



Layne Christensen Company
721 W. Illinois Avenue
Aurora, IL 60506

630/897-6941
graniteconstruction.com

October 14, 2021

City of Plano, IL
ATTN: Mr. Josh Beyer, Water Superintendent
17 E. Main Street
Plano, IL 60545

RE: Plano Well 5 – Repairs and Reinstallation

Mr. Beyer:

The pumping equipment at Plano, IL Well 5 has been pulled and cleaned for inspection. The well was televised and a report submitted.

Below is a list of Layne's updated costs to bring the well back into service. Please also reference the enclosed Pump Inspection Report (PIR) for further information and recommendations.

Due to the extent of pitting in the shaft and bowl assemblies, we would recommend to replace the entire bowl assembly.

PROCEDURES AND ESTIMATED COSTS

Work-to-Date

Labor and equipment to date to pull pump, haul, disassemble, clean, inspect pump, and televise well
PER our Invoice # 2101692

\$14,865.00

Repair, Rehabilitation, and Replacement Costs

- | | |
|---|--------------------|
| 1. Well Rehab: Sonar Jet, scratch, bail, and super Chlorination of Well 5 | \$19,579.00 |
| 2. Materials to repair existing column assembly, new bowl assembly, etc., per attached recommendations | \$15,886.00 |
| 3. Machine shop labor to repair equipment and apply protective Epoxy coating per attached recommendations | |
| Est. Machinist, 60 hours @ \$193/hr. | \$11,580.00 |
| Est. Serviceman, 10 hours @ \$174/hr. | \$ 1,740.00 |
| Est. Sandblast crew, 8 hrs. @ \$385/hr. | \$ 3,080.00 |
| 4. Load, transport, set-up, reinstall pumping equipment, conduct pump test, clean-up, and demobilize | |
| Est. Crane and 3-man Crew, 3 days | <u>\$15,408.00</u> |

Total Project Estimate

\$82,138.00



A GRAYTE COMPANY

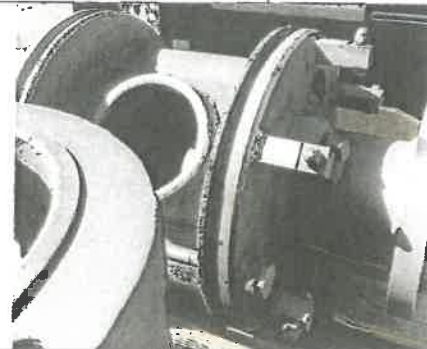
Layne Christensen Co.
721 W. Illinois Ave. Aurora, IL 60506
630.897.6941 phone 630.897.6976 fax

City of Plano, IL
Well 5
Klatt Field, 751 E. Main St.

JOB NAME	Plano, IL Well No. 5	Pump #5	DATE	10/14/2021
JOB NO.	1132835	INSPECTED BY	Jason Gray	
Layne s/n	661-C-0286	BOWL ASSEMBLY	12GM – 4 stage, 8.31" trim. S/N 1308XCT77106	
		COLUMN ASSEMBLY	(8" x 5") x 1-7/16" x 2-1/2" oil lube	
		DISCHARGE HEAD	Byron Jackson	
		MOTOR	75HP U.S. VHS 1780RPM 3ph 460V motor	



