

May 1, 2019
File No. 09217088.10

Mr. Cory Dilmore, P.E.
Florida Department of Environmental Protection
Solid Waste Section, MS 4565
2600 Blair Stone Road
Tallahassee, Florida 32399

Subject: Remaining Disposal Capacity and Site Life – Reporting Year 2019
Lena Road Landfill - Manatee County
Permit No.: 39884-021-SO-01

Dear Mr. Dilmore:

On behalf of the Manatee County, Solid Waste Division (SWD), SCS Engineers (SCS) has prepared the remaining disposal capacity and site life estimate for the Lena Road Landfill, Manatee County, Florida in accordance with Rule 62-701.500(13)(c) and Specific Condition Part C.15.b of the facility's solid waste operations permit. As required by Specific Condition No. C.15.b, an aerial topographic survey of the landfill was conducted on February 14, 2019 by Pickett Surveying & Engineering (Pickett) and was used in the preparation of the calculations. Please refer to Attachment A for a copy of the Pickett Survey Report.

Based on the attached calculations, there is roughly 11,100,942 cubic yards of remaining capacity in Stages I-III and approximately 24.4 years of disposal capacity as of the survey date. Please refer to Attachment B for the remaining life and capacity calculations. If you have any questions regarding the information contained herein, please contact the undersigned at (813) 621-0080.

Sincerely,



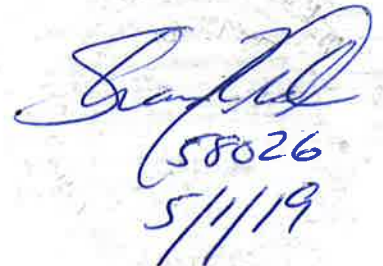
Caroline E. Devitt, E.I.T.
Staff Professional
SCS Engineers



Shane R. Fischer, P.E.
Project Director
SCS Engineers

CED/SRF

cc: Bryan White, SWD





Attachment A

Pickett Aerial Topographic Survey Flown February 14, 2019 and Survey Report

SURVEYOR'S REPORT

Lena Road Landfill

Prepared for:

SCS ENGINEERS

Prepared by:



PICKETT AND ASSOCIATES PROJECT NO.: 18600-1
TITLE/TYPE OF SURVEY: TOPOGRAPHIC SURVEY
DATE OF SURVEY: 2/14/19

***NOTE: THIS REPORT AND ACCOMPANYING MAP TITLED LENA ROAD 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.***

ACCURACY STATEMENT:

The following stated plus or minus tolerances encompass a minimum of 90% of the difference between photogrammetrically measured values and any ground truth of all well-identified features. Mapped features will meet or exceed the Florida Standards of Practice.

VERTICAL:

Contours may be measured to an estimated vertical positional accuracy of 0.5'. Spot elevations and well-identified features have been measured to an estimated vertical positional accuracy of 0.25'.

HORIZONTAL:

Well-identified features have been measured to an estimated horizontal positional accuracy of 1.66'. All measurements are in U.S. Survey Feet.

MAP PLOTTING:

This map is intended to be displayed at a scale of 1" = 50' (1:600) or smaller.

DATUM:**HORIZONTAL:**

Coordinates are referenced to the West Zone of the Florida State Plane Coordinate System, North American Datum of 1983 (NAD'83) 1990 adjustment.

VERTICAL:

Elevations are to National Geodetic Vertical Datum of 1929.

Control Points Used for mapping:

<u>Pt#</u>	<u>Northing</u>	<u>Easting</u>	<u>Elevation</u>
109	1141545.95	509165.88	33.96
122	1138428.30	511092.73	38.90
135	1138562.79	513590.75	40.93
168	1144330.79	512336.06	39.12
194	1146038.75	508797.91	22.80
205	1145790.59	514071.03	30.64
229	1135605.88	508386.36	33.94
219	1136246.43	514518.68	48.03

Measurement Methods:

The planimetrics shown are limited to those features visible on aerial imagery. Color digital imagery was acquired at an average altitude of 3300' using a metric precision digital camera whose focal length is 70.3mm. Mapping was performed using LiDAR and

softcopy photogrammetric techniques. The LiDAR data has an estimated point sample distance of 0.61 foot and a density of 2.67 points per square foot (± 28.74 points per square meter). For a vertical accuracy check, the LiDAR data was compared to eight (8) points set as targets for aerial imagery and forty-seven (47) ground surveyed points. The Root Mean Square Error of the Elevations (RMSEZ) is 0.129 foot, being the equivalent of 0.252' FGDC/NSSDA Vertical Accuracy. All measurements are in U.S. Survey Feet.

