
PROJECT DEFINITION REPORT

S-331 PUMP REFURBISHMENT

PS ID 101045

08-23-16

REVISION #0



SEWARD LOW

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Approvals

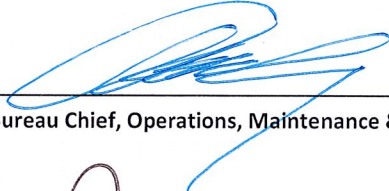
The signatures in this section represent the various areas providing significant resources to the project.



Rich Virgil, Bureau Chief, Infrastructure Management



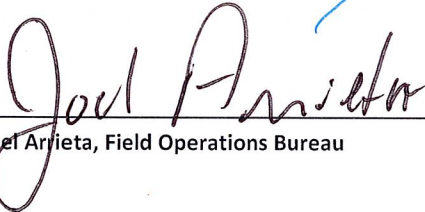
Date



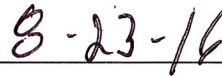
Alan Shirkey, Bureau Chief, Operations, Maintenance & Construction



Date



Joel Arrieta, Field Operations Bureau

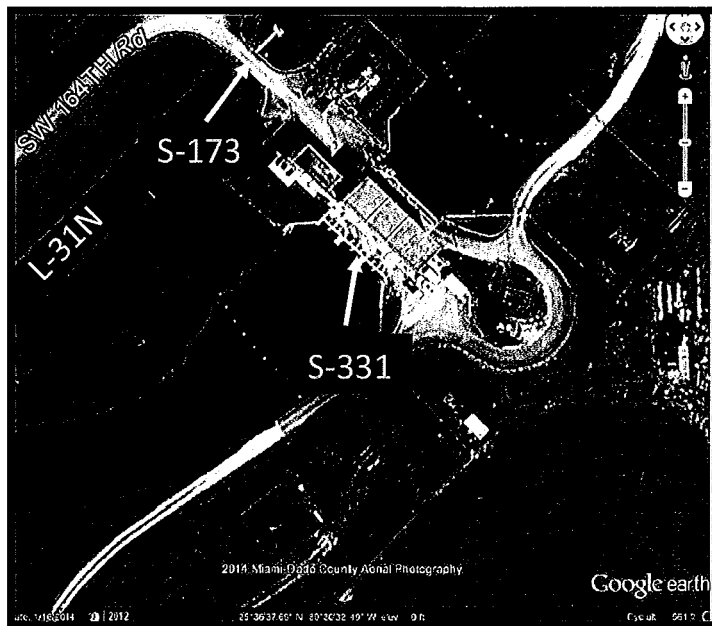
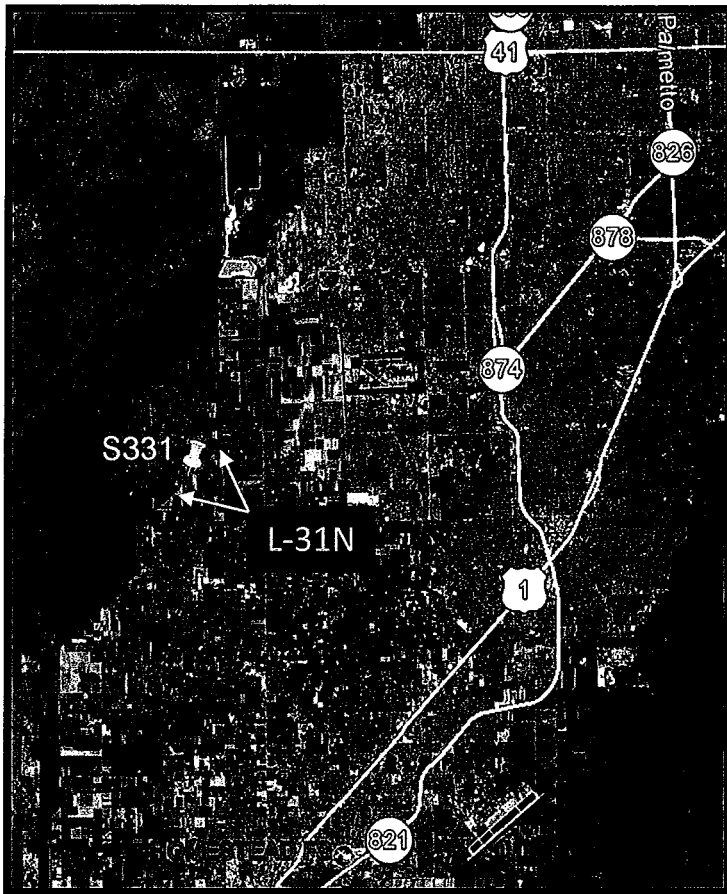


Date

Document prepared by: Robin Deaton, Extension: 2517

Project Location

The S-331 Pump Station is on the L-31N in western Homestead, part of Miami-Dade County.