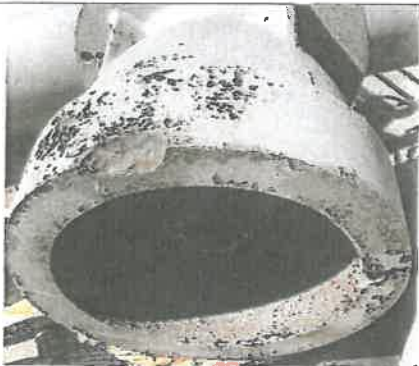
SST bowl shroud
Good condition



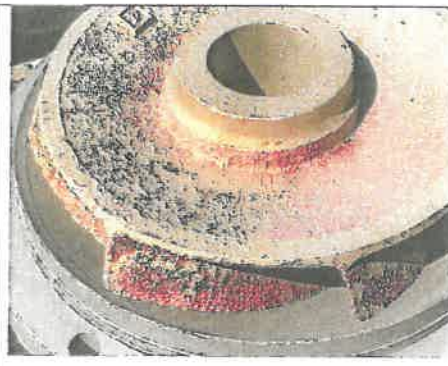
Pitless Adapter
General corrosion



Oil Tubing
Excessive wear and pitting



Volute
Minimal wear and pitting



Impeller
signs of dezincification



Volute
Minimal pitting

Comments

1. Surface plate in good condition. Recommend prime and paint exterior.
2. Pitless in fair condition. Minor pitting in o-ring groove. Recommend steel epoxy hole, prime and paint interior/exterior.
3. Column pipe all appears ok for reuse. Recommend coating ID/OD with Tnemec paint.
4. Oiler ok for reuse.
5. Motor drive shaft ok for reuse. Recommend polish, deburr and check for straightness.
6. 1-7/16" – 8THD Carbon Steel shafts – 3 of 5 ok for reuse. Bottom 2 pieces have excessive wear. Replace.
7. Spiders – Most reusable, but one needs to be replaced.
8. 2-1/2" – 8THD oil tubing – Upper one ok for reuse. Remainder have pitting in ID/OD. Replace all but top piece.
9. Bowl assembly – All impellers showing signs of heavy de-zincification. Replace all impellers. Volutes show minimal wear. Bushings in cases (0.013" to 0.018" clearances) need to be replaced. Deep pitting in suction case. Fill with steel epoxy. Impeller shaft 1-11/16" x 69-1/4" with 1-7/16" – 8THD turndown is pitted and needs replacing. Hardware and collets ok for reuse.
10. Motor – Repairable with steam cleaning, rewind and dip/bake windings, balance, bearing and leads replacement.

Layne Christensen



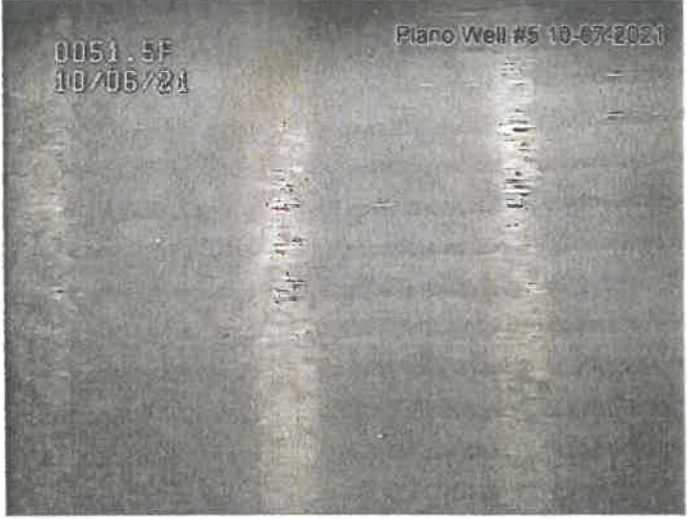
47'



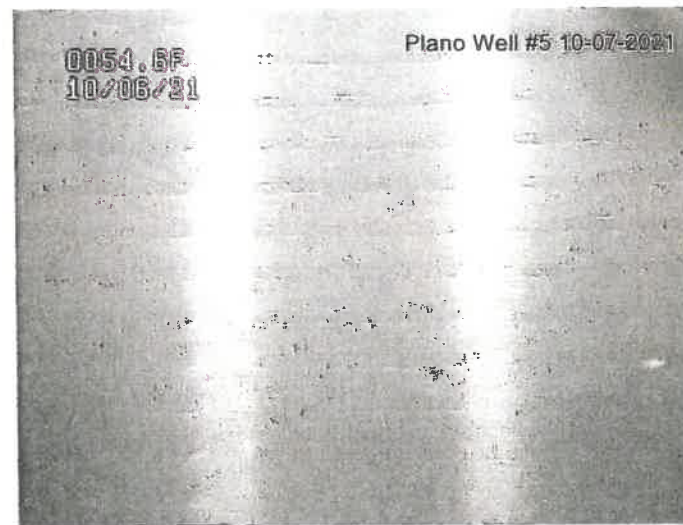
48'



