

April 9, 2021

Renee Kwiat
Solid Waste Section
Department of Environmental Protection
South District Office
2295 Victoria Avenue, Suite 364
Ft. Myers, Florida 33902

Re: Sarasota County
Central County Solid Waste Disposal Complex
Permit No. 0130542-022-S0/01 (Mod# 0130542-033-SO/MM)
WACS No. 51614
Annual Topographic Survey and Remaining Site Life Report - 2020

Dear Ms. Kwiat:

In accordance with Specific Condition C.14.b of the above referenced permit for the Central County Solid Waste Disposal Complex (CCSWDC), the Sarasota County Solid Waste Division is pleased to submit the annual topographic survey and remaining site life report. As shown in the supporting calculations, provided in Attachment A, the Phase II Class I Landfill Area has approximately 2.32 years of remaining site life from December 18, 2020, which is equivalent to approximately April 15, 2023.

This design life estimate assumes a 4% increase in waste tonnage per year and a waste compaction of 1,200 pounds per cubic yard until reaching capacity. A 2020 tonnage summary report and the volume consumed report, generated by comparing the December 2019 and 2020 topographic surfaces in AutoCADD, are provided in Attachment B.

The topographic survey dated December 18, 2020, performed by Kucera International, Inc. and provided in Attachment C, demonstrates that the Phase II landfill slopes do not exceed 3:1 (H:V) and the top elevations do not exceed the maximum permitted design elevation of 121 feet NGVD 1929.

During the past year, filling of Phase II has been performed in general accordance with the permit-approved Fill Sequence Plan. Please note that the County has begun the process of design of the Phase III Landfill Expansion with anticipated construction of Phase III to be completed before Phase II reaches final capacity.

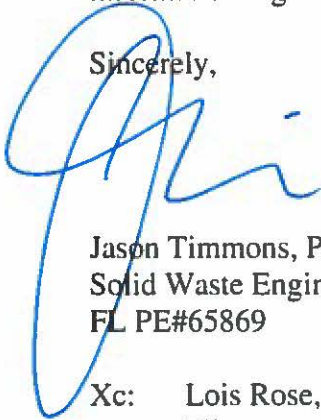
FDEP South District

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Please contact me anytime at 941-861-1572 if you have questions or require additional information regarding the site life report and attachments.

Sincerely,



Jason Timmons, PE
Solid Waste Engineer
FL PE#65869

Xc: Lois Rose, Sarasota County
File

Attachments (3)

Attachment A – Design Life Calculations

Attachment B – Tonnage and Volume Reports

Attachment C – December 2020 Topographic Survey



Jason Timmons

PE# 65869 4/9/21

ATTACHMENT A

DESIGN LIFE CALCULATIONS

Sarasota County Central County Solid Waste Disposal Complex Phase II Landfill Site Life
April 7, 2021

Total Available Disposal Volume of Phase II = 5,855,011 cubic yards
Intermediate and Final Cover Soil Volume (3 feet) = 292,516 cubic yards
Total Available Waste Disposal Volume of Phase II = 5,562,495 cubic yards
Operational Days per Year = 308 days

Year	Calendar Year	Projected Population ¹	Percent Increase ²	Waste Received ³ (tons/day)	Waste Received by Calendar Year ³ (tons/year)	Assumed Density ⁴ (lbs/cy)	Volume of Waste Received per year ⁵ (cy)	Cumulative Capacity Used in Phase II ⁶ (cy)	Volume of Class I Remaining (cy)	Notes Date of Topo
-	2010	-	-	-	-	-	-	0	5,562,495	
-	2011	-	-	Partial Year	150,866	1,329	227,022	227,022	5,335,473	
-	2012	-		860	264,846	998	530,885	757,907	4,804,588	12/1/2012
-	2013	-	-2.15%	841	259,155	1,247	415,644	1,173,551	4,388,944	12/8/2013
-	2014	-	2.82%	865	266,453	1,303	408,868	1,582,419	3,980,076	12/1/2014
-	2015	-	5.52%	913	281,149	1,399	402,026	1,984,445	3,578,050	12/13/2015
-	2016	397,420	3.16%	942	290,036	1,419	408,896	2,393,341	3,169,154	12/3/2016
-	2017	402,389	3.51%	975	300,228	1,089	551,426	2,944,767	2,617,728	12/5/2017
-	2018	407,055	5.73%	1,031	317,422	1,191	533,113	3,477,880	2,213,100	12/12/2018
-	2019	411,522	-1.51%	1,015	312,627	1,462	427,786	3,905,666	1,785,314	12/15/2019
0	2020	415,923	-0.62%	1,009	310,675	1,414	439,477	4,345,143	1,345,837	12/18/2020
1	2021	420,263	4.00%	1,098	338,137	1,200	563,562	4,908,705	782,275	Projected Year
2	2022	424,522	4.00%	1,142	351,662	1,200	586,104	5,494,809	196,171	Projected Year
3	2023	428,684	4.00%	1,187	365,729	1,200	609,548	6,104,357	-413,377	Projected Year
4	2024	432,732	4.00%	1,235	380,358	1,200	633,930	6,738,287	-1,047,307	Projected Year
Design Life⁷ = 2.32 years from date of last topo.										

Approximate Date of Completion = 4/15/2023

Notes:

¹ SHOWN FOR INFORMATIONAL PURPOSES ONLY - Population Data from the Florida Demographic Estimating Conference, December 2015 and UF, BEBR, Florida Population Studies, Volume 49, Bulletin 174, January 2016 medium county projections provided by the Office of Economic and Demographic Research (EDR).

For the current report and past years, the percent increase is based on the previous years tonnage increase from the year before, i.e. [(2017 tonnage - 2016 tonnage) / 2016 tonnage] x 100%. For projected years, the County has decided to use a set 4% annual increase as a conservative approach to estimating the average tonnage increase over the long-term life of the landfill.

³ Tonnage based on scale data reports for calendar years. See tonnage summary table for 2020 provided with submittal.

⁴ The assumed density is an apparent density with cover soil included in volume, therefore a reduction of the total available volume of the landfill is not required for this calculation. This value is a conservative estimate of the actual compacted density in the landfill. The densities before the current year are actual from volume and tonnage data. For projected years, 2020 and beyond, a density of 1,200 lbs/cy is used for projected volume of waste received.

⁵ For the current report and past years the volume of waste received is determined from comparing AutoCADD topographic surfaces. For projected years the volume of waste received is calculated by taking the projected tonnage received multiplying by 2,000 lbs/ton and dividing by the assumed apparent density (currently 1,200 lbs/cubic yard). For example (325,132 tons x 2,000 lbs/ton) / (1,200 lbs/cubic yard) = 541,887 cubic yards.

⁶ Volume consumed in Phase II from December 2019 to December 2020 calculated using AutoCADD topographic survey surfaces, see cut/fill report provided with submittal.

⁷ The design life of the landfill was determined by dividing the volume of waste remaining in the previous year before airspace becomes negative in the table by the total amount of waste that is generated in that year and adding the number of years previous (eg. 204,096 (year 5) / 555,074 (year 6) + 5 years = design life).

ATTACHMENT B

TONNAGE AND VOLUME REPORTS

CCSWDC Monthly Tonnage to Class I Landfill December 15, 2019 to December 18, 2020

Month	Tonnage to Class I Landfill (tons)	
Dec 16 to Dec 31, 2019	15,097	
Jan-20	28,577	
Feb-20	25,469	
Mar-20	26,335	
Apr-20	23,462	
May-20	23,741	
Jun-20	25,934	
Jul-20	25,549	
Aug-20	23,783	
Sep-20	24,795	
Oct-20	25,445	
Nov-20	25,858	
Dec 1 to Dec 18, 2020	16,632	
Average	24,504	December 2019 through November 2019
Total	310,675	December 15, 2019 through December 18, 2020
2020 Calendar Year Total	306,147	January 1, 2020 through December 31, 2020
Annual % Increase from Previous Calendar Year	-1.53%	

Source: CCSWDC scalehouse tonnage reports.

Cut/Fill Report

Generated: 2021-04-07 14:04:17

By user: jtimmons

Drawing: K:\Central County Solid Waste Disposal Complex\Annual Topo\2020 Annual Report\K:\Central County Solid Waste Disposal Complex\Annual Topo\2020 Annual Report\Phase II Remaining Volume 4.7.21.dwg

Volume Summary							
Name	Type	Cut Factor	Fill Factor	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Volume Used Dec 2019 to Dec 2020	full	1.000	1.000	2632669.68	4191.51	443668.00	439476.50<Fill>
Volume Remaining Dec 2020	full	1.000	1.000	2632641.70	5616.75	1407578.29	1401961.54<Fill>

Totals				
	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Total	5265311.38	9808.26	1851246.29	1841438.03<Fill>

* Value adjusted by cut or fill factor other than 1.0

ATTACHMENT C

DECEMBER 2020

TOPOGRAPHIC SURVEY

Survey Report for Sarasota Landfill

Kucera International Project No:	36553 Sarasota Landfill & Stockpile #3
Type of Survey:	Quantity Survey
Date of Survey:	This map is based on aerial photography collected December 18, 2020
Site:	Sarasota Landfill
Client:	Advanced Disposal

Accuracy Statement:

This photogrammetric mapping data and report is certified to the Florida Department of Revenue as meeting or exceeding, in quality and precision, the standards of practice applicable for this work, as set forth in chapter 5J-17, Florida Administrative Code, pursuant to Chapter 472, Florida statutes.

Vertical:

Photogrammetrically derived breaklines and mass points were collected to generate contours with an estimated vertical accuracy of 0.5'. Dashed contours in obscured areas are approximate and should be field checked before using. Spot elevations and well-defined features have been measured to an estimated vertical accuracy of 0.25'.

Horizontal:

Well defined features have been measured to an estimated horizontal accuracy of 1.25'.

Map Plotting:

This map is intended to be plotted at a scale of 1:600 or smaller.

Lineage:

This topographic map is based on a control supplied to Kucera International on December 11, 2020 by Van Horn and Associates Incorporated titled Specific Purpose Survey Report For Sarasota County Landfill Site, Florida. The digital photography was georeferenced to this control data. A copy of the survey report is contained in Appendix IV.

Datum:

Horizontal: Florida State Plane Coordinate System, Florida West Zone (902),
North American Datum of 1983 (2011 Adjustment).

Vertical Datum: Elevations based on the National Geodetic Vertical Datum of 1929
(NGVD29)

Units: U.S. Survey Feet



38133 Western Parkway
Willoughby, OH 44094
Phone: 440-975-4230

Targeted Control Points and Checkpoints Used for Photogrammetric Mapping:

Datums:

Horizontal: Florida State Plane Coordinate System, Florida West Zone (902),
North American Datum of 1983 (1990 Adjustment).

Vertical: Elevations based on the National Geodetic Vertical Datum of 1929
(NGVD29).

U.S. Survey Feet

Point #	Northing	Easting	Elevation	Description
88	1043964.073800	527495.800400	26.000000	2X2 TARGET
95	1043963.697500	528453.464900	25.884800	2X2 TARGET
102	1043892.128400	529898.838300	25.592900	2X2 TARGET
107	1043937.574300	531107.808600	25.844800	2X2 TARGET
110	1042293.307300	527196.110500	25.790600	2X2 TARGET
115	1042430.989600	528354.206600	40.902300	2X2 TARGET
119	1042411.786200	529755.032100	32.946900	2X2 TARGET
124	1042440.200800	531272.572300	28.324100	2X2 TARGET
133	1042134.851800	531273.045100	25.846400	2X2 TARGET
142	1042134.303100	531239.923500	25.531100	NE COR STOP BAR
145	1042023.827900	532326.663200	26.009300	SOUTH END WHITE CURB
153	1041847.033200	534778.188600	23.984200	NORTH WHITE LINE
161	1040885.029800	534723.688200	23.804100	CROSS WHITE LINE
166	1040970.927400	532821.345100	23.833400	CROSS WHITE LINE
173	1040945.421200	531197.042800	25.861100	2X2 TARGET
179	1039211.639600	532158.828200	22.190500	2X2 TARGET
219	1038295.069000	530810.011300	21.660000	2X2 TARGET
198	1039182.125300	528074.549800	20.622300	TIP OF ARROW
204	1040770.367400	527860.833500	24.526700	2X2 TARGET
212	1041737.330700	527449.924700	25.793800	CROSS ON YELLOW
221	1040929.455700	528304.911200	26.024000	2X2 TARGET
224	1040920.881500	529879.842000	25.783000	2X2 TARGET
228	1042983.224700	527446.202800	25.820700	SOUTH END LINE
241	1039469.293600	527970.534100	21.071100	TIP OF ARROW
248	1039461.950300	527133.724200	22.970700	TIP OF ARROW
256	1046028.9036	526217.2256	24.11000	2X2 TARGET
271	1039022.2532	529840.0169	21.85	2X2 TARGET CL
282	1041364.7480	529780.8119	25.19	SW COR STOP BAR
315	1047476.173600	526949.043400	19.871700	TARGET 4X4
408	1047424.164200	528945.825800	21.849200	2X2 TARGET
414	1046107.719700	528688.104200	20.117700	2X2 TARGET
416	1042795.931300	528459.207400	90.729100	NG
417	1042864.835500	528552.534300	88.651100	NG
418	1043022.157700	528622.232300	102.975800	NG
423	1043585.398700	528521.766700	96.428600	NG
428	1043389.347800	528136.603300	80.460400	NG
429	1043375.537200	528309.237800	81.883500	NG
430	1043264.189700	528352.185400	84.398600	NG
434	1042935.178900	527899.559600	78.588600	NG
436	1043032.370700	528236.377100	84.270500	NG

Abbreviations

US – United States

RMSE – Root Mean Square Error

RMS – Root Mean Square

& - And

CO – County

FL – Florida

E – East

W – West

N – North

S – South

' – Feet

NGVD29 – National Geodetic Vertical Datum of 1929

NAD83 – North American Datum of 1983

X – by

DZ – Difference in Elevation

Legend

	PAVED ROAD		BRUSHLINE
	UNPAVED ROAD		10' INDEX CONTOUR
	UNPAVED DRIVE OR PARKING		2' INTERMEDIATE CONTOUR
	TRAIL		DEPRESSION CONTOUR
	GUARDRAIL		SPOT ELEVATION
	BUILDING DECK		HORIZONTAL CONTROL POINT
	MISC. OBJECT (LINE) MISC. OBJECT (SYMBOL)		VERTICAL CONTROL POINT
	BRIDGE		UTILITY POLE
	FENCE		LIGHT POLE
	WATERLINE (LAKE, STREAM, RIVER)		TREE
	DITCH		SWAMP AREA
	CULVERT		TANK / SILO
	TREELINE		PIPE INLET

Measurement Methods:

This map was produced using aerial photogrammetric methods using photography captured on December 18, 2020 using an UltraCam Eagle digital camera. The imagery was collected at a flight height of 4900' above ground. A total of 3 flightlines and 33 exposures were needed to cover the site. The digital images were then georeferenced using Inpho Match AT aerotriangulation software. A report of the control point residuals is contained in Appendix II. Planimetric features, breaklines and mass points were collected using BAE Socet Set combined with Cardinal Systems VR-1 mapping software from the georeferenced photography. The planimetric and topographic data was reviewed using Cardinal Systems VR-1 mapping software. In areas where the ground is obscured by trees or heavy shadows the contours should be treated as approximate and they do not meet the accuracy standards stated above. The edited breaklines and spot elevations were then utilized to determine volumes for the landfill. Finally, a vertical accuracy test was performed on 34 checkpoints in accordance with National Standards for Spatial Data Accuracy Assessment (NSSDA) and American Society for Photogrammetry and Remote Sensing (ASPRS) methodologies and the results of the accuracy test are contained in Appendix III. The vertical accuracy test yielded an accuracy of 0.451' at 95% confidence.

