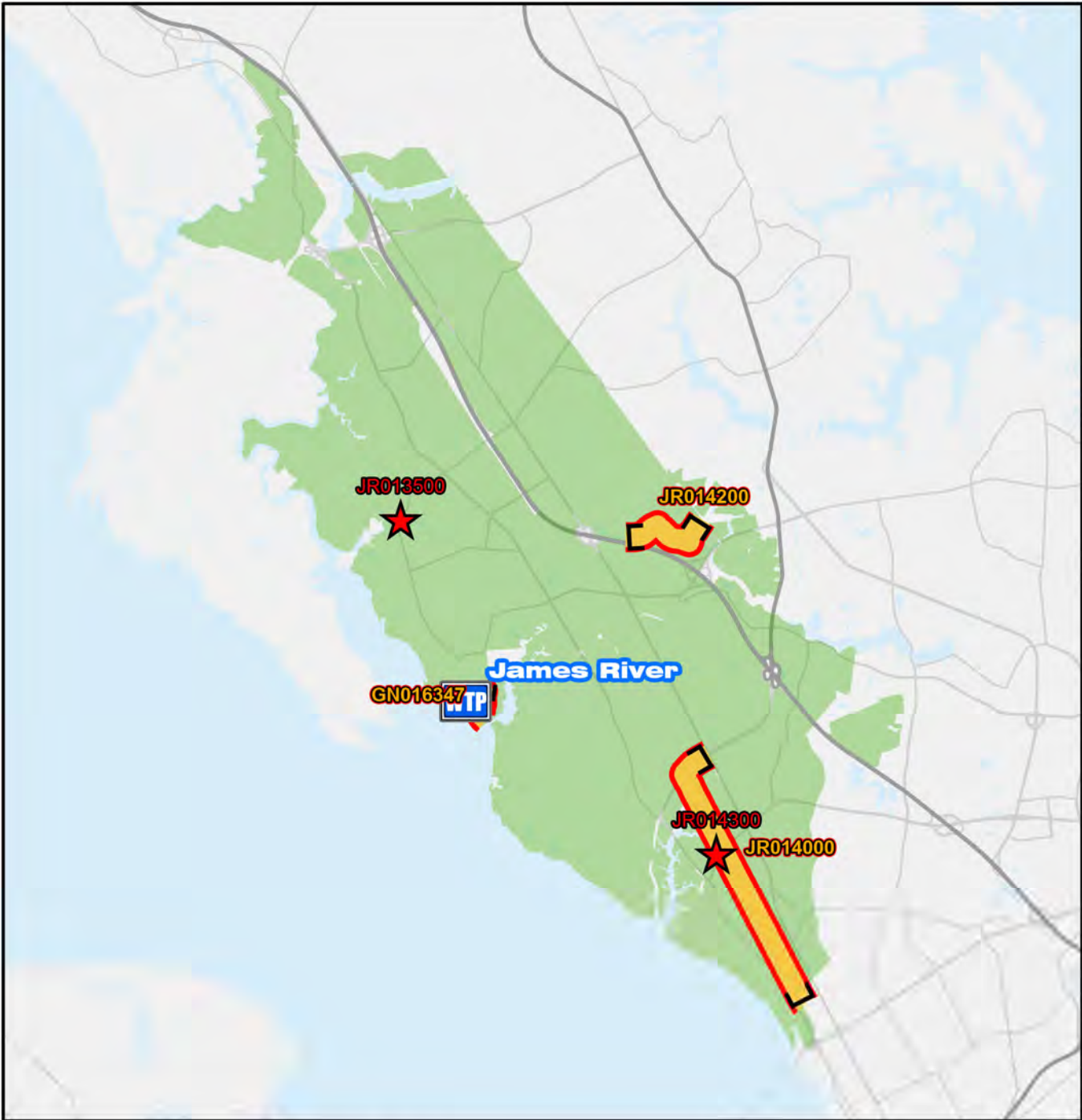


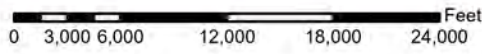


James River Treatment Plant



Legend

-  WTP James River
-  CIP Interceptor Point
-  CIP Pump Station Point
-  CIP Interceptor Line
-  CIP Abandonment
-  Treatment Plant Service Area
-  HRSD Interceptor Force Main
-  HRSD Interceptor Gravity Main
-  WTP HRSD Treatment Plant
-  HRSD Pressure Reducing Station
-  HRSD Pump Station