49'



51'



54'



54'

WATER RESOURCES



DOWNHOLE VIDEO SURVEY REPORT

Client: City of Plano, IL Date: 10/07/2021
 Project Number: 1132835 Well No: 5 S.W.L. 22'
 Location: Klatt Field, 751 E. Main St, Plano, IL 60545 (Left field)

Well Description: Elevated platform with pitless discharge. Sand and gravel formation.

Depth		Description
22'		Static Water Level (SWL) and pitless
22'	44'	No light coming through. Can not make out walls but did see some floating debris. Oily residue on lense
44'		Top of screen. Large buildup on upper screen
50'		Second section of screen. Some buildup along screen
56.5'		Total measured depth

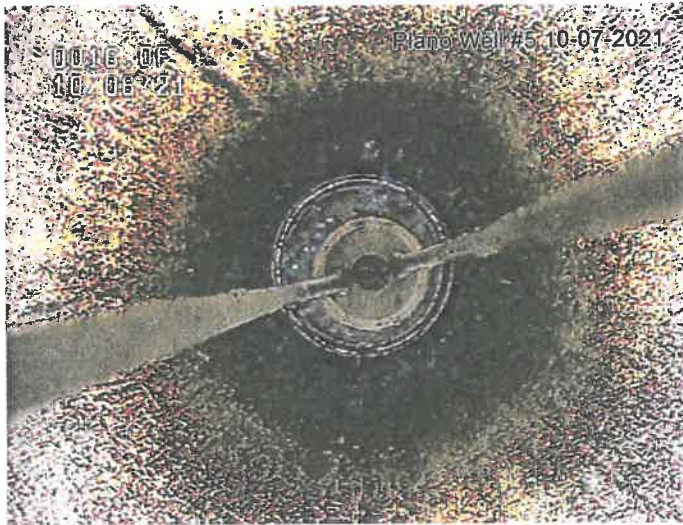
Additional Remarks and Recommendations:

Well 5 is currently in poor condition overall. At a minimum we would recommend to superchlorinate the well, brush the upper casing, and bail any fill. We would also recommend to Sonar-Jet the screen to remove the buildup along the water producing zones.

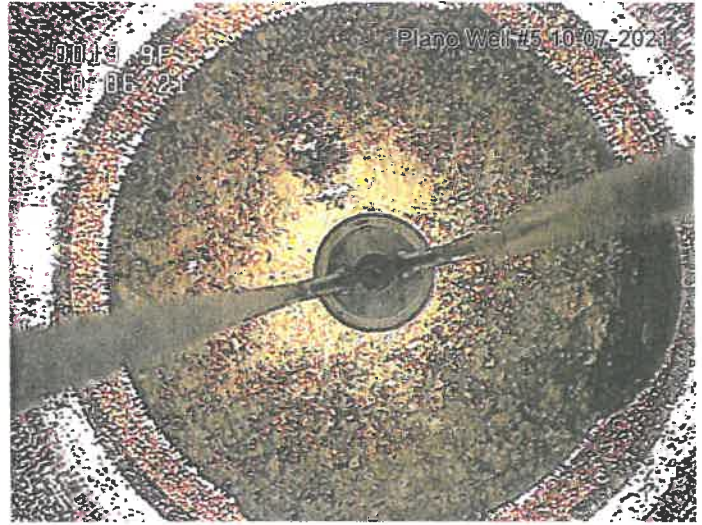
We would recommend to continue bailing at the surface as there appears to still be an oily buildup.

The casing around the discharge appears to have some fairly large grooves. It is difficult to see the extent of the damage.

