

CITY OF SPARTA
PUBLIC WORKS AGENDA
December 13, 2017

CITY HALL

6:00 P.M.

- 1. Call Meeting to Order**
- 2. Consideration of Consent Agenda consisting of: minutes from the November 8, 2017 meeting, Director of Public Works Report for December; Wastewater Treatment Operation & Maintenance Report for November; Water Utility Operation and Maintenance Report for November, monthly bills for the Sanitation Dept., Street Dept., and Water Utility.**
- 3. Consideration of Utility Agreement with Monroe County**
- 4. Discussion of Lease Agreement of Hangar with Gundersen**
- 5. Items for Future Consideration**
- 6. Adjourn**

A Possible Quorum of the Common Council may be in attendance at this meeting, but no action will be taken by the Council.

Posted: 12-11-17

CITY OF SPARTA
PUBLIC WORKS MINUTES
November 8, 2017

PRESENT: Norm Stanek, Kevin Brueggeman, Larry Tichenor, Bryan Jandt, Kevin Riley (arrived at 6:04)

ABSENT: Carlos Holcomb, Jim Church

ALSO PRESENT: Mark Van Wormer, Todd Fahning, Mark Sund, Dave Kuderer, Todd Hanson, Mark Flock, Jim Hellman, architect for new Rolling Hills Nursing Home, Linda Anderson and other rep

Norm Stanek called the meeting to order at 6:00 p.m.

A motion was made by Kevin Brueggeman and seconded by Larry Tichenor to approve the minutes of the October 11, 2017 meeting, Director of Public Works reports for November; Wastewater Treatment Operation and Maintenance reports for October; Water Utility Operation and Maintenance reports for October monthly bills for the Sanitation Dept., Street Dept. and Water Utility. Motion carried 4-0.

Item # 4 was discussed at this time.

Years ago, a Utility Agreement was entered into between Rolling Hills Nursing Home and the City of Sparta. Since plans are being made for a new Nursing Home, this agreement will have to be changed. The architect representing the Nursing Home showed the Board 2 plans, one on the East side of Hwy B and one on the West side of Hwy B. There should not be a problem with the sewer system on either side. But, there could be an issue with the water system depending where it will be located. The main concern would be having enough water flowage for handling a fire and just making sure that water concerns are handled for any future construction or expansion. The Board would like to have Todd Hanson get Matt Morrow involved and research this. **No action was taken at this time.** (Kevin Riley arrived during this discussion)

A copy of the Phase I Preliminary Cost Estimate for South Pointe Business Park was presented to the Board for approval. The preliminary work for South Pointe Business Park will start in 2018. **A motion was made by Larry Tichenor and seconded by Kevin Brueggeman to approve the plans for Phase I in South Pointe Business Park. Motion carried 5-0.**

Gundersen has approached Mark again regarding interest in leasing the big airport hangar. A new proposal will be drawn up. There are 2 others that have expressed interest in leasing this hangar. We would like to see what Gundersen plans on doing and then proceed with options.

The Street Department presented 2 bids for a front end loader. Dennis Johnson is recommending the 2018 Case 621G end loader at a cost of \$154,154.00. Our old one will be put on the Surplus website to be sold. **A motion was made by Larry Tichenor and seconded by Kevin Brueggeman to approve the purchase of the 2018 Case 621G at a cost of \$154,154.00. Motion carried 5-0.**

Items mentioned for future consideration were:

Dean Arcoraci is interested in renting an airport hangar.

It was mentioned that with our problem with non-flushables going down the drain, the problem is nationwide.

The S. Water Street RR crossing will have to be fixed before next Spring as that road is our detour route.

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A motion was made by Kevin Riley and seconded by Norm Stanek to adjourn at 6:44 p.m. Motion carried 5-0.

Respectfully submitted,

Julie Hanson
City Clerk

To: Board of Public Works
From: Mark Van Wormer, Director of Public Works
Date: December 13, 2017
Subject: Public Works December Monthly Report

Airport

-Gunderson MedLink Air has interest in leasing the former NECO hangar and surrounding grounds for their helicopter operations and storage.

Project Updates

Paper Mill Dam Project

MSA is continuing surveys and design work to submit to the DNR. These modifications have not been approved by the DNR to date, but there is still a possibility that the construction could occur next year.

Central Ave. (Grace St to Black River St)

Final payment request has been authorized and this project is complete.

Milwaukee St. Bridge Project (2019)

Replacement of the Milwaukee St. Bridge over Farmer's Valley Creek is scheduled for 2018 bidding and 2019 construction. The DOT requested we move the project into 2018, but the engineer and myself thought it would be in the City's best interest to keep the project in 2019. The short time frame for bidding in the summer of 2018 could significantly increase project costs.

Highway 27 Project

The reconstruction project from River Road to Hill St. is still on schedule to begin in the spring of 2018.

Utility Agreement with Monroe County

The study by MSA has been conducted and the recommendation would be to install a new booster station to supply water to the County Complex, but the existing station although outdated would provide sufficient water pressure and volume to meet demands.

Miscellaneous

Fall leaf cleanup is continuing and the street department is preparing for winter operations. Ash tree and other damaged or dying tree removal is underway along with tree trimming.

**CITY OF SPARTA
WASTEWATER TREATMENT FACILITY
OPERATION AND MAINTENANCE REPORT**

NOVEMBER 2017

The month of November was devoted to general plant maintenance and winterization tasks. Synagro hauled and land applied about 1.4 million gallons of liquid sludge on DNR approved farm fields leaving us with ample sludge storage space until Spring. We drained the line to our sludge load-out station and pumped out the inlet channel to aeration basin #3 along with the inlet piping to the north final clarifier which are sitting idle and prepared the rest of the plant for winter. We pulled the influent sampler pump and replaced the lower seal and changed oil. Replaced the lower diaphragm clamp and diaphragm on primary sludge pump #2 and ordered a new 10-inch air cylinder for primary sludge pump #1. B&M Technical Services performed our semi-annual calibrations on all flow measuring devices. MSA Engineering continues to design upgrades for the Hoeschler Dr. and Julie Ave liftstations. We replaced batteries in all of our UPS (Uninterruptible Power Supply) units in all buildings along with the batteries in our back-up alarm dialers. Altronex installed a Dissolved Oxygen (DO) probe in aeration basin #2. The plant is performing very well and we are in full compliance with our current (expired) WPDES permit requirements. Listed below are some of the other operation and maintenance tasks, which were completed during November 2017.