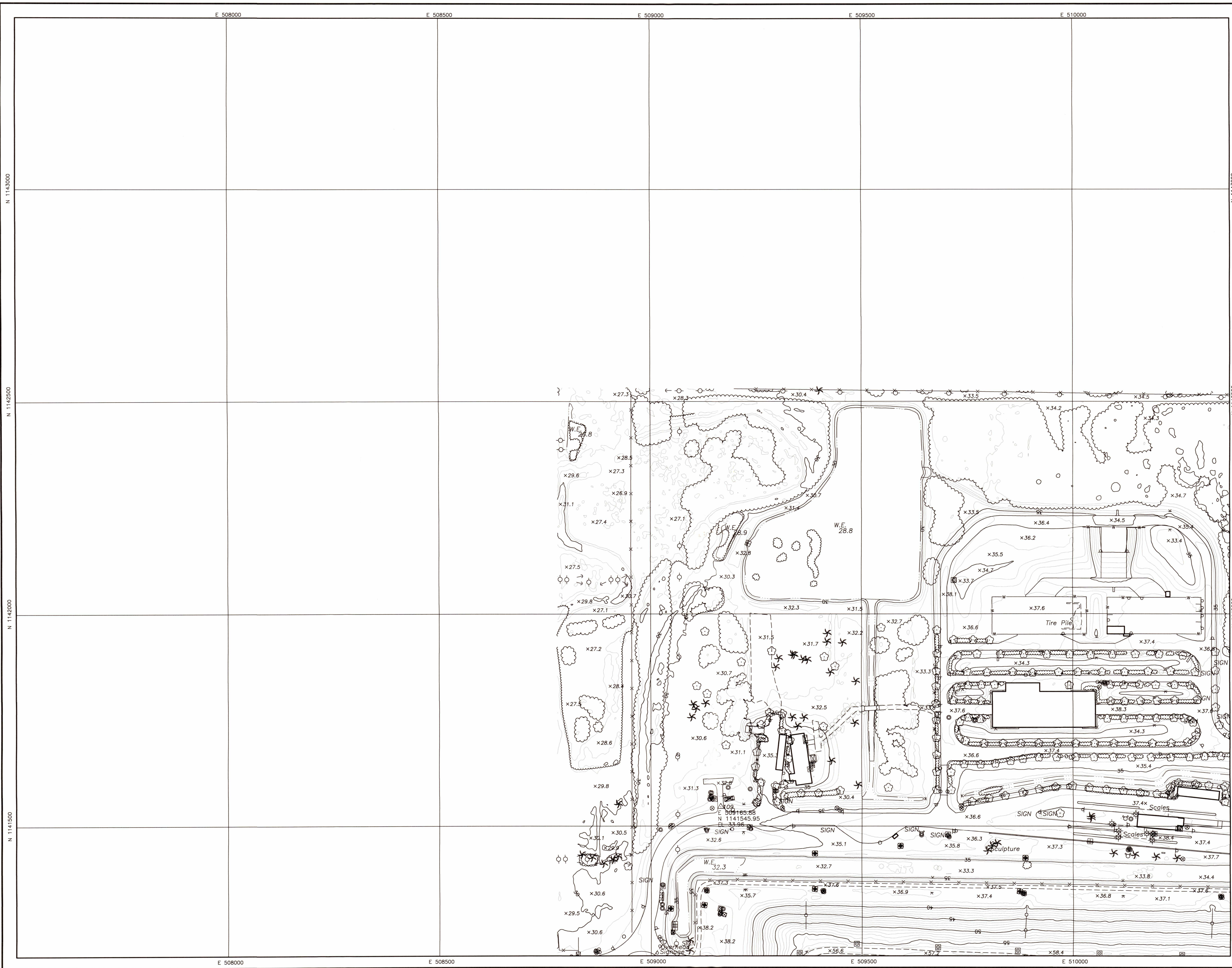
Limitations: This mapping should be used for preliminary design work only and should not replace an actual field survey where the required accuracy is greater than the accuracy stated in this report. No responsibility is assumed for areas outside the contracted scope.



