

April 10, 2018

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# 0130542-027-SO/MM)
WACS No. 51614
Annual Topographic Survey and Remaining Site Life Report - 2017

To Whom It May Concern:

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 Department is pleased to submit the annual topographic survey and remaining site life report. As shown in the supporting calculations the Phase II Class I Landfill Area has approximately 5.4 years of remaining site life from December 5, 2017 assuming a moderate increase in waste tonnage per year until reaching capacity. The topographic survey dated December 5, 2017, performed by Kucera International, Inc. and provided in Attachment A, 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 selecting an engineer to begin design of the Phase III Landfill Expansion given that the Phase II Landfill is nearing 5 years in remaining capacity.

The following calculations are provided in support of the site life determination.

Objective:

Calculate the remaining landfill air space and site life in the Phase II Landfill Area located at the Central County Solid Waste Disposal Complex. The Phase I Landfill Area was closed as of November 2011 (closure certification received from FDEP in June 2013) and did not receive any waste during the subject period.

Knowns:

- Topographic survey prepared by Kucera International, Inc. dated December 5, 2017 and provided to the Sarasota County Solid Waste Department by Advanced Disposal, Inc. The signed and sealed report of survey and topographic survey map sheets are provided in Attachment A for reference.
- The volume of air space used in Phase II as calculated using AutoCADD by comparing the December 2016 to December 2017 topographic survey. Please refer to the volume report generated by AutoCADD for comparison of these surfaces.
- Solid Waste tonnage from December 3, 2016 to December 4, 2017 as reported by scale records for the date range. Please refer to the table provided in Attachment C.

Assumptions:

- Total Phase II Air Space= 6,000,000 cu. yards.
- The final cover soil volume is based on 3 feet of soil which includes a 1.0 foot intermediate cover layer, 1.5 foot protective final cover layer, and 0.5 foot vegetative cover soil layer.
- The final cover surface area for Phase II is 2,659,448 square feet (61.1 acres).
- Final Cover Soil Volume= 3 feet x 2,659,448 sq. feet / 27 feet/cu. yard= 295,494 cu. yards.
- Operational Air Space Used in Phase II as of December 5, 2017 calculated by adding volume of waste filled in 2017 found from comparing surface of waste fill from December 3, 2016 topographic survey to surface of waste fill from December 5, 2017 topographic survey and adding total air space consumed from 2016 report.
- Average Monthly Waste Acceptance Rate was 24,981 tons/month (based on December 2016 through November 2017, this does not include December 1 – December 4, 2017). See table provided in Attachment C.
- Apparent Landfill Density equal to contractual density of 1,336 lbs/cu. yards. The apparent landfill density is waste tonnage measured by the scales divided by the Operational Air Space Used which includes waste and initial (daily) cover soils.
- Operational Air Space Available, Used, and Remaining include the volume of waste and initial (daily) cover soils.

Calculations:

1. Total Phase II Air Space- Final Cover Soil Volume = Operational Air Space Available

$$6,000,000 \text{ cu. yards} - 295,494 \text{ cu. yards} = 5,704,506 \text{ cu. yards}$$

2. Operational Air Space Available – (Operational Air Space Used in Phase II as of December 15, 2015) – (Operational Air Space Used between December 15, 2015 and December 3, 2016) - (Operational Air Space Used between December 3, 2016 and December 5, 2017) = Operational Air Space Remaining

$$5,704,506 \text{ cu. yards} - 1,984,445 \text{ cu. yards} - 408,986 \text{ cu. yards} - 605,842 \text{ cu. yards} = 2,705,233 \text{ cu. yards}$$

3. Operational Air Space Remaining X Apparent Landfill Density = Remaining Waste Tonnage

$$2,705,233 \text{ cu. yards} \times 1,336 \text{ lbs/cu. yard} / 2,000 \text{ lbs/ton} = 1,807,096 \text{ tons}$$

4. Remaining Waste Tonnage / Average Monthly Waste Acceptance Rate = Remaining Site Life

$$1,807,096 \text{ tons} / 24,981 \text{ tons/month} = 72.3 \text{ months} = 6.0 \text{ years from December 5, 2017}$$

Therefore, the Phase II Landfill is projected to reach capacity on or about the beginning of December 2023 assuming 0% increase in waste tonnage through the operational life of Phase II. This is in contrast to the projected date of July 2024 from the April 2017 site life report. The decrease in site life of approximately 7 months is attributed to the increased volume used in 2017 due to the placement of select waste in Subcell 3 during flooring of the subcell which reduces the overall compaction efficiency of the waste placement operation as well as a 3.57% increase in waste accepted at the facility in 2017. The volume is expected to be made up in subsequent years through settlement which will allow for additional waste tonnage to be placed in the available airspace.

Using a year-to-year tonnage increase of 3.57%, which was the increase in tonnage from 2016 to 2017 in calendar year tonnage, the remaining site life of the Phase II Landfill is currently estimated as 5.4 years. This results in Phase II reaching capacity on or about April 2023. Please refer to the calculation sheet provided in Attachment D.

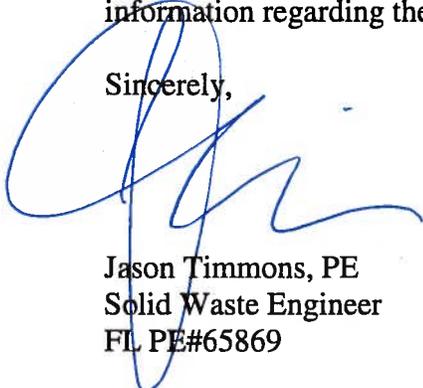
FDEP South District

April 10, 2018

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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,

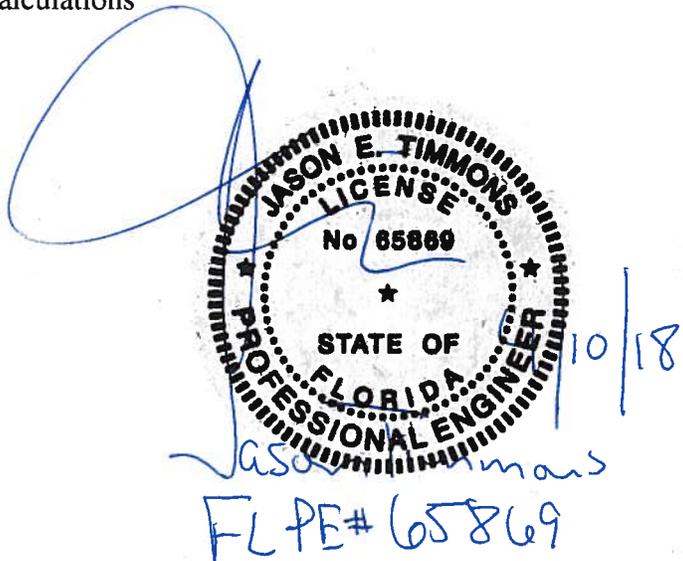


Jason Timmons, PE
Solid Waste Engineer
FL PE#65869

Xc: Lois Rose, Sarasota County
File

Attachments (4)

- Attachment A - Topographic Survey
- Attachment B - Volume Report
- Attachment C - Tonnage Report
- Attachment D - Site Life Calculations



Jason Timmons
FL PE# 65869

ATTACHMENT A

TOPOGRAPHIC SURVEY

Survey Report for Sarasota Landfill

Kucera International Project No: 36487 Sarasota Landfill & Stockpile #3
Type of Survey: Topographic Survey
Date of Survey: This map is based on aerial photography collected December 5, 2017
Site: Sarasota Landfill
Client: Advanced Disposal

Accuracy Statement:

This survey meets or exceeds National Map Accuracy Standards. Ninety percent of the mapping is meeting or exceeding the tolerances stated below when the photogrammetric value is compared to a field survey value for well-defined features. This mapping also meets or exceeds the Florida Minimum Technical Standards.

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 in December 2017 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 III.

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



KUCERA
INTERNATIONAL INC.

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

Targeted Control Points 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
09	1047463.642300	526879.439100	20.011700	4X4 TARGET
14	1047444.490500	528984.371400	21.627400	4X4 TARGET
27	1046971.015800	527450.365800	19.506700	2X2 TARGET
81	1044630.233600	527525.384100	26.076600	2X2 TARGET
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	4X4 TARGET
119	1042411.786200	529755.032100	32.946900	4X4 TARGET
124	1042440.200800	531272.572300	28.324100	4X4 TARGET
133	1042134.851800	531273.045100	25.846400	4X4 TARGET
142	1042134.303100	531239.923500	25.531100	NE COR STOR BAR
145	1042023.827900	532326.663200	26.009300	SOUTH END OF 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	4X4 TARGET
179	1039211.639600	532158.828200	22.190500	2X2 TARGET
187	1038299.345900	530821.690000	21.582100	2X2 TARGET
198	1039182.125300	528074.549800	20.622300	TIP OF ARROW
204	1040770.367400	527860.833500	24.526700	4X4 TARGET
212	1041737.330700	527449.924700	25.793800	CROSS ON YELLOW
221	1040929.455700	528304.911200	26.024000	4X4 TARGET
224	1040920.881500	529879.842000	25.783000	4X4 TARGET
228	1042983.224700	527446.202800	25.820700	SOUTH END YELLOW
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
262	1046093.0954	528693.2866	19.76000	4X4 TARGET
265	1046422.2344	527785.0215	18.06	2X2 TARGET



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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

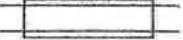
DZ – Difference in Elevation



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Legend

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

Measurement Methods:

This map was produced using aerial photogrammetric methods using photography captured on December 5, 2017 using an UltraCam Eagle digital camera. The imagery was collected at a flight height of 4300' 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 I. The existing mapping was then updated using BAE Socet Set combined with Cardinal Systems VR-1 mapping software. Areas of change were delineated and the existing breakline and mass point information was updated. Contours in the changed area were generated using Cardinal Systems VR-1 mapping software and the data was tied into the existing mapping. 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. Finally a vertical accuracy test was performed on 23 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 II. The vertical accuracy test yielded an accuracy of 0.410' at 95% confidence.