- Continue to run the sludge Gravity Belt Thickener 3x a week.
- Ran all emergency stand-by generators under load.
- Continue to clean weirs, launders and trickling filter arms weekly.
- Hauled 2 loads of leachate from the Sand Creek landfill.
- Continue to flush sewers, weather providing.
- Continue to clean all out buildings.
- Changed oil in F-350 pickup.
- Collected monthly metals and quarterly mercury samples.
- Continue to perform plant work orders and read hour meters.

Mark Flock
WW Plant Manager

City of Sparta Water Utility

Operation and Maintenance Report

November, 2017

In November we pumped 36,414,000 gallons of water compared to 32,182,000 gallons for the same period last year.

The following is a list of what the Water Utility has been working on during the month of November:

- Completed the monthly bacti samples.
- Completed a raw water sample at Well 9.
- Completed the monthly fluoride sample.
- Ran standby engines and generators for the monthly tests.
- We assisted Gerke in repairing a water main break near 822 John St. The break was on a 6" main that feed hydrant D45. They also dug and replaced a broken curb stop at 1113 S. Water St. This curb stop broke while attempting to shut off a customer for nonpayment.
- Hydrant flags have been installed and the first round of checking hydrants, for drain down, has been completed.
- We worked on some disconnects for unpaid bills. This is time consuming, but very effective in recovering past due payments. We recovered a substantial amount of money and most customers have since been turned back on.
- I have contacted Matt Morrow from MSA as per the board's request. His team will be looking into the water demand needed for Monroe County's proposed new nursing home on County Hwy. B & General Ave, and how that may affect our system. Water Utility staff along with Matt and myself conducted some fire flow tests near the proposed site. He hopes to have the study completed by our December meeting. The study will be paid for by the county.
- We have completed the November quarterly meter reading and now are following up on no reads and other troubleshooting of meters and mxu radio boxes.
- We have started to service some of our pumps and other equipment.
- We received a chemical delivery, from Hawkins Chemical Group at some of our well houses.
- We are continuing with work such as: water testing at wells and in the system, routine meter changing, residential cross connection inspections, high bill checks, Diggers Hotline ticket locates.
- We have started to work on year end inventory as time allows.
- We completed the monthly meter reading route for our large customers.

*Todd Hanson
Supervisor
Sparta Water Utility*

Check Number	Check Issue Date	Vendor Name	Invoice GL Account	Invoice GL Account Title	Invoice Number	Amount	Description
113502	11/02/2017	Band Box Cleaners	700-53830-210	PROFESSIONAL SERV	63401	23.20	MAT 3x5 WALNUT
113506	11/02/2017	DAKOTA SUPPLY	700-53870-240	REPAIRS & MAINTENA	D428569	50.33	CVR PVC WP
113509	11/02/2017	First Supply LLC	700-53850-240	REPAIRS & MAINTENA	10830270-00	107.00	PVC CPL
113510	11/02/2017	Hach Company	700-53830-340	OPERATING SUPPLIE	10679756	563.28	NUTRIENT BFR SOLN/BU
113510	11/02/2017	Hach Company	700-53830-340	OPERATING SUPPLIE	10689506	282.20	Phosphorus 50 tests
113511	11/02/2017	L W Allen LLC	700-53860-340	OPERATING SUPPLIE	104418	593.45	MOTOR OVERLOAD
113511	11/02/2017	L W Allen LLC	700-53870-240	REPAIRS & MAINTENA	104428	118.67	SEAL LOWER/SEAL
113513	11/02/2017	North Central Labor	700-53830-340	OPERATING SUPPLIE	397235	481.15	Phospate solution/fiber filte
113515	11/02/2017	Quality Flow System	700-53860-340	OPERATING SUPPLIE	34288	70.23	Run time meter
113518	11/02/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	3170 A296678	5.93	RAW SAMPLER PIPING
113518	11/02/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	3170 A296678	.59-	DISCOUNT
113518	11/02/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	3170 B267250	8.59	FITTING PEX
113518	11/02/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	3170 B267250	.86-	DISCOUNT
113518	11/02/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	3170 B267252	5.48	NATURAL CABLE TIES
113518	11/02/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	3170 B267252	.55-	DISCOUNT
113518	11/02/2017	The Hardware Store	700-53830-273	TOOLS	3170 B267260	5.50	CRIMPING TOOL RENTA
113518	11/02/2017	The Hardware Store	700-53830-273	TOOLS	3170 B267260	.55-	DISCOUNT
113522	11/02/2017	WE ENERGIES	700-53860-340	OPERATING SUPPLIE	3281-326-595 10/17	10.10	GAS-HOESCHLER
113522	11/02/2017	WE ENERGIES	700-53810-221	HEATING - GAS	5032-284-722 10/17	36.60	GAS-RICHGRUBER RD
113522	11/02/2017	WE ENERGIES	700-53860-340	OPERATING SUPPLIE	7241-288-912 10/17	10.70	GAS-JULIE AVE
113617	11/08/2017	WI State Lab of Hyg	700-53920-930	MISCELLANEOUS GE	522026	914.00	NUTRIENTS/BOD/COD
113626	11/13/2017	Komline-Sanderson	700-53870-240	REPAIRS & MAINTENA	42037022	1,083.68	Gravity belt
113627	11/13/2017	L W Allen LLC	700-53870-210	PROFESSIONAL SERV	104460	6,526.94	PUMP REPAIR - Osborne
113630	11/13/2017	Metropholitan Comp	700-53860-340	OPERATING SUPPLIE	0068567	577.19	SURVIVORS-5 GAL
113634	11/13/2017	MONROE COUNTY	700-53870-240	REPAIRS & MAINTENA	001-1017	36.00	SANITATION
113639	11/13/2017	SPARTA COOPER	700-53840-240	REPAIRS & MAINTENA	44408	521.00	TUNEUP/EXHAUST/BRAK
113639	11/13/2017	SPARTA COOPER	700-53840-371	GAS/OIL	5724 10/17	191.40	GAS CHGS - OCT 2017
113639	11/13/2017	SPARTA COOPER	700-53810-223	DIESEL FUEL	5724 10/17	171.67	DIESEL CHGS - OCT 201
113640	11/13/2017	VERIZON WIRELE	700-53830-930	MISCELLANEOUS GE	9795539860	40.01	SCADA IPAD
113656	11/16/2017	Cedar Corporation	700-53920-210	PROFESSIONAL SERV	94119	4,417.31	PHOSHORUS LIMITS TH
113657	11/16/2017	CenturyLink	700-53860-340	OPERATING SUPPLIE	301277774 11/17	73.79	TELEPHONE
113657	11/16/2017	CenturyLink	700-53920-391	TELEPHONE	301283737 11/17	255.76	TELEPHONE - 6824
113657	11/16/2017	CenturyLink	700-53860-340	OPERATING SUPPLIE	301283737 11/17	84.44	TELEPHONE - 3368 & 291
113659	11/16/2017	HOLTZ LIME GRAV	700-53920-210	PROFESSIONAL SERV	14708	8,966.51	BEAVER CREEK STREA
113659	11/16/2017	HOLTZ LIME GRAV	700-53920-210	PROFESSIONAL SERV	14713	24,913.95	BEAVER CREEK STREA
113659	11/16/2017	HOLTZ LIME GRAV	700-53920-210	PROFESSIONAL SERV	14715	2,090.00	LA CROSSE RIVER REPA
113659	11/16/2017	HOLTZ LIME GRAV	700-53920-210	PROFESSIONAL SERV	14716	5,007.28	SEDIMENT BASIN
113660	11/16/2017	MIDWEST FUELS	700-53810-223	DIESEL FUEL	F24552534 10285	1,031.72	#2 50/50 BLEND
113685	11/21/2017	XCEL ENERGY	700-53860-340	OPERATING SUPPLIE	52-6161035-7 10/17	23.14	ELECTRICITY-JANE DR
113685	11/21/2017	XCEL ENERGY	700-53860-340	OPERATING SUPPLIE	52-6161035-7 10/17	183.25	ELECTRICITY-HOESCHL
113685	11/21/2017	XCEL ENERGY	700-53860-340	OPERATING SUPPLIE	52-6161035-7 10/17	17.02	ELECTRICITY-1/2 A ST
113685	11/21/2017	XCEL ENERGY	700-53810-220	ELECTRIC	52-6161035-7 10/17	6,651.77	ELECTRICITY-805 RICHG
113685	11/21/2017	XCEL ENERGY	700-53860-340	OPERATING SUPPLIE	52-6161035-7 10/17	141.48	ELECTRICITY-JULIE AVE
113685	11/21/2017	XCEL ENERGY	700-53860-340	OPERATING SUPPLIE	52-6161035-7 10/17	43.94	ELECTRICITY-IBAND AVE
113685	11/21/2017	XCEL ENERGY	700-53860-340	OPERATING SUPPLIE	52-6161035-7 10/17	63.62	ELECTRICITY-WALRATH
113685	11/21/2017	XCEL ENERGY	700-53860-340	OPERATING SUPPLIE	52-6161035-7 10/17	30.14	ELECTRICITY-ST HWY 16
113728	11/27/2017	Gerke Excavating In	700-53920-210	PROFESSIONAL SERV	19594	2,313.57	BEAVER CREEK HYDRO
113733	11/27/2017	Tri-State Business	700-53920-310	OFFICE SUPPLIES	418195	49.54	CANON IR3570 CONTRA
113735	11/27/2017	WI DEPT OF TRAN	700-01070	CONSTRUCTION WOR	395-0000063824	360.84	PROJECT 39551440105/I
113737	11/27/2017	XCEL ENERGY	700-53860-340	OPERATING SUPPLIE	52-9873089-3 11/17	21.19	ELECTRICITY-HEMSTOC
113753	11/29/2017	XCEL ENERGY	700-53860-340	OPERATING SUPPLIE	52-8129801-9 11/17	28.90	ELECTRICITY-1070 HANS
113760	11/30/2017	ADVANCE AUTO P	700-53870-240	REPAIRS & MAINTENA	1580-276466	16.78	INDUSTRIAL V BELT
113760	11/30/2017	ADVANCE AUTO P	700-53830-274	LUBRICANTS	1580-276847	7.34	MULTI PURPOSE GREAS
113760	11/30/2017	ADVANCE AUTO P	700-53840-240	REPAIRS & MAINTENA	1580-276900	29.95	FILTER/OIL
113761	11/30/2017	All American Do It C	700-53830-273	TOOLS	10196805	18.69	CRV LOCK PLIER
113761	11/30/2017	All American Do It C	700-53870-240	REPAIRS & MAINTENA	10197293	6.56	BIBB SEAT/WASHER
113763	11/30/2017	Band Box Cleaners	700-53830-210	PROFESSIONAL SERV	65447	31.28	Towel shop