Technician	J. Rumble / M. Goich	Account Manager	M. McDonald
Project Manager	J. Gray	Operations Review	B. Diehl



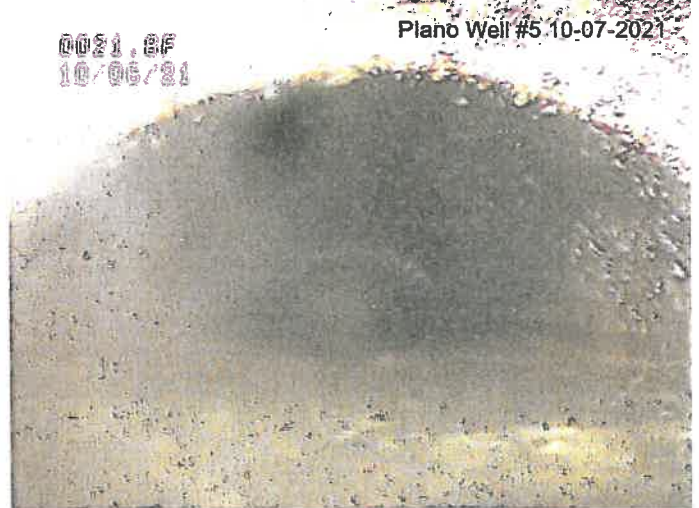
16'



22' - SWL



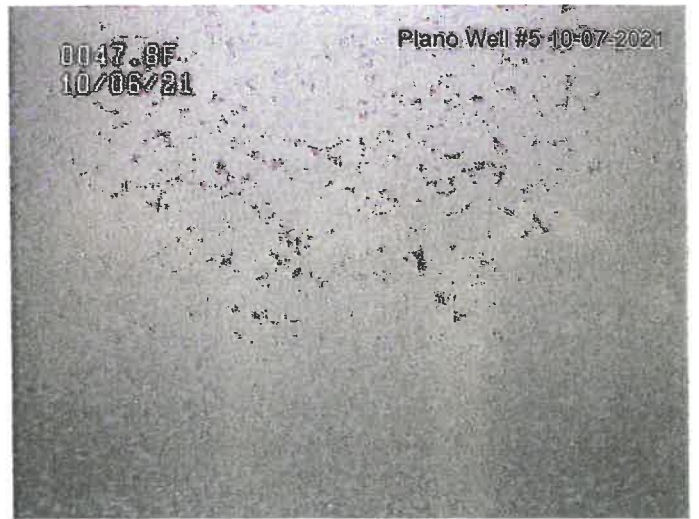
21'



21'



26'



47'

WATER RESOURCES

The City of Plano has already issued a purchase order for \$28,000.00.

We recommend a Sonar-Jet of the screens to remove the buildup. We would scratch the upper casing around the pitless setting and bail any fill produced by the jetting and scratching. We also suggest a super-chlorination of the well using a special mixture of sodium hypochlorite, our Layne Oximate buffering agent and a few bromicide tablets that will fall to the bottom of the well and dissolve along the way.

Briefly, the pump repairs are rather routine, except for the recommendation to replace the Byron Jackson bowl assembly. This bowl assembly was replaced almost 9 years ago, and is showing significant wear for the age. At this time, we are unsure of the cause. The bowl had some pitting on the exterior, and extensive pitting on the impellers. One housing also had a significant piece missing. Although the bowl assembly is repairable, the time and materials it would take to repair would be close to a new bowl assembly cost, and similar lead time. We are recommending that we reinstall the large S.S. sheet around the bowl.

Layne values its longstanding relationship with the City of Plano. We hope that we can be of continued service on this very important project. If you wish for us to proceed with this project, please sign and return a copy of this letter as your authorization for us to proceed. Please review this information and do not hesitate to contact me if you have any questions or comments. I can always be reached in the office at 630.897.6941 or on my mobile at 630.486.8343.

Sincerely yours,

Layne Christensen Company



Mike McDonald
Account Manager



Jason Gray
Project Manager

Above work accepted by: _____

Title: _____

Date: _____

Enclosures:
TV Survey Report
Pump Evaluation Report