/Scour (40.41461, -120.65799)

High water elevations and turbulent water flow resulted in erosion and scour.

Site 14A 1 Erosion/Scour (surface grade - soil): (40.41461, -120.65799)  
40 ft. L X 30 ft. W X 1 ft. D/27 = 44.4 CY.

LOP #15 Golf Course/Club House (Irrigation System - electrical damage, (40.36569, -120.65134).

The Public-open Diamond View Golf Course experienced flooding in the Irrigation Control Building and ancillary structures/rooms, located adjacent to the Main Building/Pro Shop. Heavy winds damaged the structures, resulting in openings in the side and roof framing material. Heavy rains entered the Irrigation Control areas, from the wind damage, and caused electrical equipment to fail. Damaged electrical equipment was evaluated by the original manufacturer and installed (Turf-Star), which classified the damaged components as a complete failure, requiring new equipment and installation.

Site 15A 1 Electrical Damage (Irrigation Control Computer with Controller Board, ancillary equipment - water damage): (40.36569, -120.65134)

- Computer System,
- Controller Board(s),
- Transformer(s),
- Antennae,
- Antennae Cables,
- Power Supply,
- Ancillary Equipment/Support (Radios for remote control/access)

Current Version:

SCOPE OF WORK:

PA-09-CA-4308-PW-01357(0):  
Repairing/Restoring to Pre-disaster Design, Capacity and Function Condition:

Work Completed: The damages for LOP 9, 10 were repaired/restored by the City using Volunteer Labor and Donated Materials, no cost reimbursements are being claimed by the Applicant. Specific damages at LOP 13 were repaired, with no cost reimbursements being claimed by the Applicant, with the exception of the Embankment locations.

Work to be Completed (Summary):

1. Conventional equipment/tools and typical construction practices will be used for the repairs/restoration in accordance with applicable codes and regulations.
2. Embankment, Picnic Area and Trail Repair work will require evaluating the existing ground surfaces in regards to subsurface conditions, slope stability and construction feasibility in order to make the required repairs. Areas of Erosion and Scour will require undercut (removal of unsuitable surface materials) to achieve proper subgrade bearing capacity, and damaged slopes will require subgrade preparation from the crest to the bottom elevations of damaged sections.
3. The materials to be used for repairs/restoration are to be obtained from commercial businesses based on local bid.
4. Fill material (Soil and rock) will require placement in small lifts (8 inches or less) and compacted to 95% or greater (Standard Proctor). The final surface will be graded and seeded (if possible), with erosion control matting installed.
5. Asphalt material will require placement on approved subgrade, ideally over a compacted base course material (ABC stone or approved equivalent), and installed by an experienced contractor with appropriate equipment.
6. LOP 15 Electrical/Control Unit products are to be installed using factory or approved technicians, following manufacturer procedures and recommendations.

COSTS

FEMA CODES

- 3510 - Professional Engineering Services for Consulting and Report Writing
- 3510 - Engineering Technician Services for Site Inspection/Testing (if required)
- 9001 - LOP 8 Contract Costs (Estimates)for Asphalt Repairs/Replacement.
- 3011 - LOP 13 Costs for replacing similar-type material at Embankment locations
- 4030 - LOP 8, 14 Costs for fill placement at trail and picnic area(s).
- 3050 - LOP 8 Costs for excavation (equipment and labor) of documented damage materials (unsuitable), and backfill operations
- 3060 - LOP 8, 14 Costs for grading/shaping final surface.
- 9001 - LOP 15 Contract Cost (Estimate/Quote - Irrigation System Repairs).
- 8280 - LOP 8, 13, 14 Costs for small excavator to place material (estimated at 50 yard placement per day)
- 9007 - Labor Costs for Equipment use.
- 9901 - Estimated DAC Costs

RSM MEANS

- LOP 8 Asphalt (labor, materials, installation), Caltrans Code 0120 - \$ 11,997
- Asphalt (material delivery), Caltrans Code 1100 ----- \$ 94

TOTAL Cost Estimate "Work to be Completed" -----\$ 119,673.47  
Estimated Direct Administrative Costs -----\$ 2,269.46

Notes

1. Cost Estimates based on FEMA codes and PDMG estimates
2. Contract Labor cost for Material Placement based on PDMG estimates from local labor practices, subject to increase/decrease

SEE ATTACHED SCOPE NOTES FOR ADDITIONAL INFORMATION.

Attachments

1. Employee Payroll Data (details attached)
2. Employee Manual
3. Insurance Document Part 1
4. Insurance Document Part 2
5. Invoices
6. Mitigation (HMP) Proposal(s)

Current Version

Special Considerations included?  Yes  No

Does the Scope of Work change the pre-disaster conditions at the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Hazard Mitigation proposal included? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Is there insurance coverage on this facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
PROJECT COST					
ITEM	CODE	NARRATIVE	QUANTITY/UNIT	UNIT PRICE	COST
*** Version 0 ***					
Work To Be Completed					
1	3510	Engineering And Design Services	12/HR	\$ 140.00	\$ 1,680.00
2	3510	Engineering And Design Services	30/HR	\$ 70.00	\$ 2,100.00
3	9001	Contract	1/LS	\$ 12,091.00	\$ 12,091.00
4	3011	Aggregate Surface Course	25.9/CY	\$ 50.00	\$ 1,295.00
5	4030	Fill (Compacted Clay)	101/CY	\$ 50.00	\$ 5,050.00
6	3050	Excavation & Backfill (Small Unclassified)	56.6/CY	\$ 7.50	\$ 424.50
7	3060	Grading (Subgrade Shaping)	300/SY	\$ 0.60	\$ 180.00
8	9001	Contract	1/LS	\$ 95,652.97	\$ 95,652.97
9	8280	Excavator, Hydraulic - to 45 hp; Bucket Capacity: 0.5 cy - 2015 - Equipment S	30/HR	\$ 20.00	\$ 600.00
10	9007	Labor	30/LS	\$ 20.00	\$ 600.00
Direct Subgrantee Admin Cost					
11	9901	Direct Administrative Costs (Subgrantee)	1/LS	\$ 2,269.46	\$ 2,269.46
12	0000	Insurance Adjustments - 5900/5901	0/LS	\$ 0.00	\$ 0.00
*** Version 0 ***					
13	5901	Deduct Anticipated Insurance Proceeds	1/LS	\$ -90,652.97	\$ -90,652.97
14	0909	Hazard Mitigation Proposal	1/LS	\$ 2,664.33	\$ 2,664.33
<b>TOTAL COST</b>					<b>\$ 33,954.29</b>
PREPARED BY CHRISTOPHER FREDETTE		TITLE Project Specialist	SIGNATURE		
APPLICANT REP James M Moore		TITLE Fire Chief	SIGNATURE		

SUSANVILLE : PA-09-CA-4308-PW-01357					
Conditions Information					
Review Name	Condition Type	Condition Name	Description	Monitored	Status
Final Review	Other (EHP)	Standard Condition #2	This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.	No	Approved
Final Review	Other (EHP)	Standard Condition #1	Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.	No	Approved
Final Review	Other (EHP)	National Historic Preservation Act (NHPA)	If borrow material for this project is not disaster-displaced material reclaimed from the immediate area, not obtained from a standard commercial borrow source, not obtained from a permitted borrow-pit (and a permit number is provided), or not obtained from a Sub-Grantee owned pre-existing stockpile (and the coordinates provided), the Sub-Grantee must notify FEMA and the California Office of Emergency Services (Cal OES) prior to commencing borrow extraction, so that compliance with Section 106 of the National Historic Preservation Act can be accomplished. Non-compliance with this requirement may jeopardize the receipt of federal funding.	No	Approved
Final Review	Other (EHP)	Executive Order 11988 - Floodplains	Sub-Grantee must coordinate with the local floodplain administrator and obtain required permits prior to initiating work. All coordination pertaining to these activities and Sub-Grantee compliance with any conditions should be documented and copies forwarded to the State and FEMA for inclusion in the permanent project files.	No	Approved
Final Review	Other (EHP)	Executive Order 11990 - Wetlands	The Sub-Grantee shall ensure that best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. This includes equipment storage and staging of construction to prevent erosion and sedimentation to ensure that wetlands are not adversely impacted per the Clean Water Act and Executive Order 11990.	No	Approved
Final Review	Other (EHP)	Executive Order 11990 - Wetlands	The Sub-Grantee is responsible for proper identification of wetlands. Under EO11990 - Protection of Wetlands. The Sub-Grantee is responsible for coordinating with and obtaining any required Section 404 Permit(s) from the United States Army Corps of Engineers (USACE) prior to initiating work. The Sub-Grantee shall comply with all conditions of the required permit. All coordination pertaining to these activities shall be documented and copies forwarded to the California Office of Emergency Services and the FEMA Public Assistance Program as part of the permanent project files.	No	Approved
Final Review	Other (EHP)	Standard Condition #3		No	Approved

SUSANVILLE : PA-09-CA-4308-PW-01357					
Conditions Information					
			If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.		
EHP Review	Other (EHP)	Standard Condition #2	This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.	No	Recommended
EHP Review	Other (EHP)	Standard Condition #1	Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.	No	Recommended
EHP Review	Other (EHP)	National Historic Preservation Act (NHPA)	If borrow material for this project is not disaster-displaced material reclaimed from the immediate area, not obtained from a standard commercial borrow source, not obtained from a permitted borrow-pit (and a permit number is provided), or not obtained from a Sub-Grantee owned pre-existing stockpile (and the coordinates provided), the Sub-Grantee must notify FEMA and the California Office of Emergency Services (Cal OES) prior to commencing borrow extraction, so that compliance with Section 106 of the National Historic Preservation Act can be accomplished. Non-compliance with this requirement may jeopardize the receipt of federal funding.	No	Recommended
EHP Review	Other (EHP)	Executive Order 11988 - Floodplains	Sub-Grantee must coordinate with the local floodplain administrator and obtain required permits prior to initiating work. All coordination pertaining to these activities and Sub-Grantee compliance with any conditions should be documented and copies forwarded to the State and FEMA for inclusion in the permanent project files.	No	Recommended
EHP Review	Other (EHP)	Executive Order 11990 - Wetlands	The Sub-Grantee shall ensure that best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. This includes equipment storage and staging of construction to prevent erosion and sedimentation to ensure that wetlands are not adversely impacted per the Clean Water Act and Executive Order 11990.	No	Recommended
EHP Review	Other (EHP)	Executive Order 11990 - Wetlands	The Sub-Grantee is responsible for proper identification of wetlands. Under EO11990 - Protection of Wetlands. The Sub-Grantee is responsible for coordinating with and obtaining any required Section 404 Permit(s) from the United States Army Corps of Engineers (USACE) prior to initiating work. The Sub-Grantee shall comply with all conditions of the required permit. All coordination pertaining to these activities shall be documented and copies forwarded to the California Office of Emergency Services and the FEMA Public Assistance Program as part of the permanent project files.	No	Recommended
EHP Review	Other (EHP)	Standard Condition #3	If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.	No	Recommended

Internal Comments				
No	Queue	User	Date/Time	Reviewer Comments
14	Final Review	STONE THADD	02-22-2018 05:16 PM GMT	02/21/2018: PW Reworked for Insurance Review (TLS/dm).
13	Grantee Review	Thorpe Daniel	02-22-2018 05:03 PM GMT	Based on the information provided, Cal OES concurs with FEMA's determination regarding the scope of work and costs described in the subgrant as written. Any change in the scope of work, if applicable, must be submitted to the Cal OES Public Assistance Officer and be approved before work begins. DThorpe 2/22/18
12	Insurance Review	SMITH CRAIG	02-21-2018 11:17 PM GMT	1/9/18 - Return to Initial for rework  Costs are NOT separated in the project, LOP #15 covered by insurance and subject to Section 311 Insurance Obtain and Maintain.  Return for Insurance Review after costs have been separated.  Roger Smith, Insurance Specialist  2-21-18: Applicant is insured for wind damage, but not for flood NO DUPLICATION OF BENEFITS FROM FLOOD INSURANCE Flood is not covered under the Applicant's policy. No Section 311 Obtain & Maintain insurance requirement as there is no physical damage to buildings, structures, contents, or vehicles related to claimed reimbursement. ANTICIPATED INSURANCE COVERAGE FROM WIND - There is coverage for wind/rain damages to Golf Course buildings/contents (\$95,652.97), subject to a \$5,000 All Risk deductible. Applying the deductible, Anticipated Insurance Proceeds of \$90,652.97 to be applied to preclude duplication of insurance benefits. This determination is based on a review of policy provisions, contractor's invoices, cost schedules, and damages. No Section 311 requirement applicable as Applicant is adequately insured for loss of the nature identified in this Project. Craig A. Smith, PA Insurance Specialist, CIC-Sacramento JFO

Internal Comments				
No.	Queue	User	Date/Time	Reviewer Comments
11	Insurance Review	SMITH CRAIG	02-21-2018 06:12 PM GMT	<p>1/9/18 - Return to Initial for rework</p> <p>Costs are NOT separated in the project. LOP #15 covered by insurance and subject to Section 311 Insurance Obtain and Maintain.</p> <p>Return for Insurance Review after costs have been separated.</p> <p>Roger Smith, Insurance Specialist</p>
10	Final Review	STONE THADD	02-21-2018 06:08 PM GMT	<p>02/21/2018: PW Reworked for Insurance Review (TLS/dm).</p>
9	Grantee Review	Thorpe Daniel	02-21-2018 05:04 PM GMT	<p>Based on the information provided, Cal OES concurs with FEMA's determination regarding the scope of work and costs described in the subgrant as written. Any change in the scope of work, if applicable, must be submitted to the Cal OES Public Assistance Officer and be approved before work begins.</p> <p>DThorpe 2/21/18</p>
8	EHP Review	TOYE TERI	02-16-2018 06:36 PM GMT	<p>CAT G, 0% Completed, City of Susanville, Lassen County, CA (LOP 8A: Riverside Trail: 40.41350, -120.65019; LOP #13 City Baseball Field: Start 40.41794, -120.65475, End 40.41768, -120.65472; LOP 14 Picnic area: 40.41461, -120.65799; LOP 15 Golf Course/Club House: 40.36569, -120.65134.)</p> <p>Utilize contract services to make repairs to a number of park facilities operated by the City of Susanville. Repairs included: LOP 8A: erosion repair to the Riverside Trail at four locations: Site 1: replace soil (43.3 CY) and asphalt surface (2.5 CY), Site 2: replace asphalt surface (2.3 CY), Site 3: replace soil (11.1 CY) and asphalt surface (1.1 CY), Site 4: replace soil (2.1 CY) and asphalt surface (2.2 CY). LOP 13A: embankment breach at the Baseball Field at two locations: Site 1: replace native rock (11.1 CY), Site 2: replace native rock (14.8 CY), LOP 14A erosion repair to a picnic area: Site 1: replace soil (44.4 CY). LOP 15: electrical damage to the Golf Course/Club House irrigation system: Site 1: Replace Irrigation control computer with controller board and ancillary equipment.</p> <p>An approved hazard mitigation proposal includes installation of geo-tech fabric, RSP and hydroseeding to several sites. LOP 8A, Site 1 Geo-Tech fabric (43 SY) and Small RSP (7 CY), LOP 8A, Site 4: 2 CY Rip Rap. LOP 13A, Site 1 Geo-Tech fabric (17 SY) and hydroseed (17 SY), LOP 13, Site 2 Geo-Tech fabric (22 SY) and hydroseed (22 SY).</p> <p>This project has been determined to be Categorical Excluded from the need to prepare either an Environmental Impact Statement or Environmental Assessment in accordance with FEMA Instruction 108-1-1 and DHS Instruction 023-01-001-01: Categorical Exclusion(s) N7 has been applied. Particular attention should be given to the project conditions before and during project implementation. Failure to comply with these conditions may jeopardize federal assistance including funding.</p> <p>- mnordin1 - 01/30/2018 17:30:38 GMT</p> <p>The project is located in Lassen County that is within an attainment area for all criteria pollutants according to the U. S. Environmental Protection Agency (USEPA): <a href="https://www.epa.gov/green-book">https://www.epa.gov/green-book</a> updated December 31, 2017. The SOW associated with this undertaking is exempt from a conformity determination under the General Conformity Rule. - mnordin1 - 01/30/2018 16:44:40 GMT</p> <p>Per the U.S. Fish and Wildlife Service Wetland Mapper viewed on January 25, 2018, the project is adjacent to a designated wetland. The proposed action is not likely to result in any potential direct impacts that will adversely affect the natural values and function of wetlands. Initial Disaster Public Notice was published on April 4, 2017. See Conditions. - mnordin1 - 01/30/2018 17:21:02 GMT</p> <p>Based on the type of activities as described in the scope of work, this project has been determined to have no effect on Federally listed threatened and endangered species or critical habitat. - mnordin1 - 01/30/2018 16:42:09 GMT</p> <p>Activities associated with this Undertaking do not have the potential to take migratory birds. - mnordin1 - 01/30/2018 16:54:03 GMT</p> <p>The project is located within the floodway (AE zone), area of Special Flood Hazard Area (100-year floodplain, base floodplain), per Flood Insurance Rate Map (FIRM) panel 06035C1942D, dated September 3, 2010. The proposed action is not likely to result in any potential direct impacts that will adversely affect the natural values and function of floodplains, nor is it likely to increase the risk of flood loss. The Initial Disaster Public Notice was published on April 4, 2017. Per 44 CFR Part 9.5(d)(4), the 8-step Process was completed and the Floodplain Management Checklist is attached. See Condition.</p>

Internal Comments				
No.	Queue	User	Date/Time	Reviewer Comments
				- mnordin1 - 01/30/2018 17:11:59 GMT The Undertaking was reviewed by Courtney Doyle, who meets the applicable Secretary of the Interiors Professional Qualifications Standards in accordance with Stipulation I.B.1 a. of the Programmatic Agreement among the Federal Emergency Management Agency (FEMA), State
7	<a href="#">Mitigation Review</a>	ROBERTSON JAMES	01-10-2018 09:24 PM GMT	Proposed mitigation is technically feasible and cost effective per Public Assistance Program and Policy Guide FP-104-009-2, April 2017 15% rule. James Robertson HM 406
6	<a href="#">Insurance Review</a>	SMITH ROGER	01-09-2018 03:50 PM GMT	1/9/18 - Return to Initial for rework  Costs are NOT separated in the project. LOP #15 covered by insurance and subject to Section 311 Insurance Obtain and Maintain.  Return for Insurance Review after costs have been separated.  Roger Smith, Insurance Specialist
5	<a href="#">Initial Review</a>	BRIGHT AYESHA	01-04-2018 05:58 PM GMT	Hold pending documentation submittal - 12/14/17 - BM
4	<a href="#">Initial Review</a>	FREDETTE CHRISTOPHER	12-20-2017 06:58 PM GMT	Hold pending documentation submittal - 12/14/17 - BM
3	<a href="#">Initial Review</a>	ROBERTSON JAMES	12-19-2017 10:46 PM GMT	Hold pending documentation submittal - 12/14/17 - BM
2	<a href="#">Initial Review</a>	MASSAQUOI BENNEH	12-18-2017 09:57 PM GMT	Hold pending documentation submittal - 12/14/17 - BM
1	<a href="#">Initial Review</a>	MASSAQUOI BENNEH	12-14-2017 07:08 PM GMT	Hold pending documentation submittal - 12/14/17 - BM

Go Back

**Emergency Repairs 4308**

updated 2/28/18

Description of Work	Amt	% Complete
LSSUB01 - Flooded Streets	\$ 25,143.97	100.00
Lassen Street Bridge		
Riverside Drive		
Palute Creek Levee @ Memorial Park		

Cal OES payment \$5,185 received 2/16/18  
 Federal FEMA payment \$18,857 received 2/20/18  
 City Portion \$1,101.97

LSSUC02 - Citywide Streets	Cost Identified on 90-91 form	Staff Time	Materials	Equip.	% of Total Project Complete
Fill (unclassified)	\$ 1,150.00				0% as of 10/25/17
Aggregate Base	\$ 174.44				
Backfill (Granular)	\$ 591.78				
Engineering & Design Services	\$ 1,400.00				
Engineering & Design Services	\$ 1,400.00				
Slope Grading	\$ 214.55				
Compactor Equip.	\$ 348.00				
Dozer, Crawler Equip.	\$ 820.00				
Direct Admin. Costs	\$ 420.31				
Concrete Curb & Gutter	\$ 150.00				
Labor	\$ 1,000.00				
<b>Total</b>	<b>\$ 7,669.08</b>				

LSSUE03 - City Building (Geo Well)	Cost Identified on 90-91 form	Staff Time	Materials	Equip.	% of Total Project Complete
Contract Costs	\$ 20,823.83				90% as of 10/25/17
Drywall Replacement	\$ 204.80				
Labor	\$ 200.00				
Direct Admin. Costs	\$ 888.13				
<b>Total</b>	<b>\$ 22,116.76</b>				

LSSUG04 - Citywide Parks & Rec. Damage	Cost Identified on 90-91 form	Staff Time	Materials	Equip.	% of Total Project Complete
Engineering & Design Services	\$ 1,680.00				0% as of 12/20/17
Engineering & Design Services	\$ 2,100.00				
Contract	\$ 12,091.00				
Aggregate Surface	\$ 1,295.00				
Fill (compacted clay)	\$ 5,050.00				
Excavation & Backfill (sm. Unclassified)	\$ 424.50				
Grading (subgrade shaping)	\$ 180.00				
Contract - Irrigation controller Toro	\$ 95,652.97				
Excavator Equip.	\$ 600.00				
Labor	\$ 600.00				
Direct Admin. Costs	\$ 2,269.46				
Deduct Anticipated Insurance Proceeds	\$ (90,652.97)				
Mitigation	\$ 2,664.33				
<b>Total</b>	<b>\$ 33,954.29</b>				

Emergency Repairs 4301		
Description of Work	Cost	% Complete
LSSUB01 - EMP Lassen County	\$ 38,839.44	100
Palute Ln, Numa & South St		
Golf Course		

updated 2/28/18  
 Cal OES payment \$8,010 received 12/21/17  
 Federal FEMA payment \$29,129 received 12/22/17  
 City Portion \$1,700.44

LSSUG02 - GC & Airport	Cost Identified on 90-91 form	Staff Time	Materials	Equip.
Engineering & Design Services	\$ 7,000.00			
Engineering & Design Services	\$ 2,800.00			
Fill - 86.67 CY (unclassified)	\$ 3,900.15			
Fill - 527.2 CY (unclassified)	\$ 28,996.00			
Fill - 31.1 CY (Granular)	\$ 1,710.50			
Grading (Subgrade Shaping)	\$ 2,204.55			
Scarifying	\$ 2,396.25			
Dozer, Crawler Equip.	\$ 2,730.00			
Excavator Equip.	\$ 1,600.00			
Compactor, Vibrator Plate Equip.	\$ 4,887.50			
Laborer (Reg. Time)	\$ 6,200.00			
Direct Admin. Costs	\$ 2,931.23			
Hazard Mitigation	\$ 22,473.99			
<b>Total</b>	<b>\$ 89,830.17</b>			

% of Total Project Complete  
0% as of 12/7/2017

Cal OES payment \$16,843 received 3/20/18  
 Federal FEMA payment \$67,372 received 3/21/18  
 City Portion \$5,615.17

LSSUC03 - Various Streets	Cost Identified on 90-91 form	Staff Time	Materials	Equip.
Engineering & Design Services	\$ 2,800.00			
Engineering & Design Services	\$ 2,800.00			
Compactor, Vibrator Plate Equip.	\$ 460.00			
Aggregate Base	\$ 1,193.50			
Fill (unclassified)	\$ 9,600.00			
Dozer, Crawler Equip.	\$ 1,365.00			
Graders, Equip.	\$ 810.00			
Compactor, Vibrator Plate Equip.	\$ 185.60			
Loader Equip.	\$ 1,035.00			
Labor	\$ 2,080.00			
Dump Truck	\$ 452.00			
Direct Admin. Costs	\$ 3,362.44			
Contract	\$ 3,000.00			
<b>Total</b>	<b>\$ 29,143.54</b>			

% of Total Project Complete  
0% as of 11/20/2017

LSSUD04 - Paiute Creek/Parkdale	Cost Identified on 90-91 form	Staff Time	Materials	Equip.
Fill (unclassified)	\$ 5,985.00			
Engineering & Design Services	\$ 2,800.00			
Engineering & Design Services	\$ 1,400.00			
Excavator Equip.	\$ 1,720.00			
Labor	\$ 800.00			
Compactor Equip.	\$ 696.00			
Direct Admin. Costs	\$ 693.55			
<b>Total</b>	<b>\$ 14,094.55</b>			

% of Total Project Complete  
0% as of 12/05/17

LSSUC05 - Various Locations (Roads/Alleys)	Cost Identified on 90-91 form	Staff Time	Materials	Equip.
Engineering & Design Services	\$ 4,900.00			
Engineering & Design Services	\$ 8,400.00			
Fill (unclassified)	\$ 14,240.00			
Contract	\$ 21,098.00			
Compactor, Vibrator Plate Equip.	\$ 5,750.00			
Aggregate Base Course	\$ 32,985.00			
Dozer, Crawler Equip.	\$ 4,550.00			
Graders Equip.	\$ 4,050.00			
Direct Admin. Costs	\$ 3,950.68			
Labor	\$ 12,200.00			
Dump Truck Equip.	\$ 6,780.00			
Excavator Equip.	\$ 3,440.00			
<b>Total</b>	<b>\$ 122,343.68</b>			

% of Total Project Complete  
0% as of 12/05/17

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**RESOLUTION NO. 17-5387  
ESTABLISHING A FLOOD/EMERGENCY DECLARATION BUDGET  
FOR FEMA 4301-DR-CA AND FEMA 4308-DR-CA**

**WHEREAS**, the City experienced major storm damage during the months of January and February 2017; and

**WHEREAS**, a State of Emergency was declared for Lassen County; and

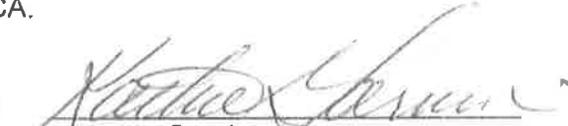
**WHEREAS**, the City has created a Flood/Emergency Declaration fund to capture expenses associated with projects FEMA 4301-DR-CA and FEMA 4308-DR-CA; and

**WHEREAS**, the City has expenses associated with these projects; and

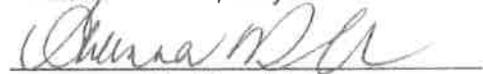
**WHEREAS**, a budget amendment is needed to cover these expenses.

**NOW, THEREFORE, BE IT RESOLVED** by the City Council of the City of Susanville proves establishing a Flood/Emergency Declaration budget of \$50,000 for FEMA-4301-DR-CA and FEMA 4308-DR-CA.

APPROVED:

  
Kathie Garnier, Mayor

ATTEST:

  
Gwenna MacDonald, City Clerk

The foregoing Resolution was adopted at a regular meeting of the City Council of the City of Susanville held on the 7th day of June, 2017 by the following vote:

AYES: Franco, Stafford, Wilson, Schuster and Garnier  
NOES: None  
ABSENT: None  
ABSTAINING: None

  
Gwenna MacDonald, City Clerk

APPROVED AS TO FORM:

  
Jessica Ryan, City Attorney

Reviewed by: DN Interim City Administrator  
                  \_\_\_\_\_ City Attorney

- \_\_\_\_\_ Motion Only
- \_\_\_\_\_ Public Hearing
- X   Resolution
- \_\_\_\_\_ Ordinance
- \_\_\_\_\_ Information

**Submitted By:** Dan Newton, Interim City Administrator

**Action Date:** April 4, 2018

**CITY COUNCIL AGENDA ITEM**

**SUBJECT:** Resolution No. 18-5495, authorizing the execution of a professional services agreement with Dyer Engineering Consultants for preparation of construction documents for the Cady Springs Pump Station and Pipeline

**PRESENTED BY:** Dan Newton, Interim City Administrator

**SUMMARY:** In 2003, the City embarked on a project that would lead to the installation of a water pumping station at Cady Springs, installation of a 1 million gallon tank and approximately 2 miles of new pipeline. The project was not finished due to insufficient funds. In 2006, construction plans and specifications were completed by Sunrise Engineering. The project was bid but could not be awarded due to insufficient funds. Since 2003, the tank and the majority of the pipeline have been in place but unusable because the pumping station was not completed.

The City received a grant in 2016 to complete the project. The first phase of the project was to evaluate the 2006 construction documents. Due to the age of the documents several items required evaluation. An RFP (Attachment A) was prepared to accomplish a two phased approach. Phase one is to review and evaluate the construction documents and prepare an engineering report. Phase two is the preparation of the construction documents. Dyer Engineering Consultants (DEC) has completed the engineering report under phase one (Attachment B).

DEC has prepared a scope and cost to complete phase two, the preparation of construction documents. The proposed Agreement for Phase II (Attachment C) includes the scope, cost summary and rate schedule. The cost summary has been negotiated with DEC to meet the needs of the project and to lower the proposed cost such that the total cost paid to Dyer is under the amount provided by the project grant for project design.

**FISCAL IMPACT:** Per the grant agreement with DWR, the project budget for Planning/Design/Engineering/Environmental Documentation is \$180,000. However; the budget includes the design work for Cady Springs and also Johnstonville Water Main

Replacement. The City has always planned to complete the Johnstonville Water Main design with its own staff.

City staff has also been supporting design work for Cady Springs as well as preparing water main replacement plans as part of the grant. Because most of the project design funds (\$179,725) are proposed to be paid to Dyer Engineering Consultants, costs that the City may be eligible to recover for staff time will be reduced unless project funds are available to be transferred from construction. City staff time has already been budgeted and unless overtime is authorized, use of city staff will not result in any additional expense to the water fund.

**ACTION REQUESTED:** Approve Resolution No. 18-5495, authorizing the Interim City Administrator to execute a professional services agreement with Dyer Engineering Consultants for preparation of construction documents for the Cady Springs Pump Station and Pipeline and authorizing Finance Manager to load the project budget.

**ATTACHMENTS:**

- A) RFP for Completion of the Cady Springs Pump Station and Pipeline
- B) DEC Engineering Report
- C) Agreement for Phase II
- D) Resolution No.18-5495
- E) Grant Budget

# ATTACHMENT A

# CITY OF SUSANVILLE

**Request for Professional Services for the Evaluation and  
Modification of Construction Documents For:**

## **Completion of the Cady Springs Pump Station & Pipeline**



### **Submittal Information**

**Project Name:** Cady Springs Pump Station & Pipeline Completion  
Construction Document Evaluation

**Date:** May 12, 2017

**Contact:** Dan Newton, City Public Works Director

[dnewton@cityofsusanville.org](mailto:dnewton@cityofsusanville.org); (530) 257-1041

**Delivery Location:** 720 South St., Susanville Ca, 96130

## **A. Introduction**

The City of Susanville is seeking the services of a qualified engineering firm to review, evaluate, modify, and update construction documents that are 11 years old. The construction documents were used to bid construction work in 2006, the project was not awarded. The purpose of the construction documents is to complete a larger project that was initiated in 2003. The scope of the larger project included the installation of a pumping station at a prolific City spring, installation of a 1 million gallon storage tank, and installation of approximately 2 miles of pipeline. The initial project completed the installation of the storage tank and the majority of the pipeline. Work on the project was stopped in 2003 and the pump station was never completed. The City hired an engineering firm to prepare construction documents to complete the project in 2006; however, the bids were not awarded due to insufficient funds.

The City has recently obtained a state funded grant to complete the project. The construction documents prepared in 2006 represent the majority of the work the City would like to accomplish. However, due to the age of the documents, there are several items that require evaluation, updating, and potential modification. The City does not possess an electronic version of the plans or specifications, nor does the City have access to the original design firm's calculations for the pumping station.

**City engineering staff has reviewed the construction documents and found several areas where additional information and detail would be beneficial toward the completion of the project. See Attachment B for more information.**

Scope and costs for review, evaluate, modify and update plans will be divided into two phases. Phase one will consist of a thorough review of the 2006 construction documents. A deliverable under phase one will be for the Consultant to review and evaluate the plans and prepare an engineering report that will be used as the basis to update and modify the plans under phase two.

### **Phase one: review and evaluate construction documents prepare engineering report**

Scope of services Phase I.

Consultant will prepare a report for City detailing items to be addressed on construction documents and estimated costs to complete the work.

Consultant will review and evaluate plans for completeness, compliance with current codes, constructability, accordance with industry standards, reasonableness, effectiveness, overall design functionality, and appropriateness to meet City project objectives.

Consultant will field verify the locations of the facilities installed under the 2003 project that will be utilized to complete the system. City will provide all information it has available to indicate the locations of the facilities.

Consultant will evaluate the condition of the existing facilities such as the buried pipe, storage tank, and other appurtenances and disseminate findings to City in report.

### **Phase two: preparation of construction documents**

Scope of services:

Consultant to complete all aspects necessary to provide biddable construction documents updated to current codes, standards and the City's goals for the conveyance system.

## **Project Information:**

The project limits are located over approximately 2 miles of alignment generally paralleling and, in some locations, crossing State Route (SR) 36 west of town and within an existing Lassen Municipal Utility District (LMUD) public utility easement. All improvements desired are located in the City of Susanville and adjacent portions of Lassen County on City owned parcels or within publicly held easements. No right of way acquisition is anticipated.

Water from Cady Springs is conveyed to the City via a 14 inch steel pipeline. The pipeline is old and traverses a steep canyon wall that is located on BLM land. The City conceived a plan to remove the old steel line and pump the water from the springs, that currently flows into town without pumping, uphill to a storage tank. The pumping costs were to be offset by the installation of a hydroelectric generator downstream from the tank. The City entered into a contract based on approved construction documents (circa 2003) to complete a project for placement of water main, a storage tank, pump station, and generator. The storage tank and approximately 95% of the pipe system have been constructed to date. The pump station was never started and the generator was removed from the project scope. Due to insufficient funding, work on the project ceased and the City was left with an incomplete project.

In 2006, the City bid a revised scope of work that kept the 14" gravity line in place, provided a more modest pumping station, and completed the unfinished pipeline. The modified scope provided a means to fill the empty storage tank which provides several benefits to the City's water reliability and storage. The City lacked adequate funding to award the contract and rejected all bids.

The City has substantial information regarding the work completed to date but has not field verified locations and sizes of buried waterlines, valves, or electrical conduits. The City is interested in completing a project that is consistent with the 2006 plans, but that is expandable in the future to capture additional spring water.

## **B. Correspondence**

All questions and inquiries should be directed to:

Dan Newton, PE  
Public Works Director – City of Susanville  
720 South Street, Susanville, CA 96130  
(530) 252-1041  
[dnewton@cityofsusanville.org](mailto:dnewton@cityofsusanville.org)

## **C. Submittal Deadline**

Provide three copies of written documents as described in section E by 2:00 PM on June 8, 2017. Firms should anticipate participating in an interview process with the City of Susanville within two weeks after the submittal deadline. All submittals shall be titled appropriately to distinguish the subject matter. A company fee schedule should be submitted along with a cost estimate to complete Phase 1 of the project work.

*In submitting documents for this project it is incumbent of the consultant to acknowledge their responsibility to identify issues or concerns with the project as presented prior to entering into any agreement or contract for services and subsequent compensation with the City of Susanville. Submittal shall be considered as the firm's consent in this matter.*

## D. Project Description

### *Pump Station Project CD (Included)-for prior approved plans for both the 2003 and 2006.*

"Project" is defined for the purposes of this REQUEST FOR SERVICES as all the desired consulting services for the City of Susanville Cady Springs Pump Station Project.

In Lassen County, in the City of Susanville, adjacent to and crossing portions of State Route 36, from 0.5 mile northwest of the Harris water tank located on Harris Drive to the Cady Springs chlorine house located approximately 2 miles westerly in the Susan River Canyon 0.10 miles southerly (down the canyon approximately 400 feet) from the LMUD alignment located adjacent to and south of SR 36. The project will ultimately construct an expandable pumping station w/SCADA communications and needed power from LMUD, complete connections of a partially installed 10" C900 PVC water main to the pumping station, complete a crossing or crossings through previously installed casings under SR36 all mostly within an LMUD high tension power line easement (12kv to 60kv). Additional work includes the rehabilitation of a previously installed 0.94 MMG storage tank for code upgrades, completing connections (power, valving, controls, metering, communications i.e. SCADA etc.).

The site of the pumping station is located within the Susan River canyon with limited and restricted accessibility along a dirt/gravel road cut into the wall of the canyon. This area is susceptible to rock slides and closure during inclement weather. Designs and construction methods selected shall take into account the need for safe, reasonable and maintainable equipment, materials, and methods in the approach to developing this site. The pump station itself needs to embrace a minimal footprint and impacts to the area. Topography is somewhat a concern at this location and a site visit is key to fully understand the design constraints. Additionally, the site needs to be suitable for expansion in accessing springs below (downhill) of the present site.

Hydraulics for the pump station will also need to consider expansion, access, need for redundancy, maintenance & repair efforts, loss of power or pump failure, surge management/relief, power consumption and long term financial commitments for all the above. Additionally, based on what has been installed to date, the City's existing system and the goals of the City an evaluation of the original design is necessary. Recommendations for affected areas regarding pressure zones, tank level management, delivery needs to customers (both future and existing) along with fire protection should be taken into consideration.

The 0.94 MMG storage tank located approximately 2/3 of a mile northeasterly of Cady Springs adjacent to the pipeline previously installed within the LMUD alignment. The tank requires assessment for functionality in bringing it into service, adequacy in meeting the desired goals of the City, addressing of any code compliance issues (constructed in 2003) and suitable material in the application of the exterior of the tank, including but not limited to painting, sealing and reconditioning to provide a 20 year durable surface that is easily maintainable.

Environmental permitting is, for the most part, completed with clearances having been obtained and remain in full effect. No services relating to the grant nor the NEPA/CEQA are required other than ensuring compliance (as applicable) for the project design, construction documents and bringing the system on-line and fully functional.

This project is being implemented by the City of Susanville in cooperation with a Proposition 84 grant provided through the State Department of Water Resources (DWR).

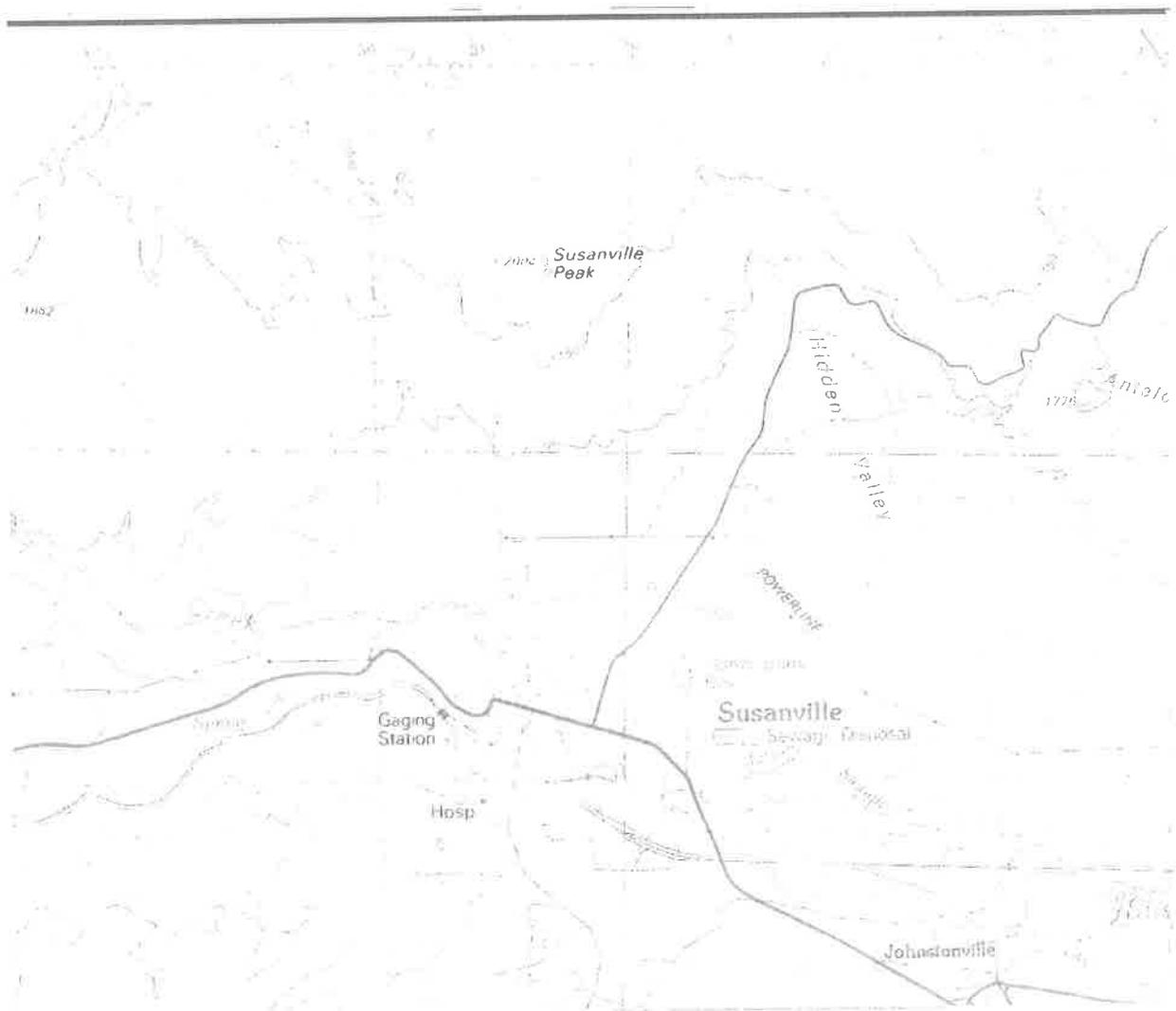
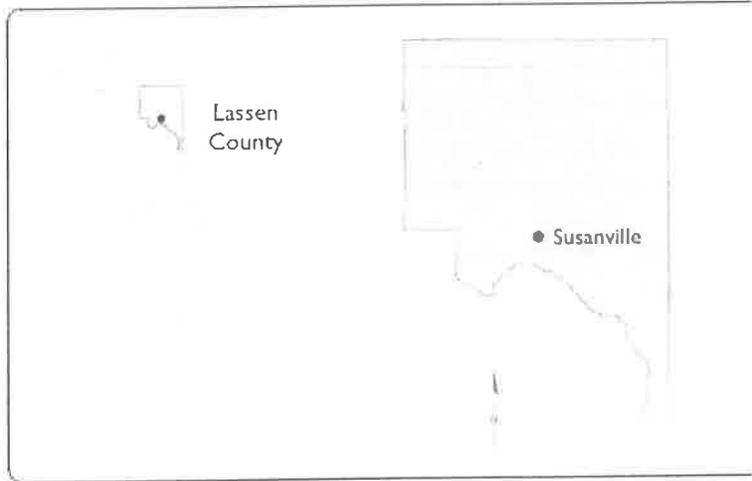
The following should be considered as part of Phase I, review and evaluate construction documents, prepare engineering report:

- Non-field assessment of the integrity of the pipe, casing under the highway, valves, fittings, meters, structures, conduit and conductor, depth of cover and all other appurtenances installed to date, information to be obtained from project records, material manufacturers, and engineering judgment

- Determination of need for testing for pressure, bacteria, flow capacity, alignment, connections, and compaction etc.
- Verification of the limits of work previous to this contract and defining the new limits of work and associated scope include SR36 highway crossings,
- Investigation of pump station site for feasibility, hydraulics, structural and geotechnical concerns, power supply, and expansion
- Comprehensive inspection of and recommendations for the 0.94 MMG tank (internal and external) for surface condition, ability to serve as intended, compatibility with the system in place and to be completed, determination of the plumbing/connections/metering/communication at the site
- Analysis of the existing City system downstream of the pump station site, 0.94 MMG tank, existing gravity pipe from the springs, PVC pipe placed but not connected and impacts to all once the pump station is placed on line and active.
- Recommendations on alternative power supplies, solar photovoltaic or generators and security for all facets of the project.
- Analysis of additional controls needed to divert spring water prior to chlorination during times of low water demand
- Determine proper SCADA communications for the new pumping station, new tank and surrounding topography.

All the above should be investigated, analyzed and summarized in a report to the City prior to moving to the next phase of determining costs associated with commencing the effort of full design and construction documents. The report should present recommendations with pros and cons, cost/benefits analysis, and alternatives on the results of the effort made to date to determine the best use of the system. It must include associated preliminary costs of design, construction, operation, maintenance and expansion and include a value engineering component.

# Project Location





## **E. Services Request Format and Required Contents**

1. Interested Consultants are invited to submit a proposal for the services identified in this document. Proposals are to be clear and concise. Top three firms will be interviewed. Required documents include a statement of the understanding of the work to be performed; statement of qualifications summary of similar projects; proposed work schedule; fee schedule; cost proposal for phase I.
2. Submittal of a proposal indicates that the Consultant has read and understands this entire REQUEST FOR PROFESSIONAL SERVICES, to include all appendices, attachments, exhibits, schedules, addenda (as applicable) and all concerns regarding this REQUEST FOR PROFESSIONAL SERVICES.
3. Proposals are to be submitted in the format described below. Proposals should be prepared in such a way as to provide a straight forward, concise description of capabilities to satisfy the requirements of this REQUEST FOR PROFESSIONAL SERVICES..
4. Proposals must be complete in all respects as required in this section. At the City's discretion, a proposal may not be considered if it is conditional or incomplete.
5. In developing the services request the Consultant should carefully review this services request to take into consideration the rights, obligations, and costs associated therewith. Consultants are encouraged to prepare a scope of work based on their understanding of the project. Should that differ from any language recommended in this REQUEST FOR PROFESSIONAL SERVICES, please explain the recommended approach and why it differs from the REQUEST FOR PROFESSIONAL SERVICES.