Check Number	Check Issue Date	Vendor Name	Invoice GL Account	Invoice GL Account Title	Invoice Number	Amount	Description
113763	11/30/2017	Band Box Cleaners	700-53830-210	PROFESSIONAL SERV	97415	23.20	MAT 3x5
113765	11/30/2017	Davy Laboratories	700-53830-923	OUTSIDE SERVICES	17K0098	37.00	LAB COPPER
113767	11/30/2017	Galeton	700-53830-325	SAFETY PROGRAM	1465723-00	98.36	Knit glvst.lthr palm glv thrm
113770	11/30/2017	L W Allen LLC	700-53870-240	REPAIRS & MAINTENA	04573	168.46	12-5F BATTERY/DIALER
113770	11/30/2017	L W Allen LLC	700-53870-240	REPAIRS & MAINTENA	104569	294.89	12-5F BATTERY
113771	11/30/2017	Marshall-Bond Pum	700-53870-240	REPAIRS & MAINTENA	38604.0	444.19	NORDEL DIAPHRAGM
113773	11/30/2017	MSA Professional S	700-01070	CONSTRUCTION WOR	R00051029.0 21	537.25	STH 27/RIVER RD/HILL S
113773	11/30/2017	MSA Professional S	700-53920-210	PROFESSIONAL SERV	R00051051.0 2FINA	1,237.50	JULIE & HOESCHLER LIF
113773	11/30/2017	MSA Professional S	700-53920-210	PROFESSIONAL SERV	R00051052.0 1	3,952.80	JULIE & HOESCHLER LIF
113774	11/30/2017	Northern Sewer Equ	700-53850-240	REPAIRS & MAINTENA	10786	155.03	NOZZLE EXTENSION
113776	11/30/2017	QUILL CORPORATI	700-53920-310	OFFICE SUPPLIES	2514785	20.60	2018 CALENDARS
113779	11/30/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	A296896	10.99	NATURAL CABLE TIES
113779	11/30/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	A296896	1.10-	DISCOUNT
113779	11/30/2017	The Hardware Store	700-53830-274	LUBRICANTS	A297450	13.49	CHAIN BAR
113779	11/30/2017	The Hardware Store	700-53830-274	LUBRICANTS	A297450	1.35-	DISCOUNT
113779	11/30/2017	The Hardware Store	700-53830-273	TOOLS	A297530	9.99	HSS AIRCRAFT BIT
113779	11/30/2017	The Hardware Store	700-53830-273	TOOLS	A297530	1.00-	DISCOUNT
113779	11/30/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	B267573	11.25	ROPE
113779	11/30/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	B267573	1.13-	DISCOUNT
113779	11/30/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	B268274	.98	HARDWARE
113779	11/30/2017	The Hardware Store	700-53870-240	REPAIRS & MAINTENA	B268274	.10-	DISCOUNT
113783	11/30/2017	Vierbicher Associate	700-01070	CONSTRUCTION WOR	00012 160320	736.66	2017 STREET RECONST
113784	11/30/2017	Walmart Community	700-53920-310	OFFICE SUPPLIES	TR# 02512	70.38	Combo ink, blk ink cart