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:  _____

Kucera International Inc. License No.: _____ LB6643



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APPENDIX I

Horizontal / Vertical Control Point Residuals (US Feet)

Point ID	Residual X US Feet	Residual Y US Feet	Residual Z US Feet	Type
9	-0.195	-0.149	0.066	HV
14	-0.181	0.043	0.091	HV
88	-0.042	-0.013	-0.067	HV
107	-0.055	0.018	0.009	HV
119	-0.039	-0.012	0.069	HV
153	-0.008	0.014	0.000	HV
161	0.069	0.183	-0.025	HV
179	0.110	-0.063	0.001	HV
187	0.194	-0.090	-0.035	HV
224	0.079	0.039	0.005	HV
262	0.055	0.047	-0.039	HV

Type:

HV – horizontal and vertical

VE – vertical only



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APPENDIX II

Vertical Accuracy Test

PID	Survey Northing	Survey Easting	Survey Elevation	TIN Elevation	DZ
27	1046971.016	527450.366	19.5067	19.4	0.11
81	1044630.234	527525.384	26.0766	26.155	-0.08
95	1043963.698	528453.465	25.8848	25.46	0.42
102	1043892.128	529898.838	25.5929	25.61	-0.02
110	1042293.307	527196.111	25.7906	25.68	0.11
115	1042430.99	528354.207	40.9023	40.45	0.45
124	1042440.201	531272.572	28.3241	28.35	-0.03
133	1042134.852	531273.045	25.8464	25.88	-0.03
142	1042134.303	531239.924	25.5311	25.83	-0.30
145	1042023.828	532326.663	26.0093	25.892	0.12
166	1040970.927	532821.345	23.8334	23.911	-0.08
173	1040945.421	531197.043	25.8611	25.52	0.34
198	1039182.125	528074.55	20.6223	20.862	-0.24
204	1040770.367	527860.834	24.5267	24.57	-0.04
212	1041737.331	527449.925	25.7938	26.09	-0.30
221	1040929.456	528304.911	26.024	25.85	0.17
228	1042983.225	527446.203	25.8207	26.09	-0.27
241	1039469.294	527970.534	21.0711	21.018	0.05
248	1039461.95	527133.724	22.9707	22.971	0.00
256	1046028.904	526217.226	24.11	24.213	-0.10
265	1046422.234	527785.022	18.06	18.28	-0.22
271	1039022.253	529840.017	21.85	21.95	-0.10
282	1041364.748	529780.812	25.19	24.98	0.21

Vertical RMSE = 0.209'

95% confidence = RMSE x 1.96 = 0.209 x 1.96 = 0.410'



KUCERA
INTERNATIONAL INC.

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

APPENDIX III

Survey Report



KUCERA
INTERNATIONAL INC.

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

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: December 22, 2017

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 December 22, 2017

Method

A Real Time Global Positioning Network and Opus Solutions were performed to establish both horizontal and vertical coordinates on Seventeen Control aerial targets and fifteen checkpoints. 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 Florida Minimum Technical Standards 5J-17.050 to 5J-17.052.

Office and Field Personnel

Daniel L. Van Horn

ABBREVIATIONS

No./# – Number
LB – Licensed Business
Elev. – Elevation
D.O.R. – Department of Revenue
NAD 83 - North American Datum of 1983
NAVD 88 - North American Vertical Datum of 1988
GPS - Global Positioning System

General Notes

1. Type of Survey: Specific purpose survey for target positions.
2. Fieldwork was completed through December 2, 2017.
3. This Survey report or the copies thereof are not valid without the signature and 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 Florida Department of Revenue as meeting or exceeding, in quality and precision, the standards applicable for this work, as set forth in chapter 5J-17.050 to 5J-17.052, Florida administrative code.

Daniel L. Van Horn 12/22/17

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 8 07 2017 KUCERA .DOC

DATE: 12/11/2017
SARASOTA LANDFILL, SARASOTA COUNTY, FLORIDA
NAD 83
NAVD 1929
GEOID 12B
FLORIDA WEST ZONE (902)
2011 HORIZONTAL
REVISED ON 12/11/2017
FIELD BOOK 115 PAGE 12, 13

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

09,1047463.642300,526879.439100,20.011700,4X4 TARGET
14,1047444.490500,528984.371400,21.627400,4X4 TARGET
27,1046971.015800,527450.365800,19.506700,2X2 TARGET
81,1044630.233600,527525.384100,26.076600,2X2 TARGET
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
115,1042430.989600,528354.206600,40.902300,4X4 TARGET
119,1042411.786200,529755.032100,32.946900,4X4 TARGET
124,1042440.200800,531272.572300,28.324100,4X4 TARGET
133,1042134.851800,531273.045100,25.846400,4X4 TARGET
142,1042134.303100,531239.923500,25.531100,NE COR STOR BAR
145,1042023.827900,532326.663200,26.009300,SOUTH END OF 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
173,1040945.421200,531197.042800,25.861100,4X4 TARGET
179,1039211.639600,532158.828200,22.190500,2X2 TARGET
187,1038299.345900,530821.690000,21.582100,2X2 TARGET
198,1039182.125300,528074.549800,20.622300,TIP OF ARROW
204,1040770.367400,527860.833500,24.526700,4X4 TARGET
212,1041737.330700,527449.924700,25.793800,CROSS ON YELLOW
221,1040929.455700,528304.911200,26.024000,4X4 TARGET
224,1040920.881500,529879.842000,25.783000,4X4 TARGET
228,1042983.224700,527446.202800,25.820700,SOUTH END YELLOW
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
262,1046093.0954,528693.2866,19.76000,4X4 TARGET
265,1046422.2344,527785.0215,18.06,2X2 TARGET
271,1039022.2532,529840.0169,21.85,2X2 TARGET CL
282,1041364.7480,529780.8119,25.19,SW COR STOP BAR

A B C D E F G H

E 527000 E 527250 E 527500 E 527750 E 528000

N 1044250 N 1044000 N 1043750 N 1043500



THIS PLAN HAS BEEN DEVELOPED BY AERIAL PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHS DATED 12-05-2017
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 12-05-2017. 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

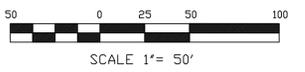
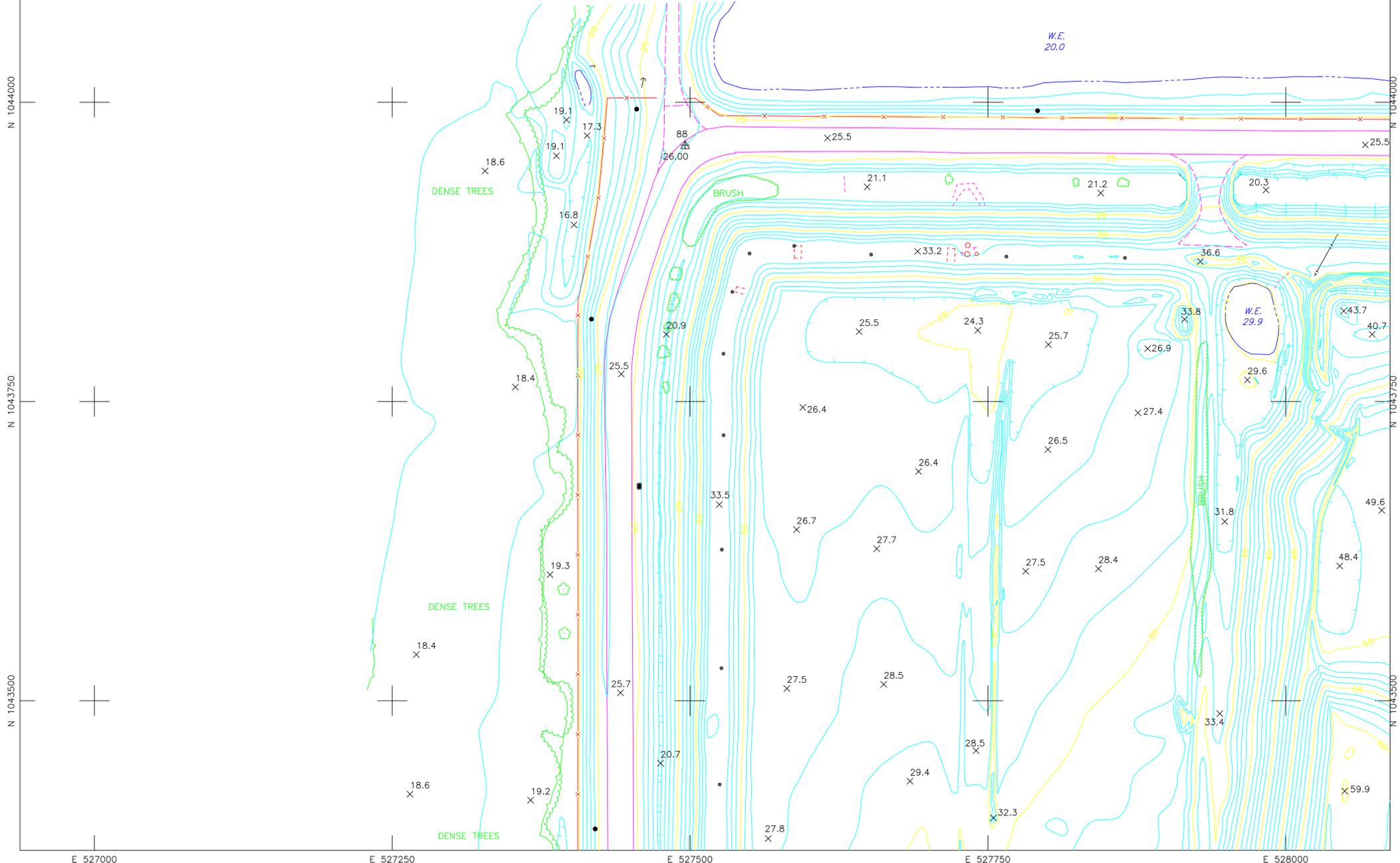
NOTES: Accuracy Specifications
1.) The contours depicted on this map were compiled to national map accuracy standards by Kucera International, Inc., Willoughby, Ohio, using photogrammetric methods from aerial photography taken 12-05-17. Contours which are in wooded or dense vegetation areas are approximations 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 POINT
- SPOT ELEVATION
- POWER POLE
- NON-UTILITY POLE
- GUYWIRE
- LIGHT POLE
- PDST
- 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

Drawing No.		
Scale:	As Shown	Sheet Number:
Date:	DEC. 05, 2017	1 of 16

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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