### **Statement of Understanding of the Work to be performed**

- a) Brief synopsis of the Consultant's understanding of the project and the project objectives
- b) Concise narrative description of the proposed approach to achieve the project objectives

### **Statement of Qualifications**

- a) Brief synopsis of qualifications to complete the work
- b) Resumes of professionals proposed to be involved
- c) Summary of similar projects:
  - a. Include references from agency representatives

### **Proposed Schedule**

- a) Provide a schedule for the completion of Phase I
- b) Provide a list of projects currently underway that the professional staff who are to be working on this project are involved with
- c) Milestones and deliverable charts

### **Fee Schedule**

- a) Include firm's fee schedule indicating the hourly rates for the professional staff proposed to be involved in this project, travel rates, and per diem

### Cost Proposal for Phase I:

- a) Cost proposal to include estimated hours for each professional engaged in the project multiplied by hourly rate; estimated travel costs; subcontracts; materials and equipment costs, and any other anticipated costs to complete Phase I

**Insurance** – the consultant shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Consultant, its agents, representatives, employees, or sub consultants.

Minimum Scope of Insurance. Coverage shall be at least as broad as:

- a) Insurance Services Offices Commercial General Liability coverage (occurrence form CG0001).
- b) Insurance Services Office form number CA 0001 (Ed. 1/87) covering Automobile Liability, code 1 (any auto).
- c) Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance.
- d) Errors and Omissions Liability insurance as appropriate to the consultant's profession.

Minimum Limits of Insurance. Consultant shall maintain limits no less than:

- a) General Liability: \$1,000,000 per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.
- b) Automobile Liability: \$1,000,000 per accident for bodily injury and property damage.
- c) Employer's Liability: \$1,000,000 per accident for bodily injury or disease.
- d) Errors and Omissions Liability: \$1,000,000 per occurrence.
- e)

Deductibles and Self-Insurance Retentions. Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either; the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officers, officials, employees and volunteers; or the Consultant shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

### 6) Prevailing Wage Agreement

Consultant shall provide a statement of willingness to comply with California Labor Code, Section 1770 regarding prevailing wage requirements. The consultant is responsible for determining required components of the project that fall into the prevailing wage requirements. The requirements are as follows:

- A. Consultant shall comply with the State of California's General Prevailing Wage Rate requirements in accordance with the California Labor Code, Section 1770, and all Federal, State, and local laws and ordinances applicable to the work.
- B. Any subcontract entered into as a result of this contract, if for more than \$25,000 for public works construction or more than \$15,000 for the alteration, demolition, repair or maintenance of public works, shall contain all the provisions of this Article.
- C. When prevailing wages apply to the services described in the scope of work, transportation and subsistence costs shall be reimbursed at the minimum rates set by the Department of Industrial Relations as outlined in the applicable Prevailing Wage Determination.

## K. Proposal Evaluation and Selection

All proposals will be reviewed by City staff with the primary consideration being the Consultant's experience with similar projects, ability to perform proposed work, understanding of work to be completed. Interviews may be conducted with the most qualified firms based on the proposals submitted. The City will negotiate a contract with the firm deemed most suitable as determined from the content of request for services submitted. Should negotiations fail to result in a contract, the next highest ranked and qualified firm will be asked to negotiate with the City.

Proposals may be ranked using the following sample scoring criteria:

Experience with similar projects	25%
Project approach/Understanding	25%
Professional Qualifications of the firm	25%
Cost	25%
<b>Total</b>	<b>100%</b>

## **ATTACHMENT 'A' - LIST OF DOCUMENTS AVAILABLE**

- 1. 2002 Cady Springs Plans (CD)**
- 2. 2004 Installed Pipeline Survey (Paper and CD)**
- 3. 2006 Cady Springs Project Plans & Specifications (CD)**
- 4. Construction Photos (UPON REQUEST)**
- 5. Current Photos of the Project (UPON REQUEST)**
- 6. City Digital 'GIS' files (UPON REQUEST)**

## ATTACHMENT 'B'

### Plan Review By City Staff

City engineering staff has reviewed the construction documents and found several areas where additional information and detail would be beneficial toward the completion of the project.

#### PLANS

- a) Evaluate need to include an auxiliary power unit at the pump station site, revise site plan/grading etc. to accommodate. Need system to ensure freezing does not occur when power fails from LMUD
- b) Provide communications upgrades between the new tank (Harris as well?) and pump station in the canyon – hard wire
- c) Show needed system control and two way communication for pressure zones, communication btw pumps, tank, overall system (SCADA)
- d) Controls for bypass of the springs from pumping during offseason (winter months)
- e) System controls at tank, altitude valve, etc.
- f) Add expandability to the system for higher flows and other sources (down the hill from spring site)
- g) Verify design of pumps./system and anticipated flow in the 10" line to new tank
- h) Clarify the pump size and label in applicable sheets
- i) Provide more detail relating to layout, elevations, cross sections each direction and method of control (data) for alignments
- j) Revisit the highway crossing sleeves and proposed water main through each for feasibility and specific site conditions
- k) Complete the power supply and POC, meter, permits, fees etc for the LMUD connection above the pump station in the easement area
- l) Identify locations for pressure control (PRV's) and impacts on the system downstream to the Harris tank, pressure zones and the residences (Rocky Point)/Cal Fire area between the new tank and Harris tank
- m) Update the plans to current mechanical , plumbing and electrical codes (INCLUDE MEGALUG restraints matrix)
- n) Investigate need for additional isolation valves in the segments btw facilities and given the length of run from tank to POC
- o) Provide erosion control plans/SWPPP for the construction at the springs
- p) Need traffic control plans for work within the State right of way and adjacent to it
- q) Electrical for the Cady tank controls

#### TECHNICAL SPECS

- i) ELECTRONIC VERSION WE CAN EDIT AND UPDATE
- ii) Auxiliary power unit inclusion as part of bid by contractor, diesel power at Cady
- iii) Provide calculations on the retaining wall design and other components i.e. pipe sizing, pumps, wet well,
- iv) May need VFD pumps and ability to control remotely. Confirm horsepower needed given the desired results for filling the Cady tank
- v) RTU will no longer be provided by others - revise plans, specs and bid package accordingly
- vi) Tank refurbishment given condition of the exterior and length of time without maintenance
- vii) Update to current mechanical , plumbing and electrical codes
- viii) Soils report and slope stability analysis for above the retaining wall
- ix) Electrical for the Cady tank

- x) Full disclosure regarding awareness (knowledge from technical studies/reports) of pre-existing hazardous material in the locations from prior knowledge or construction activities
- xi) Need conversion of standard from ASSHTO to applicable City Standards and ASTM

#### BID PACKAGE

- ✓ Upgrade quantities for current condition of project (highway crossings an example)
- ✓ Revise per changes to design (i.e. generator), system control and communications
- ✓ Include supplemental bid items for certain unknowns such as testing, tank surface condition
- ✓ Use latest City of Susanville forms (agreement, bonds, insurance, Calif public contract code (PCC) and requirement for public works bids
- ✓ Remove alternative scenario bids

#### SERVICES TO CONSIDER

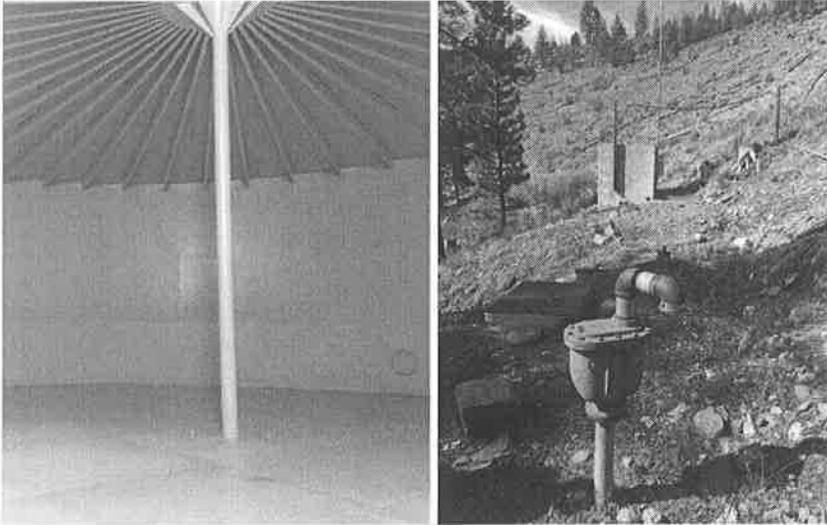
- Constructability review (prior to advertise/bidding)
- Design build package (turn key) - need to prepare goals/parameters/fiscal components
- Construction Management Services
- Design feasibility (hydraulics) with expansion and redundancy

#### ITEMS REQUIRING FURTHER EVALUATION AND DISCUSSION WITH CITY STAFF

- ❖ Verify the extent of commitments to connections for residences above town where NOT currently present. Are we providing services, connections to residences etc.?
- ❖ Fencing and security lighting needed/desired around the pump station and Cady tank
- ❖ Plumbing at tank w/drain to edge of cliff / rip rap present at outlet
- ❖ Evaluate highway sleeve crossing details are they adequate and accurate
- ❖ Evaluate need to provide/develop a turn out west of the new pump station
- ❖ Evaluate potential connection to existing gravity system at bend across SR 36 to Cal Fire
- ❖ Spring development considerations
- ❖ Pumping costs

# ATTACHMENT B

# Cady Springs Pump Station & Pipeline Phase I - Construction Document Evaluation



*Prepared For:*



**CITY OF**  
**Susanville**

City of Susanville Public Works  
720 South Street  
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*Prepared by:*



**DYER ENGINEERING CONSULTANTS**

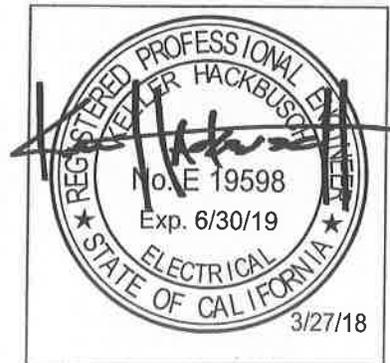
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- Appendix C – Engineer’s Opinion of Probable Construction Cost
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## 1.0 Executive Summary

### 1.1. Background

The current Cady Springs Pump Station and Pipeline project consists of two phases during the design stage of the project. Phase I includes a review of the existing state of the system and recommendations for final design. Phase II, to be performed upon completion of Phase I, will consist of the final design and preparation of construction documents for the completion of the system. This report consists of recommendations formulated during Phase I of the project. The main goals of Phase I include the following:

1. Gain a thorough understanding of the state of the existing system through review of existing documents and field observations.
2. Verify items necessary to complete the system.
3. Identify potential deficiencies in the system design.
4. Make recommendations to rectify these deficiencies and optimize the system.
5. Provide a professional opinion of the preliminary costs associated with the recommended improvements.
6. Develop a Scope and Fee for the professional services necessary to deliver Phase II of the project.

### 1.2. Findings and Recommendations

Generally, the existing system is in a state where it can be completed to provide an alternate water delivery system to the City of Susanville from Cady Springs when the existing gravity pipeline is not functional. However, there are several areas that have been identified to optimize and improve the operations of the system. A summary of the report recommendations can be found below:

- Reconfiguration of the Booster Pump Station to improve layout and provide code compliance.
- Provide all season access to the springs site.
- Miscellaneous improvements to the water main such as Pressure Reducing Valve (PRV), and Combination Air Valves (CAV)s, etc.
- Add Supervisory Control and Data Acquisition (SCADA) Controls to the system.
- Electrical improvements including a generator set and code upgrades.
- Additional future studies outside the scope of this project.



## 2.0 Introduction

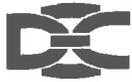
In 2003 the City of Susanville (City) undertook a new pipeline project that would provide an alternate conveyance system to the City from the Cady Springs water source. The purpose of the project was to provide a more reliable alternative to the existing 14" diameter steel Cady Springs gravity main, which supplies a significant portion of potable water to the City. The existing gravity main begins at Cady Springs and connects to the main city pipe network at the Harris Tank. The pipeline is vulnerable to damage from rock slides and is also very difficult to access for maintenance or repairs. The pipeline requires repairs to be performed using manpower with little or no heavy equipment assistance. Originally, it was intended that the existing pipeline would serve as a secondary emergency conveyance system after completion of the new 2003 pipeline project. However, the project goals have since been revised to maintain the 14" gravity line as the primary conveyance.

The City of Susanville's Cady Springs project was initially designed from 1998 (preliminary studies) to 2000 (Cady Springs Design Report) and included a pumping station, 2-mile long pipeline, and 1-million-gallon storage tank. The design originally called for a hydroelectric generator, but this element was later removed from the project.

The new system was partially constructed in 2003. The storage tank and most of the pipeline were constructed, but the pump station and its connection to the new main were not installed. Construction ceased due to insufficient funds when unexpected field conditions prolonged the project timeline and depleted the remaining budget. In 2006, the City hired a consulting firm to prepare construction documents to complete the project. However, when the project was put out to contractors, no viable bid within the construction budget was received, and construction did not proceed.

Recently, the City has obtained a state-funded grant leveraged through the Integrated Regional Water Management Plan (IRWMP) to complete the Cady Springs project. The current project scope is to analyze and evaluate the design and completed portions of the Cady Springs project, modify and update the design, and produce construction documents. Phase I consists of a thorough analysis of previous design documents, records of construction, and project photographs. Phase II consists of producing biddable construction documents updated to current codes and standards, while addressing the current requirements identified by the City.

This report is part of Phase I and will be used as the basis for updating and modifying the construction plans to be implemented in Phase II of the project. This document identifies items to be addressed in the construction documents, recommendations on studies or additional information to gather, and provides an opinion of probable construction cost to complete the project as recommended. Field verifications and observations including statements on the existing conditions of the pipeline and associated facilities are included in this assessment. The assessment also includes examination of the existing plans for completeness, current code compliance, feasibility and constructability, effectiveness, overall design functionality, and relevance to fulfilling the City's expectations. These topics are addressed throughout the report.



## 2.1. System Summary

The project area is located west of the City of Susanville, paralleling State Route (SR) 36 and following the existing Lassen County Municipal Utility District (LMUD) utility corridor. In three locations, the alignment crosses SR 36, requiring Caltrans Right of Way provisions such as traffic control planning. All necessary improvements are located within the City of Susanville and the adjacent sections of Lassen County on City-owned parcels or public easements. Therefore, no right of way acquisition is anticipated.

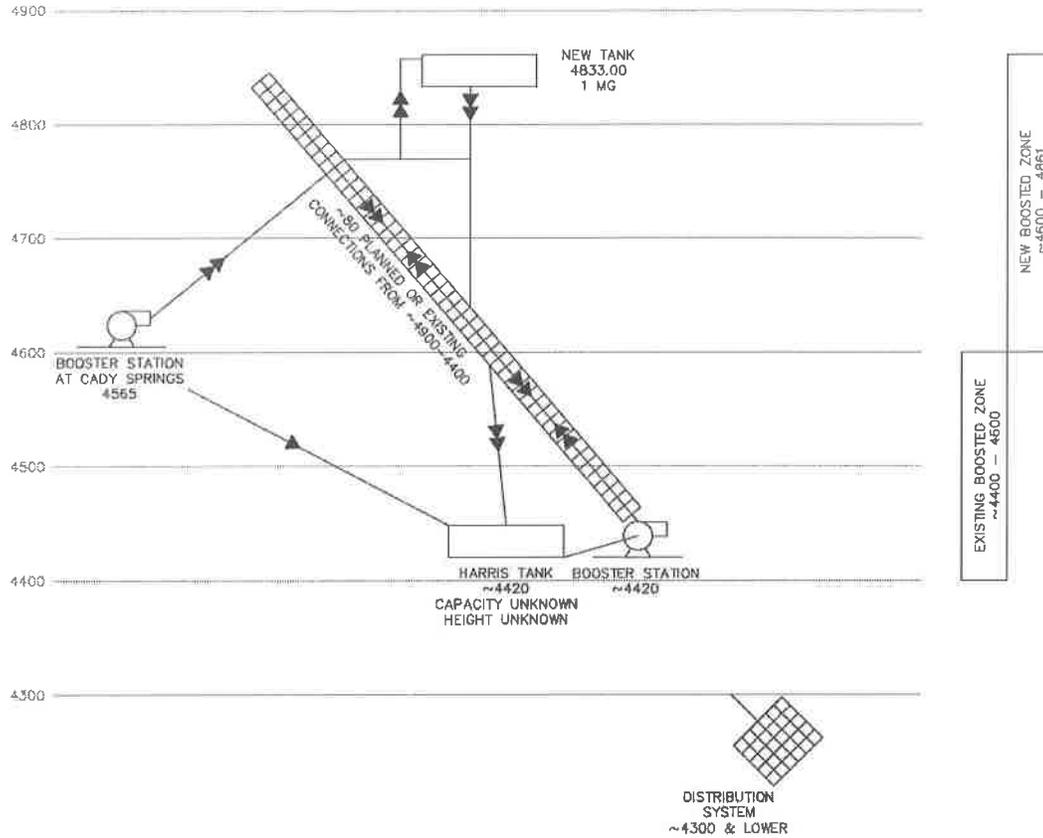
The springs are located on a steep slope with limited access. The topography of the springs site requires a pump station to be located close to the springs, so special consideration is given to accommodate access issues and the associated safety concerns.

The system starts at the Cady Springs Complex, and is collected by series of secured spring boxes. An existing 14" pipe gravity flows the spring water east to the proposed pump house. The proposed pump house will be constructed on a hillside with a slope of 30+ degrees. From the pump house, a short run of new 10" pipe will be installed to connect with the existing 10" pipe, which runs northward up the steep slope then up to the 1 million-gallon (MG) tank that was constructed in 2003. The tank is located at the high point of the project, and is equipped with inlet, discharge, drain, and overflow lines according to plans. No Supervisory Control and Data Acquisition (SCADA) equipment is currently present at the tank. Downstream of the tank, a 16" main will connect to the existing Harris Tank near the intersection of Prattville Road and SR 36. The 16" main will serve several new domestic connections in addition to conveying water to the Harris Tank for use in the rest of the City water system. See Appendix A for figures of the existing state of the system and proposed components to complete the system.

Significantly complete portions of pipeline include an approximately 3675' of 10" PVC pipe, 7,415' of 16" PVC pipe, isolation and combination air valves on the 10" and 16" pipelines, three highway crossings consisting of approximately 475' of 24" 9-gauge steel sleeves. The first and third crossing sleeves do not contain pipe and represent discontinuities in the system. The second highway crossing has 12" PVC pipe and but this pipe is not connected to the main. Electrical pull boxes and empty conduit are present from the water tank to the area above the proposed pump station location. Figure 1 shows a schematic view of the proposed system, once completed.



Figure 1: Infrastructure Elevation Schematic



## 2.2. Project Goals

The Cady Springs Pump Station Project has been initiated by the City of Susanville in collaboration with Proposition 84 grant is funded through the State Department of Water Resources (DWR). The fundamental goals and objectives as outline in this report are in conjunction with those expressed in Section 75020 of Proposition 84.

The project includes a multi-beneficial approach including:

- (1) Alternate water supply conveyance system.
- (2) Improvements to existing water systems to provide safer drinking water.
- (3) Establish connections to an adjacent and existing water system.

Project specific goals and expectations include:

- (1) Study and assessment of the current conditions of the existing system.
- (2) Identification of system deficiencies and requirements.



- (3) Assemble a bid package consisting of the items from the prior package, along with the new items to address deficiencies.
- (4) Hold a public bidding for the new package to construct the improvements and complete the original project for a functional system to be utilized by the City of Susanville.

#### 2.2.1. Design Objectives

The following section outlines core design objectives that will drive the engineering evaluation and Phase II final design of the project.

Integrating the existing storage tank is a core design objective for the project. The existing storage tank shows minor signs of deterioration on its exterior. The tank will require minor exterior reconditioning to attain a minimum durable life span.

Increasing system function visibility and control by city personnel is a design objective that can be achieved with SCADA improvements. SCADA will be required at a minimum between the new tank, the Harris Tank, and the pump station. Additional SCADA control will be desirable.

Planning for potential expansion and flexibility is a system design objective. This includes site expansion suitable for accessing additional spring flows, and scalability of the pumps station. Scalability also includes the potential for additional service connections on the new main. Continuation of operations on the existing Cady Springs pipeline is desirable due the gravity flow and low energy composition costs. The integration of the two lines is to be a design consideration.

Redundancy and emergency operations are a design objective for the system including maintenance, power loss, and pump failure. This is expected to require a generator set near the pump station, and redundant pump station design. Continuing to use the existing Cady Springs line will add to the overall redundancy of the entire system and save on energy costs to operate the pump.

Compliance with the latest codes and standards is a design objective for the project. Design considerations extracted from either the 2006 or 2003 plans must be updated and modified to match the latest version of each respective book, manual, or code.



## 3.0 Data Review

### 3.1. Existing Project Documents and Data

A combination of plans, specifications, bid results, engineers' reports, CAD & GIS files, construction inspection reports, and photographs were reviewed to determine the status of the project. These documents form the basis of understanding for this evaluation, but do not provide a comprehensive understanding of the entire city system.

PDF and CAD files from the Cady Springs Water Transmission Pipeline (2003) were used to determine the location and physical parameters of the pipeline and new storage tank. The plans contain information on the following:

- Pipeline
- Storage Tank
- Pump Station
- Backfill of native soil
- Generator
- Details – Chain link fence

Inspection records provided details on the means and methods of construction of selected project elements. Photos taken during construction provided a partial visual depiction of selected project elements.

Specifications, a coordinate reference system, an engineer's report, a design basis, and bid results associated with the 2003 construction documents were not available at the time of this draft.

#### 3.1.1. 2006 Plans and Specifications

The 2006 plans and specifications for the Cady Springs Pump Station project contain primarily information on the booster pump station, including the following:

- Grading plan
- Site Plan
- Plan and section view of the proposed pump station
- Plan and section view of the proposed meter and control vault
- Details and sections on a retaining wall
- Building details and elevations
- Electrical and controls plans

The plans and specifications also contain information on the waterline highway crossings 1, 2, and 3, and existing and proposed waterline geometry at Prattville Road.



### 3.1.2. 2006 Bid Results

The 2006 Bid Results contain a list of unit prices, quantities, and bid items to complete the project. This document was reviewed to determine contractor bid prices and identify items that could be value engineered to reduce costs. In addition, the unit prices were used as a starting point for developing an updated opinion of probable construction costs for the project.

Only one contractor bid was received for this project. It is understood that this bid was not awarded due to the high cost and insufficient funding for the project. Two items in the bid results stood out as being escalated in the contractor bid. This included the price to install the highway crossings and the price for the water line removal north of Highway 36. Upon review of the plans, the location of the water line removal north of Highway 36 was not confirmed. The City indicated that the installation of the highway crossings has been completed, and this high cost item will not be included in this project.

### 3.2. Existing CAD and GIS Files

The CAD file titled "CityTopography2002.dwg" contains linework on city structures, contour lines, edges of pavement, sidewalk, and other surface-apparent features. This linework was used to develop a basic understanding of the system and better describe the physical setting of the project.

CAD files for the 2003 and 2006 plans contained linework and drawing objects representing project elements. These files allowed for measurement of designed project elements, determination of relative locations, and insight into the design approach on several levels of detail. However, this resource was limited by a lack of information on the coordinate system used in the drawings and by a lack of record drawings or documentation of what was installed and omitted.

GIS files and data provided by the City of Susanville contain primarily location information on the existing water system in the City of Susanville, including:

- Water mains (not including the main from the 2003 project)
- Water laterals
- Fire Hydrants
- Isolation valves
- Pressure reducing valves

Although the 2003 water main is not present in the data set, the data contain valve locations along the 2003 water main.

This GIS information was supplemented by Digital Elevation Maps and contours downloaded from the United States Geological Survey via the National Map Data Viewer.

### 3.3. Previous Engineer's Reports

Previous engineer's reports were used to gain an understanding of the project need, background, and surrounding infrastructure and geography. Particularly, the Preliminary Engineering Report (Pace Engineering, July 1998) and the report on Cady Springs Water Transmission Line Project (City of Susanville, April 2000) described the alternatives considered, including the selected alternative. Previous



reports describe pressure zones in the City of Susanville and give data and context regarding water demand.

No design report was provided in the 2006 historical data. It is not anticipated that a 2006 design report will be made available. This will require the creation of a new design document and operations manual. This leaves room for interpretation and makes the task of unraveling the design more time consuming.

#### 3.4. Existing Water Usage Data

Records of water system flow provided by the City give an understanding of seasonal variation in production and consumption and a 10-year trend in production and consumption. This information was used to determine the maximum daily demand (MDD) and peak hour demand (PHD) as described in the "California Regulations Related to Drinking Water" (State Board's Division of Drinking Water, 11/14/2017). These flow rates were used in hydraulic modeling assessments of the system.



## 4.0 Geotechnical Considerations

### 4.1. Recommendations

An in-depth geotechnical assessment is not part of this study; nevertheless, it appears prudent to review geotechnical parameters and site characteristics relative to the proposed work. It is recommended that the following geotechnical considerations be included in Phase II of the project:

- Foundation conditions at the booster pump site and the generator site
- General soil type and potential lateral resistance at the thrust block sites
- Slope stability conditions where existing slopes along the pipeline are steeper than 4:1 (horizontal to vertical, approximately 25% or 14 degrees)

It does not appear practical to complete a drilling program in association with the geotechnical review. As an alternative, the following approach is recommended:

1. Review all existing documentation to determine what geotechnical parameters were available during the original design.
2. A qualified geotechnical engineer should make a site visit to visually classify soil materials, measure slope angles and understand the physical characteristics of the site. If highly questionable conditions are observed, shallow holes could be made using a posthole digger. If heavy clay deposits are observed along the alignment, a hand-auger exploration hole could be made in the soft material. Heavy clay soils may be sampled for corrosivity tests.
3. Review existing geologic hazard information available in the California Environment Information Sources (Library at Humboldt State University) website
4. Prepare recommendations to verify the proposed design is appropriate for the soil conditions.

The recommendations should consider:

- Foundation strength
- Conservative lateral resistance values
- Corrosivity of soils
- Potential for slope movements



## 5.0 Water Main

### 5.1 Existing Infrastructure

Significantly complete portions of the project include an approximately 3,674' of 10" PVC pipe, 8,027' of 16" PVC pipe, isolation and combination air valves on the 10" and 16" pipelines, three highway crossings consisting of approximately 475' of 24" 9-gauge steel sleeves, 12" PVC pipe in the second highway crossing, and an existing 1 MG steel water tank with inlet, discharge, drain, and overflow lines.

The 2003 plans indicate an interval of 1000' between isolation valves on the 16" pipeline and show that combination air valves (CAVs) are to be installed on high points and at an interval of 1,500' to 2,000' on flat areas. During field observations, it was noted that several CAVs were not present where shown on plans, and that CAVs ventilation pipes were undersized. The status of these valves should be investigated, and any suggested improvements should be included in the final design. Drain valves were not shown on 2003 plans and were not described in inspection reports. If drain valves are absent, they should be included in the Phase II design.

The 2003 plans show a service connection consisting of 1650' of 2" PVC to the existing mobile home pump station and a 50' service line of 2" PVC to connect to the existing CAL FIRE pump station. Furthermore, the plans call for an additional twelve service connections to be installed in locations determined by the City. These service lines also include the installation of a saddle, corporation stop, and pressure regulator. Since these items were not in the 2006 plans, it is assumed that they have been installed during the 2003 construction. Review of available construction photos and inspection reports have not confirmed the locations of these service lines. It is recommended that further research be conducted to confirm the disposition of this infrastructure and its locations.

### 5.2 Analysis and Evaluation

The portion of the system evaluated includes the main extending from near Cady Springs, through the LMUD corridor, to the intersection of Prattville Road and Highway 36, to the Harris Tank. The analysis also includes the three highway crossings and the storage tank installed in 2003 (New tank).

All other portions of the system were not analyzed and were assumed to meet the appropriate California Department of Water Resources and demand requirements. Fire demand and fire flow were not analyzed.

#### 5.2.1 Existing Pipe and Valve Condition

The system components were installed in 2003 and have not been used to convey water. Although model and manufacturer information were unavailable, manufacturers of typical pipe and valve components were consulted on the anticipated condition of the unused infrastructure. Based on conversations with pipe and valve manufacturers, no degradation of seal or gasket quality is expected, and seal and gasket condition is expected to be as-installed. Since PVC pipes have been buried and not exposed to sunlight, pipe condition is expected to be as-installed.



Isolation valve components are expected to be in good condition, but valve function will depend on to what degree they have been maintained since 2003. If valves have not been inspected and exercised, valve functionality may be reduced.

During a field observation of surface-apparent features on 10/10/2017, it was noted that several combination air valve ventilation pipes were missing. It is unknown whether these valves were installed, and the ventilation pipes were damaged or removed, or whether the valves were simply not installed. The CAVs are all 2", however installed ventilation pipes are approximately 1" and should be replaced to match the CAVs capacity.

Several miscellaneous valves were shown in the 2003 plans, including pressure reducing valves and backflow preventer valves. During the field observation on 10/10/2017, it was noted that the backflow preventer assembly near the tank was not evident in surface feature observations. The condition of these valves is unknown. Other miscellaneous valves listed in plans/specs but not noted in field observation include:

- Pressure Reducing Valves (PRVs)
  - Valves manufactured by Ames Co. Woodland, CA, Model 810 or approved equal
  - Flanged coupling adapter dresser style 128
- On/Near Tank
  - 16" Butterfly valve
  - Backflow preventer assembly
  - 16" Gate Valve
  - 16" to 10" Reducer
  - 12" d 10 Ga Welded Steel pipe drain line with butterfly valve
  - Transition fitting Steel to PVC

#### 5.2.2. Connection to Booster Pump Station

Currently, the 10" force main has been installed, but is not connected at the pump station site. Plans developed in Phase II of this project will include details on the connection of the existing 10" force main with the new booster pump station. It is recommended to locate the existing 10" pipe in the field and include it in a topographic survey. Details on the pump station are included in Section 6 of the report.

#### 5.2.3. Connection to Harris Tank/Prattville Road

The 2006 plans show an existing and proposed valve configuration at the intersection of Prattville Road and SR 36. During Phase II, the configuration of valves, pipes, and connections should be confirmed.

#### 5.2.4. Condition of Existing Sleeves

Three highway crossing sleeves were constructed under SR 36 in 2003. The first and third crossings currently consist of 24" 9-gauge steel sleeves with no carrier pipe. Highway crossing 2 consists of the same steel casing pipe, but also has a 12" PVC carrier pipe. Assuming a steel sleeve with 24" outer diameter (OD) and 9-gauge thickness (5/32", 0.16") gives an interior diameter of 23.68". Further assuming a 21.6" bell OD on a 16" nominal diameter C905 pipe gives one inch of annular clearance



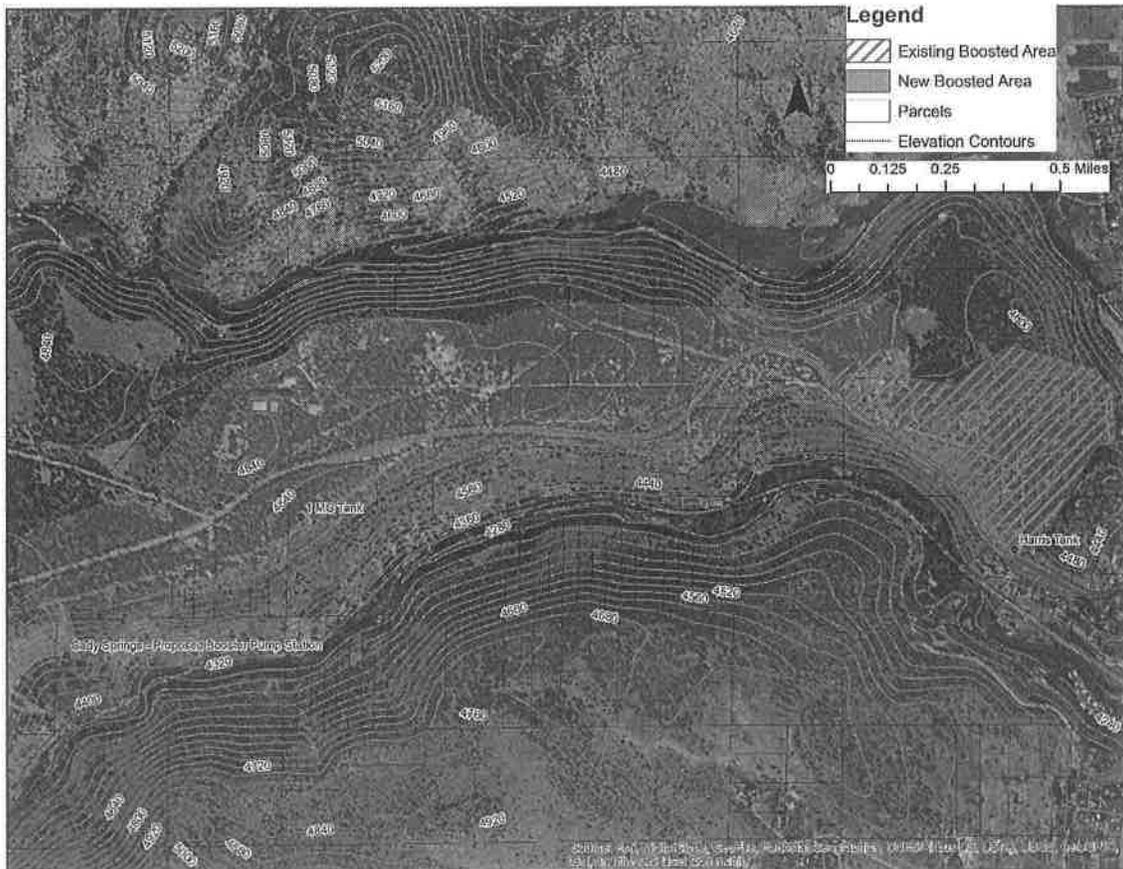
between the casing interior and the bell exterior. Based on these dimensions, it is not immediately evident why 12" pipe was installed in the crossings rather than 16" pipe.

This issue should be further investigated during design in Phase II. It is unclear from existing data whether all three crossings have 4" PVC conduit. Furthermore, it is unclear if the conduit is empty.

#### 5.2.5. Demand Analysis

Two sets of water records from the City were reviewed including water produced at Cady Springs from 2006-2016 and water delivered to the "Boosted Area" near the Harris Tank as shown in Figure 2 below. From this data, several demand flow rates were calculated as described below. Both sets of water records listed water quantity by volume per month.

**Figure 2: Boosted Area**





To determine the demand in the Boosted Area, it was assumed that the highest monthly flow in the period of record represented the demand of the current users in this area. From this set of records maximum monthly average daily demand (MMADD), maximum daily demand (MDD), and the peak hour demand (PHD) were calculated to analyze the pump, tank, and system response to anticipated demand in this area. MMADD was determined by selecting the highest monthly usage rate and dividing by the number of days in that month to obtain an average daily flow rate. MDD was determined by applying a peaking factor of 1.5 to the MMADD. PHD was determined by applying a peaking factor of 1.5.

To account for new connections anticipated by the City, records of annexation agreements and easements were reviewed. It was assumed that each agreement or easement represented an additional domestic connection. 80 existing and 13 additional connections were identified. The demand for the additional connections was estimated by multiplying the existing demand by the ratio of total future connections to existing connections (93/80). The resulting demand flow rates are shown in Table 1 below:

**Table 1 – Existing Plus New Boosted Area Demand Flow Rates**

Demand	Q (gpm)	Q (cfs)	Notes
Maximum Monthly Average Daily Demand (MMADD)	42.9	0.10	1,855 kgal in Aug 2014
Maximum Daily Demand (MDD)	64.4	0.14	
Peak Hour Demand (PHD)	96.6	0.22	4 hr. duration

Also considered was the portion of City-wide demand met by Cady Springs, including the Boosted Area as described above. It was assumed that the 2006-2016 records provided by the City include the Boosted Area and other parts of the City. The demand flow rates were based on records of Cady Springs production. MMADD, MDD, and PHD were calculated as in the Boosted Area calculations, but flow rates were not extrapolated to account for future connections. Demand flow rates associated with the Cady Springs production records are shown in Table 2 below:

**Table 2 – Cady Springs Production Record Rate Summary**

Demand	Q (gpm)	Q (cfs)	Notes
Maximum Monthly Average Daily Demand (MMADD)	1093	2.4	47,238 kgal in June 2006
Maximum Daily Demand (MDD)	1640	3.7	
Peak Hour Demand (PHD)	2460	5.5	4 hr. duration

#### 5.2.6. System Hydraulic Analyses

The City has requested a system to deliver the flows produced by Cady Springs. An analysis of the existing system was performed to determine whether the system, as designed, could deliver the flow requested by the City. A simplified model of the water system was created in WaterCAD using 2003 and 2006 plans, topographic survey information, and water system information provided by the City. The model contains the piping, existing 1 MG storage tank, booster pump, and selected valves necessary to



preliminarily analyze the capability of the system to deliver the demand flow rates described above. The model simulates the Cady Springs Complex using a constant-elevation reservoir node at the same elevation as the pump. This provides a convenient means to evaluate the pump and the rest of the system but does not account for variations in the springs production rate and may over-estimate the total amount of water produced by the springs.

The booster pump was modeled as having the pump curve shown on sheet 3 of the 2006 plans. Table 3 below shows the pump curve:

**Table 3 – Booster Pump Curve**

	Flow (gpm)	Head (ft)
Shutoff	0	435
Design	400	324
Max. Operating	675	160

Evaluation of the system consisted of four analyses. Each analysis considered the same system infrastructure and operational procedures, with varied flow rates and patterns. In the third and fourth analyses, the flow rates were changed to those for the Cady Springs Production Record. All model results can be found in Appendix B.

#### Analysis 1

The first analysis simulated the Boosted Area MMADD over several days. Model results show that the pump can supply the demand flow rate and fill the tank simultaneously. The system appears to be adequate and even over-designed for this demand scenario.

#### Analysis 2

The second analysis models the same “base” MMADD flow rate as the first analysis but adds a 4-hour period of PHD flow. This flow pattern is meant to simulate a period of average use before and after a 4-hour period of high demand. With the system configuration modeled, the system can accommodate this flow pattern indefinitely, while filling the tank.

#### Analysis 3

As is evident from a comparison of the MMADD and the booster pump’s maximum operating point flow rate, delivery of the MMADD relies on water stored in the 1 MG tank. The modeled pump and tank configuration can provide Cady Springs Production Rate MMAD flow to the demand node just upstream of the Harris Tank at positive pressures for approximately 47 hours assuming the tank is full at the beginning of the analysis. For that duration, the MMADD flow rate is capable of being delivered to the Harris Tank at its maximum water elevation (approximately 4450 ft).

This analysis demonstrated that the pump does not provide adequate capacity for permanent and long-term supply of the entire Cady Springs flow rate but could be useful as a temporary back-up system when the primary system is taken offline.



#### Analysis 4

The fourth analysis assumes the same MMADD flow rate for the duration of the simulation but adds a 4-hour period of PHD flow. In this scenario, the system can accommodate these demands for a total of about 28 hours, including the 4-hour PHD period. This analysis demonstrated that the system is inappropriate for permanent and long-term supply of the entire Cady Springs flow rate but could be useful as a temporary back-up system when the primary system is taken offline.

#### Conclusion

Based on the above analysis, the system, as currently designed, cannot meet City-desired flows. Larger pumps are recommended to increase flow. See section 6 for further discussion of pump recommendations.

#### Limitations of Analyses

This analysis does not represent a thorough evaluation of each component of the system, nor does it include critical evaluations such as fire flow analysis. The geographic scope of this analysis is limited to the portion of the water main shown in the 2003 plans between the booster station and the Harris Tank, excluding the Harris Tank and appurtenant valves or instrumentation. This evaluation does not consider the response of the system outside of the Boosted Area.

It was assumed that the demand was concentrated in a single node just upstream of the Harris Tank. In some circumstances, this assumption will result in conservative results, but is not as accurate as modeling demand as distributed at points of use. This analysis does not evaluate service locations requiring pressure reduction, nor service locations with pressure lower than recommended service pressures.

#### 5.2.7. Hydraulic Impact of Highway Crossings

The difference in head loss was determined between the 16" diameter highway crossings and 12" diameter highway crossings. The analysis was performed using the Cady Springs Production Flow PHD flow rate. The differences in head losses due to friction is approximately 6', which assumes minor losses resulting from the difference in pipe size and the reducers. While it is likely that 12" diameter highway crossings will impact the performance of the system for the high-flow scenarios, impacts are anticipated to be significantly lower for Boosted Area demand flow rates. It is important that the existing and proposed geometry of the crossings be investigated, confirmed, and modeled in Phase II.

#### 5.2.8. Caltrans Coordination and Traffic Control Requirements

Caltrans coordination and traffic control may be required during connection of installed main elements and highway crossing elements. Additional investigation is needed to determine the extent of impact to Caltrans Right of Way and the necessary permits. Highway crossing connection locations should be surveyed prior to construction to determine the need for and likely extent of traffic control. Likely required traffic control includes signage for shoulder work. Major changes to traffic patterns are not anticipated.



### 5.3. Recommendations

#### 5.3.1. Recommended Studies

##### System-Wide Hydraulic Modeling

The City should consider development of a system wide model in the future. Although the improvements proposed in the 2003 and 2006 projects are expected to provide redundancy and additional storage to the overall City of Susanville water system, additional studies of the system from a holistic perspective could alleviate future potential issues and help plan for growth.

##### Highway Crossing Sleeve Investigation

It is recommended to investigate the geometry of the highway crossings to better understand and model the hydraulics of these system components. Items to investigate include the fittings adjacent to the highway crossings (reducers, elbows, valves, etc.), the highway crossing connection points, the existence of 4" conduit adjacent to the sleeve, and the details of the geometry conflict that lead to substituting 12" diameter pipes for the originally-designed 16" diameter pipes, including blocking or pipe supports that may have been incompatible with other sleeve or pipe elements.

#### 5.3.2. Recommended Actions

##### Valve Exercise and Maintenance Record

It is recommended to test the functionality of isolation valves in the system, particularly on the 16" main, 10" main, and at tank locations. Should a maintenance record be unavailable, one should be established. The record should include installation date, coordinates, maintenance required, operating condition, size, model, and any other parameters deemed necessary by maintenance staff.

##### Harris Booster Pump

The plumbing of the pipe works at the Harris booster pump needs to be investigated to confirm whether improvements are necessary for a bypass to the pump. Since the new line will connect at Prattville, the water supply from the new tank will have to flow through the Harris pump site to connect to the remainder of the municipal system. This water must flow through bypass piping to go around the pump. The existence and location of the PRV shown in the 2003 plans should be confirmed and documented as part of Phase II.

##### Operation and Maintenance Manual

It is recommended that the City create an Operation and Maintenance manual for the system. The manual should detail maintenance intervals as well as information on how to operate the SCADA, Pump and Tank System. Maintenance records should be integrated into the system operation and maintenance manual.

##### Engineering Design Report

An engineering Design Report should be provided with the design to document the design of the system. This can be used for future designs and modifications or expansions to the system. Without



proper documentation of the design the work that is performed under this design effort may need to be re-created during future design efforts.

### Survey

It is recommended to conduct a topographic survey to supplement survey information already collected in previous design and construction efforts. Below is a list of features to include in the survey.

- Points/features to survey
  - Connection points or stubs for the 10" PVC pipe, 16" PVC pipe, or other pipes or conduits
  - Sleeve and highway crossing locations
  - PRVs
  - Tanks
  - Valves at tank connections
  - Service points
  - Booster Station location
  - Springs discharge points

These features are particularly important because they will establish the locations of the existing infrastructure. This location information is critical for the required design and eventually construction efforts. Accurate horizontal and vertical data is particularly important for cost estimation and hydraulic modeling, respectively. Survey results must be recorded in an electronic format compatible with CAD to be the most useful and valuable.

### 5.3.3. Recommended Improvements

#### Drain Valves

During review of the 2003 plans, it was noted that drain valves were absent. The profile of the water system as shown in the 2003 plans indicates several local low points that will allow water to stagnate if the system is drained on both ends of the pipe. It is recommended to include the drain valves to facilitate draining the system.

#### Backflow Preventer

The 2003 plans show a backflow preventer just upstream of the new tank. However, during the 10/10/2017 field observations, the backflow preventer assembly was not evident from surface observations. Including a backflow preventer in the location shown on plans is recommended. A bypass configuration is also recommended for the backflow preventer. The bypass configuration is recommended to allow for continued system operation during maintenance of the backflow preventer. This configuration also allows for more flexible operation of the system after potential expansion westward.



#### Combination Air Valves

During field observations, it was noted that several CAVs were not present where shown on plans, and that CAVs ventilation pipes were undersized. The status of these valves should be investigated, and any suggested improvements should be included in the final design. In addition, the existing CAVs appear to be 2", with a 1" air supply line. In Phase II the CAV manufacturer should be contacted to determine the appropriate air supply line size.

#### Pressure Reducing Valves

One or more pressure reducing valves will be required to reduce high pressure in the system. It is possible that following a more detailed water system study, multiple pressure reducing valves may be required to reduce system pressures to levels appropriate for domestic service.



## 6.0 Booster Pump Station

### 6.1. Assumptions

The following assumptions were made in the analysis of the booster pump station:

- The City prefers to build a pump station that is strategically placed near Cady Springs and on City owned property.
- The pump station will fill an existing storage tank when the water level is below a set point in the system. The storage tank will supply pressurized water to the distribution system.
- The pump station site is not accessible during periods of snow cover and excessively moist ground conditions. Maintenance or repair during these conditions will be difficult or not possible.
- In case of power loss or malfunction when the station is not accessible it is assumed that the gravity main will function as supply to the Harris Tank.
- The pump station must be designed to pump the Cady Springs production flow rate as described in Section 5. Fire flow and other flow conditions for the City are already met and this proposed system provides additional redundancy.