James River Treatment Plant Service Area CIP Projects

Treatment Plant Projects

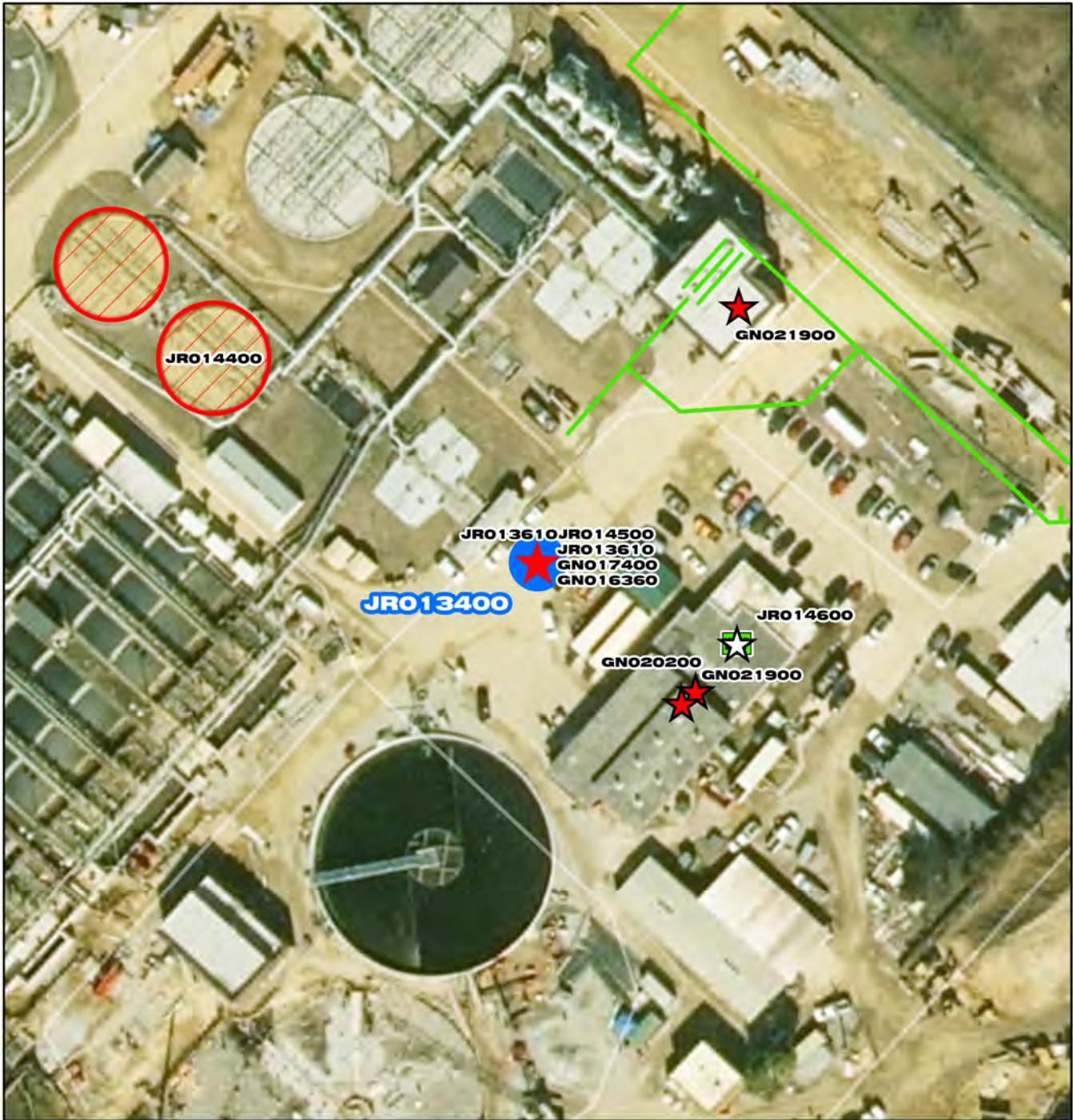
GN016347	JR013400	JR014500
GN016360	JR013410	
GN016363	JR013610	
GN016700	JR014100	
GN017400	JR014400	



CIP Location



Service Area

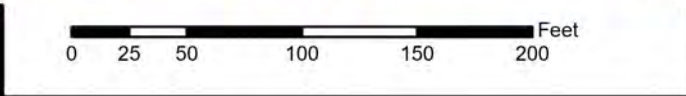


JRO13400

- Project Interceptor Line
- Project Interceptor Point
- Project Location Point
- Project Area

Legend

- CIP Interceptor Point
- CIP Pump Station Point
- CIP Interceptor Line
- CIP Abandonment
- CIP Project Area
- HRSD Interceptor Force Main
- HRSD Interceptor Gravity Main
- HRSD Treatment Plant
- HRSD Pressure Reducing Station
- HRSD Pump Station



JRO 13400

James River Treatment Plant Advanced Nutrient Reduction Improvements

CIP Location



System: James River
Type: SWIFT

Driver Category: Performance Upgrades
Project Phase: Construction
Regulatory: Integrated Plan-SWIFT

PROGRAM CASH FLOW PROJECTION (\$,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
\$261,063	\$252,339	\$8,724	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

PROJECT DESCRIPTION

This project is for the design and construction of improvements to the secondary treatment process at the James River Treatment Plant. The scope includes modifications to the Integrated Fixed Film Activated Sludge (IFAS) system, increased IFAS media fill, demolition of existing secondary clarifiers, new secondary clarifiers, new post denitrification moving bed bio-reactor (MBBR), chemical storage and feed systems, and all pumping, piping, instrumentation, and site work required. A new multi-purpose administration building will be constructed as part of this project.

PROJECT JUSTIFICATION

Advanced secondary treatment improvements, including nutrient reduction measures, will be required to provide stable source water quality that meets the influent requirements of the full scale SWIFT facility at James River Treatment Plant.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

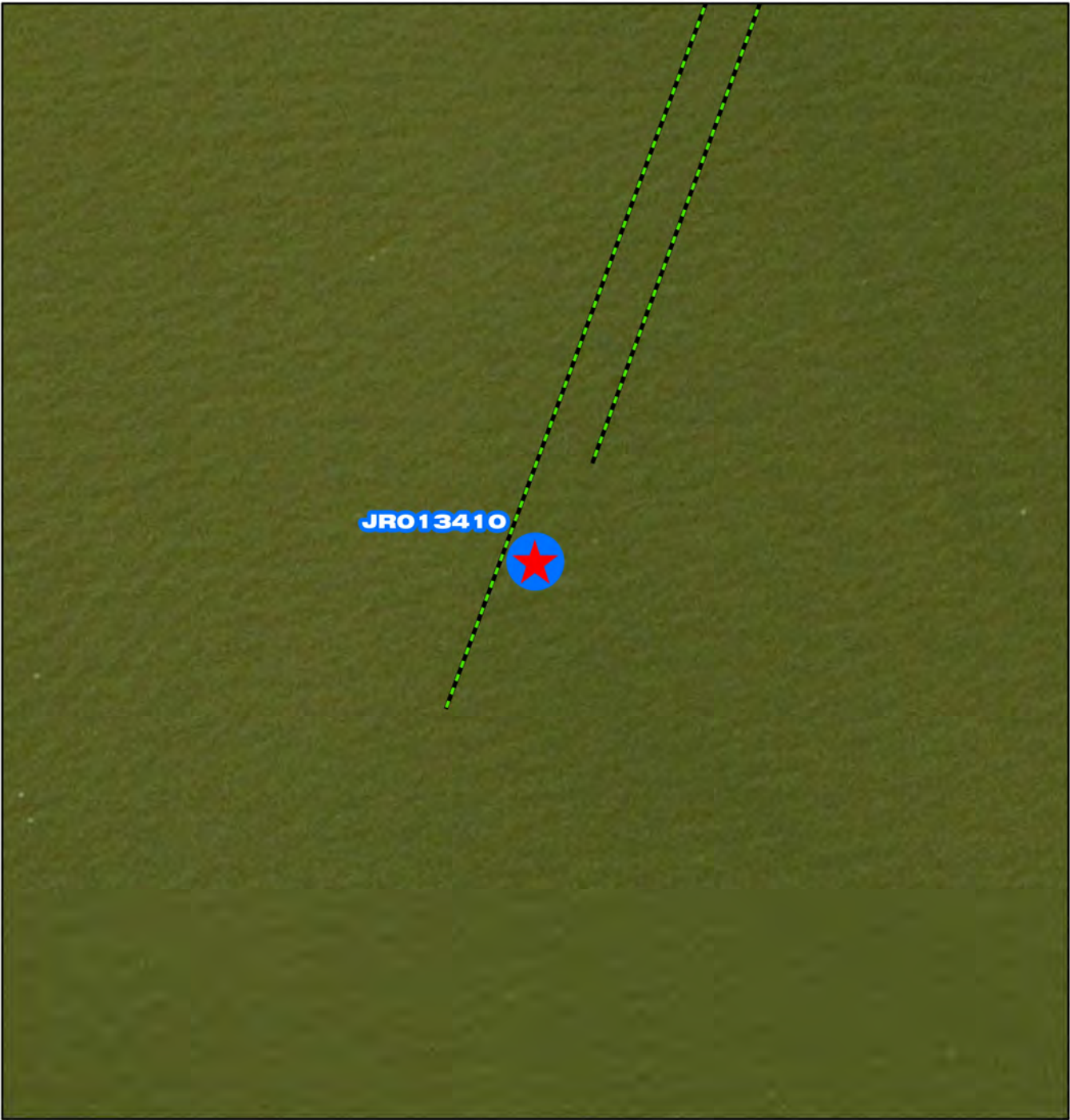
Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Aaron Montgomery
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

