

Ronald Wastewater District - Sanitary Sewer Rehabilitation
Project Summary: 2009 CIP (09-C)

Neighborhood: Richmond Beach, Briarcrest

Permits: City of Shoreline Right-of-Way Permit

Project Areas: NE 146th between 17th Ave NE and 20th Ave NE
Richmond Beach Dr NW between NW 192nd PI and NW 191st PI
NW 192nd PI between Richmond Beach Dr NW and 23rd Ave NW

Condition Assessment: Through the District's ongoing maintenance, TV inspection personnel assess the entire system once every six to eight years, noting the various types and severity of defects in the sewer mainlines. Pipe segments in the 2009 CIP were selected for replacement due to root intrusion, pulled joints, and evidence of infiltration and inflow (I/I).

Cost/Construction:

Engineer's Estimate: \$660,590

Contractor's Bid Price: \$509,200

Change Order: \$38,036.13

Final Construction Cost: \$546,119.40

Cost per lineal foot main line: \$317.33 per LF

Engineer: Scott Christensen, P.E., Kristen White, CHS Engineers, LLC

Inspector: David Jensen, CHS Engineers

Contractor: Landis & Landis Construction, LLC

Notes: Flowing silt at Richmond Beach Dr NW and NW 191st PI

Replacement/Rehabilitation:

8" Concrete Sanitary Sewer Pipeburst with 8" HDPE: 1,403 LF

10" Concrete Sanitary Sewer Pipeburst with 10" HDPE: 318 LF

Manholes Replaced (48"): 4

Manholes Rehabilitated (Frame, Cover and Neck): 2

Manholes Rehabilitated (Neck Only): 1

Cleanouts Installed: 36

Side Sewers Replaced (4" HDPE): 30

Side Sewers Replaced (6" HDPE): 0

Side Sewer Stubs Replaced (6" HDPE): 18

Private Replacement/Participation:

Number of private side sewers in project: 52

Number of property owners that signed up (signed ROE): 32

Number of side sewers not needing replacement (per video): 7

Number of side sewers not replaced due to cost constraints: 6

**Ronald Wastewater District - Sanitary Sewer Rehabilitation
Project Summary: 2009 CIP (09-C)**

| House # | Street | ROE | Old Material | New Material | Replacement | | Size | Notes |
|---------|-------------------------|-----|--------------|--------------|-------------|-----------------------|--------|---|
| | | | | | Side Sewer | Stub (to edge of R/W) | | |
| 14514 | 20 th Ave NE | | Conc | | | | | SS to Park and Ride abandoned |
| 1749 | NE 146 th St | Y | Conc | HDPE | X | | 4" | SS replaced |
| 1750 | NE 146 th St | Y | Conc | HDPE | X | | 4" | SS replaced |
| 1742 | NE 146 th St | Y | Conc | HDPE | X | | 4" | Connected to ex. 4" Conc |
| 1743 | NE 146 th St | | PVC | HDPE | | X | 6" | Two (2) 6" PVC SS's connected. Stub replaced with 6" HDPE |
| 1741 | NE 146 th St | | | | | | | |
| 1738 | NE 146 th St | Y | Conc | HDPE | X | | 4" | SS replaced |
| 1739 | NE 146 th St | | Conc/PVC | HDPE | | X | 6" | Two (2) 6" PVC SS's connected. Stub replaced with 6" HDPE |
| 1737 | NE 146 th St | | | | | | | |
| 1734 | NE 146 th St | | Conc | HDPE | | X | 4" | Stub connected to ex. 4" Conc |
| 1733 | NE 146 th St | Y | Conc | HDPE | X | | 4" | SS replaced |
| 1728 | NE 146 th St | | Conc/PVC | HDPE | | X | 4", 6" | Stub connected to ex. 6" PVC |
| 1729 | NE 146 th St | | PVC | HDPE | | X | 6" | Three (3) 6" PVC SS's connected. Stub connected to ex. 6" PVC |
| 1727 | NE 146 th St | | | | | | | |
| 1725 | NE 146 th St | | | | | | | |
| 1726 | NE 146 th St | Y | Conc | HDPE | X | | 4" | SS replaced |
| 1715 | NE 146 th St | Y | Conc | HDPE | X | | 4" | SS replaced |
| 1721 | NE 146 th St | Y | Conc | HDPE | X | | 4" | SS replaced |
| 1716 | NE 146 th St | | Conc | HDPE | | X | 4", 6" | Stub connected to ex. 6" Conc |
| 1710 | NE 146 th St | Y | Conc/PVC/CI | HDPE/ABS | X | | 4" | SS replaced |
| 1713 | NE 146 th St | Y | Conc | HDPE | X | | 4" | SS replaced |
| 14604 | 17 th Ave NE | Y | Unknown | HDPE | X | | 4" | SS replaced |
| 1709 | NE 146 th St | Y | Conc | HDPE | X | | 4" | SS replaced |
| 19131 | Richmond Beach Dr | Y | Unknown | | | | | Not replaced |

