Documentation in Support of NNC Exclusion Request for North Canal (WBID 3147), Main Canal (WBID 3153A) (including Lateral C and Lateral D Canals), and South Canal (WBID 3158) (including Lateral J and Sub-Lateral J-1-w Canals)

Purpose of Documentation

The purpose of this documentation is to support the determination of the applicability of the stream nutrient thresholds for waterbodies assessed under Chapter 62-303, Florida Administrative Code. Unless it is demonstrated that a Class III stream-like waterbody meets the criteria in either one of the exclusions for the definition of a "stream" as described in 62-302.200(36)(a) or (b), F.A.C., the stream Numeric Nutrient Criteria in Paragraph 62-302.531(2)(c), F.A.C. apply. As per Paragraph 62-302.200(36)(b), F.A.C., ditches, canals and other conveyances (or segments of conveyances) can be excluded from the stream definition if they are demonstrated to:

1. Be man-made, or predominantly channelized or predominantly physically altered,

2. Be primarily used for water management purposes, such as flood protection, stormwater management, irrigation, or water supply; and

3. Have marginal or poor stream habitat or habitat components, such as a lack of habitat or substrate that is biologically limited, because the conveyance has cross sections that are predominantly trapezoidal, has armored banks, or is maintained primarily for water conveyance.

If a waterbody meets this exclusion, the waterbody is still covered by the narrative nutrient criterion. The waterbody will be assessed for impairment using the 20 µg/L chlorophyll-a impairment threshold for streams (expressed as an annual geometric mean, not to be exceeded more than once in a three-year period), a statistically significant increasing trend in the annual geometric means in TN, TP and chlorophyll-a over the assessment periods, and other information indicating an imbalance of flora or fauna due to nutrient enrichment (including, but not limited to, algal blooms, excessive macrophyte growth, decrease in the distribution (either in density or areal coverage) of native submerged aquatic vegetation, changes in algal species richness, and excessive diel oxygen swings shall also be considered.

Waterbody/Watershed Identification

Organization	Indian River County Department of Utility Services
Point of Contact	Eric Charest, Environmental Compliance Analyst 1801 27th Street, Vero Beach, FL 32960 echarest@ircgov.com (772) 226-1822
Waterbody(s)	North Canal (WBID 3147), Main Canal (WBID 3153A) (including Lateral C and Lateral D Canals), and South Canal (WBID 3158) (including Lateral J and Sub-Lateral J-1-w Canals)
Watershed(s)	South Central Indian River Lagoon

Description of Proposed Exclusion(s)

Map	Figure 1, which is attached below, shows the locations of the North Canal (WBID 3147), Main Canal (WBID 3153A) (including Lateral C and Lateral D

Canals), and South Canal (WBID 3158) (including Lateral J and Sub-Lateral J-1-w Canals) being proposed for exclusion. A GIS file with the extent of these waterbodies is also provided.

Documentation for Proposed Exclusion(s)

Evidence of Channelization	The North Canal, Main Canal, and South Canal are part of the canal system within the Indian River Farms Water Control District. None of the canals in this system, including the lateral and sub-lateral canals, are natural water courses; all are manmade and were dug between 1914 and 1921. Figure 2 through Figure 5 below are from the district's Plan of Reclamation (March 1920) and show the profiles that were dug for the Main Canal (Figure 2), North Canal and South Canal (Figure 3), Lateral C and Lateral D Canals (Figure 4), and Lateral J and Lateral J-1-w Canals (Figure 5). Figure 6, Figure 7, and Figure 8 are 1943 historical aerial photographs of the North Canal, Main Canal, and South Canal, respectively, showing the channelized canals. Figure 9, Figure 10, and Figure 11 are current aerial photographs of the North Canal, Main Canal, and South Canal, respectively, showing that these canals are still channelized for stormwater conveyance.
Primary Purpose	The primary purpose of the canal system, including the North Canal, Main Canal, South Canal, lateral canals, and sub-lateral canals is to supply primary drainage to the southeast 58,000 acres of Indian River County. The system consists of 227 miles of canals, ditches, dikes, and levees and is managed by Indian River Farms Water Control District, a Chapter 298 Special District organized under Florida Statutes, which was incorporated on May 8, 1919. The system includes four water control structures and one drop spillway that is used to control the water table depth. In the event of a storm, all structures are opened to supply the ultimate discharge capacity.
Recreational Uses	There are no recreational activities occurring in the portions of the canals proposed for exclusion.
Demonstration of Maintenance	Indian River Farms Water Control District has a contract with Future Horizons to apply herbicides to treat emergent vegetation four times per year across wetted sections and no more than one foot up the canal bank. The district has two hydraulic excavators and two mobile cranes rigged as draglines that work throughout the year to remove sediments and aquatic substrate. Riparian trees on the maintenance side of the canals are controlled to allow mechanical cleaning and vegetation harvest. The district has provided an aggressive maintenance program in the canal system for the past one hundred years to maintain adequate flow within the canal system for drainage, which is the sole purpose of the district.
Point Sources and Indirect Source Monitoring (Sites)	There are no point source discharges to the North Canal. The Indian River County West Regional Wastewater Treatment Facility (Permit Number FL0041637) discharges through the Lateral D Canal to the Lateral C Canal before flowing into the Main Canal. The Indian River County South County Reverse Osmosis Facility (Permit Number FL0037940-012-IW5A/MR) discharges through the Sub-Lateral J-1-w Canal to the Lateral J Canal before flowing into the South Canal. The North Canal, Main Canal, and South Canal WBIDs are located within the Indian River Farms Water Control District. Since the canals are within the district, the Indian River County Phase II MS4 does not include these canals. The district collects quarterly samples from the North Canal, Main Canal, and South Canal.