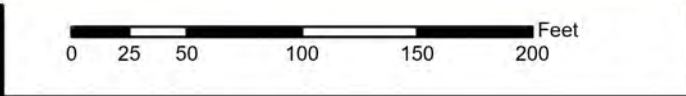
PrePlanning	08/01/2019
PER	07/01/2019
Design Delay	04/30/2020
Design	04/23/2020
Bid Delay	07/30/2020
PreConstruction	08/01/2019
Construction	01/04/2022
Closeout	04/01/2027

COST ESTIMATE

Cost Estimate Class:	Class 1 (-3% to +15%)
PrePlanning	\$331,684
PER	\$2,422,809
Design	\$16,005,174
PreConstruction	\$66,878
Construction	\$242,236,799
Closeout	\$0
Est. Program Cost	\$261,063,345
Contingency Budget	\$12,624,088
Est. Project Costs	\$273,687,433



- JRO13410**
- Project Interceptor Line
 - Project Interceptor Point
 - Project Location Point
 - Project Area
- Legend**
- CIP Interceptor Point
 - CIP Pump Station Point
 - CIP Interceptor Line
 - CIP Abandonment
 - CIP Project Area
 - HRSD Interceptor Force Main
 - HRSD Interceptor Gravity Main
 - HRSD Treatment Plant
 - HRSD Pressure Reducing Station
 - HRSD Pump Station



JRO 13410

**James River Treatment Plant Outfall
Modifications**



System: James River
 Type: SWIFT

Driver Category: I&I Abatement-IP/RWWMP
 Project Phase: Design
 Regulatory: Integrated Plan-SWIFT

PROGRAM CASH FLOW PROJECTION (\$,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
\$4,326	\$1,322	\$3,004	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

PROJECT DESCRIPTION

This project includes design and construction of modifications to the two existing outfall diffuser pipes within the James River. The project area is approximately 4,000 feet from the James River Treatment Plant shoreline. The project will incorporate design elements appropriate for the installation of riser piping and duckbill-style valves on the existing reinforced concrete pipe (RCP) outfall diffuser pipes.

PROJECT JUSTIFICATION

The James River Treatment Plant outfall diffuser openings are located below the mudline allowing for sedimentation within the diffuser pipe, especially under low effluent flow conditions. This project will provide long term protection of existing assets necessary for operating James River Treatment Plant's outfall diffusers at low effluent flow rates, which will occur upon completion of the James River SWIFT project