Grand Totals:

77,129.85

Check Number	Check Issue Date	Vendor Name	Invoice GL Account	Invoice GL Account Title	Invoice Number	Amount	Description
113501	11/02/2017	All American Do It C	100-53230-340	OPERATING SUPPLIE	10193765	4.49	PULLEY
113501	11/02/2017	All American Do It C	100-53230-340	OPERATING SUPPLIE	10194344	4.98	MASONRY DRILL B
113501	11/02/2017	All American Do It C	100-53230-340	OPERATING SUPPLIE	10194346	3.45	HARDWARE
113501	11/02/2017	All American Do It C	100-53430-340	OPERATING SUPPLIE	10194414	17.95	CONCRETE MIX-G
113501	11/02/2017	All American Do It C	100-53300-340	OPERATING SUPPLIE	10195601	152.24	FURRING STRIP/S
113505	11/02/2017	CROELL INC	100-53300-340	OPERATING SUPPLIE	241443	161.50	4000 PSI-MYRTLE
113505	11/02/2017	CROELL INC	100-53300-340	OPERATING SUPPLIE	241443	25.00	DISCOUNT
113514	11/02/2017	PERKINS OIL	100-53240-240	REPAIRS & MAINTENA	538698	96.30	4KG TUBES
113518	11/02/2017	The Hardware Store	100-53240-240	REPAIRS & MAINTENA	3180 10/31/17	13.53	DISCOUNT
113518	11/02/2017	The Hardware Store	100-53240-240	REPAIRS & MAINTENA	A296205 3180	19.98	BATTERY
113518	11/02/2017	The Hardware Store	100-53230-340	OPERATING SUPPLIE	B266155 3180	10.84	HARDWARE/LT DU
113518	11/02/2017	The Hardware Store	100-53230-340	OPERATING SUPPLIE	B266156 3180	17.99	BLADE
113518	11/02/2017	The Hardware Store	100-53240-240	REPAIRS & MAINTENA	B266299 3180	30.32	HARDWARE
113518	11/02/2017	The Hardware Store	100-53240-240	REPAIRS & MAINTENA	B266479 3180	56.17	ZINC QUICK LINK/
113519	11/02/2017	UNIVERSAL TRUC	100-53240-240	REPAIRS & MAINTENA	45080	1,952.50	CYLINDER/DRIVE
113524	11/02/2017	XCEL ENERGY	100-53420-000	STREETE LIGHTING	52-6161034-6 10/17	14.42	LIGHTS-107 N WAT
113524	11/02/2017	XCEL ENERGY	100-53420-000	STREETE LIGHTING	52-8821941-6 10/17	52.78	LIGHTS-517 N WAT
113524	11/02/2017	XCEL ENERGY	100-53420-000	STREETE LIGHTING	52-9213733-6 10/17	83.44	LIGHTS-116 W MAI
113525	11/02/2017	ZARNOTH BRUSH	100-53310-340	OPERATING SUPPLIE	167253	515.00	BROOM/GUTTER B
113529	11/06/2017	KENWORTHY'S TR	100-53240-240	REPAIRS & MAINTENA	53627	75.00	WELD ALUM HYDR
113530	11/06/2017	KWIK TRIP INC	100-53240-371	GAS/OIL	319405 10/31/17	2,812.71	STREET DEPT
113531	11/06/2017	LAMBERT FOREST	100-53330-340	OPERATING SUPPLIE	28997	9,800.00	BRUSH GRINDING
113535	11/06/2017	SPARTA COOPER	100-53240-371	GAS/OIL	5127 10/31/17	76.95	GAS CHGS - OCT 2
113537	11/06/2017	UNIVERSAL TRUC	100-53240-240	REPAIRS & MAINTENA	45110	79.00	STEEL ADAPTER/B
113596	11/08/2017	CROELL INC	100-53510-340	OPERATING SUPPLIE	245060	324.00	4000 PSI-AIRPORT
113596	11/08/2017	CROELL INC	100-53510-340	OPERATING SUPPLIE	245060	50.00	DISCOUNT
113619	11/08/2017	XCEL ENERGY	100-53420-000	STREETE LIGHTING	52-8821940-5 10/17	372.88	LIGHTS-109 N WAT
113622	11/13/2017	CRAWFORD OIL C	100-53510-371	GAS/OIL	192123	4,907.93	AIRPORT FUEL
113624	11/13/2017	HARTJE TIRE & SE	100-53240-240	REPAIRS & MAINTENA	1893205	611.75	LOOSE TIRE
113632	11/13/2017	MODERN DISPOS	100-53620-000	GARBAGE & REFUSE	11/15/17	17,298.02	GARBAGE & REFU
113632	11/13/2017	MODERN DISPOS	100-53620-000	GARBAGE & REFUSE	73135	794.00	SERVICE PULL-17
113633	11/13/2017	Monroe County Reg	400-54000-732	STREETS - RECONST	669082	30.00	REC FEE-KT RE T
113634	11/13/2017	MONROE COUNTY	100-53620-000	GARBAGE & REFUSE	001-1017	196.00	STREET DEPT
113638	11/13/2017	Service Plus Heatin	402-54020-543	AIRPORT	29993	2,444.00	INSTALL PROPAN
113640	11/13/2017	VERIZON WIRELE	100-53100-391	TELEPHONE	9795539860	56.60	DPW
113640	11/13/2017	VERIZON WIRELE	100-53230-391	TELEPHONE	9795539860	40.01	STREET IPAD
113641	11/13/2017	XCEL ENERGY	100-53420-000	STREETE LIGHTING	52-6161038-0 10/17	8,019.50	LIGHTS
113641	11/13/2017	XCEL ENERGY	100-53510-220	ELECTRIC	52-6161038-0 10/17	153.26	AIRPORT
113641	11/13/2017	XCEL ENERGY	100-53230-220	ELECTRIC	52-6161038-0 10/17	406.39	SHOP
113643	11/14/2017	CenturyLink	100-53510-391	TELEPHONE	301280811 11/17	178.81	AIRPORT
113643	11/14/2017	CenturyLink	100-53230-391	TELEPHONE	301284392 11/17	149.73	CITY SHOP
113655	11/14/2017	XCEL ENERGY	100-53510-220	ELECTRIC	52-6334618-9 11/17	30.78	AIRPORT - 6083
113663	11/16/2017	TRAFFIC & PARKI	100-53340-340	OPERATING SUPPLIE	583675	1,691.65	NO PARKING SIGN
113664	11/17/2017	Gerke Excavating In	100-53440-340	OPERATING SUPPLIE	19427	862.20	REPAIR STORM S
113681	11/21/2017	TRAFFIC & PARKI	100-53300-340	OPERATING SUPPLIE	584250	311.78	BASE/WASHERS/B
113684	11/21/2017	WALMART COMMU	100-53340-340	OPERATING SUPPLIE	7184 11/16/17	46.76	STREET DEPT
113685	11/21/2017	XCEL ENERGY	100-53510-220	ELECTRIC	52-0793737-9 11/17	14.54	AIRPORT - 6086
113685	11/21/2017	XCEL ENERGY	100-53420-000	STREETE LIGHTING	52-7351573-2 11/17	34.28	LIGHTS-318 S CHE
113730	11/27/2017	MODERN DISPOS	100-53620-000	GARBAGE & REFUSE	12/1/17	17,298.02	GARBAGE & REFU
113732	11/27/2017	ROCK OIL REFININ	100-53620-000	GARBAGE & REFUSE	265770	50.00	OIL DISPOSAL
113733	11/27/2017	Tri-State Business	100-53100-340	OPERATING SUPPLIE	418195	49.55	CANON IR3570 CO
113735	11/27/2017	WI DEPT OF TRAN	400-54000-732	STREETS - RECONST	395-0000063824	360.84	PROJECT 3955144
113739	11/29/2017	Auto Value Parts St	100-53240-240	REPAIRS & MAINTENA	525049173	5.15	HD OIL FARM
113739	11/29/2017	Auto Value Parts St	100-53240-240	REPAIRS & MAINTENA	525049214	124.06	FLARE/O-RING/HO
113739	11/29/2017	Auto Value Parts St	100-53240-240	REPAIRS & MAINTENA	525049227	131.46	FLARE/O-RING/HO
113739	11/29/2017	Auto Value Parts St	100-53240-240	REPAIRS & MAINTENA	525049451	26.47	HD OIL FLEET
113739	11/29/2017	Auto Value Parts St	100-53240-240	REPAIRS & MAINTENA	525049824	14.28	COOLANT HOSE