Nonpoint Sources

Based on the 2014 land use coverage from the St. Johns River Water Management District, the predominant land use within the North Canal WBID is Urban and Built Up with 42.1% of the area followed by Agriculture with 31.0% of the area. The predominate land use within the Main Canal WBID is Urban and Built up with 38.8% of the area followed by Agriculture with 35.6% of the area. The predominate land use in the South Canal WBID is Urban and Built Up with 51.7% of the area followed by Agriculture with 31.5% of the area. Details on the land uses within each WBID are shown in Table 1 for North Canal, Table 2 for Main Canal, and Table 3 for South Canal.

Table 1. Land use summary within the North Canal WBID

Land Use Code	Land Use Type	Acres	% of Area
1000	Urban and Built Up	5,512.0	42.1%
2000	Agriculture	4,061.4	31.0%
4000	Upland Forests	1,625.5	12.4%
3000	Upland Non-forested	641.0	4.9%
5000	Water	593.7	4.5%
8000	Transportation, Communication, Utilities	390.0	3.0%
6000	Wetlands	212.3	1.6%
7000	Barren Land	59.7	0.5%
Total	***Total***	***13,095.6***	***100.0%***

Table 2. Land use summary within the Main Canal WBID

Land Use Code	Land Use Type	Acres	% of Area
1000	Urban and Built Up	8,478.4	38.8%
2000	Agriculture	7,773.4	35.6%
8000	Transportation, Communication, Utilities	1,751.1	8.0%
4000	Upland Forests	1,636.5	7.5%
3000	Upland Non-forested	901.5	4.1%
5000	Water	880.1	4.0%
6000	Wetlands	410.7	1.9%
7000	Barren Land	28.5	0.1%
Total	***Total***	***21,860.2***	***100.0%***

Table 3. Land use summary within the South Canal WBID

Land Use Code	Land Use Type	Acres	% of Area
1000	Urban and Built Up	8,617.9	51.7%
2000	Agriculture	5,255.8	31.5%
4000	Upland Forests	1,246.8	7.5%
5000	Water	610.1	3.7%
3000	Upland Non-forested	468.9	2.8%
6000	Wetlands	207.8	1.2%
8000	Transportation, Communication, Utilities	176.7	1.1%
7000	Barren Land	97.9	0.6%
Total	***Total***	***16,681.8***	***100.0%***

Habitat Assessment

DEP has conducted Habitat Assessments for the North Canal, Main Canal, and South Canal. The results for these survey fall into the Poor, Suboptimal, and Marginal categories as shown in Table 4 for North Canal, Table 5 for Main Canal, and Table 6 for South Canal. As noted above, the Indian River Farms Water Control District actively removes vegetation from the canals to maintain the primary purpose of stormwater conveyance. Therefore, there is limited habitat in these canals.

Table 4. Habitat Assessment results for the North Canal WBID

Station ID	Station Description	Date	Result
21FLCEN 27020010	North Relief Canal at U.S. Hwy. 1 ECJ 10	11/5/2008	Marginal
21FLCEN 27020010	North Relief Canal at U.S. Hwy. 1 ECJ 10	3/25/2008	Marginal
21FLGW 41308	Z3-CN-6018 Unnamed Canal	2/21/2012	Suboptimal
21FLWPB G5SE0043	North Canal @US1	6/26/2017	Marginal
21FLWPB G5SE0043	North Canal @US1	10/31/2016	Marginal
21FLWPB G5SE0043	North Canal @US1	7/27/2016	Marginal

Table 5. Habitat Assessment results for the Main Canal WBID

Station ID	Station Description	Date	Result
21FLGW 44910	Z3-CN-8006 Main canal	2/12/2014	Marginal
21FLWPB G5SE0045	Main relief canal @ US1	10/31/2016	Marginal
21FLWPB G5SE0045	Main relief canal @ US1	7/27/2016	Poor

Table 6. Habitat Assessment results for the South Canal WBID

Station ID	Station Description	Date	Result
21FLGW 46465	Z3-CN-9004 Vero Canal	2/10/2015	Marginal
21FLWPB G5SE0044	South relief canal @ US1	7/27/2016	Poor

Current Restoration Conditions

These three WBIDs do not have adopted TMDLs. The North Canal is verified impaired for fecal coliform, iron, nutrients (macrophytes), and nutrients (total phosphorus). The Main Canal is verified impaired for fecal coliform and nutrients (macrophytes). The South Canal is verified impaired for fecal coliform. These canals are located within the area of the adopted Central Indian River Lagoon Basin Management Action Plan.