FUNDING TYPE CONTACTS

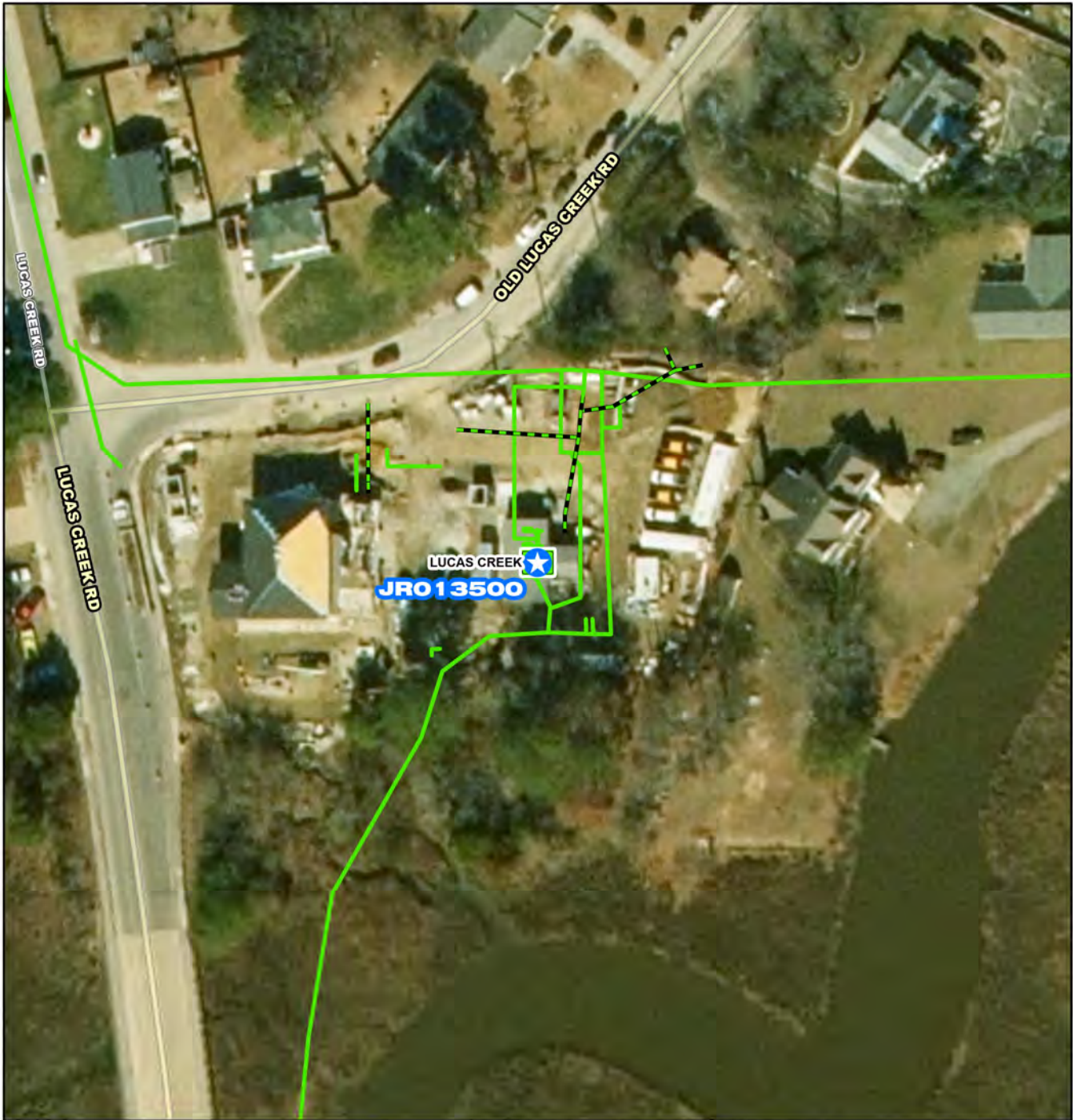
Funding Type: Revenue Bond

Contacts-Requesting Dept: Engineering
 Contacts-Dept Contacts: Lauren Zuravnsky
 Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE COST ESTIMATE

PrePlanning	08/18/2023
PER	08/01/2023
Design Delay	11/14/2024
Design	03/01/2025
Bid Delay	03/01/2026
PreConstruction	03/01/2026
Construction	05/01/2026
Closeout	05/01/2027

Cost Estimate Class: Class 5 (-20% to +100%)	
PrePlanning	\$12,398
PER	\$48,075
Design	\$262,735
PreConstruction	\$15,000
Construction	\$3,987,908
Closeout	\$0
Est. Program Cost	\$4,326,116
Contingency Budget	\$1,078,430
Est. Project Costs	\$5,404,546



JRO 13500

- Project Interceptor Line
- Project Interceptor Point
- Project Location Point
- Project Area

Legend

- CIP Interceptor Point
- CIP Pump Station Point
- CIP Interceptor Line
- CIP Abandonment
- CIP Project Area
- HRSD Interceptor Force Main
- HRSD Interceptor Gravity Main
- HRSD Treatment Plant
- HRSD Pressure Reducing Station
- HRSD Pump Station

0 25 50 100 150 200 Feet

JRO 13500

Lucas Creek Pump Station Replacement

N
W E
S

CIP Location

System: James River
 Type: Pump Stations

Driver Category: I&I Abatement-Rehabilitation Plan
 Project Phase: Construction
 Regulatory: Rehab Plan Phase Two

PROGRAM CASH FLOW PROJECTION (\$,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
\$27,165	\$25,874	\$1,291	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

PROJECT DESCRIPTION

This project was initiated under JR010600 Lucas Creek Pump Station Upgrades project. A Preliminary Engineering Report was completed. After evaluating several alternatives and taking into consideration cost projections, it was determined that replacement of the pump station is the optimal solution to address conditional and operational issues. This new project includes the replacement of the existing Lucas Creek Pump Station to include all yard piping, and an addition of two flow meters and vaults. On May 26, 2020, Commission approved the purchase of the adjoining property (748 Old Lucas Creek Road, Newport News) to facilitate the construction of the new pump station.

PROJECT JUSTIFICATION

This project is required in order to provide expanded operational flexibility in the North Shore system. The new Kiln Creek Interceptor Force Main (IFM) and Route 171 IFM in conjunction with upgrades to Lucas Creek will reduce system pressures during wet weather events.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
 Contacts-Dept Contacts: Ted Denny
 Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	11/04/2020
Design Delay	02/17/2021
Design	02/17/2021
Bid Delay	02/14/2022
PreConstruction	02/14/2022
Construction	04/01/2022
Closeout	09/01/2026

COST ESTIMATE

Cost Estimate Class:	Class 1 (-3% to +15%)
PrePlanning	\$0
PER	\$0
Design	\$882,967
PreConstruction	\$27,236
Construction	\$26,242,355
Closeout	\$12,756
Est. Program Cost	\$27,165,314
Contingency Budget	\$975,000
Est. Project Costs	\$28,140,314



System: James River
Type: Wastewater Treatment

Driver Category: Aging Infrastructure/Rehabilitation
Project Phase: Construction
Regulatory: None

PROGRAM CASH FLOW PROJECTION (\$,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
\$14,752	\$14,340	\$411	\$1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

PROJECT DESCRIPTION

This project will provide for automation and control of the James River Treatment Plant's (JRTP) treatment, solids thickening, anaerobic digestion, odor control and related systems.

PROJECT JUSTIFICATION

The treatment and solids handling sections of the JRTP exist now with minimal automation, and to allow the plant operator to best manage the future facility as a whole, the distributed control system must be enhanced to be consistent with the Advanced Nutrient Removal Improvements and SWIFT Projects.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