Check Number	Check Issue Date	Vendor Name	Invoice GL Account	Invoice GL Account Title	Invoice Number	Amount	Description
113739	11/29/2017	Auto Value Parts St	100-53240-240	REPAIRS & MAINTENA	525049922	65.00	CABLE TIES
113739	11/29/2017	Auto Value Parts St	100-53240-240	REPAIRS & MAINTENA	525050158	15.30	EPDM STRAP
113739	11/29/2017	Auto Value Parts St	100-53240-240	REPAIRS & MAINTENA	525050252	115.39	DIESEL FUELBLK
113751	11/29/2017	WI DEPT OF TRAN	400-54000-732	STREETS - RECONST	395-0000063900	2,027.53	PROJECT 3957016
113751	11/29/2017	WI DEPT OF TRAN	400-54000-732	STREETS - RECONST	395-0000063901	4,247.84	PROJECT 3957016
113753	11/29/2017	XCEL ENERGY	100-53420-000	STREETE LIGHTING	52-8821676-4 11/17	44.63	LIGHTS-208 S WAT
113755	11/30/2017	JOHN DEERE FINA	100-53230-340	OPERATING SUPPLIE	1430987	26.34	DRILL BIT/STRIKE
113768	11/30/2017	HARTJE TIRE & SE	100-53240-240	REPAIRS & MAINTENA	0-49527	611.75	LOOSE TIRE
113773	11/30/2017	MSA Professional S	400-54000-732	STREETS - RECONST	R00051029.0 21	537.25	STH 27/RIVER RD/
113776	11/30/2017	QUILL CORPORATI	100-53230-340	OPERATING SUPPLIE	2514785	4.86	2018 CALENDARS
113777	11/30/2017	R Communications	100-53240-240	REPAIRS & MAINTENA	2008	591.00	INSTALL NEW RAD
113783	11/30/2017	Vierbicher Associate	400-54000-732	STREETS - RECONST	00012 160320	736.67	2017 STREET REC
Grand Totals:						<u>82,007.74</u>	