Downstream Protection Considerations

The downstream waterbody for the North Canal and Main Canal is South Indian River (above SR 60), which is WBID 5003C1, and the downstream waterbody for the South Canal is South Indian River (below SR 60), which is WBID 5003B1. Both WBIDs have total nitrogen and total phosphorus adopted TMDLs as part of the *Nutrient and Dissolved Oxygen TMDLs for the Indian River Lagoon and Banana River Lagoon* TMDL report. WBID 5003C1 is also verified impaired for iron and WBID 5003B1 is also verified impaired for copper and fecal coliform.

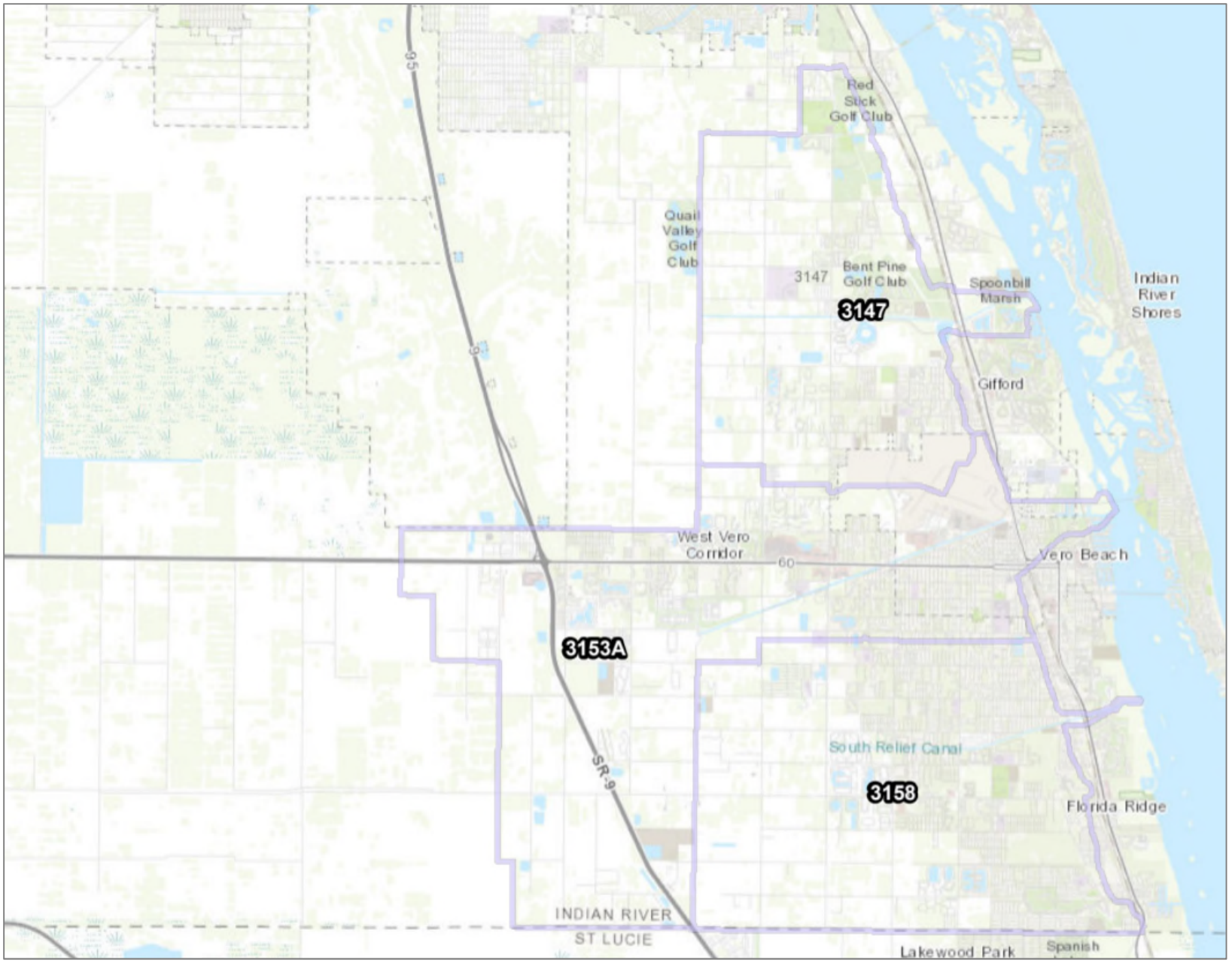

Figure 1. Location map for the North Canal, Main Canal, and South Canal WBIDs