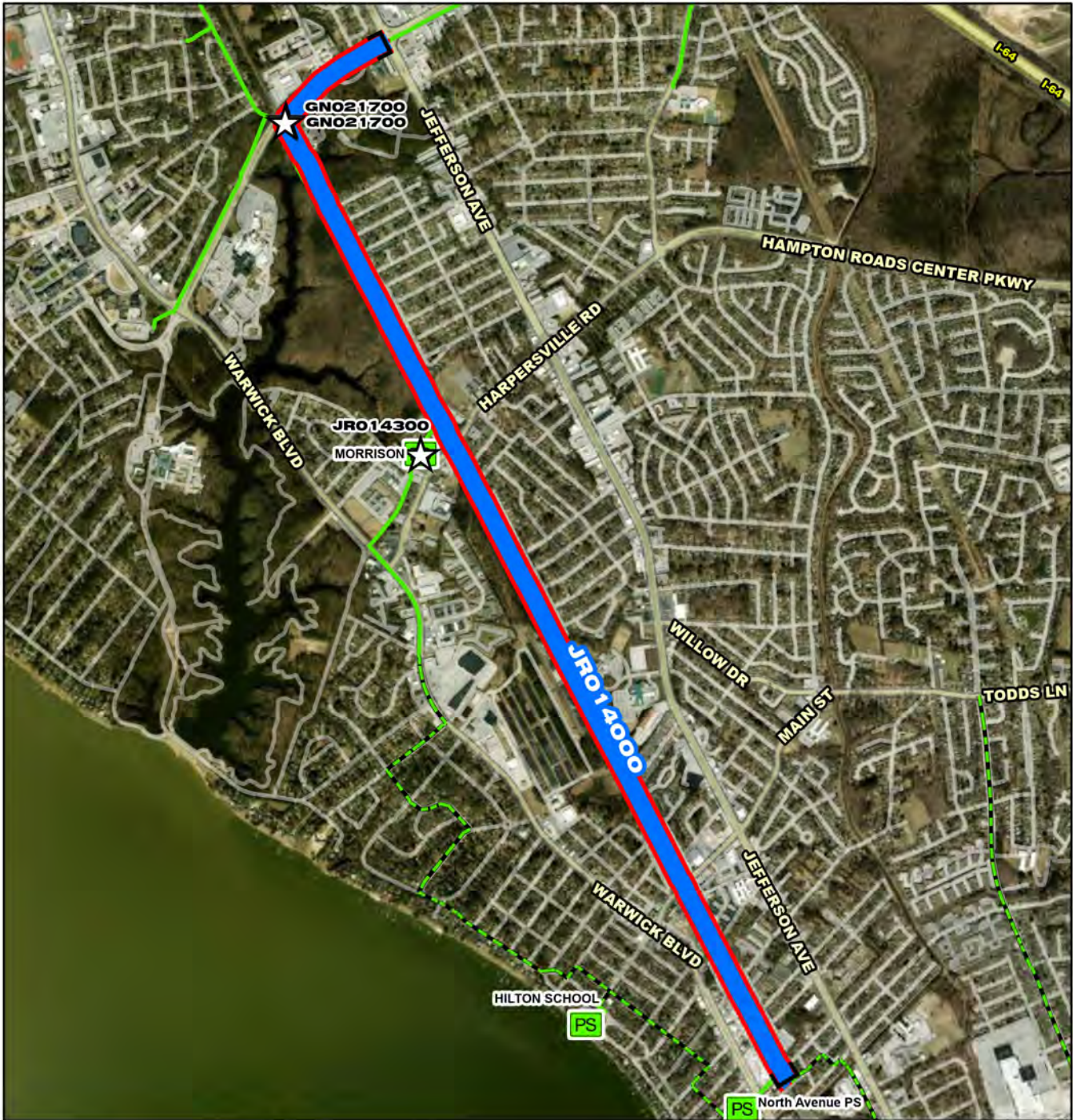
Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Ted Denny
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	07/01/2021
Design Delay	08/20/2021
Design	04/29/2022
Bid Delay	08/02/2022
PreConstruction	04/11/2023
Construction	05/01/2023
Closeout	12/01/2026

COST ESTIMATE

Cost Estimate Class:	Class 1 (-3% to +15%)
PrePlanning	\$0
PER	\$0
Design	\$574,134
PreConstruction	\$12,594
Construction	\$14,160,702
Closeout	\$5,000
Est. Program Cost	\$14,752,430
Contingency Budget	\$200,000
Est. Project Costs	\$14,952,430



JRO 14000

- Project Interceptor Line
- Project Interceptor Point
- Project Location Point
- Project Area

Legend

- CIP Interceptor Point
- CIP Pump Station Point
- CIP Interceptor Line
- CIP Abandonment
- CIP Project Area
- HRSD Interceptor Force Main
- HRSD Interceptor Gravity Main
- HRSD Treatment Plant
- HRSD Pressure Reducing Station
- HRSD Pump Station

Feet

0 850 1,700 3,400 5,100 6,800

JRO 14000

Center Avenue Force Main Replacement

CIP Location

System: James River
 Type: Pipelines

Driver Category: Aging Infrastructure/Rehabilitation
 Project Phase: Proposed
 Regulatory: None

PROGRAM CASH FLOW PROJECTION (\$,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
\$21,468	\$0	\$0	\$0	\$560	\$1,910	\$7,791	\$11,200	\$6	\$0	\$0	\$0

PROJECT DESCRIPTION

This project will replace 18,300 linear feet (LF) of 20-inch Asbestos Cement (AC) pipe from Center Avenue to NF-039 at the intersection of J. Clyde Morris Boulevard and Jefferson Avenue with 24-inch ductile iron pipe. This project will vacate the existing CSX Railroad right of way (ROW) and relocate the new force main down Jefferson Avenue or possibly another more appropriate alignment.

PROJECT JUSTIFICATION

The Center Avenue Force Main (NF-042) was installed in the mid-1970s. The force main follows the CSX railroad tracks from Center Avenue to J. Clyde Morris Boulevard and has extremely limited access across its entire run. The location of this force main also backs up directly behind residential areas with many privately owned encumbrances and encroachments. There have been two (2) emergency repairs completed on this pipeline since October of 2020, and both have involved failed full circle clamps that were used along this pipeline at unspecified locations. Both Spills were significant and had severe impacts on neighboring residential homes and properties.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
 Contacts-Dept Contacts: Chris Stephan
 Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2026
PER	07/03/2028
Design Delay	07/02/2029
Design	07/02/2029
Bid Delay	09/02/2030
PreConstruction	09/02/2030
Construction	11/01/2030
Closeout	07/01/2032

COST ESTIMATE

Cost Estimate Class:	Class 10
PrePlanning	\$0
PER	\$560,001
Design	\$2,228,302
PreConstruction	\$5,916
Construction	\$18,667,447
Closeout	\$5,916
Est. Program Cost	\$21,467,582
Contingency Budget	\$3,733,596
Est. Project Costs	\$25,201,178

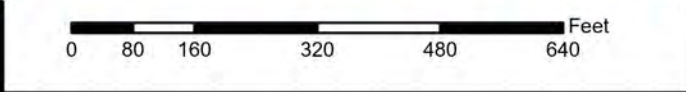


JRO14100

- Project Interceptor Line
- Project Interceptor Point
- Project Location Point
- Project Area

Legend

- CIP Interceptor Point
- CIP Pump Station Point
- CIP Interceptor Line
- CIP Abandonment
- CIP Project Area
- HRSD Interceptor Force Main
- HRSD Interceptor Gravity Main
- HRSD Treatment Plant
- HRSD Pressure Reducing Station
- HRSD Pump Station



JRO 14100

James River Treatment Plant Viewshed Improvements

System: James River
 Type: SWIFT

Driver Category: I&I Abatement-IP/RWWMP
 Project Phase: Proposed
 Regulatory: Integrated Plan-SWIFT

PROGRAM CASH FLOW PROJECTION (\$,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
\$1,461	\$23	\$55	\$60	\$478	\$780	\$65	\$0	\$0	\$0	\$0	\$0

PROJECT DESCRIPTION

This project includes design and construction of improvements to the land surrounding James River Treatment Plant (JRTP) and Phase I trails. The project area is located within the recreation easement and along the perimeter of the JRTP fence boundary. The project will incorporate elements to reduce visibility of JRTP.