T. JEFFREY YOUNG, PSM, CP
FLORIDA REGISTRATION NO. 5440
PICKETT AND ASSOCIATES, INC.
FLORIDA REGISTRATION NO. 364



SURVEY DATE



SURVEYOR'S NOTES:

1.) North, the red, and the coordinates shown hereon are referenced to the West Zone of the Florida State Plane Coordinate System, NAD 83, 1980 adjustment.

2.) Elevations are to National Geodetic Vertical Datum of 1929.

3.) This topographic survey was prepared using photogrammetric and LIDAR methods. See the attached report for map accuracy and limitations. The accuracy of this map is limited to those features visible on aerial imagery.

LEGEND:

(THESE FEATURES ARE REPRESENTED BY SYMBOLS NOT TO SCALE)

(THESE FEATURES ARE TO SCALE)

(THESE INFORMATIONAL LABELS ARE NOT SCALE DEPENDENT)

W.E. WATER ELEVATION
x 120.1 SPOT ELEVATION
MISC MISCELLANEOUS

GRAPHIC SCALE

1 inch = 100 ft.

(IN FEET)

0 50 100 200 400

DISCLAIMER: The information shown on this map was prepared by the Surveyor and is not to be used for any purpose other than that for which it was prepared. The Surveyor assumes no responsibility for any errors or omissions in the map or for any consequences arising from its use. The map is not to be used for any purpose other than that for which it was prepared.

TOPOGRAPHIC SURVEY

LENA ROAD LANDFILL

LOCATED IN SECS 1,6,&31, TWP 34&35S,

RANGE 18&19E

PREPARED FOR: SCS ENGINEERS

PROJECT No.	18600-1
DRAWING No.	LD-6484

No.	1
OF	13

No.	DATE	APPROVED	REVISION
O.R.	3/4/19	TJY	ORIGINAL RELEASE

Flight Date: 2/14/19

Compiled by: PL

Edited by: RP

Contour Interval: 1'

Horizontal Scale: 1" = 100'