The volumetric calculations were then performed using the following procedure. The method of calculation is a digital method based on differences in elevation between two surfaces within a boundary. Three sets of data, the base elevations, the pile surface elevations, and the pile boundary coordinates are required for the calculation. The base elevation data is put together digitally to form a Triangulated Irregular Network (TIN) which defines the surface of the ground on which the pile sits. Similarly, the pile elevation data is also put together to form a TIN defining the surface of the pile. Using Terramodel software, elevation differences are computed between these two TIN surfaces within the confines of the pile boundary. From these elevation differences many small prismatic volumes are calculated throughout the pile and are collectively added together to obtain the total volume of the pile. The base elevation data used in the cut-fill calculation of the landfill is the surface measurements from the June 3, 2016 survey. The base elevation data used in the calculation of the stockpile volumes is historical data obtained from the toes of piles in this area collected over several years. The base elevation data used in the calculation of the trash pile volumes is formed from the current pile toe elevations. A copy of the volumetric computations is located in Appendix I.

Limitations:

Field surveys should be used when a greater accuracy is required than the accuracy stated in this report.

Note: This report and accompanying map titled Topographic Survey of Sarasota Landfill are not full and complete without the other and are not valid without the signature and original raised seal of a Florida licensed surveyor and mapper.

Signed: _____

John Antalovich Jr., FL PSM No. LS5463

Seal: _____

Date: 1/14/21

Kucera International Inc. License No.: LB6643

APPENDIX I

VOLUMETRIC SURVEY REPORT

APPENDIX II

Horizontal / Vertical Control Point Residuals (US Feet)

Point ID	Residual Easting	Residual Northing	Residual Elevation	Type
119	-0.076	-0.002	-0.024	HV
153	-0.041	-0.016	-0.017	HV
219	0.01	-0.027	-0.003	HV
248	0.078	0.031	-0.02	HV
256	0.029	0.014	-0.012	HV
343			0.025	V
347			0.003	V
353			0.025	V
357			0.024	V

Type:

HV – horizontal and vertical

V – vertical only

APPENDIX III

Vertical Accuracy Test

PID	Survey Northing	Survey Easting	Survey Elevation	TIN Elevation	DZ
88	1043964.073800	527495.800400	26.000000	26.15	-0.15
95	1043963.697500	528453.464900	25.884800	25.45	0.44
102	1043892.128400	529898.838300	25.592900	25.61	-0.02
107	1043937.574300	531107.808600	25.844800	25.63	0.21
110	1042293.307300	527196.110500	25.790600	25.68	0.11
115	1042430.989600	528354.206600	40.902300	40.44	0.46
119	1042411.786200	529755.032100	32.946900	32.77	0.18
124	1042440.200800	531272.572300	28.324100	28.35	-0.02
133	1042134.851800	531273.045100	25.846400	25.88	-0.04
142	1042134.303100	531239.923500	25.531100	25.83	-0.29
145	1042023.827900	532326.663200	26.009300	26.09	-0.08
161	1040885.029800	534723.688200	23.804100	24.11	-0.30
166	1040970.927400	532821.345100	23.833400	23.90	-0.06
173	1040945.421200	531197.042800	25.861100	25.52	0.34
179	1039211.639600	532158.828200	22.190500	22.41	-0.22
198	1039182.125300	528074.549800	20.622300	20.77	-0.15
204	1040770.367400	527860.833500	24.526700	24.57	-0.04
212	1041737.330700	527449.924700	25.793800	26.09	-0.30
221	1040929.455700	528304.911200	26.024000	25.85	0.17
224	1040920.881500	529879.842000	25.783000	25.63	0.15
228	1042983.224700	527446.202800	25.820700	26.09	-0.27
241	1039469.293600	527970.534100	21.071100	21.41	-0.34
271	1039022.2532	529840.0169	21.85	22.04	-0.19
282	1041364.7480	529780.8119	25.19	25.01	0.18
303	1047432.189600	528963.376900	21.692400	21.88	-0.19
315	1047476.173600	526949.043400	19.871700	20.10	-0.23
329	1046120.776800	528769.941100	19.234300	19.39	-0.15
343	1042640.027800	528222.091600	76.493100	76.29	0.20
345	1043003.860700	528449.396200	89.117000	89.03	0.08
347	1043488.398600	528259.390300	82.255400	82.36	-0.11
353	1042994.947600	527810.183500	77.608200	77.89	-0.28
354	1042874.395200	527916.240500	67.518100	67.76	-0.24
355	1042819.168700	528012.327800	70.590200	70.77	-0.17
357	1042687.460300	527785.495100	67.972400	68.09	-0.12

Vertical RMSE = 0.220'

95% confidence = RMSE x 1.96 = 0.222 x 1.96 = 0.431'

ADVANCED DISPOSAL
SARASOTA LANDFILL

Cut and Fill Volume

JUNE 23 2020
TO
DECEMBER 18 2020

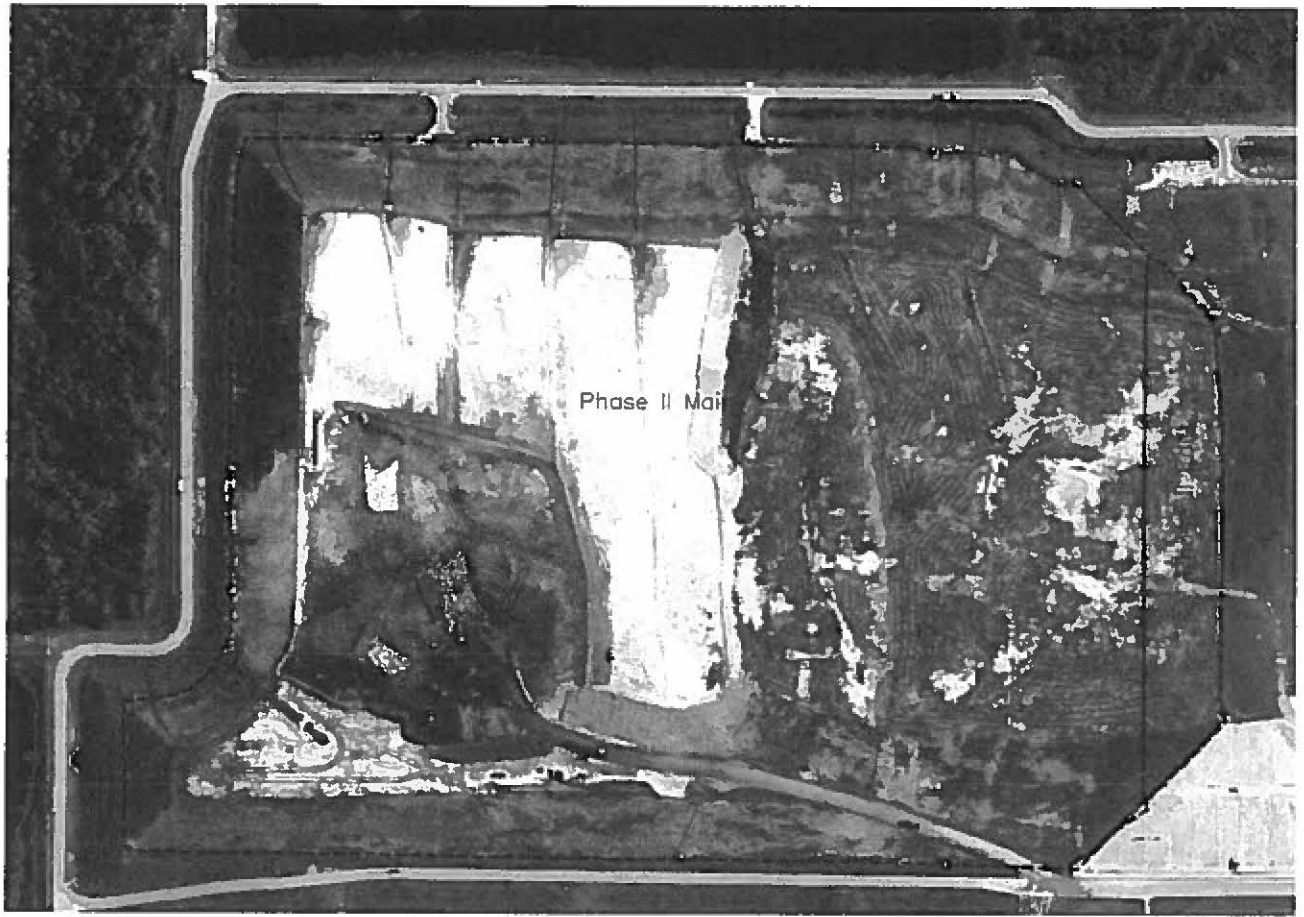
Prepared
by
KUCERA INTERNATIONAL , INC.
WILLOUGHBY, OHIO

ADVANCED DISPOSAL
SARASOTA LANDFILL

CUT AND FILL VOLUMES

SITE	DATES	CUT	FILL
SARASOTA LF PHASE II MAIN (~58.2 Acres)	JUNE 23 2020		
		22,729.0 Cu.Yd.	221,305.9 Cu.Yd.
	DECEMBER 18 2020		
	DIFFERENCE	198,576.9 Cu.Yd.	
SARASOTA LF PHASE II EAST (~3.2 Acres)	JUNE 23 2020		
		0. Cu.Yd.	0. Cu.Yd.
	DECEMBER 18 2020		
	DIFFERENCE	0.0 Cu.Yd.	

Jun 23 2020



December 18 2020



ADVANCED DISPOSAL
SARASOTA LF SOIL STOCKPILE 3

Stockpile Inventory

DECEMBER 2020

Prepared
by
KUCERA INTERNATIONAL, INC.
WILLOUGHBY, OHIO

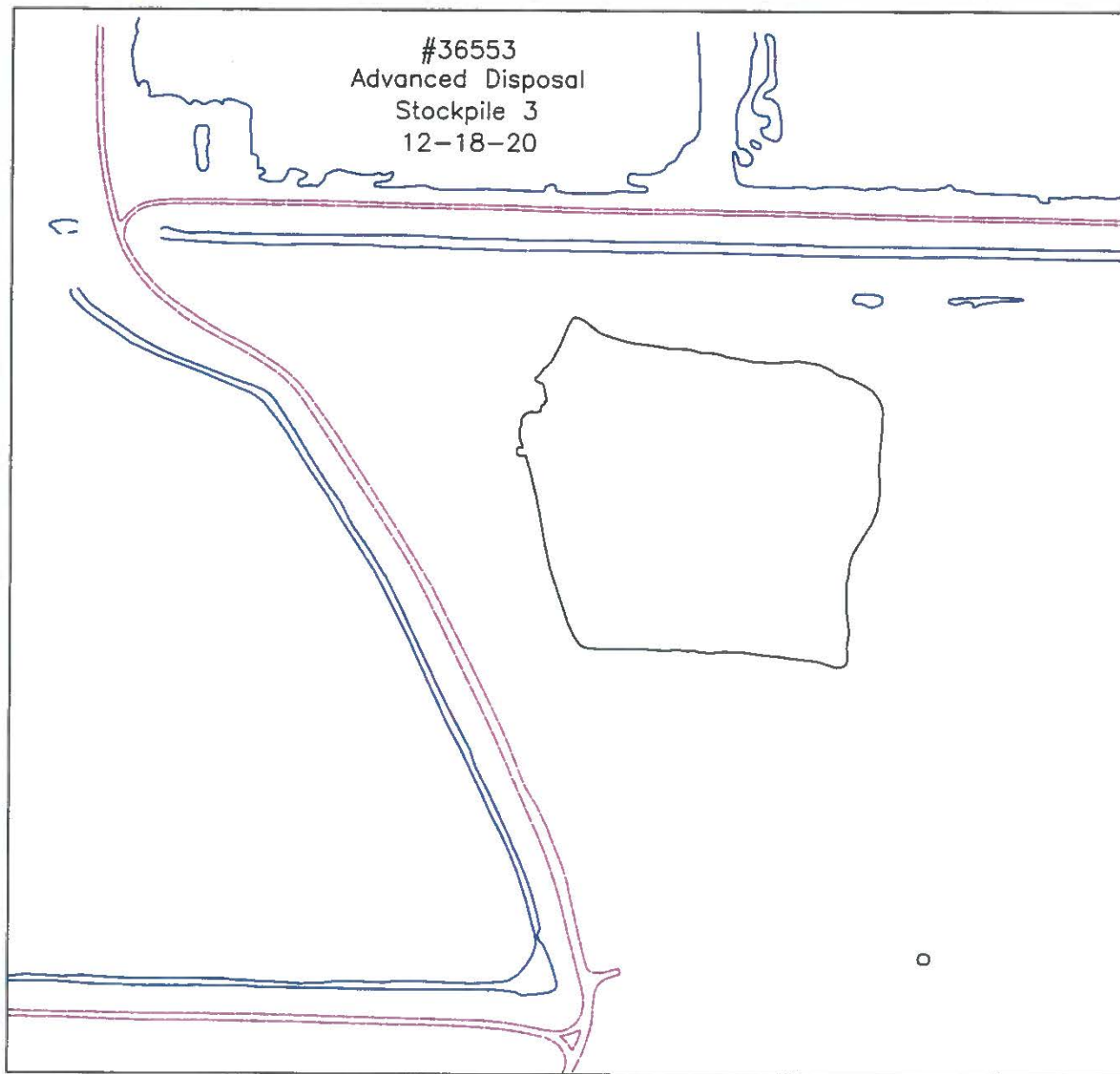
ADVANCED DISPOSAL
SARASOTA LF SOIL STOCKPILE 3

STOCKPILE INVENTORY

Date of Photography: DECEMBER 18 2020
Time of Photography: 11:11 A.M.

PILE	VOLUME
SOIL STOCKPILE 3	1,907,787. Cu.Ft.

#36553
Advanced Disposal
Stockpile 3
12-18-20





SARASOTA LF STOCKPILE 3

PILE: SOIL STOCKPILE 3

12/18/20

CONTOUR
-----COUNT

16.00

2806.

18.00

61854.

20.00

344223.

