

**TOWN OF MEDLEY
WASTEWATER DEPARTMENT**



Wellfield Cone of Influence (COI) Addendum

TOWN COUNCIL

Mayor: Roberto Martell
Vice Mayor: Ivan Pacheco
Council: Jack Morrow
Griselia DiGiacomo
Edgar Ayala

WATER & SEWER DEPARTMENT STAFF

Town Engineer/Director: Jorge E. Corzo, PE, CFM
Utilities Director: Jorge C. Soto

March 2017

Medley Project No.: WS-0142

Snubbs Project No.: 1401-030



SNUBBS CONSULTING INC.
Engineers-Surveyors-Planners
12895 SW 132 ST, Suite 100, Miami, FL 33186
305.885.6400 www.snubbs.com



PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Snubbs Consulting Inc., a corporation, authorized to operate as an engineering business (CA 30424), FEID No. 45-4140841, by the State of Florida, Department of Professional Regulation, Board of Professional Engineers, and that I have reviewed or approved the evaluation, findings, opinions, conclusions, or technical advice hereby reported for:

Project: Wellfield Cone of Influence (COI) Addendum

CIP No.: WS-0142


FDBID: 010-53600-446020

Client: Town of Medley

Snubbs No.: 1401-030-02

This **Wellfield Cone of Influence (COI) Addendum** includes a summary of data collection efforts and an analysis of the wastewater system for the Town of Medley based on available information. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of civil engineering and planning as applied through professional judgment and experience.

Name: Fernando V. Gomez, P.E.

Signature: 

P.E. Number: 43956

Date: 3/1/17

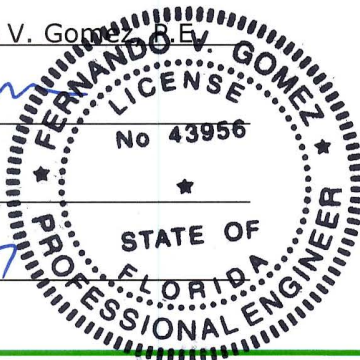




TABLE OF CONTENTS

SECTION	PAGE
PROFESSIONAL ENGINEER CERTIFICATE	i
TABLE OF CONTENTS	ii
LIST OF FIGURES	ii
LIST OF APPENDICES	iii
1. BACKGROUND	1
2. INTRODUCTION.....	1
3. PUMP STATIONS WITHIN HIALEAH-PRESTON WELLFIELD.....	2
3.1 PUMP STATION 1 (PS-1)	2
3.1.1 PS-1 Manhole (MH) Repairs.....	2
3.2 PUMP STATION 100 (PS-100)	5
3.2.1 PS-100 Manhole Repairs	5
3.2.2 PS-100 Cleaning and CCTV of Mainlines.....	6
4. CONCLUSIONS.....	7

LIST OF FIGURES

FIGURE	PAGE
Figure 3-1: MH 9 Completed Repair.....	2
Figure 3-2: Cleaned Mainline between MH 1-2-6 to MH 1-2-5	3
Figure 3-3: Repair of Lateral between MH 5 – MH 4.....	4
Figure 3-4: MH 100-6-2 Completed Repair	5
Figure 3-5: MH 103-5 Completed Repair	5
Figure 3-6: PS-1 Mainline Cleaning MH 101-2 to MH 101-3.....	6



LIST OF APPENDICES

Appendix A: Maps

A-1: Wellfield Protection Areas within the Town of Medley

A-2: Pump Station Basins 1 & 100 Boundary

Appendix B: Wellfield COI Report Approval

Appendix C: CCTV Inspection Reports



1. BACKGROUND

Per Miami-Dade County Ordinance **Section 24-43(4)(b)(v)**, all publicly and privately owned and operated sanitary sewers with pipe diameter of 8 or more inches, located within a cone of influence (COI) of a wellfield, must be evaluated by Closed Circuit Television (CCTV) inspection. In addition, all manholes that fall within the COI need to be visual inspected. CCTV of gravity lines and manhole inspections need to be completed on a five-year cycle. Moreover, a Wellfield COI Report documenting the certified test and inspection results and repair logs shall be submitted to DERM for review and approval no later than twelve months from the end date of the five-year cycle.

The Town of Medley has two pump station (PS) basins located within the wellfield COI named Hialeah-Preston Wellfield. PS-1 Basin falls completely within the wellfield protection areas. However, only a portion of the south area of PS-100 Basin is within the wellfield protection areas. Maps of these pump station basins are included in **Appendix A**.

On 8/02/2016, the Town submitted the Cycle 2017 Wellfield COI Report. This report included CCTV inspections of gravity mainline and manhole inspections performed between the periods of 12/31/2012 and 12/31/2017. The report stated that 2 deficiencies with sources of Infiltration/Inflow (I/I) were repaired and that 6 minor deficiencies were scheduled for repair by April 2017.

On 12/19/2016, the Division of Environmental Resources Management (DERM) accepted the report with two conditions. The first condition consisted of submitting a Wellfield COI Addendum to DERM thirty days after the completion of the repairs. The second condition stated that the addendum needed to include details such as pictures, field reports, videos etc., of the activities completed within the COI. A copy of the letter submitted by DERM is included in **Appendix B**.

2. INTRODUCTION

The objective of this Wellfield COI Addendum is to provide information of the additional work that was recently performed in Pump Station Basins 1 and 100. This work will allow Pump Station (PS) Basins 1 and 100 to comply with Miami-Dade County Code **Section 24-43(4)(b)(v)**.



The scope of this addendum includes the following:

- PS-1 Manhole (MH) Repairs
- PS-1 Cleaning, CCTV and Repair of Sewer Mainlines & Laterals
- PS-100 Manhole Repairs
- PS-100 Cleaning and CCTV of Mainlines

3. PUMP STATIONS WITHIN HIALEAH-PRESTON WELLFIELD

All of Pump Station 1 Basin falls within the wellfield protection areas. However, only a portion of the south area of PS-100 Basin is within the wellfield. In order to comply with the Miami-Dade Code, the Town obtained the services of a contractor to conduct CCTV inspections of gravity mainlines with pipe diameter of 8 inches or greater as well as a sectional lining repair. In addition, the Town's wastewater crew, performed cleaning of mainlines and repairs of manholes and laterals.