**Ronald Wastewater District - Sanitary Sewer Rehabilitation
Project Summary: 2009 CIP (09-C)**

| House # | Street | ROE | Old Material | New Material | Replacement | | Size | Notes |
|---------|-------------------------|-----|--------------|--------------|-------------|-----------------------|--------|---|
| | | | | | Side Sewer | Stub (to edge of R/W) | | |
| 19120 | Richmond Beach Dr | Y | Unknown | HDPE | X | | 6", 4" | SS connected with 19110 |
| 19110 | Richmond Beach Dr | Y | Unknown | HDPE | X | | 6", 4" | SS connected with 19120. Mostly replaced then connected to ex. 4" Conc |
| 19123 | Richmond Beach Dr | Y | Unknown | | | | | Not replaced |
| 19117 | Richmond Beach Dr | Y | Unknown | | | | | Not replaced |
| 19111 | Richmond Beach Dr | | PVC | | | | | Not replaced |
| 2544 | NW 191 st Pl | Y | PVC | HDPE | | X | 4" | Stub connected to ex. 4" PVC |
| 19105 | Richmond Beach Dr | Y | Unknown | HDPE | X | | 4" | SS replaced |
| 19101 | Richmond Beach Dr | Y | Unknown | | | | | Not replaced |
| 19027 | Richmond Beach Dr | | Unknown | | | | | Not replaced |
| 2543 | NW 192 nd Pl | Y | Unknown | HDPE | X | | 4" | SS replaced |
| 19200 | Richmond Beach Dr | Y | Unknown | HDPE | X | | 4" | SS replaced |
| 2533 | NW 192 nd Pl | | Unknown | HDPE | | X | 4" | Stub connected to ex. 4" Conc |
| 2528 | NW 192 nd Pl | Y | Unknown | HDPE | X | | 4" | SS replaced |
| 2519 | NW 192 nd Pl | Y | Unknown | HDPE | X | | 4" | Mostly replaced then connected to ex. 4" ABS |
| 2526 | NW 192 nd Pl | Y | Unknown | HDPE | | X | 4" | Stub connected to ex. 4" PVC |
| 2515 | NW 192 nd Pl | | PVC/ABS | HDPE | | X | 4" | Stub connected to ex. 4" Conc |
| 2522 | NW 192 nd Pl | | Unknown | HDPE | | X | 4", 6" | Stub connected to ex. 6" Conc |
| 2511 | NW 192 nd Pl | | Conc/PVC | HDPE | | X | 4", 6" | Stub connected to ex. 6" PVC |
| 2512 | NW 192 nd Pl | Y | Conc | HDPE | X | | 4" | SS replaced |
| 2509 | NW 192 nd Pl | Y | Conc/PVC | HDPE | | X | 4" | Stub connected to ex. 4" PVC |
| 2508 | NW 192 nd Pl | Y | Unknown | HDPE | X | | 4" | SS replaced |
| 2503 | NW 192 nd Pl | Y | Conc | HDPE | X | | 4" | SS replaced |
| 2502 | NW 192 nd Pl | Y | Conc | HDPE | X | | 4" | SS replaced |
| 19202 | NW 192 nd Pl | | Conc | PVC | | X | 4" | Stub connected to ex. 4" PVC |

**Ronald Wastewater District - Sanitary Sewer Rehabilitation
Project Summary: 2009 CIP (09-C)**

| House # | Street | ROE | Old Material | New Material | Replacement | | Size | Notes |
|---------|-------------------------|-----|--------------|--------------|-------------|-----------------------|------|---|
| | | | | | Side Sewer | Stub (to edge of R/W) | | |
| 2311 | NW 192 nd PI | Y | Unknown | HDPE | X | | 4" | SS replaced |
| 2303 | NW 192 nd PI | Y | Unknown | HDPE | X | | 4" | Mostly replaced then connected to ex. 4" Conc |
| 2310 | NW 192 nd PI | | Conc | HDPE | X | | 4" | SS replaced |
| 2306 | NW 192 nd PI | Y | Conc | HDPE | X | | 4" | SS replaced |
| 19221 | 23 rd Ave NW | | Conc | HDPE | X | | 4" | SS replaced |