22.00

512793.

24.00

465979.

26.00

324560.

28.00

122311.

30.00

51591.

32.00

18454.

34.00

3000.

35.82

216.

TOTAL

1,907,787. Cu. Ft.

ADVANCED DISPOSAL
SARASOTA LF STOCKPILES

Stockpile Inventory

DECEMBER 2020

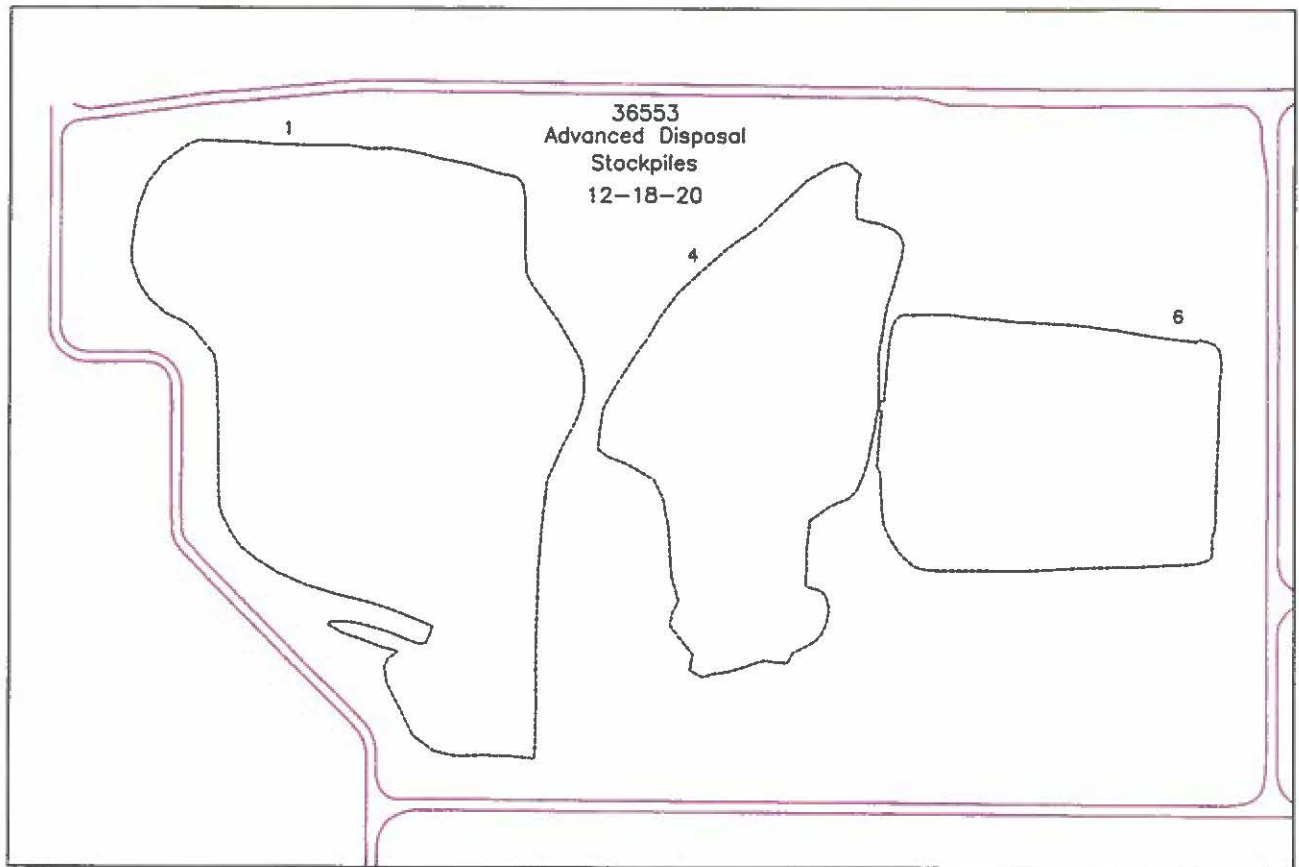
Prepared
by
KUCERA INTERNATIONAL, INC.
WILLOUGHBY, OHIO

ADVANCED DISPOSAL
SARASOTA LF STOCKPILES

STOCKPILE INVENTORY

Date of Photography: DECEMBER 18 2020
Time of Photography: 11:11 A.M.

PILE	VOLUME
1	1,045,114. Cu.Ft.
4	188,273. Cu.Ft.
6	178,537. Cu.Ft.



SARASOTA LF STOCKPILES

PILE: 1

12/18/20

CONTOUR

COUNT

20.00

96.

22.00

62005.

24.00

194618.

26.00

727670.

27.93

60725.

TOTAL

1,045,114. Cu. Ft.

SARASOTA LF STOCKPILES

PILE: 4

12/18/20

CONTOUR

COUNT

22.00

0.

24.00

0.

26.00

185065.

28.00

2419.

30.00

611.

32.00

160.

33.18

18.

TOTAL

188,273. Cu. Ft.

SARASOTA LF STOCKPILES

PILE: 6

12/18/20

CONTOUR

COUNT

26.00

118096.

27.66

60441.

TOTAL

178,537. Cu. Ft.

ADVANCED DISPOSAL
SARASOTA TRASH PILES

Stockpile Inventory

DECEMBER 2020

Prepared
by
KUCERA INTERNATIONAL, INC.
WILLOUGHBY, OHIO

ADVANCED DISPOSAL
SARASOTA TRASH PILES

STOCKPILE INVENTORY

Date of Photography: DECEMBER 18 2020

Time of Photography: 11:11 A.M.

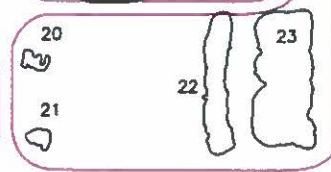
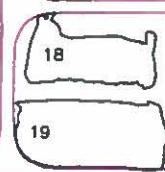
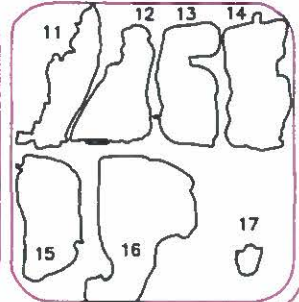
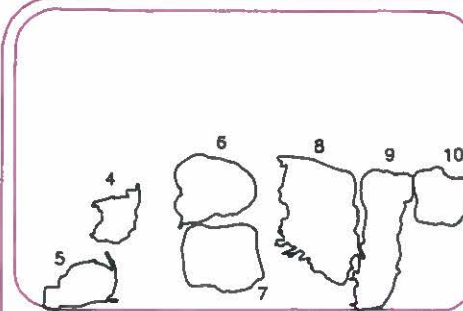
PILE	VOLUME
1	1,664. Cu.Ft.
2	21,614. Cu.Ft.
3	3,559. Cu.Ft.
4	22,112. Cu.Ft.
5	32,079. Cu.Ft.
6	105,565. Cu.Ft.
7	93,630. Cu.Ft.
8	168,798. Cu.Ft.
9	121,883. Cu.Ft.
10	59,141. Cu.Ft.
11	70,754. Cu.Ft.
12	109,164. Cu.Ft.
13	143,491. Cu.Ft.
14	128,339. Cu.Ft.
15	130,433. Cu.Ft.
16	258,588. Cu.Ft.
17	4,132. Cu.Ft.
18	106,872. Cu.Ft.
19	209,465. Cu.Ft.
20	1,546. Cu.Ft.
21	2,433. Cu.Ft.
22	44,982. Cu.Ft.
23	190,631. Cu.Ft.

#36553

Advanced Disposal

Trash Piles

12-18-20





ADVANCED DISPOSAL - TRASH

PILE: 1

12/18/20

CONTOUR

COUNT

26.00

7.

28.00

819.

30.00

541.

32.00

241.

34.00

56.

34.41

0.

TOTAL

1,664. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 2

12/18/20

CONTOUR

COUNT

26.00

179.

28.00

5275.

30.00

5713.

32.00

4351.

34.00

3198.

36.00

2074.

38.00

791.

39.10

33.

TOTAL

21,614. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 3

12/18/20

CONTOUR

COUNT

28.00

570.

30.00

1615.

32.00

854.

34.00

440.

35.31

80.

TOTAL

3,559. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 4

12/18/20

CONTOUR

COUNT

24.00

1532.

26.00

6595.

28.00

5057.

30.00

3782.

32.00

2717.

34.00

1777.

36.00

630.

36.54

22.

TOTAL

22,112. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 5

12/18/20

CONTOUR

COUNT

24.00

48.

26.00

5051.

28.00

8807.

30.00

6686.

32.00

4885.

34.00

3884.

36.00

2235.

38.00

481.

38.37

2.

TOTAL

32,079. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 6

12/18/20

CONTOUR

COUNT

24.00

6538.

26.00

19799.

28.00

18417.

30.00

16686.

32.00

14966.

34.00

13196.

36.00

10104.

38.00

4967.

40.00

891.

40.27

1.

TOTAL

105,565. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 7

12/18/20

CONTOUR

COUNT

24.00

4.

26.00

11567.

28.00

21488.

30.00

19769.

32.00

17923.

34.00

15755.

36.00

6418.

38.00

701.

38.60

5.

TOTAL

93,630. Cu. Ft.

ADVANCED DISPOSAL - TRASH

FILE: 8

12/18/20

CONTOUR
-----COUNT

24.00

315.

26.00

20631.

28.00

33512.

30.00

30509.

32.00

27832.

34.00

24418.

36.00

19214.

38.00

10620.

40.00

1733.

40.87

14.

TOTAL

168,798. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 9

12/18/20

CONTOUR

COUNT

26.00

5931.

28.00

22190.

30.00

22470.

32.00

19950.

34.00

17505.

36.00

14673.

38.00

10684.

40.00

5862.

42.00

2215.

44.00

400.

44.48

3.

TOTAL

121,883. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 10

12/18/20

CONTOUR
-----COUNT

26.00

662.

28.00

9107.

30.00

11637.

32.00

10384.

34.00

9260.

36.00

8129.

38.00

6347.

40.00

3021.

42.00

586.

43.32

8.

TOTAL

59,141. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 11

12/18/20

CONTOUR

COUNT

26.00

4112.

28.00

20578.

30.00

18128.

32.00

13689.

34.00

8812.

36.00

4184.

38.00

1158.

39.87

93.

TOTAL

70,754. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 12

12/18/20

CONTOUR -----	COUNT -----
26.00	1467.
28.00	25345.
30.00	24234.
32.00	21341.
34.00	17948.
36.00	12314.
38.00	5417.
40.00	957.
42.00	141.
42.18	0.
TOTAL	109,164. Cu. Ft.

ADVANCED DISPOSAL - TRASH

FILE: 13

12/18/20

CONTOUR
-----COUNT

26.00

5692.

28.00

29832.

30.00

27300.

32.00

24473.

34.00

21739.

36.00

18606.

38.00

12455.

40.00

3235.

42.00

159.

42.10

0.

TOTAL

143,491. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 14

12/18/20

CONTOUR

COUNT

24.00

136.

26.00

10879.

28.00

33235.

30.00

29915.

32.00

26253.

34.00

20303.

36.00

7247.

37.68

371.

TOTAL

128,339. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 15

12/18/20

CONTOUR

COUNT

26.00

7.

28.00

16418.

30.00

29338.

32.00

26596.

34.00

23694.

36.00

19516.

38.00

11825.

40.00

2959.

41.83

80.

TOTAL

130,433. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 16

12/18/20

CONTOUR
-----COUNT

26.00

1973.

28.00

38785.

30.00

48621.

32.00

43939.

34.00

40100.

36.00

36224.

38.00

29553.

40.00

15927.

42.00

3236.

44.00

225.

45.13

5.

TOTAL

258,588. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 17

12/18/20

CONTOUR

COUNT

26.00

11.

28.00

1934.

30.00

1427.

32.00

689.

32.94

71.

TOTAL

4,132. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 18

12/18/20

CONTOUR

COUNT

24.00

334.

26.00

21552.

28.00

25408.

30.00

22076.

32.00

19125.

34.00

13387.

36.00

4595.

37.98

395.

TOTAL

106,872. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 19

12/18/20

CONTOUR

COUNT

26.00

16624.

28.00

44015.

30.00

39970.

32.00

36391.

34.00

33104.

36.00

27148.

38.00

11098.

40.00

1113.

40.44

2.

TOTAL

209,465. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 20

12/18/20

CONTOUR

COUNT

28.00

588.

30.00

760.

32.00

192.

32.74

6.

TOTAL

1,546. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 21

12/18/20

CONTOUR

COUNT

28.00

949.

30.00

1031.

32.00

429.

33.34

24.

TOTAL

2,433. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 22

12/18/20

CONTOUR
-----COUNT

24.00

2.

26.00

3520.

28.00

11608.

30.00

11254.

32.00

9049.

34.00

6462.

36.00

2634.

38.00

447.

38.55

6.

TOTAL

44,982. Cu. Ft.

ADVANCED DISPOSAL - TRASH

PILE: 23

12/18/20

CONTOUR

COUNT

26.00

6361.

28.00

35372.

30.00

33214.

32.00

30572.

34.00

27812.

36.00

24775.

38.00

19813.

40.00

10293.

42.00

2352.

43.37

67.

TOTAL

190,631. Cu. Ft.