### 6.2. Pump Station Layout

#### 6.2.1. Existing Design

The current pump station equipment layout presents code violations as well as maintenance accessibility challenges. The layout in the existing design violates current electrical codes regarding workspace clearances in front of electrical panels. Electrical codes require a minimum of 40 inches of clearance with an unobstructed path to the nearest exist. Should an emergency occur in this location with the panels located along the north wall, an operator would be required to walk around the pumps and above-grade piping located in the center of the building to exit. Also, the required workspace clearance was not provided in the existing design.

#### 6.2.2. Design Recommendations

Relocating the electrical equipment to the south and west walls nearest to the steps, together with moving the pumps and above grade piping to the north wall, will provide the necessary workspace clearance for the electrical equipment as shown in 2006 plans.

In addition to the relocation of equipment, it is recommended that the suction line for the pumps be installed below grade before entering the pumps above grade. This installation, along with providing a separation of at least 24-inches between the pumps, will allow for easier maintenance access to all sides of the pumps. This reconfiguration of the suction line will require the addition of a second air release valve on the vertical portion of the suction line.

For the pump piping arrangement, it is recommended that a spool piece of pipe be added to the suction side of the pumps. The length of this spool piece should be equal to 5 times its diameter. The Hydraulic Institute recommends this length of pipe upstream of the suction side of the pump to reduce the



potential for cavitation in the pump. The revision of the 2006 pump station layout along with the additions to the pump arrangement and the pumps dimensional size (as shown in 2006 plans) does not require the overall building foot print to increase. However, it is recommended that the pump station structure be designed to accommodate potentially larger pumps for this project and an additional pump in the future, should it be required. Piping and floor space for the pumps required for this project should be designed with the future addition of an additional pump in mind. It is possible that in the detailed pump sizing and design in Phase II more than two pumps will be required to economically pump the large range of flows required at this pump station. The potential need for more than two pumps for this project and providing area for future expansion may result in an increased pump station size.

It is recommended that a non-slam check valve be added to the pumping arrangement since the operation of the pump station will be to fill the inline tank downstream. It is assumed that the pump station will operate to a fill height within the existing 1 MG tank downstream. The addition of this check valve will prevent the draining of the transmission main as well as prevent reverse operation of the pumps.

A supply-side tank is recommended to prevent or reduce pump cavitation, provide a single upstream overflow location, and to provide a means to bypass the pump station and flow via the existing 14" gravity line. Since this tank will be supplied by gravity line at or near existing grade, it will need to be installed below grade. This tank should be sized to provide storage volume for adequate drawdown time at design flows and provide gravity overflow and bypass outlets while remaining shallow enough to provide suction head adequate to supply pumps.

### 6.3. Pump Selection and Operation

The pumps that were shown in the 2006 plans for this pump station were selected based on unknown design criteria. The pumps selected for a lead/standby configuration were two 50 hp pumps capable of supplying 400 gpm at 324 ft Total Dynamic Head (TDH) to the existing tank. Operating the system in a lead/lag configuration will balance the wear and tear on the pumps over the long term as well as mitigate operation and maintenance costs over the life span of the station. However, the 2006 plans restricted the use of the pumps such that only one could be operated at a time. Furthermore, the configuration of the pumps shown in the 2006 plans required that both pumps be taken offline to repair either pump, significantly reducing the flexibility of the lead/lag system.

Vertical centrifugal pumps are a reasonable choice for this system due to their small footprint inside the building and favorable suction-side conditions. Other pump types should be thoroughly considered during final design to be sure that the most economical and applicable pumps are selected.

Based on the City request described in Section 5.2.6, it is recommended to increase the size of the pumps to provide the Cady Springs production flow rate (MMADD). Therefore, the pump configuration should consist of two pumps capable of delivering 1100 gpm when operating in parallel, and approximately 550 gpm when operating individually. Modeling results show that the total dynamic head to be provided by the pumps at 1100 gpm is approximately 325 ft. The two-pump system should be designed to allow for one pump to operate during normal conditions, refilling the tank as it is depleted from normal use, with two pumps being required when the existing gravity main is offline. It is



recommended that the pump operating during normal use should be equipped with a variable frequency drive (VFD). This proposed configuration should be verified during final design.

Pumps, piping, and valves should be configured to allow for maintenance of each pump separate from the other. In this way, service can be maintained for normal flow while one pump is being maintained or repaired.

#### 6.4. Constructability and Site Accessibility

Based on the evaluation of the current pump station design along with the assumptions made, it is recommended that the project be evaluated with respect to constructability and operational considerations. It is likely that improving accessibility to the site will allow for a lower construction cost and provide increased operational accessibility during normal and emergency cases. It is recommended that a standby generator be added to the design so that the pump station can continue to operate to supply water when primary power is unavailable.

#### 6.5. Additional Recommendations

During final design, there are several pieces of additional information that should be considered. The following are recommended as a minimum:

- Pump station site access. It is recommended to make future improvements to the site access of the pump station so that it is accessible year-round. Site accessibility should be carefully considered.
- Building location on the site. Evaluate site configuration and confirm best location, orientation, and grading for the building.
- Spring supply piping. Evaluate suction side spring supply piping configuration and confirm applicability to the selected pumps. Confirm pump inlet hydraulics.
- Pump discharge piping and connection to the transmission pipeline should be evaluated for most efficient operations.
- It is recommended that the City consider updating the gas chlorination system to a safer and more modern liquid chlorination system. If desired by the City, a chlorination system could be incorporated into the design of the pump station in Phase II.
- The need for emergency power on the site should be evaluated versus the risks to City water system operations if power is lost.



## 7.0 Water Tank

### 7.1. Existing Infrastructure

The existing tank is an 80' diameter steel-walled water tank set on a concrete ring wall at an elevation of 4833.00'. The tank capacity is 1 MG. The tank is equipped with a 12" supply pipe, 16" outlet pipe, 8" overflow pipe, 12" drain pipe, and a sample port. The tank has two 24" diameter manways, and a 36" by 24" hatch on top of the tank.

### 7.2. Analysis and Evaluation

The existing 1 MG tank installed in 2003 appears to be in good condition. Based on a visual observation on 3/2/2016, the interior of the tank appears to be in excellent condition, and the exterior appears to be in fair condition. The paint on the exterior appears to be peeling and weathering, and the steel appears to be corroding. While this doesn't appear to be causing immediate degradation of integrity, continued exposure will eventually render the tank non-functional.

It is understood that the tank has not been filled with water in a testing or use context. Post-construction testing records, inspection reports, or as-built/record drawings were not available at the time of this report. Without such documentation, it is possible that leaks or deficiencies are present in the tank. No SCADA systems have been installed into the tank, however it appears that there is a port with housing for SCADA in the tank.

### 7.3. Recommendations

#### 7.3.1. Re-Paint Tank

It is recommended to re-painting the exterior of the tank. The re-painting process will consist of removing existing rust, unsuitable or weathered paint, dirt, and other debris from the tank surface before applying new coats of paint to the exterior. It is recommended to prepare plans and specifications for re-painting either as a stand-alone project or as part of the Cady Springs Project.

#### 7.3.2. Tank Interior Evaluation

Only visual observations were performed in this scope. It is recommended that the City perform regular inspections of the tank as a part of the system standard operating procedures. During Phase II, it is recommended to review the tank testing records, inspection reports, and as-built/record drawings.

#### 7.3.3. Backflow Preventer Evaluation

During field observations, a backflow preventer shown on plans was not found. It is unknown if the backflow preventer was intentionally omitted, installed without a vault, or installed elsewhere. It is recommended to further investigate the status and location of the backflow preventer.

In plans, the backflow preventer was shown without bypass provisions. If the backflow preventer was not installed, it is recommended to install a provision for bypass. If the backflow preventer was installed, it is recommended to install a bypass to allow for simultaneous system operation and backflow preventer maintenance.



#### 7.3.4. Tank Instrumentation Evaluation

DEC recommends analyzing the existing Harris Tank instrumentation in the context of proposed instrumentation on the 1 million gallon tank, pump station, and the controls and instrumentation elsewhere in the system. In particular, an analysis of controls and instrumentation related to filling of the Harris Tank from the 1 million gallon tank and an analysis of the suitability of existing pipe, valve, and control systems are recommended.



## 8.0 Electrical System

The existing electrical infrastructure design was reviewed and analyzed from the City of Susanville Cady Springs Pump Station plans dated June 6, 2006 and labeled as "Released for Bid." These plans were produced by Sunrise Engineering, Inc. from Fillmore, Utah. Findings and recommendations are summarized in this section.

### 8.1. Analysis and Evaluation of Existing Infrastructure Design

In general, the 2006 plans present an electrical design that is complete and thorough. While the 2006 design was well done, there are a few comments that can improve the design and improve some questionable items.

1. E1 – Move wire sizes and information to the single line for clarity. No sheet reference to wire table. The wire table in the plans is awkward and hard to read. Recommend improving.
2. E1 – No load calculations found. This should be added to verify system design.
3. E1 – Determine the utility company voltage. Add to single line and transformer.
4. E1 – There is no panel schedule.
5. E3 - There is very little power company coordination information provided for the riser and new electrical service. It is recommended to add more information, including a pole riser detail.
6. E3 - No conduit shown on the Meter rack detail.
7. E3 – Configuration of Meter, switches, and rack will change due to addition of permanent generator.
8. E9 – The electrical engineer has stamped the mechanical/ventilation plan. It is recommended that a mechanical engineer design and stamp the ventilation and heating design.
9. See Code review issues below for more comments.

#### 8.1.1. Auxiliary Power Generation

Permanent auxiliary power generation is recommended at the Cady Springs Pump Station Site. The location of the site and the importance of power makes this an essential item to add to the project scope, rather than provisions for a portable generator. Options for auxiliary power generation are limited to Solar, wind, hydroelectric generation, or standby emergency generators. While solar, wind, and hydroelectric could be considered for the Cady Springs site, none are recommended for what will essentially be emergency power generation when the normal utility service to the Pump Station fails.

Solar power generation with photovoltaic panels is costly and temperamental. Not only are there increased costs for the steel structures to hold the panels, but the panels require regular maintenance for cleaning. Sufficient battery storage would also be required in the Pump



Station. The most likely time for a power outage from the utility company will be during a severe storm. These storms are likely to include snow and rain and overcast skies, all of which restrict power generation. For solar to work efficiently and present any cost payback benefits, the ideal scenario of sunny, open, warm environments is required. Installing photovoltaic panels on the side of the mountain, in an area that experiences winter storms and snow is not advised. Solar can be used for small auxiliary power for non-essential equipment in certain scenarios, but not for emergency power.

Wind turbines and hydroelectric turbines could be considered as well, but both are dependent on ideal weather conditions. Neither of these options are recommended.

A standby emergency generator with fuel tank in a weather enclosure installed at the top of the hill near the utility service pole and meter is recommended. A generator will require routine maintenance and will have limited period of operation, depending on size of fuel tank. However, a generator will be a dependable option to ensure the Cady Springs Pump station will remain operational if the utility power experiences any problems.

The generator should be sized for the Pump Station demands and any future expansion. A permanently installed generator with automatic transfer switch would be installed between the power company meter and the Pump Station to switch automatically if normal utility power fails. The generator and transfer switch would be installed on a concrete housekeeping pad designed by structural engineer with all seismic issues addressed.

#### 8.1.2. Code Analysis

There were a few National Electric Code concerns identified during the review:

1. E1 – The total system amperage needs to be confirmed. All wire and equipment shall be sized for this amperage. Currently, the equipment is rated for 400amps. The wire may be undersized, and the 150kVA transformer is limited to 180amps (480V, 3phase). Load calculations are necessary to determine whether this equipment is sized appropriately.
2. The E1 & E3 – A main disconnect switch is required between the meter and the transfer switch, otherwise there is no way to shut off power to work on transfer switch.
3. E1 & E3 – There is some concern regarding the voltage drop and the wire size for the feed from the Meter rack to the Pump Station. Load calculations and voltage drop calculations should be added to verify design.
4. E4 – There are concerns with the clearances in front of the power panels in the Pump Station. The section detail indicates there is a step, but the step occurs about 24” in front the panels. Technically, this should probably be 36” in front to avoid falling or trip hazard.

#### 8.2. Recommendations

In addition to the comments above, the following is also recommended:



1. Add permanent generator and fuel tank, with automatic transfer switch.
2. Add main switch before the new automatic transfer switch.
3. Provide a weather proof equipment cabinet at the generator location to enclose the automatic transfer switch, main switch, meter, and small new load center that will be required for battery charger and block heater.
4. Consider adding cooling in place of the exhaust fans for the electronics, especially if VFDs are used.
5. Engage the services of a structural engineer to design the concrete pad for the generator and equipment, as well as a mechanical engineer to ensure the heating and ventilation is designed adequately for the final Pump Station design.



## 9.0 SCADA System

### 9.1. Existing Infrastructure

#### Conduit

There are existing pull boxes and conduit for SCADA installed from the 1 MG tank to the top of the hill above the pump station. There is no wire installed through the conduit.

#### Tank Stilling Well

The tank is equipped with level gauge stilling well, however no leveling gauge is installed. Depending on the selected gauge type the stilling well may require some modifications.

#### Existing Cady Springs SCADA

The existing Cady Springs pipeline has a totalizing meter with data control units and transmission radio at chlorination station near Cady Springs. This system is currently in use. The data is received at the city offices.

### 9.2. Analysis and Evaluation

The existing conduit appears to be in reasonably good condition, although visual observation was only possible at the exposed ends in the pull boxes. No other investigations were made to determine if the conduit has been damaged or if it is fully continuous through the buried sections. All other the SCADA equipment will need to be furnished and installed. The existing metering on the Cady Springs pipeline should remain in place and continue to service the gravity fed line. The existing radio may be able to transmit the data from the proposed pump station depending on selected equipment compatibilities.

#### 9.2.1. System needs

The system at a minimum will require:

- Control of the new tank (level trending).
- Control of the pumps at the pump station (lead-lag strategy, starts, pump hours, discharge pressure control and trending).
- Control of the chlorination system (tank levels and trending)
- Control of the spring equalization tank vault (level trending)
- Control of the Upper Harris Zone (new PRV, up- and down-stream pressure trending).
- Control of Cady Springs via gravity main to Harris Tank.
- Control of overflow and measurement of Cady Springs (digital flow meter data collection and trending).
- Control of overflow and measurement of Harris Tank (digital flow meter data collection and trending).
- Control and reporting of water usage numbers and overflow numbers for operations and state-required reports.
- Control of flow from Upper Harris Zone to Harris Tank, which may require an additional PRV.



- Control of the current Harris booster pumps to supply the Upper Harris Zone in emergency cases.
- Control of the gravity main during breaks on the gravity main.

### 9.3. Recommendations

The City of Susanville staff indicated that they have an existing SCADA professional that they are currently working with on existing city SCADA systems. It is recommended that the existing SCADA Professional be integrated into the SCADA system design for the proposed system.

It is recommended that the City give clear direction regarding SCADA to the design team before Phase II. Issues to clarify include SCADA connectivity to the booster pump station to City base stations or RTU units and instrumentation requirements for system elements.



## 10.0 Engineer's Opinion of Probable Construction Cost

A preliminary Engineer's opinion of probable construction cost has been developed for this project. Please see Appendix C for the details. The unit prices were derived from contractor prices for similar items of work. The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.



## 11.0 Phase II Scope and Fee

The Phase II scope and fee were developed in collaboration with the City. The scope and fee reflect a balance of the needs of the City with its available budget. See Appendix D for details.



## 12.0 Summary of Recommendations for Phase II

### 12.1. Geotechnical Recommendations

- Geotechnical parameters and site characteristics should be studied relative to the proposed work. Foundation conditions at the booster pump site and the generator site.
- Determine general soil type and potential lateral resistance at the thrust block sites.
- Study slope stability conditions where existing slopes along the pipeline are steeper than 4:1 (horizontal to vertical, approximately 25%, 14°).
- A geotechnical report should be prepared to confirm the proposed design. Design components include foundation strength, retaining wall configuration, lateral resistance values, corrosivity of soils, and potential for slope movements.

### 12.2. Water System Design

- Perform detailed study of boosted zone, including service locations and updated pump design.
- Size pump to serve entire Cady Springs production flow rate (MMADD as described in section 5).
- Investigate pipe works at the Harris Booster pump to confirm connection to the remainder of the municipal system.
- Subsurface investigations at the highway crossings to confirm the pipe sleeve size, location, and configuration.
- A topographic survey should be performed to supplement survey information already collected in previous design and construction efforts. Collection of data includes connection points or stubs for the 10" PVC pipe, 16" PVC pipe, or other pipes or conduits; sleeve and highway crossing locations; existing PRVs; existing tanks and associated water works; proposed service points of connection; booster pump station location; and spring discharge points.
- Test the functionality of isolation valves in the system.
- Engineer's report to document the design efforts that take place in Phase II of the project.
- Creation of an Operations and Maintenance Manual during Phase II of the project by City staff.

### 12.3. Water System Recommended Improvements

- Provide drain valves at all low points along the main.
- Subsurface investigations to determine whether the backflow preventer was installed at the tank site.
- If the backflow preventer is not found, a new backflow preventer should be installed with provisions for bypass.
- Install CAVs in location where they were not installed in 2003. Also, increase the size of ventilation on existing CAVs installed in 2003.
- Confirm the locations of the service lines installed in the 2003 construction.



- Verify the presence and location of the PRV at the Harris Tank.

#### 12.4. Booster Pump Station Configuration and Water Works

- Up-size pump design to meet Cady Springs production flow rate.
- Provide room for expansion and placement of new pumps in the future.
- Relocate the electrical equipment to the south and west walls nearest to the steps.
- Move the pumps and above grade piping to the north wall.
- Install the suction line for the pumps be below grade before entering the pumps above grade. Also, provide a second air release valve on the vertical portion of the suction line.
- Provide a separation of at least 24-inches between the pumps.
- Add a spool piece of pipe to the suction side of the pumps. The length of this spool piece should be equal to 5 times its diameter.
- Add a non-slam check valve to the pumping arrangement.
- Add an upstream equalization tank.

#### 12.5. Booster Pump Station Design

- Consider future improvements necessary to allow all season access to the Booster Pump Station site. It is not recommended to site a pump station in a location that is not accessible during periods of inclement weather. This site access should be carefully considered before moving forward.
- Confirm building location on the site for access of City maintenance staff. Evaluate site configuration and confirm best location, orientation, and grading for the building.
- Evaluate suction side spring supply piping configuration and confirm applicability to the selected pumps.
- Confirm pump inlet hydraulics.
- Pump discharge piping and connection to the transmission pipeline should be evaluated for most efficient operations.
- Consider conversion from gas chlorination to solid or liquid form chlorination. This should be carefully evaluated versus the risks to human health and safety as well as risks to the mechanical components of the pump station in the event of a chlorine gas leak.

#### 12.6. Water Tank Recommendations

- Remove existing rust, unsuitable or weathered paint, dirt, and other debris from the tank surface and re-painting the exterior of the tank.
- Provide regular inspections of the facility once in operation.
- Evaluate existing controls, instrumentation, piping, and valves on the Harris Tank to determine alternatives for tank filling and other water service scenarios while connected to the 1 million gallon tank and the rest of the system downstream.

#### 12.7. Electrical Recommendations

- Add permanent generator and fuel tank, with automatic transfer switch.
- Add main switch before the new automatic transfer switch.



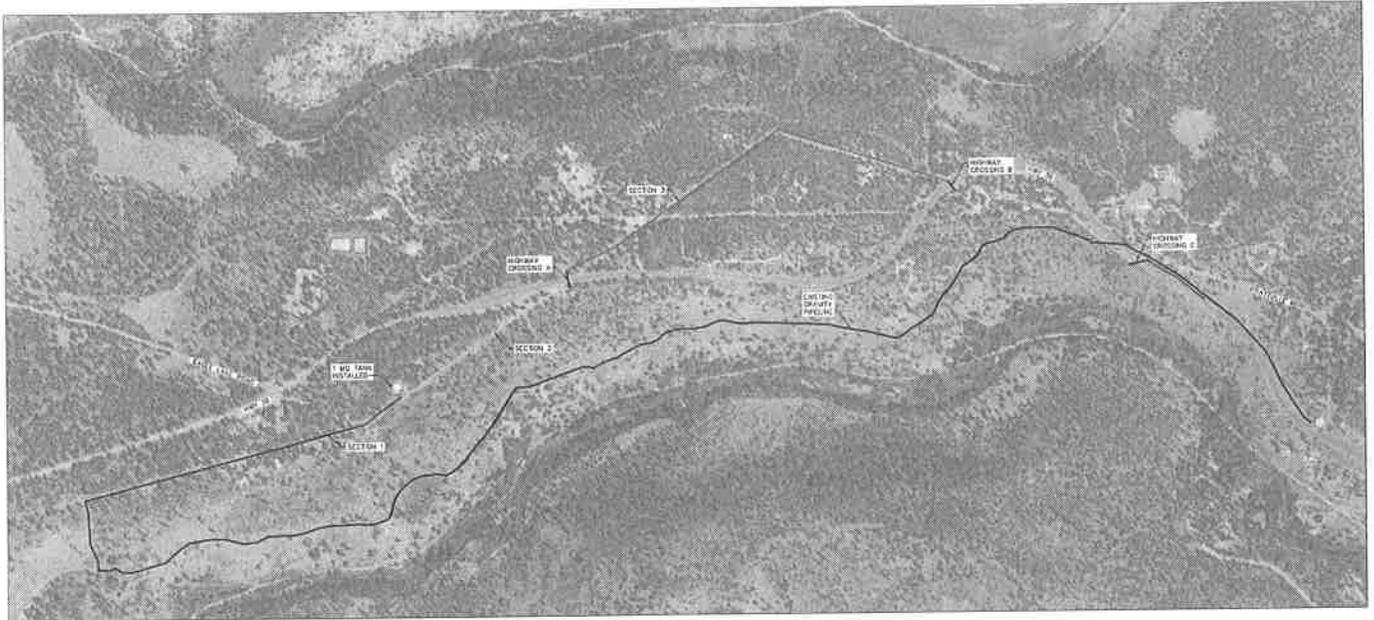
- Provide a weather proof equipment cabinet at the generator location to enclose the automatic transfer switch, main switch, meter, and small new load center that will be required for battery charger and block heater.
- Consider adding cooling in place of the exhaust fans for the electronics, especially if VFDs are used.
- Engage the services of a structural engineer to design the concrete pad for the generator and equipment, as well as a mechanical engineer to ensure the heating and ventilation is designed adequately for the final Pump Station design.

#### 12.8. SCADA Recommendations

- Control of the new tank (level trending).
- Control of the pumps at the pump station (lead-lag strategy, starts, pump hours, discharge pressure control and trending).
- Control of the chlorination system (tank levels and trending)
- Control of the spring equalization tank vault (level trending)
- Control of the Upper Harris Zone (new PRV, up- and down-stream pressure trending).
- Control of Cady Springs via gravity main to Harris Tank.
- Control of overflow and measurement of Cady Springs (digital flow meter data collection and trending).
- Control of overflow and measurement of Harris Tank (digital flow meter data collection and trending).
- Control and reporting of water usage numbers and overflow numbers for operations and state-required reports.
- Control of flow from Upper Harris Zone to Harris Tank, which may require an additional PRV.
- Control of the current Harris booster pumps to supply the Upper Harris Zone in emergency cases.
- Control of the gravity main during breaks on the gravity main.

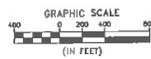


## APPENDIX A



PIPE SECTIONS				
SECTION	LENGTH	SIZE	MATERIAL	NOTES
1	247'	18"	CLASS 200 C900	TO BE INSTALLED
2	177'	18"	CLASS 200 C900	TO BE INSTALLED
3	168'	18"	CLASS 200 C900	TO BE INSTALLED
4	187'	18"	CLASS 200 C900	TO BE INSTALLED
5	817'	18"	CLASS 200 C900	TO BE INSTALLED

HIGHWAY CROSSINGS			
SECTION	SLUVE STATUS	PIPE STATUS	NOTES
A	INSTALLED	NOT INSTALLED	
B	INSTALLED	NOT INSTALLED	NEEDS WORK FOR 18"
C	INSTALLED	NOT INSTALLED	



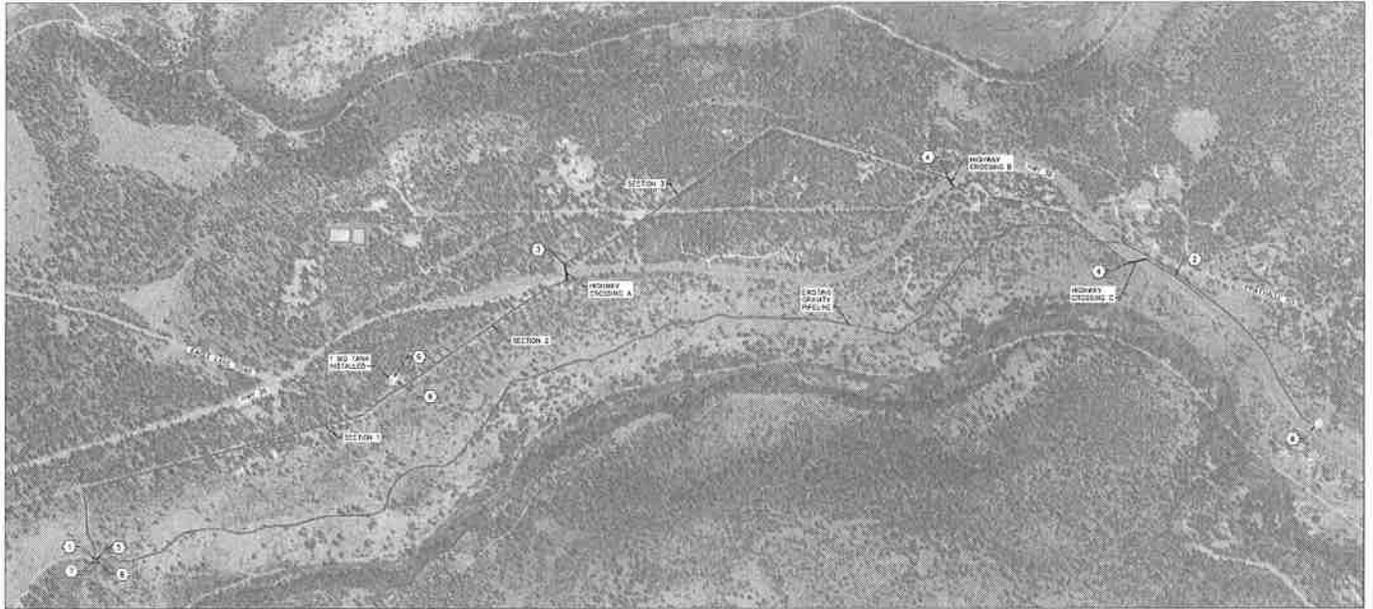
— EXISTING QUALITY PIPELINE  
 — HIGHWAY CROSSINGS

## Infrastructure Installed in 2003

### Cady Springs Pump Station & Pipeline Completion



March 2018



PROJECT COMPONENT			
NO.	DESCRIPTION	REPORT SECTIONS	NOTES
1	API CONNECTIONS	3	
2	PRATTVILLE ROAD CONNECTION TO HABER	3	
3	METALLURGICALS	3	
4	EROSION CONNECTIONS	3	
5	BOREHOLE PUMP STATION	3	
6	WATER TANKS	3	
7	ELECTRICAL SYSTEM	3	
8	SCADA SYSTEM	3	

## Proposed Infrastructure

### Cady Springs Pump Station & Pipeline Completion



March 2018



## APPENDIX B

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**Scenario Summary**


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ID	169
Label	Boosted Area Maximum Monthly Average
Notes	
Active Topology	Base Active Topology
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	Boosted Area Maximum Monthly Average
Initial Settings	T-2 Starts Empty
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	60 hours, 15 min increments
Transient Solver Calculation Options	Base Calculation Options

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**Hydraulic Summary**


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Time Analysis Type	EPS	Simulation Start Date	1/22/2018
Friction Method	Hazen-Williams	Hydraulic Time Step	0.250
Accuracy	0.001	Duration	60.000
Trials	40	Calculation Type	Hydraulics Only

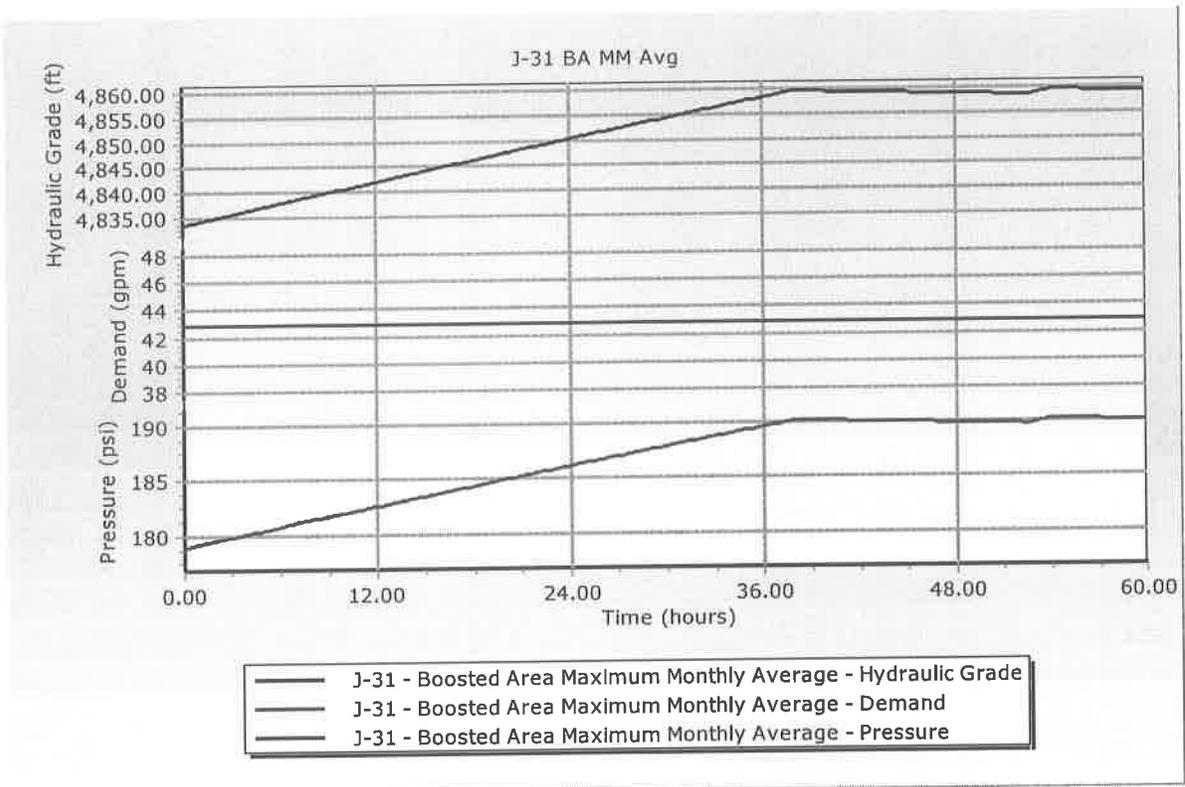
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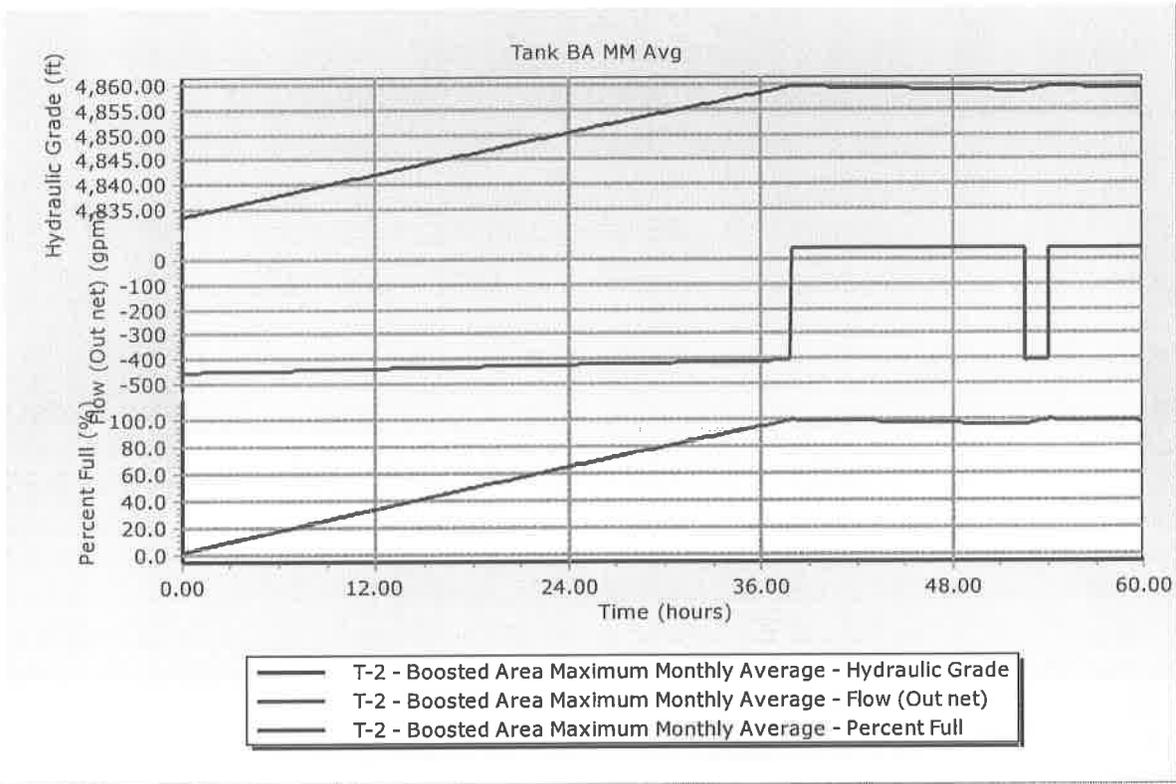
**Network Inventory**

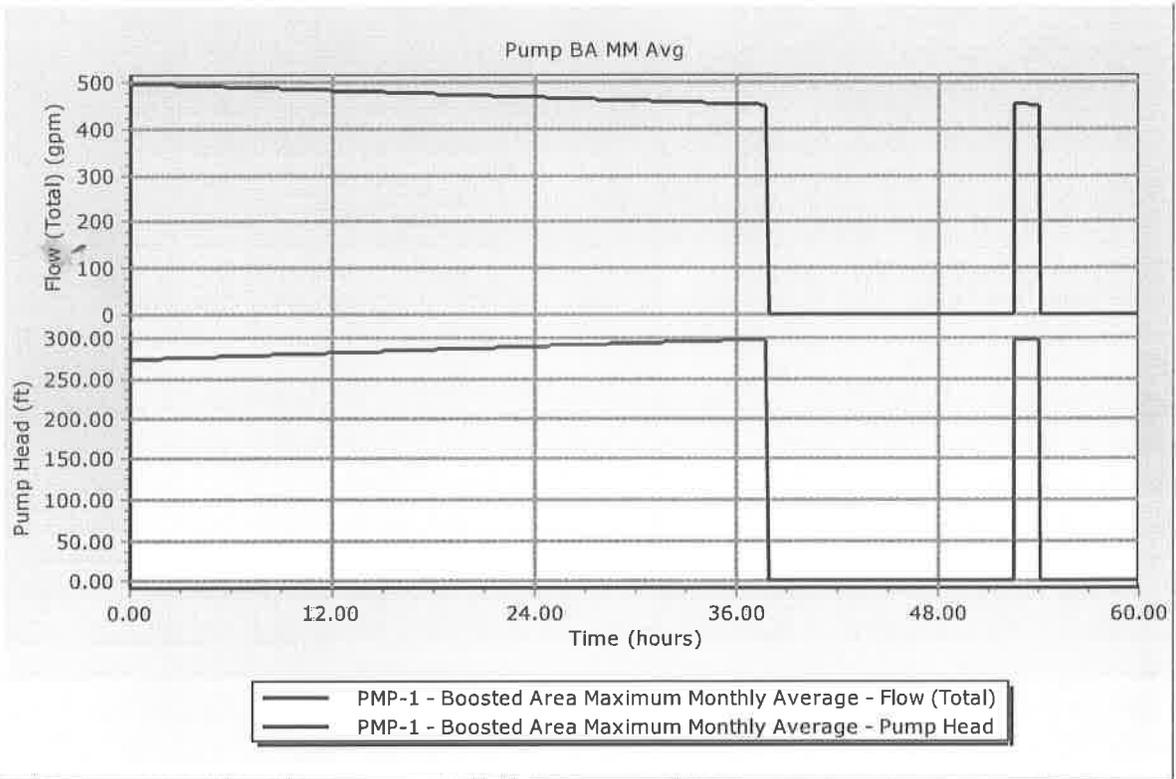

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Pipe	37	-Constant Speed - No Pump Curve	0
Lateral	0	-Constant Speed - Pump Curve	1
Junction	33	-Shut Down After Time Delay	0
Hydrant	0	-Variable Speed/Torque	0
Tank	1	-Pump Start - Variable Speed/Torque	0
-Circular	1	Customer Meter	0
-Non-Circular	0	Pump Station	0
-Variable Area	0	Variable Speed Pump Battery	0
Reservoir	1	SCADA Element	0
Tap	0	PRV	0
Pump	1	PSV	0
-Constant Power	0	PBV	0
-Custom Extended	0	FCV	1
-Design Point (1 Point)	0	TCV	0
-Multiple Point	0	GPV	0
-Standard (3 Point)	1	Isolation Valve	0
-Standard Extended	0	Spot Elevation	0

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**J-31 BA MM Avg**

Time (hours)	J-31 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average - Pressure (psi)
0.00	4,833.48	43	179
0.25	4,833.66	43	179
0.50	4,833.85	43	179
0.75	4,834.03	43	179
1.00	4,834.21	43	179
1.25	4,834.39	43	179
1.50	4,834.57	43	179
1.75	4,834.75	43	179
2.00	4,834.93	43	180
2.25	4,835.11	43	180
2.50	4,835.29	43	180
2.75	4,835.47	43	180
3.00	4,835.65	43	180
3.25	4,835.83	43	180
3.50	4,836.01	43	180
3.75	4,836.19	43	180
4.00	4,836.37	43	180
4.25	4,836.55	43	180
4.50	4,836.73	43	180

### J-31 BA MM Avg

Time (hours)	J-31 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average - Pressure (psi)
4.75	4,836.91	43	180
5.00	4,837.08	43	180
5.25	4,837.26	43	181
5.50	4,837.44	43	181
5.75	4,837.62	43	181
6.00	4,837.80	43	181
6.25	4,837.98	43	181
6.50	4,838.16	43	181
6.75	4,838.33	43	181
7.00	4,838.51	43	181
7.25	4,838.69	43	181
7.50	4,838.87	43	181
7.75	4,839.04	43	181
8.00	4,839.22	43	181
8.25	4,839.40	43	181
8.50	4,839.58	43	182
8.75	4,839.75	43	182
9.00	4,839.93	43	182
9.25	4,840.11	43	182
9.50	4,840.28	43	182
9.75	4,840.46	43	182
10.00	4,840.64	43	182
10.25	4,840.81	43	182
10.50	4,840.99	43	182
10.75	4,841.17	43	182
11.00	4,841.34	43	182
11.25	4,841.52	43	182
11.50	4,841.69	43	182
11.75	4,841.87	43	183
12.00	4,842.04	43	183
12.25	4,842.22	43	183
12.50	4,842.40	43	183
12.75	4,842.57	43	183
13.00	4,842.75	43	183
13.25	4,842.92	43	183
13.50	4,843.09	43	183
13.75	4,843.27	43	183
14.00	4,843.44	43	183
14.25	4,843.62	43	183
14.50	4,843.79	43	183
14.75	4,843.97	43	183
15.00	4,844.14	43	184
15.25	4,844.31	43	184
15.50	4,844.49	43	184
15.75	4,844.66	43	184
16.00	4,844.83	43	184

### J-31 BA MM Avg

Time (hours)	J-31 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average - Pressure (psi)
16.25	4,845.01	43	184
16.50	4,845.18	43	184
16.75	4,845.35	43	184
17.00	4,845.53	43	184
17.25	4,845.70	43	184
17.50	4,845.87	43	184
17.75	4,846.05	43	184
18.00	4,846.22	43	184
18.25	4,846.39	43	184
18.50	4,846.56	43	185
18.75	4,846.74	43	185
19.00	4,846.91	43	185
19.25	4,847.08	43	185
19.50	4,847.25	43	185
19.75	4,847.42	43	185
20.00	4,847.59	43	185
20.25	4,847.77	43	185
20.50	4,847.94	43	185
20.75	4,848.11	43	185
21.00	4,848.28	43	185
21.25	4,848.45	43	185
21.50	4,848.62	43	185
21.75	4,848.79	43	186
22.00	4,848.96	43	186
22.25	4,849.13	43	186
22.50	4,849.30	43	186
22.75	4,849.47	43	186
23.00	4,849.64	43	186
23.25	4,849.81	43	186
23.50	4,849.98	43	186
23.75	4,850.15	43	186
24.00	4,850.32	43	186
24.25	4,850.49	43	186
24.50	4,850.66	43	186
24.75	4,850.83	43	186
25.00	4,851.00	43	186
25.25	4,851.17	43	187
25.50	4,851.34	43	187
25.75	4,851.51	43	187
26.00	4,851.67	43	187
26.25	4,851.84	43	187
26.50	4,852.01	43	187
26.75	4,852.18	43	187
27.00	4,852.35	43	187
27.25	4,852.52	43	187
27.50	4,852.68	43	187

**J-31 BA MM Avg**

Time (hours)	J-31 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average - Pressure (psi)
27.75	4,852.85	43	187
28.00	4,853.02	43	187
28.25	4,853.19	43	187
28.50	4,853.35	43	187
28.75	4,853.52	43	188
29.00	4,853.69	43	188
29.25	4,853.86	43	188
29.50	4,854.02	43	188
29.75	4,854.19	43	188
30.00	4,854.36	43	188
30.25	4,854.52	43	188
30.50	4,854.69	43	188
30.75	4,854.86	43	188
31.00	4,855.02	43	188
31.25	4,855.19	43	188
31.50	4,855.35	43	188
31.75	4,855.52	43	188
32.00	4,855.69	43	189
32.25	4,855.85	43	189
32.50	4,856.02	43	189
32.75	4,856.18	43	189
33.00	4,856.35	43	189
33.25	4,856.51	43	189
33.50	4,856.68	43	189
33.75	4,856.84	43	189
34.00	4,857.01	43	189
34.25	4,857.17	43	189
34.50	4,857.34	43	189
34.75	4,857.50	43	189
35.00	4,857.66	43	189
35.25	4,857.83	43	189
35.50	4,857.99	43	189
35.75	4,858.16	43	190
36.00	4,858.32	43	190
36.25	4,858.48	43	190
36.50	4,858.65	43	190
36.75	4,858.81	43	190
37.00	4,858.97	43	190
37.25	4,859.14	43	190
37.50	4,859.30	43	190
37.75	4,859.46	43	190
37.93	4,859.58	43	190
38.00	4,859.58	43	190
38.25	4,859.56	43	190
38.50	4,859.54	43	190
38.75	4,859.53	43	190

**J-31 BA MM Avg**

Time (hours)	J-31 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average - Pressure (psi)
39.00	4,859.51	43	190
39.25	4,859.49	43	190
39.50	4,859.48	43	190
39.75	4,859.46	43	190
40.00	4,859.44	43	190
40.25	4,859.42	43	190
40.50	4,859.41	43	190
40.75	4,859.39	43	190
41.00	4,859.37	43	190
41.25	4,859.36	43	190
41.50	4,859.34	43	190
41.75	4,859.32	43	190
42.00	4,859.30	43	190
42.25	4,859.29	43	190
42.50	4,859.27	43	190
42.75	4,859.25	43	190
43.00	4,859.24	43	190
43.25	4,859.22	43	190
43.50	4,859.20	43	190
43.75	4,859.18	43	190
44.00	4,859.17	43	190
44.25	4,859.15	43	190
44.50	4,859.13	43	190
44.75	4,859.12	43	190
45.00	4,859.10	43	190
45.25	4,859.08	43	190
45.50	4,859.06	43	190
45.75	4,859.05	43	190
46.00	4,859.03	43	190
46.25	4,859.01	43	190
46.50	4,859.00	43	190
46.75	4,858.98	43	190
47.00	4,858.96	43	190
47.25	4,858.95	43	190
47.50	4,858.93	43	190
47.75	4,858.91	43	190
48.00	4,858.89	43	190
48.25	4,858.88	43	190
48.50	4,858.86	43	190
48.75	4,858.84	43	190
49.00	4,858.83	43	190
49.25	4,858.81	43	190
49.50	4,858.79	43	190
49.75	4,858.77	43	190
50.00	4,858.76	43	190
50.25	4,858.74	43	190

**J-31 BA MM Avg**

Time (hours)	J-31 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average - Pressure (psi)
50.50	4,858.72	43	190
50.75	4,858.71	43	190
51.00	4,858.69	43	190
51.25	4,858.67	43	190
51.50	4,858.65	43	190
51.75	4,858.64	43	190
52.00	4,858.62	43	190
52.25	4,858.60	43	190
52.50	4,858.59	43	190
52.54	4,858.58	43	190
52.75	4,858.72	43	190
53.00	4,858.88	43	190
53.25	4,859.05	43	190
53.50	4,859.21	43	190
53.75	4,859.37	43	190
54.00	4,859.54	43	190
54.07	4,859.58	43	190
54.25	4,859.57	43	190
54.50	4,859.55	43	190
54.75	4,859.54	43	190
55.00	4,859.52	43	190
55.25	4,859.50	43	190
55.50	4,859.48	43	190
55.75	4,859.47	43	190
56.00	4,859.45	43	190
56.25	4,859.43	43	190
56.50	4,859.42	43	190
56.75	4,859.40	43	190
57.00	4,859.38	43	190
57.25	4,859.37	43	190
57.50	4,859.35	43	190
57.75	4,859.33	43	190
58.00	4,859.31	43	190
58.25	4,859.30	43	190
58.50	4,859.28	43	190
58.75	4,859.26	43	190
59.00	4,859.25	43	190
59.25	4,859.23	43	190
59.50	4,859.21	43	190
59.75	4,859.19	43	190
60.00	4,859.18	43	190