PROJECT JUSTIFICATION

The recent land purchase Agreement required that HRSD designed and constructed public access trails, which will be operated and maintained by the City of Newport News. A section of the Phase I trail, known as the Flax Mill Creek Trail, is located in a recreation easement closely adjacent to the perimeter of the James River Treatment Plant.

FUNDING TYPE

Funding Type: Cash

CONTACTS

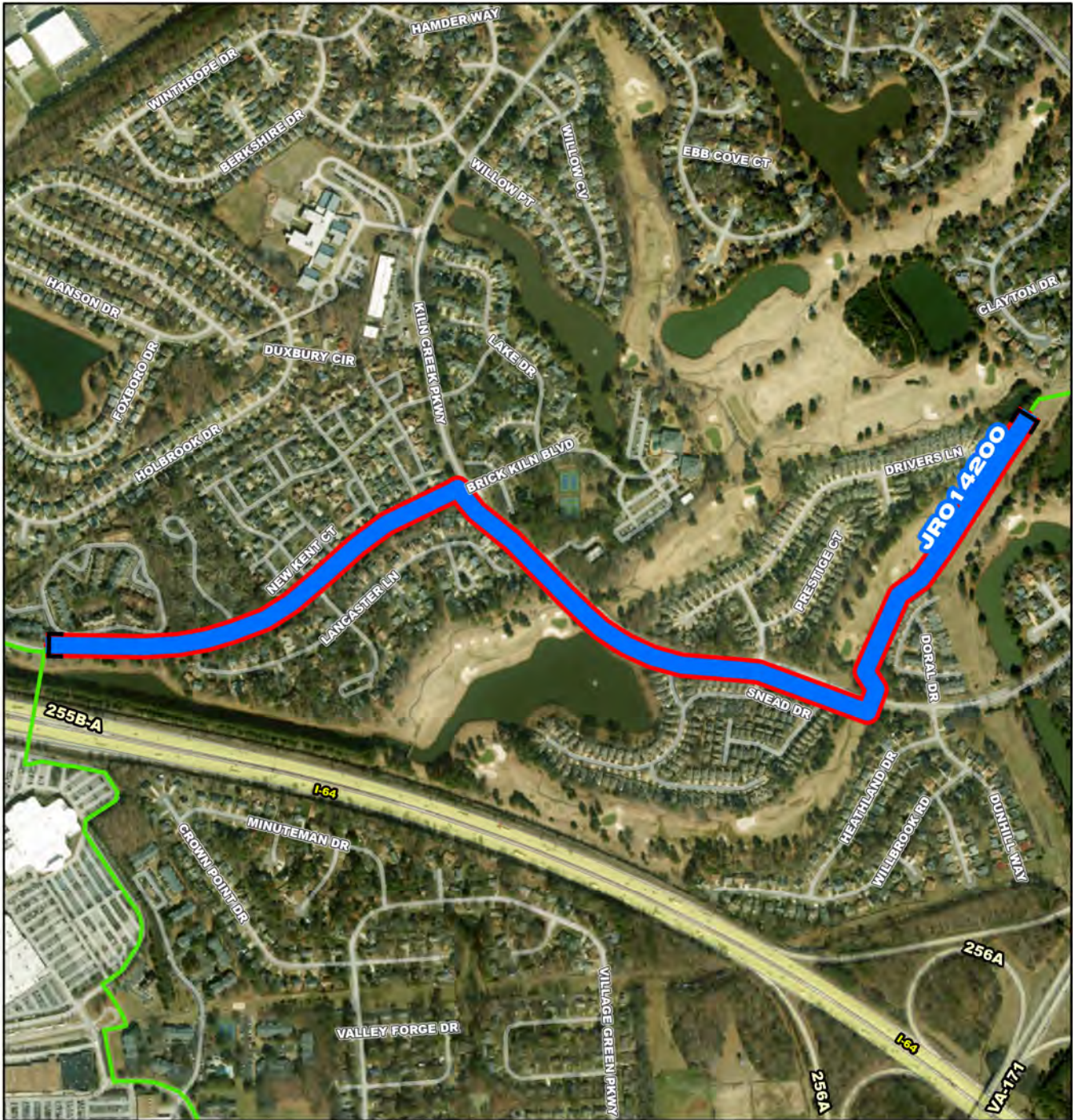
Contacts-Requesting Dept: Engineering
 Contacts-Dept Contacts: Beatriz Patino
 Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/01/2028
PER	04/01/2028
Design Delay	04/01/2028
Design	04/01/2028
Bid Delay	11/01/2028
PreConstruction	11/01/2028
Construction	12/01/2028
Closeout	08/01/2030

COST ESTIMATE

Cost Estimate Class: Class 5 (-20% to +100%)	
PrePlanning	\$5,600
PER	\$0
Design	\$150,000
PreConstruction	\$5,000
Construction	\$1,300,000
Closeout	\$0
Est. Program Cost	\$1,460,600
Contingency Budget	\$300,000
Est. Project Costs	\$1,760,600

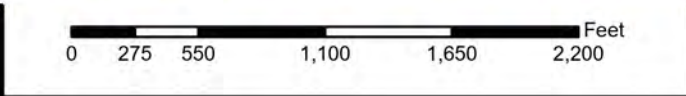


JRO 14200

- Project Interceptor Line
- Project Interceptor Point
- Project Location Point
- Project Area

Legend

- CIP Interceptor Point
- CIP Pump Station Point
- CIP Interceptor Line
- CIP Abandonment
- CIP Project Area
- HRSD Interceptor Force Main
- HRSD Interceptor Gravity Main
- HRSD Treatment Plant
- HRSD Pressure Reducing Station
- HRSD Pump Station



JRO 14200

Kiln Creek Interceptor Force Main Replacement

CIP Location

System: James River
 Type: Pipelines

Driver Category: Capacity Improvements
 Project Phase: Design
 Regulatory: None

PROGRAM CASH FLOW PROJECTION (\$,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
\$17,958	\$663	\$8,647	\$8,644	\$3	\$0	\$0	\$0	\$0	\$0	\$0	\$0

PROJECT DESCRIPTION

This project will replace 7,100 linear feet of 24 inch Ductile Iron (DI) pipe along Brick Kiln Boulevard and Kiln Creek Parkway from the soon to be constructed Jefferson Avenue Phase III CIP to the Kiln Creek Interceptor Force Main Contract B. This project will upsize the existing pipeline from 24 inch to 30 inch.