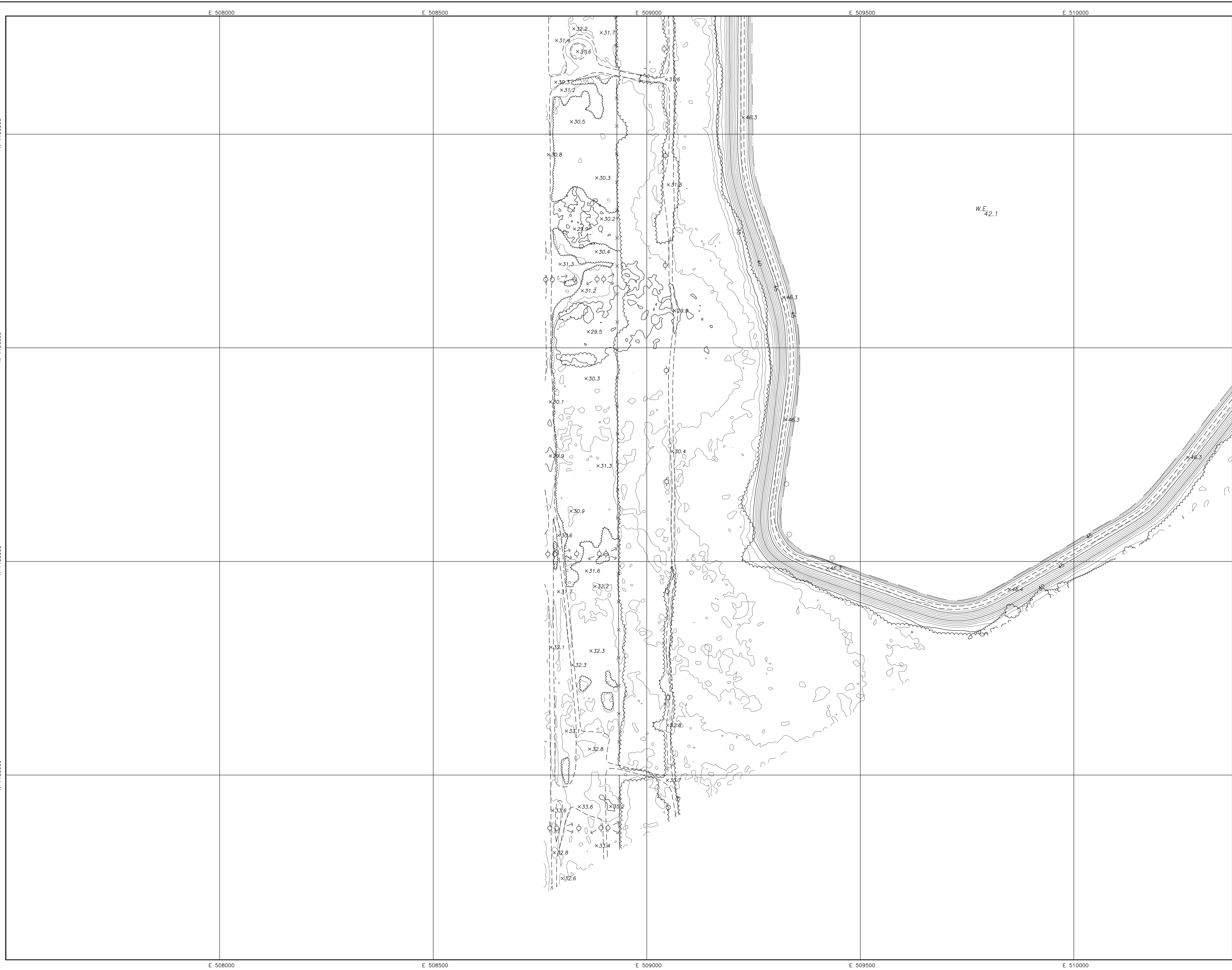
PICKETT

SURVEYING • ENGINEERING

475 SOUTH FLORIDA AVENUE
FORT MYERS, FL 33901
PHONE: (888) 533-9095
FAX: (888) 533-9096
LICENSED BUSINESS NO. 18384

2/4/19

PICKETT AND ASSOCIATES, INC.



SURVEYOR'S NOTES:

- 1.) North, the grid, and the coordinates shown herein are referenced to the West Zone of the Florida State Plane Coordinate System, NAD 83, 1990 adjustment
- 2.) Elevations are to National Geodetic Vertical Datum of 1929.
- 3.) This topographic survey was prepared using photogrammetric and LIDAR methods. See the "Photogrammetric and LIDAR Methods" section of this report for more information. This map is the surveyor's signature and seal. This map is limited to those features visible on aerial imagery.

ACCURACY STATEMENT: The following stated data or values were determined by the contractor and are not intended to represent a minimum of 90% of the difference between the actual and the stated data or values. The contractor warrants that the identified features, mapped features meet or exceed the Florida Standards of Practice.

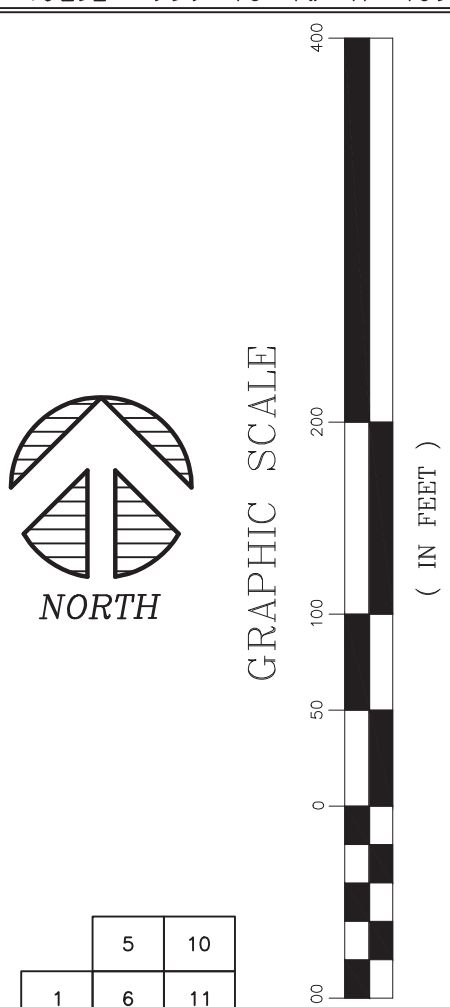
VERTICAL: Contours have been measured to an estimated vertical accuracy of $\pm 0.25'$ feet. The vertical accuracy of the identified features have been measured to an estimated vertical positional accuracy of $\pm 0.25'$ feet.

HORIZONTAL: Well-identified features have been measured to an estimated horizontal positional accuracy of $\pm 1.66'$.