**Tank BA MM Avg**

**Tank BA MM Avg**

Time (hours)	T-2 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average - Flow (Out net) (gpm)	T-2 - Boosted Area Maximum Monthly Average - Percent Full (%)
0.00	4,833.50	-454	1.9
0.25	4,833.68	-454	2.6
0.50	4,833.86	-454	3.2
0.75	4,834.04	-453	3.9
1.00	4,834.22	-453	4.6
1.25	4,834.41	-453	5.3
1.50	4,834.59	-453	6.0
1.75	4,834.77	-452	6.6
2.00	4,834.95	-452	7.3
2.25	4,835.13	-452	8.0
2.50	4,835.31	-451	8.7
2.75	4,835.49	-451	9.4
3.00	4,835.67	-451	10.0
3.25	4,835.85	-450	10.7
3.50	4,836.03	-450	11.4
3.75	4,836.21	-450	12.1
4.00	4,836.39	-449	12.7
4.25	4,836.56	-449	13.4
4.50	4,836.74	-449	14.1
4.75	4,836.92	-449	14.7
5.00	4,837.10	-448	15.4
5.25	4,837.28	-448	16.1
5.50	4,837.46	-448	16.8
5.75	4,837.64	-447	17.4
6.00	4,837.82	-447	18.1
6.25	4,837.99	-447	18.8
6.50	4,838.17	-446	19.4
6.75	4,838.35	-446	20.1
7.00	4,838.53	-446	20.8
7.25	4,838.71	-445	21.5
7.50	4,838.88	-445	22.1
7.75	4,839.06	-445	22.8
8.00	4,839.24	-444	23.5
8.25	4,839.42	-444	24.1
8.50	4,839.59	-444	24.8
8.75	4,839.77	-444	25.5
9.00	4,839.95	-443	26.1
9.25	4,840.12	-443	26.8
9.50	4,840.30	-443	27.4
9.75	4,840.48	-442	28.1
10.00	4,840.65	-442	28.8
10.25	4,840.83	-442	29.4
10.50	4,841.01	-441	30.1
10.75	4,841.18	-441	30.8
11.00	4,841.36	-441	31.4
11.25	4,841.53	-440	32.1

### Tank BA MM Avg

Time (hours)	T-2 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average - Flow (Out net) (gpm)	T-2 - Boosted Area Maximum Monthly Average - Percent Full (%)
11.50	4,841.71	-440	32.7
11.75	4,841.89	-440	33.4
12.00	4,842.06	-440	34.1
12.25	4,842.24	-439	34.7
12.50	4,842.41	-439	35.4
12.75	4,842.59	-439	36.0
13.00	4,842.76	-438	36.7
13.25	4,842.94	-438	37.4
13.50	4,843.11	-438	38.0
13.75	4,843.29	-437	38.7
14.00	4,843.46	-437	39.3
14.25	4,843.64	-437	40.0
14.50	4,843.81	-436	40.6
14.75	4,843.98	-436	41.3
15.00	4,844.16	-436	41.9
15.25	4,844.33	-436	42.6
15.50	4,844.50	-435	43.3
15.75	4,844.68	-435	43.9
16.00	4,844.85	-435	44.6
16.25	4,845.03	-434	45.2
16.50	4,845.20	-434	45.9
16.75	4,845.37	-434	46.5
17.00	4,845.54	-433	47.2
17.25	4,845.72	-433	47.8
17.50	4,845.89	-433	48.5
17.75	4,846.06	-432	49.1
18.00	4,846.24	-432	49.8
18.25	4,846.41	-432	50.4
18.50	4,846.58	-432	51.1
18.75	4,846.75	-431	51.7
19.00	4,846.92	-431	52.3
19.25	4,847.10	-431	53.0
19.50	4,847.27	-430	53.6
19.75	4,847.44	-430	54.3
20.00	4,847.61	-430	54.9
20.25	4,847.78	-429	55.6
20.50	4,847.95	-429	56.2
20.75	4,848.13	-429	56.9
21.00	4,848.30	-428	57.5
21.25	4,848.47	-428	58.1
21.50	4,848.64	-428	58.8
21.75	4,848.81	-428	59.4
22.00	4,848.98	-427	60.1
22.25	4,849.15	-427	60.7
22.50	4,849.32	-427	61.4
22.75	4,849.49	-426	62.0

### Tank BA MM Avg

Time (hours)	T-2 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average - Flow (Out net) (gpm)	T-2 - Boosted Area Maximum Monthly Average - Percent Full (%)
23.00	4,849.66	-426	62.6
23.25	4,849.83	-426	63.3
23.50	4,850.00	-425	63.9
23.75	4,850.17	-425	64.5
24.00	4,850.34	-425	65.2
24.25	4,850.51	-425	65.8
24.50	4,850.68	-424	66.5
24.75	4,850.85	-424	67.1
25.00	4,851.02	-424	67.7
25.25	4,851.19	-423	68.4
25.50	4,851.35	-423	69.0
25.75	4,851.52	-423	69.6
26.00	4,851.69	-422	70.3
26.25	4,851.86	-422	70.9
26.50	4,852.03	-422	71.5
26.75	4,852.20	-421	72.2
27.00	4,852.37	-421	72.8
27.25	4,852.53	-421	73.4
27.50	4,852.70	-421	74.1
27.75	4,852.87	-420	74.7
28.00	4,853.04	-420	75.3
28.25	4,853.20	-420	76.0
28.50	4,853.37	-419	76.6
28.75	4,853.54	-419	77.2
29.00	4,853.71	-419	77.8
29.25	4,853.87	-418	78.5
29.50	4,854.04	-418	79.1
29.75	4,854.21	-418	79.7
30.00	4,854.37	-418	80.4
30.25	4,854.54	-417	81.0
30.50	4,854.71	-417	81.6
30.75	4,854.87	-417	82.2
31.00	4,855.04	-416	82.9
31.25	4,855.21	-416	83.5
31.50	4,855.37	-416	84.1
31.75	4,855.54	-415	84.7
32.00	4,855.70	-415	85.3
32.25	4,855.87	-415	86.0
32.50	4,856.03	-415	86.6
32.75	4,856.20	-414	87.2
33.00	4,856.36	-414	87.8
33.25	4,856.53	-414	88.5
33.50	4,856.69	-413	89.1
33.75	4,856.86	-413	89.7
34.00	4,857.02	-413	90.3
34.25	4,857.19	-412	90.9

### Tank BA MM Avg

Time (hours)	T-2 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average - Flow (Out net) (gpm)	T-2 - Boosted Area Maximum Monthly Average - Percent Full (%)
34.50	4,857.35	-412	91.6
34.75	4,857.52	-412	92.2
35.00	4,857.68	-411	92.8
35.25	4,857.85	-411	93.4
35.50	4,858.01	-411	94.0
35.75	4,858.17	-411	94.6
36.00	4,858.34	-410	95.3
36.25	4,858.50	-410	95.9
36.50	4,858.67	-410	96.5
36.75	4,858.83	-409	97.1
37.00	4,858.99	-409	97.7
37.25	4,859.15	-409	98.3
37.50	4,859.32	-408	98.9
37.75	4,859.48	-408	99.6
37.93	4,859.60	43	100.0
38.00	4,859.60	43	100.0
38.25	4,859.58	43	99.9
38.50	4,859.56	43	99.9
38.75	4,859.54	43	99.8
39.00	4,859.53	43	99.7
39.25	4,859.51	43	99.7
39.50	4,859.49	43	99.6
39.75	4,859.48	43	99.5
40.00	4,859.46	43	99.5
40.25	4,859.44	43	99.4
40.50	4,859.42	43	99.3
40.75	4,859.41	43	99.3
41.00	4,859.39	43	99.2
41.25	4,859.37	43	99.1
41.50	4,859.36	43	99.1
41.75	4,859.34	43	99.0
42.00	4,859.32	43	99.0
42.25	4,859.30	43	98.9
42.50	4,859.29	43	98.8
42.75	4,859.27	43	98.8
43.00	4,859.25	43	98.7
43.25	4,859.24	43	98.6
43.50	4,859.22	43	98.6
43.75	4,859.20	43	98.5
44.00	4,859.18	43	98.4
44.25	4,859.17	43	98.4
44.50	4,859.15	43	98.3
44.75	4,859.13	43	98.2
45.00	4,859.12	43	98.2
45.25	4,859.10	43	98.1
45.50	4,859.08	43	98.1

### Tank BA MM Avg

Time (hours)	T-2 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average - Flow (Out net) (gpm)	T-2 - Boosted Area Maximum Monthly Average - Percent Full (%)
45.75	4,859.06	43	98.0
46.00	4,859.05	43	97.9
46.25	4,859.03	43	97.9
46.50	4,859.01	43	97.8
46.75	4,859.00	43	97.7
47.00	4,858.98	43	97.7
47.25	4,858.96	43	97.6
47.50	4,858.95	43	97.5
47.75	4,858.93	43	97.5
48.00	4,858.91	43	97.4
48.25	4,858.89	43	97.3
48.50	4,858.88	43	97.3
48.75	4,858.86	43	97.2
49.00	4,858.84	43	97.2
49.25	4,858.83	43	97.1
49.50	4,858.81	43	97.0
49.75	4,858.79	43	97.0
50.00	4,858.77	43	96.9
50.25	4,858.76	43	96.8
50.50	4,858.74	43	96.8
50.75	4,858.72	43	96.7
51.00	4,858.71	43	96.6
51.25	4,858.69	43	96.6
51.50	4,858.67	43	96.5
51.75	4,858.65	43	96.4
52.00	4,858.64	43	96.4
52.25	4,858.62	43	96.3
52.50	4,858.60	43	96.3
52.54	4,858.60	-410	96.2
52.75	4,858.74	-410	96.8
53.00	4,858.90	-409	97.4
53.25	4,859.06	-409	98.0
53.50	4,859.23	-409	98.6
53.75	4,859.39	-408	99.2
54.00	4,859.55	-408	99.8
54.07	4,859.60	43	100.0
54.25	4,859.59	43	100.0
54.50	4,859.57	43	99.9
54.75	4,859.55	43	99.8
55.00	4,859.54	43	99.8
55.25	4,859.52	43	99.7
55.50	4,859.50	43	99.6
55.75	4,859.48	43	99.6
56.00	4,859.47	43	99.5
56.25	4,859.45	43	99.4
56.50	4,859.43	43	99.4

### Tank BA MM Avg

Time (hours)	T-2 - Boosted Area Maximum Monthly Average - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average - Flow (Out net) (gpm)	T-2 - Boosted Area Maximum Monthly Average - Percent Full (%)
56.75	4,859.42	43	99.3
57.00	4,859.40	43	99.2
57.25	4,859.38	43	99.2
57.50	4,859.37	43	99.1
57.75	4,859.35	43	99.1
58.00	4,859.33	43	99.0
58.25	4,859.31	43	98.9
58.50	4,859.30	43	98.9
58.75	4,859.28	43	98.8
59.00	4,859.26	43	98.7
59.25	4,859.25	43	98.7
59.50	4,859.23	43	98.6
59.75	4,859.21	43	98.5
60.00	4,859.19	43	98.5

### Pump BA MM Avg

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average - Pump Head (ft)
0.00	497	273.08
0.25	497	273.26
0.50	497	273.43
0.75	496	273.61
1.00	496	273.79
1.25	496	273.96
1.50	495	274.14
1.75	495	274.31
2.00	495	274.49
2.25	495	274.66
2.50	494	274.84
2.75	494	275.01
3.00	494	275.19
3.25	493	275.36
3.50	493	275.53
3.75	493	275.71
4.00	492	275.88
4.25	492	276.06
4.50	492	276.23
4.75	491	276.40
5.00	491	276.58
5.25	491	276.75
5.50	490	276.92
5.75	490	277.10
6.00	490	277.27

**Pump BA MM Avg**

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average - Pump Head (ft)
6.25	490	277.44
6.50	489	277.62
6.75	489	277.79
7.00	489	277.96
7.25	488	278.13
7.50	488	278.31
7.75	488	278.48
8.00	487	278.65
8.25	487	278.82
8.50	487	278.99
8.75	486	279.17
9.00	486	279.34
9.25	486	279.51
9.50	486	279.68
9.75	485	279.85
10.00	485	280.02
10.25	485	280.19
10.50	484	280.37
10.75	484	280.54
11.00	484	280.71
11.25	483	280.88
11.50	483	281.05
11.75	483	281.22
12.00	482	281.39
12.25	482	281.56
12.50	482	281.73
12.75	482	281.90
13.00	481	282.07
13.25	481	282.24
13.50	481	282.41
13.75	480	282.58
14.00	480	282.75
14.25	480	282.92
14.50	479	283.08
14.75	479	283.25
15.00	479	283.42
15.25	478	283.59
15.50	478	283.76
15.75	478	283.93
16.00	478	284.10
16.25	477	284.26
16.50	477	284.43
16.75	477	284.60
17.00	476	284.77
17.25	476	284.94
17.50	476	285.10
17.75	475	285.27

**Pump BA MM Avg**

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average - Pump Head (ft)
18.00	475	285.44
18.25	475	285.61
18.50	474	285.77
18.75	474	285.94
19.00	474	286.11
19.25	474	286.27
19.50	473	286.44
19.75	473	286.61
20.00	473	286.77
20.25	472	286.94
20.50	472	287.11
20.75	472	287.27
21.00	471	287.44
21.25	471	287.60
21.50	471	287.77
21.75	470	287.93
22.00	470	288.10
22.25	470	288.27
22.50	470	288.43
22.75	469	288.60
23.00	469	288.76
23.25	469	288.93
23.50	468	289.09
23.75	468	289.26
24.00	468	289.42
24.25	467	289.58
24.50	467	289.75
24.75	467	289.91
25.00	467	290.08
25.25	466	290.24
25.50	466	290.40
25.75	466	290.57
26.00	465	290.73
26.25	465	290.90
26.50	465	291.06
26.75	464	291.22
27.00	464	291.39
27.25	464	291.55
27.50	463	291.71
27.75	463	291.87
28.00	463	292.04
28.25	463	292.20
28.50	462	292.36
28.75	462	292.52
29.00	462	292.69
29.25	461	292.85
29.50	461	293.01

**Pump BA MM Avg**

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average - Pump Head (ft)
29.75	461	293.17
30.00	460	293.33
30.25	460	293.50
30.50	460	293.66
30.75	460	293.82
31.00	459	293.98
31.25	459	294.14
31.50	459	294.30
31.75	458	294.46
32.00	458	294.62
32.25	458	294.78
32.50	457	294.94
32.75	457	295.11
33.00	457	295.27
33.25	456	295.43
33.50	456	295.59
33.75	456	295.75
34.00	456	295.91
34.25	455	296.06
34.50	455	296.22
34.75	455	296.38
35.00	454	296.54
35.25	454	296.70
35.50	454	296.86
35.75	453	297.02
36.00	453	297.18
36.25	453	297.34
36.50	453	297.50
36.75	452	297.66
37.00	452	297.81
37.25	452	297.97
37.50	451	298.13
37.75	451	298.29
37.93	0	0.00
38.00	0	0.00
38.25	0	0.00
38.50	0	0.00
38.75	0	0.00
39.00	0	0.00
39.25	0	0.00
39.50	0	0.00
39.75	0	0.00
40.00	0	0.00
40.25	0	0.00
40.50	0	0.00
40.75	0	0.00
41.00	0	0.00

**Pump BA MM Avg**

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average - Pump Head (ft)
41.25	0	0.00
41.50	0	0.00
41.75	0	0.00
42.00	0	0.00
42.25	0	0.00
42.50	0	0.00
42.75	0	0.00
43.00	0	0.00
43.25	0	0.00
43.50	0	0.00
43.75	0	0.00
44.00	0	0.00
44.25	0	0.00
44.50	0	0.00
44.75	0	0.00
45.00	0	0.00
45.25	0	0.00
45.50	0	0.00
45.75	0	0.00
46.00	0	0.00
46.25	0	0.00
46.50	0	0.00
46.75	0	0.00
47.00	0	0.00
47.25	0	0.00
47.50	0	0.00
47.75	0	0.00
48.00	0	0.00
48.25	0	0.00
48.50	0	0.00
48.75	0	0.00
49.00	0	0.00
49.25	0	0.00
49.50	0	0.00
49.75	0	0.00
50.00	0	0.00
50.25	0	0.00
50.50	0	0.00
50.75	0	0.00
51.00	0	0.00
51.25	0	0.00
51.50	0	0.00
51.75	0	0.00
52.00	0	0.00
52.25	0	0.00
52.50	0	0.00
52.54	453	297.44

**Pump BA MM Avg**

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average - Pump Head (ft)
52.75	452	297.57
53.00	452	297.73
53.25	452	297.89
53.50	452	298.04
53.75	451	298.20
54.00	451	298.36
54.07	0	0.00
54.25	0	0.00
54.50	0	0.00
54.75	0	0.00
55.00	0	0.00
55.25	0	0.00
55.50	0	0.00
55.75	0	0.00
56.00	0	0.00
56.25	0	0.00
56.50	0	0.00
56.75	0	0.00
57.00	0	0.00
57.25	0	0.00
57.50	0	0.00
57.75	0	0.00
58.00	0	0.00
58.25	0	0.00
58.50	0	0.00
58.75	0	0.00
59.00	0	0.00
59.25	0	0.00
59.50	0	0.00
59.75	0	0.00
60.00	0	0.00

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Scenario Summary

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ID	168
Label	Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours
Notes	
Active Topology	Base Active Topology
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours
Initial Settings	T-2 Starts Empty
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	60 hours, 15 min increments
Transient Solver Calculation Options	Base Calculation Options

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Hydraulic Summary

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Time Analysis Type	EPS	Simulation Start Date	1/22/2018
Friction Method	Hazen-Williams	Hydraulic Time Step	0.250
Accuracy	0.001	Duration	60.000
Trials	40	Calculation Type	Hydraulics Only

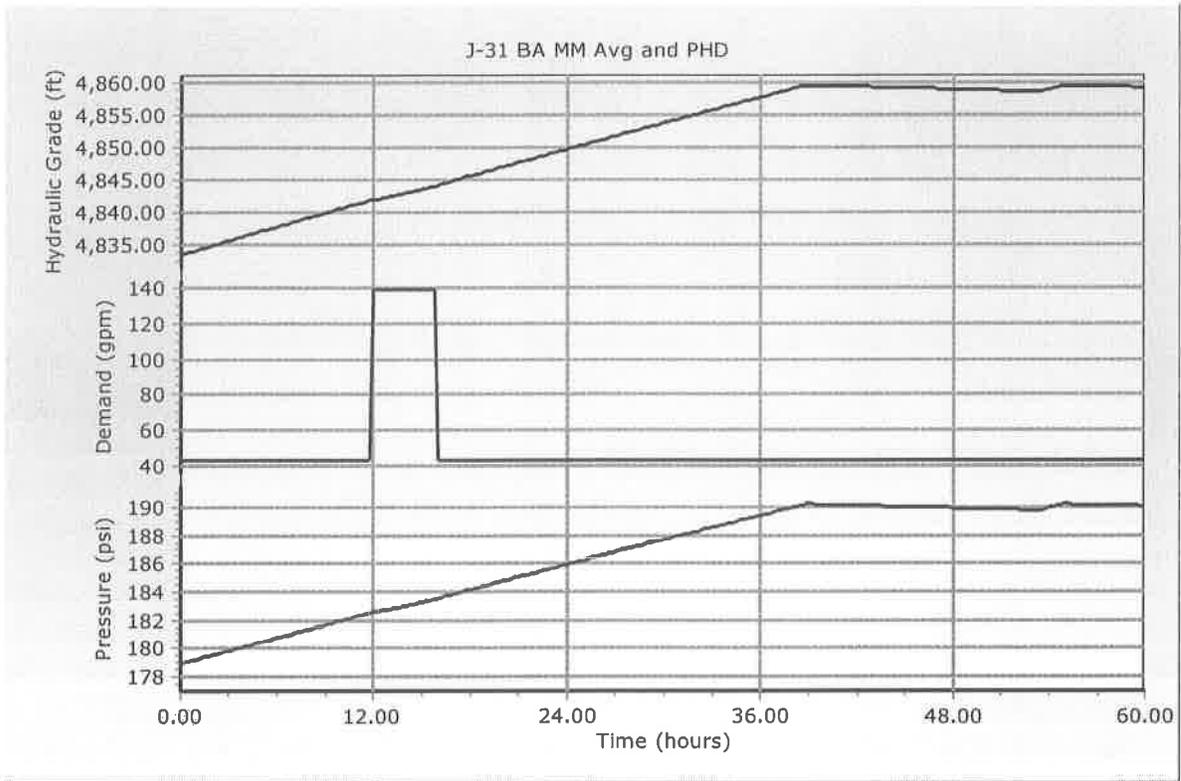
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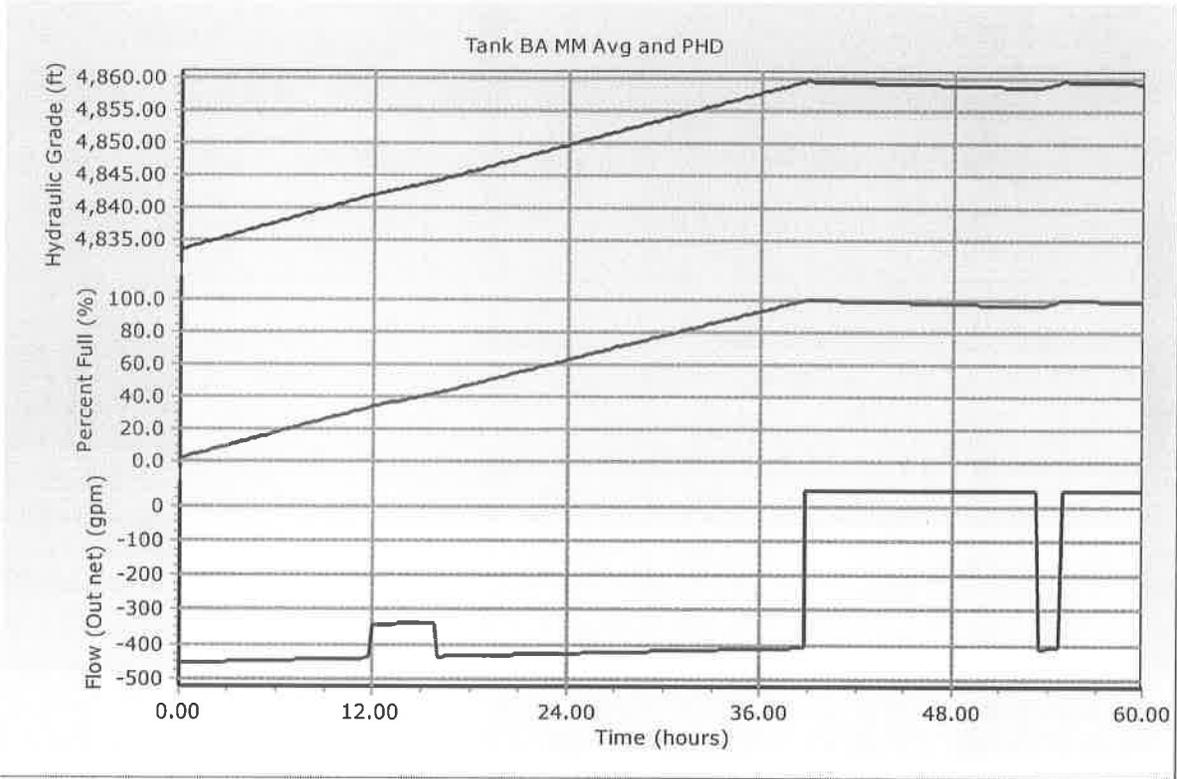
Network Inventory

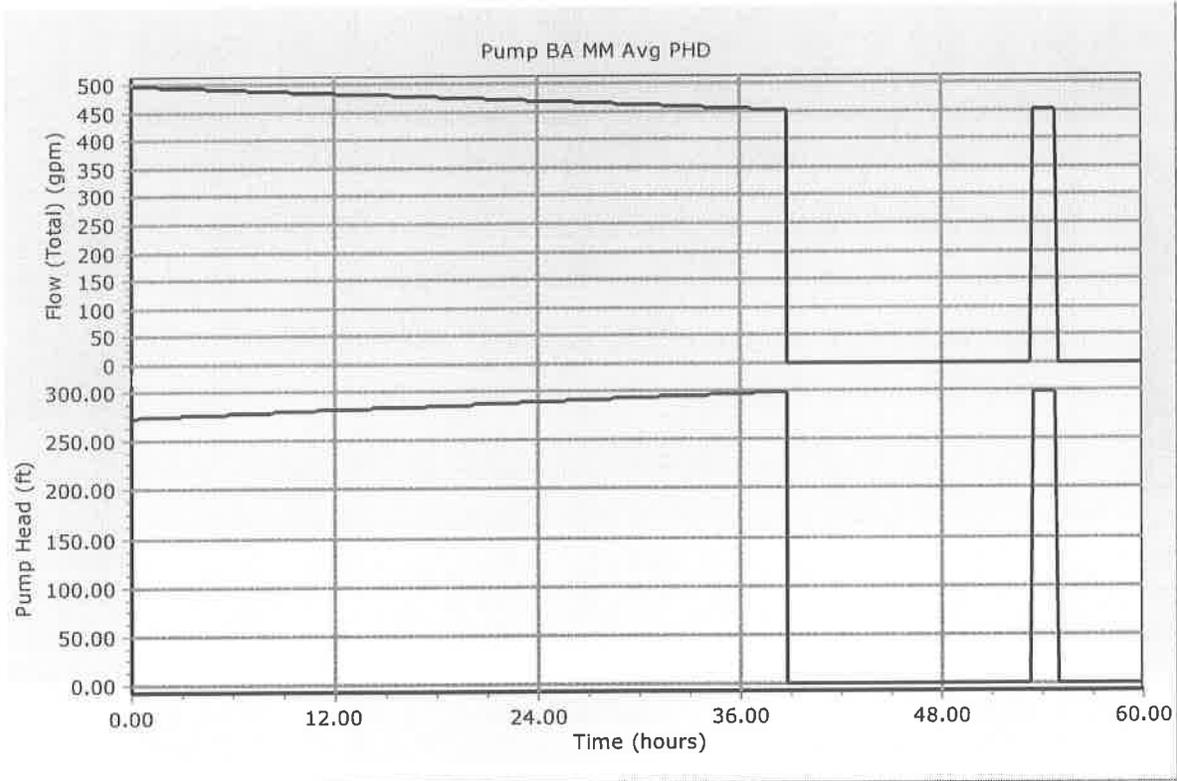
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Pipe	37	-Constant Speed - No Pump Curve	0
Lateral	0	-Constant Speed - Pump Curve	1
Junction	33	-Shut Down After Time Delay	0
Hydrant	0	-Variable Speed/Torque	0
Tank	1	-Pump Start - Variable Speed/Torque	0
-Circular	1	Customer Meter	0
-Non-Circular	0	Pump Station	0
-Variable Area	0	Variable Speed Pump Battery	0
Reservoir	1	SCADA Element	0
Tap	0	PRV	0
Pump	1	PSV	0
-Constant Power	0	PBV	0
-Custom Extended	0	FCV	1
-Design Point (1 Point)	0	TCV	0
-Multiple Point	0	GPV	0
-Standard (3 Point)	1	Isolation Valve	0
-Standard Extended	0	Spot Elevation	0

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**J-31 BA MM Avg and PHD**

Time (hours)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
0.00	4,833.48	43	179
0.25	4,833.66	43	179
0.50	4,833.85	43	179
0.75	4,834.03	43	179
1.00	4,834.21	43	179
1.25	4,834.39	43	179
1.50	4,834.57	43	179
1.75	4,834.75	43	179
2.00	4,834.93	43	180
2.25	4,835.11	43	180
2.50	4,835.29	43	180
2.75	4,835.47	43	180
3.00	4,835.65	43	180
3.25	4,835.83	43	180
3.50	4,836.01	43	180
3.75	4,836.19	43	180
4.00	4,836.37	43	180

### J-31 BA MM Avg and PHD

Time (hours)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
4.25	4,836.55	43	180
4.50	4,836.73	43	180
4.75	4,836.91	43	180
5.00	4,837.08	43	180
5.25	4,837.26	43	181
5.50	4,837.44	43	181
5.75	4,837.62	43	181
6.00	4,837.80	43	181
6.25	4,837.98	43	181
6.50	4,838.16	43	181
6.75	4,838.33	43	181
7.00	4,838.51	43	181
7.25	4,838.69	43	181
7.50	4,838.87	43	181
7.75	4,839.04	43	181
8.00	4,839.22	43	181
8.25	4,839.40	43	181
8.50	4,839.58	43	182
8.75	4,839.75	43	182
9.00	4,839.93	43	182
9.25	4,840.11	43	182
9.50	4,840.28	43	182
9.75	4,840.46	43	182
10.00	4,840.64	43	182
10.25	4,840.81	43	182
10.50	4,840.99	43	182
10.75	4,841.17	43	182
11.00	4,841.34	43	182
11.25	4,841.52	43	182
11.50	4,841.69	43	182
11.75	4,841.87	43	183
12.00	4,841.91	139	183
12.25	4,842.05	139	183
12.50	4,842.18	139	183
12.75	4,842.32	139	183
13.00	4,842.46	139	183
13.25	4,842.59	139	183
13.50	4,842.73	139	183
13.75	4,842.87	139	183
14.00	4,843.00	139	183
14.25	4,843.14	139	183
14.50	4,843.27	139	183
14.75	4,843.41	139	183
15.00	4,843.55	139	183

### J-31 BA MM Avg and PHD

Time (hours)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
15.25	4,843.68	139	183
15.50	4,843.82	139	183
15.75	4,843.95	139	183
16.00	4,844.22	43	184
16.25	4,844.40	43	184
16.50	4,844.57	43	184
16.75	4,844.74	43	184
17.00	4,844.92	43	184
17.25	4,845.09	43	184
17.50	4,845.26	43	184
17.75	4,845.44	43	184
18.00	4,845.61	43	184
18.25	4,845.78	43	184
18.50	4,845.95	43	184
18.75	4,846.13	43	184
19.00	4,846.30	43	184
19.25	4,846.47	43	185
19.50	4,846.64	43	185
19.75	4,846.82	43	185
20.00	4,846.99	43	185
20.25	4,847.16	43	185
20.50	4,847.33	43	185
20.75	4,847.50	43	185
21.00	4,847.68	43	185
21.25	4,847.85	43	185
21.50	4,848.02	43	185
21.75	4,848.19	43	185
22.00	4,848.36	43	185
22.25	4,848.53	43	185
22.50	4,848.70	43	185
22.75	4,848.87	43	186
23.00	4,849.04	43	186
23.25	4,849.21	43	186
23.50	4,849.38	43	186
23.75	4,849.55	43	186
24.00	4,849.72	43	186
24.25	4,849.89	43	186
24.50	4,850.06	43	186
24.75	4,850.23	43	186
25.00	4,850.40	43	186
25.25	4,850.57	43	186
25.50	4,850.74	43	186
25.75	4,850.91	43	186
26.00	4,851.08	43	187

**J-31 BA MM Avg and PHD**

Time (hours)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
26.25	4,851.25	43	187
26.50	4,851.42	43	187
26.75	4,851.59	43	187
27.00	4,851.75	43	187
27.25	4,851.92	43	187
27.50	4,852.09	43	187
27.75	4,852.26	43	187
28.00	4,852.43	43	187
28.25	4,852.60	43	187
28.50	4,852.76	43	187
28.75	4,852.93	43	187
29.00	4,853.10	43	187
29.25	4,853.27	43	187
29.50	4,853.43	43	188
29.75	4,853.60	43	188
30.00	4,853.77	43	188
30.25	4,853.93	43	188
30.50	4,854.10	43	188
30.75	4,854.27	43	188
31.00	4,854.43	43	188
31.25	4,854.60	43	188
31.50	4,854.77	43	188
31.75	4,854.93	43	188
32.00	4,855.10	43	188
32.25	4,855.27	43	188
32.50	4,855.43	43	188
32.75	4,855.60	43	188
33.00	4,855.76	43	189
33.25	4,855.93	43	189
33.50	4,856.09	43	189
33.75	4,856.26	43	189
34.00	4,856.42	43	189
34.25	4,856.59	43	189
34.50	4,856.75	43	189
34.75	4,856.92	43	189
35.00	4,857.08	43	189
35.25	4,857.25	43	189
35.50	4,857.41	43	189
35.75	4,857.58	43	189
36.00	4,857.74	43	189
36.25	4,857.91	43	189
36.50	4,858.07	43	190
36.75	4,858.23	43	190
37.00	4,858.40	43	190

**J-31 BA MM Avg and PHD**

Time (hours)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
37.25	4,858.56	43	190
37.50	4,858.72	43	190
37.75	4,858.89	43	190
38.00	4,859.05	43	190
38.25	4,859.21	43	190
38.50	4,859.38	43	190
38.75	4,859.54	43	190
38.82	4,859.58	43	190
39.00	4,859.57	43	190
39.25	4,859.55	43	190
39.50	4,859.54	43	190
39.75	4,859.52	43	190
40.00	4,859.50	43	190
40.25	4,859.48	43	190
40.50	4,859.47	43	190
40.75	4,859.45	43	190
41.00	4,859.43	43	190
41.25	4,859.42	43	190
41.50	4,859.40	43	190
41.75	4,859.38	43	190
42.00	4,859.36	43	190
42.25	4,859.35	43	190
42.50	4,859.33	43	190
42.75	4,859.31	43	190
43.00	4,859.30	43	190
43.25	4,859.28	43	190
43.50	4,859.26	43	190
43.75	4,859.25	43	190
44.00	4,859.23	43	190
44.25	4,859.21	43	190
44.50	4,859.19	43	190
44.75	4,859.18	43	190
45.00	4,859.16	43	190
45.25	4,859.14	43	190
45.50	4,859.13	43	190
45.75	4,859.11	43	190
46.00	4,859.09	43	190
46.25	4,859.07	43	190
46.50	4,859.06	43	190
46.75	4,859.04	43	190
47.00	4,859.02	43	190
47.25	4,859.01	43	190
47.50	4,858.99	43	190
47.75	4,858.97	43	190

**J-31 BA MM Avg and PHD**

Time (hours)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
48.00	4,858.95	43	190
48.25	4,858.94	43	190
48.50	4,858.92	43	190
48.75	4,858.90	43	190
49.00	4,858.89	43	190
49.25	4,858.87	43	190
49.50	4,858.85	43	190
49.75	4,858.83	43	190
50.00	4,858.82	43	190
50.25	4,858.80	43	190
50.50	4,858.78	43	190
50.75	4,858.77	43	190
51.00	4,858.75	43	190
51.25	4,858.73	43	190
51.50	4,858.71	43	190
51.75	4,858.70	43	190
52.00	4,858.68	43	190
52.25	4,858.66	43	190
52.50	4,858.65	43	190
52.75	4,858.63	43	190
53.00	4,858.61	43	190
53.25	4,858.59	43	190
53.42	4,858.58	43	190
53.50	4,858.63	43	190
53.75	4,858.80	43	190
54.00	4,858.96	43	190
54.25	4,859.12	43	190
54.50	4,859.29	43	190
54.75	4,859.45	43	190
54.95	4,859.58	43	190
55.00	4,859.58	43	190
55.25	4,859.56	43	190
55.50	4,859.55	43	190
55.75	4,859.53	43	190
56.00	4,859.51	43	190
56.25	4,859.49	43	190
56.50	4,859.48	43	190
56.75	4,859.46	43	190
57.00	4,859.44	43	190
57.25	4,859.43	43	190
57.50	4,859.41	43	190
57.75	4,859.39	43	190
58.00	4,859.37	43	190
58.25	4,859.36	43	190

**J-31 BA MM Avg and PHD**

Time (hours)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
58.50	4,859.34	43	190
58.75	4,859.32	43	190
59.00	4,859.31	43	190
59.25	4,859.29	43	190
59.50	4,859.27	43	190
59.75	4,859.25	43	190
60.00	4,859.24	43	190

**Tank BA MM Avg and PHD**

Time (hours)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)
0.00	4,833.50	1.9	-454
0.25	4,833.68	2.6	-454
0.50	4,833.86	3.2	-454
0.75	4,834.04	3.9	-453
1.00	4,834.22	4.6	-453
1.25	4,834.41	5.3	-453
1.50	4,834.59	6.0	-453
1.75	4,834.77	6.6	-452
2.00	4,834.95	7.3	-452
2.25	4,835.13	8.0	-452
2.50	4,835.31	8.7	-451
2.75	4,835.49	9.4	-451
3.00	4,835.67	10.0	-451
3.25	4,835.85	10.7	-450
3.50	4,836.03	11.4	-450
3.75	4,836.21	12.1	-450
4.00	4,836.39	12.7	-449
4.25	4,836.56	13.4	-449
4.50	4,836.74	14.1	-449
4.75	4,836.92	14.7	-449
5.00	4,837.10	15.4	-448
5.25	4,837.28	16.1	-448
5.50	4,837.46	16.8	-448
5.75	4,837.64	17.4	-447
6.00	4,837.82	18.1	-447
6.25	4,837.99	18.8	-447
6.50	4,838.17	19.4	-446
6.75	4,838.35	20.1	-446

**Tank BA MM Avg and PHD**

Time (hours)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)
7.00	4,838.53	20.8	-446
7.25	4,838.71	21.5	-445
7.50	4,838.88	22.1	-445
7.75	4,839.06	22.8	-445
8.00	4,839.24	23.5	-444
8.25	4,839.42	24.1	-444
8.50	4,839.59	24.8	-444
8.75	4,839.77	25.5	-444
9.00	4,839.95	26.1	-443
9.25	4,840.12	26.8	-443
9.50	4,840.30	27.4	-443
9.75	4,840.48	28.1	-442
10.00	4,840.65	28.8	-442
10.25	4,840.83	29.4	-442
10.50	4,841.01	30.1	-441
10.75	4,841.18	30.8	-441
11.00	4,841.36	31.4	-441
11.25	4,841.53	32.1	-440
11.50	4,841.71	32.7	-440
11.75	4,841.89	33.4	-440
12.00	4,842.06	34.1	-343
12.25	4,842.20	34.6	-343
12.50	4,842.33	35.1	-343
12.75	4,842.47	35.6	-342
13.00	4,842.61	36.1	-342
13.25	4,842.74	36.6	-342
13.50	4,842.88	37.1	-342
13.75	4,843.02	37.7	-341
14.00	4,843.15	38.2	-341
14.25	4,843.29	38.7	-341
14.50	4,843.43	39.2	-341
14.75	4,843.56	39.7	-340
15.00	4,843.70	40.2	-340
15.25	4,843.83	40.7	-340
15.50	4,843.97	41.2	-340
15.75	4,844.10	41.7	-339
16.00	4,844.24	42.3	-436
16.25	4,844.41	42.9	-435
16.50	4,844.59	43.6	-435
16.75	4,844.76	44.2	-435
17.00	4,844.93	44.9	-434
17.25	4,845.11	45.5	-434
17.50	4,845.28	46.2	-434
17.75	4,845.45	46.8	-434

**Tank BA MM Avg and PHD**

Time (hours)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)
18.00	4,845.63	47.5	-433
18.25	4,845.80	48.1	-433
18.50	4,845.97	48.8	-433
18.75	4,846.14	49.4	-432
19.00	4,846.32	50.1	-432
19.25	4,846.49	50.7	-432
19.50	4,846.66	51.4	-431
19.75	4,846.83	52.0	-431
20.00	4,847.01	52.7	-431
20.25	4,847.18	53.3	-430
20.50	4,847.35	53.9	-430
20.75	4,847.52	54.6	-430
21.00	4,847.69	55.2	-430
21.25	4,847.86	55.9	-429
21.50	4,848.03	56.5	-429
21.75	4,848.21	57.2	-429
22.00	4,848.38	57.8	-428
22.25	4,848.55	58.5	-428
22.50	4,848.72	59.1	-428
22.75	4,848.89	59.7	-427
23.00	4,849.06	60.4	-427
23.25	4,849.23	61.0	-427
23.50	4,849.40	61.7	-427
23.75	4,849.57	62.3	-426
24.00	4,849.74	62.9	-426
24.25	4,849.91	63.6	-426
24.50	4,850.08	64.2	-425
24.75	4,850.25	64.8	-425
25.00	4,850.42	65.5	-425
25.25	4,850.59	66.1	-424
25.50	4,850.76	66.8	-424
25.75	4,850.93	67.4	-424
26.00	4,851.10	68.0	-423
26.25	4,851.27	68.7	-423
26.50	4,851.43	69.3	-423
26.75	4,851.60	69.9	-423
27.00	4,851.77	70.6	-422
27.25	4,851.94	71.2	-422
27.50	4,852.11	71.8	-422
27.75	4,852.28	72.5	-421
28.00	4,852.44	73.1	-421
28.25	4,852.61	73.7	-421
28.50	4,852.78	74.4	-420
28.75	4,852.95	75.0	-420

**Tank BA MM Avg and PHD**

Time (hours)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)
29.00	4,853.12	75.6	-420
29.25	4,853.28	76.3	-420
29.50	4,853.45	76.9	-419
29.75	4,853.62	77.5	-419
30.00	4,853.78	78.1	-419
30.25	4,853.95	78.8	-418
30.50	4,854.12	79.4	-418
30.75	4,854.29	80.0	-418
31.00	4,854.45	80.6	-417
31.25	4,854.62	81.3	-417
31.50	4,854.78	81.9	-417
31.75	4,854.95	82.5	-416
32.00	4,855.12	83.1	-416
32.25	4,855.28	83.8	-416
32.50	4,855.45	84.4	-416
32.75	4,855.61	85.0	-415
33.00	4,855.78	85.6	-415
33.25	4,855.95	86.3	-415
33.50	4,856.11	86.9	-414
33.75	4,856.28	87.5	-414
34.00	4,856.44	88.1	-414
34.25	4,856.61	88.7	-413
34.50	4,856.77	89.4	-413
34.75	4,856.94	90.0	-413
35.00	4,857.10	90.6	-413
35.25	4,857.27	91.2	-412
35.50	4,857.43	91.8	-412
35.75	4,857.59	92.5	-412
36.00	4,857.76	93.1	-411
36.25	4,857.92	93.7	-411
36.50	4,858.09	94.3	-411
36.75	4,858.25	94.9	-410
37.00	4,858.41	95.5	-410
37.25	4,858.58	96.2	-410
37.50	4,858.74	96.8	-410
37.75	4,858.91	97.4	-409
38.00	4,859.07	98.0	-409
38.25	4,859.23	98.6	-409
38.50	4,859.39	99.2	-408
38.75	4,859.56	99.8	-408
38.82	4,859.60	100.0	43
39.00	4,859.59	100.0	43
39.25	4,859.57	99.9	43
39.50	4,859.55	99.8	43

### Tank BA MM Avg and PHD

Time (hours)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)
39.75	4,859.54	99.8	43
40.00	4,859.52	99.7	43
40.25	4,859.50	99.6	43
40.50	4,859.48	99.6	43
40.75	4,859.47	99.5	43
41.00	4,859.45	99.4	43
41.25	4,859.43	99.4	43
41.50	4,859.42	99.3	43
41.75	4,859.40	99.2	43
42.00	4,859.38	99.2	43
42.25	4,859.36	99.1	43
42.50	4,859.35	99.1	43
42.75	4,859.33	99.0	43
43.00	4,859.31	98.9	43
43.25	4,859.30	98.9	43
43.50	4,859.28	98.8	43
43.75	4,859.26	98.7	43
44.00	4,859.25	98.7	43
44.25	4,859.23	98.6	43
44.50	4,859.21	98.5	43
44.75	4,859.19	98.5	43
45.00	4,859.18	98.4	43
45.25	4,859.16	98.3	43
45.50	4,859.14	98.3	43
45.75	4,859.13	98.2	43
46.00	4,859.11	98.2	43
46.25	4,859.09	98.1	43
46.50	4,859.07	98.0	43
46.75	4,859.06	98.0	43
47.00	4,859.04	97.9	43
47.25	4,859.02	97.8	43
47.50	4,859.01	97.8	43
47.75	4,858.99	97.7	43
48.00	4,858.97	97.6	43
48.25	4,858.95	97.6	43
48.50	4,858.94	97.5	43
48.75	4,858.92	97.4	43
49.00	4,858.90	97.4	43
49.25	4,858.89	97.3	43
49.50	4,858.87	97.3	43
49.75	4,858.85	97.2	43
50.00	4,858.83	97.1	43
50.25	4,858.82	97.1	43
50.50	4,858.80	97.0	43