PROJECT JUSTIFICATION

The Colony Area Interceptor Force Main Section B pipeline was constructed by a private developer in 1987 with the Kiln Creek residential neighborhood and turned over to HRSD. Due to complications with the developer, no as-builts were available and multiple air vents along this run were not installed at actual highpoints. This issue leads to large gas pockets that increase system pressures along with a greater risk of internal pipe corrosion. During a recent diversion these issues presented themselves in the form of significant hydraulic restriction. This project will upsize the existing force main to 30-inch to create a 30-inch force main loop within the James River Treatment Plant (JRTP) and York River Treatment Plant (YRTP) service areas. In conjunction with Tabb Pressure Reducing Station and off-line storage infrastructure, this line will maximize wet weather capabilities and flow optimization between JRTP and YRTP.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
 Contacts-Dept Contacts: Ted Denny
 Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

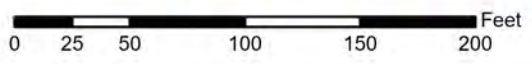
PrePlanning	07/03/2023
PER	01/31/2024
Design Delay	06/01/2024
Design	06/01/2024
Bid Delay	03/01/2026
PreConstruction	08/01/2026
Construction	11/01/2026
Closeout	03/01/2028

COST ESTIMATE

Cost Estimate Class:	Class 2 (-5% to +20%)
PrePlanning	\$0
PER	\$218,995
Design	\$444,264
PreConstruction	\$5,200
Construction	\$17,284,182
Closeout	\$5,200
Est. Program Cost	\$17,957,841
Contingency Budget	\$1,700,000
Est. Project Costs	\$19,657,841



- JRO 14300**
- Project Interceptor Line
 - Project Interceptor Point
 - Project Location Point
 - Project Area
- Legend**
- CIP Interceptor Point
 - CIP Pump Station Point
 - CIP Interceptor Line
 - CIP Abandonment
 - CIP Project Area
 - HRSD Interceptor Force Main
 - HRSD Interceptor Gravity Main
 - HRSD Treatment Plant
 - HRSD Pressure Reducing Station
 - HRSD Pump Station



JRO 14300

Morrison Pump Station Replacement



System: James River
 Type: Pump Stations

Driver Category: Capacity Improvements
 Project Phase: PER
 Regulatory: None

PROGRAM CASH FLOW PROJECTION (\$,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
\$14,829	\$179	\$1,486	\$1,111	\$4,985	\$4,985	\$2,080	\$2	\$0	\$0	\$0	\$0

PROJECT DESCRIPTION

This project includes the replacement of the existing Morrison Avenue Pump Station (PS) to address hydraulic, safety, and conditional issues. The proposed pump station will be located adjacent to the current PS on a parcel of land previously acquired by HRSD in 2017. Short sections of gravity main and force main will also be constructed to connect this replacement pump station to the existing HRSD collection and force main systems.

PROJECT JUSTIFICATION

Morrison PS has historically experienced significant wet weather capacity issues resulting in numerous Sanitary Sewer Overflows (SSOs). As part of EPA's enforcement actions, HRSD implemented interim system improvements, consisting of a permanently mounted Godwin Pump, to increase hydraulic capacity. Since deploying an Interim Pump at this location in 2012, there have been multiple non-HRSD SSOs experienced at the City of Newport News' manhole (the system spill point) upstream of Morrison PS. This project will address this capacity need. Morrison PS also has severe conditional issues and safety concerns involving the existing electrical panels and equipment layout. The motor control and electrical equipment have extremely limited space, making it difficult to perform maintenance on the electrical panels. The components and parts for the electrical equipment are also no longer manufactured, causing sourcing issues. Morrison PS has the identical motor control center (MCC) equipment as Bayshore PS had when it catastrophically caught fire. As a result of the fire at Bayshore, HRSD implemented a CIP project to replace the at-risk MCCs at other HRSD pump stations. Morrison's MCC was on the list to be replaced but could not be completed due to the Contractor's inability to obtain an electrical permit. Space within the Morrison Pump Station is so limited that compliance with OSHA's Arc-Flash requirements is not achievable. This project will address this electrical condition and safety deficiency.

FUNDING TYPE CONTACTS

Funding Type: Revenue Bond

Contacts-Requesting Dept: Operations-Interceptors
 Contacts-Dept Contacts: Donald Jennings
 Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE COST ESTIMATE

PrePlanning	07/01/2025
PER	12/01/2025
Design Delay	11/01/2026
Design	11/01/2026
Bid Delay	11/01/2027
PreConstruction	01/01/2028
Construction	06/01/2028
Closeout	12/01/2030

Cost Estimate Class:	Class 10
PrePlanning	\$0
PER	\$314,496
Design	\$2,025,504
PreConstruction	\$20,000
Construction	\$12,463,360
Closeout	\$5,200
Est. Program Cost	\$14,828,560
Contingency Budget	\$2,474,160
Est. Project Costs	\$17,302,720

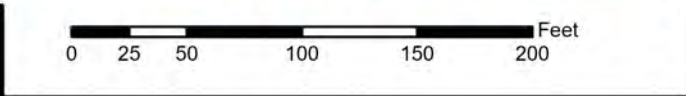


JRO14400

- Project Interceptor Line
- Project Interceptor Point
- Project Location Point
- Project Area

Legend

- CIP Interceptor Point
- CIP Pump Station Point
- CIP Interceptor Line
- CIP Abandonment
- CIP Project Area
- HRSD Interceptor Force Main
- HRSD Interceptor Gravity Main
- HRSD Treatment Plant
- HRSD Pressure Reducing Station
- HRSD Pump Station



JRO 14400

James River Treatment Plant Primary Clarifier Pipe Rehabilitation

N
W — E
S

CIP Location



James River Treatment Plant Primary Clarifier Pipe Rehabilitation

PR_JR014400

System: James River
Type: Pipelines

Driver Category: Aging Infrastructure/Rehabilitation
Project Phase: Proposed
Regulatory: None

PROGRAM CASH FLOW PROJECTION (\$,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
\$6,804	\$0	\$195	\$772	\$3,021	\$2,793	\$23	\$0	\$0	\$0	\$0	\$0

PROJECT DESCRIPTION

This project will repair or replace approximately 765 linear feet of primary clarifier influent and effluent reinforced concrete and ductile iron pipe ranging from 24 to 48-inch. It will also repair or replace approximately 233 linear feet of 6-inch, ductile iron drain system piping. A by-pass pipeline and pumping will be required to maintain treatment plant operations.