MAP PLOTTING: This map is intended to be displayed at a scale of 1" = 50' (1:800) or smaller.

REMARKS: This map is limited to those features shown on aerial imagery.

LIMITATIONS: This map is not to be used for preliminary engineering. The mapped and reported data is preliminary and the required accuracy is greater than the accuracy of the map. The contractor is not responsible for any errors outside the contracted scope.



(THESE INFORMATIVE LABELS ARE NOT SCALE DEPENDENT)

	PIPELINE
	RECREATION
	EDGE OF GROVE
	EDGE OF WATER

	W.E. WATER ELEVATION
	x 120.1 SPOT ELEVATION
	MISC MISCELLANEOUS

LEGEND:
(THESE FEATURES ARE TO SCALE)

	CURB
	PAVED ROAD
	CONCRETE SURFACE
	UNPAVED ROAD
	FENCE
	GUARDRAIL
	WALL
	RAILROAD
	STRUCTURE
	TREE LINE
	SHRUB LINE

(THESE REMOVED ARE REPRESENTED BY SYMBOLS NOT TO SCALE)

△	CONTROL	⊞	CATCH BASIN
TT#	TARGET NUMBER	⊞	VALVE
N	NORTHING	⊞	ELECTRICAL
E	EASTING	⊞	AIR CONDITIONER
ELL	ELEVATION	⊞	MISCELLANEOUS SYMBOL
○	UTILITY POLE	⊞	CULVERT
○	LIGHT POLE	⊞	MANHOLE
○	TRAFFIC LIGHT	⊞	HYDRANT
○	SIGN	⊞	TREE
○	POST	⊞	PALM
○	FLAG	⊞	SHRUB
○	MAIL BOX		
○	CURB		

LENA ROAD LANDFILL
LOCATED IN SECS 1,6,&31, T19N 34&35S,
RANGE 18&19E

PREPARED FOR: SCS ENGINEERS

[illegible]

PICKETT AND ASSOCIATES, INC. 475 SOUTH FIRST AVENUE BARTOW, FLORIDA 33630 PHONE: (863)-533-9095 FAX: (863)-534-1464 LICENSED BUSINESS NO. LB364	Flight Date: 2/14/19	Drawing Name: 1860-1.DWG
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PICKETT