**Tank BA MM Avg and PHD**

Time (hours)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)	T-2 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)
50.75	4,858.78	96.9	43
51.00	4,858.77	96.9	43
51.25	4,858.75	96.8	43
51.50	4,858.73	96.7	43
51.75	4,858.71	96.7	43
52.00	4,858.70	96.6	43
52.25	4,858.68	96.5	43
52.50	4,858.66	96.5	43
52.75	4,858.65	96.4	43
53.00	4,858.63	96.3	43
53.25	4,858.61	96.3	43
53.42	4,858.60	96.2	-410
53.50	4,858.65	96.4	-410
53.75	4,858.81	97.0	-409
54.00	4,858.98	97.7	-409
54.25	4,859.14	98.3	-409
54.50	4,859.30	98.9	-408
54.75	4,859.47	99.5	-408
54.95	4,859.60	100.0	43
55.00	4,859.60	100.0	43
55.25	4,859.58	99.9	43
55.50	4,859.56	99.9	43
55.75	4,859.55	99.8	43
56.00	4,859.53	99.7	43
56.25	4,859.51	99.7	43
56.50	4,859.49	99.6	43
56.75	4,859.48	99.5	43
57.00	4,859.46	99.5	43
57.25	4,859.44	99.4	43
57.50	4,859.43	99.3	43
57.75	4,859.41	99.3	43
58.00	4,859.39	99.2	43
58.25	4,859.37	99.2	43
58.50	4,859.36	99.1	43
58.75	4,859.34	99.0	43
59.00	4,859.32	99.0	43
59.25	4,859.31	98.9	43
59.50	4,859.29	98.8	43
59.75	4,859.27	98.8	43
60.00	4,859.25	98.7	43

**Pump BA MM Avg PHD**

**Pump BA MM Avg PHD**

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pump Head (ft)
0.00	497	273.08
0.25	497	273.26
0.50	497	273.43
0.75	496	273.61
1.00	496	273.79
1.25	496	273.96
1.50	495	274.14
1.75	495	274.31
2.00	495	274.49
2.25	495	274.66
2.50	494	274.84
2.75	494	275.01
3.00	494	275.19
3.25	493	275.36
3.50	493	275.53
3.75	493	275.71
4.00	492	275.88
4.25	492	276.06
4.50	492	276.23
4.75	491	276.40
5.00	491	276.58
5.25	491	276.75
5.50	490	276.92
5.75	490	277.10
6.00	490	277.27
6.25	490	277.44
6.50	489	277.62
6.75	489	277.79
7.00	489	277.96
7.25	488	278.13
7.50	488	278.31
7.75	488	278.48
8.00	487	278.65
8.25	487	278.82
8.50	487	278.99
8.75	486	279.17
9.00	486	279.34
9.25	486	279.51
9.50	486	279.68
9.75	485	279.85
10.00	485	280.02
10.25	485	280.19
10.50	484	280.37
10.75	484	280.54
11.00	484	280.71

**Pump BA MM Avg PHD**

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pump Head (ft)
11.25	483	280.88
11.50	483	281.05
11.75	483	281.22
12.00	482	281.39
12.25	482	281.52
12.50	482	281.65
12.75	482	281.79
13.00	481	281.92
13.25	481	282.05
13.50	481	282.18
13.75	481	282.32
14.00	481	282.45
14.25	480	282.58
14.50	480	282.71
14.75	480	282.84
15.00	480	282.98
15.25	479	283.11
15.50	479	283.24
15.75	479	283.37
16.00	479	283.50
16.25	478	283.67
16.50	478	283.84
16.75	478	284.01
17.00	477	284.17
17.25	477	284.34
17.50	477	284.51
17.75	476	284.68
18.00	476	284.85
18.25	476	285.01
18.50	476	285.18
18.75	475	285.35
19.00	475	285.52
19.25	475	285.68
19.50	474	285.85
19.75	474	286.02
20.00	474	286.19
20.25	473	286.35
20.50	473	286.52
20.75	473	286.69
21.00	472	286.85
21.25	472	287.02
21.50	472	287.18
21.75	472	287.35
22.00	471	287.52
22.25	471	287.68

**Pump BA MM Avg PHD**

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pump Head (ft)
22.50	471	287.85
22.75	470	288.01
23.00	470	288.18
23.25	470	288.34
23.50	469	288.51
23.75	469	288.67
24.00	469	288.84
24.25	468	289.00
24.50	468	289.17
24.75	468	289.33
25.00	468	289.50
25.25	467	289.66
25.50	467	289.83
25.75	467	289.99
26.00	466	290.15
26.25	466	290.32
26.50	466	290.48
26.75	465	290.65
27.00	465	290.81
27.25	465	290.97
27.50	465	291.14
27.75	464	291.30
28.00	464	291.46
28.25	464	291.63
28.50	463	291.79
28.75	463	291.95
29.00	463	292.11
29.25	462	292.28
29.50	462	292.44
29.75	462	292.60
30.00	461	292.76
30.25	461	292.92
30.50	461	293.09
30.75	461	293.25
31.00	460	293.41
31.25	460	293.57
31.50	460	293.73
31.75	459	293.89
32.00	459	294.06
32.25	459	294.22
32.50	458	294.38
32.75	458	294.54
33.00	458	294.70
33.25	458	294.86
33.50	457	295.02

**Pump BA MM Avg PHD**

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pump Head (ft)
33.75	457	295.18
34.00	457	295.34
34.25	456	295.50
34.50	456	295.66
34.75	456	295.82
35.00	455	295.98
35.25	455	296.14
35.50	455	296.30
35.75	455	296.46
36.00	454	296.62
36.25	454	296.78
36.50	454	296.94
36.75	453	297.10
37.00	453	297.25
37.25	453	297.41
37.50	452	297.57
37.75	452	297.73
38.00	452	297.89
38.25	452	298.05
38.50	451	298.21
38.75	451	298.36
38.82	0	0.00
39.00	0	0.00
39.25	0	0.00
39.50	0	0.00
39.75	0	0.00
40.00	0	0.00
40.25	0	0.00
40.50	0	0.00
40.75	0	0.00
41.00	0	0.00
41.25	0	0.00
41.50	0	0.00
41.75	0	0.00
42.00	0	0.00
42.25	0	0.00
42.50	0	0.00
42.75	0	0.00
43.00	0	0.00
43.25	0	0.00
43.50	0	0.00
43.75	0	0.00
44.00	0	0.00
44.25	0	0.00
44.50	0	0.00

**Pump BA MM Avg PHD**

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pump Head (ft)
44.75	0	0.00
45.00	0	0.00
45.25	0	0.00
45.50	0	0.00
45.75	0	0.00
46.00	0	0.00
46.25	0	0.00
46.50	0	0.00
46.75	0	0.00
47.00	0	0.00
47.25	0	0.00
47.50	0	0.00
47.75	0	0.00
48.00	0	0.00
48.25	0	0.00
48.50	0	0.00
48.75	0	0.00
49.00	0	0.00
49.25	0	0.00
49.50	0	0.00
49.75	0	0.00
50.00	0	0.00
50.25	0	0.00
50.50	0	0.00
50.75	0	0.00
51.00	0	0.00
51.25	0	0.00
51.50	0	0.00
51.75	0	0.00
52.00	0	0.00
52.25	0	0.00
52.50	0	0.00
52.75	0	0.00
53.00	0	0.00
53.25	0	0.00
53.42	453	297.44
53.50	453	297.49
53.75	452	297.64
54.00	452	297.80
54.25	452	297.96
54.50	451	298.12
54.75	451	298.28
54.95	0	0.00
55.00	0	0.00
55.25	0	0.00

**Pump BA MM Avg PHD**

Time (hours)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Total) (gpm)	PMP-1 - Boosted Area Maximum Monthly Average then Peak Hour Demand for 4 hours - Pump Head (ft)
55.50	0	0.00
55.75	0	0.00
56.00	0	0.00
56.25	0	0.00
56.50	0	0.00
56.75	0	0.00
57.00	0	0.00
57.25	0	0.00
57.50	0	0.00
57.75	0	0.00
58.00	0	0.00
58.25	0	0.00
58.50	0	0.00
58.75	0	0.00
59.00	0	0.00
59.25	0	0.00
59.50	0	0.00
59.75	0	0.00
60.00	0	0.00

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**Scenario Summary**


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ID	158
Label	Full MM Average Flow - Constant
Notes	
Active Topology	Base Active Topology
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	Full System Maximum Monthly Average
Initial Settings	T-2 Starts Full
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	60 hours, 15 min increments
Transient Solver Calculation Options	Base Calculation Options

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**Hydraulic Summary**


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Time Analysis Type	EPS	Simulation Start Date	1/22/2018
Friction Method	Hazen-Williams	Hydraulic Time Step	0.250
Accuracy	0.001	Duration	60.000
Trials	40	Calculation Type	Hydraulics Only

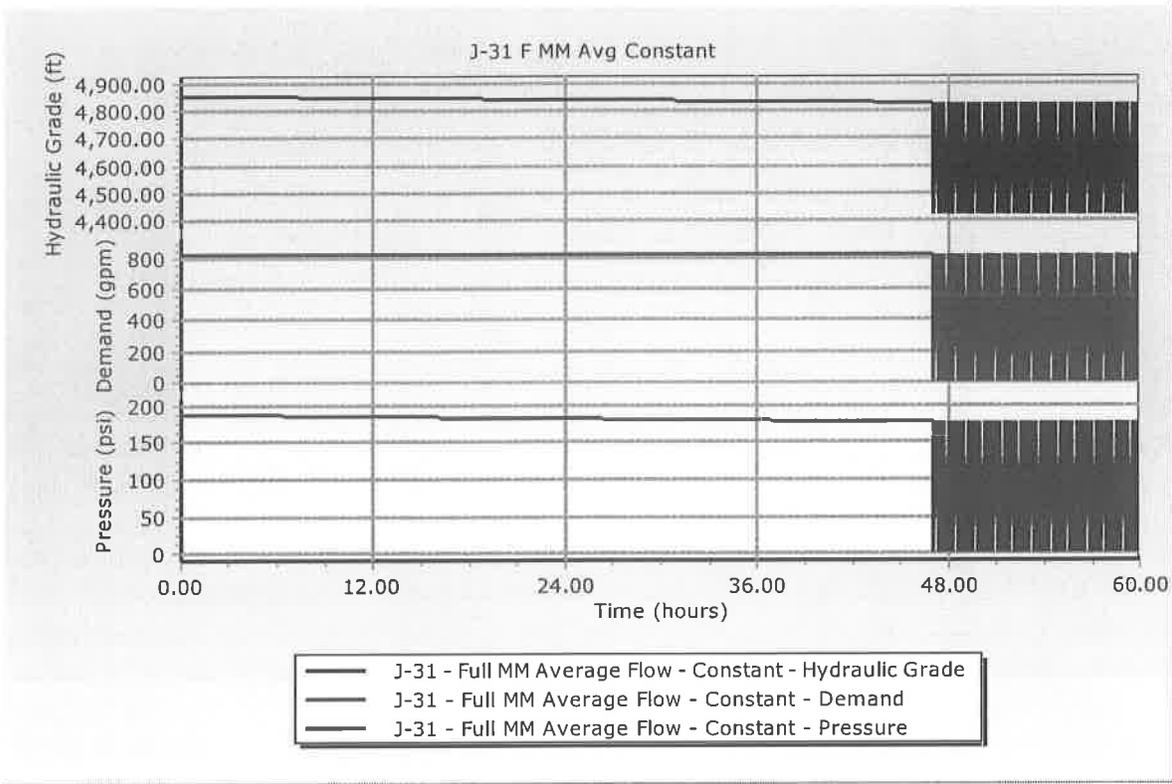
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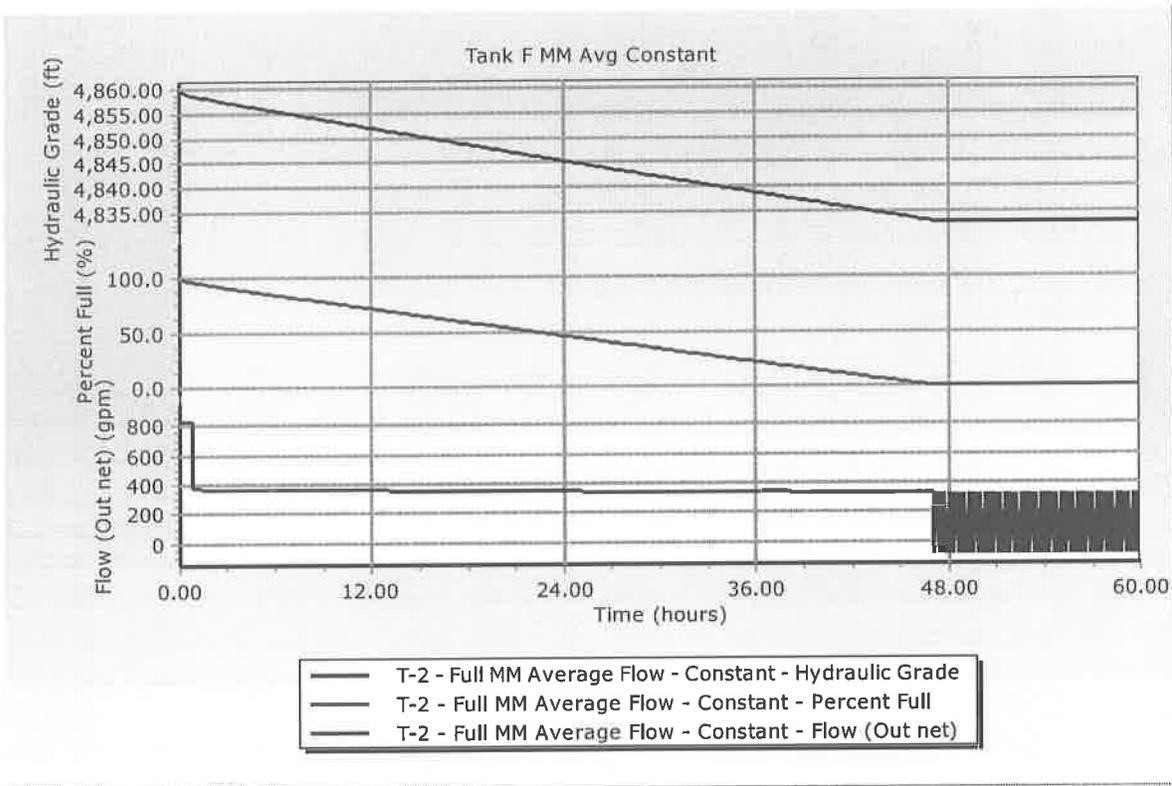
**Network Inventory**

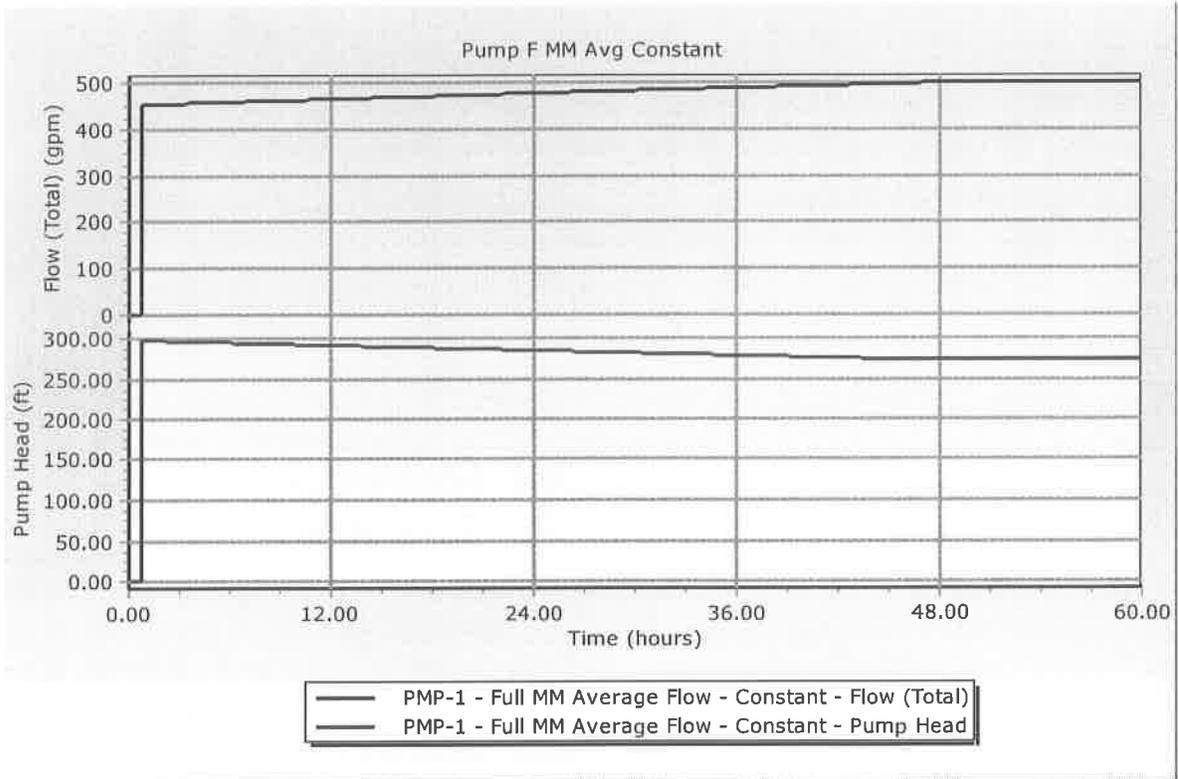

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Pipe	37	-Constant Speed - No Pump Curve	0
Lateral	0	-Constant Speed - Pump Curve	1
Junction	33	-Shut Down After Time Delay	0
Hydrant	0	-Variable Speed/Torque	0
Tank	1	-Pump Start - Variable Speed/Torque	0
-Circular	1	Customer Meter	0
-Non-Circular	0	Pump Station	0
-Variable Area	0	Variable Speed Pump Battery	0
Reservoir	1	SCADA Element	0
Tap	0	PRV	0
Pump	1	PSV	0
-Constant Power	0	PBV	0
-Custom Extended	0	FCV	1
-Design Point (1 Point)	0	TCV	0
-Multiple Point	0	GPV	0
-Standard (3 Point)	1	Isolation Valve	0
-Standard Extended	0	Spot Elevation	0

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**J-31 F MM Avg Constant**

Time (hours)	J-31 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	J-31 - Full MM Average Flow - Constant - Demand (gpm)	J-31 - Full MM Average Flow - Constant - Pressure (psi)
0.00	4,855.57	823	188
0.25	4,855.24	823	188
0.50	4,854.91	823	188
0.75	4,854.58	823	188
0.76	4,854.57	823	188
1.00	4,854.43	823	188
1.25	4,854.28	823	188
1.50	4,854.13	823	188
1.75	4,853.99	823	188
2.00	4,853.84	823	188
2.25	4,853.69	823	188
2.50	4,853.54	823	188
2.75	4,853.40	823	188
3.00	4,853.25	823	187
3.25	4,853.10	823	187
3.50	4,852.96	823	187
3.75	4,852.81	823	187
4.00	4,852.66	823	187
4.25	4,852.52	823	187
4.50	4,852.37	823	187

### J-31 F MM Avg Constant

Time (hours)	J-31 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	J-31 - Full MM Average Flow - Constant - Demand (gpm)	J-31 - Full MM Average Flow - Constant - Pressure (psi)
4.75	4,852.23	823	187
5.00	4,852.08	823	187
5.25	4,851.93	823	187
5.50	4,851.79	823	187
5.75	4,851.64	823	187
6.00	4,851.50	823	187
6.25	4,851.35	823	187
6.50	4,851.21	823	187
6.75	4,851.06	823	186
7.00	4,850.92	823	186
7.25	4,850.77	823	186
7.50	4,850.63	823	186
7.75	4,850.48	823	186
8.00	4,850.34	823	186
8.25	4,850.19	823	186
8.50	4,850.05	823	186
8.75	4,849.90	823	186
9.00	4,849.76	823	186
9.25	4,849.61	823	186
9.50	4,849.47	823	186
9.75	4,849.33	823	186
10.00	4,849.18	823	186
10.25	4,849.04	823	186
10.50	4,848.89	823	186
10.75	4,848.75	823	186
11.00	4,848.61	823	185
11.25	4,848.46	823	185
11.50	4,848.32	823	185
11.75	4,848.18	823	185
12.00	4,848.03	823	185
12.25	4,847.89	823	185
12.50	4,847.75	823	185
12.75	4,847.61	823	185
13.00	4,847.46	823	185
13.25	4,847.32	823	185
13.50	4,847.18	823	185
13.75	4,847.04	823	185
14.00	4,846.89	823	185
14.25	4,846.75	823	185
14.50	4,846.61	823	185
14.75	4,846.47	823	185
15.00	4,846.33	823	184
15.25	4,846.18	823	184
15.50	4,846.04	823	184
15.75	4,845.90	823	184
16.00	4,845.76	823	184
16.25	4,845.62	823	184

**J-31 F MM Avg Constant**

Time (hours)	J-31 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	J-31 - Full MM Average Flow - Constant - Demand (gpm)	J-31 - Full MM Average Flow - Constant - Pressure (psi)
16.50	4,845.48	823	184
16.75	4,845.33	823	184
17.00	4,845.19	823	184
17.25	4,845.05	823	184
17.50	4,844.91	823	184
17.75	4,844.77	823	184
18.00	4,844.63	823	184
18.25	4,844.49	823	184
18.50	4,844.35	823	184
18.75	4,844.21	823	184
19.00	4,844.07	823	183
19.25	4,843.93	823	183
19.50	4,843.79	823	183
19.75	4,843.65	823	183
20.00	4,843.51	823	183
20.25	4,843.37	823	183
20.50	4,843.23	823	183
20.75	4,843.09	823	183
21.00	4,842.95	823	183
21.25	4,842.81	823	183
21.50	4,842.67	823	183
21.75	4,842.53	823	183
22.00	4,842.39	823	183
22.25	4,842.26	823	183
22.50	4,842.12	823	183
22.75	4,841.98	823	183
23.00	4,841.84	823	183
23.25	4,841.70	823	182
23.50	4,841.56	823	182
23.75	4,841.42	823	182
24.00	4,841.29	823	182
24.25	4,841.15	823	182
24.50	4,841.01	823	182
24.75	4,840.87	823	182
25.00	4,840.73	823	182
25.25	4,840.60	823	182
25.50	4,840.46	823	182
25.75	4,840.32	823	182
26.00	4,840.18	823	182
26.25	4,840.05	823	182
26.50	4,839.91	823	182
26.75	4,839.77	823	182
27.00	4,839.63	823	182
27.25	4,839.50	823	181
27.50	4,839.36	823	181
27.75	4,839.22	823	181
28.00	4,839.09	823	181

### J-31 F MM Avg Constant

Time (hours)	J-31 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	J-31 - Full MM Average Flow - Constant - Demand (gpm)	J-31 - Full MM Average Flow - Constant - Pressure (psi)
28.25	4,838.95	823	181
28.50	4,838.81	823	181
28.75	4,838.68	823	181
29.00	4,838.54	823	181
29.25	4,838.40	823	181
29.50	4,838.27	823	181
29.75	4,838.13	823	181
30.00	4,838.00	823	181
30.25	4,837.86	823	181
30.50	4,837.73	823	181
30.75	4,837.59	823	181
31.00	4,837.45	823	181
31.25	4,837.32	823	181
31.50	4,837.18	823	180
31.75	4,837.05	823	180
32.00	4,836.91	823	180
32.25	4,836.78	823	180
32.50	4,836.64	823	180
32.75	4,836.51	823	180
33.00	4,836.37	823	180
33.25	4,836.24	823	180
33.50	4,836.10	823	180
33.75	4,835.97	823	180
34.00	4,835.83	823	180
34.25	4,835.70	823	180
34.50	4,835.57	823	180
34.75	4,835.43	823	180
35.00	4,835.30	823	180
35.25	4,835.16	823	180
35.50	4,835.03	823	180
35.75	4,834.90	823	180
36.00	4,834.76	823	179
36.25	4,834.63	823	179
36.50	4,834.50	823	179
36.75	4,834.36	823	179
37.00	4,834.23	823	179
37.25	4,834.10	823	179
37.50	4,833.96	823	179
37.75	4,833.83	823	179
38.00	4,833.70	823	179
38.25	4,833.56	823	179
38.50	4,833.43	823	179
38.75	4,833.30	823	179
39.00	4,833.17	823	179
39.25	4,833.03	823	179
39.50	4,832.90	823	179
39.75	4,832.77	823	179

### J-31 F MM Avg Constant

Time (hours)	J-31 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	J-31 - Full MM Average Flow - Constant - Demand (gpm)	J-31 - Full MM Average Flow - Constant - Pressure (psi)
40.00	4,832.64	823	179
40.25	4,832.50	823	178
40.50	4,832.37	823	178
40.75	4,832.24	823	178
41.00	4,832.11	823	178
41.25	4,831.98	823	178
41.50	4,831.85	823	178
41.75	4,831.71	823	178
42.00	4,831.58	823	178
42.25	4,831.45	823	178
42.50	4,831.32	823	178
42.75	4,831.19	823	178
43.00	4,831.06	823	178
43.25	4,830.93	823	178
43.50	4,830.80	823	178
43.75	4,830.66	823	178
44.00	4,830.53	823	178
44.25	4,830.40	823	178
44.50	4,830.27	823	178
44.75	4,830.14	823	177
45.00	4,830.01	823	177
45.25	4,829.88	823	177
45.50	4,829.75	823	177
45.75	4,829.62	823	177
46.00	4,829.49	823	177
46.25	4,829.36	823	177
46.50	4,829.23	823	177
46.75	4,829.10	823	177
47.00	4,828.97	823	177
47.01	4,420.00	0	0
47.25	4,829.00	823	177
47.32	4,420.00	0	0
47.50	4,828.99	823	177
47.55	4,420.00	0	0
47.75	4,829.00	823	177
47.80	4,420.00	0	0
48.00	4,829.00	823	177
48.05	4,420.00	0	0
48.25	4,829.00	823	177
48.30	4,420.00	0	0
48.50	4,829.00	823	177
48.55	4,420.00	0	0
48.75	4,829.00	823	177
48.80	4,420.00	0	0
49.00	4,829.00	823	177
49.05	4,420.00	0	0
49.25	4,829.00	823	177

### J-31 F MM Avg Constant

Time (hours)	J-31 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	J-31 - Full MM Average Flow - Constant - Demand (gpm)	J-31 - Full MM Average Flow - Constant - Pressure (psi)
49.30	4,420.00	0	0
49.50	4,829.00	823	177
49.55	4,420.00	0	0
49.75	4,829.00	823	177
49.80	4,420.00	0	0
50.00	4,829.00	823	177
50.05	4,420.00	0	0
50.25	4,829.00	823	177
50.30	4,420.00	0	0
50.50	4,829.00	823	177
50.55	4,420.00	0	0
50.75	4,829.00	823	177
50.80	4,420.00	0	0
51.00	4,829.00	823	177
51.05	4,420.00	0	0
51.25	4,829.00	823	177
51.30	4,420.00	0	0
51.50	4,829.00	823	177
51.55	4,420.00	0	0
51.75	4,829.00	823	177
51.80	4,420.00	0	0
52.00	4,829.00	823	177
52.05	4,420.00	0	0
52.25	4,829.00	823	177
52.30	4,420.00	0	0
52.50	4,829.00	823	177
52.55	4,420.00	0	0
52.75	4,829.00	823	177
52.80	4,420.00	0	0
53.00	4,829.00	823	177
53.05	4,420.00	0	0
53.25	4,829.00	823	177
53.30	4,420.00	0	0
53.50	4,829.00	823	177
53.55	4,420.00	0	0
53.75	4,829.00	823	177
53.80	4,420.00	0	0
54.00	4,829.00	823	177
54.05	4,420.00	0	0
54.25	4,829.00	823	177
54.30	4,420.00	0	0
54.50	4,829.00	823	177
54.55	4,420.00	0	0
54.75	4,829.00	823	177
54.80	4,420.00	0	0
55.00	4,829.00	823	177
55.05	4,420.00	0	0

**J-31 F MM Avg Constant**

Time (hours)	J-31 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	J-31 - Full MM Average Flow - Constant - Demand (gpm)	J-31 - Full MM Average Flow - Constant - Pressure (psi)
55.25	4,829.00	823	177
55.30	4,420.00	0	0
55.50	4,829.00	823	177
55.55	4,420.00	0	0
55.75	4,829.00	823	177
55.80	4,420.00	0	0
56.00	4,829.00	823	177
56.05	4,420.00	0	0
56.25	4,829.00	823	177
56.30	4,420.00	0	0
56.50	4,829.00	823	177
56.55	4,420.00	0	0
56.75	4,829.00	823	177
56.80	4,420.00	0	0
57.00	4,829.00	823	177
57.05	4,420.00	0	0
57.25	4,829.00	823	177
57.30	4,420.00	0	0
57.50	4,829.00	823	177
57.55	4,420.00	0	0
57.75	4,829.00	823	177
57.80	4,420.00	0	0
58.00	4,829.00	823	177
58.05	4,420.00	0	0
58.25	4,829.00	823	177
58.30	4,420.00	0	0
58.50	4,829.00	823	177
58.55	4,420.00	0	0
58.75	4,829.00	823	177
58.80	4,420.00	0	0
59.00	4,829.00	823	177
59.05	4,420.00	0	0
59.25	4,829.00	823	177
59.30	4,420.00	0	0
59.50	4,829.00	823	177
59.55	4,420.00	0	0
59.75	4,829.00	823	177
59.80	4,420.00	0	0
60.00	4,829.00	823	177

**Tank F MM Avg Constant**

Time (hours)	T-2 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	T-2 - Full MM Average Flow - Constant - Percent Full (%)	T-2 - Full MM Average Flow - Constant - Flow (Out net) (gpm)
0.00	4,859.60	100.0	823

### Tank F MM Avg Constant

Time (hours)	T-2 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	T-2 - Full MM Average Flow - Constant - Percent Full (%)	T-2 - Full MM Average Flow - Constant - Flow (Out net) (gpm)
0.25	4,859.27	98.8	823
0.50	4,858.94	97.5	823
0.75	4,858.62	96.3	823
0.76	4,858.60	96.2	370
1.00	4,858.46	95.7	370
1.25	4,858.31	95.2	370
1.50	4,858.16	94.6	370
1.75	4,858.02	94.0	369
2.00	4,857.87	93.5	369
2.25	4,857.72	92.9	369
2.50	4,857.58	92.4	368
2.75	4,857.43	91.8	368
3.00	4,857.28	91.3	368
3.25	4,857.13	90.7	368
3.50	4,856.99	90.2	367
3.75	4,856.84	89.6	367
4.00	4,856.69	89.1	367
4.25	4,856.55	88.5	367
4.50	4,856.40	88.0	366
4.75	4,856.26	87.4	366
5.00	4,856.11	86.9	366
5.25	4,855.96	86.3	365
5.50	4,855.82	85.8	365
5.75	4,855.67	85.2	365
6.00	4,855.53	84.7	365
6.25	4,855.38	84.1	364
6.50	4,855.24	83.6	364
6.75	4,855.09	83.0	364
7.00	4,854.95	82.5	364
7.25	4,854.80	82.0	363
7.50	4,854.66	81.4	363
7.75	4,854.51	80.9	363
8.00	4,854.37	80.3	363
8.25	4,854.22	79.8	362
8.50	4,854.08	79.2	362
8.75	4,853.93	78.7	362
9.00	4,853.79	78.2	362
9.25	4,853.64	77.6	361
9.50	4,853.50	77.1	361
9.75	4,853.36	76.5	361
10.00	4,853.21	76.0	360
10.25	4,853.07	75.4	360
10.50	4,852.92	74.9	360
10.75	4,852.78	74.4	360
11.00	4,852.64	73.8	359
11.25	4,852.49	73.3	359
11.50	4,852.35	72.7	359

**Tank F MM Avg Constant**

Time (hours)	T-2 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	T-2 - Full MM Average Flow - Constant - Percent Full (%)	T-2 - Full MM Average Flow - Constant - Flow (Out net) (gpm)
11.75	4,852.21	72.2	359
12.00	4,852.06	71.7	358
12.25	4,851.92	71.1	358
12.50	4,851.78	70.6	358
12.75	4,851.64	70.1	358
13.00	4,851.49	69.5	357
13.25	4,851.35	69.0	357
13.50	4,851.21	68.5	357
13.75	4,851.07	67.9	357
14.00	4,850.92	67.4	356
14.25	4,850.78	66.8	356
14.50	4,850.64	66.3	356
14.75	4,850.50	65.8	356
15.00	4,850.36	65.2	355
15.25	4,850.21	64.7	355
15.50	4,850.07	64.2	355
15.75	4,849.93	63.6	355
16.00	4,849.79	63.1	354
16.25	4,849.65	62.6	354
16.50	4,849.51	62.1	354
16.75	4,849.37	61.5	354
17.00	4,849.22	61.0	353
17.25	4,849.08	60.5	353
17.50	4,848.94	59.9	353
17.75	4,848.80	59.4	353
18.00	4,848.66	58.9	352
18.25	4,848.52	58.3	352
18.50	4,848.38	57.8	352
18.75	4,848.24	57.3	352
19.00	4,848.10	56.8	351
19.25	4,847.96	56.2	351
19.50	4,847.82	55.7	351
19.75	4,847.68	55.2	351
20.00	4,847.54	54.7	350
20.25	4,847.40	54.1	350
20.50	4,847.26	53.6	350
20.75	4,847.12	53.1	350
21.00	4,846.98	52.6	349
21.25	4,846.84	52.0	349
21.50	4,846.70	51.5	349
21.75	4,846.56	51.0	349
22.00	4,846.43	50.5	348
22.25	4,846.29	49.9	348
22.50	4,846.15	49.4	348
22.75	4,846.01	48.9	348
23.00	4,845.87	48.4	347
23.25	4,845.73	47.9	347

**Tank F MM Avg Constant**

Time (hours)	T-2 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	T-2 - Full MM Average Flow - Constant - Percent Full (%)	T-2 - Full MM Average Flow - Constant - Flow (Out net) (gpm)
23.50	4,845.59	47.3	347
23.75	4,845.45	46.8	347
24.00	4,845.32	46.3	346
24.25	4,845.18	45.8	346
24.50	4,845.04	45.3	346
24.75	4,844.90	44.7	346
25.00	4,844.76	44.2	345
25.25	4,844.63	43.7	345
25.50	4,844.49	43.2	345
25.75	4,844.35	42.7	345
26.00	4,844.21	42.2	344
26.25	4,844.08	41.6	344
26.50	4,843.94	41.1	344
26.75	4,843.80	40.6	344
27.00	4,843.67	40.1	343
27.25	4,843.53	39.6	343
27.50	4,843.39	39.1	343
27.75	4,843.25	38.6	343
28.00	4,843.12	38.0	342
28.25	4,842.98	37.5	342
28.50	4,842.84	37.0	342
28.75	4,842.71	36.5	342
29.00	4,842.57	36.0	341
29.25	4,842.44	35.5	341
29.50	4,842.30	35.0	341
29.75	4,842.16	34.4	341
30.00	4,842.03	33.9	341
30.25	4,841.89	33.4	340
30.50	4,841.76	32.9	340
30.75	4,841.62	32.4	340
31.00	4,841.48	31.9	340
31.25	4,841.35	31.4	339
31.50	4,841.21	30.9	339
31.75	4,841.08	30.4	339
32.00	4,840.94	29.9	339
32.25	4,840.81	29.4	338
32.50	4,840.67	28.8	338
32.75	4,840.54	28.3	338
33.00	4,840.40	27.8	338
33.25	4,840.27	27.3	337
33.50	4,840.13	26.8	337
33.75	4,840.00	26.3	337
34.00	4,839.87	25.8	337
34.25	4,839.73	25.3	336
34.50	4,839.60	24.8	336
34.75	4,839.46	24.3	336
35.00	4,839.33	23.8	336

**Tank F MM Avg Constant**

Time (hours)	T-2 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	T-2 - Full MM Average Flow - Constant - Percent Full (%)	T-2 - Full MM Average Flow - Constant - Flow (Out net) (gpm)
35.25	4,839.19	23.3	336
35.50	4,839.06	22.8	335
35.75	4,838.93	22.3	335
36.00	4,838.79	21.8	335
36.25	4,838.66	21.3	335
36.50	4,838.53	20.8	334
36.75	4,838.39	20.3	334
37.00	4,838.26	19.8	334
37.25	4,838.13	19.3	334
37.50	4,837.99	18.8	333
37.75	4,837.86	18.3	333
38.00	4,837.73	17.8	333
38.25	4,837.59	17.3	333
38.50	4,837.46	16.8	333
38.75	4,837.33	16.3	332
39.00	4,837.20	15.8	332
39.25	4,837.06	15.3	332
39.50	4,836.93	14.8	332
39.75	4,836.80	14.3	331
40.00	4,836.67	13.8	331
40.25	4,836.54	13.3	331
40.50	4,836.40	12.8	331
40.75	4,836.27	12.3	330
41.00	4,836.14	11.8	330
41.25	4,836.01	11.3	330
41.50	4,835.88	10.8	330
41.75	4,835.74	10.3	330
42.00	4,835.61	9.8	329
42.25	4,835.48	9.3	329
42.50	4,835.35	8.8	329
42.75	4,835.22	8.3	329
43.00	4,835.09	7.8	328
43.25	4,834.96	7.4	328
43.50	4,834.83	6.9	328
43.75	4,834.70	6.4	328
44.00	4,834.56	5.9	328
44.25	4,834.43	5.4	327
44.50	4,834.30	4.9	327
44.75	4,834.17	4.4	327
45.00	4,834.04	3.9	327
45.25	4,833.91	3.4	326
45.50	4,833.78	2.9	326
45.75	4,833.65	2.5	326
46.00	4,833.52	2.0	326
46.25	4,833.39	1.5	326
46.50	4,833.26	1.0	325
46.75	4,833.13	0.5	325

### Tank F MM Avg Constant

Time (hours)	T-2 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	T-2 - Full MM Average Flow - Constant - Percent Full (%)	T-2 - Full MM Average Flow - Constant - Flow (Out net) (gpm)
47.00	4,833.00	0.0	325
47.01	4,833.00	0.0	-87
47.25	4,833.03	0.1	325
47.32	4,833.00	0.0	-87
47.50	4,833.03	0.1	325
47.55	4,833.00	0.0	-87
47.75	4,833.03	0.1	325
47.80	4,833.00	0.0	-87
48.00	4,833.03	0.1	325
48.05	4,833.00	0.0	-87
48.25	4,833.03	0.1	325
48.30	4,833.00	0.0	-87
48.50	4,833.03	0.1	325
48.55	4,833.00	0.0	-87
48.75	4,833.03	0.1	325
48.80	4,833.00	0.0	-87
49.00	4,833.03	0.1	325
49.05	4,833.00	0.0	-87
49.25	4,833.03	0.1	325
49.30	4,833.00	0.0	-87
49.50	4,833.03	0.1	325
49.55	4,833.00	0.0	-87
49.75	4,833.03	0.1	325
49.80	4,833.00	0.0	-87
50.00	4,833.03	0.1	325
50.05	4,833.00	0.0	-87
50.25	4,833.03	0.1	325
50.30	4,833.00	0.0	-87
50.50	4,833.03	0.1	325
50.55	4,833.00	0.0	-87
50.75	4,833.03	0.1	325
50.80	4,833.00	0.0	-87
51.00	4,833.03	0.1	325
51.05	4,833.00	0.0	-87
51.25	4,833.03	0.1	325
51.30	4,833.00	0.0	-87
51.50	4,833.03	0.1	325
51.55	4,833.00	0.0	-87
51.75	4,833.03	0.1	325
51.80	4,833.00	0.0	-87
52.00	4,833.03	0.1	325
52.05	4,833.00	0.0	-87
52.25	4,833.03	0.1	325
52.30	4,833.00	0.0	-87
52.50	4,833.03	0.1	325
52.55	4,833.00	0.0	-87
52.75	4,833.03	0.1	325

### Tank F MM Avg Constant

Time (hours)	T-2 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	T-2 - Full MM Average Flow - Constant - Percent Full (%)	T-2 - Full MM Average Flow - Constant - Flow (Out net) (gpm)
52.80	4,833.00	0.0	-87
53.00	4,833.03	0.1	325
53.05	4,833.00	0.0	-87
53.25	4,833.03	0.1	325
53.30	4,833.00	0.0	-87
53.50	4,833.03	0.1	325
53.55	4,833.00	0.0	-87
53.75	4,833.03	0.1	325
53.80	4,833.00	0.0	-87
54.00	4,833.03	0.1	325
54.05	4,833.00	0.0	-87
54.25	4,833.03	0.1	325
54.30	4,833.00	0.0	-87
54.50	4,833.03	0.1	325
54.55	4,833.00	0.0	-87
54.75	4,833.03	0.1	325
54.80	4,833.00	0.0	-87
55.00	4,833.03	0.1	325
55.05	4,833.00	0.0	-87
55.25	4,833.03	0.1	325
55.30	4,833.00	0.0	-87
55.50	4,833.03	0.1	325
55.55	4,833.00	0.0	-87
55.75	4,833.03	0.1	325
55.80	4,833.00	0.0	-87
56.00	4,833.03	0.1	325
56.05	4,833.00	0.0	-87
56.25	4,833.03	0.1	325
56.30	4,833.00	0.0	-87
56.50	4,833.03	0.1	325
56.55	4,833.00	0.0	-87
56.75	4,833.03	0.1	325
56.80	4,833.00	0.0	-87
57.00	4,833.03	0.1	325
57.05	4,833.00	0.0	-87
57.25	4,833.03	0.1	325
57.30	4,833.00	0.0	-87
57.50	4,833.03	0.1	325
57.55	4,833.00	0.0	-87
57.75	4,833.03	0.1	325
57.80	4,833.00	0.0	-87
58.00	4,833.03	0.1	325
58.05	4,833.00	0.0	-87
58.25	4,833.03	0.1	325
58.30	4,833.00	0.0	-87
58.50	4,833.03	0.1	325
58.55	4,833.00	0.0	-87

**Tank F MM Avg Constant**

Time (hours)	T-2 - Full MM Average Flow - Constant - Hydraulic Grade (ft)	T-2 - Full MM Average Flow - Constant - Percent Full (%)	T-2 - Full MM Average Flow - Constant - Flow (Out net) (gpm)
58.75	4,833.03	0.1	325
58.80	4,833.00	0.0	-87
59.00	4,833.03	0.1	325
59.05	4,833.00	0.0	-87
59.25	4,833.03	0.1	325
59.30	4,833.00	0.0	-87
59.50	4,833.03	0.1	325
59.55	4,833.00	0.0	-87
59.75	4,833.03	0.1	325
59.80	4,833.00	0.0	-87
60.00	4,833.03	0.1	325

**Pump F MM Avg Constant**

Time (hours)	PMP-1 - Full MM Average Flow - Constant - Flow (Total) (gpm)	PMP-1 - Full MM Average Flow - Constant - Pump Head (ft)
0.00	0	0.00
0.25	0	0.00
0.50	0	0.00
0.75	0	0.00
0.76	453	297.44
1.00	453	297.30
1.25	453	297.15
1.50	453	297.01
1.75	454	296.87
2.00	454	296.73
2.25	454	296.58
2.50	455	296.44
2.75	455	296.30
3.00	455	296.16
3.25	455	296.01
3.50	456	295.87
3.75	456	295.73
4.00	456	295.59
4.25	456	295.44
4.50	457	295.30
4.75	457	295.16
5.00	457	295.02
5.25	458	294.88
5.50	458	294.74
5.75	458	294.59
6.00	458	294.45
6.25	459	294.31
6.50	459	294.17
6.75	459	294.03

**Pump F MM Avg Constant**

Time (hours)	PMP-1 - Full MM Average Flow - Constant - Flow (Total) (gpm)	PMP-1 - Full MM Average Flow - Constant - Pump Head (ft)
7.00	459	293.89
7.25	460	293.75
7.50	460	293.61
7.75	460	293.47
8.00	460	293.33
8.25	461	293.19
8.50	461	293.05
8.75	461	292.91
9.00	461	292.77
9.25	462	292.63
9.50	462	292.49
9.75	462	292.35
10.00	463	292.21
10.25	463	292.07
10.50	463	291.93
10.75	463	291.79
11.00	464	291.65
11.25	464	291.51
11.50	464	291.37
11.75	464	291.23
12.00	465	291.09
12.25	465	290.96
12.50	465	290.82
12.75	465	290.68
13.00	466	290.54
13.25	466	290.40
13.50	466	290.26
13.75	466	290.12
14.00	467	289.99
14.25	467	289.85
14.50	467	289.71
14.75	467	289.57
15.00	468	289.44
15.25	468	289.30
15.50	468	289.16
15.75	468	289.02
16.00	469	288.89
16.25	469	288.75
16.50	469	288.61
16.75	469	288.47
17.00	470	288.34
17.25	470	288.20
17.50	470	288.06
17.75	470	287.93
18.00	471	287.79
18.25	471	287.66
18.50	471	287.52

**Pump F MM Avg Constant**

Time (hours)	PMP-1 - Full MM Average Flow - Constant - Flow (Total) (gpm)	PMP-1 - Full MM Average Flow - Constant - Pump Head (ft)
18.75	471	287.38
19.00	472	287.25
19.25	472	287.11
19.50	472	286.98
19.75	472	286.84
20.00	473	286.70
20.25	473	286.57
20.50	473	286.43
20.75	473	286.30
21.00	474	286.16
21.25	474	286.03
21.50	474	285.89
21.75	474	285.76
22.00	475	285.62
22.25	475	285.49
22.50	475	285.35
22.75	475	285.22
23.00	476	285.08
23.25	476	284.95
23.50	476	284.81
23.75	476	284.68
24.00	477	284.55
24.25	477	284.41
24.50	477	284.28
24.75	477	284.14
25.00	478	284.01
25.25	478	283.88
25.50	478	283.74
25.75	478	283.61
26.00	479	283.48
26.25	479	283.34
26.50	479	283.21
26.75	479	283.08
27.00	480	282.94
27.25	480	282.81
27.50	480	282.68
27.75	480	282.55
28.00	481	282.41
28.25	481	282.28
28.50	481	282.15
28.75	481	282.02
29.00	482	281.88
29.25	482	281.75
29.50	482	281.62
29.75	482	281.49
30.00	482	281.36
30.25	483	281.22