3.1 PUMP STATION 1 (PS-1)

3.1.1 PS-1 Manhole (MH) Repairs

Pump Station 1 Basin consists of 47 manholes, which all fall within the Hialeah Preston Wellfield COI. Out of the 47 manholes, 1 manhole (MH-9) was identified as misaligned during the inspections conducted on 7/15/2016. This manhole was repaired by the Town on 11/30/2016. See **Figure 3-1**.



Figure 3-1: MH 9 Completed Repair



3.1.2 PS-1 Cleaning, CCTV and Repair of Sewer Mainlines & Laterals

Out of the 11,600 LF of sewer mainlines located in PS-1 Basin, 10,800 LF were CCTV inspected between the periods of 5/30/2013 and 7/01/2016. Based on the review of the CCTV videos, approximately 450 LF of sewer mainlines, between MH 5A to MH 5 and MH 1-2-6 to MH 1-2-5, were identified with mild Deposits Attached Encrustation (DAE). In addition, 3 mainline segments (MH-4 to MH-5, MH-7 to MH-8 and MH-4 to MH-1-3-D) were identified with a minor deficiency each.

On 12/14/2016, the gravity mainline between MH 5A and MH 5 was cleaned and CCTV'd to remove the mild DAE. Report is included in **Appendix C**. The mainlines between MH 1-2-6 to MH 1-2-5 were cleaned by the Town on 1/11/2017, see **Figure 3-2**.

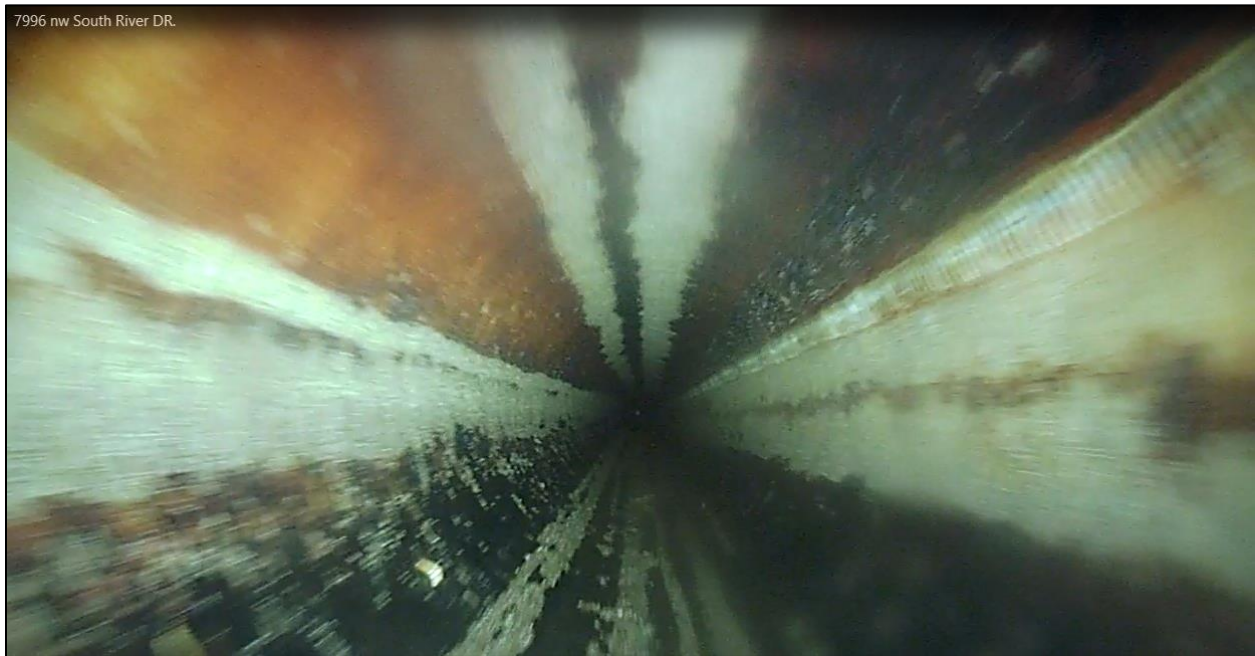


Figure 3-2: Cleaned Mainline between MH 1-2-6 to MH 1-2-5

A new CCTV inspection of approximately 330 LF of gravity mainline between MH-5 and MH-4 was performed on 12/14/16. See **Appendix C**. During the review of the video, potential I/I sources were observed at the 2 laterals located at 76 ft. and 204 ft. from the upstream MH-5. These 2 laterals are located at an area of vacant land. During the visual inspection, a crack was observed in each of the two laterals. A such, both laterals were repaired on 1/10/2017. See **Figure 3-3**. This mainline segment was cleaned and re-CCTV inspected on 1/25/2017. The review of this video confirmed that the sources of I/I at those 2 locations were addressed. Refer to **Appendix C**.



Figure 3-3: Repair of Lateral between MH 5 – MH 4

An undercut of the lining at the lateral joint and sources of I/I from that lateral were observed at the gravity mainline between MH-7 and MH-8. These faults were located at 120 ft. from the upstream MH-8. On 2/20/2017, a sectional lining repair was performed to address these faults. Based on the post-sectional CCTV video, no sources of I/I were observed. The CCTV inspection report is included in **Appendix C**. The CCTV video is on the CD attached to the hardcopy of this addendum.

A second review of the CCTV video inspection was performed for the gravity mainline located between MH-4 and MH-1-3-D. During the review, a minor detached lining was observed located at 290 LF from upstream manhole MH-4. Therefore, it was determined that no repair is needed since it is not contributing to I/I and also it is not obstructing the path of the sewer flow.



3.2 PUMP STATION 100 (PS-100)

3.2.1 PS-100 Manhole Repairs

Pump Station 100 Basin consists of 70 manholes 27 of them fall within the Hialeah Preston Wellfield COI. These manholes were visually inspected between the period of 6/14/2016 and 6/22/2016. Two manholes (MH-100-6-2 and MH-103-5) were identified with deficiencies. Rain guards did not fit at both manholes due to the ring and cover alignment. Manholes MH-100-6-2 and MH-103-5 were repaired on 12/13/2016 and 1/17/2017, respectively. Refer to **Figure 3-4** and **Figure 3-5**.