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Edited by: **R.P.**

Compiled by: **P.L.**

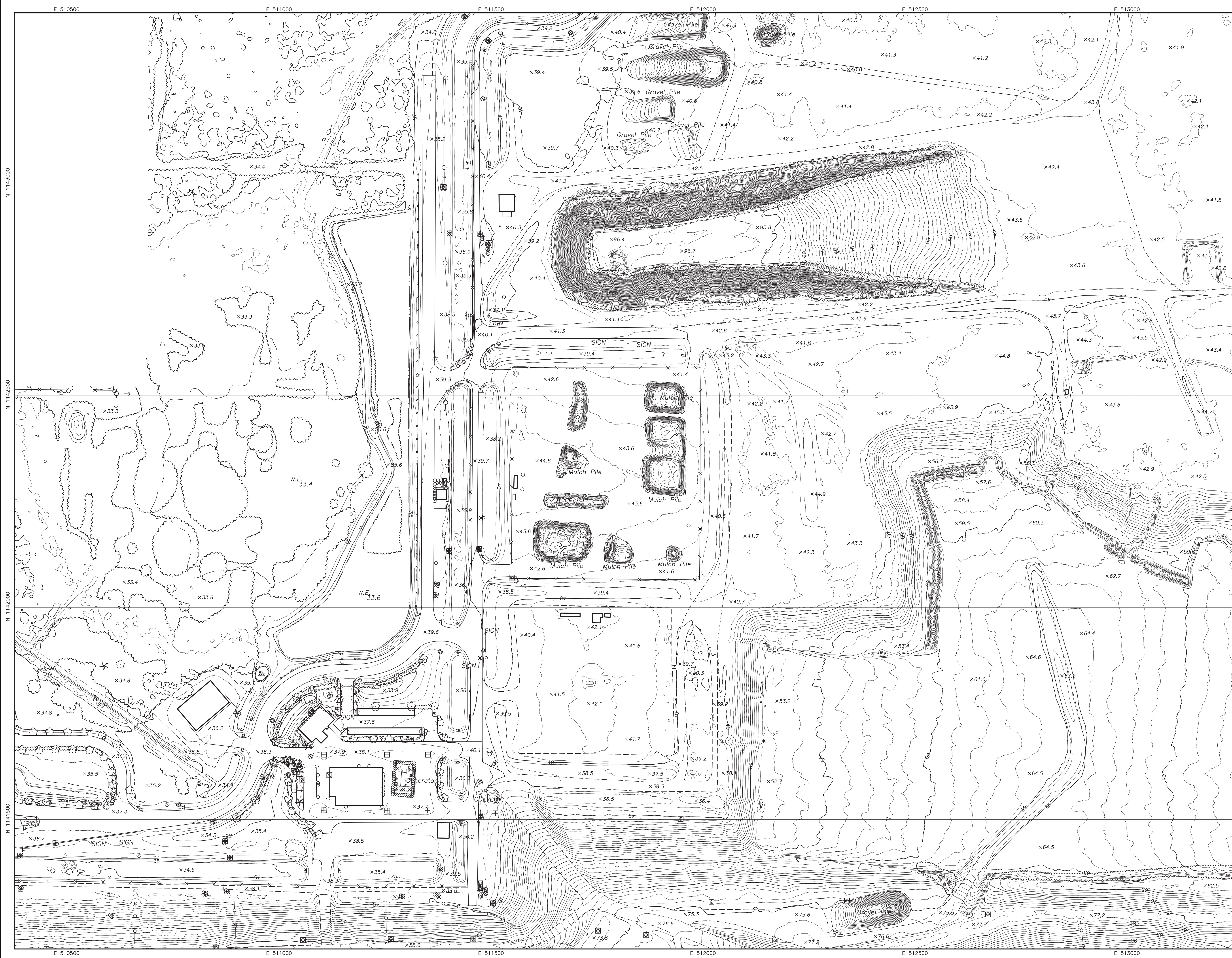


Horiz. Scale: 1" = 100'
Contour Interval: 1'

TOPOGRAPHIC SURVEY
LENA ROAD LANDFILL
LOCATED IN SECS 1.6.&31, T19N 34.&35S,
RANGE 18&19E
 PREPARED FOR: SCS ENGINEERS

THIS MAP AND ATTACHED REPORT ARE NOT FULL AND COMPLETE WITHOUT THE OTHER AND ARE NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

SEE PAGE 1 FOR THE SIGNATURE AND THE ORIGINAL RAISED SEAL



SURVEYOR'S NOTES:

1.) North, the grid, and the coordinates shown hereon are referenced to the West Zone of the New Florida State Plane Coordinate System, NAD 83, 1983 adjustment.

2.) Elevations are to National Geodetic Vertical Datum of 1929.

3.) This topographic survey was prepared using photogrammetric and LIDAR methods. See the accompanying report for a complete description of the surveyor's signature and seal. This map is limited to those features visible on aerial imagery.

LEGEND:

(THESE FEATURES ARE TO SCALE)

PIPELINE
RECREATION
EDGE OF GROVE
EDGE OF WATER

(THESE FEATURES ARE NOT TO SCALE)

CONTROL
TARGET NUMBER
BENCHMARK
ELEVATION
UTILITY POLE
LIGHT POLE
TRAFFIC LIGHT
SIGN
POST
FLAG
MAIL BOX
GUYWIRE

CAVE BASIN
ELECTRONIC
VALVE
ELECTRIC
MISCELLANEOUS SYMBOL
MANHOLE
HYDRANT
TREE
PALM
SHRUB

CURB
PAVED ROAD
CONCRETE SURFACE
UNPAVED ROAD
FENCE
GUARDRAIL
WALL
RAILROAD
STRUCTURE
TREE LINE
SHRUB LINE

GRAPHIC SCALE

(IN FEET)

1 inch = 100 ft

ACTIVITY SUMMARY: The above noted site or area contains approximately 100,000 cubic yards of material. The map includes all well-identified features. Mapped features may or may not be visible on aerial imagery.

VERTICAL DATUM: The map is prepared to an estimated vertical positional accuracy of 0.5' Spot elevations and vertical positional accuracy of 0.25' measured to an estimated vertical positional accuracy of 0.25'.

HORIZONTAL DATUM: Well-identified features have been measured to an estimated horizontal positional accuracy of 1.6'.

MAP PROJECTION: The map is projected to the NAD 83, 1983 adjustment.

MEASUREMENT METHODS: This map is limited to those features visible on aerial imagery.