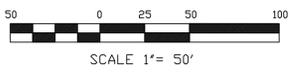
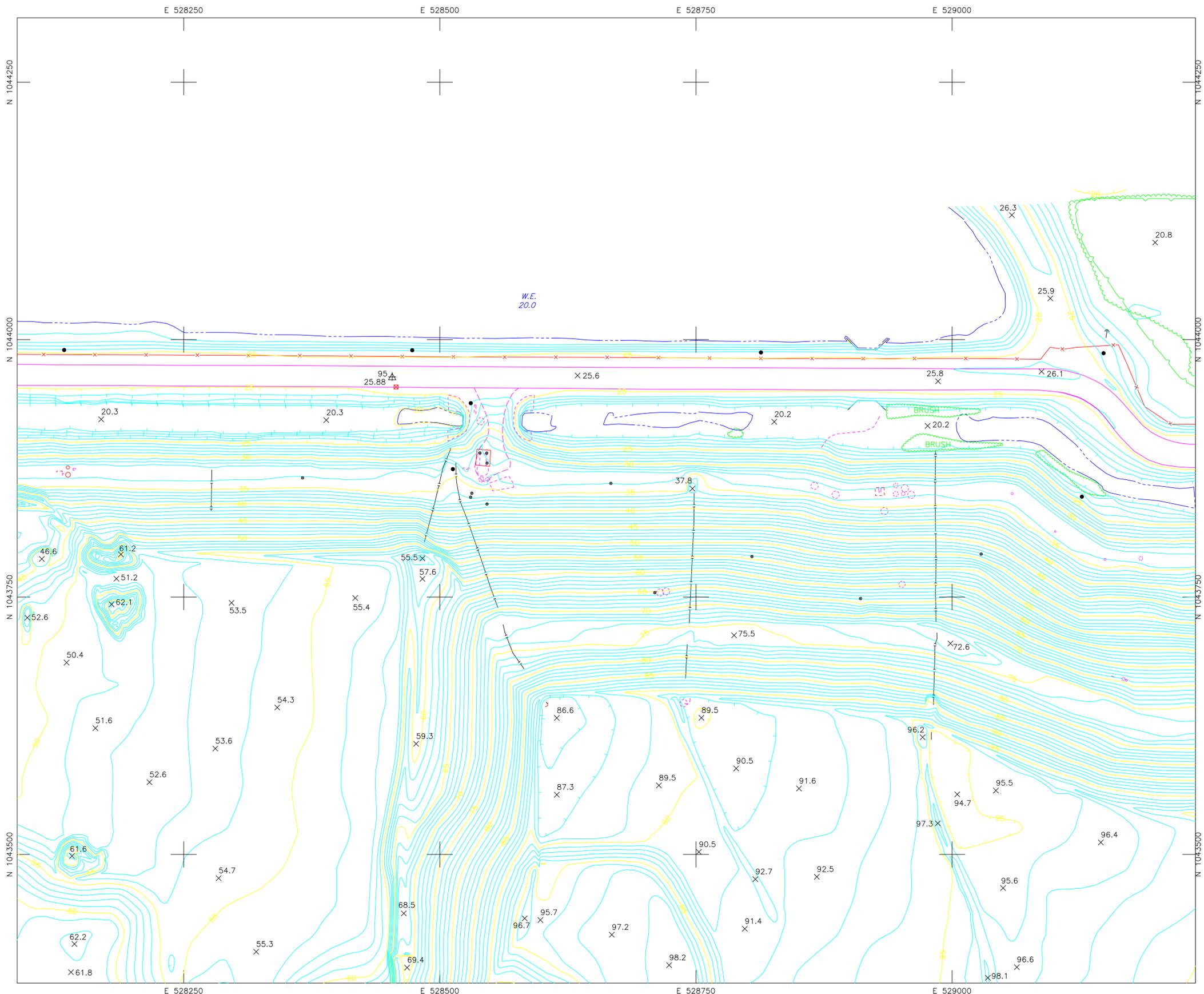
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LEGEND

- 5' CONTOUR ELEVATION, FEET (MSL)
- 1' CONTOUR
- FENCE
- DIRT / UNIMPROVED ROAD
- TREE LINE
- DITCH (WATER) LINE
- HORIZONTAL & VERTICAL CONTROL POINT
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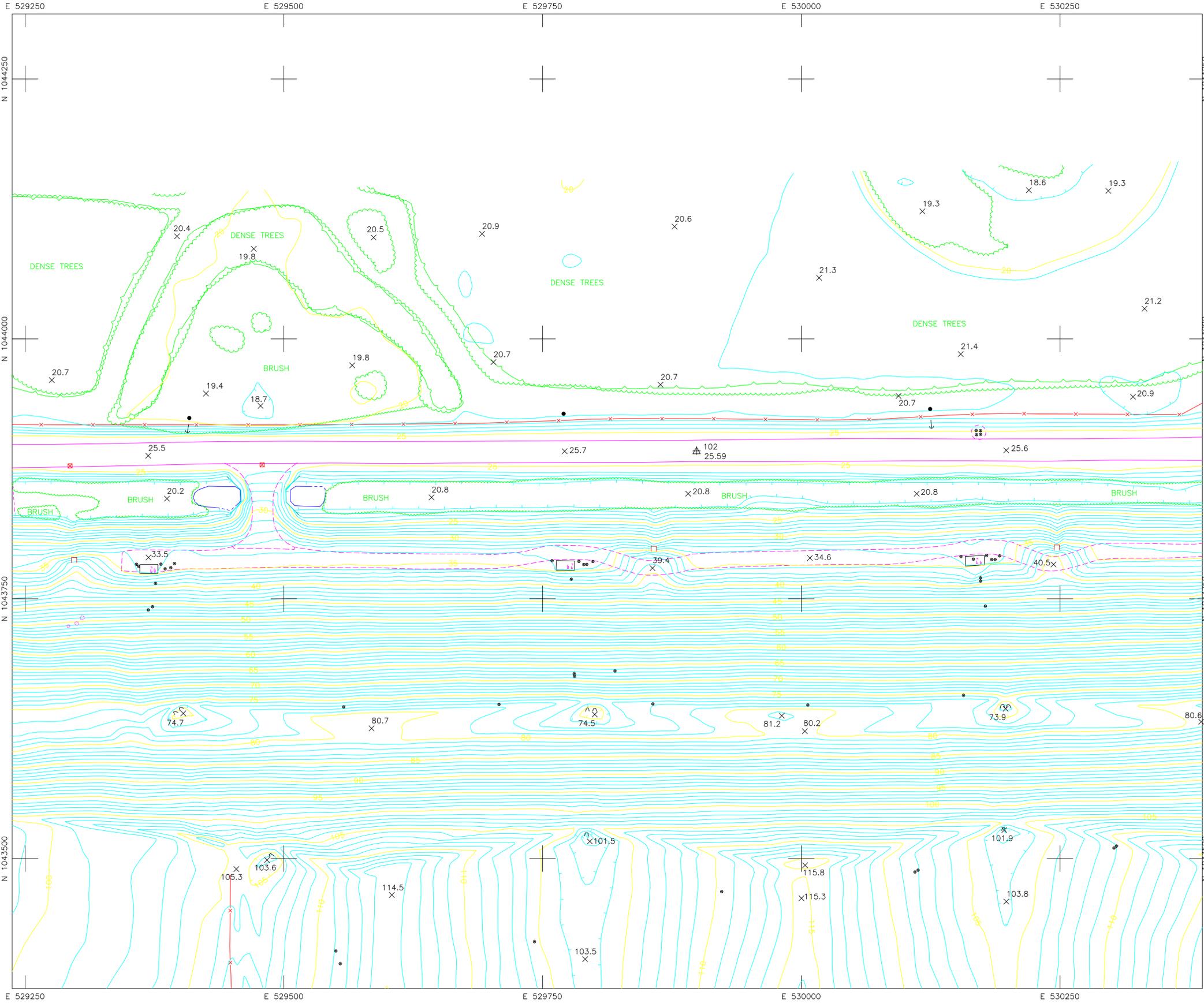
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SITE TOPOGRAPHIC MAP
NOKOMIS, FL

SARASOTA LANDFILL

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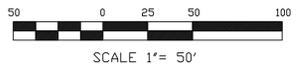
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4000 Knights Trail Road
Nokomis, Florida 34275

Revisions

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Project Location:
SITE TOPOGRAPHIC MAP
NOKOMIS, FL

SARASOTA LANDFILL

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Date: DEC. 05, 2017
Sheet Number:
3 of 16

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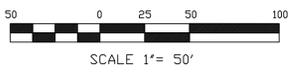
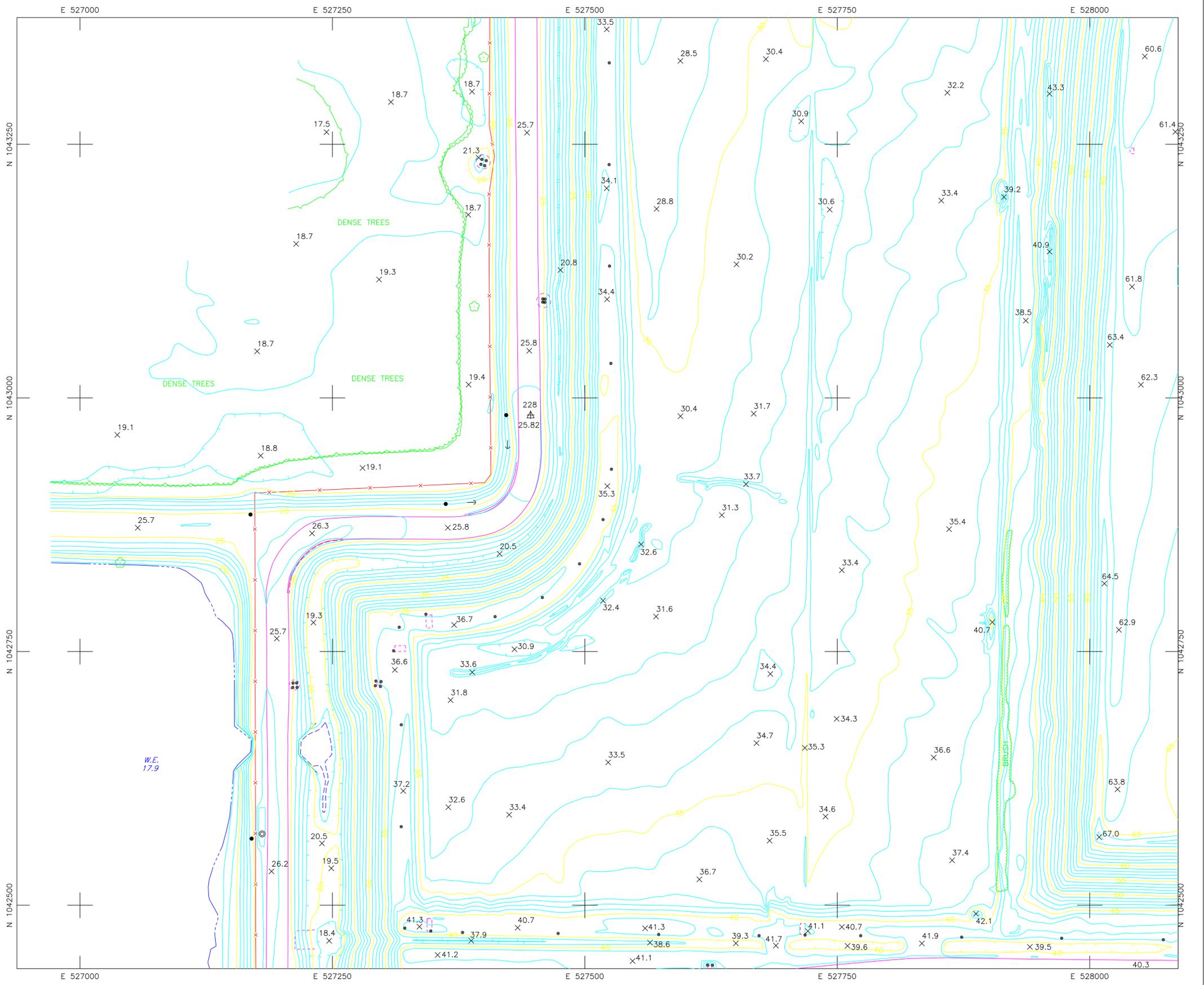
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SARASOTA LANDFILL