Figure 3-4: MH 100-6-2 Completed Repair



Figure 3-5: MH 103-5 Completed Repair



3.2.2 PS-100 Cleaning and CCTV of Mainlines

Pump Station 100 Basin has approximately 8,860 LF of sewer mainlines located within the wellfield COI. These sewer mainlines were CCTV'd between the periods of 1/28/2013 and 7/19/2016. Based on a review of CCTV reports and videos, approximately 400 LF of sewer mainlines between MH-101-2 and MH-101-3 were identified with mild Deposits Attached Encrustation (DAE). In addition, 2 mainline segments (MH-100-6-1 to MH-100-6-2 and MH-100-3 to MH-100-4) were identified each with a minor deficiency.

On 1/11/2017, the gravity mainlines between MH 101-2 and MH 101-3 were cleaned to remove minor DAE, see **Figure 3-6**.

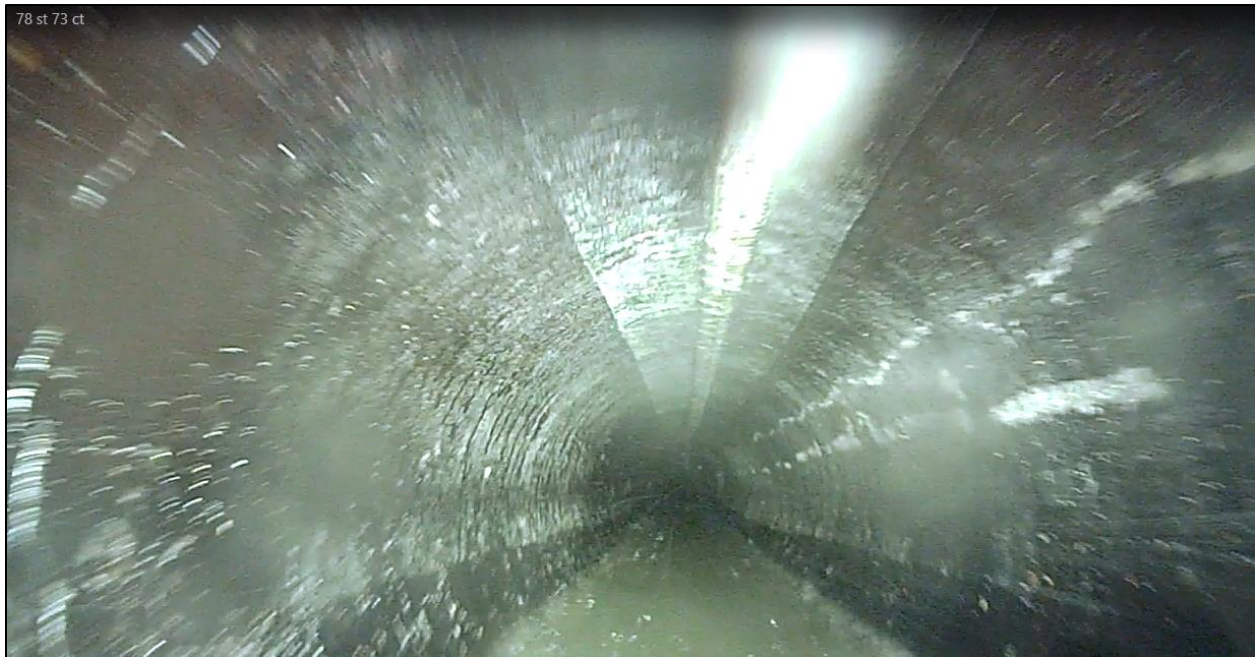


Figure 3-6: PS-1 Mainline Cleaning MH 101-2 to MH 101-3

A possible source of I/I was observed from the lateral at the gravity mainline between MH-100-3 and MH-100-4. This was located at 260 ft. from the upstream MH-100-4. On 1/24/2017, approximately 60 LF of sewer lateral were CCTV inspected. The report is included in **Appendix C**. Based on the review of the video, no I/I sources were identified. A CD with the video is attached to the hardcopy of this addendum.

A second review of the CCTV video inspection was performed for the gravity mainline located between MH-100-6-1 and MH-100-6-2. During the review of the video, a minor undercut at the lateral joint was observed located at approximately 196 LF from upstream MH-100-6-2.



As such, it was determined that no repair is needed at this location since it is not contributing to sources of I/I.

4. CONCLUSIONS

This Wellfield COI Addendum demonstrates the following:

- One manhole located in PS-1 Basin was repaired
- Two manholes located in PS-100 Basin (within wellfield area) were repaired
- Approximately 450 LF of gravity mainlines, identified with mild Deposits Attached Encrustation, were cleaned in PS-1 Basin
- Approximately 400 LF of gravity mainlines, identified with mild Deposits Attached Encrustation, were cleaned in PS-100 Basin
- Approximately 330 LF of mainlines were CCTV inspected in PS-1 Basin
- One sectional lining repair was performed in PS-1 Basin
- Approximately 60 LF of sewer lateral were CCTV inspected in PS-100 Basin