**Pump F MM Avg Constant**

Time (hours)	PMP-1 - Full MM Average Flow - Constant - Flow (Total) (gpm)	PMP-1 - Full MM Average Flow - Constant - Pump Head (ft)
30.50	483	281.09
30.75	483	280.96
31.00	483	280.83
31.25	484	280.70
31.50	484	280.57
31.75	484	280.44
32.00	484	280.30
32.25	485	280.17
32.50	485	280.04
32.75	485	279.91
33.00	485	279.78
33.25	486	279.65
33.50	486	279.52
33.75	486	279.39
34.00	486	279.26
34.25	487	279.13
34.50	487	279.00
34.75	487	278.87
35.00	487	278.74
35.25	487	278.61
35.50	488	278.48
35.75	488	278.35
36.00	488	278.22
36.25	488	278.09
36.50	489	277.96
36.75	489	277.83
37.00	489	277.70
37.25	489	277.57
37.50	490	277.44
37.75	490	277.31
38.00	490	277.18
38.25	490	277.06
38.50	490	276.93
38.75	491	276.80
39.00	491	276.67
39.25	491	276.54
39.50	491	276.41
39.75	492	276.28
40.00	492	276.16
40.25	492	276.03
40.50	492	275.90
40.75	493	275.77
41.00	493	275.64
41.25	493	275.52
41.50	493	275.39
41.75	493	275.26
42.00	494	275.13

**Pump F MM Avg Constant**

Time (hours)	PMP-1 - Full MM Average Flow - Constant - Flow (Total) (gpm)	PMP-1 - Full MM Average Flow - Constant - Pump Head (ft)
42.25	494	275.01
42.50	494	274.88
42.75	494	274.75
43.00	495	274.62
43.25	495	274.50
43.50	495	274.37
43.75	495	274.24
44.00	495	274.12
44.25	496	273.99
44.50	496	273.86
44.75	496	273.74
45.00	496	273.61
45.25	497	273.48
45.50	497	273.36
45.75	497	273.23
46.00	497	273.10
46.25	497	272.98
46.50	498	272.85
46.75	498	272.73
47.00	498	272.60
47.01	498	272.56
47.25	498	272.63
47.32	498	272.56
47.50	498	272.62
47.55	498	272.56
47.75	498	272.63
47.80	498	272.56
48.00	498	272.62
48.05	498	272.56
48.25	498	272.62
48.30	498	272.56
48.50	498	272.62
48.55	498	272.56
48.75	498	272.62
48.80	498	272.56
49.00	498	272.62
49.05	498	272.56
49.25	498	272.62
49.30	498	272.56
49.50	498	272.62
49.55	498	272.56
49.75	498	272.62
49.80	498	272.56
50.00	498	272.62
50.05	498	272.56
50.25	498	272.62
50.30	498	272.56

**Pump F MM Avg Constant**

Time (hours)	PMP-1 - Full MM Average Flow - Constant - Flow (Total) (gpm)	PMP-1 - Full MM Average Flow - Constant - Pump Head (ft)
50.50	498	272.62
50.55	498	272.56
50.75	498	272.62
50.80	498	272.56
51.00	498	272.62
51.05	498	272.56
51.25	498	272.62
51.30	498	272.56
51.50	498	272.62
51.55	498	272.56
51.75	498	272.62
51.80	498	272.56
52.00	498	272.62
52.05	498	272.56
52.25	498	272.62
52.30	498	272.56
52.50	498	272.62
52.55	498	272.56
52.75	498	272.62
52.80	498	272.56
53.00	498	272.62
53.05	498	272.56
53.25	498	272.62
53.30	498	272.56
53.50	498	272.62
53.55	498	272.56
53.75	498	272.62
53.80	498	272.56
54.00	498	272.62
54.05	498	272.56
54.25	498	272.62
54.30	498	272.56
54.50	498	272.62
54.55	498	272.56
54.75	498	272.62
54.80	498	272.56
55.00	498	272.62
55.05	498	272.56
55.25	498	272.62
55.30	498	272.56
55.50	498	272.62
55.55	498	272.56
55.75	498	272.62
55.80	498	272.56
56.00	498	272.62
56.05	498	272.56
56.25	498	272.62

**Pump F MM Avg Constant**

Time (hours)	PMP-1 - Full MM Average Flow - Constant - Flow (Total) (gpm)	PMP-1 - Full MM Average Flow - Constant - Pump Head (ft)
56.30	498	272.56
56.50	498	272.62
56.55	498	272.56
56.75	498	272.62
56.80	498	272.56
57.00	498	272.62
57.05	498	272.56
57.25	498	272.62
57.30	498	272.56
57.50	498	272.62
57.55	498	272.56
57.75	498	272.62
57.80	498	272.56
58.00	498	272.62
58.05	498	272.56
58.25	498	272.62
58.30	498	272.56
58.50	498	272.62
58.55	498	272.56
58.75	498	272.62
58.80	498	272.56
59.00	498	272.62
59.05	498	272.56
59.25	498	272.62
59.30	498	272.56
59.50	498	272.62
59.55	498	272.56
59.75	498	272.62
59.80	498	272.56
60.00	498	272.62

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**Scenario Summary**


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ID	159
Label	Full Maximum Monthly Average then Peak Hour Demand for 4 hours
Notes	
Active Topology	Base Active Topology
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	Full System Maximum Monthly Average then Peak Hour Demand for 4 hours
Initial Settings	T-2 Starts Full
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	37 hours, 15 min increments
Transient Solver Calculation Options	Base Calculation Options

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**Hydraulic Summary**


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Time Analysis Type	EPS	Simulation Start Date	1/22/2018
Friction Method	Hazen-Williams	Hydraulic Time Step	0.250
Accuracy	0.001	Duration	37.000
Trials	40	Calculation Type	Hydraulics Only

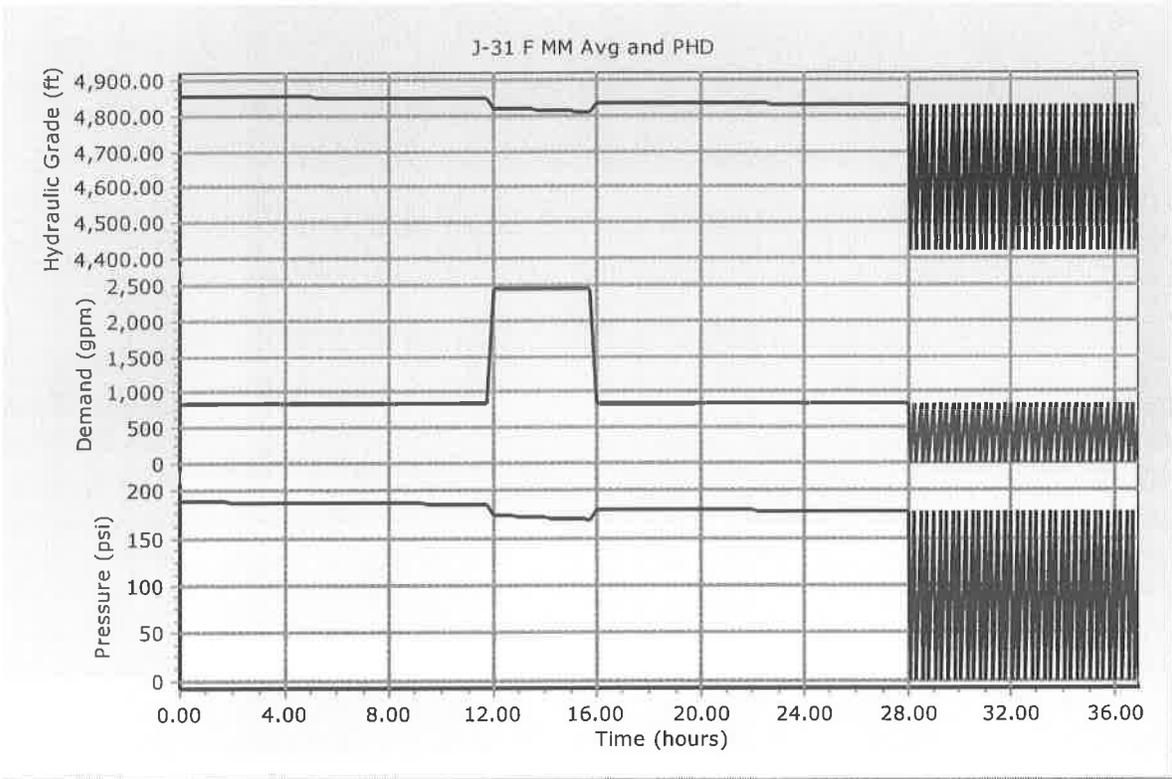
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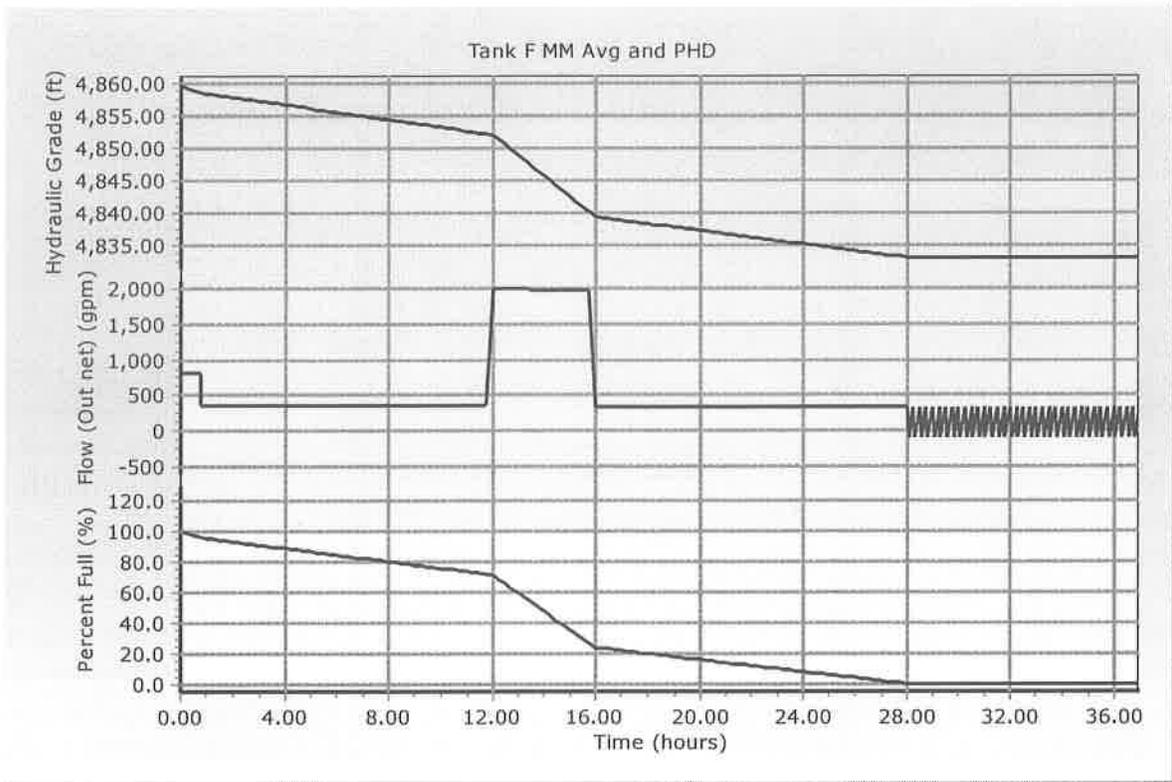
**Network Inventory**

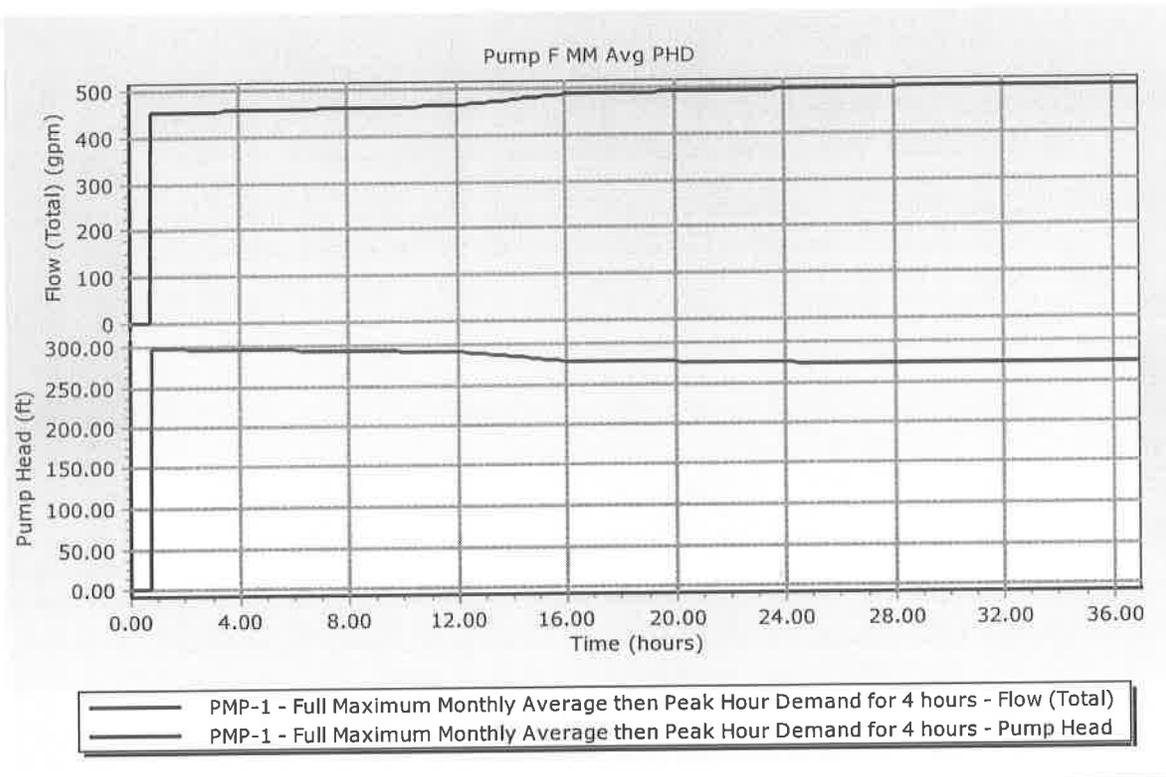

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Pipe	37	-Constant Speed - No Pump Curve	0
Lateral	0	-Constant Speed - Pump Curve	1
Junction	33	-Shut Down After Time Delay	0
Hydrant	0	-Variable Speed/Torque	0
Tank	1	-Pump Start - Variable Speed/Torque	0
-Circular	1	Customer Meter	0
-Non-Circular	0	Pump Station	0
-Variable Area	0	Variable Speed Pump Battery	0
Reservoir	1	SCADA Element	0
Tap	0	PRV	0
Pump	1	PSV	0
-Constant Power	0	PBV	0
-Custom Extended	0	FCV	1
-Design Point (1 Point)	0	TCV	0
-Multiple Point	0	GPV	0
-Standard (3 Point)	1	Isolation Valve	0
-Standard Extended	0	Spot Elevation	0

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**J-31 F MM Avg and PHD**

Time (hours)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
0.00	4,855.57	823	188
0.25	4,855.24	823	188
0.50	4,854.91	823	188
0.75	4,854.58	823	188
0.76	4,854.57	823	188
1.00	4,854.43	823	188
1.25	4,854.28	823	188
1.50	4,854.13	823	188
1.75	4,853.99	823	188
2.00	4,853.84	823	188
2.25	4,853.69	823	188
2.50	4,853.54	823	188
2.75	4,853.40	823	188
3.00	4,853.25	823	187
3.25	4,853.10	823	187
3.50	4,852.96	823	187
3.75	4,852.81	823	187
4.00	4,852.66	823	187

### J-31 F MM Avg and PHD

Time (hours)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
4.25	4,852.52	823	187
4.50	4,852.37	823	187
4.75	4,852.23	823	187
5.00	4,852.08	823	187
5.25	4,851.93	823	187
5.50	4,851.79	823	187
5.75	4,851.64	823	187
6.00	4,851.50	823	187
6.25	4,851.35	823	187
6.50	4,851.21	823	187
6.75	4,851.06	823	186
7.00	4,850.92	823	186
7.25	4,850.77	823	186
7.50	4,850.63	823	186
7.75	4,850.48	823	186
8.00	4,850.34	823	186
8.25	4,850.19	823	186
8.50	4,850.05	823	186
8.75	4,849.90	823	186
9.00	4,849.76	823	186
9.25	4,849.61	823	186
9.50	4,849.47	823	186
9.75	4,849.33	823	186
10.00	4,849.18	823	186
10.25	4,849.04	823	186
10.50	4,848.89	823	186
10.75	4,848.75	823	186
11.00	4,848.61	823	185
11.25	4,848.46	823	185
11.50	4,848.32	823	185
11.75	4,848.18	823	185
12.00	4,821.44	2,460	174
12.25	4,820.64	2,460	173
12.50	4,819.85	2,460	173
12.75	4,819.05	2,460	173
13.00	4,818.26	2,460	172
13.25	4,817.47	2,460	172
13.50	4,816.67	2,460	172
13.75	4,815.88	2,460	171
14.00	4,815.09	2,460	171
14.25	4,814.30	2,460	171
14.50	4,813.51	2,460	170
14.75	4,812.72	2,460	170
15.00	4,811.93	2,460	170
15.25	4,811.14	2,460	169

### J-31 F MM Avg and PHD

Time (hours)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
15.50	4,810.35	2,460	169
15.75	4,809.56	2,460	169
16.00	4,835.37	823	180
16.25	4,835.23	823	180
16.50	4,835.10	823	180
16.75	4,834.96	823	180
17.00	4,834.83	823	179
17.25	4,834.70	823	179
17.50	4,834.56	823	179
17.75	4,834.43	823	179
18.00	4,834.30	823	179
18.25	4,834.16	823	179
18.50	4,834.03	823	179
18.75	4,833.90	823	179
19.00	4,833.76	823	179
19.25	4,833.63	823	179
19.50	4,833.50	823	179
19.75	4,833.37	823	179
20.00	4,833.23	823	179
20.25	4,833.10	823	179
20.50	4,832.97	823	179
20.75	4,832.84	823	179
21.00	4,832.70	823	179
21.25	4,832.57	823	179
21.50	4,832.44	823	178
21.75	4,832.31	823	178
22.00	4,832.18	823	178
22.25	4,832.04	823	178
22.50	4,831.91	823	178
22.75	4,831.78	823	178
23.00	4,831.65	823	178
23.25	4,831.52	823	178
23.50	4,831.39	823	178
23.75	4,831.25	823	178
24.00	4,831.12	823	178
24.25	4,830.99	823	178
24.50	4,830.86	823	178
24.75	4,830.73	823	178
25.00	4,830.60	823	178
25.25	4,830.47	823	178
25.50	4,830.34	823	178
25.75	4,830.21	823	177
26.00	4,830.08	823	177
26.25	4,829.95	823	177
26.50	4,829.82	823	177

### J-31 F MM Avg and PHD

Time (hours)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
26.75	4,829.69	823	177
27.00	4,829.56	823	177
27.25	4,829.43	823	177
27.50	4,829.30	823	177
27.75	4,829.17	823	177
28.00	4,829.04	823	177
28.13	4,420.00	0	0
28.25	4,828.99	823	177
28.28	4,420.00	0	0
28.50	4,829.00	823	177
28.56	4,420.00	0	0
28.75	4,829.00	823	177
28.80	4,420.00	0	0
29.00	4,829.00	823	177
29.05	4,420.00	0	0
29.25	4,829.00	823	177
29.30	4,420.00	0	0
29.50	4,829.00	823	177
29.55	4,420.00	0	0
29.75	4,829.00	823	177
29.80	4,420.00	0	0
30.00	4,829.00	823	177
30.05	4,420.00	0	0
30.25	4,829.00	823	177
30.30	4,420.00	0	0
30.50	4,829.00	823	177
30.55	4,420.00	0	0
30.75	4,829.00	823	177
30.80	4,420.00	0	0
31.00	4,829.00	823	177
31.05	4,420.00	0	0
31.25	4,829.00	823	177
31.30	4,420.00	0	0
31.50	4,829.00	823	177
31.55	4,420.00	0	0
31.75	4,829.00	823	177
31.80	4,420.00	0	0
32.00	4,829.00	823	177
32.05	4,420.00	0	0
32.25	4,829.00	823	177
32.30	4,420.00	0	0
32.50	4,829.00	823	177
32.55	4,420.00	0	0
32.75	4,829.00	823	177
32.80	4,420.00	0	0

### J-31 F MM Avg and PHD

Time (hours)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Demand (gpm)	J-31 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Pressure (psi)
33.00	4,829.00	823	177
33.05	4,420.00	0	0
33.25	4,829.00	823	177
33.30	4,420.00	0	0
33.50	4,829.00	823	177
33.55	4,420.00	0	0
33.75	4,829.00	823	177
33.80	4,420.00	0	0
34.00	4,829.00	823	177
34.05	4,420.00	0	0
34.25	4,829.00	823	177
34.30	4,420.00	0	0
34.50	4,829.00	823	177
34.55	4,420.00	0	0
34.75	4,829.00	823	177
34.80	4,420.00	0	0
35.00	4,829.00	823	177
35.05	4,420.00	0	0
35.25	4,829.00	823	177
35.30	4,420.00	0	0
35.50	4,829.00	823	177
35.55	4,420.00	0	0
35.75	4,829.00	823	177
35.80	4,420.00	0	0
36.00	4,829.00	823	177
36.05	4,420.00	0	0
36.25	4,829.00	823	177
36.30	4,420.00	0	0
36.50	4,829.00	823	177
36.55	4,420.00	0	0
36.75	4,829.00	823	177
36.80	4,420.00	0	0
37.00	4,829.00	823	177

### Tank F MM Avg and PHD

Time (hours)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)
0.00	4,859.60	823	100.0
0.25	4,859.27	823	98.8
0.50	4,858.94	823	97.5
0.75	4,858.62	823	96.3

### Tank F MM Avg and PHD

Time (hours)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)
0.76	4,858.60	370	96.2
1.00	4,858.46	370	95.7
1.25	4,858.31	370	95.2
1.50	4,858.16	370	94.6
1.75	4,858.02	369	94.0
2.00	4,857.87	369	93.5
2.25	4,857.72	369	92.9
2.50	4,857.58	368	92.4
2.75	4,857.43	368	91.8
3.00	4,857.28	368	91.3
3.25	4,857.13	368	90.7
3.50	4,856.99	367	90.2
3.75	4,856.84	367	89.6
4.00	4,856.69	367	89.1
4.25	4,856.55	367	88.5
4.50	4,856.40	366	88.0
4.75	4,856.26	366	87.4
5.00	4,856.11	366	86.9
5.25	4,855.96	365	86.3
5.50	4,855.82	365	85.8
5.75	4,855.67	365	85.2
6.00	4,855.53	365	84.7
6.25	4,855.38	364	84.1
6.50	4,855.24	364	83.6
6.75	4,855.09	364	83.0
7.00	4,854.95	364	82.5
7.25	4,854.80	363	82.0
7.50	4,854.66	363	81.4
7.75	4,854.51	363	80.9
8.00	4,854.37	363	80.3
8.25	4,854.22	362	79.8
8.50	4,854.08	362	79.2
8.75	4,853.93	362	78.7
9.00	4,853.79	362	78.2
9.25	4,853.64	361	77.6
9.50	4,853.50	361	77.1
9.75	4,853.36	361	76.5
10.00	4,853.21	360	76.0
10.25	4,853.07	360	75.4
10.50	4,852.92	360	74.9
10.75	4,852.78	360	74.4
11.00	4,852.64	359	73.8
11.25	4,852.49	359	73.3
11.50	4,852.35	359	72.7
11.75	4,852.21	359	72.2

### Tank F MM Avg and PHD

Time (hours)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)
12.00	4,852.06	1,995	71.7
12.25	4,851.27	1,994	68.7
12.50	4,850.47	1,993	65.7
12.75	4,849.68	1,991	62.7
13.00	4,848.88	1,990	59.7
13.25	4,848.09	1,988	56.7
13.50	4,847.30	1,987	53.7
13.75	4,846.50	1,985	50.8
14.00	4,845.71	1,984	47.8
14.25	4,844.92	1,983	44.8
14.50	4,844.13	1,981	41.8
14.75	4,843.34	1,980	38.9
15.00	4,842.55	1,978	35.9
15.25	4,841.76	1,977	32.9
15.50	4,840.97	1,976	30.0
15.75	4,840.18	1,974	27.0
16.00	4,839.40	336	24.0
16.25	4,839.26	336	23.5
16.50	4,839.13	335	23.0
16.75	4,838.99	335	22.5
17.00	4,838.86	335	22.0
17.25	4,838.73	335	21.5
17.50	4,838.59	334	21.0
17.75	4,838.46	334	20.5
18.00	4,838.33	334	20.0
18.25	4,838.19	334	19.5
18.50	4,838.06	334	19.0
18.75	4,837.93	333	18.5
19.00	4,837.79	333	18.0
19.25	4,837.66	333	17.5
19.50	4,837.53	333	17.0
19.75	4,837.40	332	16.5
20.00	4,837.26	332	16.0
20.25	4,837.13	332	15.5
20.50	4,837.00	332	15.0
20.75	4,836.87	332	14.5
21.00	4,836.73	331	14.0
21.25	4,836.60	331	13.5
21.50	4,836.47	331	13.0
21.75	4,836.34	331	12.5
22.00	4,836.21	330	12.1
22.25	4,836.07	330	11.6
22.50	4,835.94	330	11.1
22.75	4,835.81	330	10.6
23.00	4,835.68	329	10.1

### Tank F MM Avg and PHD

Time (hours)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)
23.25	4,835.55	329	9.6
23.50	4,835.42	329	9.1
23.75	4,835.29	329	8.6
24.00	4,835.15	329	8.1
24.25	4,835.02	328	7.6
24.50	4,834.89	328	7.1
24.75	4,834.76	328	6.6
25.00	4,834.63	328	6.1
25.25	4,834.50	327	5.6
25.50	4,834.37	327	5.1
25.75	4,834.24	327	4.7
26.00	4,834.11	327	4.2
26.25	4,833.98	327	3.7
26.50	4,833.85	326	3.2
26.75	4,833.72	326	2.7
27.00	4,833.59	326	2.2
27.25	4,833.46	326	1.7
27.50	4,833.33	325	1.2
27.75	4,833.20	325	0.7
28.00	4,833.07	325	0.3
28.13	4,833.00	-87	0.0
28.25	4,833.02	325	0.1
28.28	4,833.00	-87	0.0
28.50	4,833.03	325	0.1
28.56	4,833.00	-87	0.0
28.75	4,833.03	325	0.1
28.80	4,833.00	-87	0.0
29.00	4,833.03	325	0.1
29.05	4,833.00	-87	0.0
29.25	4,833.03	325	0.1
29.30	4,833.00	-87	0.0
29.50	4,833.03	325	0.1
29.55	4,833.00	-87	0.0
29.75	4,833.03	325	0.1
29.80	4,833.00	-87	0.0
30.00	4,833.03	325	0.1
30.05	4,833.00	-87	0.0
30.25	4,833.03	325	0.1
30.30	4,833.00	-87	0.0
30.50	4,833.03	325	0.1
30.55	4,833.00	-87	0.0
30.75	4,833.03	325	0.1
30.80	4,833.00	-87	0.0
31.00	4,833.03	325	0.1
31.05	4,833.00	-87	0.0

### Tank F MM Avg and PHD

Time (hours)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)
31.25	4,833.03	325	0.1
31.30	4,833.00	-87	0.0
31.50	4,833.03	325	0.1
31.55	4,833.00	-87	0.0
31.75	4,833.03	325	0.1
31.80	4,833.00	-87	0.0
32.00	4,833.03	325	0.1
32.05	4,833.00	-87	0.0
32.25	4,833.03	325	0.1
32.30	4,833.00	-87	0.0
32.50	4,833.03	325	0.1
32.55	4,833.00	-87	0.0
32.75	4,833.03	325	0.1
32.80	4,833.00	-87	0.0
33.00	4,833.03	325	0.1
33.05	4,833.00	-87	0.0
33.25	4,833.03	325	0.1
33.30	4,833.00	-87	0.0
33.50	4,833.03	325	0.1
33.55	4,833.00	-87	0.0
33.75	4,833.03	325	0.1
33.80	4,833.00	-87	0.0
34.00	4,833.03	325	0.1
34.05	4,833.00	-87	0.0
34.25	4,833.03	325	0.1
34.30	4,833.00	-87	0.0
34.50	4,833.03	325	0.1
34.55	4,833.00	-87	0.0
34.75	4,833.03	325	0.1
34.80	4,833.00	-87	0.0
35.00	4,833.03	325	0.1
35.05	4,833.00	-87	0.0
35.25	4,833.03	325	0.1
35.30	4,833.00	-87	0.0
35.50	4,833.03	325	0.1
35.55	4,833.00	-87	0.0
35.75	4,833.03	325	0.1
35.80	4,833.00	-87	0.0
36.00	4,833.03	325	0.1
36.05	4,833.00	-87	0.0
36.25	4,833.03	325	0.1
36.30	4,833.00	-87	0.0
36.50	4,833.03	325	0.1
36.55	4,833.00	-87	0.0
36.75	4,833.03	325	0.1

### Tank F MM Avg and PHD

Time (hours)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Hydraulic Grade (ft)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Out net) (gpm)	T-2 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Percent Full (%)
36.80	4,833.00	-87	0.0
37.00	4,833.03	325	0.1

### Pump F MM Avg PHD

Time (hours)	PMP-1 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Total) (gpm)	PMP-1 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Pump Head (ft)
0.00	0	0.00
0.25	0	0.00
0.50	0	0.00
0.75	0	0.00
0.76	453	297.44
1.00	453	297.30
1.25	453	297.15
1.50	453	297.01
1.75	454	296.87
2.00	454	296.73
2.25	454	296.58
2.50	455	296.44
2.75	455	296.30
3.00	455	296.16
3.25	455	296.01
3.50	456	295.87
3.75	456	295.73
4.00	456	295.59
4.25	456	295.44
4.50	457	295.30
4.75	457	295.16
5.00	457	295.02
5.25	458	294.88
5.50	458	294.74
5.75	458	294.59
6.00	458	294.45
6.25	459	294.31
6.50	459	294.17
6.75	459	294.03
7.00	459	293.89
7.25	460	293.75
7.50	460	293.61
7.75	460	293.47
8.00	460	293.33
8.25	461	293.19
8.50	461	293.05

**Pump F MM Avg PHD**

Time (hours)	PMP-1 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Total) (gpm)	PMP-1 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Pump Head (ft)
8.75	461	292.91
9.00	461	292.77
9.25	462	292.63
9.50	462	292.49
9.75	462	292.35
10.00	463	292.21
10.25	463	292.07
10.50	463	291.93
10.75	463	291.79
11.00	464	291.65
11.25	464	291.51
11.50	464	291.37
11.75	464	291.23
12.00	465	291.09
12.25	466	290.32
12.50	467	289.55
12.75	469	288.78
13.00	470	288.01
13.25	472	287.24
13.50	473	286.47
13.75	475	285.70
14.00	476	284.93
14.25	477	284.16
14.50	479	283.40
14.75	480	282.63
15.00	482	281.86
15.25	483	281.10
15.50	484	280.33
15.75	486	279.57
16.00	487	278.80
16.25	487	278.67
16.50	488	278.54
16.75	488	278.41
17.00	488	278.28
17.25	488	278.15
17.50	489	278.02
17.75	489	277.90
18.00	489	277.77
18.25	489	277.64
18.50	489	277.51
18.75	490	277.38
19.00	490	277.25
19.25	490	277.12
19.50	490	276.99
19.75	491	276.86
20.00	491	276.73

**Pump F MM Avg PHD**

Time (hours)	PMP-1 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Total) (gpm)	PMP-1 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Pump Head (ft)
20.25	491	276.60
20.50	491	276.48
20.75	492	276.35
21.00	492	276.22
21.25	492	276.09
21.50	492	275.96
21.75	492	275.84
22.00	493	275.71
22.25	493	275.58
22.50	493	275.45
22.75	493	275.33
23.00	494	275.20
23.25	494	275.07
23.50	494	274.94
23.75	494	274.81
24.00	494	274.69
24.25	495	274.56
24.50	495	274.43
24.75	495	274.31
25.00	495	274.18
25.25	496	274.05
25.50	496	273.93
25.75	496	273.80
26.00	496	273.67
26.25	496	273.55
26.50	497	273.42
26.75	497	273.29
27.00	497	273.17
27.25	497	273.04
27.50	498	272.92
27.75	498	272.79
28.00	498	272.66
28.13	498	272.56
28.25	498	272.61
28.28	498	272.56
28.50	498	272.63
28.56	498	272.56
28.75	498	272.62
28.80	498	272.56
29.00	498	272.62
29.05	498	272.56
29.25	498	272.62
29.30	498	272.56
29.50	498	272.62
29.55	498	272.56
29.75	498	272.62

**Pump F MM Avg PHD**

Time (hours)	PMP-1 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Total) (gpm)	PMP-1 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Pump Head (ft)
29.80	498	272.56
30.00	498	272.62
30.05	498	272.56
30.25	498	272.62
30.30	498	272.56
30.50	498	272.62
30.55	498	272.56
30.75	498	272.62
30.80	498	272.56
31.00	498	272.62
31.05	498	272.56
31.25	498	272.62
31.30	498	272.56
31.50	498	272.62
31.55	498	272.56
31.75	498	272.62
31.80	498	272.56
32.00	498	272.62
32.05	498	272.56
32.25	498	272.62
32.30	498	272.56
32.50	498	272.62
32.55	498	272.56
32.75	498	272.62
32.80	498	272.56
33.00	498	272.62
33.05	498	272.56
33.25	498	272.62
33.30	498	272.56
33.50	498	272.62
33.55	498	272.56
33.75	498	272.62
33.80	498	272.56
34.00	498	272.62
34.05	498	272.56
34.25	498	272.62
34.30	498	272.56
34.50	498	272.62
34.55	498	272.56
34.75	498	272.62
34.80	498	272.56
35.00	498	272.62
35.05	498	272.56
35.25	498	272.62
35.30	498	272.56
35.50	498	272.62

**Pump F MM Avg PHD**

Time (hours)	PMP-1 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Flow (Total) (gpm)	PMP-1 - Full Maximum Monthly Average then Peak Hour Demand for 4 hours - Pump Head (ft)
35.55	498	272.56
35.75	498	272.62
35.80	498	272.56
36.00	498	272.62
36.05	498	272.56
36.25	498	272.62
36.30	498	272.56
36.50	498	272.62
36.55	498	272.56
36.75	498	272.62
36.80	498	272.56
37.00	498	272.62



## APPENDIX C

**CITY OF SUSANVILLE - CADY SPRINGS PUMP STATION & SYSTEM IMPROVEMENTS**  
**Engineer's Opinion of Probable Cost**

BID ITEMS		SITE IMPROVEMENTS & INSTALLATIONS			Engineer's OPC	
Bid Item No.	Element Description	Unit	Quantity	Unit Price	Extended Total	
1	MOBILIZATION/DEMObILIZATION	LS	1	\$ 145,000.00	\$ 145,000.00	
2	SITE EARTHWORK	LS	1	\$ 50,000.00	\$ 50,000.00	
3	PUMP STATION BUILDING	LS	1	\$ 150,000.00	\$ 150,000.00	
4	PACKAGED PUMP STATION	LS	1	\$ 81,000.00	\$ 81,000.00	
5	PUMP STATION PIPING WITH EQUALIZATION TANK	LS	1	\$ 125,000.00	\$ 125,000.00	
6	INSTALL EXISTING CHLORINATION EQUIPMENT	LS	1	\$ 6,000.00	\$ 6,000.00	
7	CONNECT TO EXISTING 10" PIPE	LS	1	\$ 5,000.00	\$ 5,000.00	
8	METER & CONTROL VAULT ASSEMBLY	LS	1	\$ 87,400.00	\$ 87,400.00	
9	10" PVC DRAIN PIPE	LF	16	\$ 60.00	\$ 960.00	
10	6" PVC DRAIN PIPE	LF	80	\$ 50.00	\$ 4,000.00	
11	6" PERFORATED PVC DRAIN PIPE	LF	45	\$ 50.00	\$ 2,250.00	
12	4" PVC DRAIN PIPE	LF	40	\$ 45.00	\$ 1,800.00	
13	1" SCHEDULE 80 PVC PIPE	LF	60	\$ 30.00	\$ 1,800.00	
14	REMOVE & SALVAGE EXISTING VALVES	EA	4	\$ 2,500.00	\$ 10,000.00	
15	REMOVE EXISTING CHLORINATION BUILDING	LS	1	\$ 20,000.00	\$ 20,000.00	
16	12" THICK RETAINING WALL	SF	500	\$ 114.00	\$ 57,000.00	
17	SERVICE ENTRANCE	LS	1	\$ 84,500.00	\$ 84,500.00	
18	ALTERNATE POWER SYSTEM	LS	1	\$ 8,000.00	\$ 8,000.00	
19	ELECTRICAL SERVICE EQUIPMENT (TO SITE WITH METER)	LS	1	\$ 35,000.00	\$ 35,000.00	
20	AUTOMATIC TRANSFER SWITCH (400A, 480V, 3PH)	LS	1	\$ 10,000.00	\$ 10,000.00	
21	GENERATOR W/SKID TANK & WEATHER ENCLOSURE, PAD	LS	1	\$ 60,000.00	\$ 60,000.00	
22	FEEDER TO PUMP STATION - CONDUIT, WITH TRENCHING	LF	650	\$ 22.00	\$ 14,300.00	
23	FEEDER TO PUMP STATION - WIRE, INSTALLED	LF	670	\$ 8.00	\$ 5,360.00	
24	PULLBOXES	EA	3	\$ 800.00	\$ 2,400.00	
25	VFDS	EA	2	\$ 6,500.00	\$ 13,000.00	
26	GROUNDING SYSTEM	LS	1	\$ 7,600.00	\$ 7,600.00	
27	POWER PANEL OR MOTOR CONTROL CENTER	LS	1	\$ 15,000.00	\$ 15,000.00	
28	DRY TYPE TRANSFORMERS - 25KVA	LS	1	\$ 5,000.00	\$ 5,000.00	
29	LIGHTING PANEL (LP)	LS	1	\$ 9,000.00	\$ 9,000.00	
30	INSTALL HEATING EQUIPMENT	LS	1	\$ 5,000.00	\$ 5,000.00	
31	INSTALL FANS, LOUVERS, & VENTILATORS	LS	1	\$ 7,000.00	\$ 7,000.00	
32	INSTRUMENTATION & CONTROLS	LS	1	\$ 50,000.00	\$ 50,000.00	
33	SHEETING, SHORING & BRACING	LS	1	\$ 15,000.00	\$ 15,000.00	
34	48" MANHOLE	EA	1	\$ 10,000.00	\$ 10,000.00	
35	DRAIN CHANNEL	LF	56	\$ 50.00	\$ 2,800.00	
36	6" PVC DRAIN PIPE	LF	70	\$ 50.00	\$ 3,500.00	
37	CHAIN LINK FENCE	LF	170	\$ 25.00	\$ 4,250.00	
38	6" PERFORATED PVC DRAIN PIPE	LF	65	\$ 50.00	\$ 3,250.00	
39	12" THICK RETAINING WALL	SF	700	\$ 95.71	\$ 66,997.00	
40	HIGHWAY CROSSING INSTALLATION	LS	1	\$ 100,000.00	\$ 100,000.00	
41	INSTALLATION OF PRV AT PRATTVILLE ROAD	LS	1	\$ 43,700.00	\$ 43,700.00	
42	16" CLASS 235 C905 PVC PIPE	LF	100	\$ 100.00	\$ 10,000.00	
43	16" WATERLINE TESTING	LS	1	\$ 71,000.00	\$ 71,000.00	
44	10" WATERLINE TESTING	LS	1	\$ 43,000.00	\$ 43,000.00	
45	12" X 16" REDUCER	EA	6	\$ 2,100.00	\$ 12,600.00	
46	12" X 24" PIPE-SLEEVE SPACER	LS	1	\$ 2,000.00	\$ 2,000.00	
47	12" 45 DEGREE ELBOW	EA	2	\$ 1,300.00	\$ 2,600.00	
48	12" CLASS 235 C905 PVC PIPE	LF	60	\$ 80.00	\$ 4,800.00	
49	12" CROSS	EA	1	\$ 3,000.00	\$ 3,000.00	
50	12" ISOLATION VALVE	EA	4	\$ 9,000.00	\$ 36,000.00	
51	12" TEE	EA	1	\$ 2,500.00	\$ 2,500.00	
52	16" 90 DEGREE ELBOW	EA	12	\$ 2,500.00	\$ 30,000.00	
53	16" CLASS 235 C905 PVC PIPE	LF	120	\$ 100.00	\$ 12,000.00	
54	COMBINATION AIR VALVE FOR 16" PIPE	EA	10	\$ 2,500.00	\$ 25,000.00	
55	COMBINATION AIR VALVE VENT PIPE	EA	10	\$ 200.00	\$ 2,000.00	
56	16" ISOLATION VALVE	EA	6	\$ 4,200.00	\$ 25,200.00	
<b>Subtotal</b>					<b>\$ 1,610,000.00</b>	
30% Contingency					\$ 483,000.00	
<b>Grand Total</b>					<b>\$ 2,100,000.00</b>	



## APPENDIX D

## EXHIBIT "A"

### CITY OF SUSANVILLE CADY SPRINGS PROJECT SCOPE OF SERVICES

The City of Susanville (City) intends to plan, design, and construct a Booster Pump Station and associated water line improvements to service Cady Springs. Completion of this Project will provide additional storage and resilience to the City water supply. City staff needs Consultant's assistance in providing design services, project management, contract management, technical services, and other professional services (collectively "Consultant Services") for this Project. The Consultant will be expected to provide complete, professional, high quality services and products; to consult City personnel and others who are involved with the Project; and to provide advice and assistance in accomplishing the work. The design for the Project will require coordination with City staff and may include other stakeholders.

The Project elements will include a booster pump station, connections to previously constructed pipe lines and water tank, and service connections with pressure reducing valves as required. The Project elements will be designed to meet applicable American Water Works Association (AWWA) design criteria and codes. Additional Project improvements include a backup generator, associated electrical improvements, cement masonry unit (CMU) block building to house the pump station, mechanical components for heating, ventilation, and air conditioning (HVAC), refurbishment of the water tank exterior, and supervisory control and data acquisition (SCADA) integration to the City system.

The following assumptions were used while preparing this scope of work:

- Service Connection locations and requirements will be provided by the City prior to the start of design.
- City Staff will provide surveying necessary to complete the design at no cost to the Consultant.
- All necessary environmental documentation and clearances have been obtained. No CEQA or NEPA studies are included in this scope of work.
- System wide Water CAD modeling will not be provided as part of this scope of work. It is assumed that the flow demand at the Harris tank to serve the City is equal to the current flow demand at the Cady Springs.
- Water flow records provided by the City at the Cady Springs are accurate.
- Fire Flow demands are currently being met in the City and calculations for fire flow on a city-wide level are not included in this scope of work.

This scope does not include bidding support services or construction support services.

#### **1. Task 1: Data Gathering**

This task includes review of record information, existing conditions, including utility infrastructure, operational requirements, utility identification, other recommended studies. The

City will provide or make available to the Consultant documents, data and information available to the City relating to the proposed project.

### **1.1 Surveying Coordination**

Consultant shall identify the surveying needs necessary to complete the design of the project. This shall include coordination with City Staff for the collection of survey data. All surveying services shall be provided by City. The Consultant shall integrate the survey data collected by City staff into the CAD files used for Project design. The survey data shall be delivered by the City to the Consultant in AutoCAD 2018 format.

### **1.2 Geotechnical Investigation**

The Consultant shall perform a geotechnical investigation of the Project site necessary for design of the Project including the pump station foundation, required retaining walls, and transformer pad. Based on our knowledge of the project and the soils in the area, the structures will be located on engineered fill constructed using balanced cut/fills that are constructed on naturally sloping ground. The depth to groundwater is unknown but is expected to be within about 10 feet in some locations.

As part of the geotechnical investigation, the Consultant shall review existing soil/geology literature in the project area. Existing information will be gathered and reviewed. The primary source of information will be the previous design plans prepared by Sunrise Engineering. Some of the information will include:

- System layout and design
- USGS soils survey information, if available
- Geologic and seismic information on file

Exploration Test Pits will be made, using a backhoe equipped with an extend-a-hoe (if required), capable of depths of up to about 12 feet. This scope includes five exploration test pits. After completion, the holes will be backfilled. Test pits shall be located outside the actual foundation locations to reduce the potential for damage to engineered fills and natural soil conditions, but close enough to interpret soils physical and engineering characteristics. A hole location map will be prepared based on local mapping and GPS coordinates. This information will be included in the bid packages to assist the Contractors in bidding and construction.

At the completion of the field exploration, all samples will be delivered to the soils laboratory for testing. Field and laboratory results will be used to prepare final Test Pit exploration logs. All laboratory results will be included in the final geotechnical report.

Based on the findings of the field work and laboratory test results, a geotechnical engineering analysis will be performed, and conclusions formed from the test results. Recommendations are expected to be the focus of the engineering analyses. Geotechnical analyses required for the project will include:

- Site grading and placement of engineered fill, including compaction recommendations
- Soil strengths, bearing capacity and backfill requirement
- Surface drainage and erosion control recommendations
- Cement type for concrete in contact with soil, based on the results of corrosion testing
- Lateral Forces for the retaining wall design

Using the findings for this investigation, the Consultant shall prepare recommendation for foundation design for the pump station, equalization station, valve vaults, and buried lines. Design drawings and specifications for construction will reflect the finding of the geotechnical investigation.