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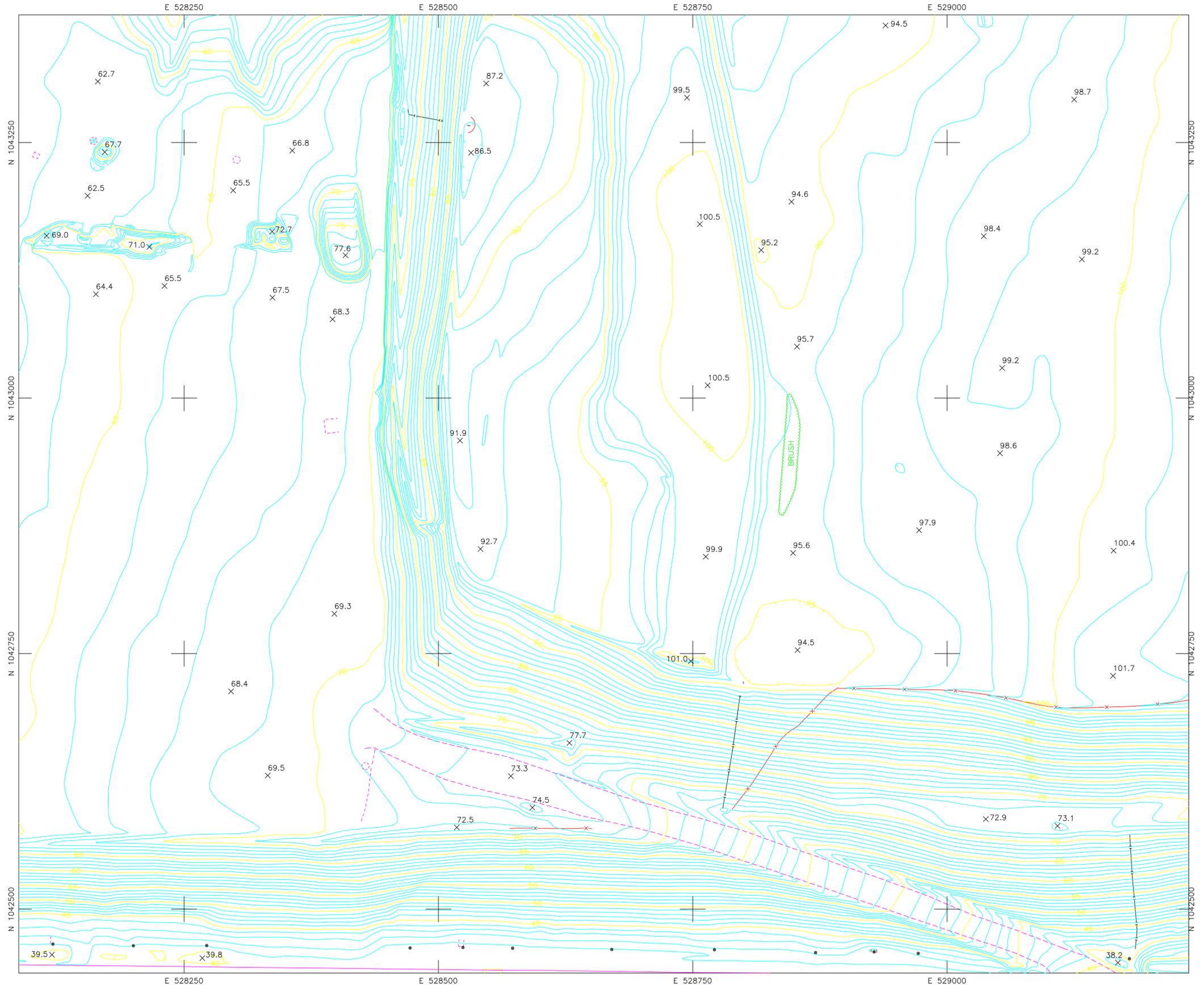
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Nokomis, Florida 34275

Revisions

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Project Location:
**SITE TOPOGRAPHIC MAP
NOKOMIS, FL**

SARASOTA LANDFILL

Drawing No.
Scale: As Shown
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6 of 16



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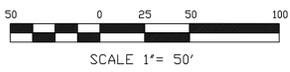
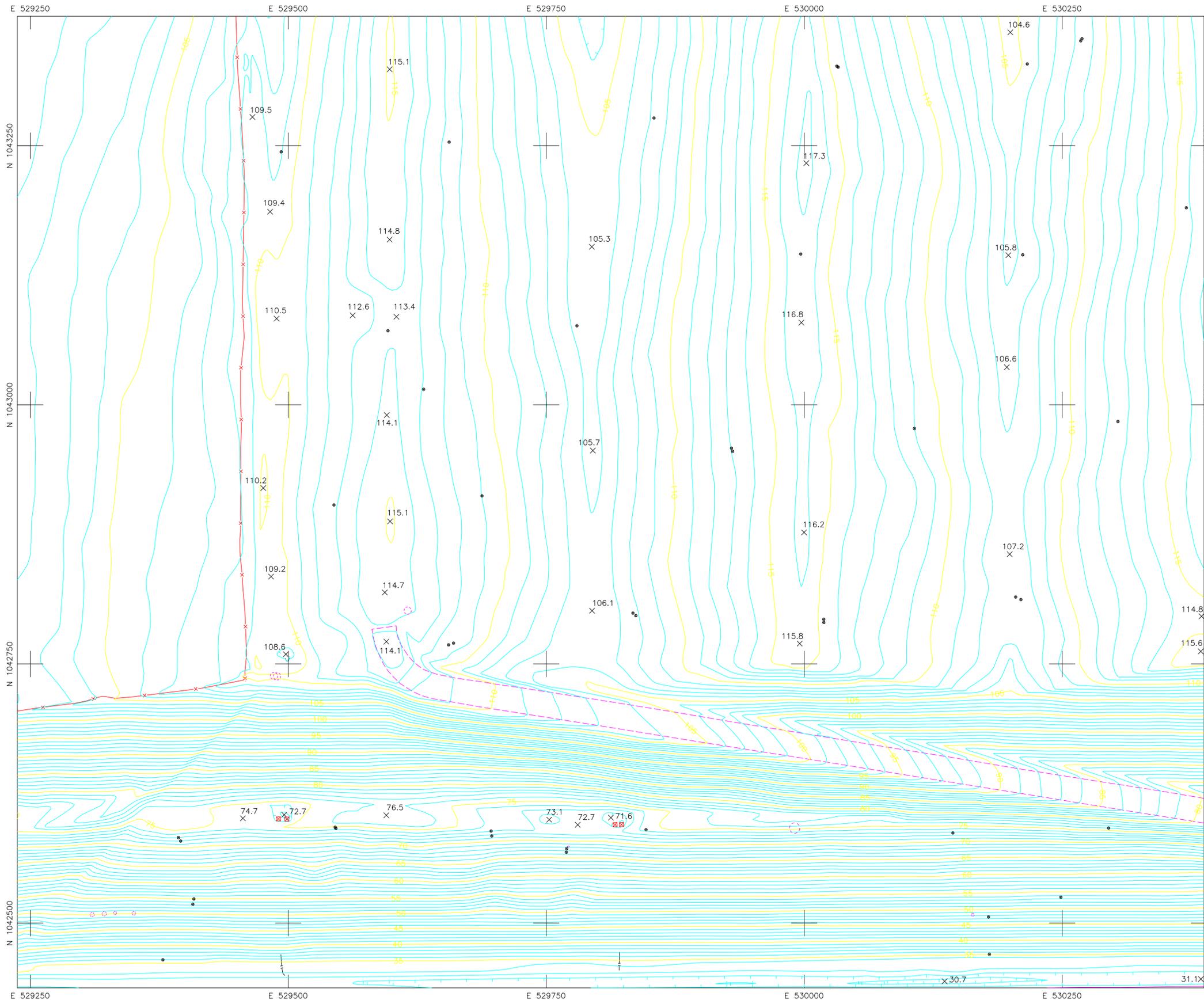
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SARASOTA LANDFILL

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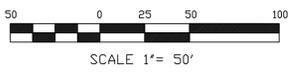
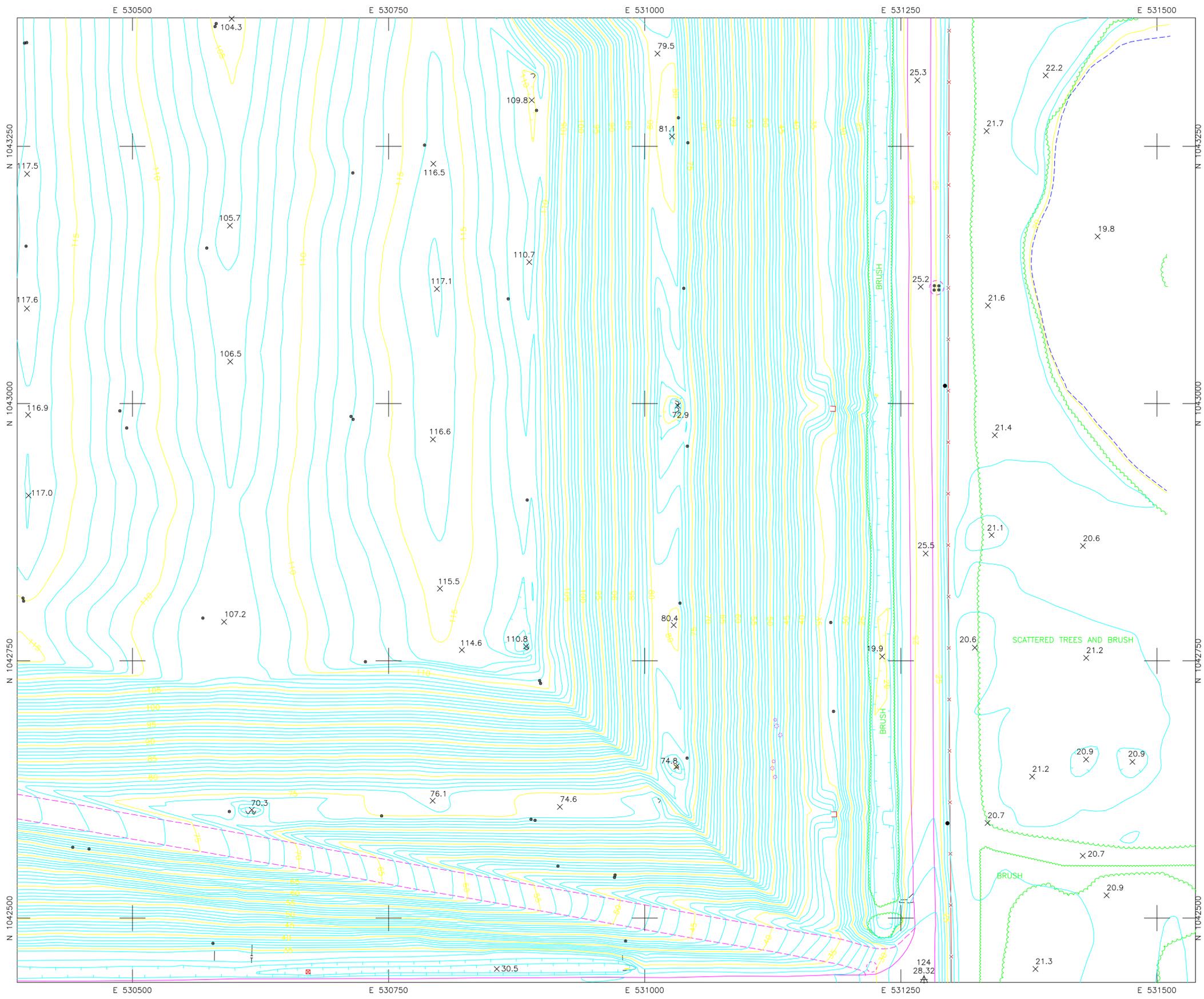
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SARASOTA LANDFILL