Check Number	Check Issue Date	Vendor Name	Invoice GL Account	Invoice GL Account Title	Invoice Number	Amount	Description
113497	11/01/2017	BARAJAS, MARY	600-01420	CUSTOMER ACCOUN	182383	242.32	REFUND OVERPAYMENT
113503	11/02/2017	Core & Main LP	600-53630-652	MAINT. WATER TREAT	1003521	300.63	PVC PIPE
113520	11/02/2017	USA Blue Book	600-53650-665	MISC EXPENSES TRA	406927	94.68	24' PVC FLAG
113521	11/02/2017	W.W.W.P. - Barabo	600-53920-930	MISCELLANEOUS GE	11/2/17	140.00	QTR MTG-HANSON/PETE
113523	11/02/2017	Weiss, Amanda	600-01420	CUSTOMER ACCOUN	1-16083500-01 2.01	16.45	REFUND OVERPYMT-151
113590	11/08/2017	1ST COMMUNITY	600-53630-652	MAINT. WATER TREAT	1057 10/27/17	223.79	WATER DEPT
113601	11/08/2017	EVANS PRINT & M	600-53920-921	OFFICE EXPENSES	11266	95.00	HYDRANT FLUSHING
113608	11/08/2017	SPARTA COOPER	600-53920-933	TRANSPORTATION	5128 10/17	648.32	GAS CHGS - OCT 2017
113612	11/08/2017	Val-Matic Valve & M	600-53630-652	MAINT. WATER TREAT	343631	117.75	SEAL KIT
113617	11/08/2017	WI State Lab of Hyg	600-53630-642	OPERATION LABOR &	523774	25.00	FIDFLUOR/FLOURIDE
113621	11/13/2017	C.A. Turner Co Inc	600-53650-687	MAINTENANCE OF HY	17632	595.03	4' HDX marker
113640	11/13/2017	VERIZON WIRELE	600-53650-665	MISC EXPENSES TRA	9795539860	40.01	WATER IPAD
113649	11/14/2017	Hawkins Inc	600-53630-643	MISC EXPENSES WAT	4178430 RI	231.24	PVC-VITON HAYWARD
113650	11/14/2017	Lietzau, Troy & Mich	600-01420	CUSTOMER ACCOUN	1-44020200-07	1,267.55	REFUND PEMBERTON P
113655	11/14/2017	XCEL ENERGY	600-53600-623	FUEL & POWER PURC	52-8090251-0 10/17	308.56	ELECTRICITY-ICECAP R
113655	11/14/2017	XCEL ENERGY	600-53600-623	FUEL & POWER PURC	52-8327905-4 10/17	2,841.71	ELECTRICITY-2050 RILE
113655	11/14/2017	XCEL ENERGY	600-53600-623	FUEL & POWER PURC	52-8327905-4 11/7/	78.17	ELECTRICITY-3185 RILE
113657	11/16/2017	CenturyLink	600-53600-626	MISC EXPENSES PUM	301282035 11/17	224.57	TELEPHONE - 4334
113657	11/16/2017	CenturyLink	600-53600-626	MISC EXPENSES PUM	301283684 11/17	81.71	TELEPHONE - 6719
113683	11/21/2017	VAN TASSEL, THO	600-01420	CUSTOMER ACCOUN	11486	128.64	REFUND OVERPYMT-419
113728	11/27/2017	Gerke Excavating In	600-53650-685	MAINTENANCE OF SE	19429	1,360.40	CONCRETE-631 E MONT
113733	11/27/2017	Tri-State Business	600-53920-921	OFFICE EXPENSES	418195	49.55	CANON IR3570 CONTRA
113735	11/27/2017	WI DEPT OF TRAN	600-01070	CONSTRUCTION WOR	395-0000063824	360.84	PROJECT 39551440105/I
113750	11/29/2017	WE ENERGIES	600-53600-623	FUEL & POWER PURC	1265-324-026 11/21	27.45	GAS-ICECAP RD
113753	11/29/2017	XCEL ENERGY	600-53600-623	FUEL & POWER PURC	52-6161036-8 11/17	628.70	ELECTRICITY-101 PUMPI
113753	11/29/2017	XCEL ENERGY	600-53600-623	FUEL & POWER PURC	52-6161036-8 11/17	625.64	ELECTRICITY-103 PUMPI
113753	11/29/2017	XCEL ENERGY	600-53600-623	FUEL & POWER PURC	52-6161036-8 11/17	30.05	ELECTRICITY-AVON RD
113753	11/29/2017	XCEL ENERGY	600-53600-623	FUEL & POWER PURC	52-6161036-8 11/17	1,502.67	ELECTRICITY-104 PUMPI
113753	11/29/2017	XCEL ENERGY	600-53600-623	FUEL & POWER PURC	52-6161036-8 11/17	969.48	ELECTRICITY-101 PUMPI
113753	11/29/2017	XCEL ENERGY	600-53600-623	FUEL & POWER PURC	52-6161036-8 11/17	1,911.29	ELECTRICITY-STANDAR
113755	11/30/2017	JOHN DEERE FINA	600-53650-665	MISC EXPENSES TRA	1434430	36.12	SEALANT/BLADE KIT
113755	11/30/2017	JOHN DEERE FINA	600-53600-626	MISC EXPENSES PUM	1442821	18.20	TOGLER ALLIGTR
113755	11/30/2017	JOHN DEERE FINA	600-53600-626	MISC EXPENSES PUM	1442847	3.16	1" REFLECTIVE NUMBER
113762	11/30/2017	Auto Value Parts St	600-53600-633	MAINTENANCE OF PU	525050172	261.62	OIL FILTER/OIL FLEET
113762	11/30/2017	Auto Value Parts St	600-53600-633	MAINTENANCE OF PU	525050190	20.19	FUEL FLEET
113764	11/30/2017	Core & Main LP	600-01540	PLANT MATERIAL-OP	1084587	131.87	6 x 12-1/2 CLAMP
113764	11/30/2017	Core & Main LP	600-03460	METERS - TRANS & DI	1091132	2,580.00	OVERBILLED H134168
113764	11/30/2017	Core & Main LP	600-03460	METERS - TRANS & DI	1105835	3,510.00	510M S/POINT
113765	11/30/2017	Davy Laboratories	600-53630-642	OPERATION LABOR &	17K0039	190.00	LAB COLIFORMS
113765	11/30/2017	Davy Laboratories	600-53630-642	OPERATION LABOR &	17K0057	19.00	LAB COLIFORMS
113766	11/30/2017	First Supply LLC	600-53630-643	MISC EXPENSES WAT	10847262-00	170.52	BALL VLV/PVC SXS CPL
113766	11/30/2017	First Supply LLC	600-53630-652	MAINT. WATER TREAT	10869395-00	175.78	FP BALL VLV
113769	11/30/2017	Hawkins Inc	600-53630-643	MISC EXPENSES WAT	78423 RI	750.00	P121-150SH PUMP
113772	11/30/2017	Mathy Construction	600-53650-683	MAINT TRANSMN & DI	5200014729	4,930.00	JEFFERSON & THAYER S
113773	11/30/2017	MSA Professional S	600-01070	CONSTRUCTION WOR	R00051029.0 21	537.25	STH 27/RIVER RD/HILL S
113775	11/30/2017	Pollard Water	600-53650-665	MISC EXPENSES TRA	0093862	1,562.00	TRUCK FLUSH DIFFUSE
113776	11/30/2017	QUILL CORPORATI	600-53920-921	OFFICE EXPENSES	2514785	30.32	2018 CALENDARS
113777	11/30/2017	R Communications	600-53650-665	MISC EXPENSES TRA	2007	360.00	SERVICE TRUCK 1650 &
113778	11/30/2017	Safe-Fast Inc	600-53650-665	MISC EXPENSES TRA	191273	53.70	TRIPLE DIP PVC GLOVE
113779	11/30/2017	The Hardware Store	600-53630-652	MAINT. WATER TREAT	B267444	7.38	COPPER COUPLI
113779	11/30/2017	The Hardware Store	600-53630-652	MAINT. WATER TREAT	B267444	.74-	DISCOUNT
113779	11/30/2017	The Hardware Store	600-53630-643	MISC EXPENSES WAT	B268113	47.98	BRASS UNION-WELL #10
113779	11/30/2017	The Hardware Store	600-53630-643	MISC EXPENSES WAT	B268113	4.80-	DISCOUNT
113779	11/30/2017	The Hardware Store	600-53630-652	MAINT. WATER TREAT	B268471	20.04	WELL #9 TONKA FILTER
113779	11/30/2017	The Hardware Store	600-53630-652	MAINT. WATER TREAT	B268471	2.00-	DISCOUNT
113779	11/30/2017	The Hardware Store	600-53630-652	MAINT. WATER TREAT	B268931	8.29	BRASS NIPPLE-WELL #9
113779	11/30/2017	The Hardware Store	600-53630-652	MAINT. WATER TREAT	B268931	.83-	DISCOUNT
113780	11/30/2017	Tonka Water	600-53600-633	MAINTENANCE OF PU	0015587-IN	1,363.84	DRYSPELL AIR DRYER
113781	11/30/2017	USA Blue Book	600-53630-641	CHEMICALS	410285	72.62	HACH DPD