A final Engineering Report will be prepared which contains the results of the field and laboratory investigations and the recommendations for the design. The report will be included as an Appendix to the design report.

***Deliverables:***

- Four (4) copies of the Geotechnical Investigation and Recommendations Report

**1.3 Utility Identification**

The Consultant shall identify existing utilities and propose solutions to rectify utility conflicts within the Project site limits. Utilities include facilities owned or operated by the City or other public utility companies.

Consultant shall obtain record drawings from the City, utility companies, and other agencies. Consultant will show existing utilities on the plans. Consultant will submit applicable plans as authorized by City to the utility owners for their review and verification. As the design progresses, the applicable utility plans will be used to show new utilities and the position of relocated utilities, which conflict with planned improvements.

Any field verification of existence and location of underground utilities shall be provided by the City. This includes all subsurface investigations to locate existing utilities.

**2. Task 2: Schematic Design 50%**

Upon completion of data gathering, Consultant shall commence preparation of design schematic improvement plans and a preliminary opinion of probable construction cost. The plans shall include schematic drawings of the proposed Project for the final design. The drawings shall be prepared at standard scales appropriate to depict project features in a reasonable manner. The drawings will show the location of existing Project features to the extent that they are provided in the survey and will show the locations and important elements of the proposed features.

Consultant shall use the completed schematic plans to perform quantity takeoffs and provide an itemized engineer's opinion of probable cost. The schematic design plans and the opinion of probable construction cost shall be submitted to the City for approval and such approval shall be

obtained before Consultant commences the performance of services specified under Task 3. The schematic design will be of sufficient detail to represent the 30% Design Plans.

This task will also include one Project progress review meeting to be held at the City's office. The meeting will include appropriate City, Consultant, and other stakeholder staff. Site field-reviews can also be held in conjunction with the progress review meetings as determined necessary by City or Consultant. Progress and site review meetings will address and resolve issues dealing with technical coordination, design standards and procedures, Project schedule and sequence of work, Project deliverable format and content, and similar topics. Meeting notes shall be prepared by the Consultant and distributed for assignment of action items and follow-up. The submission of the Schematic Design will serve as the 30% submittal. A total of two (2) meetings are included in this task; a project design kick-off meeting, and a progress meeting after the 30% Submittal.

***Deliverables:***

- Four (4) 11"x17" copies of the Design Schematic Improvement Plans (30% Plans) including the following sheets:
  - Title Sheet
  - Index of Drawings, General Notes, Legend, Abbreviations
  - Water Line Plan(s)
  - Booster Pump Station – Civil Site Plan(s)
  - Booster Pump Station – Interior Water Works
  - Generator – Civil Site Plan(s)
- Four (4) copies of the Preliminary Opinion of Probable Construction Cost

**3. Task 3: Design Development/Contract Documents**

This task includes design development, preparation of technical specifications, development of inspection and testing requirements, final construction and contract documents, preliminary and final opinion of construction cost, and Engineer's Design Report.

This task will also include Project progress review meetings to be held at the City's Public Works office in Susanville, CA. The meeting will include appropriate City, Consultant, and other stakeholder staff. Site field-reviews can also be held in conjunction with the progress review meetings as determined necessary by City. Progress and site review meetings will address and resolve issues dealing with technical coordination, design standards and procedures, project schedule and sequence of work, Project deliverable format and content, and similar topics. Meeting notes shall be prepared by the Consultant and distributed for assignment of action items and follow-up. One (1) progress review meetings after the 90% Submittal is included in the Scope of Services for this task.

**3.1 90% Plans, Specifications, & Estimate Submittal**

Consultant shall prepare the 90% construction plans. The 90% PS&E shall include plans, technical specifications, opinion of probable construction cost, and Engineer's Design Report.

### 3.2.1 90% Project Plans

Consultant shall prepare 90% Project Plans for review by the City. The plans shall conform to all previously mentioned guidelines, and City requirements and comments. The plans shall be for the construction of the Cady Springs pump station. The Project Plans shall include the preparation of the following sheets:

- Title Sheet
- Index of Drawings, General Notes, Legend, Abbreviations
- Construction Notes, Survey Control Plan
- Construction Operations Restrictions and Phasing Plan(s)
- Water Line Plan(s)
- Water Line Details
- Booster Pump Station – Civil Site Plan(s)
- Booster Pump Station – Building and Foundation Plan(s)
- Booster Pump Station – Interior Water Works
- Booster Pump Station - Electrical Plan(s)
- Booster Pump Station - Mechanical HVAC Plan(s)
- Generator – Civil Site Plan(s)
- Generator – Structural Plan(s)
- Generator – Electrical Plan(s)
- Instrumentation Plan(s)

#### ***Deliverables:***

- Four (4) 11"x17" copies of the 90% Project Plans

### 3.2.2 90% Project Specifications

Consultant shall prepare 90% technical specifications for construction of the Project. The City will provide Standard Special Provisions, General Provisions, proposal documents, and contract documents for inclusion in the 90% Project Specifications. The Consultant shall coordinate the technical special provisions with the City Standard Special Provisions, contract, and proposal documents into a cohesive, comprehensive document. The special provisions shall be organized utilizing the section descriptions.

#### ***Deliverables:***

- Four (4) copies of the 90% Project Specifications

### 3.1.3 90% Project Quantities & Opinion of Probable Construction Cost

Consultant shall prepare detailed quantities and opinions of cost based on the 90% Project Plans and Specifications and the requirements of the Project. Consultant will submit the engineer's opinion of probable construction cost to the City. Unit costs will be based on recent contract data from appropriate industry publications, the Consultant's similar recent

projects, and the City's similar recent projects. The opinions of cost will be prepared for each contract cost item identified by the technical specifications. All quantity calculations shall be provided. Any contract cost item paid as a lump sum will be costed out with supporting calculations to justify the total. The items will be summarized into a marginal opinion of cost, which will include costs for mobilization and contingencies.

***Deliverables:***

- Four (4) copies of the 90% Project Opinion of Probable Construction Cost

**3.1.4 90% Engineer's Design Report**

In conjunction with the 90% submittal, the Consultant shall submit a draft Engineer's Design Report based on the 90% Project Plans and Specifications. The report shall include a summary of the design computations used in the design of major development items. The report will include a scope of work, photographs, life cycle cost analysis, design standards, soils recommendations, engineer's opinion of probable construction cost, modifications to standards, and other miscellaneous work items.

***Deliverables:***

- Four (4) copies of the 90% Engineer's Design Report

**3.2 Final Plans, Specifications, & Estimate Submittal**

After receipt of any comments from the 90% Submittal and receipt of final approval for the plans and specifications from the City, the Consultant shall prepare an original set of stamped and signed plans and specifications, one copy of the bidding documents, and an engineer's opinion of probable construction cost for the Project for final submittal to the City for use in soliciting construction bids. This submittal shall include plans, technical specifications, opinion of probable construction cost, and Final Engineer's Design Report.

**3.2.1 Final Project Plans**

Consultant shall prepare Final Project Plans for use by the City in soliciting contractor bid proposals. The plans shall conform to all previously mentioned guidelines, and City requirements and comments. The plans shall be for the construction of Cady Springs Pump Station. The Project Plans shall include the preparation of the following sheets:

- Title Sheet
- Index of Drawings, General Notes, Legend, Abbreviations
- Construction Notes, Survey Control Plan
- Construction Operations Restrictions and Phasing Plan(s)
- Water Line Plan(s)
- Water Line Details
- Booster Pump Station – Civil Site Plan(s)
- Booster Pump Station – Building and Foundation Plan(s)

- Booster Pump Station – Interior Water Works
- Booster Pump Station - Electrical Plan(s)
- Booster Pump Station - Mechanical HVAC Plan(s)
- Generator – Civil Site Plan(s)
- Generator – Structural Plan(s)
- Generator – Electrical Plan(s)
- Instrumentation Plan(s)

***Deliverables:***

- Four (4) 11”x17” and Two (2) 22”x34” copies of the Final Project Plans
- One (1) original copy of the Final Project Plans wet stamped and signed by a Registered Engineer in the State of California
- One (1) electronic copy of the Final Project Plans in Portable Document Format (PDF)

**3.2.2 Final Project Specifications**

Consultant shall prepare Final technical specifications for construction of the Project. The specifications will be presented in standard format. The City shall provide Standard Special Provisions, General Provisions, proposal documents, and contract documents for inclusion in the Project bid package. The Consultant shall coordinate the technical special provisions with the City Standard Special Provisions, contract, and proposal documents into a cohesive, comprehensive document.

***Deliverables:***

- One (1) original copy of the Final Project Specifications wet stamped and signed by a Registered Engineer in the State of California
- Six (6) copies of the Final Project Specifications
- One (1) electronic copy of the Final Project Specifications in Portable Document Format (PDF)

**3.2.3 Project Quantities & Engineer’s Opinion of Probable Construction Cost**

Consultant shall prepare detailed quantities and opinions of probable construction cost based on the Final Project Plans and Specifications and the requirements of the. Consultant will submit the engineer's opinion of probable construction cost to the City. Unit costs will be based on recent contract data from appropriate industry publications, the Consultant's similar recent projects, and the City's similar recent projects. The opinions of cost will be prepared for each contract cost item identified by the technical specifications. Quantity calculations shall be provided. Any contract cost item paid as a lump sum will be costed out with supporting calculations to justify the total. The items will be summarized into a marginal opinion of cost, which will include costs for mobilization and contingencies.

***Deliverables:***

- Four (4) copies of the Final Project Opinion of Cost
- One (1) electronic copy of the Final Project Opinion of Cost in Portable Document Format (PDF)

#### 3.2.4 Engineer's Design Report

The Consultant shall submit an Engineer's Design Report based on the Final Project Plans and Specifications. The report shall include a summary of the design computations used in the design of major development items. The report will include a scope of work, photographs, life cycle cost analysis, design standards, soils recommendations, engineer's opinion of probable construction cost, modifications to standards, and other miscellaneous work items.

##### ***Deliverables:***

- One (1) original copy of the Engineer's Design Report wet stamped and signed by a Registered Engineer in the State of California
- Six (6) copies of the Engineer's Design Report
- One (1) electronic copy of the Engineer's Design Report in Portable Document Format (PDF)

##### **Limitations:**

The design must conform to existing un-utilized infrastructure. This limits the Consultant's ability to optimize certain aspects of the project. The Consultant shall utilize industry standards to the extent possible without replacing the existing infrastructure. The data provided regarding the existing infrastructure is limited and is not accompanied with a design report or basis of design. The Consultant does not assume responsibility of design or function for previously installed infrastructure. This infrastructure has not been inspected or tested by the Consultant.

**EXHIBIT "B"**

**CITY OF SUSANVILLE  
COST SUMMARY**

<b>1. Task 1: Data Gathering.....</b>	<b>\$23,640</b>
Task 1.1: Surveying Coordination .....	\$3,030
Task 1.2: Geotechnical Investigation.....	\$17,580
Task 1.3: Utility Identification.....	\$3,030
<b>2. Task 2: Schematic Design.....</b>	<b>\$53,660</b>
<b>3. Task 3: Design Development/Contract Documents .....</b>	<b>\$65,460</b>
Task 3.1: 90% Plans, Specifications, & Estimate Submittal .....	\$30,630
Task 3.2: Final Plans, Specifications, & Estimate Submittal .....	\$34,830
<b>Grand Total .....</b>	<b>\$142,760</b>

# ATTACHMENT C

**CITY OF SUSANVILLE**

**Agreement No. 18-01**

THIS AGREEMENT is entered into this 4th day of April, 2018 by and between Dyer Engineering Consultants (hereinafter referred to as "Consultant") and the CITY OF SUSANVILLE, (hereinafter referred to as "City").

FOR AND IN CONSIDERATION of the promises hereinafter made, Consultant and City agree as follows:

**ARTICLE 1: AGREEMENT DOCUMENTS**

This *Agreement*, *The City of Susanville Cady Springs Project Scope of Services* (Exhibit A), *City of Susanville Cost Summary* (Exhibit B), and *City of Susanville Rate Schedule* (Exhibit C) attached hereto shall constitute the entire agreement between the parties on the subject matters. All prior agreements, representations, statements, negotiations, and understandings shall have no effect. There shall be no modifications or amendments to this Agreement or to the *Exhibits* unless said modifications or amendments are in writing duly executed by the parties.

**ARTICLE 2: TERM**

The term of this agreement shall be from April 4, 2018 to April 4, 2019. The term of the Agreement may be extended by mutual agreement of the parties, which agreement must be reduced to writing and duly executed by the parties.

**ARTICLE 3: LEGAL PARAMETERS**

This Agreement is binding upon and inures to the benefit of the heirs, successors and assigns of the parties hereto. Neither party hereto may assign its rights or obligations under the Agreement without the prior written consent of the other parties. This Agreement shall be governed by the laws of the State of California.

#### ARTICLE 4: SCOPE OF SERVICES AND COMPENSATION

The Scope of Services and Deliverables are outlined in the *City of Susanville Cady Springs Project Scope of Services* (Exhibit A).

Compensation to be paid under this Agreement are detailed in the *City of Susanville Cost Summary* (Exhibit B), and *City of Susanville Rate Schedule* (Exhibit C).

Consultant shall perform and complete all work required in connection with the Agreement. City has the right to inspect and may reject any services provided by Consultant under this Agreement that, in City's determination, were not completed or that otherwise failed to satisfy the established specifications or performance standards. In the event of default the Consultant will be liable to the City for the cost of completion.

The City hereby promises and agrees with the said Consultant to pay in current funds for the performance of the Agreement a cost not to exceed **\$142,760** for the completion of scope of services of Phase 2 of the Cady Spring Project as set forth in the *City of Susanville Cady Springs Project Scope of Services* (Exhibit A) and the *Dyer Engineering Construction Document Evaluation Report*.

The Consultant agrees to do the work, complete and in place, according to the terms and conditions herein contained and referred to, for the prices hereinafter set forth, and hereby agrees to pay the same at the time, in the manner and upon the conditions herein set forth; and the said parties for themselves, their heirs, executors, administrators, successors and assigns, do hereby agree to the full performance of the covenants herein contained.

## **ARTICLE 5: INVOICES AND BILLING**

The Agreement price, in the amount not to exceed **\$142,760**, shall be made forthwith upon completion of work under this agreement. Progress payments for items identified as tasks in the scope of services can be paid once that certain task is completed and accepted by the City. The Consultant may invoice each task separately as identified above prior to completion of the entire scope of services if desired.

## **ARTICLE 6: INDEPENDENT CONSULTANT**

The Consultant will act in an independent capacity and not as officers or employees of the City. Consultant further acknowledges and agrees that it is an independent Consultant and that nothing herein shall be construed to create the relationship of employer and employee between City and Consultant. No employee-related withholdings or deductions shall be made from payments due to Consultant.

Consultant shall not be entitled to receive any benefits from the City and shall not be eligible for workers' compensation or unemployment benefits. Consultant shall at all times be free to exercise initiative, judgment, and discretion in how best to perform or provide the services identified herein. Notwithstanding the above, Consultant will work closely with the City and meet periodically when requested.

## **ARTICLE 7: SUBCONTRACTING**

Consultant may enter into any subcontract for performance of any services contemplated under this Agreement. Consultant may not assign any interest in the Agreement without the prior written approval of City and they shall be subject to such conditions and provisions as City may deem necessary or desirable in its sole discretion. Where the City permits the use of subcontractors, no subcontractor may perform any work under this Agreement without first providing City certificates of insurance showing all of the coverages required in Article 9 of this Agreement.

Consultant shall be responsible for the performance of all subcontractors. Before paying a claim that involves the use of materials or labor supplied by someone other than the Consultant, City may require Consultant to supply proof of payment for such materials or labor and certification of any prevailing wage requirements as identified in Article 13. Consultant shall pay the subcontractor(s) for undisputed services provided by them within thirty days of receiving payment from City.

## **ARTICLE 8: EQUIPMENT AND MATERIALS**

Consultant will be solely responsible for supplying, storing, maintaining, and replacing any and all equipment that is necessary for implementing the services under this Agreement. City will not supply, nor will it pay for any repairs, maintenance or replacement of, or new equipment expenses, or temporary work related to signs, cones, or other traffic controlling equipment.

## **ARTICLE 9: INSURANCE**

**Before commencing work on this Agreement the Consultant must provide certificates of insurance to show that the following minimum coverages are in effect.**

Consultant agrees that it will provide and maintain at all times during the term of this Agreement such insurance coverages as are indicated herein and that will otherwise comply with the provisions that follow. No warranty is made that the coverages and limits listed herein are adequate to cover and protect the interests of the Consultant for the Consultant's operations. These are solely minimums that have been established to protect the interests of the City. Such policy or policies shall apply to the extent of, but not as a limitation upon or in satisfaction of, the indemnity provisions of this agreement.

The provisions of this section shall also apply to all subcontractors, other lower tier contractors, independent contractors and sole proprietors engaged by Consultant with respect to this Agreement, and Consultant shall be entirely responsible for securing the compliance of all such persons or parties with these provisions. Consultant shall not commence or perform any work under this Agreement until certificates of insurance are presented to the City showing the

required coverages are in full force and effect with at least the required coverage limit amounts and naming the City as an additional insured.

Consultant agrees to maintain at all times during the period of this Agreement all of the following:

**A. GENERAL LIABILITY, AUTO LIABILITY**

Consultant shall maintain all insurance identified in the *Dyer Engineering Consultants Proposal* for the duration of the Agreement. Consultant shall name all parties as “additional insurers” on its general liability policy that are required to be so named under the Insurance Section of the *Dyer Engineering Consultants Proposal*.

**B. WORKER'S COMPENSATION INSURANCE**

Consultant hereby certifies that it is aware of, and will comply with Section 3700 of the California State Labor Code that requires every employer to be insured against liability for Workers' Compensation or to undertake self insurance before commencing any of the work.

**ARTICLE 10: PERSONNEL**

Consultant is responsible for compliance with all applicable State and Federal laws. Consultant will manage his/her own personnel without general oversight by the City and shall oversee and coordinate sub-contractors that are approved by City. All drivers and equipment operators will be properly trained and have all certifications and valid licensing required to operate said equipment. The Consultant must certify to the City that all drivers operating a commercial motor vehicle are in a federally mandated random drug and alcohol testing program that complies with Federal Motor Carrier Safety Administration (FMCSA) requirements.

The Consultant alone shall be responsible for ensuring compliance with all applicable regulatory requirements including but not limited to those from: FMCSA and California Division of Occupational Safety and Health (Cal/OSHA).

## **ARTICLE 11: SAFETY AND TRAFFIC CONTROL**

The Consultant alone shall be responsible for the safety and security at construction sites and when working in or adjacent to public highways. Consultant is solely responsible for traffic control at the locations of and while engaged in highway services / maintenance. Traffic control practices, equipment and signage shall comply with the Manual on Uniform Traffic Control Devices, latest edition. Consultant shall maintain one lane of traffic at all times unless closure for public safety is authorized by City. Consultant shall also provide for the establishment of detours as needed. Consultant shall erect other barricades as may be directed by City.

The Consultant is responsible for contacting 811 "Call Before You Dig" prior to any excavation. No excavation is authorized until after 811 has marked all existing utilities. Prior to construction, the Consultant shall notify City of adjacent utilities when prosecution of work may affect them.

All work shall be completed within the City's right-of-way and/or public easements unless expressly and specifically directed to do so by the City.

## **ARTICLE 12: CONSULTANT'S LIABILITY**

Consultant shall be responsible for all injuries to persons and for all damage to real or personal property of the City or others, caused by, or resulting from the negligence of itself, its employees, or its agents during the progress of, or connected with, the rendition of services hereunder. Consultant shall defend and hold harmless and indemnify the City, its officers and employees from all costs and claims for damages to real or personal property, or personal injury to any third party, resulting from the negligence, actions, or inaction of Consultant, Consultant's subcontractors, employees or agents, arising out of the Consultant's performance of work under this Agreement.

### **ARTICLE 13: PREVAILING WAGE**

The Consultant certifies and agrees that it will comply California Labor Code Section 1770 regarding prevailing wage requirements. City may request documentation to certify that the Consultant has paid its employees at the appropriate prevailing wage rate. In the event that the City determines that Consultant has failed to pay any of its employees in accord with the appropriate prevailing wage rate, City shall report its findings to the Department of Labor and/or withhold the difference between the amount paid and amount owed for prevailing wages from any amount owed Consultant until such time as the payment dispute is fully and finally resolved.

This provision in no way creates any contractual or third party beneficiary relationship between any of Consultant's employees and the City, nor does it create any liability or duty on the City for Consultant's failure to make timely or appropriate payments to its employees, on behalf of its employees.

### **ARTICLE 14: AUDIT**

Consultant shall permit authorized representatives of the City to have access to Consultant's books, records, accounts and any and all data relevant to this Agreement, for the purpose of making an audit or examination during the term of the Agreement and for a period of four years following the fiscal year of the last expenditure under this Agreement.

### **ARTICLE 15: DISCRIMINATION**

During the performance of this Agreement, Consultant and its subcontractors shall not unlawfully discriminate, harass or allow harassment, against any employee or applicant for employment because of sex, sexual orientation, race, color, religious creed, marital status, denial of family and medical care leave, ancestry, national origin, medical condition (cancer/genetic characteristics), age (40 and above), disability (mental and physical) including HIV and AIDS, denial of pregnancy disability leave or reasonable accommodation. Consultant and

subcontractors shall ensure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment.

Consultant and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Gov. Code, §12900 et seq.) and the applicable regulations promulgated thereunder (Cal. Code Regs, tit. 2, §7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, §12990 (a)–(f), are incorporated into this Agreement by reference and made a part hereof as if set forth in full (Cal. Code Regs, tit. 2, §7285.0 et seq.). Consultant and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.

This Consultant shall include the non-discrimination and compliance provisions of this clause in all subcontracts to perform work under contract.

#### **ARTICLE 16: BUSINESS LICENSE**

Consultant has and will continue to maintain a current Business License during the term of this Agreement. Consultant shall insert in each of its subcontract agreements a provision, which requires its sub-contractors to present proof that the subcontractor has obtained a current Business License during the term of this Agreement.

IN WITNESS WHEREOF, the parties do hereby execute this Agreement on the day and year first written above.

**CITY OF SUSANVILLE**

By : \_\_\_\_\_  
Name : \_\_\_\_\_  
Title : \_\_\_\_\_  
Date : \_\_\_\_\_

**APPROVED AS TO FORM:**

By : \_\_\_\_\_  
Name: \_\_\_\_\_  
Title : \_\_\_\_\_  
Date : \_\_\_\_\_

**ATTEST:**

By : \_\_\_\_\_  
Name : \_\_\_\_\_  
Title : \_\_\_\_\_  
Date : \_\_\_\_\_

**CONSULTANT**

By : \_\_\_\_\_  
Name: \_\_\_\_\_  
Address : \_\_\_\_\_  
Date : \_\_\_\_\_

**ATTACH NOTARY**

**EXHIBIT A - CITY OF SUSANVILLE CADY SPRINGS PROJECT SCOPE OF SERVICES**

**EXHIBIT B – CITY OF SUSANVILLE COST SUMMARY**

**EXHIBIT C - CITY OF SUSANVILLE RATE SCHEDULE**

## EXHIBIT "A"

### CITY OF SUSANVILLE CADY SPRINGS PROJECT SCOPE OF SERVICES

The City of Susanville (City) intends to plan, design, and construct a Booster Pump Station and associated water line improvements to service Cady Springs. Completion of this Project will provide additional storage and resilience to the City water supply. City staff needs Consultant's assistance in providing design services, project management, contract management, technical services, and other professional services (collectively "Consultant Services") for this Project. The Consultant will be expected to provide complete, professional, high quality services and products; to consult City personnel and others who are involved with the Project; and to provide advice and assistance in accomplishing the work. The design for the Project will require coordination with City staff and may include other stakeholders.

The Project elements will include a booster pump station, connections to previously constructed pipe lines and water tank, and service connections with pressure reducing valves as required. The Project elements will be designed to meet applicable American Water Works Association (AWWA) design criteria and codes. Additional Project improvements include a backup generator, associated electrical improvements, cement masonry unit (CMU) block building to house the pump station, mechanical components for heating, ventilation, and air conditioning (HVAC), refurbishment of the water tank exterior, and supervisory control and data acquisition (SCADA) integration to the City system.

The following assumptions were used while preparing this scope of work:

- Service Connection locations and requirements will be provided by the City prior to the start of design.
- City Staff will provide surveying necessary to complete the design at no cost to the Consultant.
- All necessary environmental documentation and clearances have been obtained. No CEQA or NEPA studies are included in this scope of work.
- System wide Water CAD modeling will not be provided as part of this scope of work. It is assumed that the flow demand at the Harris tank to serve the City is equal to the current flow demand at the Cady Springs.
- Water flow records provided by the City at the Cady Springs are accurate.
- Fire Flow demands are currently being met in the City and calculations for fire flow on a city-wide level are not included in this scope of work.

This scope does not include bidding support services or construction support services.

#### **1. Task 1: Data Gathering**

This task includes review of record information, existing conditions, including utility infrastructure, operational requirements, utility identification, other recommended studies. The

City will provide or make available to the Consultant documents, data and information available to the City relating to the proposed project.

### **1.1 Surveying Coordination**

Consultant shall identify the surveying needs necessary to complete the design of the project. This shall include coordination with City Staff for the collection of survey data. All surveying services shall be provided by City. The Consultant shall integrate the survey data collected by City staff into the CAD files used for Project design. The survey data shall be delivered by the City to the Consultant in AutoCAD 2018 format.

### **1.2 Geotechnical Investigation**

The Consultant shall perform a geotechnical investigation of the Project site necessary for design of the Project including the pump station foundation, required retaining walls, and transformer pad. Based on our knowledge of the project and the soils in the area, the structures will be located on engineered fill constructed using balanced cut/fills that are constructed on naturally sloping ground. The depth to groundwater is unknown but is expected to be within about 10 feet in some locations.

As part of the geotechnical investigation, the Consultant shall review existing soil/geology literature in the project area. Existing information will be gathered and reviewed. The primary source of information will be the previous design plans prepared by Sunrise Engineering. Some of the information will include:

- System layout and design
- USGS soils survey information, if available
- Geologic and seismic information on file

Exploration Test Pits will be made, using a backhoe equipped with an extend-a-hoe (if required), capable of depths of up to about 12 feet. This scope includes five exploration test pits. After completion, the holes will be backfilled. Test pits shall be located outside the actual foundation locations to reduce the potential for damage to engineered fills and natural soil conditions, but close enough to interpret soils physical and engineering characteristics. A hole location map will be prepared based on local mapping and GPS coordinates. This information will be included in the bid packages to assist the Contractors in bidding and construction.

At the completion of the field exploration, all samples will be delivered to the soils laboratory for testing. Field and laboratory results will be used to prepare final Test Pit exploration logs. All laboratory results will be included in the final geotechnical report.

Based on the findings of the field work and laboratory test results, a geotechnical engineering analysis will be performed, and conclusions formed from the test results. Recommendations are expected to be the focus of the engineering analyses. Geotechnical analyses required for the project will include:

- Site grading and placement of engineered fill, including compaction recommendations
- Soil strengths, bearing capacity and backfill requirement
- Surface drainage and erosion control recommendations
- Cement type for concrete in contact with soil, based on the results of corrosion testing
- Lateral Forces for the retaining wall design

Using the findings for this investigation, the Consultant shall prepare recommendation for foundation design for the pump station, equalization station, valve vaults, and buried lines. Design drawings and specifications for construction will reflect the finding of the geotechnical investigation.

A final Engineering Report will be prepared which contains the results of the field and laboratory investigations and the recommendations for the design. The report will be included as an Appendix to the design report.

***Deliverables:***

- Four (4) copies of the Geotechnical Investigation and Recommendations Report

**1.3 Utility Identification**

The Consultant shall identify existing utilities and propose solutions to rectify utility conflicts within the Project site limits. Utilities include facilities owned or operated by the City or other public utility companies.

Consultant shall obtain record drawings from the City, utility companies, and other agencies. Consultant will show existing utilities on the plans. Consultant will submit applicable plans as authorized by City to the utility owners for their review and verification. As the design progresses, the applicable utility plans will be used to show new utilities and the position of relocated utilities, which conflict with planned improvements.

Any field verification of existence and location of underground utilities shall be provided by the City. This includes all subsurface investigations to locate existing utilities.

**2. Task 2: Schematic Design 50%**

Upon completion of data gathering, Consultant shall commence preparation of design schematic improvement plans and a preliminary opinion of probable construction cost. The plans shall include schematic drawings of the proposed Project for the final design. The drawings shall be prepared at standard scales appropriate to depict project features in a reasonable manner. The drawings will show the location of existing Project features to the extent that they are provided in the survey and will show the locations and important elements of the proposed features.

Consultant shall use the completed schematic plans to perform quantity takeoffs and provide an itemized engineer's opinion of probable cost. The schematic design plans and the opinion of probable construction cost shall be submitted to the City for approval and such approval shall be

obtained before Consultant commences the performance of services specified under Task 3. The schematic design will be of sufficient detail to represent the 30% Design Plans.

This task will also include one Project progress review meeting to be held at the City's office. The meeting will include appropriate City, Consultant, and other stakeholder staff. Site field-reviews can also be held in conjunction with the progress review meetings as determined necessary by City or Consultant. Progress and site review meetings will address and resolve issues dealing with technical coordination, design standards and procedures, Project schedule and sequence of work, Project deliverable format and content, and similar topics. Meeting notes shall be prepared by the Consultant and distributed for assignment of action items and follow-up. The submission of the Schematic Design will serve as the 30% submittal. A total of two (2) meetings are included in this task; a project design kick-off meeting, and a progress meeting after the 30% Submittal.

***Deliverables:***

- Four (4) 11"x17" copies of the Design Schematic Improvement Plans (30% Plans) including the following sheets:
  - Title Sheet
  - Index of Drawings, General Notes, Legend, Abbreviations
  - Water Line Plan(s)
  - Booster Pump Station – Civil Site Plan(s)
  - Booster Pump Station – Interior Water Works
  - Generator – Civil Site Plan(s)
- Four (4) copies of the Preliminary Opinion of Probable Construction Cost

**3. Task 3: Design Development/Contract Documents**

This task includes design development, preparation of technical specifications, development of inspection and testing requirements, final construction and contract documents, preliminary and final opinion of construction cost, and Engineer's Design Report.

This task will also include Project progress review meetings to be held at the City's Public Works office in Susanville, CA. The meeting will include appropriate City, Consultant, and other stakeholder staff. Site field-reviews can also be held in conjunction with the progress review meetings as determined necessary by City. Progress and site review meetings will address and resolve issues dealing with technical coordination, design standards and procedures, project schedule and sequence of work, Project deliverable format and content, and similar topics. Meeting notes shall be prepared by the Consultant and distributed for assignment of action items and follow-up. One (1) progress review meetings after the 90% Submittal is included in the Scope of Services for this task.

**3.1 90% Plans, Specifications, & Estimate Submittal**

Consultant shall prepare the 90% construction plans. The 90% PS&E shall include plans, technical specifications, opinion of probable construction cost, and Engineer's Design Report.

### 3.1.1 90% Project Plans

Consultant shall prepare 90% Project Plans for review by the City. The plans shall conform to all previously mentioned guidelines, and City requirements and comments. The plans shall be for the construction of the Cady Springs pump station. The Project Plans shall include the preparation of the following sheets:

- Title Sheet
- Index of Drawings, General Notes, Legend, Abbreviations
- Construction Notes, Survey Control Plan
- Construction Operations Restrictions and Phasing Plan(s)
- Water Line Plan(s)
- Water Line Details
- Booster Pump Station – Civil Site Plan(s)
- Booster Pump Station – Building and Foundation Plan(s)
- Booster Pump Station – Interior Water Works
- Booster Pump Station - Electrical Plan(s)
- Booster Pump Station - Mechanical HVAC Plan(s)
- Generator – Civil Site Plan(s)
- Generator – Structural Plan(s)
- Generator – Electrical Plan(s)
- Instrumentation Plan(s)

#### ***Deliverables:***

- Four (4) 11"x17" copies of the 90% Project Plans

### 3.1.2 90% Project Specifications

Consultant shall prepare 90% technical specifications for construction of the Project. The City will provide Standard Special Provisions, General Provisions, proposal documents, and contract documents for inclusion in the 90% Project Specifications. The Consultant shall coordinate the technical special provisions with the City Standard Special Provisions, contract, and proposal documents into a cohesive, comprehensive document. The special provisions shall be organized utilizing the section descriptions.

#### ***Deliverables:***

- Four (4) copies of the 90% Project Specifications

### 3.1.3 90% Project Quantities & Opinion of Probable Construction Cost

Consultant shall prepare detailed quantities and opinions of cost based on the 90% Project Plans and Specifications and the requirements of the Project. Consultant will submit the engineer's opinion of probable construction cost to the City. Unit costs will be based on recent contract data from appropriate industry publications, the Consultant's similar recent

projects, and the City's similar recent projects. The opinions of cost will be prepared for each contract cost item identified by the technical specifications. All quantity calculations shall be provided. Any contract cost item paid as a lump sum will be costed out with supporting calculations to justify the total. The items will be summarized into a marginal opinion of cost, which will include costs for mobilization and contingencies.

***Deliverables:***

- Four (4) copies of the 90% Project Opinion of Probable Construction Cost

**3.1.4 90% Engineer's Design Report**

In conjunction with the 90% submittal, the Consultant shall submit a draft Engineer's Design Report based on the 90% Project Plans and Specifications. The report shall include a summary of the design computations used in the design of major development items. The report will include a scope of work, photographs, life cycle cost analysis, design standards, soils recommendations, engineer's opinion of probable construction cost, modifications to standards, and other miscellaneous work items.

***Deliverables:***

- Four (4) copies of the 90% Engineer's Design Report

**3.2 Final Plans, Specifications, & Estimate Submittal**

After receipt of any comments from the 90% Submittal and receipt of final approval for the plans and specifications from the City, the Consultant shall prepare an original set of stamped and signed plans and specifications, one copy of the bidding documents, and an engineer's opinion of probable construction cost for the Project for final submittal to the City for use in soliciting construction bids. This submittal shall include plans, technical specifications, opinion of probable construction cost, and Final Engineer's Design Report.

**3.2.1 Final Project Plans**

Consultant shall prepare Final Project Plans for use by the City in soliciting contractor bid proposals. The plans shall conform to all previously mentioned guidelines, and City requirements and comments. The plans shall be for the construction of Cady Springs Pump Station. The Project Plans shall include the preparation of the following sheets:

- Title Sheet
- Index of Drawings, General Notes, Legend, Abbreviations
- Construction Notes, Survey Control Plan
- Construction Operations Restrictions and Phasing Plan(s)
- Water Line Plan(s)
- Water Line Details
- Booster Pump Station – Civil Site Plan(s)
- Booster Pump Station – Building and Foundation Plan(s)

- Booster Pump Station – Interior Water Works
- Booster Pump Station - Electrical Plan(s)
- Booster Pump Station - Mechanical HVAC Plan(s)
- Generator – Civil Site Plan(s)
- Generator – Structural Plan(s)
- Generator – Electrical Plan(s)
- Instrumentation Plan(s)

***Deliverables:***

- Four (4) 11”x17” and Two (2) 22”x34” copies of the Final Project Plans
- One (1) original copy of the Final Project Plans wet stamped and signed by a Registered Engineer in the State of California
- One (1) electronic copy of the Final Project Plans in Portable Document Format (PDF)

**3.2.2 Final Project Specifications**

Consultant shall prepare Final technical specifications for construction of the Project. The specifications will be presented in standard format. The City shall provide Standard Special Provisions, General Provisions, proposal documents, and contract documents for inclusion in the Project bid package. The Consultant shall coordinate the technical special provisions with the City Standard Special Provisions, contract, and proposal documents into a cohesive, comprehensive document.

***Deliverables:***

- One (1) original copy of the Final Project Specifications wet stamped and signed by a Registered Engineer in the State of California
- Six (6) copies of the Final Project Specifications
- One (1) electronic copy of the Final Project Specifications in Portable Document Format (PDF)

**3.2.3 Project Quantities & Engineer’s Opinion of Probable Construction Cost**

Consultant shall prepare detailed quantities and opinions of probable construction cost based on the Final Project Plans and Specifications and the requirements of the. Consultant will submit the engineer's opinion of probable construction cost to the City. Unit costs will be based on recent contract data from appropriate industry publications, the Consultant's similar recent projects, and the City's similar recent projects. The opinions of cost will be prepared for each contract cost item identified by the technical specifications. Quantity calculations shall be provided. Any contract cost item paid as a lump sum will be costed out with supporting calculations to justify the total. The items will be summarized into a marginal opinion of cost, which will include costs for mobilization and contingencies.

***Deliverables:***

- Four (4) copies of the Final Project Opinion of Cost
- One (1) electronic copy of the Final Project Opinion of Cost in Portable Document Format (PDF)

**3.2.4 Engineer's Design Report**

The Consultant shall submit an Engineer's Design Report based on the Final Project Plans and Specifications. The report shall include a summary of the design computations used in the design of major development items. The report will include a scope of work, photographs, life cycle cost analysis, design standards, soils recommendations, engineer's opinion of probable construction cost, modifications to standards, and other miscellaneous work items.

***Deliverables:***

- One (1) original copy of the Engineer's Design Report wet stamped and signed by a Registered Engineer in the State of California
- Six (6) copies of the Engineer's Design Report
- One (1) electronic copy of the Engineer's Design Report in Portable Document Format (PDF)

**Limitations:**

The design must conform to existing un-utilized infrastructure. This limits the Consultant's ability to optimize certain aspects of the project. The Consultant shall utilize industry standards to the extent possible without replacing the existing infrastructure. The data provided regarding the existing infrastructure is limited and is not accompanied with a design report or basis of design. The Consultant does not assume responsibility of design or function for previously installed infrastructure. This infrastructure has not been inspected or tested by the Consultant.

**EXHIBIT "B"**

**CITY OF SUSANVILLE  
COST SUMMARY**

<b>1. Task 1: Data Gathering</b> .....	<b>\$23,640</b>
Task 1.1: Surveying Coordination .....	\$3,030
Task 1.2: Geotechnical Investigation.....	\$17,580
Task 1.3: Utility Identification.....	\$3,030
<b>2. Task 2: Schematic Design</b> .....	<b>\$53,660</b>
<b>3. Task 3: Design Development/Contract Documents</b> .....	<b>\$65,460</b>
Task 3.1: 90% Plans, Specifications, & Estimate Submittal .....	\$30,630
Task 3.2: Final Plans, Specifications, & Estimate Submittal .....	\$34,830
<b>Grand Total</b> .....	<b>\$142,760</b>

**EXHIBIT "C"**

**CITY OF SUSANVILLE  
RATE SCHEDULE**

<b>Classification</b>	<b>Rate (\$/hour)</b>
Principal .....	\$165 - \$185
Senior Professional .....	\$145 - \$175
Professional .....	\$110 - \$155
Analyst .....	\$95 - \$135
CAD/Technician .....	\$75 - \$135
Support .....	\$45 - \$75

# ATTACHMENT D

**RESOLUTION NO. 18-5495**  
**A RESOLUTION OF THE SUSANVILLE CITY COUNCIL AUTHORIZING THE EXECUTION OF A PROFESSIONAL SERVICES AGREEMENT WITH DYER ENGINEERING CONSULTANTS FOR PREPARATION OF CONSTRUCTION DOCUMENTS FOR THE CADY SPRINGS PUMP STATION AND PIPELINE**

**WHEREAS**, the City of Susanville has funding available through Proposition 84 in the amount of \$180,000 a Sustainable Water Supply and Conjunctive Use Project, which includes completion of the Cady Springs Pump Station and pipeline and Johnstonville Water Main Replacement; and

**WHEREAS**, the City of Susanville released a Request for Proposals in May of 2017 depicting a two phase approach to completing project design for the Cady Springs Project; Phase one: Review and evaluate construction documents prepare engineering report; Phase two: Preparation of Construction Documents; and

**WHEREAS**, on August 2, 2017, the Council approved an Agreement with Dyer Engineering Consultants to complete an evaluation of 2006 construction documents in an amount not to exceed \$43,000; and

**WHEREAS**, Dyer Engineering Consultants has completed phase one at a cost of \$36,965 and prepared engineering report; and

**WHEREAS**, Dyer Engineering Consultants has estimated the cost of preparing the construction documents at \$142,760; and

**NOW THEREFORE BE IT RESOLVED**, that the Susanville City Council approves as follows:

- 1) The Interim City Administrator is Authorized to execute Agreement With Dyer Engineering Consultants for the preparation of Construction Documents for the completion of Cady Springs Pump Station and Pipeline Project Phase II in the amount not to exceed \$142,760
- 2) The Finance Manager is Authorized to Load the budget to complete the project
- 3) Use of interns is authorized for this project

APPROVED: \_\_\_\_\_  
Kathie Garnier, Mayor

ATTEST: \_\_\_\_\_  
Gwenna MacDonald, City Clerk

The foregoing Resolution was adopted at a regular meeting of the City Council of the City of Susanville, held on the 4th day of April, 2018 by the following vote:

AYES:  
NOES:  
ABSENT:  
ABSTAINING:

\_\_\_\_\_  
Gwenna MacDonald, City Clerk

APPROVED AS TO FORM: \_\_\_\_\_  
Jessica Ryan, City Attorney

# ATTACHMENT E

**EXHIBIT B  
BUDGET**

<b>Summary Budget for the Lahontan Basins IRWM Implementation Grant</b>					
<b>Project Title</b>	<b>Requested Grant Amount</b>	<b>Cost Share: Non-State Fund Source (Funding Match)</b>	<b>Additional Cost Share</b>	<b>Total Cost</b>	<b>% Funding Match</b>
Project 1 – City of Susanville Sustainable Water Supply and conjunctive Use Project*	\$1,789,085	--	--	\$1,789,085	0%
Project 2 – Spaulding CSD Waste Water Pond Closure*	\$92,500	--	\$4,622	\$97,122	0%
Project 3 – Lassen Land and Trails Trust Municipal Water Assessment*	\$62,000	--	--	\$62,000	0%
<b>Total</b>	<b>\$1,943,585</b>	<b>--</b>	<b>\$4,622</b>	<b>\$1,948,207</b>	<b>0%</b>

\* Denotes DAC Funding Match Waiver.

<b>Project 1 – City of Susanville Sustainable Water Supply and Conjunctive Use Budget</b>					
<b>Budget Category</b>		<b>Requested Grant Amount</b>	<b>Cost Share: Non-State Fund Source (Funding Match)</b>	<b>Additional Cost Share</b>	<b>Total</b>
(a)	Direct Project Administration	\$95,000	--	--	\$95,000
(b)	Land Purchase/Easement	--	--	--	--
(c)	Planning/Design/Engineering/Environmental Documentation	\$180,000	--	--	\$180,000
(d)	Construction/Implementation	\$1,514,085	--	--	\$1,514,085
	<b>Total</b>	<b>\$1,789,085</b>	<b>--</b>	<b>--</b>	<b>\$1,789,085</b>

Reviewed by:      Interim City Administrator  
     City Attorney

     Motion only  
     Public Hearing  
  X   Resolution  
     Ordinance  
     Information

**Submitted by:** Anthony Hanner, Building official

**Action Date:** April 4, 2018

**CITY COUNCIL AGENDA ITEM**

**SUBJECT:** **Resolution No. 18-5496** approving contract with Dutra Construction for the abatement of 250 N. Spring Street and authorizing mayor to sign contract.

**PRESENTED BY:** Dan Newton, Interim City Administrator

**SUMMARY:** On July 7, 2017, the City Council approved the Property Maintenance Ordinance No. 17-1011. 250 N. Spring Street has been identified as a public nuisance and, pursuant to the ordinance, must be addressed by the property owner. In the event that the property owner does not address the property, the Planning Commission will conduct a hearing and determine that a nuisance exists. They will then authorize the issuance of an abatement order and the City will follow the process of abatement established in Chapter 8.52 of the Susanville Municipal Code and the cost is billed to the property owner.

On January 9, 2018, the Planning Commission issued an abatement order and staff requested informal bids from local companies. Dutra Construction was the lowest bidder at \$1,707.46 and staff is requesting the approval to utilize Dutra Construction to abate the property.

**FISCAL IMPACT:** \$1,707.46 to be reimbursed by property owner

**ACTION**

**REQUESTED:** Motion to approve Resolution No. 18-5496, approving contract with Dutra Construction for the abatement of 250 N. Spring Street and authorizing mayor to sign contract.

**ATTACHMENTS:** Resolution No. 18-5496  
Contract with Dutra Construction

**RESOLUTION NO. 18-5496**  
**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SUSANVILLE**  
**APPROVING THE CONTRACT WITH DUTRA CONSTRUCTION FOR THE**  
**ABATEMENT OF 250 N. SPRING STREET, APN 105-121-07, AND**  
**AUTHORIZING MAYOR TO SIGN CONTRACT**

**WHEREAS**, on June 7, 2017, the City Council of the City of Susanville approved Ordinance No. 17-1011, authorizing the City of Susanville to abate nuisance conditions; and

**WHEREAS**, 250 N. Spring Street had been identified as a public nuisance per Susanville Municipal Code, chapter 8.32.040; and

**WHEREAS**, the Planning Commission, on January 9, 2018, issued a nuisance abatement order for 250 N. Spring Street; and

**WHEREAS**, on February the 27, 2018, permission was granted by owner to enter the premises to abate the nuisance; and

**WHEREAS**, Susanville Code Enforcement requested informal bids for the abatement of the property; and

**WHEREAS**, Dutra Construction was the lowest bidder at \$1,707.46 and has provided the contract as attached in Exhibit A.

**NOW THEREFORE BE IT RESOLVED**, by the City Council of the City of Susanville hereby approves the contract with Dutra Construction for \$1,707.46 for the abatement of 250 N. Spring Street, APN 105-121-07 and authorizes for the Mayor to sign said contract.