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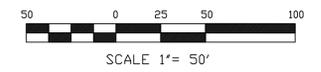
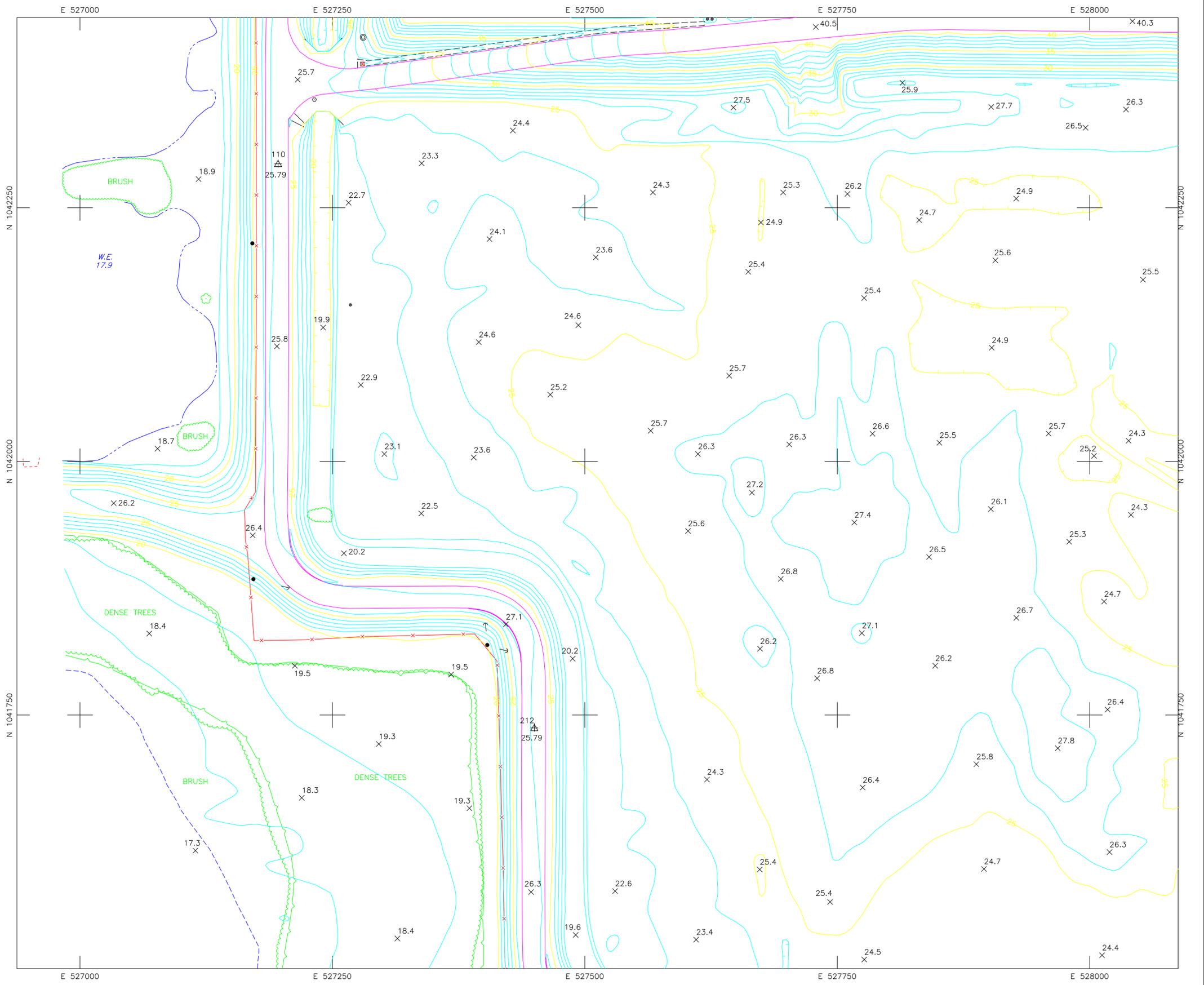
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SARASOTA LANDFILL

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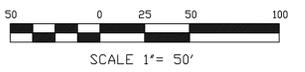
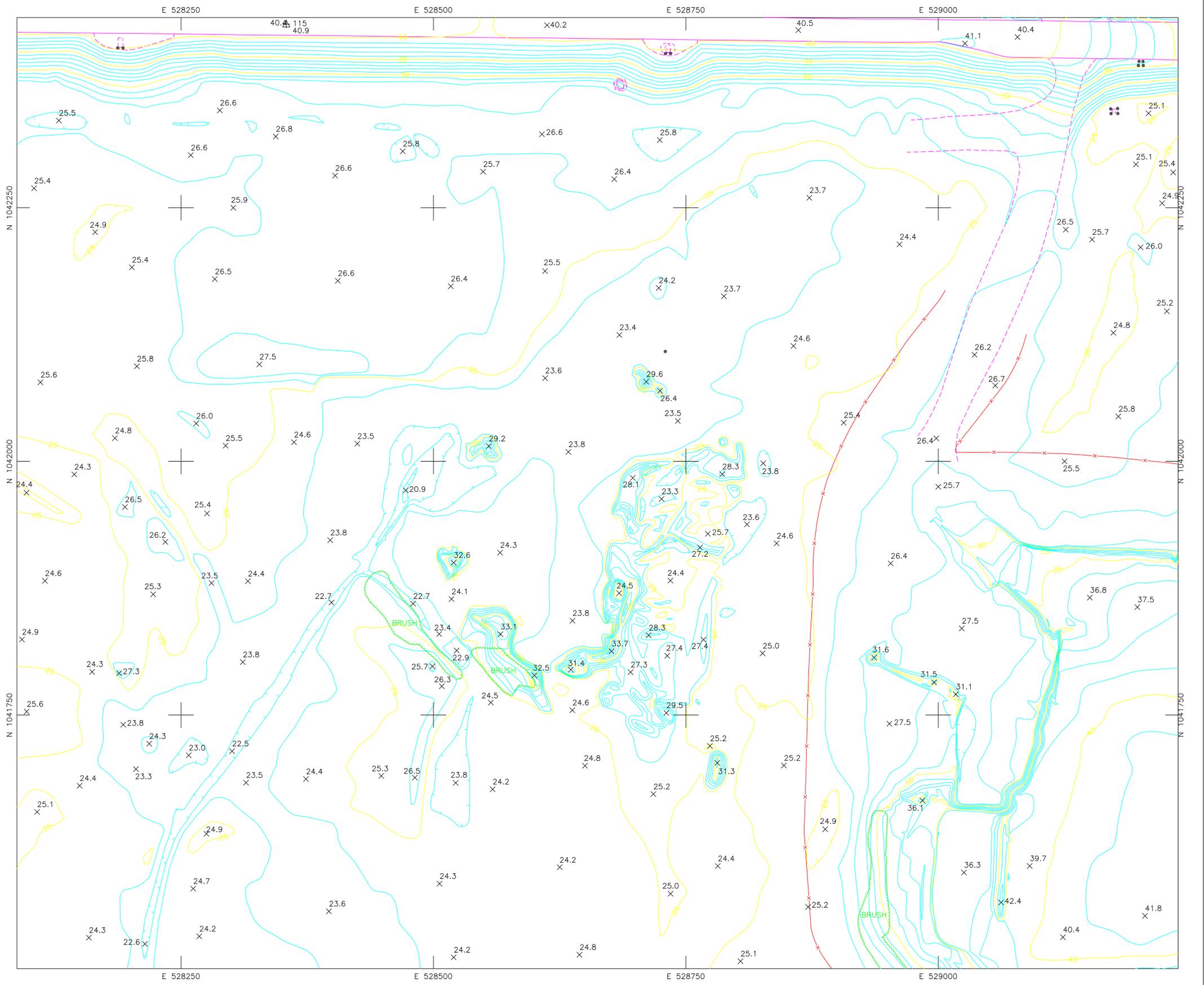
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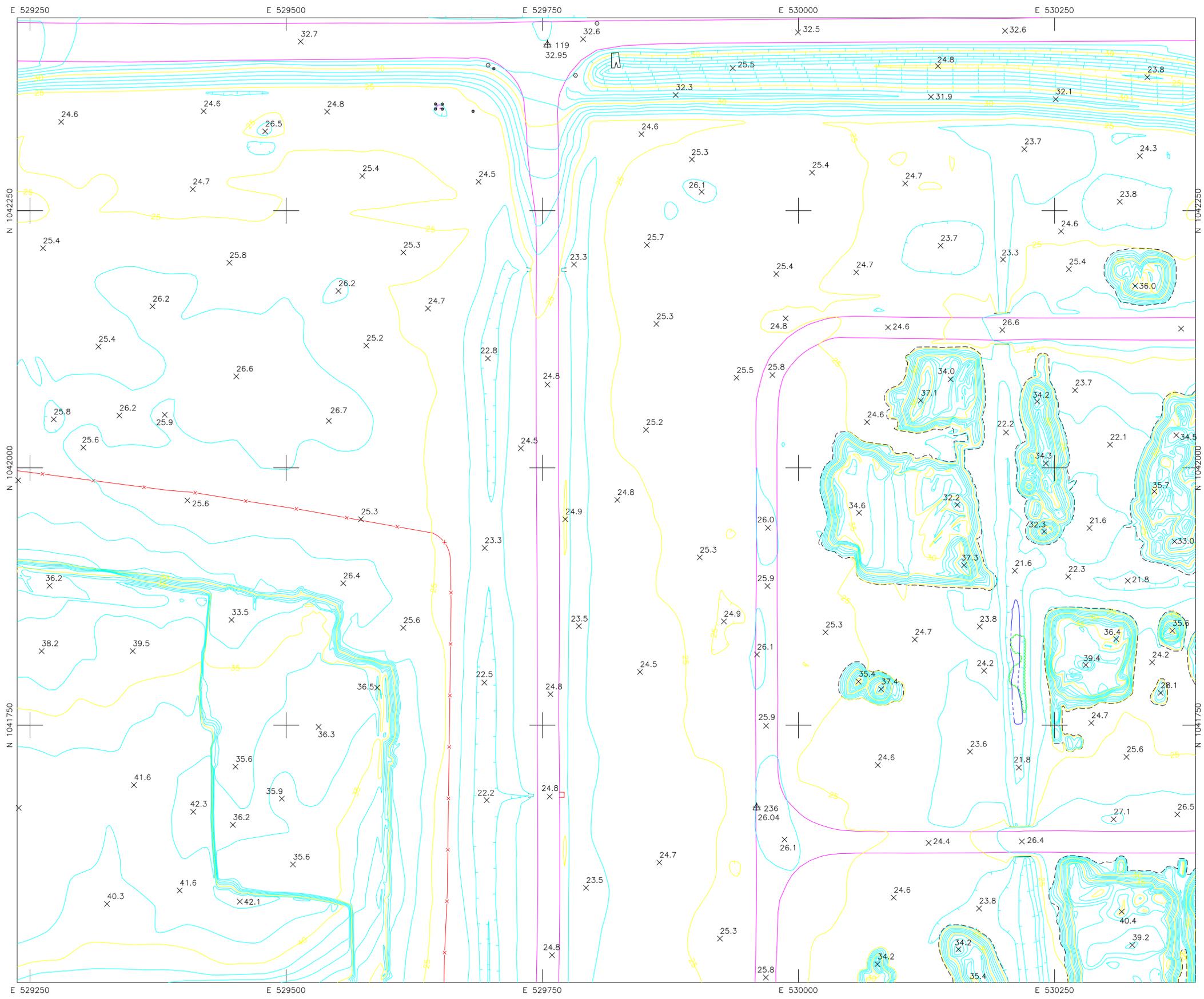
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SARASOTA LANDFILL