APPENDIX II

Horizontal / Vertical Control Point Residuals (US Feet)

Point ID	Residual Easting	Residual Northing	Residual Elevation	Type
119	-0.076	-0.002	-0.024	HV
153	-0.041	-0.016	-0.017	HV
219	0.01	-0.027	-0.003	HV
248	0.078	0.031	-0.02	HV
256	0.029	0.014	-0.012	HV
343			0.025	V
347			0.003	V
353			0.025	V
357			0.024	V

Type:

HV – horizontal and vertical

V – vertical only

APPENDIX III

Vertical Accuracy Test

PID	Survey Northing	Survey Easting	Survey Elevation	TIN Elevation	DZ
88	1043964.073800	527495.800400	26	26.149	-0.149
95	1043963.697500	528453.464900	25.88	25.445	0.435
102	1043892.128400	529898.838300	25.59	25.609	-0.019
107	1043937.574300	531107.808600	25.84	25.634	0.206
110	1042293.307300	527196.110500	25.79	25.676	0.114
115	1042430.989600	528354.206600	40.9	40.44	0.46
119	1042411.786200	529755.032100	32.95	32.771	0.179
124	1042440.200800	531272.572300	28.32	28.348	-0.028
133	1042134.851800	531273.045100	25.85	25.884	-0.034
142	1042134.303100	531239.923500	25.53	25.826	-0.296
145	1042023.827900	532326.663200	26.01	25.903	0.107
161	1040885.029800	534723.688200	23.8	23.916	-0.116
166	1040970.927400	532821.345100	23.83	23.754	0.076
173	1040945.421200	531197.042800	25.86	25.521	0.339
179	1039211.639600	532158.828200	22.19	22.16	0.03
198	1039182.125300	528074.549800	20.62	20.65	-0.03
204	1040770.367400	527860.833500	24.53	24.57	-0.04
212	1041737.330700	527449.924700	25.79	26.089	-0.299
221	1040929.455700	528304.911200	26.02	25.852	0.168
224	1040920.881500	529879.842000	25.78	25.633	0.147
228	1042983.224700	527446.202800	25.82	26.094	-0.274
241	1039469.293600	527970.534100	21.07	21.204	-0.134
271	1039022.2532	529840.0169	21.85	21.75	0.1
282	1041364.7480	529780.8119	25.19	25.014	0.176
408	1047424.164200	528945.825800	21.85	21.686	0.164
416	1042795.931300	528459.207400	90.73	91.215	-0.485
417	1042864.835500	528552.534300	88.65	88.314	0.336
	1043375.537200	528309.237800			Area of active
429			81.88	Point not used	change
430	1043264.189700	528352.185400	84.4	84.41	-0.01
436	1043032.370700	528236.377100	84.27	84.562	-0.292
88	1043964.073800	527495.800400	26	26.149	-0.149
95	1043963.697500	528453.464900	25.88	25.445	0.435
102	1043892.128400	529898.838300	25.59	25.609	-0.019
107	1043937.574300	531107.808600	25.84	25.634	0.206

Vertical RMSE = 0.23'

95% confidence = RMSE X 1.96 = 0.23 X 1.96 = 0.451'

APPENDIX IV

Survey Report

Van Horn & Associates, Inc.
Daniel L. Van Horn, PLS, Responsible charge
Certificate of Authorization LB #7939
12610 Sydney Road
Dover, Florida 33527
813-684-4565
Date: July 4, 2020

SPECIFIC PURPOSE SURVEY REPORT FOR SARASOTA COUNTY LANDFILL SITE, FLORIDA.

REPORT PREPARED FOR:

Kucera International, Inc
38133 Western Parkway
Willoughby, Ohio 44094

Purpose

The purpose of this survey is to establish coordinate values on aerial targets and check points for Kucera International, Inc., in support of aerial mapping for Sarasota County Landfill for June, 2020.

Method

A Real Time Global Positioning Network Solutions were performed to establish both horizontal and vertical coordinates on thirty-one Control aerial targets and seven ground points. This Real Time Global Positioning Network uses several local control stations to calculate the position of the target value. The following Control stations were used by GPS network:

		Latitude	Longitude
1.	WACH	273051.042	0815256.615
2.	MCD5	275059.338	0823156.335
3.	BKVL	282825.669	0822713.194
4.	FMYR	263527.507	0815150.972
5.	LEES	284934.404	0814825.890
5.	CCV6	282735.827	0803243.702
6.	DLND	290322.897	0811547.480
7.	PBCH	265046.638	0801309.299
8.	ORMD	291753.469	0810632.013
9.	OKCB	271557.715	0805119.181
10.	NAPL	260855.103	0814634.626
11.	ZEFR	281339.322	0820952.671
12.	MTNT	255156.760	0805425.186
13.	LAUD	261146.341	0801023.014
14.	GNVL	294111.557	0821636.736
15.	FLBN	293538.911	0811713.546

North American Datum of 1983 (NAD 1983), Adjustment of 2011, Florida West Zone (902). The vertical datum is the NGVD Datum of 1929 in U.S. feet.

Geoid Model – Geoid 12B
Equipment:
Champion GPS Unit

Accuracy Levels

The methodology for establishing the Aerial targets and checkpoints is based on Third order Horizontal and Vertical Survey procedures. Coordinate values have a maximum horizontal positional accuracy of +/- 0.30 feet and a maximum vertical accuracy of +/- 0.30 feet, conforming to Standards of Practice 5J-17.051

Office and Field Personnel

Daniel L. Van Horn

ABBREVIATIONS

No. # – Number
LB – Licensed Business
Elev. – Elevation
NAD 83 - North American Datum of 1983
NGVD - 1929
GPS - Global Positioning System

General Notes

1. Type of Survey - Specific Purpose Survey for target positions.
2. Fieldwork was completed through June 23, 2020.
3. This Survey report or the copies thereof are not valid without the digital signature or the original raised seal of a Florida licensed Surveyor and Mapper.
4. Additions or deletions to this report by other than the signing party are prohibited without the written consent of the signing party.

SURVEYOR'S CERTIFICATION

This Photogrammetric mapping ground control survey is certified to the Sarasota County as meeting or exceeding, in quality and precision, the standards of Practice as applicable for this work, as set forth in chapter 5J-17.051, Florida administrative code.



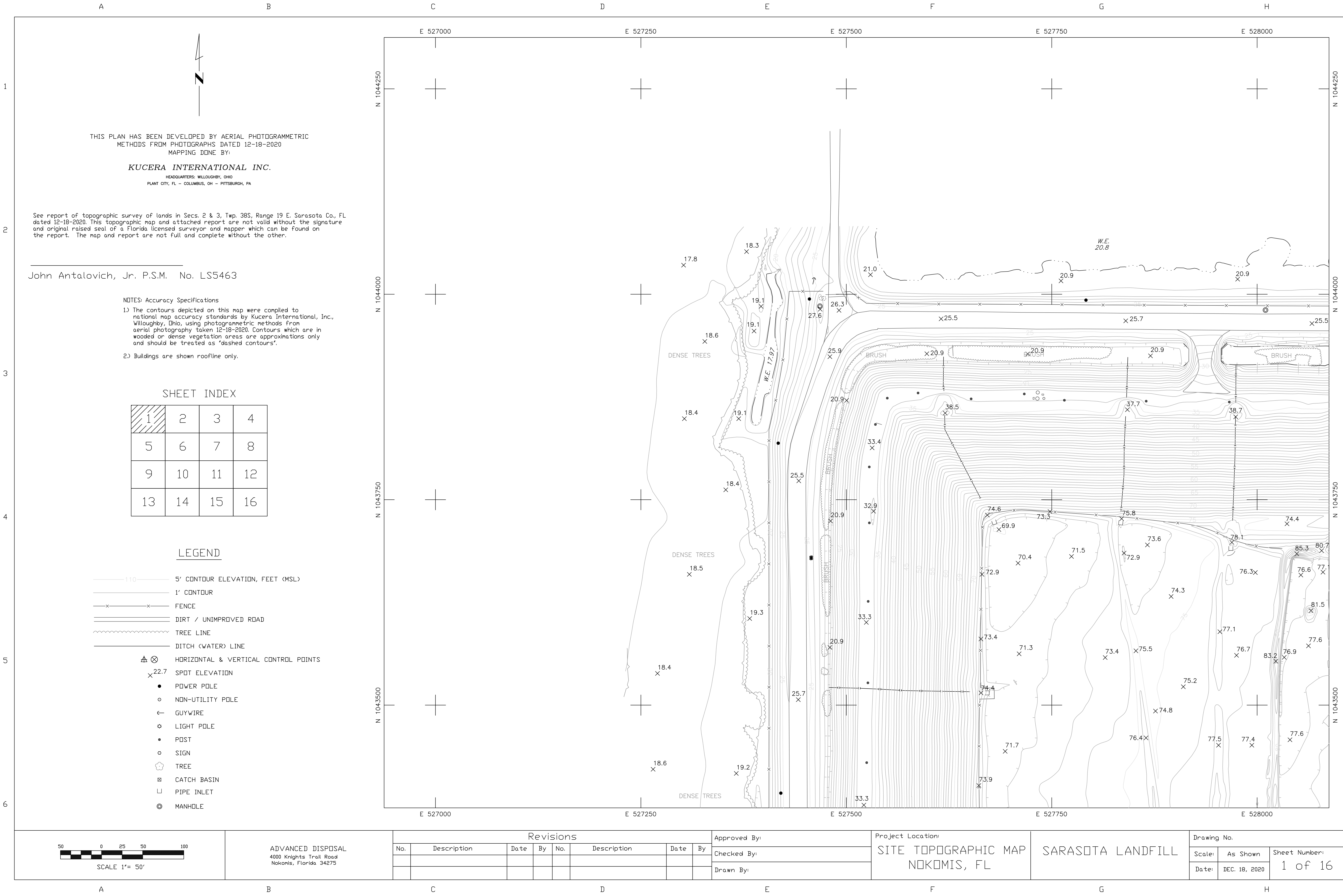
Daniel L. Van Horn
Professional Land Surveyor Registration No. 4267, State of Florida
Van Horn & Associates, Inc.
Certificate of Authorization LB #7939

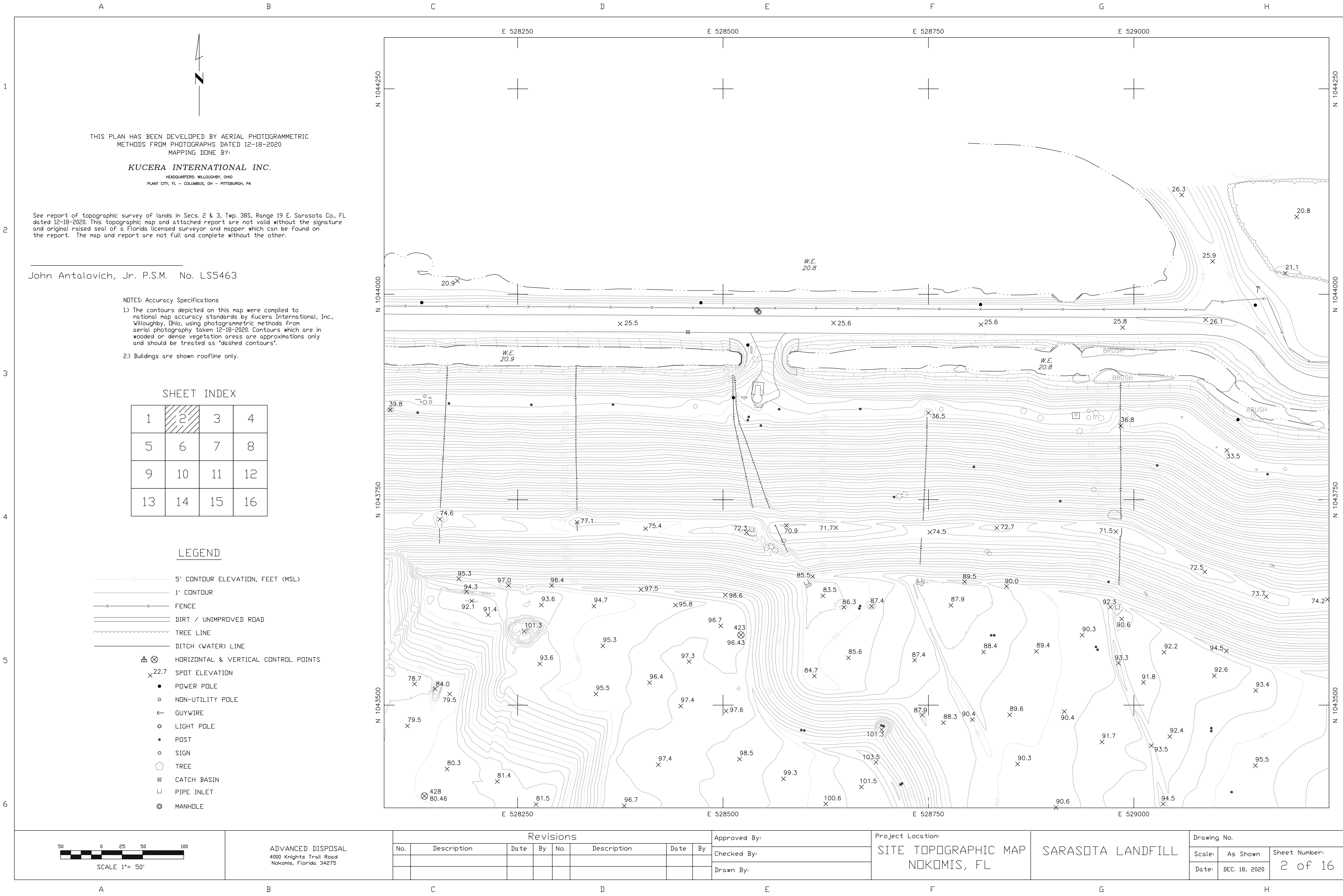
Attachments: A – Data Target List
SARASOTA COUNTY CERT 7 6 2020 Kucera-Rev

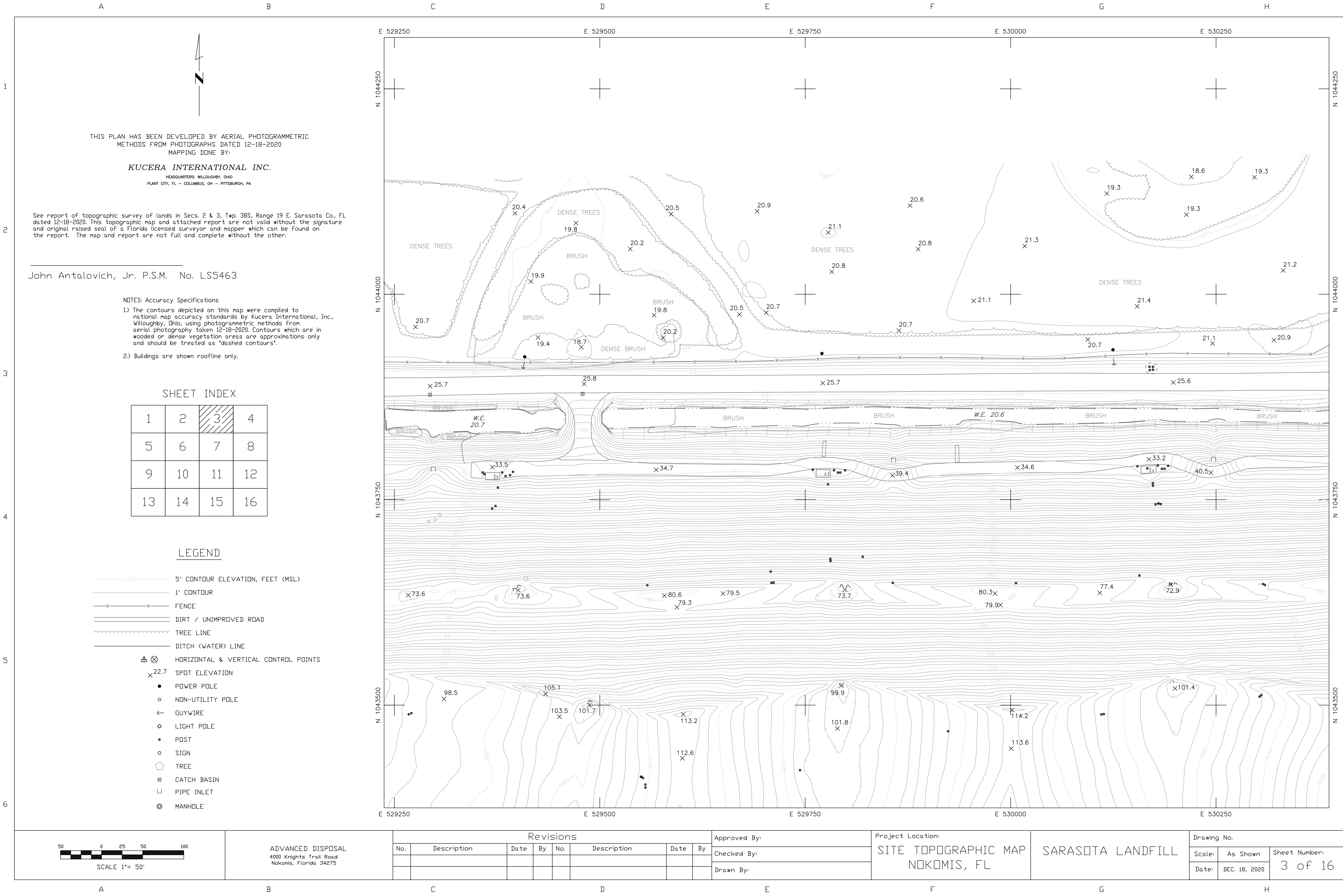
DATE: JUNE 24 2020
 SARASOTA LANDFILL, SARASOTA COUNTY, FLORIDA
 NAD 83
 NAVD 1929 - GEOID 12B & 18
 FLORIDA WEST ZONE (902)
 2011 HORIZONTAL
 7 DIRT ELEVATIONS
 FIELD BOOK 115 PAGE 12, 13, 42, 57
 FIELD BOOK 120 PAGE 71-72