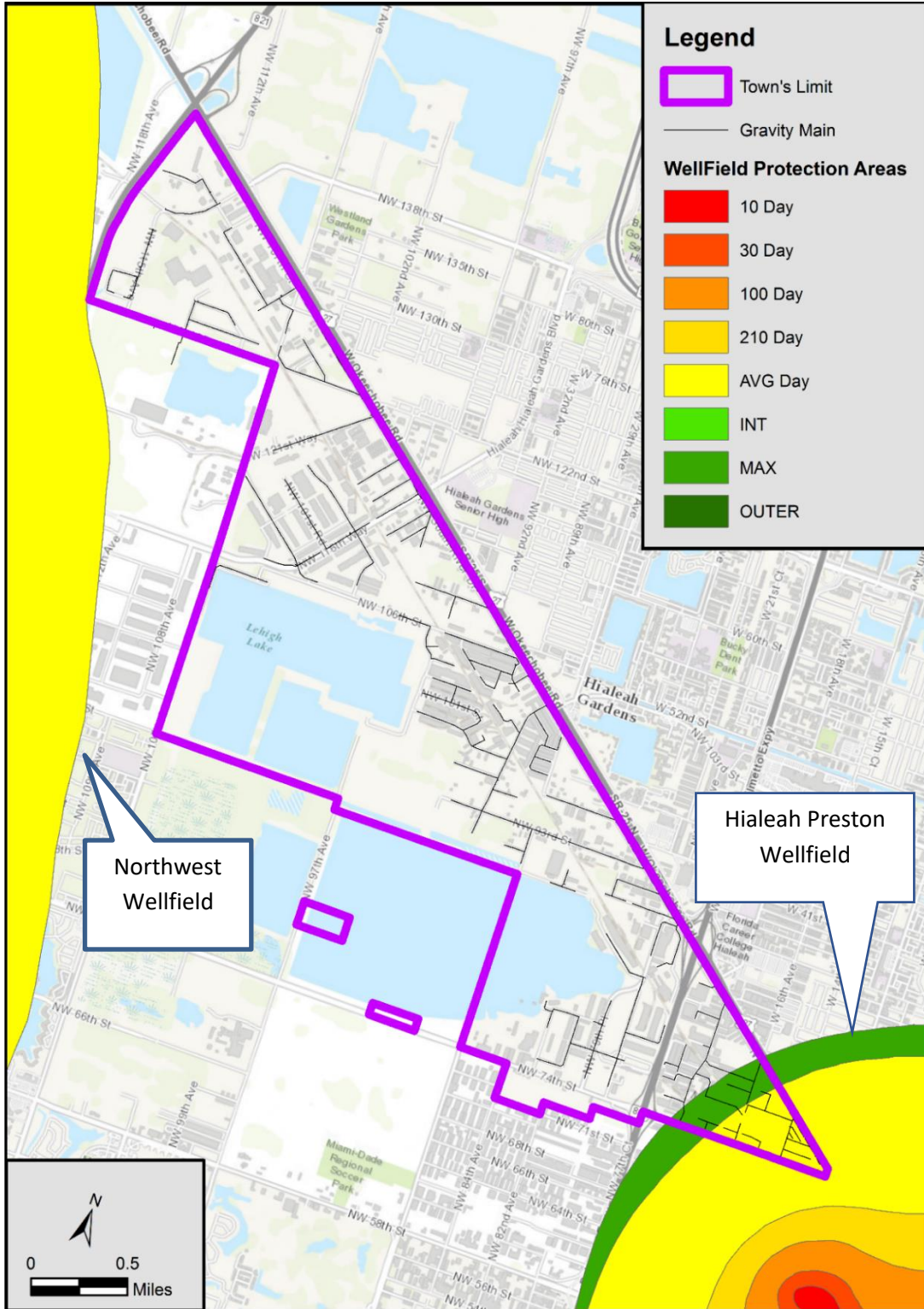
APPENDIX A

Maps

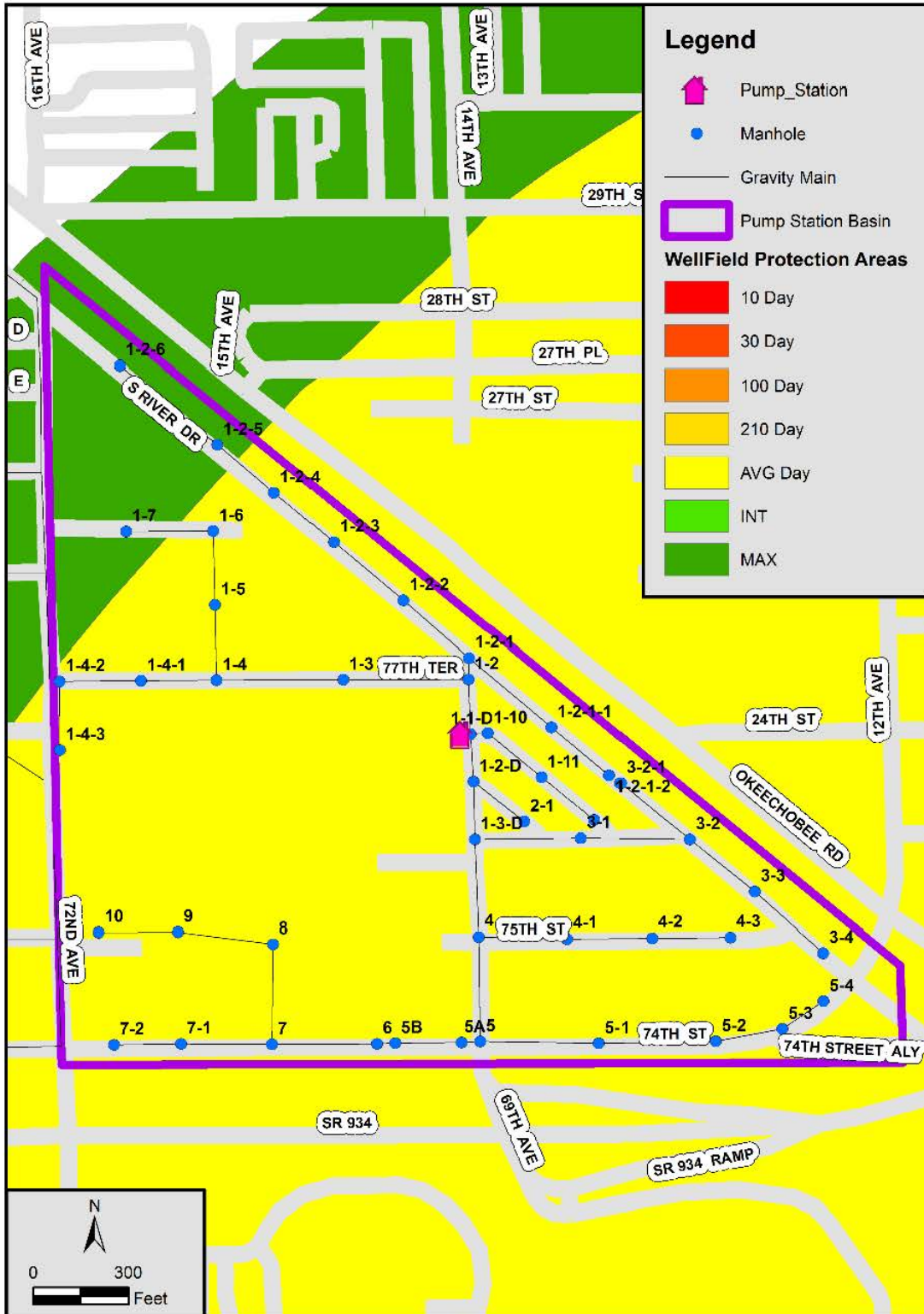
A-1: Wellfield Protection Areas within Medley