Check Number	Check Issue Date	Vendor Name	Invoice GL Account	Invoice GL Account Title	Invoice Number	Amount	Description
113781	11/30/2017	USA Blue Book	600-53650-686	MAINTENANCE OF ME	410285	125.25	CABLE TIES
113781	11/30/2017	USA Blue Book	600-53630-643	MISC EXPENSES WAT	410285	41.49	SAMPLING VALVE
113781	11/30/2017	USA Blue Book	600-53600-633	MAINTENANCE OF PU	42878	154.72	FILTER ELEMENT PAPER
113782	11/30/2017	Val-Matic Valve & M	600-53630-652	MAINT. WATER TREAT	344448	250.29	REPAIR KIT FOR #103S A
113783	11/30/2017	Vierbicher Associate	600-01070	CONSTRUCTION WOR	00012 160320	736.67	2017 STREET RECONST
Grand Totals:						<u>28,167.13</u>	



PROFESSIONAL SERVICES

Memo

To: Todd Fahning, City Administrator, City of Sparta
Todd Hanson, Supervisor, Sparta Water Utility

From: Matt Morrow, MSA Professional Services, Inc.

Subject: Water Availability to Rolling Hills Rehabilitation Center, Sparta, Wisconsin

Date: December 7, 2017

This memo summarizes our evaluation of the water supply available to the new Monroe County *Rolling Hills Rehabilitation Center and Retirement Home* facility, which is proposed to be constructed north of the City of Sparta on the east side of County Highway B (CTH B). The new *Rehabilitation Center* would replace the existing Monroe County *Rolling Hills Rehabilitation Center and Nursing Home* located west of CTH B.

The water supply to the existing *Rehabilitation Center* is provided by the City of Sparta Water Utility via a 10-inch diameter water main that extends along CTH B and terminates immediately south of the County owned and operated Rolling Hills Booster Station. This main provides supply to the existing Booster Station which is also located on the west side of CTH B near the southeast corner of the existing Rolling Hills property.

MSA evaluated the water supply available to the new *Rehabilitation Center* both with and without the existing Rolling Hills Booster Station.

Water Supply Available without Booster Station

The static water pressure available is a function of the site elevation and the water level in the City's water storage reservoirs. The reservoir overflow elevation serving this area is 935' MSL therefore the "normal" reservoir water level is assumed to be 929' MSL. Wisconsin Administrative Code NR811.70 requires a minimum static pressure of 35 psi at ground level. Based on an operating reservoir level of 929' MSL the highest elevation that can be served to maintain 35 psi static water pressure is 848' MSL. A static water pressure of 35 psi is generally considered marginal and standard engineering practice is to provide a minimum static water pressure of 45 psi at ground level. A representative of the County's consultant for the project, Galileo Consulting Group, LLC, has confirmed that the desired minimum water pressure at the new *Rehabilitation Center* is 45 psi.

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MEMO – Water Availability to Rolling Hills Rehabilitation Center

December 7, 2017

Based on an operating reservoir water level of 929' MSL, the highest elevation that can be served while maintaining 45 psi static water pressure is 825' MSL.

The Galileo representative has indicated that the current concept plan includes a single story building with floor elevation of approximately 833' MSL. Based on an operating reservoir water level of 929' MSL, the estimated static water pressure at the floor level of the new *Rehabilitation Center* is **41 psi**. When the reservoir level drops below 929' MSL prior to refilling, the pressure would drop below 40 psi.

The Galileo representative indicates that the maximum anticipated (non-fire) water demand is 200 gallons per minute (gpm). The existing City water main along CTH B is 10-inch diameter and could be extended to the location of the new *Rehabilitation Center*. Dynamic pressure loss is a function of the flow rate, the diameter and length of water main(s) between the water source and the location of the water demand, and the age of the water main (which generally correlates with the roughness of the internal wall of the pipe). At a flow of **200 gpm** the pressure loss in the 10-inch water main is minimal, therefore the residual pressure at 200 gpm would be only slightly less than the static water pressure. Assuming a reservoir water level of 929' MSL, the estimated water pressure at the floor level of the new *Rehabilitation Center* during peak (non-fire) water demand is **40 psi**.

According to the Galileo representative the new *Rehabilitation Center* structure will be provided with a sprinkler system for fire protection. The sprinkler system will reportedly have a fire demand of something less than 350 gpm per zone. In addition, the Galileo representative indicates that an allowance of 250 gpm for firefighting apparatus is required, resulting in a total fire demand of no greater than 600 gpm. Combining this fire demand with the maximum anticipated non-fire demand of 200 gpm results in a total peak demand of **800 gpm** within the new facility. A computer model of the City of Sparta Water System was used to model the system capabilities with a 10-inch diameter water main extended to the new *Rehabilitation Center* and a reservoir water level of 929' MSL. The model predicts a water pressure of **31 psi** at the first floor of the new facility during a water demand of 800 gpm. The Galileo representative has indicated that the design of the new facility can include an internal fire pump to boost pressures to meet the requirements of the sprinkler system.

Wisconsin Administrative Code NR811.70 requires that water mains serving fire hydrants need to provide a minimum 500 gallons per minute (gpm) at a minimum residual pressure of 20 psi. This flow corresponds well with the maximum fire demand of 600 gpm reported by the Galileo representative. It should be noted however, that the fire demand indicated by Galileo reflects the interior demands of the sprinkler system and firefighting apparatus, and not fire flows from exterior hydrants. The sprinkler system in the new structure is expected to significantly reduce the fire flow demand, but it is not clear that the sprinkler system will eliminate the need for any flow from exterior hydrants during a fire. Modern firefighting vehicles are capable of pumping water at rates in the thousands of gallons per minute. Flow from exterior fire hydrants would be in addition to (or in place of) the fire

flow requirements of the sprinkler system and firefighting apparatus. A determination of total fire flow demands at the new *Rehabilitation Center*, including flow rates that may be recommended or required for insurance purposes, is beyond the scope of this evaluation.

The computer model of the City of Sparta Water System was again used to model the system with a 10-inch diameter water main extension to the new *Rehabilitation Center* and a reservoir water level of 929' MSL. The model predicts that a flow of approximately **1200 gpm** would be available with a residual pressure of **20 psi** at the first floor elevation of 833' MSL. The available fire flow would be decreased by the water demands of the current Rehabilitation Center if those facilities are repurposed for another use.