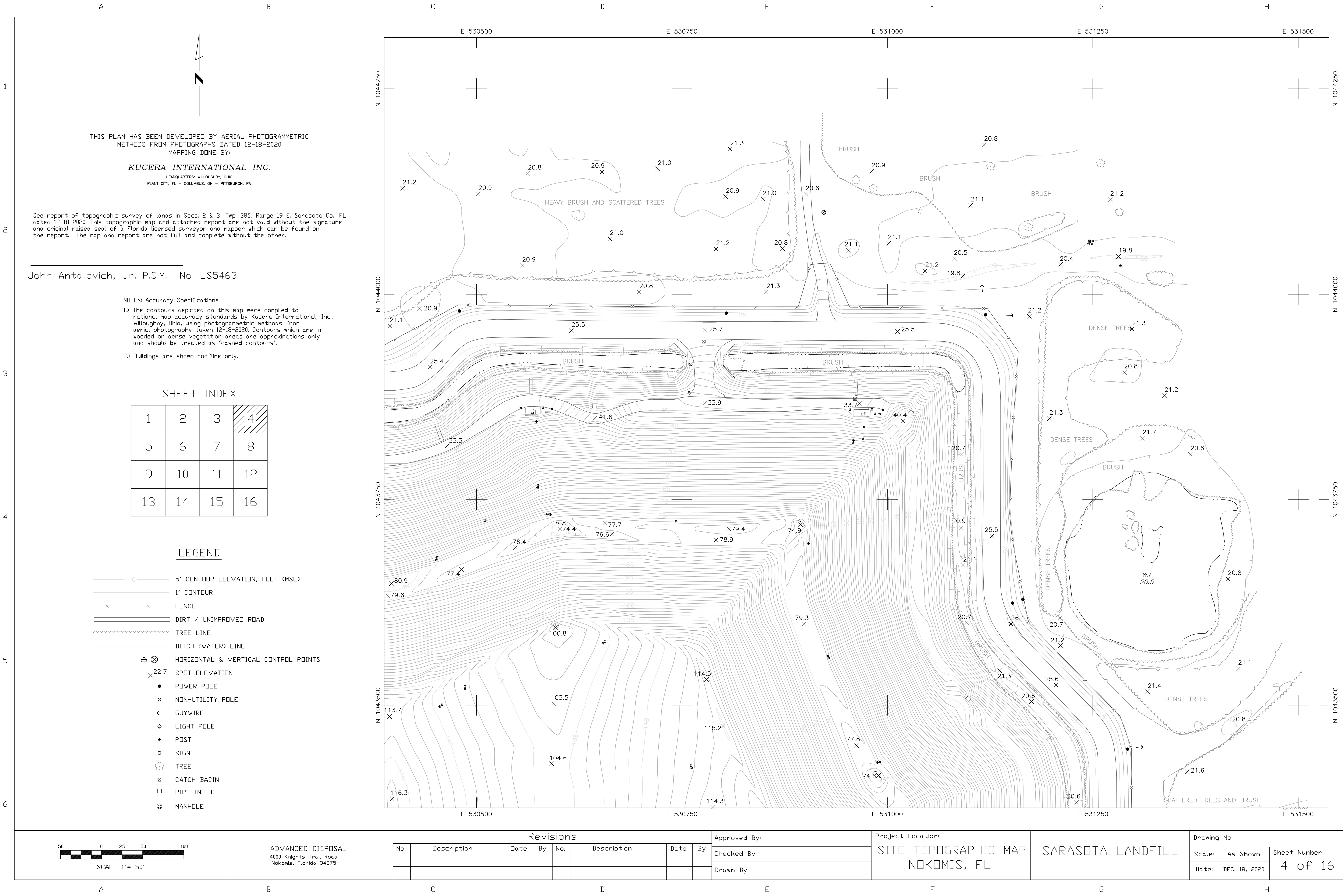
HELD CURRENT CONTROL POINT #408 ON SARASOTA PLANS AS NGVD 1929

Point #	Northing	Easting	Elevation	Description
88	1043964.073800	527495.800400	26.000000	2X2 TARGET
95	1043963.697500	528453.464900	25.884800	2X2 TARGET
102	1043892.128400	529898.838300	25.592900	2X2 TARGET
107	1043937.574300	531107.808600	25.844800	2X2 TARGET
110	1042293.307300	527196.110500	25.790600	2X2 TARGET
115	1042430.989600	528354.206600	40.902300	2X2 TARGET
119	1042411.786200	529755.032100	32.946900	2X2 TARGET
124	1042440.200800	531272.572300	28.324100	2X2 TARGET
133	1042134.851800	531273.045100	25.846400	2X2 TARGET
142	1042134.303100	531239.923500	25.531100	NE COR STOP BAR
145	1042023.827900	532326.663200	26.009300	SOUTH END WHITE CURB
153	1041847.033200	534778.188600	23.984200	NORTH WHITE LINE
161	1040885.029800	534723.688200	23.804100	CROSS WHITE LINE
166	1040970.927400	532821.345100	23.833400	CROSS WHITE LINE
173	1040945.421200	531197.042800	25.861100	2X2 TARGET
179	1039211.639600	532158.828200	22.190500	2X2 TARGET
219	1038295.069000	530810.011300	21.660000	2X2 TARGET
198	1039182.125300	528074.549800	20.622300	TIP OF ARROW
204	1040770.367400	527860.833500	24.526700	2X2 TARGET
212	1041737.330700	527449.924700	25.793800	CROSS ON YELLOW
221	1040929.455700	528304.911200	26.024000	2X2 TARGET
224	1040920.881500	529879.842000	25.783000	2X2 TARGET
228	1042983.224700	527446.202800	25.820700	SOUTH END LINE
241	1039469.293600	527970.534100	21.071100	TIP OF ARROW
248	1039461.950300	527133.724200	22.970700	TIP OF ARROW
256	1046028.9036	526217.2256	24.11000	2X2 TARGET
271	1039022.2532	529840.0169	21.85	2X2 TARGET CL
282	1041364.7480	529780.8119	25.19	SW COR STOP BAR
303	1047432.189600	528963.376900	21.692400	TARGET 4X4
315	1047476.173600	526949.043400	19.871700	TARGET 4X4
329	1046120.776800	528769.941100	19.234300	TARGET 4X4
343	1042640.027800	528222.091600	76.493100	NG
345	1043003.860700	528449.396200	89.117000	NG
347	1043488.398600	528259.390300	82.255400	NG
353	1042994.947600	527810.183500	77.608200	NG
354	1042874.395200	527916.240500	67.518100	NG
355	1042819.168700	528012.327800	70.590200	NG
357	1042687.460300	527785.495100	67.972400	NG









THIS PLAN HAS BEEN DEVELOPED BY AERIAL PHOTOGRAMMETRIC
METHODS FROM PHOTOGRAPHS DATED 12-18-2020
MAPPING DONE BY:

KUCERA INTERNATIONAL INC.
HEADQUARTERS: WILLOUGHBY, OHIO
PLANT CITY, FL - COLUMBUS, OH - PITTSBURGH, PA

See report of topographic survey of lands in Secs. 2 & 3, Twp. 38S, Range 19 E. Sarasota Co., FL
dated 12-18-2020. This topographic map and attached report are not valid without the signature
and original raised seal of a Florida licensed surveyor and mapper which can be found on
the report. The map and report are not full and complete without the other.

John Antalovich, Jr. P.S.M. No. LS5463

NOTES: Accuracy Specifications

1.) The contours depicted on this map were compiled to
national map accuracy standards by Kucera International, Inc.,
Wiloughby, Ohio, using photogrammetric methods from
aerial photography taken 12-18-2020. Contours which are in
wooded or dense vegetation areas are approximations only
and should be treated as "dashed contours".

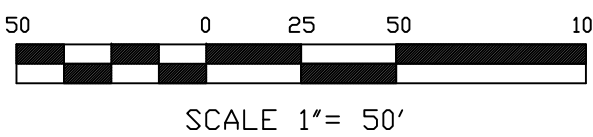
2.) Buildings are shown roofline only.

SHEET INDEX

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

LEGEND

- 5' CONTOUR ELEVATION, FEET (MSL)
- 1' CONTOUR
- FENCE
- DIRT / UNIMPROVED ROAD
- TREE LINE
- DITCH (WATER) LINE
- HORIZONTAL & VERTICAL CONTROL POINTS
- SPOT ELEVATION
- POWER POLE
- NON-UTILITY POLE
- GUYWIRE
- LIGHT POLE
- POST
- SIGN
- TREE
- CATCH BASIN
- PIPE INLET
- MANHOLE



ADVANCED DISPOSAL
4000 Knights Trail Road
Nokomis, Florida 34275

Revisions

No.	Description	Date	By	No.	Description	Date	By

Approved By:

Checked By:

Drawn By:

Project Location:

SITE TOPOGRAPHIC MAP
NOKOMIS, FL

SARASOTA LANDFILL

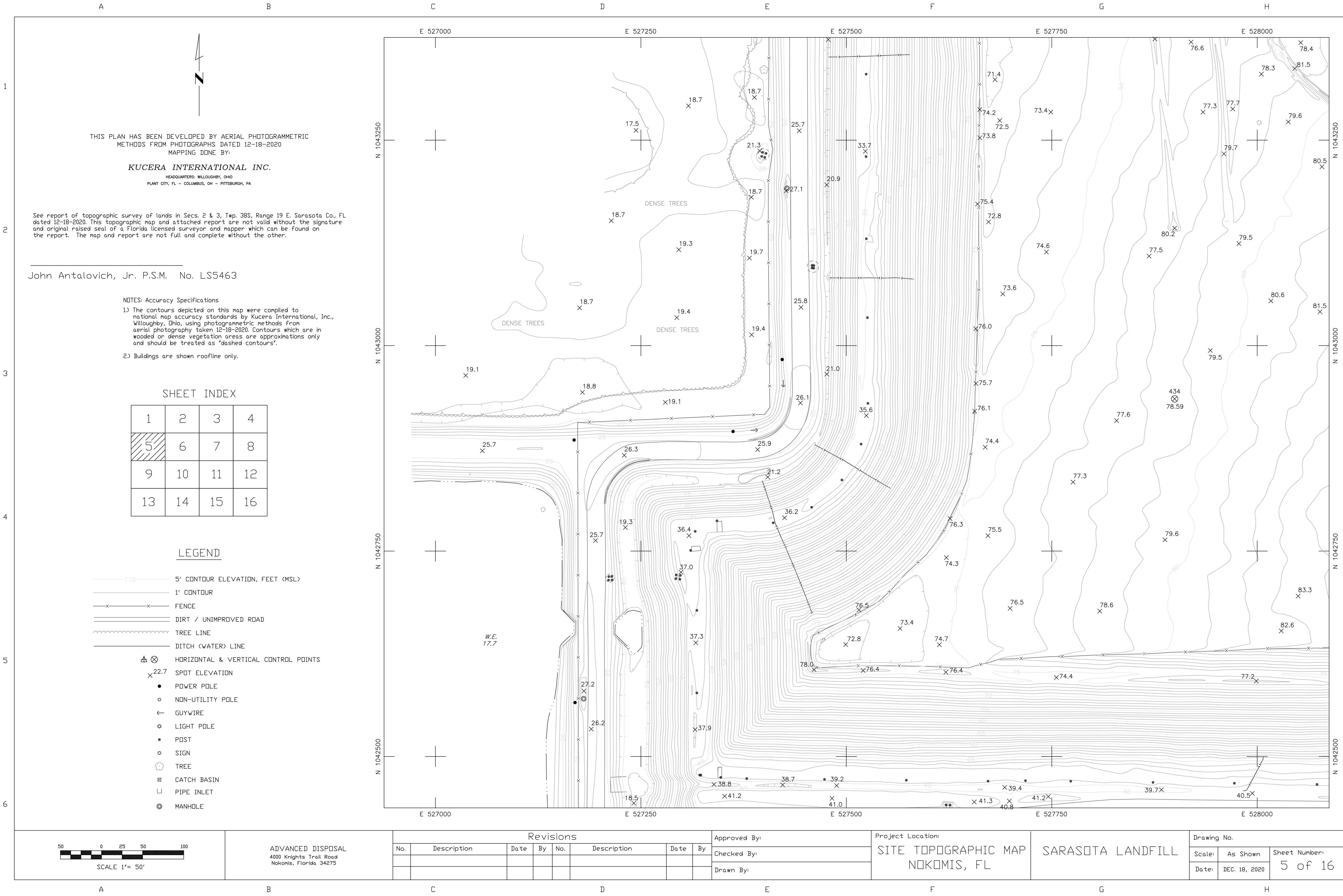
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MAPPING DONE BY:

KUCERA INTERNATIONAL INC.