A-2: Pump Station Basins 1 & 100 Boundary

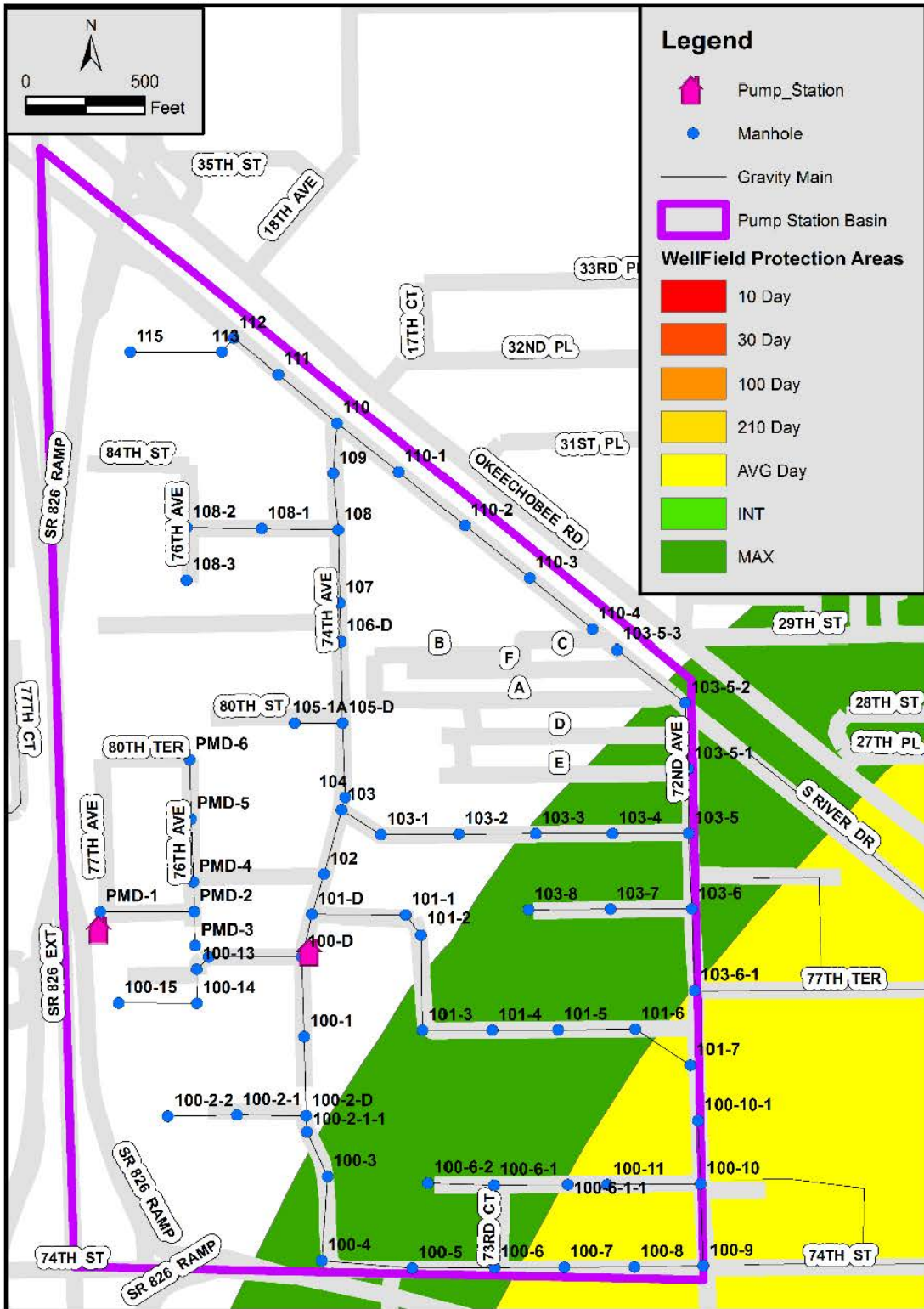
Wellfield Protection Areas



Pump Station 1 Boundary



Pump Station 100 Boundary



APPENDIX B

Wellfield COI Report Approval



Carlos A. Gimenez, Mayor

Department of Regulatory and Economic Resources
Environmental Resources Management
701 NW 1st Court, 7th Floor
Miami, Florida 33136-3912
T 305-372-6600 F 305-372-6893
miamidade.gov

December 19th, 2016.

CERTIFIED MAIL 7009 0080 0000 1052 8125
RETURN RECEIPT REQUESTED

Mr. Jorge C. Soto, Director
Water & Sewer Department
10776 NW South River Drive
Medley, Florida 33178

jsoto@townofmedley.com

RE: Submittal of television inspection results and repair logs for gravity sanitary sewers within wellfield protection areas.

STATUS LETTER

Dear Mr. Soto:

The Regulatory and Economic Resources Division of Environmental Resources Management (RER-DERM) is in receipt of a submittal from Snubbs Consulting, Inc., dated August-2016, for the five-year cone of influence (COI) study for The Town of Medley. The report was submitted in compliance with the work required under Section 24-43 (4) (b) (ii) of Chapter 24 of the Code of Miami-Dade County.

The submittal has been reviewed by DERM personnel for compliance with the Code requirements. The report provided inspection results for the two pump station collection systems basins (22-001 and 22-100) within, or partially within, a well field COI. The report noted that the required work was completed in 2016, and some repairs are scheduled for 2017.

Based on the review of the report, staff has determined that it meets the minimum requirements for the COI study. Consequently, the report is accepted as submitted, with the following conditions:

- 1. Thirty (30) days after the completion of the repairs scheduled for April-2017, and outlined in Appendix F, provide a written report to RER-DERM.
2. The report shall include details, including but not limited to pictures, field reports, etc., of the activities completed within each basin or segment.