DISCLAIMER: This map should be used for preliminary purposes only. The map is not to be used for any other purpose where the required accuracy is greater than the accuracy shown on the map. The map is not to be used for any other purpose outside the contracted scope.

TOPOGRAPHIC SURVEY

LENA ROAD LANDFILL

LOCATED IN SECS 1,6,&31, TWP 34&35S, RANGE 18&19E

PREPARED FOR: SCS ENGINEERS

PICKETT

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475 SOUTH BARTON
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PHONE (883)-533-9095
LICENSED BUSINESS NO. LB364

No.	DATE	APPROVED	REVISION
O.R.	3/4/19	TUY	ORIGINAL RELEASE

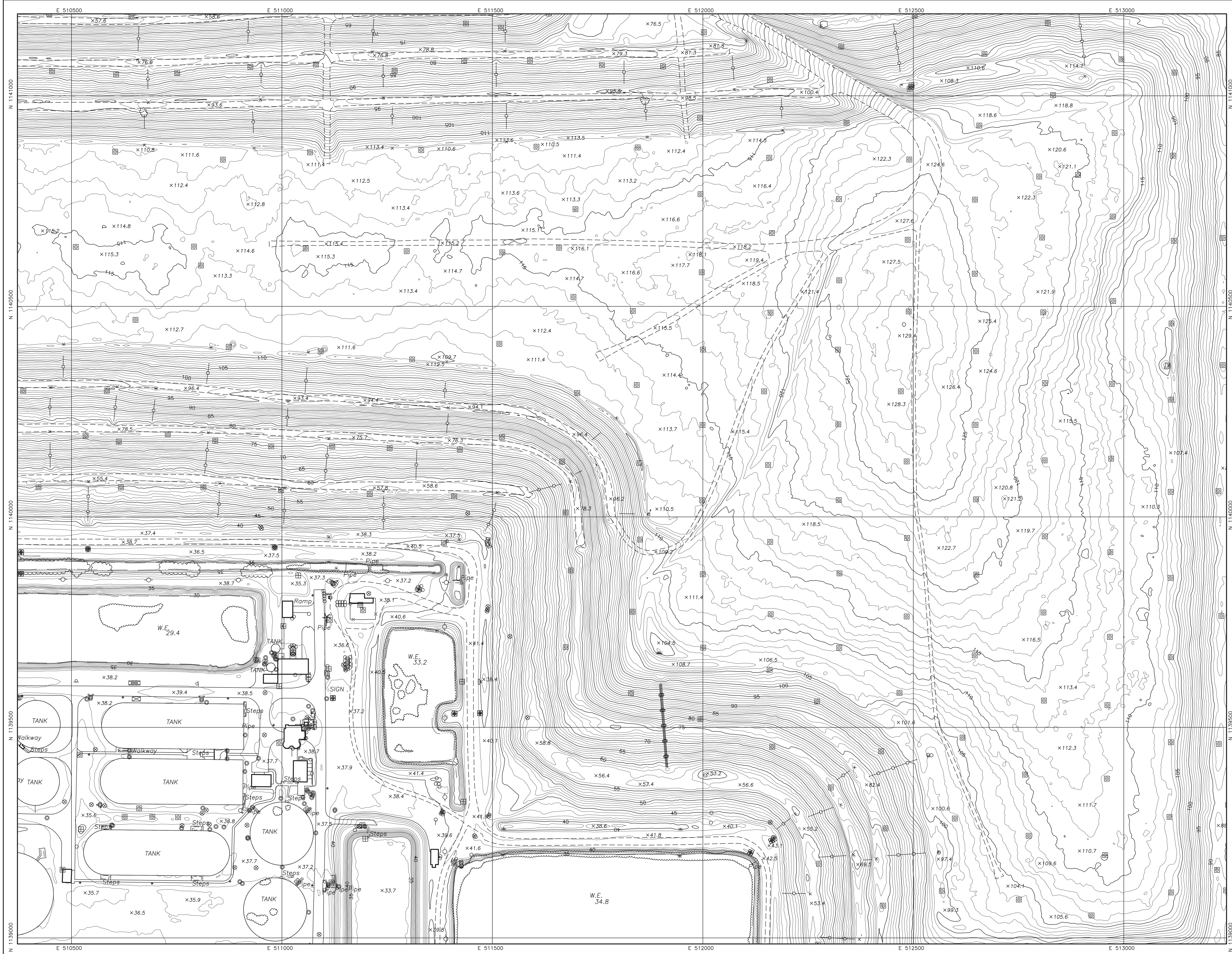
PROJECT No.	No.
18600-1	6
DRAWING No.	OF
LD-6484	13

Edited by: RP

Compiled by: PL

Flight Date: 2/14/19

Drawing Name: 1860-1.DWG



SURVEYOR'S NOTES:

1.) North, the grid, and the coordinates shown hereon are referenced to the West Zone of the North American Datum of 1983 (NAD 83), 1983 adjustment.