HEADQUARTERS: WILLOUGHBY, OHIO
PLANT CITY, FL - COLUMBUS, OH - PITTSBURGH, PA

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John Antalovich, Jr. P.S.M. No. LS5463

NOTES: Accuracy Specifications

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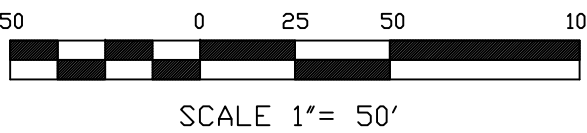
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LEGEND

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ADVANCED DISPOSAL
4000 Knights Trail Road
Nokomis, Florida 34275

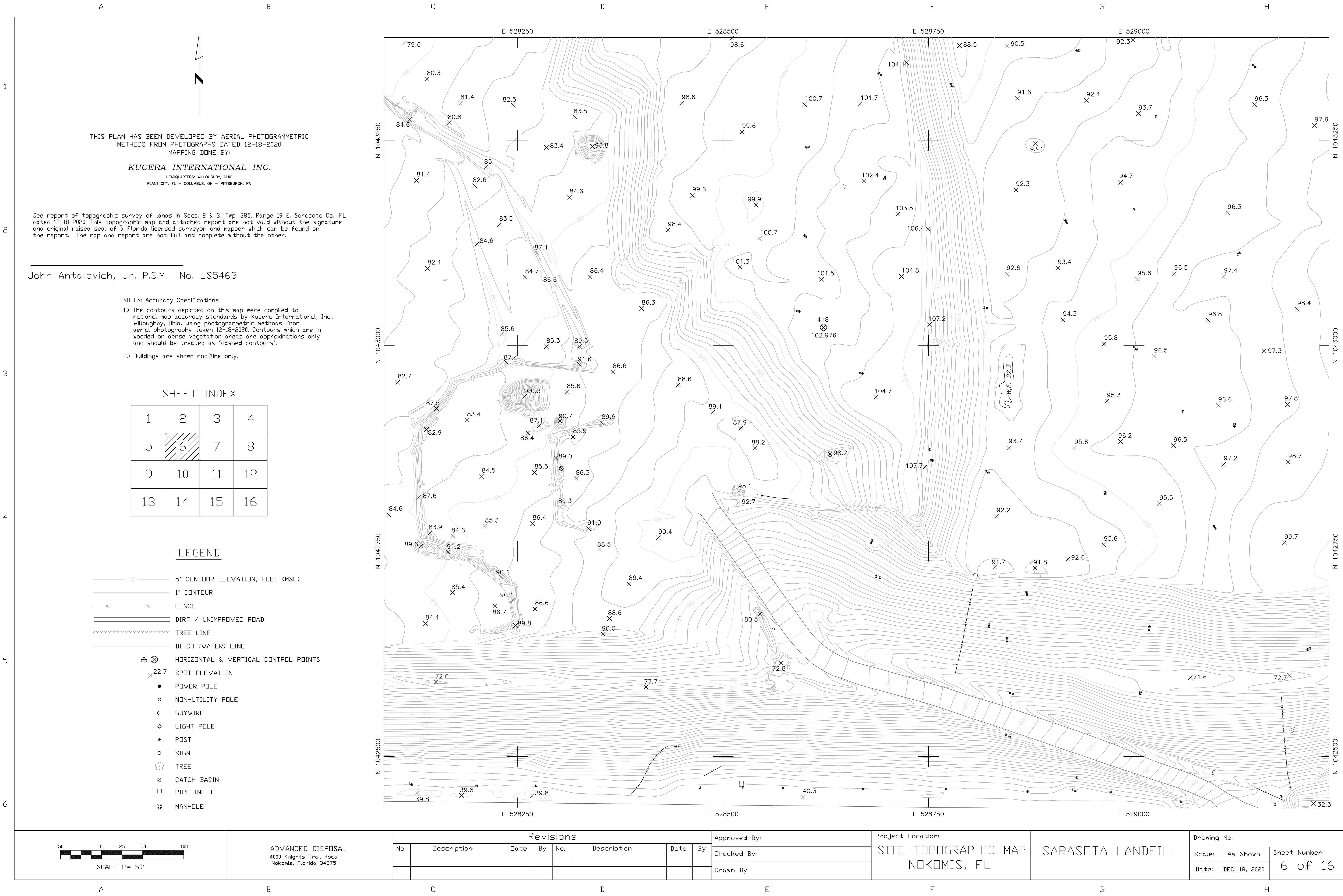
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No.	Description	Date	By	No.	Description	Date	By

Approved By:
Checked By:
Drawn By:

Project Location:
SITE TOPOGRAPHIC MAP
NOKOMIS, FL

SARASOTA LANDFILL

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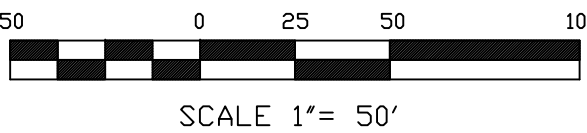
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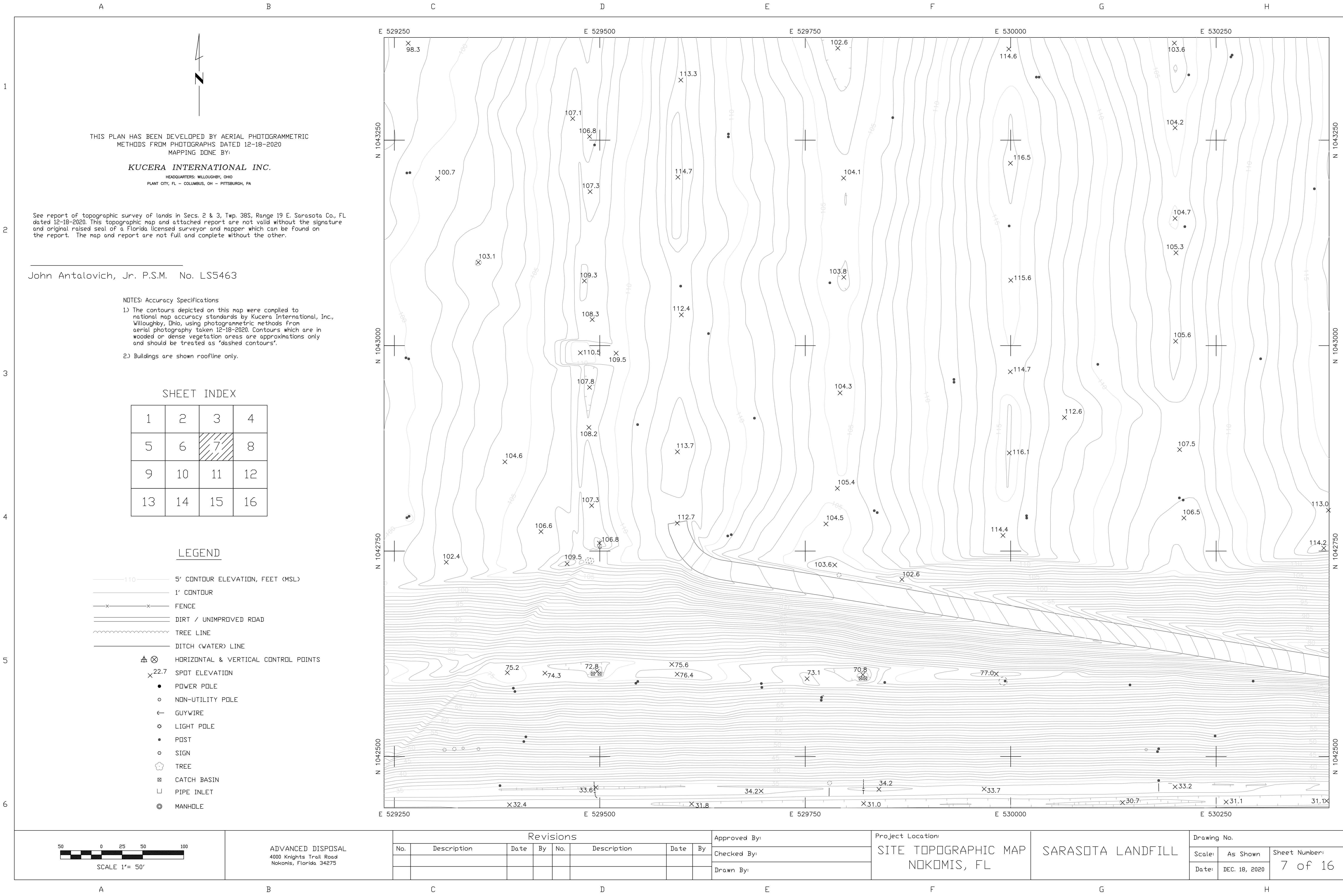
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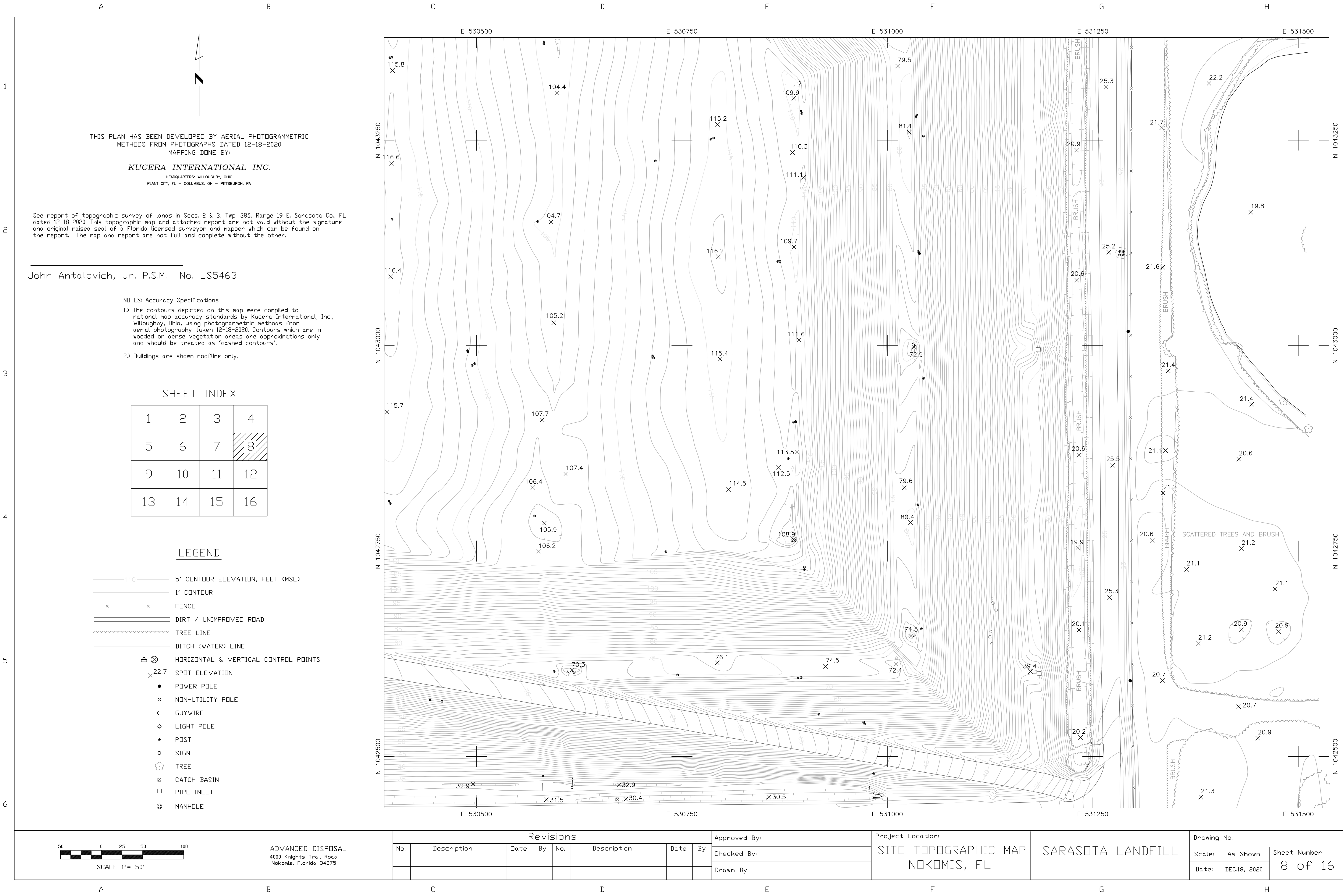
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SARASOTA LANDFILL

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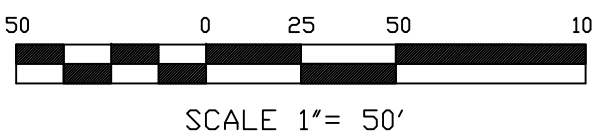
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ADVANCED DISPOSAL
4000 Knights Trail Road
Nokomis, Florida 34275

Revisions

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Project Location:

SITE TOPOGRAPHIC MAP
NOKOMIS, FL

SARASOTA LANDFILL

Drawing No.

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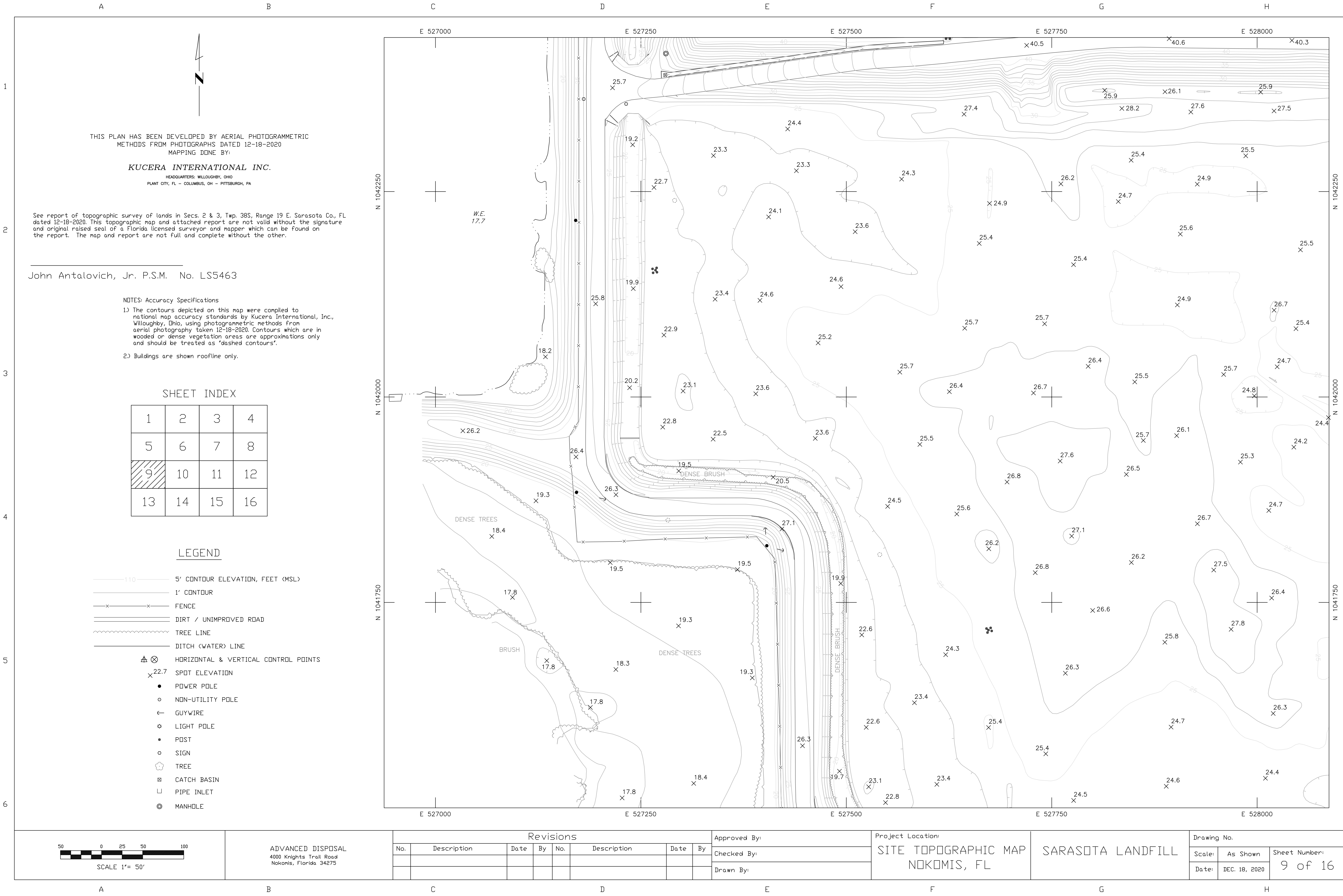
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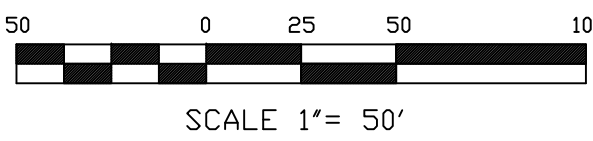
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ADVANCED DISPOSAL
4000 Knights Trail Road
Nokomis, Florida 34275