PROJECT JUSTIFICATION

The primary clarifier influent and effluent pipes were installed in 1967, as part of the treatment plant's original construction and in 1973, when the treatment plant was expanded from 5 to 15 MGD. The drain piping was installed in 1978 when the treatment plant was expanded from 15 to 20 MGD. In May 2023, a plant operator fell through a section of primary clarifier effluent piping while making their rounds. This prompted a condition assessment of all primary clarifier influent and effluent piping which discovered severe corrosion in other sections of piping and the likelihood of another failure within the next year. An inspection of the drainpipe, which terminates in the primary treatment section of the treatment plant, found sections of pipe missing in the bottom due to corrosion.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Robert Rutherford
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2026
PER	09/02/2026
Design Delay	03/02/2027
Design	11/09/2027
Bid Delay	01/03/2028
PreConstruction	03/02/2028
Construction	06/02/2028
Closeout	06/03/2030

COST ESTIMATE

Cost Estimate Class:	Class 5 (-20% to +100%)
PrePlanning	\$10,733
PER	\$184,068
Design	\$498,539
PreConstruction	\$21,466
Construction	\$6,042,566
Closeout	\$46,151
Est. Program Cost	\$6,803,522
Contingency Budget	\$1,687,518
Est. Project Costs	\$8,491,040

System: James River
Type: Biosolids

Driver Category: Aging Infrastructure/Rehabilitation
Project Phase: Pre Planning
Regulatory: None

PROGRAM CASH FLOW PROJECTION (\$,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
\$13,900	\$175	\$1,155	\$2,282	\$6,125	\$4,110	\$53	\$0	\$0	\$0	\$0	\$0

PROJECT DESCRIPTION

This project will replace both boiler-heat exchanger systems used to heat the digesters and heat the thickening building. The new digester heating system will consist of a boiler to heat hot water and a heat exchanger for each digester to heat digested solids. It includes piping, recirculating pumps, valves, and controls. The heating system will be installed in a dedicated building with natural gas as a secondary fuel source. The new thickening building heating system will include a new boiler, replacement of the air handler, duct, and louvers, rerouting biogas fuel service piping, and natural gas piping for a secondary fuel source.

PROJECT JUSTIFICATION

Both boiler heat-exchanger systems are beyond their useful life. The digester boiler-heat exchanger was installed in the early 1990s just outside the digester building as a quick fix to supply additional heat to both digesters. At that time, the 1960s boiler-heat exchanger inside the digester building could not supply enough heat to meet Class B regulatory requirements for digestion. As a single boiler-heat exchanger unit, the high temperatures needed to heat digested solids have taken a toll on the brick work and solids tubes. With the boiler-heat exchanger outside, the elements have also contributed to degrading the heating system. The thickening building heating system has been in service since the early 1980s and has gone through several refurbishments. The boiler's condition is beyond refurbishment. The air handler, duct, and louvers have been impacted by corrosion. There is no building heat. Portable units are used during extreme cold to keep pipes from freezing and provide some relief to employees working in the building.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Donald Jennings
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	05/01/2025
PER	06/01/2026
Design Delay	12/01/2026
Design	12/01/2026
Bid Delay	11/01/2027
PreConstruction	01/01/2028
Construction	03/01/2028
Closeout	03/01/2030

COST ESTIMATE

Cost Estimate Class:	Class 5 (-20% to +100%)
PrePlanning	\$0
PER	\$350,000
Design	\$1,120,000
PreConstruction	\$100,000
Construction	\$12,250,000
Closeout	\$80,000
Est. Program Cost	\$13,900,000
Contingency Budget	\$3,100,000
Est. Project Costs	\$17,000,000

System: James River
Type: Electrical

Driver Category: Aging Infrastructure/Rehabilitation
Project Phase: Proposed
Regulatory: None

PROGRAM CASH FLOW PROJECTION (\$,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
\$1,816	\$0	\$0	\$0	\$0	\$1,816	\$0	\$0	\$0	\$0	\$0	\$0

PROJECT DESCRIPTION

This project is to update key elements for the Emerson Distributed Control System (DCS) Treatment Plants across HRSD utilizing the Emerson "Evergreen" program. This manages and eliminates system obsolescence by ensuring key elements of the control system are updated with the latest validated software, workstations, networks, I/O, security, High-Performance Graphics, and optimization technology. This upgrade will effectively protect the initial system investment, therefore prolonging and sustaining the system's life. Each treatment plant will require regular upgrades under the Evergreen program every seven (7) years beginning in FY 2027.

PROJECT JUSTIFICATION

A technological "refresh" of DCS components at HRSD treatment plants is a necessary investment to ensure that the control systems are maintained in a reliable manner. This refresh extends the life of our investment by sustaining current, or incorporating new, technology in the system. It addresses the changing needs of system security requirements and includes security features to comply with newly instituted regulations, avoids emerging maintenance issues caused by aging technology, and adopts new I/O or digital bus technology and takes advantage of the associated asset maintenance and management tools.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-E&I
Contacts-Dept Contacts: Shawn Hawley
Contacts-Managing Dept: Operations-E&I

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2029
PER	07/01/2029
Design Delay	07/01/2029
Design	07/01/2029
Bid Delay	07/01/2029
PreConstruction	07/01/2029
Construction	07/01/2029
Closeout	07/01/2030

COST ESTIMATE

Cost Estimate Class: Class 5 (-20% to +100%)	
PrePlanning	\$0
PER	\$0
Design	\$0
PreConstruction	\$0
Construction	\$1,815,572
Closeout	\$0
Est. Program Cost	\$1,815,572
Contingency Budget	\$453,893
Est. Project Costs	\$2,269,464