Water Supply Available with Existing Rolling Hills Booster Station

The *Rolling Hills Rehabilitation Center and Retirement Home* was originally provided water supply by on-site wells and an elevated water storage tank. In 1995 the wells were abandoned due to poor water quality, and a 10-inch diameter water main was extended along CTH B to the southeast corner of the Rolling Hills property by the City of Sparta. A prefabricated “package” water booster station was constructed to deliver water from the City system to the elevated tank. This booster station is owned and operated by the County. The original booster station was equipped with two pumps, each with a rated capacity of 200 gpm, which were operated based on the water level in the elevated tank.

The Rolling Hills Booster Station is a 12-foot diameter buried welded steel structure with approximately 5-feet of cover and a total depth of approximately 13 feet. Access into the station is from a ladder through a 3-foot diameter vertical steel tube. The booster station structure contains pumps, piping and valves, motor starters, switchgear and electrical controls.

In 2004 the poor condition of the elevated tank necessitated its removal. Improvements were made to the booster station so that the station could provide the normal water supply with some level of fire protection without elevated storage. The rotating assembly of one pump was replaced, resulting in a design point of 200 gpm at 57 feet total dynamic head (TDH). The original 5 HP motor remains. The second pump was replaced with a new unit identical to the first and provided with a new 5 HP motor. Both pumps are now equipped with variable frequency drives. Two small bladder-type pressure tanks were installed in the water distribution system at one of the former wellhouses to buffer the peak demands on the system. The two smaller pumps provide the normal water supply, with the variable frequency drive speed (and thus the pumping rate) inversely proportional to the system pressure. A third larger pump with 25 HP motor was added to the booster station to provide the higher flows required for fire protection. This pump has a design point of 600 gpm at 87 feet TDH. The fire pump operates at constant speed. Modifications were also made to the standby generator.

Based on the characteristics of the two smaller pumps, which operate on variable frequency drives, the computer model of the water system indicates the existing Rolling Hills Booster Station is capable of providing the maximum (non-fire) water demand of **200**

gpm to the first floor of the new *Rehabilitation Center* at a residual pressures of approximately **50 to 65 psi**.

The computer model predicts a water pressure of **52 psi** at the first floor of the new facility during a water demand of **800 gpm**, This flow corresponds to the total maximum demand of 200 gpm for non-fire purposes plus 350 gpm for the sprinkler system plus 250 gpm allowance for firefighting apparatus, as indicated by the Galileo representative.

Based on the manufacturer's pump curves it appears that the maximum total flow from the booster station with all three pumps operating is approximately **1000 gpm**, which would be provided at an estimated residual pressure of **44 psi** at the first floor of the new *Rehabilitation Center*. The available fire flow would be decreased by the water demands of the current Rehabilitation Center if those facilities are repurposed for another use.

There are some concerns that should be considered with respect to continued use of the existing Rolling Hills Booster Station:

1. The buried welded steel structure and some of the equipment is 22 years old. All of the equipment is at least 13 years old.
2. If the existing *Rehabilitation Center* facilities are repurposed for another use, the ability of the existing booster station to provide water for both the new use and for the new *Rehabilitation Center* would need to be examined further. The ability of the booster station to meet the normal water demands of both facilities if one of the smaller booster pumps were out of service could be problematic.
3. Access to the booster station structure represents a confined space entry, requiring trained personnel, and proper equipment and procedures.
4. There is no redundancy in fire protection. If one of the smaller pumps were out of service, the fire flow would be limited to approximately 750 to 900 gpm depending on the residual pressure. If the fire pump were out of service, the fire flow would be limited to approximately 160 to 360 gpm depending on the residual pressure. These fire flows would be further decreased by the water demands of the current Rehabilitation Center if those facilities are repurposed for another use.

Conclusions

Without Booster Station. The water pressures provided by the City water system during normal demands at the new *Rolling Hills Rehabilitation Center* would be marginal at best if no booster station is provided. The analysis assumed the existing 10-inch diameter water main along CTH B would be extended to the new *Rehabilitation Center* site. Based on an assumed reservoir water level of 929' MSL and a first floor elevation of 833' MSL the **static water pressure** at the new facility would be approximately **41 psi**.

Assuming a reservoir water level of 929' MSL, the estimated water pressure at the floor level of the new *Rehabilitation Center* during the 200 gpm peak (non-fire) water demand is **40 psi**.

December 7, 2017

The County's consultant for the new *Rehabilitation Center* project indicates a maximum water demand of 800 gpm (200 gpm non-fire demand plus 350 gpm sprinkler demand plus 250 gpm allowance for firefighting apparatus, but not including exterior fire hydrants). At a flow of **800 gpm** the anticipated residual pressure in the City system is **31 psi** at the new *Rehabilitation Center* site. The County's consultant has indicated that the design of the new facility can include a fire pump to boost pressures to meet the requirements of the sprinkler system.

The fire flow demand at fire hydrants at the new structure is unknown. It is recommended that the Sparta Area Fire District Chief (and perhaps the County's property insurance provider) be consulted regarding recommended or required fire flows to protect the new *Rehabilitation Center*, beyond the 350 gpm per zone demand of the sprinkler system and the 250 gpm allowance for firefighting apparatus identified by the Galileo representative.

The computer model of the water system predicts a maximum flow of approximately **1200 gpm** would be available with a residual pressure of **20 psi** at the first floor elevation of 833' MSL. A residual pressure of 20 psi at ground level is the minimum allowable during a fire event. The available fire flow would be decreased by the water demands of the current Rehabilitation Center if those facilities are repurposed for another use

With Booster Station. Based on the computer model of the water system, the existing Rolling Hills Booster Station is capable of providing flows up to the maximum (non-fire) water demand of **200 gpm** to the first floor of the new *Rehabilitation Center* at a residual pressures of approximately **50 to 65 psi**

It is estimated that the booster station could provide fire flows of up to **1000 gpm** to the new *Rehabilitation Center* at a residual pressure of **44 psi**. The available fire flow would be decreased by the water demands of the current Rehabilitation Center if those facilities are repurposed for another use. As indicated above, it is recommended that the Sparta Area Fire District Chief (and perhaps the County's property insurance provider) be consulted regarding recommended or required fire flows to protect the new *Rehabilitation Center*, beyond the sprinkler system demand and firefighting apparatus allowance.

The use of the existing Rolling Hills Booster Station for the new *Rehabilitation Center* water needs presents concerns with respect to the age of the equipment, lack of redundancy of pumping equipment, and the confined space access to the station.