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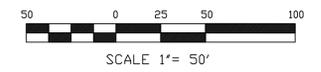
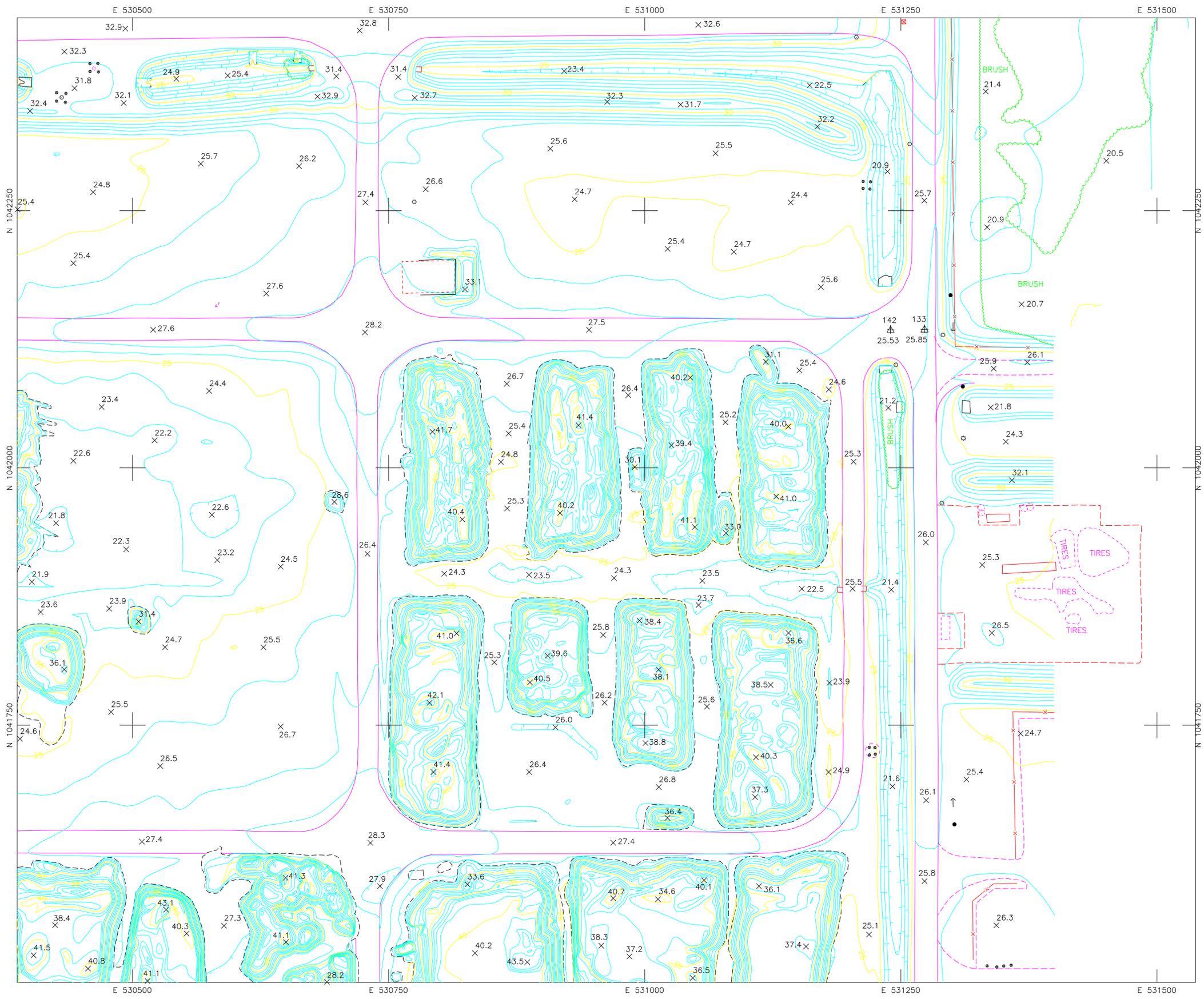
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A B C D E F G H

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THIS PLAN HAS BEEN DEVELOPED BY AERIAL PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHS DATED 12-05-2017
 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 12-05-2017. 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

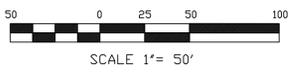
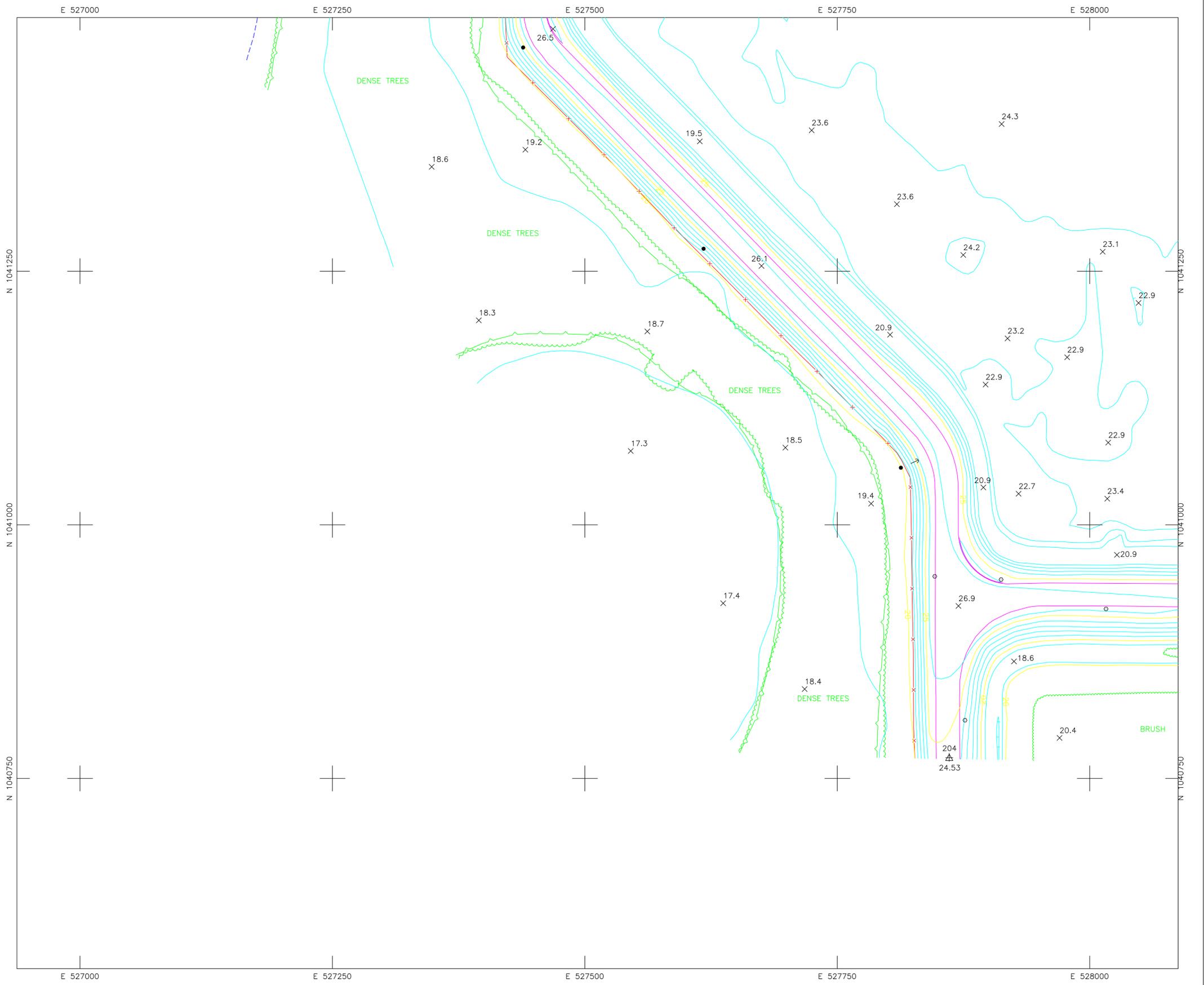
- NOTES: Accuracy Specifications
- 1) The contours depicted on this map were compiled to national map accuracy standards by Kucera International, Inc., Willoughby, Ohio, using photogrammetric methods from aerial photography taken 12-05-17. Contours which are in wooded or dense vegetation areas are approximations 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
- x-x- FENCE
- - - DIRT / UNIMPROVED ROAD
- ~ TREE LINE
- - - DITCH (WATER) LINE
- ▲ HORIZONTAL & VERTICAL CONTROL POINT
- x SPOT ELEVATION
- POWER POLE
- NON-UTILITY POLE
- ← GUYWIRE
- ⊙ LIGHT POLE
- PDST
- 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