The report shall be submitted in electronic format, Certified (signed and sealed) by a Professional Engineer in the State of Florida, as part of the documentation of the work done. Any televising records shall be transferred into DVD/CD format and the field records shall be scanned and submitted in PDF format.

If you have any questions about the above, please contact Mr. Carlos Hernandez, PE, (HernaC@miamidade.gov) or Mr. Oscar Aguirre, EI, (AguirO@miamidade.gov), at (305) 372-6486.

Sincerely,

[Handwritten signature]

Carlos Hernandez, Sr. P.E.
Wastewater Permitting Section
Environmental Resources Management

cc. Osmany Larzabal, Town of Medley; via e-mail: olarzabal@townofmedley.com
Annie Barahona, EI, Project Engineer; via e-mail: Annie.Barahona@snubbs.com



APPENDIX C

CCTV Inspection Reports

Inspection Report

Date 02/20/17	P/O. No. 16-051M	Weather Dry	Surveyor's Name M. Romaguera	Pipe Segment Reference	Section No. 1
Certificate No. U-908-7319	Survey Customer Town of Medley	System Owner Town of Medley	Date Cleaned 02/20/17	Pre-Cleaning Jetting	Sewer Category

Street123 City Loc. details Location Code	5971 NW 74 ST Medley Easement/Right of way	Use of Sewer Drainage Area Flow Control Length surveyed	Stormwater 001 Not Controlled 340.90 ft	Upstream MH Downstream MH Dir. of Survey Section Length	8 7 Downstream 340.90 ft
--	---	--	--	--	---

Purpose of Survey Year Laid Year Rehabilitated Tape / Media No.	Post-Rehabilitation Survey 014	Joint Length Dia./Height Material Lining Method	0.00 ft 8 inch Other Cured in Place
--	---	--	--

Add. Information :

1:854	Position	Observation	Photo	Grade
	8	Upstream Manhole, Survey Begins / 8		
	0.00			
	0.00	Water Level, 5 %of cross sectional area		
	115.00 S1	Repair Localized Liner, within 8 inches of joint: NO, Start / Sectional	18_2A	
	123.00 F1	Repair Localized Liner, within 8 inches of joint: NO, Finish / Sectional		
	228.90	Tap Factory Made, at 09 o'clock, -, within 8 inches of joint: YES, 6"		
	233.50	Tap Factory Made, at 03 o'clock, -, within 8 inches of joint: YES, 6"		
	340.90	Downstream Manhole, Survey Ends / 7		
	7			

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0

Inspection photos

City : Medley	Street : 5971 NW 74 ST	Date : 02/20/17	Pipe Segment Reference :	Section No : 1
-------------------------	----------------------------------	---------------------------	--------------------------	--------------------------

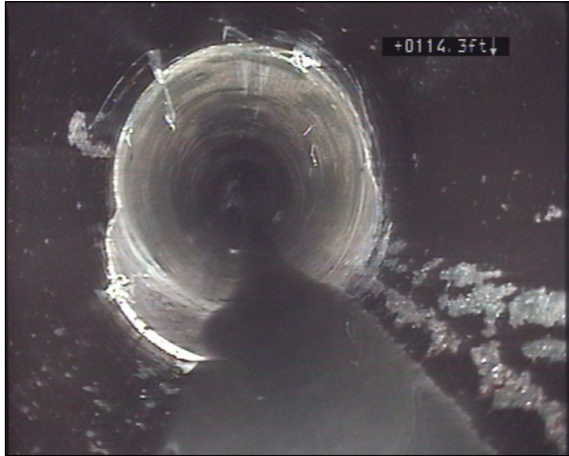


Photo: 001_8-7_20022017_001.JPG, VCR No.: 014
115FT, Repair Localized Liner, within 8 inches of joint: NO,
Start