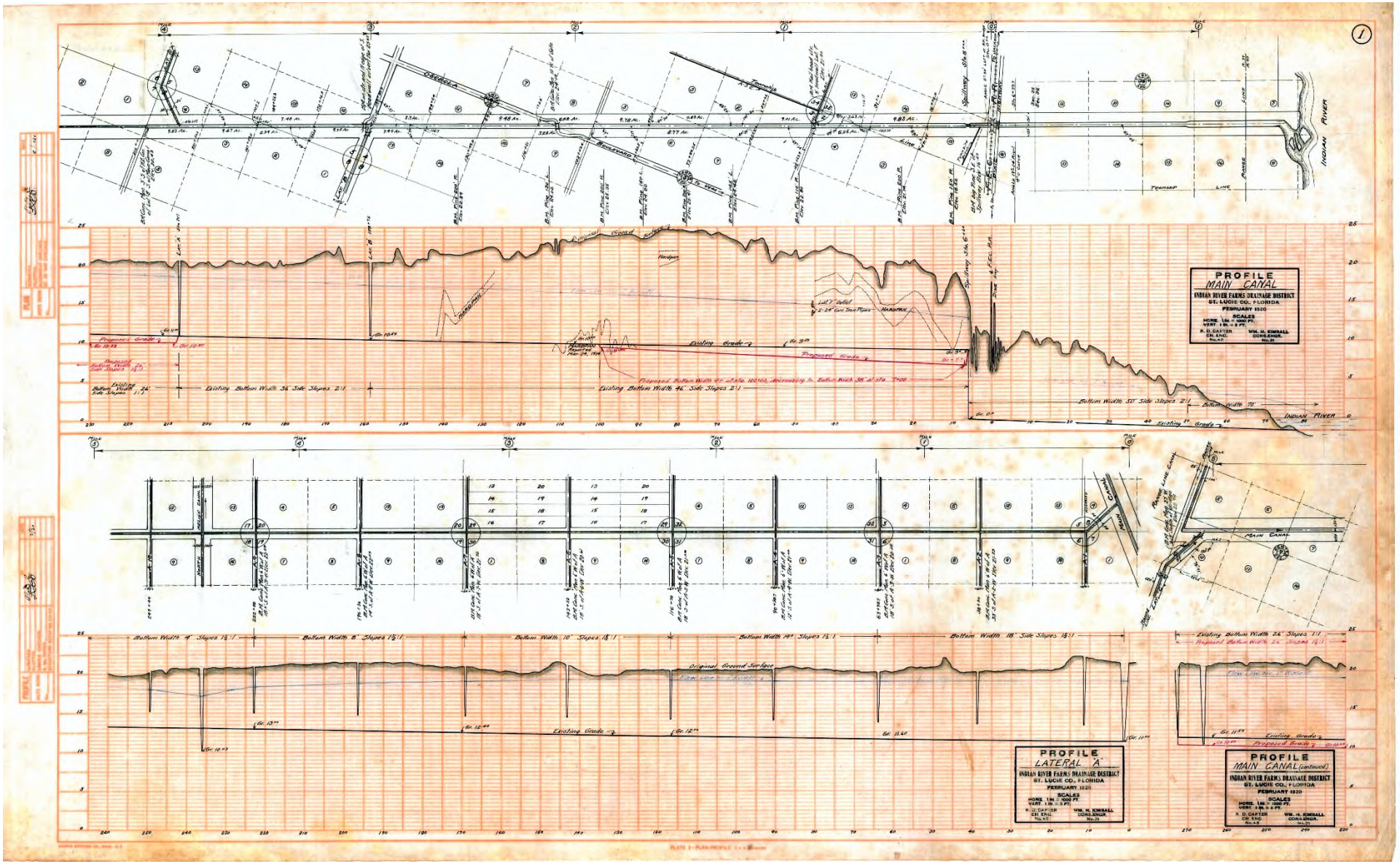

Figure 2. Plan of Reclamation for the Main Canal

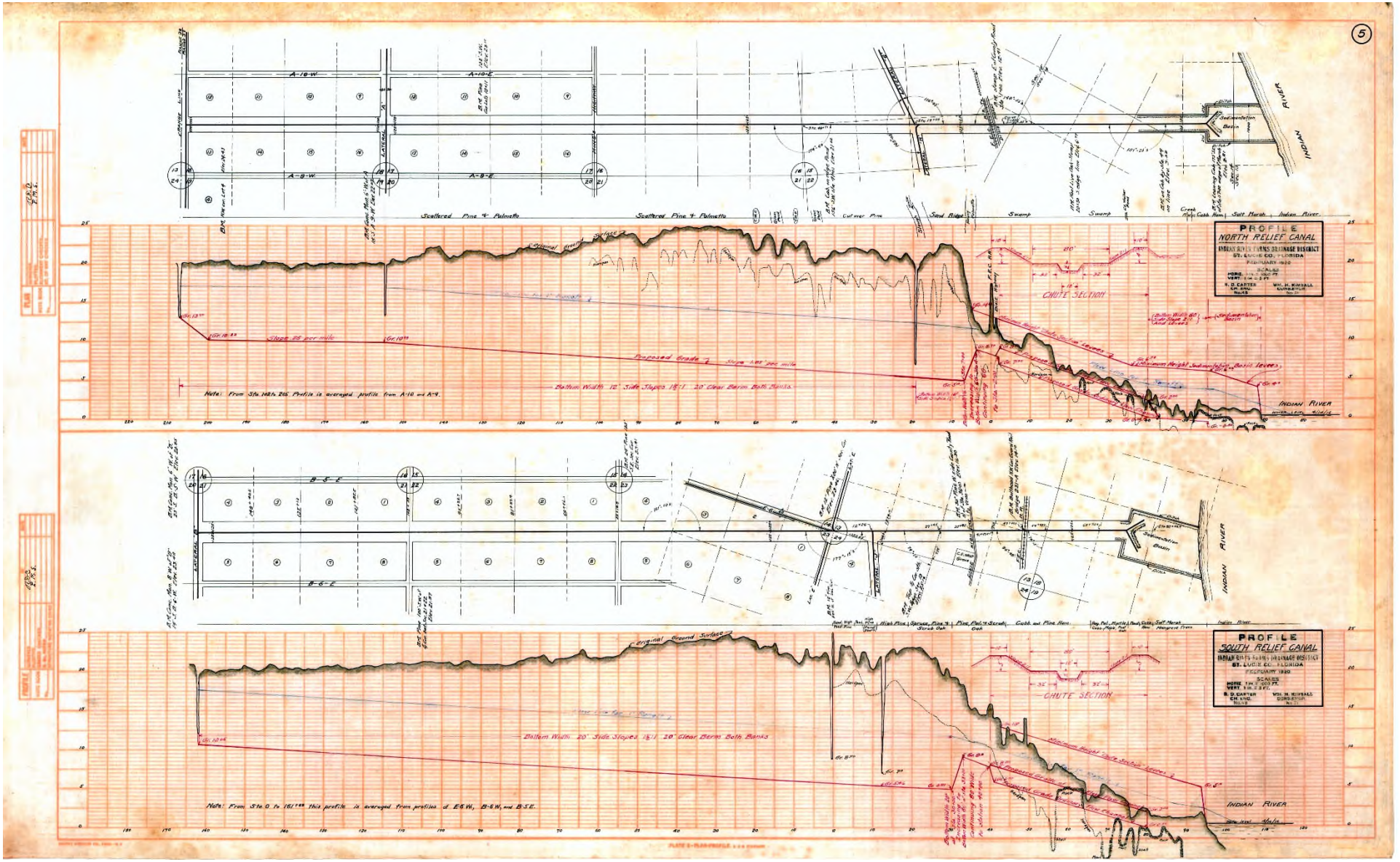

Figure 3. Plan of Reclamation for the North Canal and South Canal

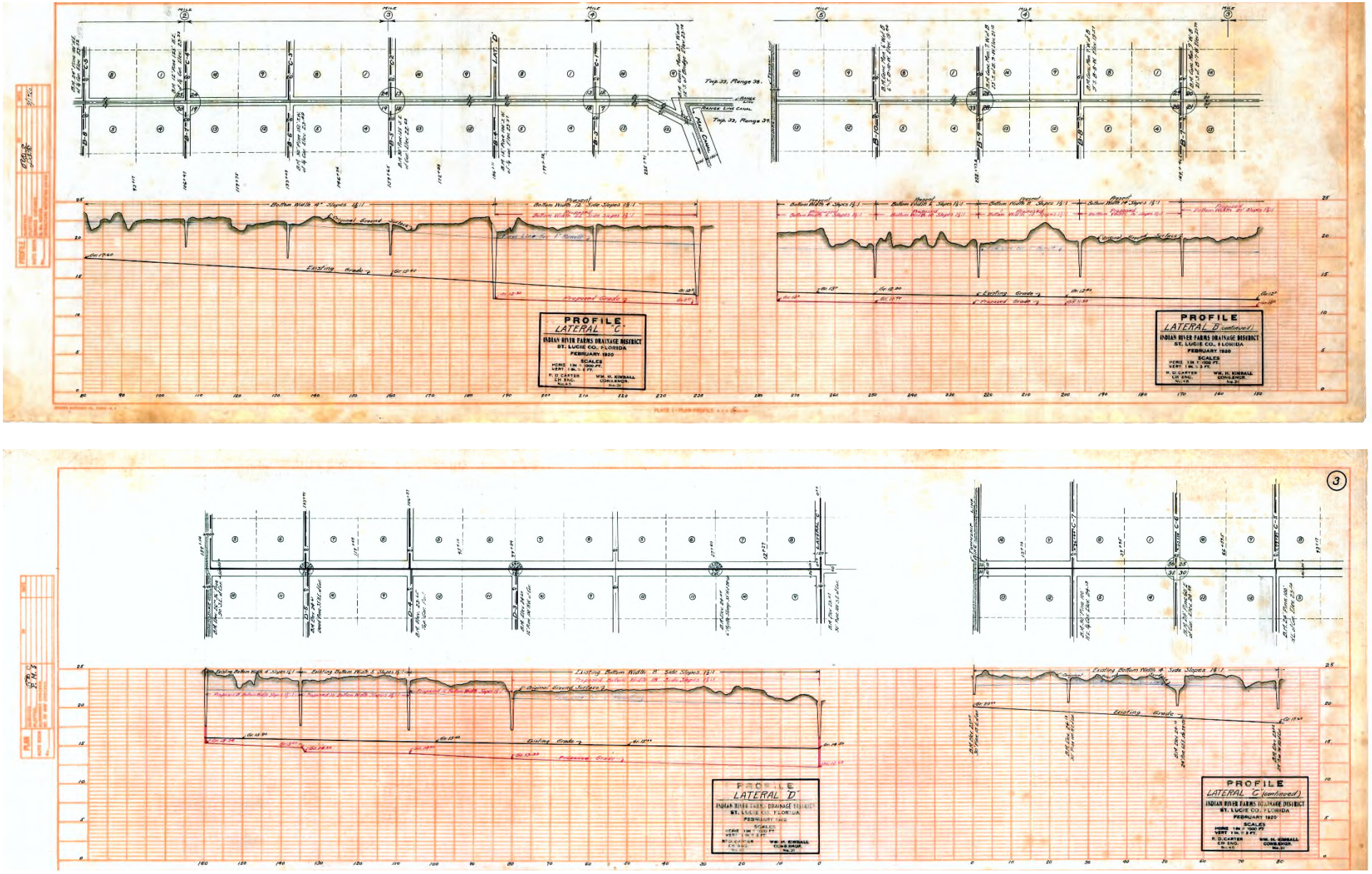

Figure 4. Plan of Reclamation for the Lateral C and Lateral D Canals

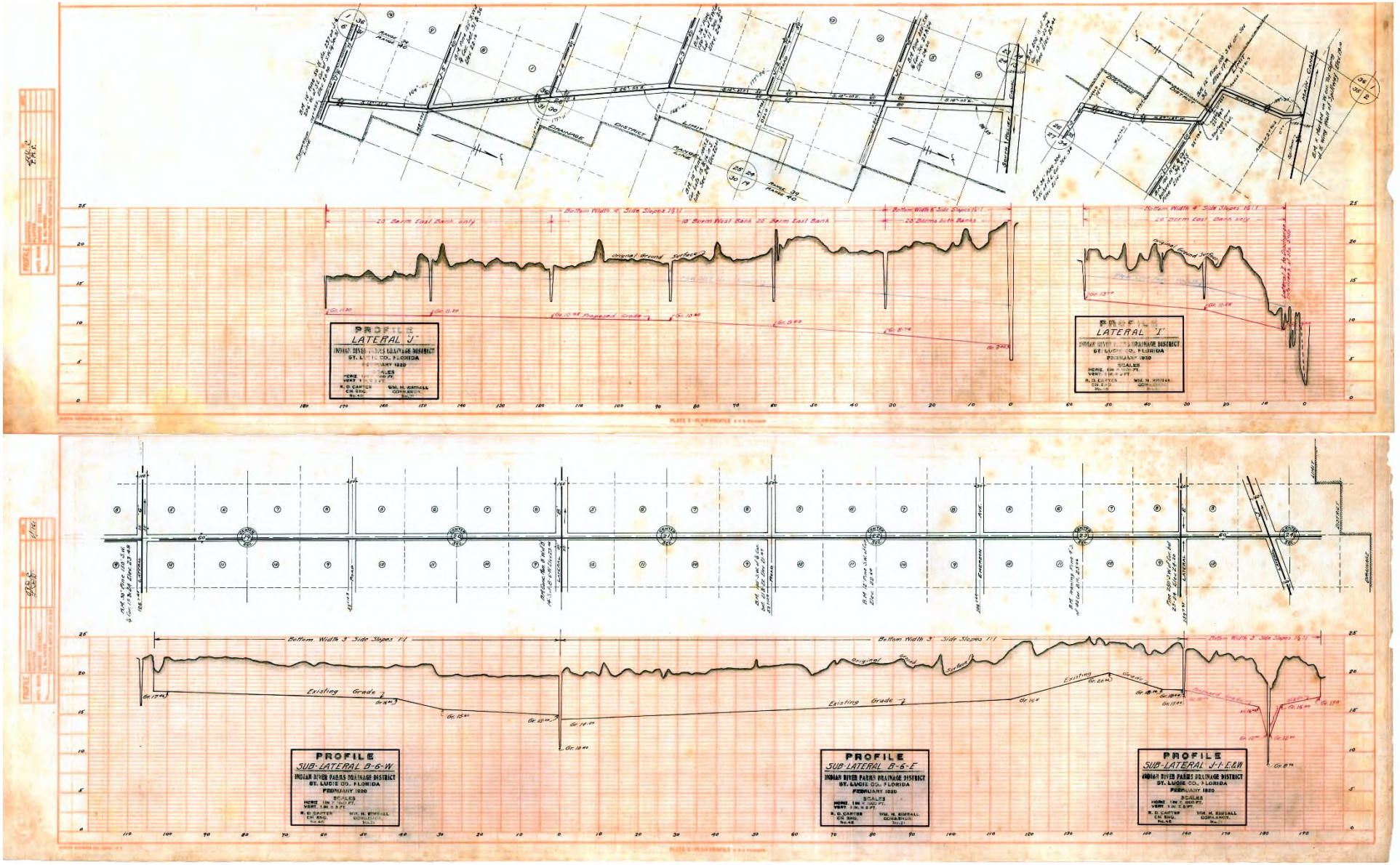

Figure 5. Plan of Reclamation for the Lateral J and Sub-Lateral J-1-w Canals

Figure 6. 1943 U.S. Department of Agriculture aerial image showing the channelized North Canal

Figure 7. 1943 U.S. Department of Agriculture aerial image showing the channelized Main Canal

Figure 8. 1943 U.S. Department of Agriculture aerial image showing the channelized South Canal