Drawing No.		
Scale:	As Shown	Sheet Number:
Date:	DEC. 05, 2017	13 of 16

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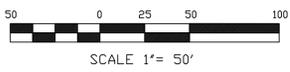
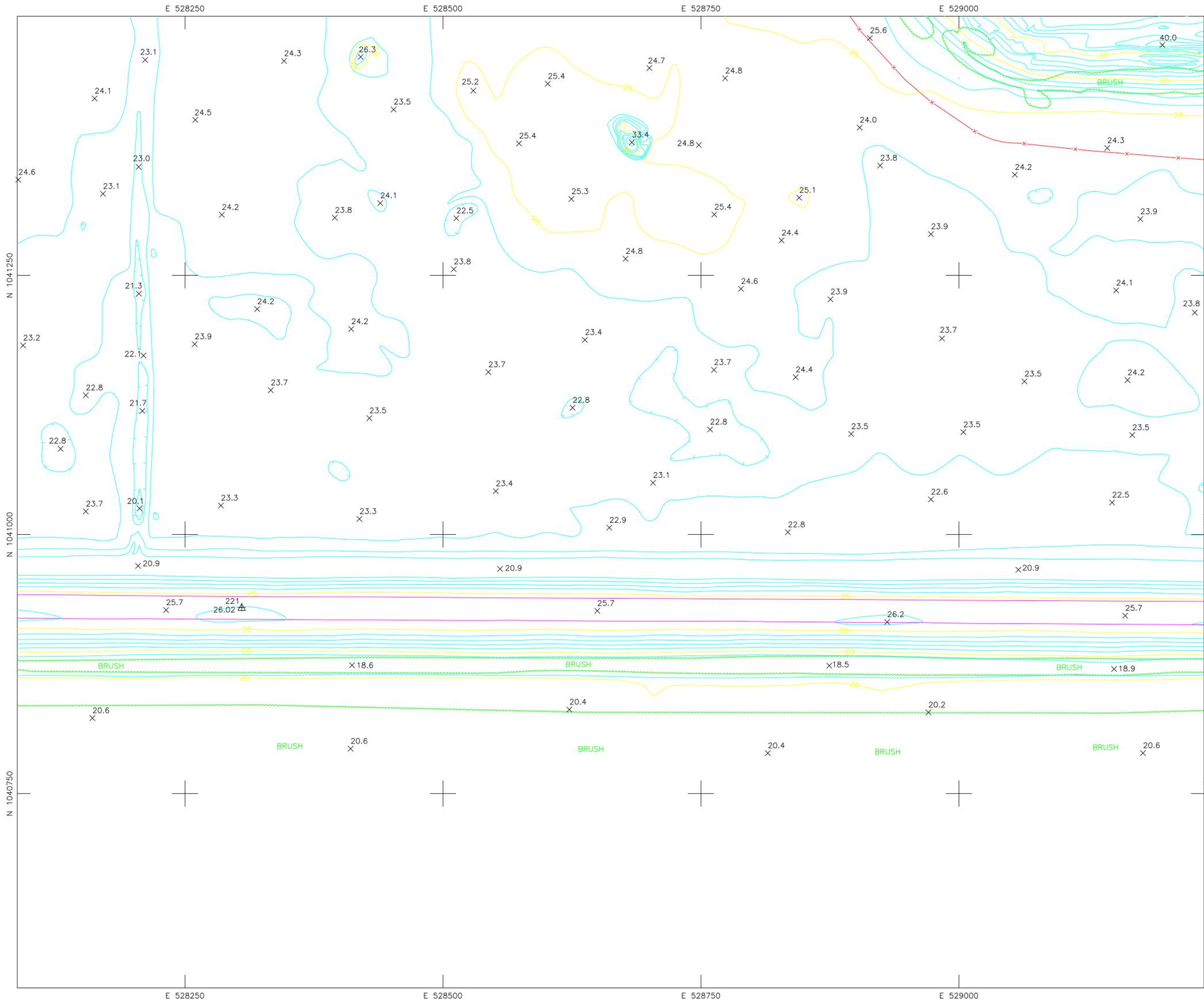
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- - - - DITCH (WATER) LINE
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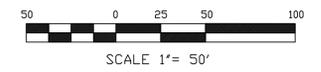
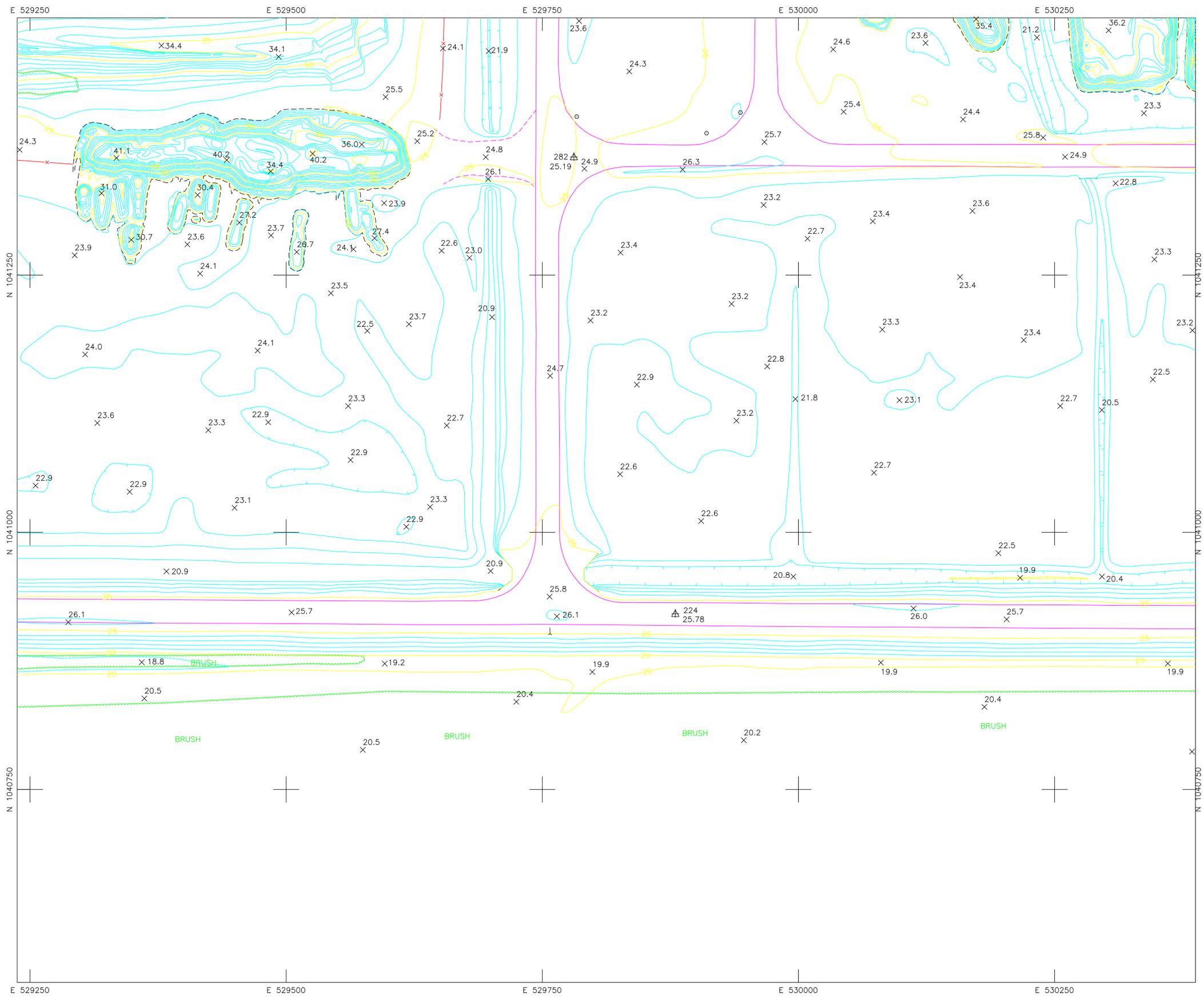
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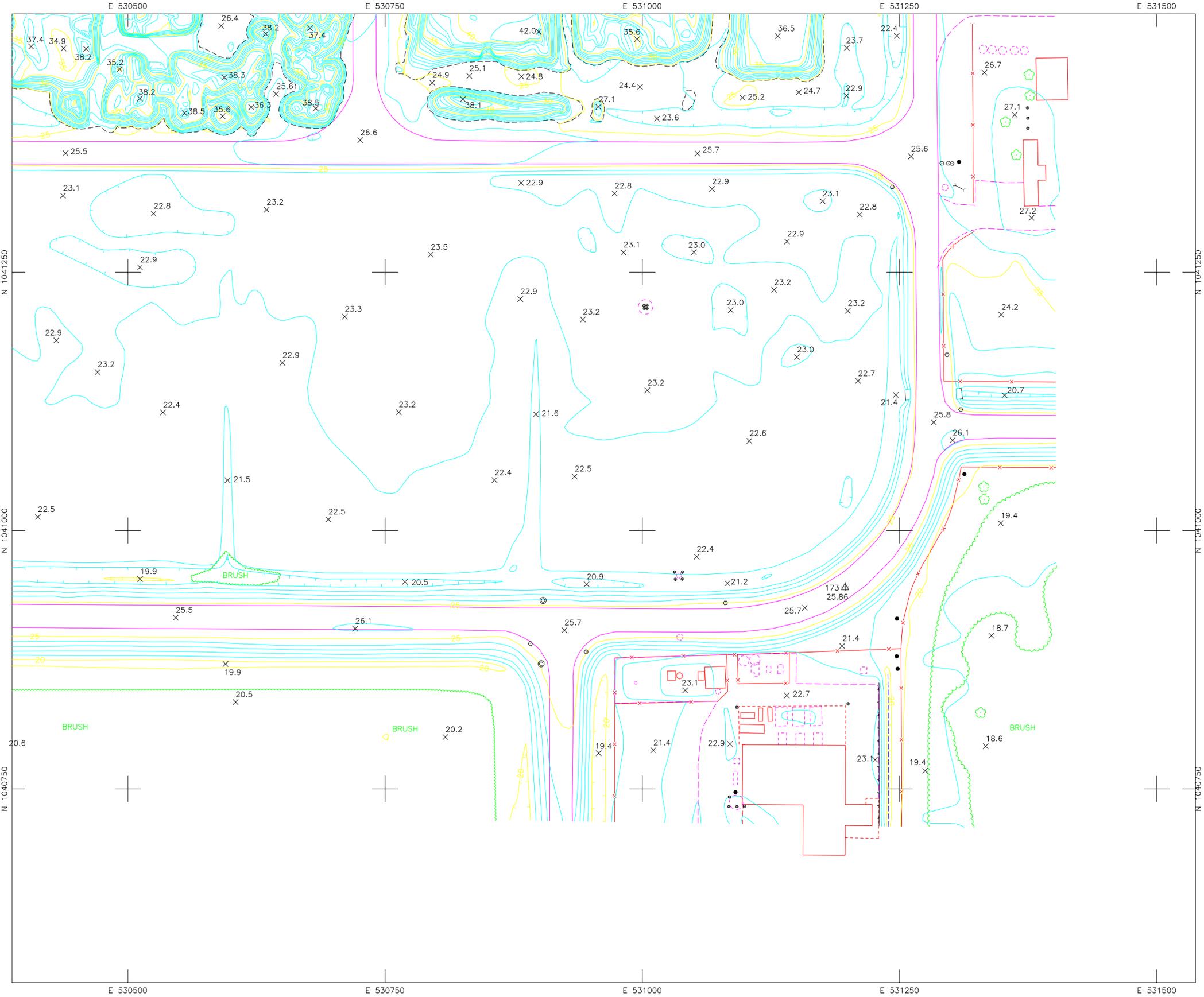
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SARASOTA LANDFILL

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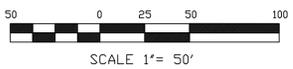
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16 of 16

A B C D E F G H

ATTACHMENT B

AUTOCADD
VOLUME REPORT

Cut/Fill Report

Generated: 2018-04-06 09:01:04

By user: jtimmons

Drawing:

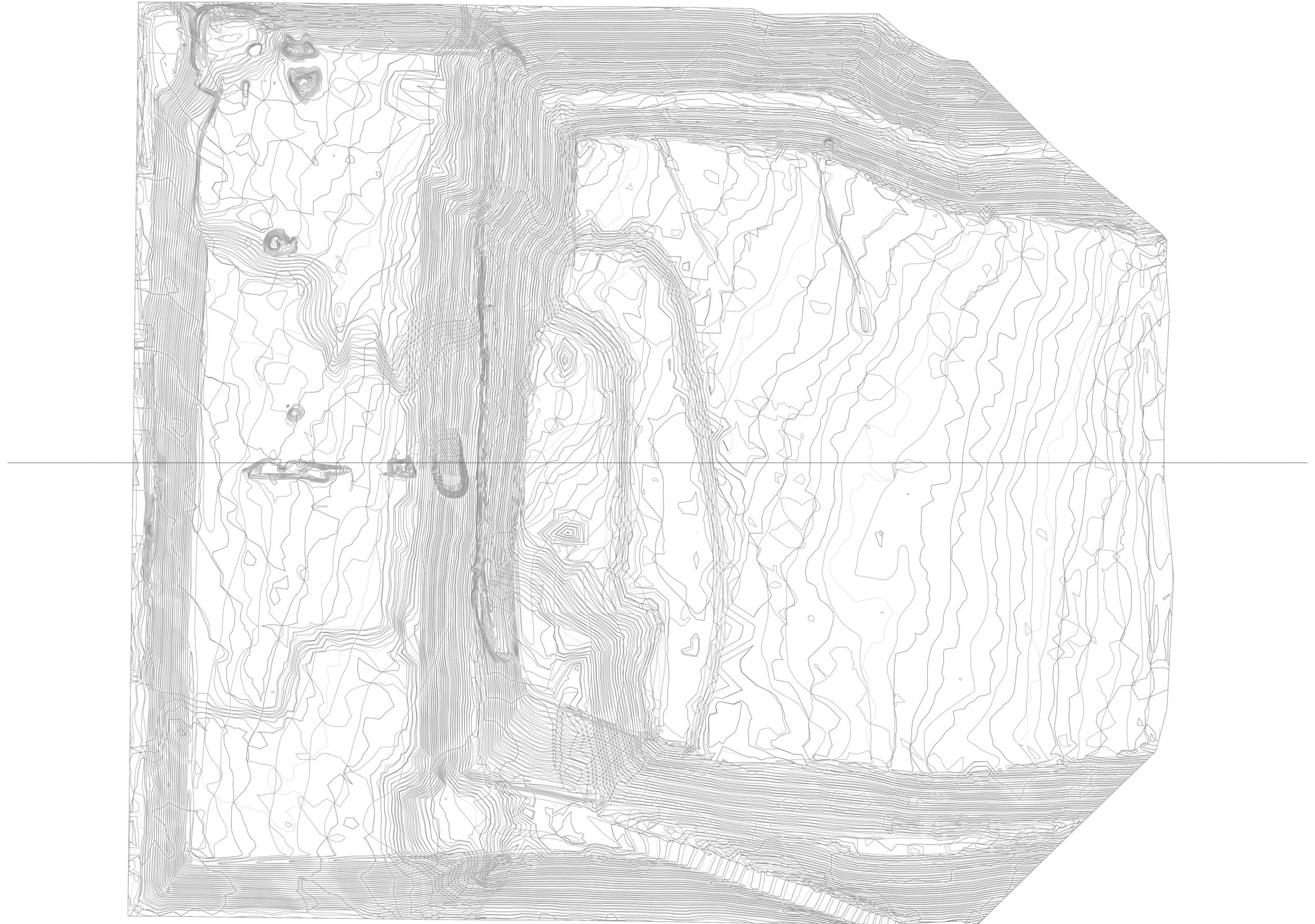
K:\Central County Solid Waste Disposal Complex\Annual Topo\2017 Annual Report\K:\Central County Solid Waste Disposal Complex\Annual Topo\2017 Annual Report\CCSWDC 2017 Air Space Used Surfaces and Volume 4.6.18.dwg

Volume Summary							
Name	Type	Cut Factor	Fill Factor	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
2017 Volume Consumed	full	1.000	1.000	2046486.47 <i>47 acres</i>	54416.54	605842.43	551425.88<Fill>

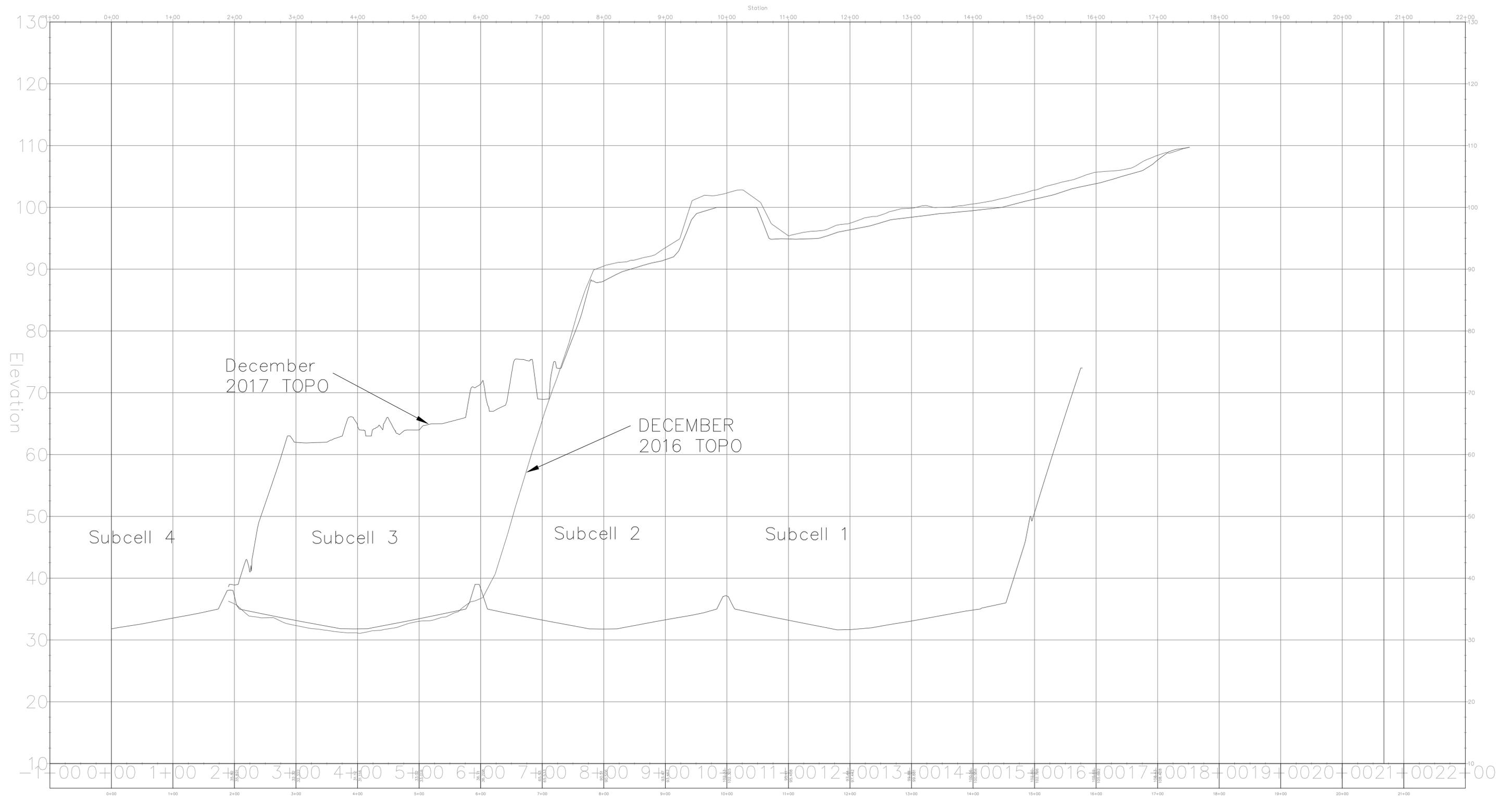
Totals				
	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Total	2046486.47	54416.54	605842.43	551425.88<Fill>

47 acres * Value adjusted by cut or fill factor other than 1.0

Phase II Landfill 2016 to 2017 TOPO Comparison



Phase II 2017 Annual Topo Compare PROFILE



ATTACHMENT C

TONNAGE REPORT

CCSWDC Monthly Tonnage to Class I Landfill December 3, 2016 to December 4, 2017

Month	Tonnage to Class I Landfill (tons)	
Dec 3 to Dec 31, 2016	21,998	
Jan-17	25,613	
Feb-17	23,165	
Mar-17	27,261	
Apr-17	23,529	
May-17	25,277	
Jun-17	24,965	
Jul-17	23,381	
Aug-17	25,695	
Sep-17	25,806	
Oct-17	25,226	
Nov-17	25,778	
Dec 1 to Dec 4, 2017	2,533	
Average	24,981	December 2016 through November 2017
Total	300,228	December 2, 2016 through December 5, 2017

2017 Calendar Year Total

300,394

January 1, 2017 through December 31, 2017

Source: CCSWDC scalehouse tonnage reports.

ATTACHMENT D

SITE LIFE CALCULATIONS

**Sarasota County Central County Solid Waste Disposal Complex Phase II Landfill Site Life
April 9, 2017**

Total Available Disposal Volume of Phase II = 6,000,000 cubic yards
 Final Cover Soil Volume (3 feet) = 295,494 cubic yards
 Total Available Waste Disposal Volume of Phase II = 5,704,506 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 (tons/cy)	Volume of Waste Received per year (cy)	Cumulative Capacity Used in Phase II (cy)	Volume of Class I Remaining (cy)	Notes Date of Topo
-	2010	-	-	-	-	-	-	0	5,704,506	
-	2011	-	-	Partial Year	150,866	0.66	227,022	227,022	5,477,484	
-	2012	-	-	860	264,846	0.50	530,885	757,907	4,946,599	12/01/2012
-	2013	-	-	841	259,155	0.62	415,644	1,173,551	4,530,955	12/08/2013
-	2014	-	-	865	266,453	0.65	408,868	1,582,419	4,122,087	12/01/2014
-	2015	-	-	913	281,149	0.70	402,026	1,984,445	3,720,061	12/13/2015
-	2016	397,420	-	942	290,036	0.71	408,986	2,393,430	3,311,075	12/03/2016
0	2017	402,389	3.57%	975	300,394	0.50	605,842	2,999,272	2,705,233	12/05/2017
1	2018	407,055	3.57%	1,010	311,122	0.67	465,752	3,465,024	2,239,482	Current Year
2	2019	411,522	3.57%	1,046	322,233	0.67	482,385	3,947,409	1,757,097	
3	2020	415,923	3.57%	1,084	333,741	0.67	499,612	4,447,021	1,257,485	
4	2021	420,263	3.57%	1,122	345,660	0.67	517,454	4,964,475	740,030	
5	2022	424,522	3.57%	1,162	358,004	0.67	535,934	5,500,410	204,096	
6	2023	428,684	3.57%	1,204	370,789	0.67	555,074	6,055,483	-350,978	
7	2024	432,732	3.57%	1,247	384,031	0.67	574,897	6,630,380	-925,874	

Design Life⁶ = 5.37 years from date of last topo.

Approximate Date of Completion = 04/18/2023

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).
- 2 The percent increase is based on the previous years tonnage increase from the year before, i.e. $[(2017 \text{ tonnage} - 2016 \text{ tonnage}) / 2016 \text{ tonnage}] \times 100\%$. This has been revised from previous years since population % increase has not accurately predicted the tonnage increase observed over the last several years.
- 3 Tonnage based on scale data reports for calendar years.
- 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, 2018 and beyond, the current contractual density of 1,336 lbs/cy or 0.67 tons/cy is used for projected volume of waste received.
- 5 The total available volume was calculated using AutoCAD.
- 6 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)