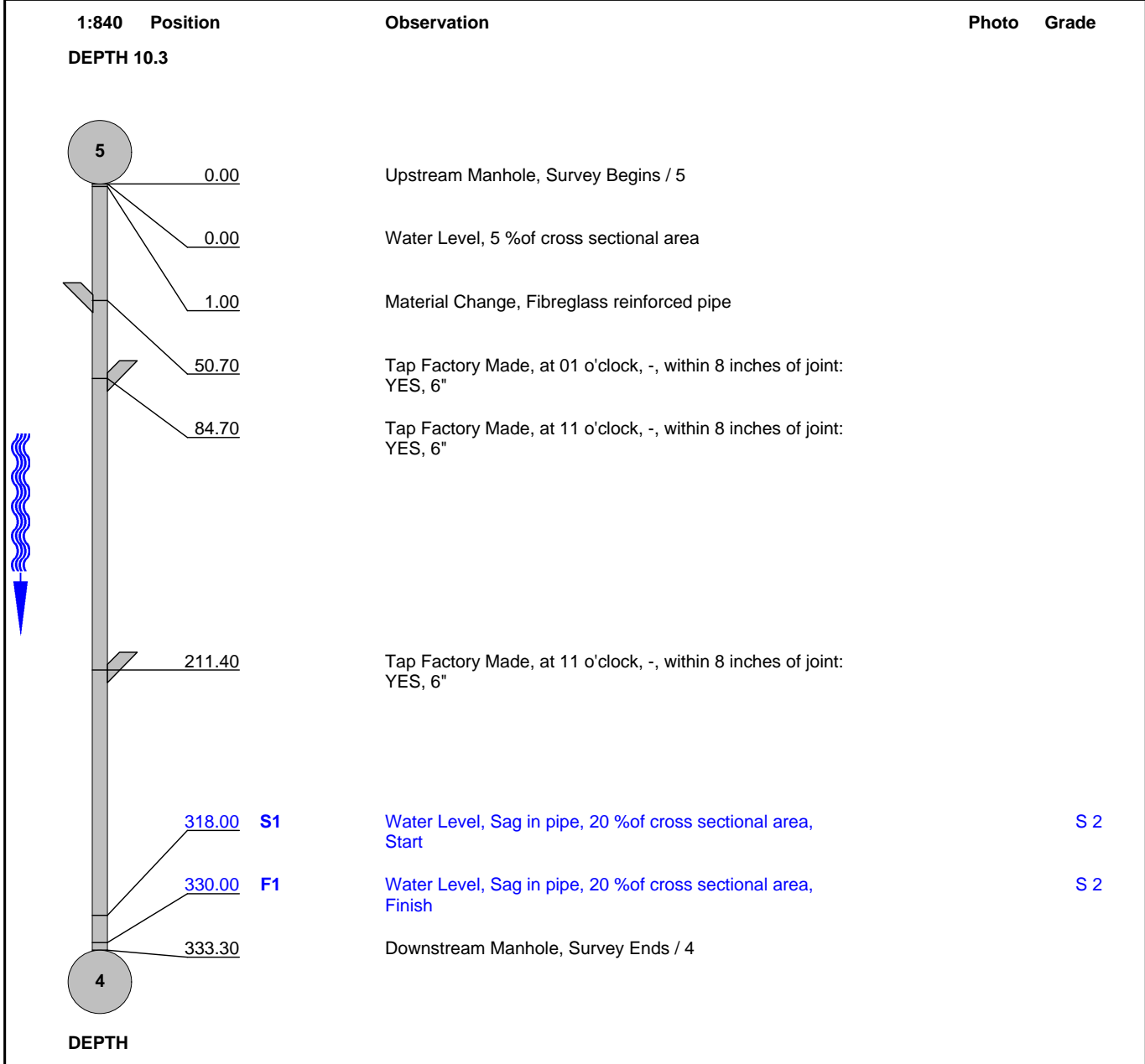
Inspection Report

Date 01/25/17	P/O. No. 16-051M	Weather Dry	Surveyor's Name Luis Sanchez	Pipe Segment Reference	Section No. 3
Certificate No. U-212-14048	Survey Customer Town of Medley	System Owner Town of Medley	Date Cleaned 01/25/17	Pre-Cleaning Jetting	Sewer Category

Street123 City Loc. details Location Code	NW 74th ST & NW 69th AVE Medley Light highway	Use of Sewer Drainage Area Flow Control Length surveyed	Sanitary . Plugged 333.30 ft	Upstream MH Downstream MH Dir. of Survey Section Length	5 4 Downstream 333.30 ft
--	--	--	--	--	---

Purpose of Survey Year Laid Year Rehabilitated Tape / Media No.	Infiltration/Inflow Investigation 013	Joint Length Dia./Height Material Lining Method	0.00 ft 8 inch Not Known Cured in Place
--	--	--	--

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
2100	0000	2	0	2	2	0	2

Inspection Report

Date 12/14/16	P/O. No. 16-051M	Weather Dry	Surveyor's Name M. Romaguera	Pipe Segment Reference	Section No. 2
Certificate No. U 908 7319	Survey Customer Town of Medley	System Owner Town of Medley	Date Cleaned 12/14/16	Pre-Cleaning Jetting	Sewer Category

Street123 City Loc. details Location Code	NW 69th Ave & 74th St Medley Main highway – urban	Use of Sewer Drainage Area Flow Control Length surveyed	Sanitary 001 Plugged 332.20 ft	Upstream MH Downstream MH Dir. of Survey Section Length	5 4 Downstream 332.20 ft
--	--	--	---	--	---

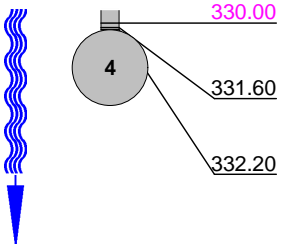
Purpose of Survey Year Laid Year Rehabilitated Tape / Media No.	Pre-Rehabilitation Survey	Joint Length Dia./Height Material Lining Method	0.00 ft 8 inch Not Known Cured in Place
--	----------------------------------	--	--

Add. Information :

1:828 Position	Observation	Photo	Grade
DEPTH 10'5"			
5	Upstream Manhole, Survey Begins / MH 5		
0.00	Water Level, 10 %of cross sectional area		
50.60	Tap Factory Made, at 01 o'clock, -, within 8 inches of joint: YES, 6", 6"		
83.80	Tap Factory Made, at 10 o'clock, -, within 8 inches of joint: YES, 6", 6" / Suspect Lateral. Heavy flow. Clear water		
85.00	Water Level, 20 %of cross sectional area		
211.20	Tap Factory Made, at 10 o'clock, -, within 8 inches of joint: YES, 6", 6" / Suspect lateral. Clear water running		
238.10	Water Level, 50 %of cross sectional area		
240.00 S1	Camera Underwater, Start		M 4
275.00	Water Level, 70 %of cross sectional area		
304.00 F1	Camera Underwater, Finish		M 4
305.20	Water Level, 30 %of cross sectional area		
312.00	Water Level, 15 %of cross sectional area		
321.70	Water Level, 35 %of cross sectional area		
325.00 S2	Camera Underwater, Start		M 4

Inspection Report

Date : 12/14/16	ESG Project No. : 16-051M	Drainage Area : 001	USMH : 5	DSMH : 4	Section name : 2
Present :	Vehicle :	Camera :	Weather : Dry	Cleaned : Jetting	Rate :

1:828	Position	Observation	Photo	Rate
		<p style="color: magenta;">Camera Underwater, Finish</p> <p>Water Level, 10 %of cross sectional area</p> <p>Downstream Manhole, Survey Ends / MH 4</p>		M 4

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4200	0	8	8	0	4	4



EnviroWaste Services Group
 18001 Old Cutler Rd, Suite 554
 Palmetto Bay, FL 33157
 Tel: (305) 637 9665
 Fax: (305) 637 9659
 E-mail: info@envirowastesg.com