Figure 9. Current aerial image showing the channelized North Canal

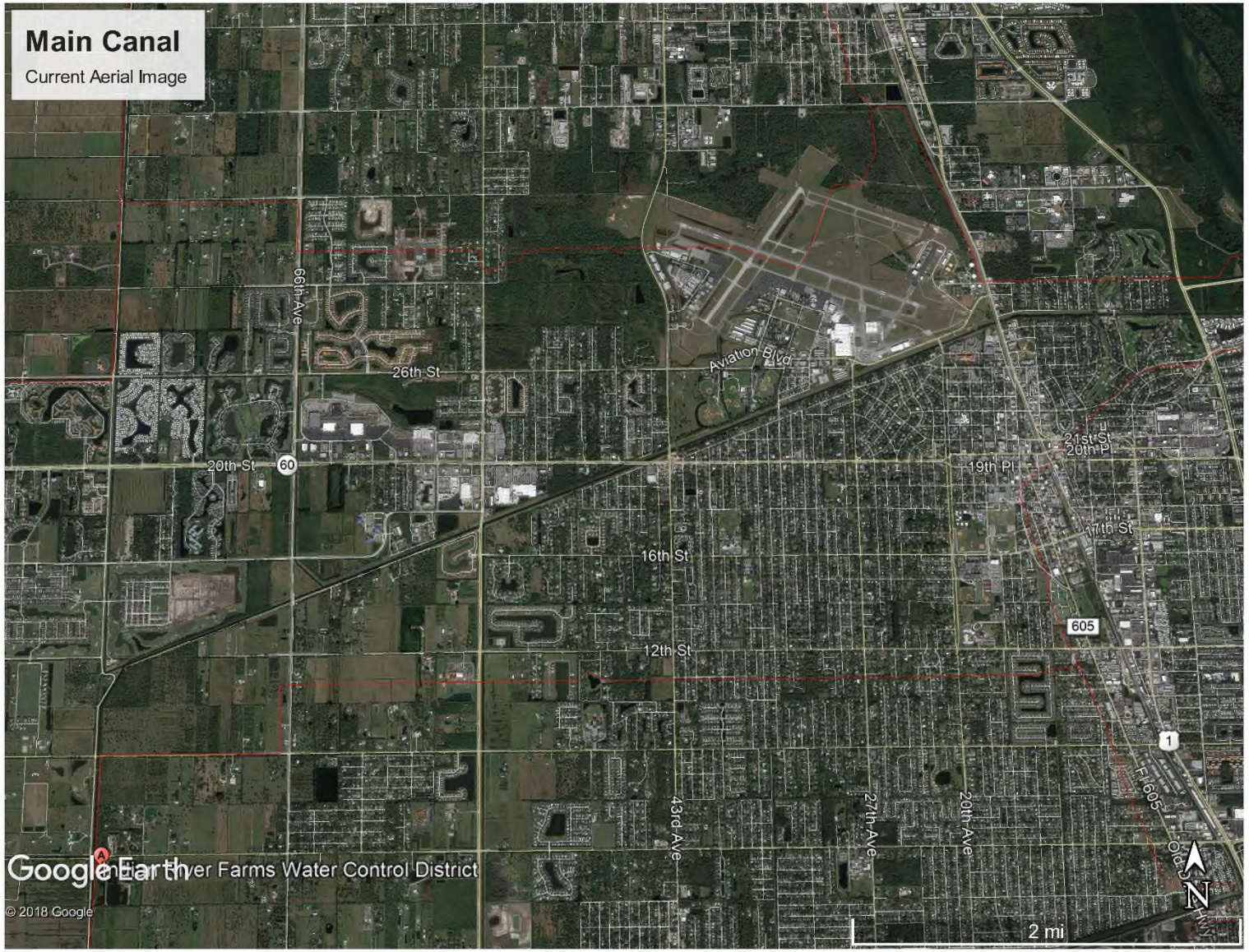

Figure 10. Current aerial image