Revisions

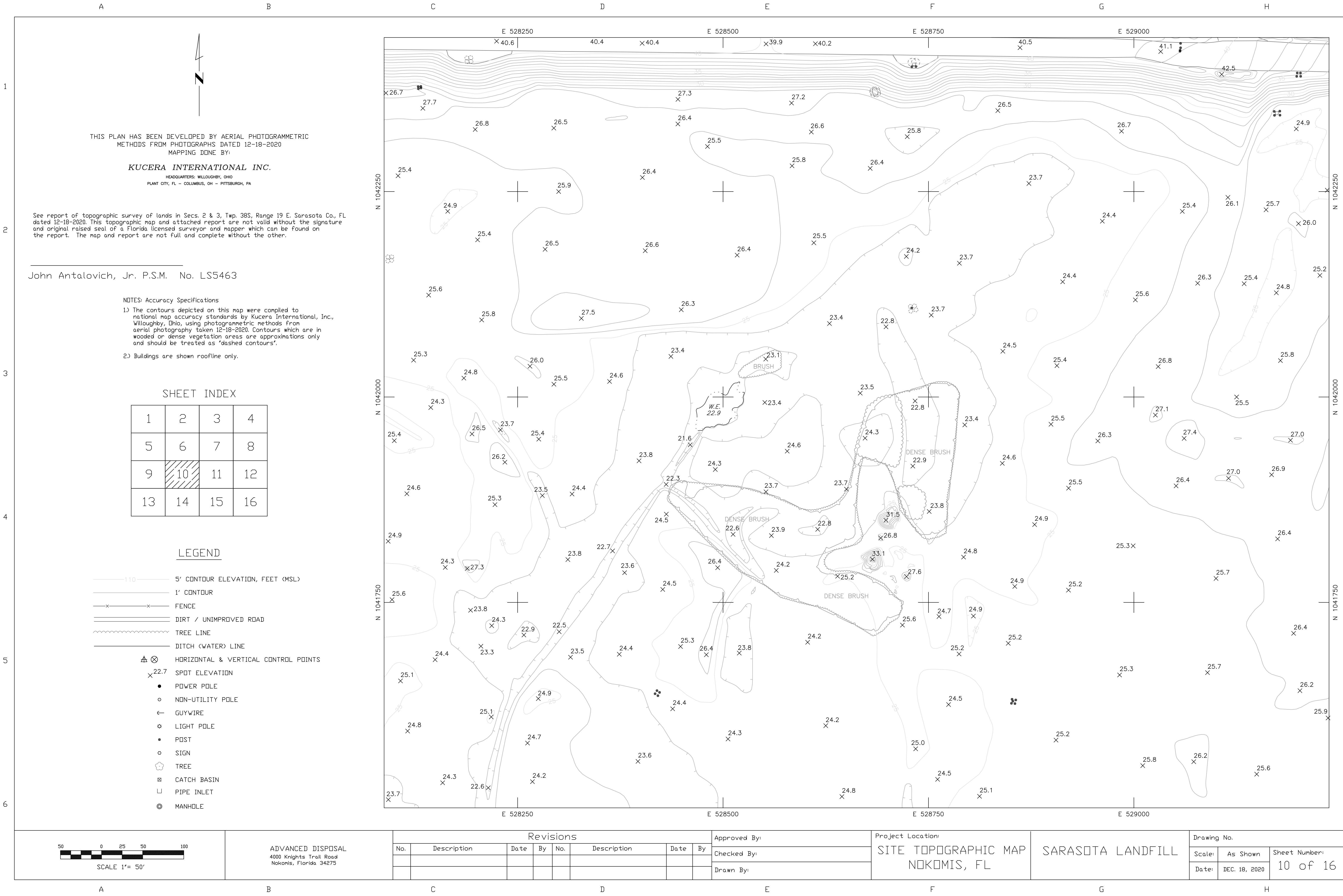
No.	Description	Date	By	No.	Description	Date	By

Approved By:
Checked By:
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SARASOTA LANDFILL

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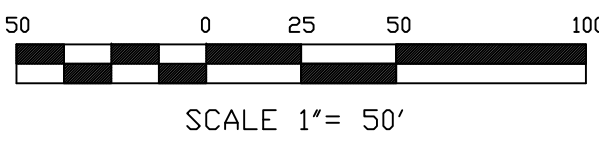
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ADVANCED DISPOSAL
4000 Knights Trail Road
Nokomis, Florida 34275

Revisions

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Project Location:

SITE TOPOGRAPHIC MAP
NOKOMIS, FL

SARASOTA LANDFILL

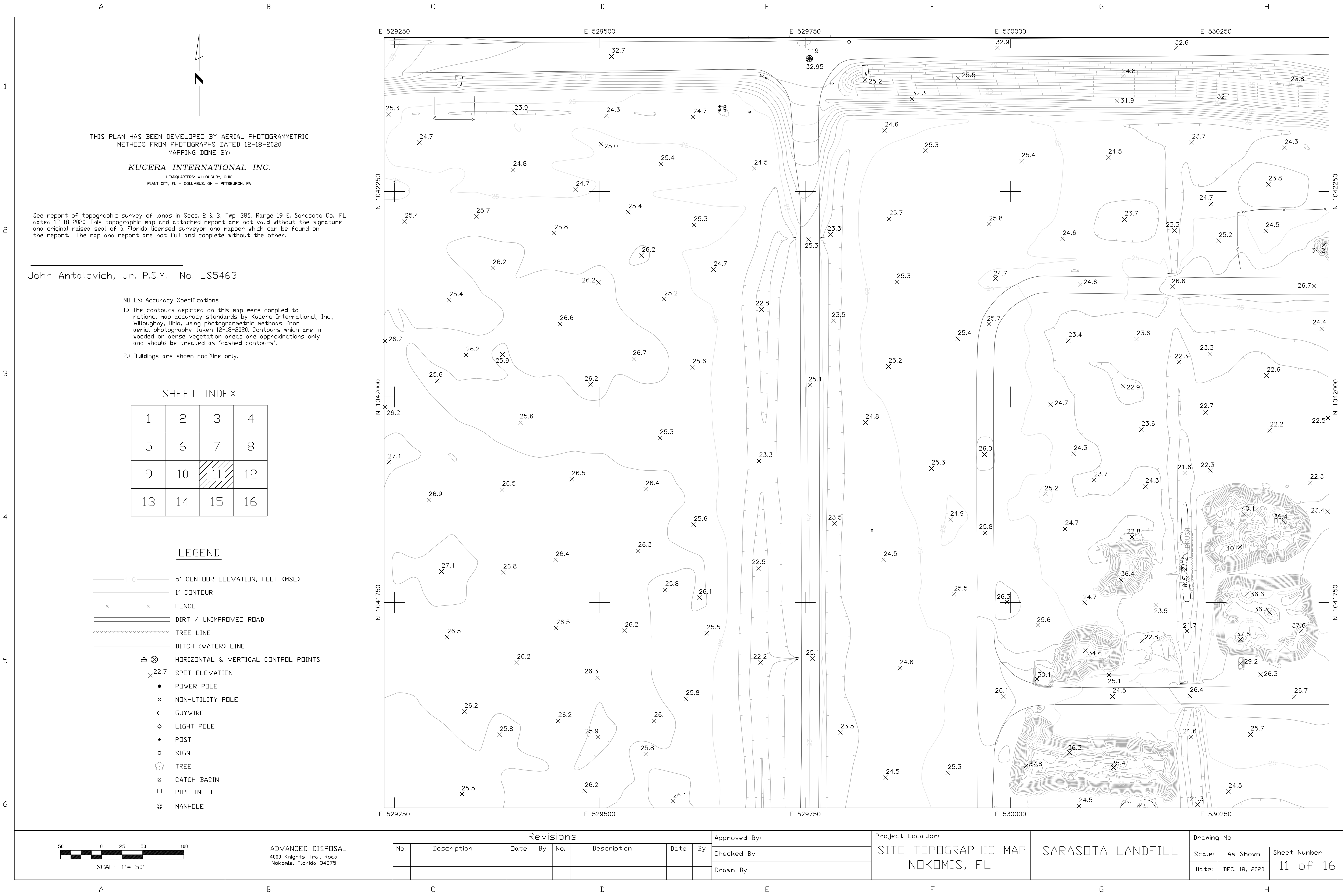
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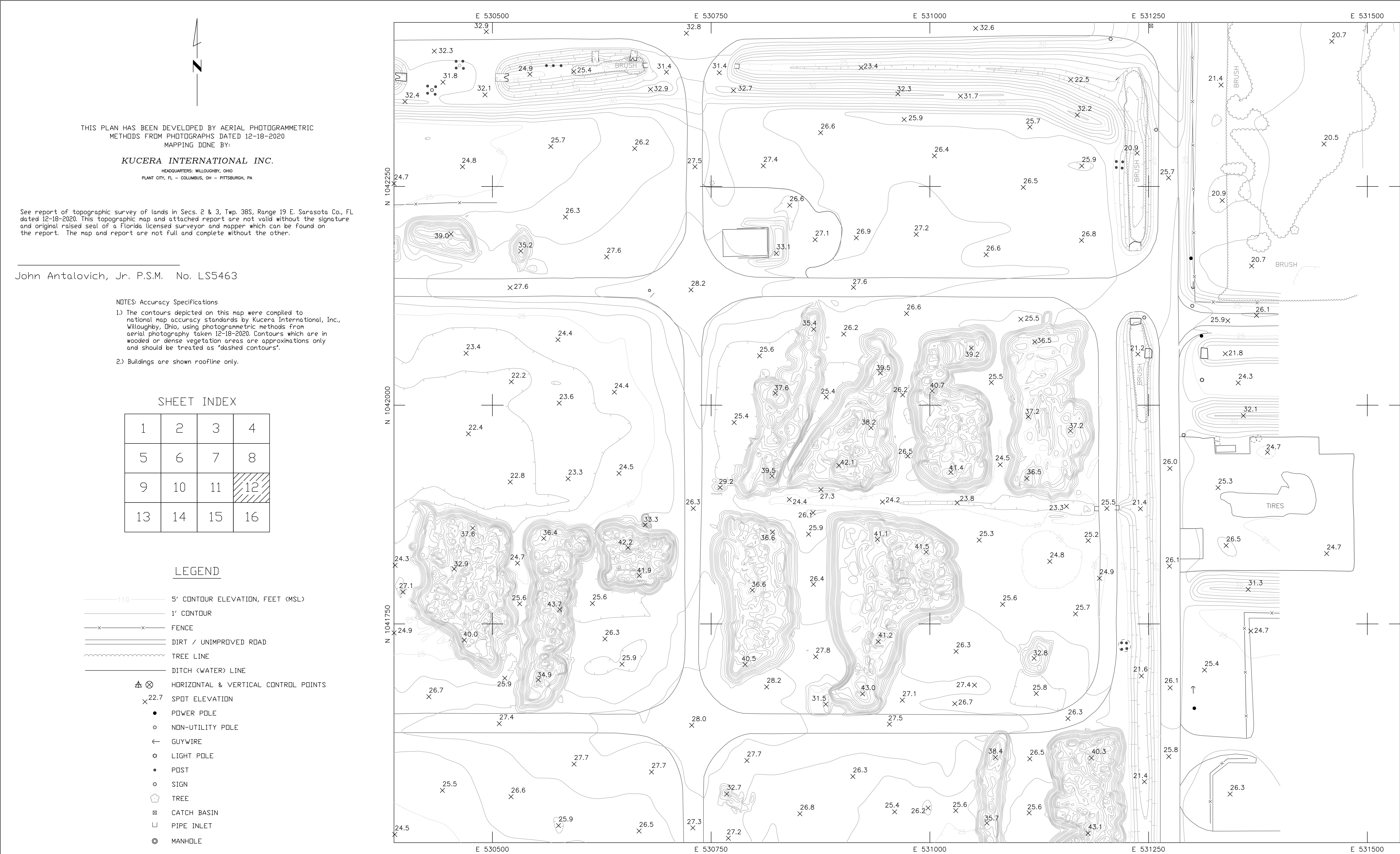
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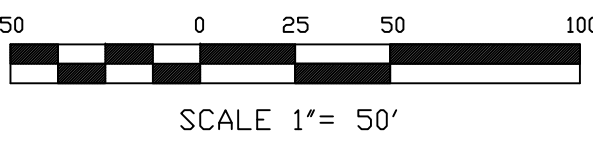
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Nokomis, Florida 34275

Revisions

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SITE TOPOGRAPHIC MAP
NOKOMIS, FL