Project Description

Due to the age and condition of the pumps, refurbishment of each of the three pumps is required. If not refurbished, operation of the pumps could cause a failure and damage to other equipment.

Project Scope

To address the deficiencies at the pump station, a construction contract for the reconditioning and upgrade of the three (3) vertical axial flow impeller pumps is required (Allis Chalmers Model 15000, 108 inch impeller diameter, with an overall shaft length of approximately 26 feet). This includes for each pump: replacement of bearings, mechanical seals, impeller housing, pump shafts, pump couplings and hardware; inspection, repair and coating of suction bell housing, bearing housing, pump casing and discharge elbow; reassembly of pump system; a new name plate with refurbishment information; replacement of the shaft stabilizer; and dewatering of all pump bays as needed. Additionally, for Pump #1, the work includes replacement of the water line to the upper stuffing box.

Background

The S-331 Pump Station is located in Miami-Dade County and provides flood control for the area to the north along the L-31N Canal. The pump station was built in 1978, and based on 2015 vibration analysis and inspections by Infrastructure Management Section, it was found that the #3 Pump shaft was bent and the #1 Pump bearings were worn. Pump refurbishment is needed at this time. Temporary repairs have been made to all pumps to ensure their readiness for wet season operations.

The S-331 Pump Refurbishment Project supports the District's core mission of flood control. Successful completion of the project will provide three fully refurbished pumps that will function to reliably control water levels to the north.

Permitting

No permits are required. Only refurbishment of existing equipment is being done.

Right of Way

This project is internal to the S-331 Pump Station, so there are no ROW issues.

Real Estate

This project is internal to the S-331 Pump Station, so there are no real estate issues.

Public Use/ Outreach

There is no public-use associated with this structure.

Stakeholder Considerations

Stakeholders include the District and the public.

Operations and Modeling

Flow conditions are not being altered as a result of this project.

Operations and Maintenance

This Pump station is located in the Homestead Field Station's area of responsibility, and this project is intended to extend the useful life of the pumps.

SCADA, Instrumentation, Telemetry, Information Technology

This project is a pump refurbishment and does not alter the existing instrumentation or telemetry.

Security and Safety

This project is a pump refurbishment and does not require any additional safety or security.

Environmental

This project is a pump refurbishment and does not have any environmental impacts.

Monitoring

There are no environmental monitoring requirements for this project.

Commissioning

Start-up operation and testing is required for all contractor-furnished equipment and materials. Coating inspections are required by manufacturer's representative at identified hold points. Vibration analysis is required after reinstallation of shafts and other equipment prior to running each pump.

Lessons Learned

Other stations that have had similar issues are STA-3/4's G-370 and G-372 with pump coating issues, and STA-1W's G-310 and STA-2's G-434 with shaft corrosion issues. For this project, the pumps at S-331 will be coated with a ceramic epoxy coating, and the pump shaft material will be fabricated from Aquamet/Aqualoy material, for strength, corrosion-resistance and longevity of the refurbished pumps.

Conceptual Alternative Options

None.

Cost Estimates

Cost estimate concurrence received by Jack Ismalon for the estimate of \$1,612,911.

Recommendations

Various shaft materials were investigated, and the selection of Aquamet/Aqualoy was based on evaluating recommendations from G-435 & G-310. Various coatings were investigated, and Chesterton Coatings was selected for this project as well as for the S-5A Pump Refurbishment.

Project Milestones

- 1 pump completed in FY17 – Pump #3
- 2 remaining pumps to be completed in FY18 – Pumps #1 & #2

Resource Requirements

All work will be completed by Infrastructure Management Section staff members.

List Functions	Skill of Functional Employees	Identify Employees	Total FTEs Required for Complete Project
Inspector	Engineer Specialist	Butch Dias	0.4
Inspector	Engineer Specialist	Shawn Byrnes	0.4
Project/Construction Manager	PM/CM	Kathy Collins	1.26
Project/Construction Manager	PM/CM	Robin Deaton	1.26
Project Support	Lead Engineer	Gary Dunmyer	0.4
Project Oversight	Management	Rich Virgil	0.4
Total Resource Requirements			4.15

Project Deliverable and Schedule

Quarters to Complete	Deliverable	Schedule Notes
8/11/2016	Governing Board Approval	Done
9/30/2016	Construction Completion	790 days

Project Funding Sources

- (1) Functional Area CA02
Business Area 5613
Fund for Capital 402000
Fund for Expense 202000
- (2) Staff time in 5611187000-202000
- (3) Construction Activities 5613222000 FY16, FY17, FY18 Engineering & Construction Paying for external

References

None.