2.) Elevations are to National Geodetic Vertical Datum of 1929.

3.) This topographic survey was prepared using photogrammetric and LIDAR methods. See the accompanying report for details. The map is the property of the surveyor and is loaned to the client. The surveyor's signature and seal. This map is limited to those features visible on aerial imagery.

LEGEND:

(THESE FEATURES ARE TO SCALE)

PIPELINE	RECREATION	EDGE OF GROVE	EDGE OF WATER
CURB	PAVED ROAD	CONCRETE SURFACE	UNPAVED ROAD
FENCE	GUARDRAIL	WALL	RAILROAD
STRUCTURE	STREET LINE	SHRUB LINE	

(THESE INFORMATIVE LABELS ARE NOT SCALE DEPENDENT)

W.E.	WATER ELEVATION
x 120.1	SPOT ELEVATION
MISC	MISCELLANEOUS

ACTIVITY PERMIT: The above noted site or area shown hereon was surveyed by the undersigned and the map is a true and correct representation of the same. The map is a true and correct representation of the same. The map is a true and correct representation of the same.

MAP PROJECTION: The map is projected to the North American Datum of 1983 (NAD 83), 1983 adjustment.

MEASUREMENT METHODS: The map is limited to those features visible on aerial imagery.

GRAPHIC SCALE: 1 inch = 100 feet

REVISION:

No.	DATE	APPROVED	REVISION
O.R.	3/4/19	TJY	ORIGINAL RELEASE

TOPOGRAPHIC SURVEY

LENA ROAD LANDFILL

LOCATED IN SECS 1,6,&31, T1NWP 34&35S, RANGE 18&19E

PREPARED FOR: SCS ENGINEERS

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LICENSED BUSINESS No. L8364

Edited by: RP

Compiled by: PL

Flight Date: 2/14/19

Drawing Name: 1860-1.DWG

Horiz. Scale: 1" = 100'

Contour Interval: 1'

PROJECT No. 18600-1

DRAWING No. LD-6484

No. 7 OF 13

THIS MAP AND ATTACHED REPORT ARE NOT VALID AND WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF THE SURVEYOR. SEE PAGE 1 FOR THE SIGNATURE AND THE ORIGINAL RAISED SEAL.



Attachment B

Remaining Life and Capacity Calculations

CLIENT Manatee County	PROJECT Lena Road Landfill Annual Site Life Calculations	JOB NO. 09217088.10
SUBJECT Projected Remaining Capacity and Site Life Lena Road Landfill	BY CED	DATE 4/22/2019
	CHECKED RBC	DATE 4/22/2019

Reporting Year	Historical Tonnages (Tons) ¹	Volume Used (CY/Yr)	Apparent Density (lbs/CY)
2015	303,023.69	314,373	1,927.80
2016	300,067.64	516,500	1,161.93
2017	330,724.56	470,000	1,407.34
2018	335,607.40	490,000	1,369.83
2019	292,722.41	480,380	1,218.71

Average Density = 1,417.12 Lbs / CY

Volume Consumed

Between 3/22/18 and 2/14/19 = 480,380 CY

Average Volume Consumed = 454,251 CY / Yr

Remaining Volume For Waste Placement
(Final Closure Cap System Removed)

Remaining Volume as of 2/14/19² = 11,100,942 CY

Remaining Capacity as of February 14, 2019

Remaining Years of Life From 2/14/19³ = 24.4 Years
Year of Closure = 2043

Notes:

- 1 Waste received for this reporting year is the amount reported by Manatee County from scale data reports for full months, estimated by SCS for partial months.
- 2 Volume remaining based on calculating airspace between top of waste elevation and February 14, 2019 topographic survey using AutoCAD 3D.
- 3 Remaining life is calculated by dividing the average volume consumed per year into remaining volume for waste placement.