APPROVED: \_\_\_\_\_  
Kathie Garnier, Mayor

ATTEST: \_\_\_\_\_  
Gwenna MacDonald, City Clerk

The foregoing Resolution was adopted at a regular meeting of the City Council of the City of Susanville, held on the 4<sup>th</sup> day of April, 2018 by the following vote:

AYES:  
NOES:  
ABSENT:  
ABSTAINING:

\_\_\_\_\_  
Gwenna MacDonald, City Clerk

APPROVED AS TO FORM: \_\_\_\_\_  
Jessica, City Attorney

# Construction Contract

Dutra Construction

Date: March 30, 2018

353 Minckler Ave.

Susanville, California 96130

dutraconst@hotmail.com (530) 310-2169

Lic# 898678

A 'Notice of Cancellation' may be sent to the Contractor at the preceding address pursuant to Sections 1689.5 to 1689.14, of the California Civil Code.

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This Construction Contract ("Contract") is entered into by and between Robert Dutra ("Contractor") and Susanville City ("Property Owner"), whose residence is 66 N. Lassen Street Susanville, Ca., whose contact phone number is (530)252-5117, and whose project address ("Project") is 250 N Spring Street Susanville, Ca.

The Owner and the Contractor agree as set forth below:

## 1. DESCRIPTION OF THE PROJECT AND DESCRIPTION OF THE SIGNIFICANT MATERIALS TO BE USED AND EQUIPMENT TO BE INSTALLED:

Contractor will furnish all labor, materials, equipment, supervision, and contract administration to complete in a good and workmanlike manner the following alterations to the Project:

Per Proposal # 10491 Dated 3-16-2018 [ ] These alterations are described as needed more fully in Attachment A, "Description of Work and Materials", and if applicable, in attached drawings and specifications prepared by     , Sheets 1-    , dated     . By this reference, those drawings are incorporated in and made a part of this Contract.

2. **EXCEPTIONS:** Contractor's scope of work under this Contract does not include any of the following items:       
Per Proposal     .

3. **START AND COMPLETION OF WORK:** The work to be performed under this contract shall commence on approximately this date weather permitted, as long as any required building permits are received and any agreed upon funds are paid to Contractor. The Contractor shall use his/her best efforts to complete said work of improvement on approximately this date: weather permitted, subject to permissible delays as defined in this Contract.

Substantial commencement of the work shall be deemed to occur when Contractor first supplies workers to the Project who actually commence construction operations. Failure of Contractor without lawful excuse to substantially commence work within twenty (20) days from the approximate date specified in this Contract is a violation of the Contractors' License Law.

**4. THE CONTRACT PRICE:** Owner shall pay Contractor the fixed sum of \$ 1,707.46 (the "Contract Price") for the work to be performed under this Contract, subject to additions and deductions pursuant to change orders agreed upon in writing by the parties, and subject to "allowances" as provided in this Paragraph 4.

The Contract Price may include allowances for certain materials, finishes, fixtures and/or other items which have not yet been selected or decided by Owner. Allowances are specific dollar amounts which Contractor has allocated for the purchase of the materials, finishes, fixtures and/or other items to be selected. These allowances include all overhead and profit, plus all applicable sales taxes. If the final cost of any item covered by an allowance is greater or less than the specified allowance, the Contract Price will be increased or decreased accordingly by a written change order to be issued by Contractor. The allowances for the Project agreed to by Owner and Contractor are specified under "Allowances" on Attachment "B" to this Contract.

**5. PERMITS AND TESTS:** Unless otherwise agreed to in writing by both parties, the Contractor shall procure the necessary permits for the work. Owner shall pay the governmental fees and Contractor's charges for said permits. If any tests or inspections are required by the plans and specifications or by the orders of any public authority having jurisdiction, Owner agrees to procure said tests and inspections and to pay all costs and fees associated with them.

**6. SUBCONTRACTS:** All portions of the work that Contractor's employees cannot perform directly shall be performed under subcontracts. Unless Owner has agreed in advance in writing, all subcontracts shall be on a fixed price basis. The Contractor shall secure the Owner's written consent before entering into any subcontracts.

**7. RECORDKEEPING:** The Contractor shall keep full and detailed accounts as may be necessary for proper financial management under this agreement. The Owner shall be afforded access to all the Contractor's records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda and similar data relating directly to this contract, and the Contractor shall preserve all such records for a period of three years after the final payment.

**8. PAYMENT SCHEDULE.** The Contract Price shall be paid in progress payments, which do not include finance charges of any kind, according to the following schedule:

\$ <u>1,707.46</u>	upon	<u>Completion;</u>
\$ _____	upon	_____;
\$ _____	upon	_____;
\$ _____	upon	_____;
\$ _____	upon	_____.

All payments will be made within 5 days after billing. Overdue payments will bear interest at the rate of 10% per month from the date on which payment is due.

**The schedule of progress payments must specifically describe each phase of work, including the type and amount of work or services scheduled to be supplied in each phase, along with the amount of each proposed progress payment. IT IS AGAINST THE LAW FOR A CONTRACTOR TO COLLECT PAYMENT FOR WORK NOT YET COMPLETED, OR FOR MATERIALS NOT YET DELIVERED. HOWEVER, A CONTRACTOR MAY REQUIRE A DOWN PAYMENT.**

**9. DOWN PAYMENT:** If applicable, the Owner agrees to pay a deposit of \$1000 or 10% of the contract price, whichever is less. The sum of \$ 0 shall be rendered to the Contractor prior to start of work.

**10. RIGHT TO STOP WORK:** Contractor shall have the right to stop work if any payment, including any payment for extra work, is not made to Contractor as agreed in this Contract. If any payment required under this Contract is not made when due, Contractor may keep the Project idle until such time as all payments due have been made.

**11. PERMISSIBLE DELAYS:** Contractor shall be excused from any delay in the completion of the work to be performed under this Contract caused by acts of God, inclement weather, acts or omissions of Owner or of Owner's agents, employees or independent contractors, material shortages, strikes or other labor troubles, acts of public utilities, acts of public bodies or inspectors (unless related to defects in Contractor's performance), extra work, changes requested by Owner, failure by Owner to make payments promptly, or other circumstances or contingencies unforeseen by Contractor and beyond Contractor's reasonable control.

**12. EXTRA WORK AND CHANGE ORDERS:** If Owner or his agents or any public body or inspector directs any modification or addition to the work covered by this Contract, the Contract Price and time of performance shall be adjusted accordingly. Payments for extra work shall be made as the work progresses, concurrently with progress payments. Work or expenses necessitated as a result of Contractor encountering conditions at the Project site which (a) are subsurface or otherwise concealed conditions which differ materially from those indicated in the plans and specifications, or (b) are unusual and differ materially from those ordinarily encountered on construction activities of the kind described in the plans and specifications, shall be deemed extra work and shall be paid for by Owner in accordance with this Paragraph 12.

Contractor shall not be required to perform any extra or change-order work without prior written authorization of Owner, but Contractor shall be entitled to be paid for extra work whether authorization is given in writing or not. Signed change orders shall be incorporated into and become a part of this Contract. There shall be a \$ 0.00 administrative fee for each change order.

If Owner or his agents or any public body or inspector directs any modification or addition to the work covered by this Contract, the Contract Price shall be increased by the amount of Time and Materials expended therefor by Contractor plus 0 percent (%) for overhead and profit. As used in this paragraph, "Time and Materials" means the sum of (a) Contractor's labor computed at a rate of \$ 115.00 per man-hour and (b) the actual cost to Contractor of materials, equipment and subcontractors. Payments for extra work shall be made as the work progresses, concurrently with payments made under the payment schedule set forth in Paragraph 8 above.

**13. RELEASE OF MECHANICS' LIENS:** Upon satisfactory payment being made for any portion of the work performed, Contractor shall, prior to any further payment being made, furnish to Owner a full and unconditional release from any claim or mechanic's lien pursuant to Section 3114 of the California Civil Code, for that portion of the work for which payment has been made.

**14. OWNER INDEMNIFICATION:** The Contractor hereby agrees to hold the Owner harmless and to indemnify the Owner against any and all claims which may arise during the course of the work as a consequence of the negligent acts or deliberate omissions of the Contractor, its agents or employees.

**15. CONTRACTOR INDEMNIFICATION:** The Owner hereby agrees to hold the Contractor harmless and to indemnify the Contractor against any and all claims which may arise during the course of the work as a consequence of the negligent acts or deliberate omissions of the Owner, its agents or employees.

**16. ATTORNEY'S FEES:** In the event any arbitration or any action at law or in equity shall be brought on account of any breach of this Contract, or to enforce or interpret any of the provisions of this Contract, the prevailing party shall be entitled to recover from the other party its reasonable attorney's fees, which shall be fixed by the tribunal or court and be made a part of any award or judgment rendered.

**17. CONTRACTORS REQUIRED TO BE LICENSED:** Contractors are required by law to be licensed and regulated by the Contractors' State License Board which has jurisdiction to investigate complaints against contractors if a complaint regarding a patent act or omission is filed within four years of the date of the alleged violation. A complaint regarding a latent act or omission pertaining to structural defects must be filed within 10 years of the date of the alleged violation. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, P.O. Box 26000, Sacramento, California 95826.

**18. OWNER'S RIGHT TO REQUIRE BOND:** Owner has the right to require Contractor to have a performance and payment bond. The expense of such bond may be borne by Owner.

**19. OWNER'S RIGHT OF CANCELLATION:** The law requires that the contractor give you a notice explaining your right to cancel. Initial the checkbox if the contractor has given you a copy of Attachment "C", 'Notice of the Three-Day Right to Cancel':

**20. ACKNOWLEDGMENT:** Owner is entitled to a completely filled in copy of this agreement, signed by both the Owner and the Contractor, before any work may be started. Owner acknowledges receipt of a complete, signed and legible copy of this Contract:

**21. COMPLETE AGREEMENT:** This Contract constitutes the entire agreement between the parties. There are no other agreements, oral or written, pertaining to the work to be performed under this Contract. This Contract can be modified only by an agreement in writing signed by the parties.

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Susanville City Official

\_\_\_\_\_

Owner

\_\_\_\_\_

Owner Signature

Date: 3 / /2018

Dutra Construction (Robert Dutra)

\_\_\_\_\_

Contractor

\_\_\_\_\_

Contractor Signature

Date: 3 / 30 /2018

**List of Documents to be incorporated into this Contract:**

- Attachment "A", Description of Work and Materials
- Attachment "B", Allowances
- Attachment "C", Notice of Three Day Right To Cancel
- Professional drawings and specifications from \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**NOTICES:**

**COMMERCIAL GENERAL LIABILITY INSURANCE (CGL):**

This contractor carries commercial general liability insurance written by this insurance company: Colony Insurance, Contractors General Liability Insurance. You may call them at this phone number (530) 257-7254 to check the contractor's insurance coverage.

**WORKER'S COMPENSATION INSURANCE:**

- This contractor has no employees and is exempt from workers' compensation requirements.
- This contractor carries workers' compensation insurance for all employees.

**NOTE ABOUT EXTRA WORK AND CHANGE ORDERS:**

Extra Work and Change Orders become part of the contract once the order is prepared in writing and signed by the parties prior to the commencement of any work covered by the new change order. The order must describe the scope of the extra work or change, the cost to be added or subtracted from the contract, and the effect the order will have on the schedule of progress payments. The Owner may not require a contractor to perform extra or change order work without providing written authorization prior to the commencement of any work covered by the new change order.

**MECHANICS LIEN WARNING:**

Anyone who helps improve your property, but who is not paid, may record what is called a mechanics' lien on your property. A mechanics' lien is a claim, like a mortgage or home equity loan, made against your property and recorded with the county recorder. Even if you pay your contractor in full, unpaid subcontractors, suppliers, and laborers who helped to improve your property may record mechanics' liens and sue you in court to foreclose the lien. If a court finds the lien is valid, you could be forced to pay twice or have a court officer sell your home to pay the lien. Liens can also affect your credit. To preserve their right to record a lien, each subcontractor and material supplier must provide you with a document called a '20-day Preliminary Notice.' This notice is not a lien. The purpose of the notice is to let you know that the person who sends you the notice has the right to record a lien on your property if he or she is not paid.

**BE CAREFUL.** The Preliminary Notice can be sent up to 20 days after the subcontractor starts work or the supplier provides material. This can be a big problem if you pay your contractor before you have received the Preliminary Notices. You will not get Preliminary Notices from your prime contractor or from laborers who work on your project. The law assumes that you already know they are improving your property.

**PROTECT YOURSELF FROM LIENS.** You can protect yourself from liens by getting a list from your contractor of all the subcontractors and material suppliers that work on your project. Find out from your contractor when these subcontractors started work and when these suppliers delivered goods or materials. Then wait 20 days, paying attention to the Preliminary Notices you receive.

**PAY WITH JOINT CHECKS.** One way to protect yourself is to pay with a joint check. When your contractor tells you it is time to pay for the work of a subcontractor or supplier who has provided you with a Preliminary Notice, write a joint check payable to both the contractor and the subcontractor or material supplier. For other ways to prevent liens, visit CSLB's Web site at [www.cslb.ca.gov](http://www.cslb.ca.gov) or call CSLB at 800-321-CSLB (2752). **REMEMBER, IF YOU DO NOTHING, YOU RISK HAVING A LIEN PLACED ON YOUR HOME.** This can mean that you may have to pay twice, or face the forced sale of your home to pay what you owe.

## **INFORMATION ABOUT THE CONTRACTOR'S STATE LICENSE BOARD (CSLB):**

CSLB is the state consumer protection agency that licenses and regulates construction contractors. Contact CSLB for information about the licensed contractor you are considering, including information about disclosable complaints, disciplinary actions and civil judgments that are reported to CSLB. Use only licensed contractors. If you file a complaint against a licensed contractor within the legal deadline (usually four years), CSLB has authority to investigate the complaint. If you use an unlicensed contractor, CSLB may not be able to help you resolve your complaint. Your only remedy may be in civil court, and you may be liable for damages arising out of any injuries to the unlicensed contractor or the unlicensed contractor's employees.

For more information:

Visit CSLB's Web site at [www.cslb.ca.gov](http://www.cslb.ca.gov)

Call CSLB at 800-321-CSLB (2752)

Write CSLB at P.O. Box 26000, Sacramento, CA 95826.

## Attachment C - Notice of Three Day Right To Cancel

**Dutra Construction**  
**353 Minckler Ave**  
**Susanville, California. 96130**  
**dutraconst@hotmail.com(530)310-2169**  
**Contractor license number 898678**

Date **3/30/2018**  
Project: **SUSANVILLE CITY**  
Project #: **Proposal # 10491**  
Contractor: **Robert Dutra**  
**Dutra Construction**

---

### NOTICE OF CANCELLATION

3 / 30 / 2018

You may cancel this transaction, without any penalty or obligation, within three business days from the above date.

If you cancel, any property traded in, any payments made by you under the contract or sale, and any negotiable instrument executed by you will be returned within 10 days following receipt by the seller of your cancellation notice, and any security interest arising out of the transaction will be canceled.

If you cancel, you must make available to the seller at your residence, in substantially as good condition as when received, any goods delivered to you under this contract or sale, or you may, if you wish, comply with the instructions of the seller regarding the return shipment of the goods at the seller's expense and risk.

If you do make the goods available to the seller and the seller does not pick them up within 20 days of the date of your notice of cancellation, you may retain or dispose of the goods without any further obligation. If you fail to make the goods available to the seller, or if you agree to return the goods to the seller and fail to do so, then you remain liable for performance of all obligations under the contract.

To cancel this transaction, mail or deliver a signed and dated copy of this cancellation notice, or any other written notice, or send a telegram to (Contractor name): **Dutra Construction**, at (Contractor address): **353 Minckler Ave Susanville, California 96130**, not later than midnight of

(Date): 3 / 30 / 2018

---

I hereby cancel this transaction.

Date: \_\_\_\_\_

---

(Buyer's Name)

---

(Buyer's signature)



**FISCAL IMPACT:** There is no fiscal impact to SMEC. All preparation of documents has been performed by Jim Eddy, a land surveyor licensed in California

**ACTION REQUESTED:** Motion to approve Resolution EC-18-209 authorizing the Chairperson to execute an easement granting access to all affected property owners utilizing Peak Road through the City parcel APN 101-050-53 and directing the SMEC Clerk to record the easement once executed with the Lassen County Recorder.

**ATTACHMENTS:** Resolution EC-18-209 Authorization to Execute an Easement Agreement on Peak Road;  
Proposed Easement and exhibits  
Exhibit for Peak Road  
Eddy Letter of Request  
Recorded County Grant of Easement

**RESOLUTION NO EC 18-209  
A RESOLUTION OF THE SUSANVILLE MUNICIPAL ENERGY CORPORATION  
GRANTING AN EASEMENT FOR ACCESS ALONG PEAK ROAD AND  
AUTHORIZING THE CHAIRMAN TO SIGN AND HAVE AN EASEMENT RECORDED**

**WHEREAS**, the Susanville Municipal Energy Corporation (SMEC) having read and considered that certain easement for access to a portion of Peak Road, a copy of which is attached hereto as Exhibit 'A'; and

**WHEREAS**, the SMEC being authorized by law to make conveyances of easements over its property; and it appearing to be in the interest of all property owners to convey said easement pursuant to the terms and conditions of the aforesaid easement;

**NOW, THEREFORE, BE IT RESOLVED** by the Susanville Municipal Energy Corporation, that:

1. The Susanville City Council hereby agrees to the conveyance of the aforesaid easement for a portion of Peak Road within City owned lands, and further agrees to the terms set forth in it;
2. The Chairman of the Susanville Municipal Energy Corporation is hereby authorized and directed to execute the documents pertaining to the City's conveyance of the aforesaid easement;
3. The Clerk to the SMEC is directed and authorized to cause a certified copy of this Resolution to be recorded with the Lassen County Recorder.

APPROVED: \_\_\_\_\_  
Kathie Garnier, Chairperson

ATTEST: \_\_\_\_\_  
Gwenna MacDonald, Clerk

The foregoing Resolution No. EC18-209 was adopted at a regular meeting of the Susanville Municipal Energy Corporation held on the 4<sup>th</sup> day of April in 2018 by the following vote:

AYES:  
NOES:  
ABSENT:  
ABSTAINING:

\_\_\_\_\_  
Gwenna MacDonald, Clerk

APPROVED AS TO FORM:

\_\_\_\_\_  
Jessica Ryan, City Attorney

WHEN RECORDED MAIL THIS DEED AND, UNLESS SHOWN BELOW, MAIL TAX STATEMENT TO:

Name James Q. Eddy Jr.  
Street P.O Box 1587  
Address  
City & Susanville, CA 96130  
State  
Zip

2018-00056

Recorded at the request of:  
JAMES Q EDDY JR  
01/05/2018 02:18 PM  
Fee: \$94.00 Pgs: 1 of 5 ED  
OFFICIAL RECORDS  
Julie M. Bustamante - Clerk-Recorder  
Lassen County, CA



SPACE ABOVE THIS LINE FOR RECORDER'S USE

## Easement Deed

The undersigned grantor hereby declares that there is no Documentary Transfer Tax due. *R#T 11911*

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

THE COUNTY OF LASSEN, A POLITICAL SUBDIVISION OF CALIFORNIA, GRANTOR

hereby GRANT(S) to THE OWNERS OF REAL PROPERTY (SEE EXHIBIT "B" ATTACHED) LOCATED IN THE NW 1/4 AND THE SW 1/4 AND THE NW 1/4 OF THE SE 1/4 AND THE SOUTH 1/2 OF THE SOUTH 1/2 OF THE SW 1/4 OF THE NE 1/4 OF SECTION 19, TOWNSHIP 30 NORTH, RANGE 12 EAST, MDM AND IN SECTIONS 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, TOWNSHIP 30 NORTH, RANGE 11 EAST, MDM

the following described real property in the unincorporated area of the County of Lassen, State of California:

A non-exclusive easement for ingress and egress over and across the following described parcel of land:

That portion of the East 1/2 of the East 1/2 of Section 19, Township 30 North, Range 12 East, Mount Diablo Meridian lying within a strip of land 30.00 feet wide lying 15.00 feet on each side of the Centerline of Existing Road defined by courses L3, L4, L48, L27, L28 and L29 as shown on the Record of Survey for Engman, et al, recorded November 21, 2002 in Book 38 of Maps, at Page 1, Records of Lassen County, California.

See Exhibit "A" attached

APN: 101-050-54 (in Sec 19, T 30 N, R 12 E, MDM)

Dated 1-5-18

*REW*  
RICHARD EGAN

# ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

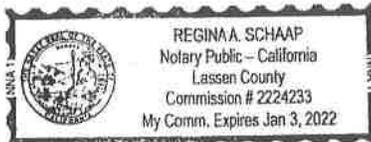
State of California  
County of Lassen

On January 5, 2018 before me, Regina A. Schaap, Notary Public  
(insert name and title of the officer)

personally appeared Richard Egan  
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Signature Regina A. Schaap (Seal)



## Exhibit "B"

### THE OWNERS OF REAL PROPERTY AS SHOWN ON THE LATEST LASSEN COUNTY TAX ROLL

James Q. Eddy Jr. and Debbie J. Eddy, husband and wife as Joint Tenants  
Kenneth G. Korver  
Sierra Pacific Industries  
Susanville Municipal Energy Corporation c/o the City of Susanville  
Red River Forests LLC c/o W. M. Beaty and Associates Inc.  
Sandra Susan Datema  
Chad A. Lehmann and Bonanza Ventures  
Gertrude S. Folsom  
Klinger 2010 Revocable Trust  
Mai Sy L Vang and Cher Vang, Wife and Husband as Community Property with Right of Survivorship  
King B. Lee and Mancewan K. Lee, as Community Property with Right of Survivorship  
United States of America  
Elsie J. Givens Living Trust  
Joe B. Henderson and Betty J. Henderson  
Kenneth S. Sowers  
Norma J. Fonti Irrevocable Trust c/o Teri P Killgore, Trustee  
Katherine E. Barba Souders  
Wesley C. Robinson and Janet M. Robinson  
Roger B. Francois and Heather Anne Francois as Community Property with Right of Survivorship  
Earl O. Burgin and Connie V. Burgin  
Austen Wery  
George Leroy Cramer  
George L. Cramer  
Hue Xiong  
Zhengtian Gu and Wei Chen Revocable Trust  
John N. Fossati and Roberta G. Fossati as Tenants In Common

RESOLUTION NO. 17-039

LASSEN COUNTY BOARD OF SUPERVISORS  
RESOLUTION GRANTING AN EASEMENT DEED  
THROUGH SUSANVILLE RANCH PARK

WHEREAS, Property owners located in Section 19, Township 30 North, Range 12 East and Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, Township 30 North, Range 11 East who have access through the Susanville Ranch Park are desirous of acquiring deeded access to their properties; and

WHEREAS, It would be in the best interest of the County to grant this Easement Deed to allow the property owners a deeded easement.

NOW, THEREFORE, BE IT RESOLVED, that the County does approve the granting of the easement through the Susanville Ranch Park as described in the Easement Deed attached hereto.

BE IT FURTHER RESOLVED, that the County Administrative Officer is hereby authorized and directed on behalf of the County to execute, deliver and record said Easement Deed and this Resolution as well as perform all things necessary to implement the intent of this Resolution.

The foregoing resolution was adopted at a regular meeting of the Board of Supervisors of the County of Lassen, State of California, held on the 13th day of June, 2017 by the following vote:

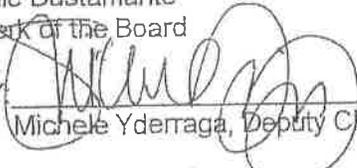
AYES: Supervisors Gallagher, Teeter, Hemphill and Albaugh.

NOES: None.

ABSENT: Supervisor Hammond.

  
\_\_\_\_\_  
Chairman of the Board of Supervisors  
County of Lassen, State of California

ATTEST  
Julie Bustamante  
Clerk of the Board

BY:   
\_\_\_\_\_  
Michele Yderraga, Deputy Clerk of the Board

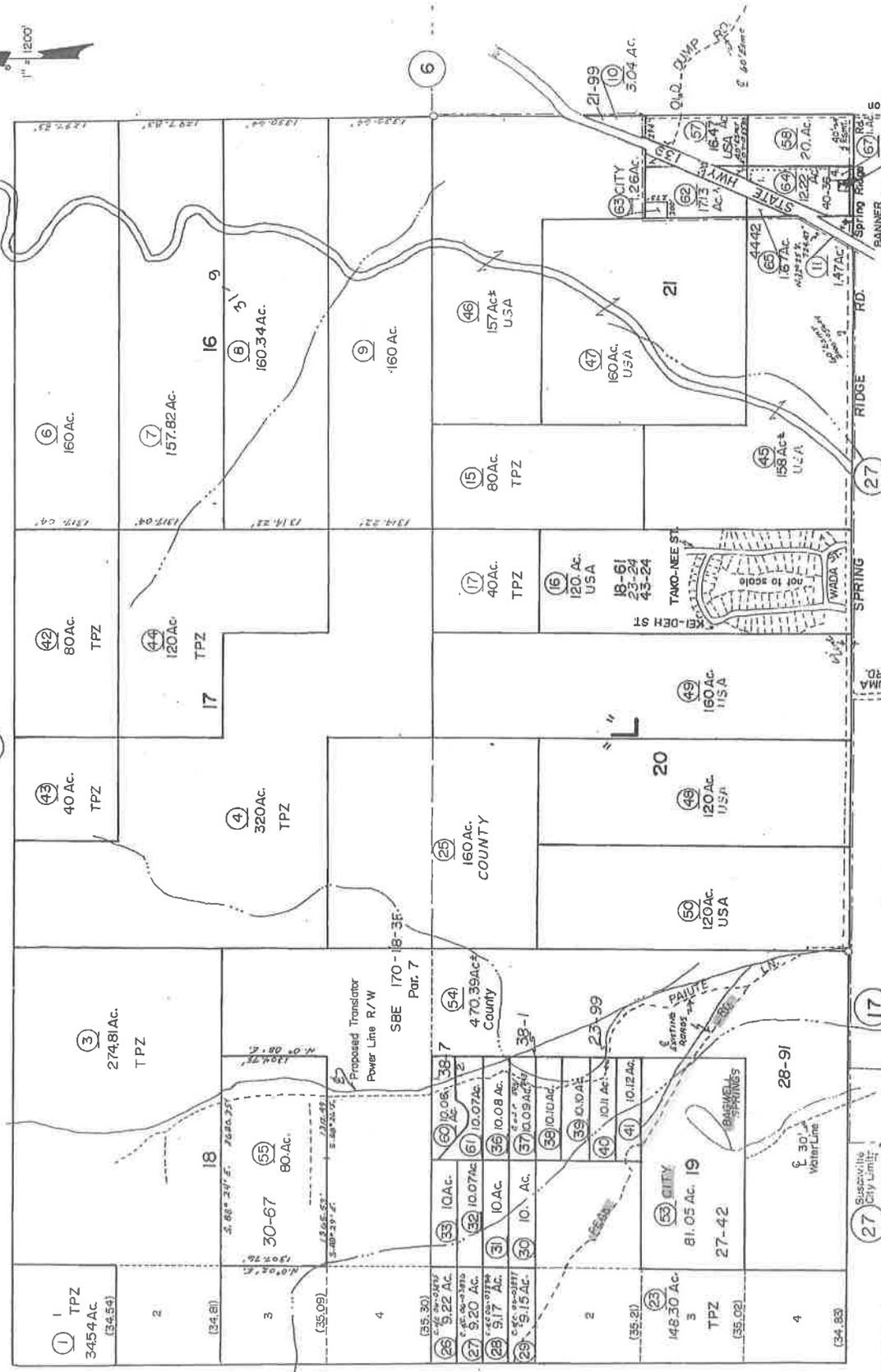
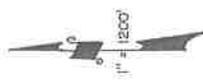
I, MICHELE YDERRAGA, Deputy Clerk of the Board of Supervisors, County of Lassen, do hereby certify that the foregoing resolution was adopted by said Board of Supervisors at a regular meeting thereof held on the 13th day of June, 2017.



  
\_\_\_\_\_  
Deputy Clerk of the County of Lassen Board of Supervisors

T.30N. R.12E. M.D.M.

101-05



Assessor's Parcel Numbers Shown in Circles  
 Assessor's Map Bk. 101 Pg. 05  
 County of Lassen, CA.

Map Bk. Pg.	Name	Acres	City	Map Bk. Pg.	Name
101-05	1	345.4	TPZ	101-05	1
101-05	2	160	USA	101-05	2
101-05	3	274.81	TPZ	101-05	3
101-05	4	160	USA	101-05	4
101-05	5	80	TPZ	101-05	5
101-05	6	157.82	USA	101-05	6
101-05	7	160.34	USA	101-05	7
101-05	8	40	TPZ	101-05	8
101-05	9	160	USA	101-05	9
101-05	10	80	TPZ	101-05	10
101-05	11	120	USA	101-05	11
101-05	12	320	TPZ	101-05	12
101-05	13	160	COUNTY	101-05	13
101-05	14	160	USA	101-05	14
101-05	15	120	USA	101-05	15
101-05	16	120	USA	101-05	16
101-05	17	160	USA	101-05	17
101-05	18	274.81	TPZ	101-05	18
101-05	19	80	USA	101-05	19
101-05	20	120	USA	101-05	20
101-05	21	120	USA	101-05	21
101-05	22	470.39	COUNTY	101-05	22
101-05	23	148.30	TPZ	101-05	23
101-05	24	27.42	USA	101-05	24
101-05	25	160	USA	101-05	25
101-05	26	160	USA	101-05	26
101-05	27	160	USA	101-05	27
101-05	28	160	USA	101-05	28
101-05	29	160	USA	101-05	29
101-05	30	160	USA	101-05	30
101-05	31	160	USA	101-05	31
101-05	32	160	USA	101-05	32
101-05	33	160	USA	101-05	33
101-05	34	160	USA	101-05	34
101-05	35	160	USA	101-05	35
101-05	36	160	USA	101-05	36

Acreage listed is prepared and checked with available information and is for Assessor's Office use only.

# JAMES Q. EDDY JR.

P.O. BOX 1587 SUSANVILLE, CA 96130 (530) 257-7674

February 9, 2017

City of Susanville  
720 South Street  
Susanville, CA 96130

Susanville Public Works Dept.  
FEB 19 2017  
RECEIVED

ATTN: Daniel Gibbs - City Engineer

Dear Mr. Gibbs,

Per your suggestion I am writing this narrative letter to you as a somewhat formal request by my wife and myself to the City to grant us an access easement along the existing road known as Peak Road which travels across the City's 81.05 acre property located in Section 19, T 30 N, R 12 E, MDM. It is the site of the Bagwell Springs Tank site. The Assessor's Parcel Number is 101-050-53.

My wife and I also live in Section 19 further up the hill from the City's property. Our address is 696-725 Peak Road and we own 4 parcels: Assessor's Parcel Numbers 101-050-26,27,28 & 29. We purchased the property in 1980 and have lived on the property since 1988. We have used the existing road to get to our property since 1980.

Although the existing road has been given the designation of Peak Road, there are no actual deeded easements recorded. The road has existed well over 60 years having been shown on a 1954 government quad map which is based upon data established earlier.

My wife and I are planning to move from the area and presently have our home listed for sale. A difficulty that we have with the sale of our home is that we do not have a deeded access to our property. Banks and Loan Companies do not loan money to potential buyers where no deeded access exists. This is the reason I contacted you back in May of last year to see if we can secure an easement from the City.

The City is not the only party that we have contacted requesting an easement. We have spoken to the County of Lassen who owns the property just before the City's and to Dr. Kenneth Korver and Sierra Pacific Industries who own property between the City and our's. We originally spoke to the County to see if they were favorable to our request and when they indicated that they were, we contacted the City.

As a professional land surveyor, I have seen many instances where properties do not have deeded access. I have no direct figures but would estimate that 90% of property in California does not have deeded access.

Back in 2002 I became involved in a similar situation requiring easements to properties also located in Section 19. Mike Engman was selling his house (APN:101-050-37) and was facing the same circumstances of banks not loaning money for a home without deeded access. His access to his property was along a portion of the same road that we use. It is also known as Paiute Lane and extends beyond the then Engman property. Several other property owners became involved in securing of easements through the County property as well as through a portion of the Susanville Rancheria property. The Rancheria granted an easement to numerous property owners, myself included. The County document was prepared by me and granted an easement to a number of properties. I have given you a copy of that document recorded in February of 2003 as an example of how those easements were done and as a suggestion to how the City could do theirs as well. That easement benefitted many people at the same time.

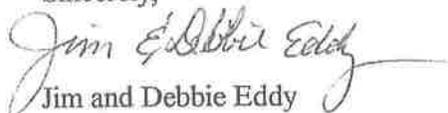
Since we are setting out to accomplish this task, we realize that there are numerous people who own property all around and above us that would also benefit from an easement. Although there are no other homes located on them, there are those that would like to build one day. I personally know or have talked to many of those owners. Sierra Pacific Industries is a major land owner. Most of them do not know that we are suggesting that the City also include them in an access easement. We believe that if the City is going to do this, why not just do it once instead of every time a request comes in the future. Since I also have the knowledge and expertise, why not now.

This road has existed for quite some time. The public does not use this road as a main thoroughfare but the owners use it constantly to get to their property. The granting of an easement will not increase the public use of the road but will benefit those who own property. When we first moved to our property we had a Paiute Lane address. A few years later, the County designated our road as Peak Road recognizing it as an existing thoroughfare.

Presently the City accesses its property through the County property without the benefit of a deeded access. What we are securing from the County will directly benefit the City. The City also crosses the Rancheria property but DOES have a deeded access through there because of a document recorded by the Rancheria back in 2003. It benefitted and probably didn't even know it.

We hope that the City will understand our request and grant us an access easement across their property. It will benefit not only ourselves but many of our neighbors as well. We are including a copy of the County Assessor's Maps that show the other property locations.

Sincerely,

  
Jim and Debbie Eddy

WHEN RECORDED MAIL THIS DEED AND, UNLESS SHOWN BELOW, MAIL TAX STATEMENT TO:

Name Susanville Municipal Energy Corporation  
Street Address 66 Lassen Street  
City & State Susanville, California  
Zip 96+130

SPACE ABOVE THIS LINE FOR RECORDER'S USE

## Easement Deed

The undersigned grantor declares that there is no Documentary Transfer Tax due. R&T 11911

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

THE SUSANVILLE MUNICIPAL ENERGY CORPORATION, A NON-PROFIT PUBLIC BENEFIT CORPORATION, AS GRANTOR:

hereby GRANT(S) to: THE OWNERS OF REAL PROPERTY PER EXHIBIT "B" LOCATED IN THE NW 1/4 AND THE SW1/4 AND THE SOUTH 1/2 OF THE SOUTH 1/2 OF THE SW 1/4 OF THE NE 1/4 OF SECTION 19, TOWNSHIP 30 NORTH, RANGE 12 EAST, MDM AND THE OWNERS OF PROPERTY LOCATED IN SECTIONS 1, 2, 3, 10, 11, 12, 13, 14,15, 22, 23, AND 24, TOWNSHIP 30 NORTH, RANGE 11 EAST, MDM, GRANTEES

the following described real property in the unincorporated area of the County of Lassen, State of California:

A non-exclusive easement for ingress and egress over and across a portion of the property owned by the GRANTOR in the NE 1/4 of the SW 1/4 and the NW 1/4 of the SE 1/4 of said Section 19, more particularly described as follows:

That portion of the NW 1/4 of the SE 1/4 of Section 19, Township 30 North, Range 12 East, Mount Diablo Meridian lying within a strip of land 30.00 feet wide lying 15.00 feet on each side of the Centerline of Existing Road defined by courses L29 through L34 as shown on the Record of Survey for Engman, et al, recorded November 21, 2002 in Book 38 of Maps, at Page 1, Records of Lassen County, California.

See Exhibit "A" attached

APN: 101-050-53 (in Sec 19, T 30 N, R 12 E, MDM)

This easement is for the use of the GRANTEES and is not intended to be a public road. Maintenance of the easement shall be at the sole cost and expense of GRANTEES. GRANTEES shall not remove any trees located within this easement without written permission from the GRANTOR or it's successors.

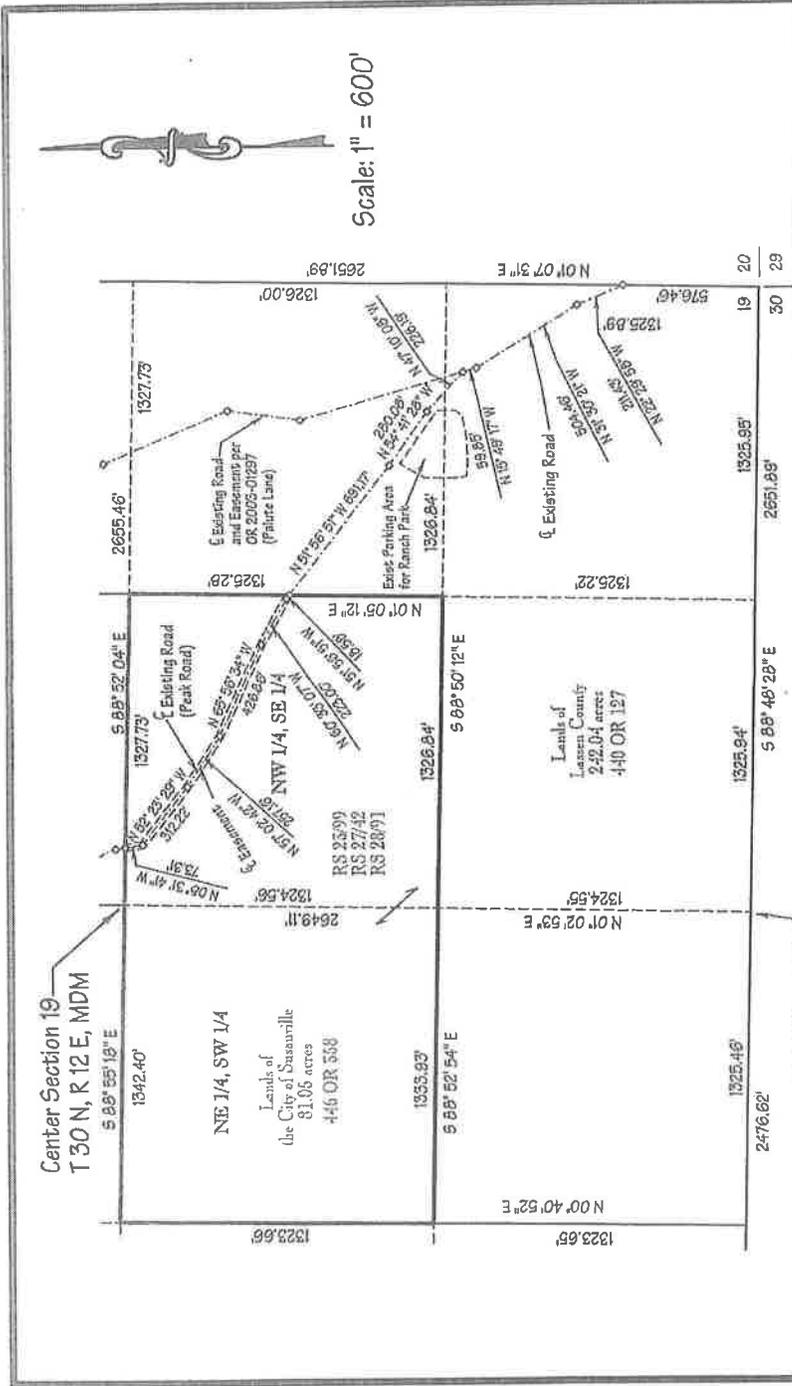
Dated \_\_\_\_\_

\_\_\_\_\_  
Kathie Garnier, Chairperson

ATTACH NOTARY WHERE REQUIRED



Scale: 1" = 600'



EASEMENT MAP - EXHIBIT "A"	
Job No.	Eddy Easement
Date	07/13/16
Drawn By	JGE
Revisions	
Prepared By:	James Q. Eddy Jr. P.O. Box 1567 Susanville, CA 96150 (530) 257-7674
Map Prepared For:	City of Susanville
Sheet No.	1 of 1



Bearings and distances shown are record per Record of Survey 3871.  
 ◇ Indicates angle point in existing road not monumented.

South 1/4 Cor Sec 19  
 Pd 1" IP Tagged  
 L5 3202 per R5 27142

## Exhibit "B"

THE OWNERS OF REAL PROPERTY AS SHOWN ON THE MOST CURRENT AVAILABLE  
LASSEN COUNTY TAX ROLL -

James Q. Eddy Jr. and Debbie J. Eddy, husband and wife as Joint Tenants  
Kenneth G. Korver  
Sierra Pacific Industries  
Red River Forests LLC c/o W. M. Beaty and Associates Inc.  
Sandra Susan Datema  
Chad A. Lehmann and Bonanza Ventures  
Gertrude S. Folsom  
Klinger 2010 Revocable Trust  
Mai Sy L Vang and Cher Vang, Wife and Husband as Community Property with Right of Survivorship  
King B. Lee and Maneewan K. Lee, as Community Property with Right of Survivorship  
United States of America  
Elsie J. Givens Living Trust  
Joe B. Henderson and Betty J. Henderson  
Kenneth S. Sowers  
Norma J. Fonti Irrevocable Trust c/o Teri P Killgore, Trustee  
Katherine E. Barba Souders  
Wesley C. Robinson and Janet M. Robinson  
Roger B. Francois and Heather Anne Francois as Community Property with Right of Survivorship  
Earl O. Burgin and Connie V. Burgin  
Austen Wery  
George Leroy Cramer  
George L. Cramer  
Hue Xiong  
Zhengtian Gu and Wei Chen Revocable Trust  
John N. Fossati and Roberta G. Fossati as Tenants In Common

END OF EXHIBIT

AGENDA ITEM NO. 13A

Reviewed by:     Interim City Administrator  
    City Attorney

    Motion Only  
    Public Hearing  
    Resolution  
    Ordinance  
    Information

**Submitted By:** Kelley Merritt, Acting Police Chief

**Action Date:** April 4, 2018

**CITY COUNCIL AGENDA ITEM**

**SUBJECT:** Susanville Police Department's 2017 4<sup>th</sup> Quarterly Report.

**PRESENTED BY:** Kelley Merritt, Acting Police Chief

**SUMMARY:** Provide update of the quarterly operations and projects of the Police Department

**FISCAL IMPACT:** None

**ACTION REQUESTED:** Information only.

**ATTACHMENTS:** 2017 4<sup>th</sup> Quarter Stats Report  
Summary of Department Activities

<b>INCIDENT TYPE</b>	<b>Month/Year</b>	<b>Month/Year</b>	<b>Month/Year</b>	<b>TOTAL</b>
<b>4th Quarter 2017</b>	<b>October</b>	<b>November</b>	<b>December</b>	
Dispatched Incidents	162	113	136	411
Officer Initiated	610	563	556	1729
<b><u>Vehicle Collisions</u></b>				
Non-Injury	14	4	8	26
Private Property	0	0	0	0
Injury	3	0	4	7
Traffic Citations	8	6	8	22
Parking Citations	21	2	1	24
<b><u>Arrests</u></b>				
Misdemeanor	26	25	25	76
Felony	12	6	9	27
<b><u>Part 1 Crimes</u></b>				
Homicide	0	0	0	0
Sexual Assault	1	0	1	2
Robbery	2	2	0	2
Assaults	20	11	22	55
Burglary	12	9	6	27
Theft	14	19	16	49
Auto Theft	0	0	0	0
Arson	0	1	1	2
<b><u>Miscellaneous</u></b>				
Domestic Violence	7	8	11	26
Vandalism	14	9	7	30
Animal Complaints	7	5	8	20
Case Numbers Drawn	175	146	154	475

## Quarterly Status Report – Police Department

The following is a summary of the projects and activities of the Susanville Police Department:

### Personnel

- Currently the department is not fully staffed. We have one vacancy and would anticipate filling that position soon. We are running our daily operations with only two Sergeants, nine Officers and one Officer on Light Duty.
- CSO Positions are fully staffed with Kim Warren acting as the Evidence Technician (Full-time) and Trisha Wood acting as the Animal Control Officer (Part-time). With these positions filled, we are focusing on enforcing Parking Violations within City Limits.
- We are continually providing training to staff, focusing on core classes for all officers and including some specialized training. Upon completion of this training the department will be current with all perishable skills through December 2018:
  - ICI Classes: Child Abuse, Sexual Assault, Homicide
  - Interview and Interrogation
  - Animal Control Academy
  - First Aide/ CPR POST Instructor
  - Field Training Officer Supervisor
  - Records Manager/ Public Records Act
  - Taser Instructor (Two Officers Certified)
  - Glock Training (Two Officers Certified)
  - Defensive Tactics Training

### Community Outreach

- We are continuing to work with our neighborhood watch groups listed below:
  - Depot Six
  - Susanville Indian Rancheria
  - North Central
  - Pine View Mobile Home Park
  - Eschaton Village
  - Rooptown 9

### Community Outreach Continued

- The department will be assisting in the Walk a Mile event in April, drawing awareness to domestic violence issues.
- The department is preparing to participate in multiple Main Street Cruise,
- Youth Police Explorer Program will be having their second Academy, with approximately 8 cadets. If all complete the academy in April, the program will grow to a total of 14 Police Explorer's for our department.

### **Crime Stoppers**

- Crime Stoppers is fully established as a non-profit organization with a full board of directors.
- Our department has put out 47 Crime Stopper Wanted Flyers to date and has received numerous tips that have led to multiple arrest in Lassen County.
- The group will be hosting a fundraiser Wine Walk in Uptown Susanville on April 7<sup>th</sup>, to raise funds for rewards that to be paid out.
- The Board has authorized over \$500 in tip money to be paid out.

### **Crime Stats:**

- The quarterly crime statistics will be provided at the meeting.