SARASOTA LANDFILL

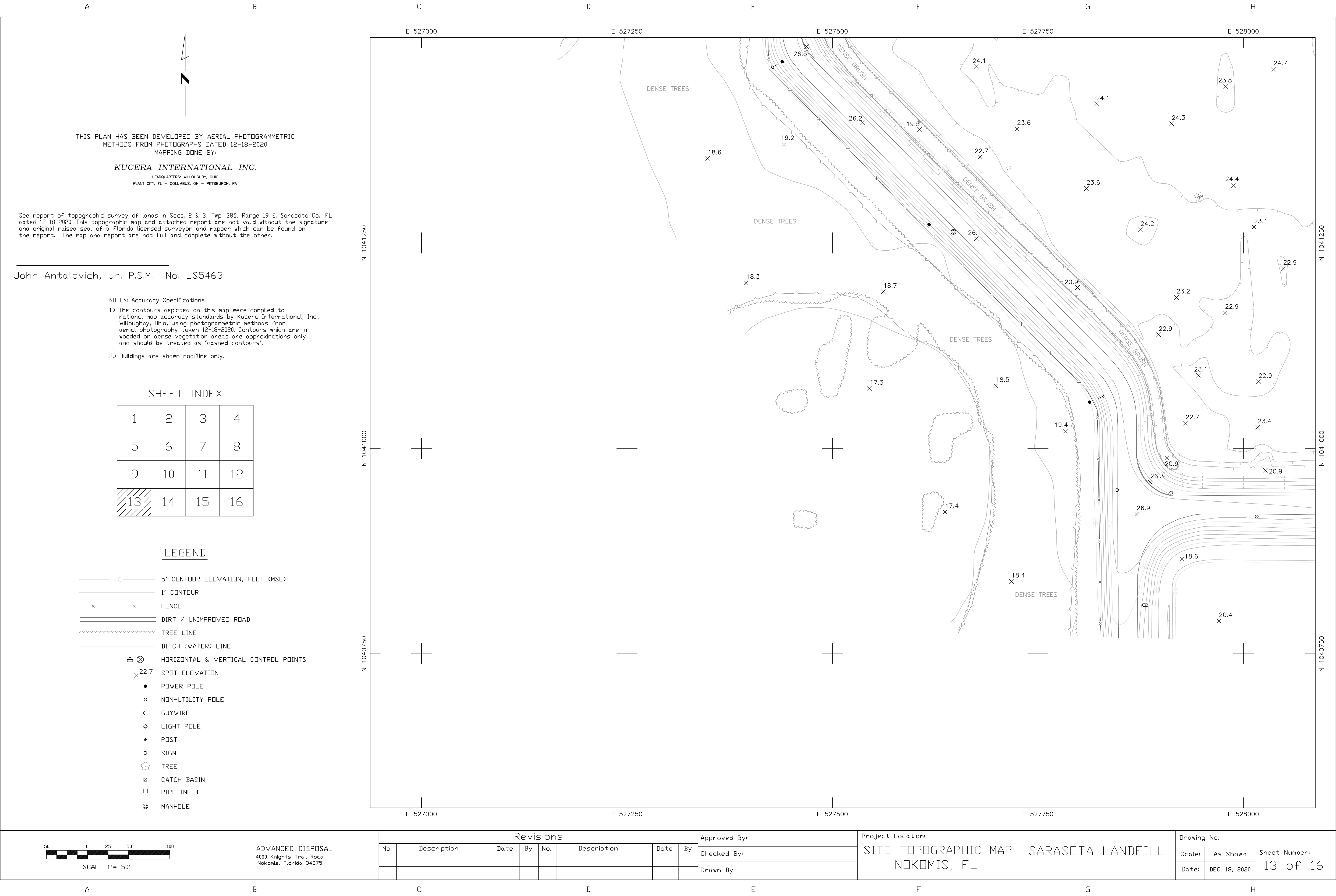
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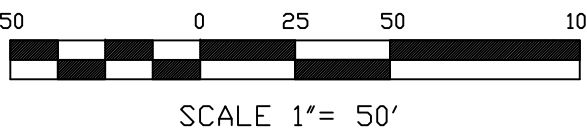
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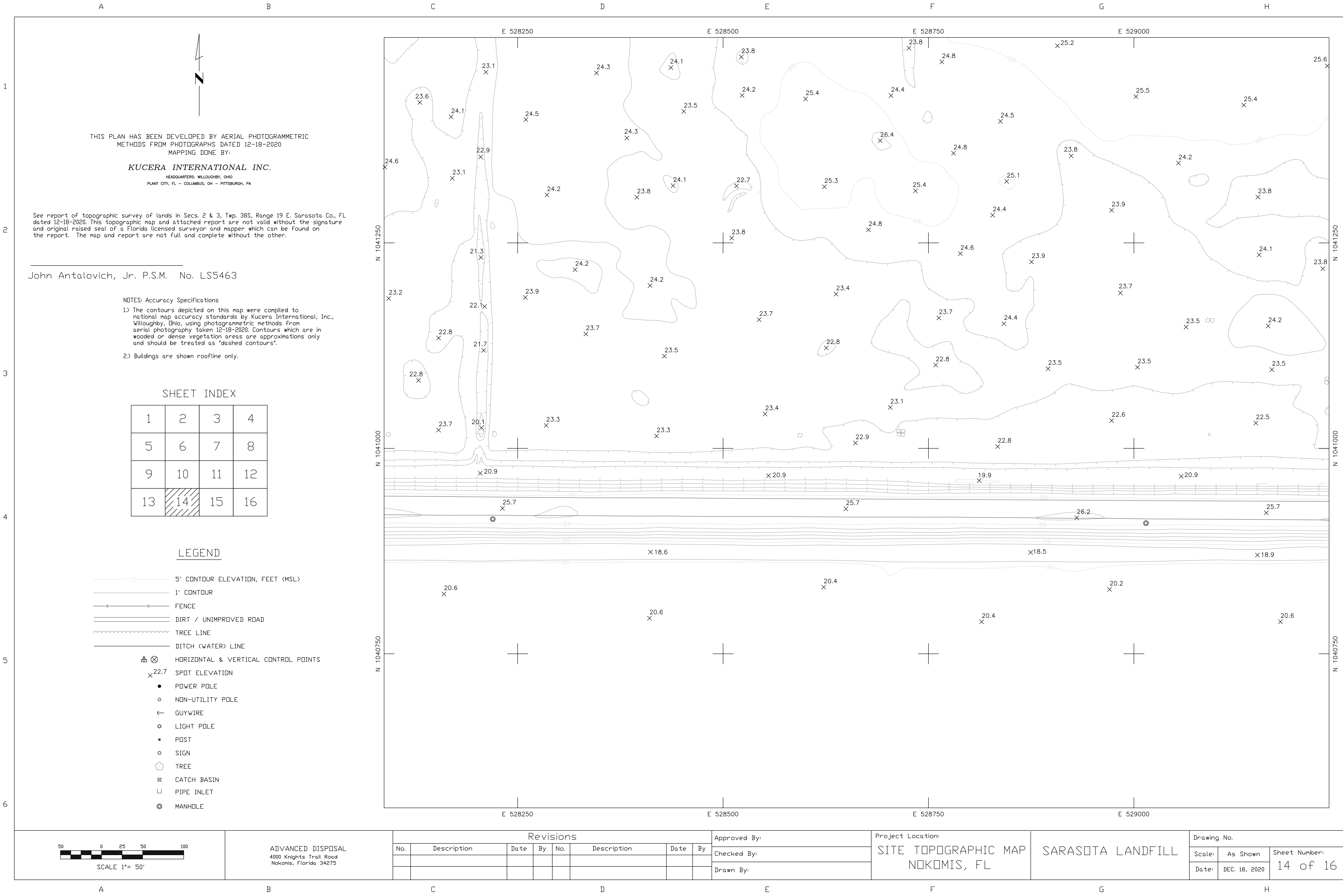
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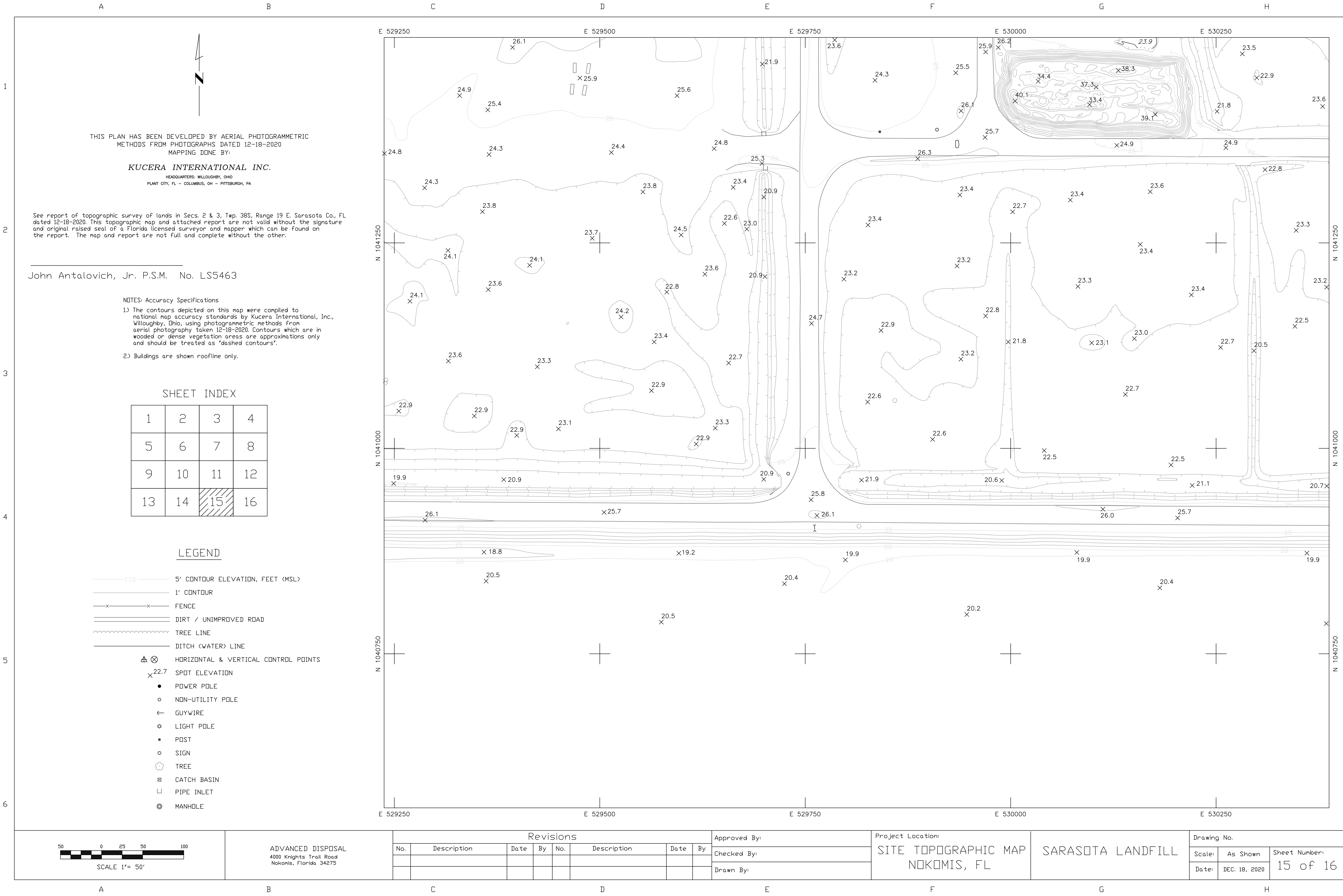
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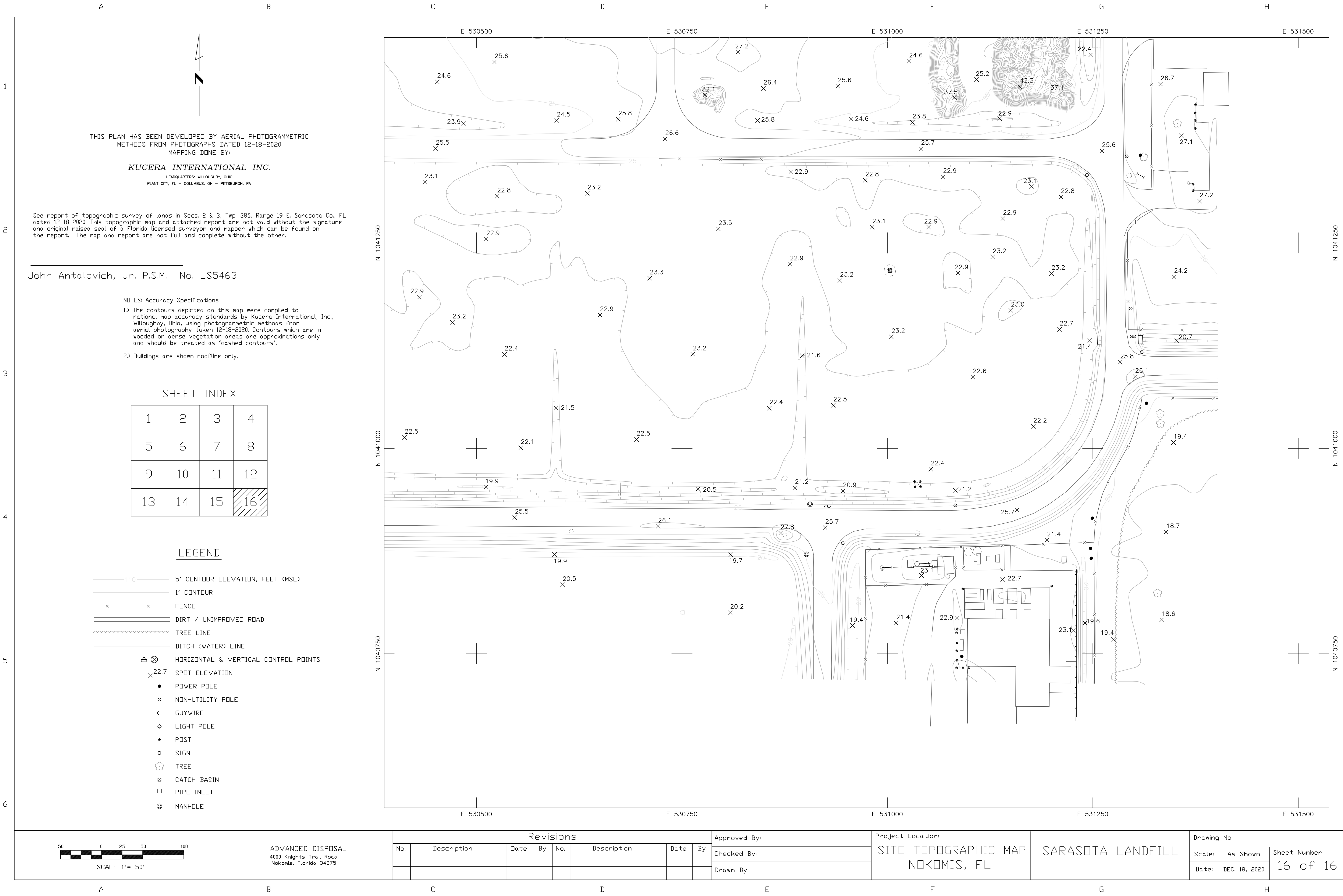
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SARASOTA LANDFILL

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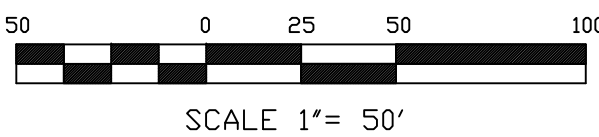
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4000 Knights Trail Road
Nokomis, Florida 34275

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NOKOMIS, FL

SARASOTA LANDFILL

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