showing the channelized Main Canal

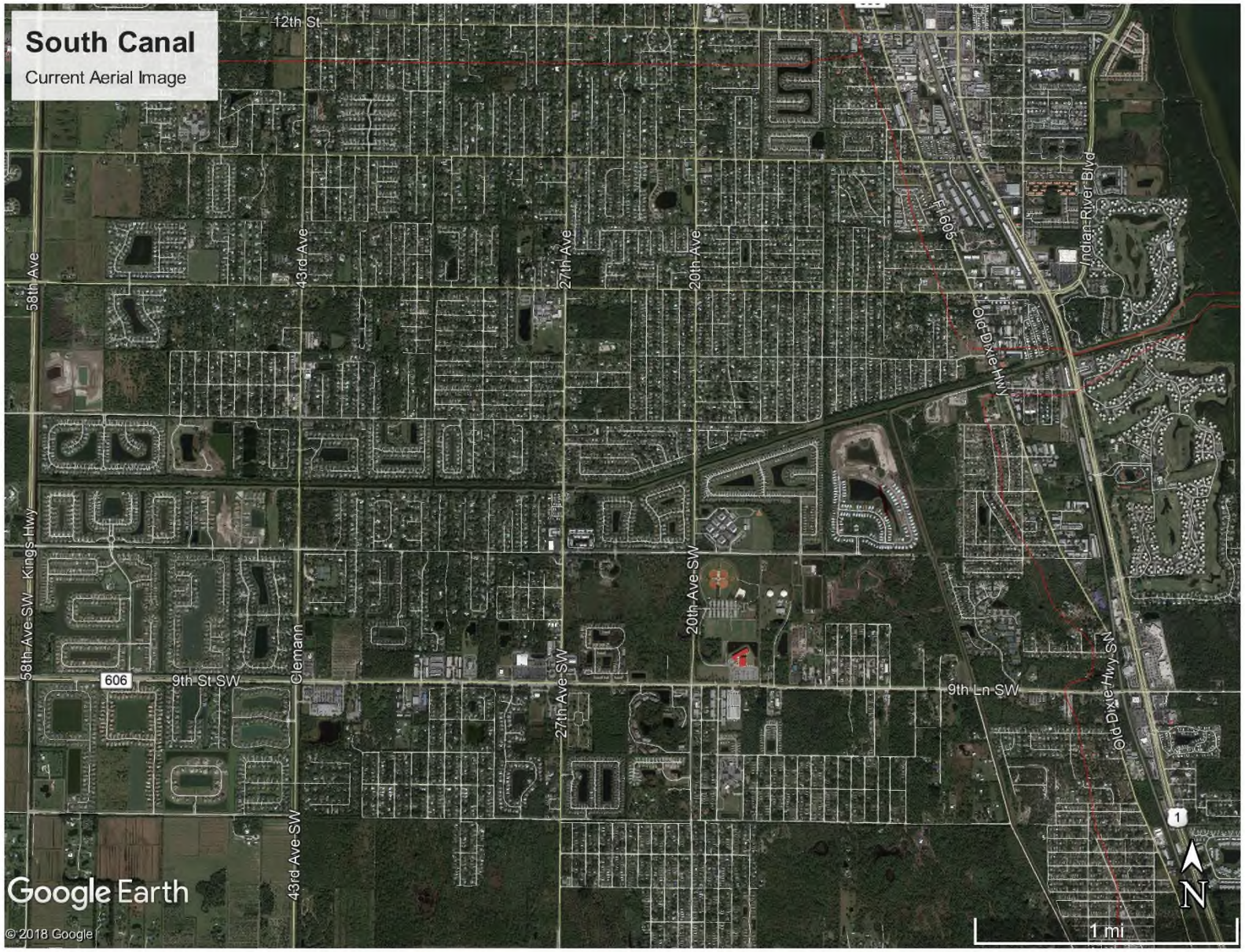

Figure 11. Current aerial image showing the channelized South Canal