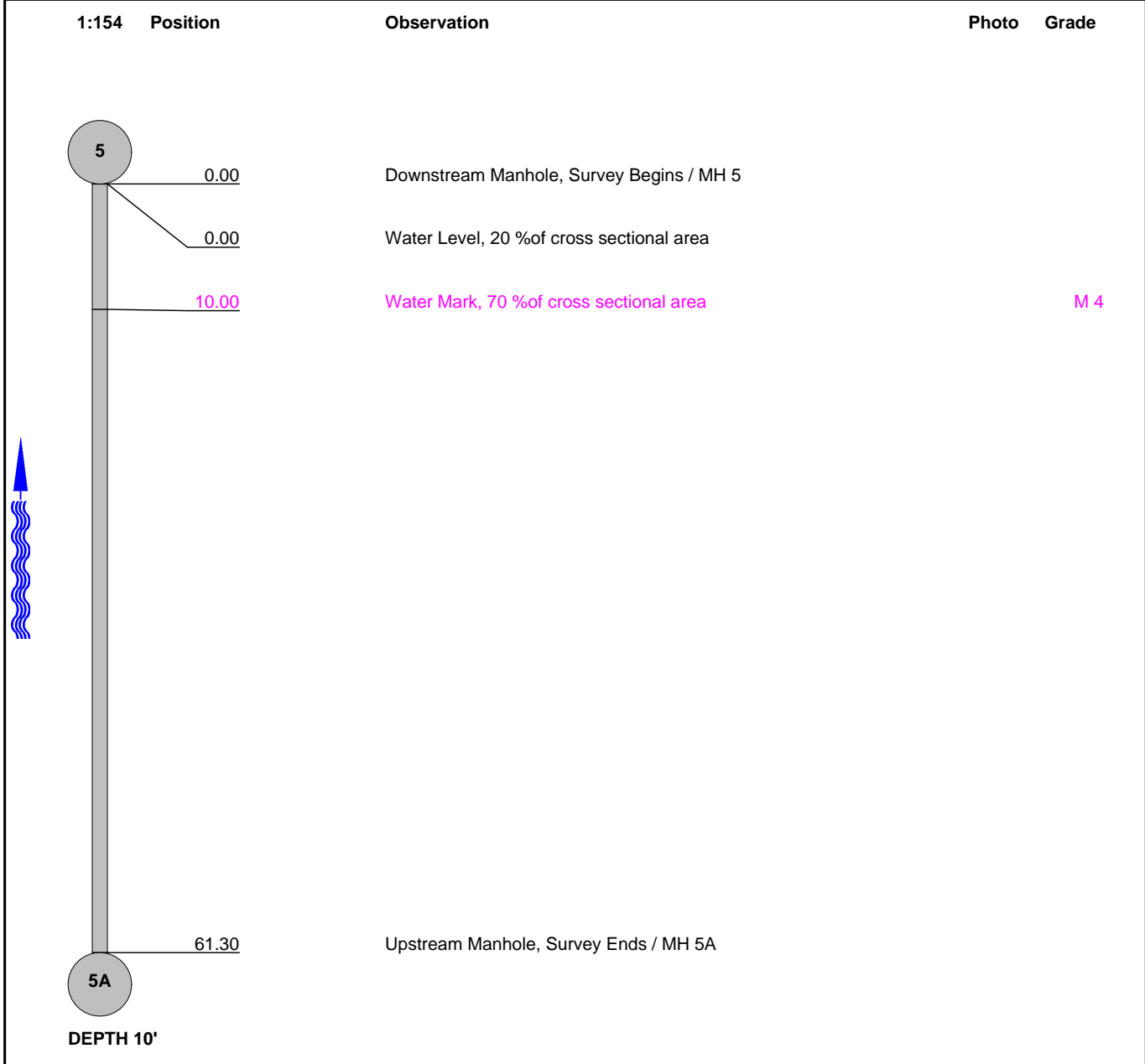
Inspection Report

Date 12/14/16	P/O. No. 16-051M	Weather Dry	Surveyor's Name M. Romaguera	Pipe Segment Reference	Section No. 1
Certificate No. U-908-7319	Survey Customer Town of Medley	System Owner Town of Medley	Date Cleaned 12/14/16	Pre-Cleaning Jetting	Sewer Category

Street123 City Loc. details Location Code	NW 74th St & 69th Ave Medley Main highway – urban	Use of Sewer Drainage Area Flow Control Length surveyed	Sanitary 001 Plugged 61.30 ft	Upstream MH Downstream MH Dir. of Survey Section Length	5A 5 Upstream 61.30 ft
--	--	--	--	--	---

Purpose of Survey Year Laid Year Rehabilitated Tape / Media No.	Infiltration/Inflow Investigation 011	Joint Length Dia./Height Material Lining Method	0.00 ft 8 inch Not Known Cured in Place
--	--	--	--

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4100	0	4	4	0	4	4

Inspection Report

Date 01/24/17	P/O. No. 16-051M	Weather Dry	Surveyor's Name Luis Sanchez	Pipe Segment Reference	Section No. 9
Certificate No. U-212-14048	Survey Customer Town of Medley	System Owner Town of Medley	Date Cleaned 01/24/17	Pre-Cleaning No Pre-Cleaning	Sewer Category

Street123 City Loc. details Location Code	7401 NW 74 St Medley Other	Use of Sewer Drainage Area Flow Control Length surveyed	Sanitary 100 Not Controlled 61.10 ft	Upstream MH Downstream MH Dir. of Survey Section Length	100-4 100-3 Downstream 61.10 ft
--	----------------------------------	--	---	--	--

Purpose of Survey Year Laid Year Rehabilitated Tape / Media No.	Infiltration/Inflow Investigation 013	Joint Length Dia./Height Material Lining Method	20.00 ft 6 inch Cast Iron
--	--	--	---------------------------------

Add. Information :

1:154	Position	Observation	Photo	Grade
	100-4	Cleanout Mainline / Survey starts		
	0.00			
	0.00	Water Level, 0 %of cross sectional area		
	5.70	Alignment Right Up, 15 %		M 2
	8.80	Tap Factory Made, at 03 o'clock, -, within 8 inches of joint: YES, 6"		
	9.50	Material Change, Cast Iron		
	9.50 S1	Surface Corrosion Metal Pipe, from 12 to 12 o'clock, within 8 inches of joint: YES, Start		S 3
	40.60 S2	Camera Underwater, Start		M 4
	61.10 F1	Surface Corrosion Metal Pipe, from 12 to 12 o'clock, within 8 inches of joint: YES, Finish		S 3
	61.10 F2	Camera Underwater, Finish		M 4
	61.10	Cleanout Mainline, Survey Ends / .		
100-3				

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
3100	4121	3	6	9	3	3	3