

## **Johnson, Sabrina O**

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**From:** Black, Alexis  
**Sent:** Wednesday, April 1, 2020 4:24 PM  
**To:** SWD\_Waste  
**Subject:** FW: Pasco Resource Recovery - Annual Estimate of Remaining Life  
**Attachments:** Remaining Useful Life Estimate - Pasco County Class I Landfill - Reporting Year 2019.pdf



**Alexis Black**

Environmental Specialist II  
Compliance Assurance Program  
Florida Department of Environmental Protection  
Southwest District

**PLEASE NOTE:** Florida has a very broad public records law. Electronic communications regarding state business are public records available upon request. Your e-mail communications may therefore be subject to public disclosure.

 Please consider the environment before printing this email.

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**From:** Jason Gorrie <jason@jmg-eng.com>  
**Sent:** Wednesday, April 1, 2020 3:33 PM  
**To:** Justin G. Roessler <jroessler@pascocountyfl.net>; Black, Alexis <Alexis.Black@FloridaDEP.gov>  
**Subject:** RE: Pasco Resource Recovery - Annual Estimate of Remaining Life

---

**From:** Justin G. Roessler <[jroessler@pascocountyfl.net](mailto:jroessler@pascocountyfl.net)>  
**Sent:** Wednesday, April 1, 2020 2:28 PM  
**To:** Black, Alexis <[Alexis.Black@FloridaDEP.gov](mailto:Alexis.Black@FloridaDEP.gov)>; Jason Gorrie <[jason@jmg-eng.com](mailto:jason@jmg-eng.com)>  
**Subject:** RE: Pasco Resource Recovery - Annual Estimate of Remaining Life

We hope to have it to you in the next day or two, I have reviewed draft final. Thank you for checking in advance.



**Justin Roessler, PhD, PE**

Assistant Solid Waste Director

Public Infrastructure Branch

**Pasco County**

**P** 727-857-2780

**F** 727-861-3099

14230 Hays Rd.,  
Spring Hill, FL 34610

[jroessler@pascocountyfl.net](mailto:jroessler@pascocountyfl.net)

[www.pascocountyfl.net](http://www.pascocountyfl.net)

"Serving our community to create a better future."

---

**From:** Black, Alexis <[Alexis.Black@FloridaDEP.gov](mailto:Alexis.Black@FloridaDEP.gov)>  
**Sent:** Wednesday, April 1, 2020 2:19 PM  
**To:** Justin G. Roessler <[jroessler@pascocountyfl.net](mailto:jroessler@pascocountyfl.net)>  
**Subject:** Pasco Resource Recovery - Annual Estimate of Remaining Life

Hi Justin:

I hope you're well! It looks like the 2019 Annual Estimate of Remaining Life report for the Class I areas of this facility was not submitted to the Department in March. If possible, please submit this report by next Friday, April 10. Please advise if you need additional time.

Thank you,  
Alexis

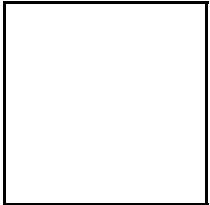


**Alexis Black**

Environmental Specialist II  
Compliance Assurance Program  
Florida Department of Environmental Protection  
Southwest District  
[Alexis.Black@floridadep.gov](mailto:Alexis.Black@floridadep.gov)  
Office: 813.470.5912

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CUSA18A7

# Pasco County Utilities

## Remaining Disposal Capacity and Site Life Calculations Pasco County Resource Recovery Facility

Reporting Year 2019

March 2020



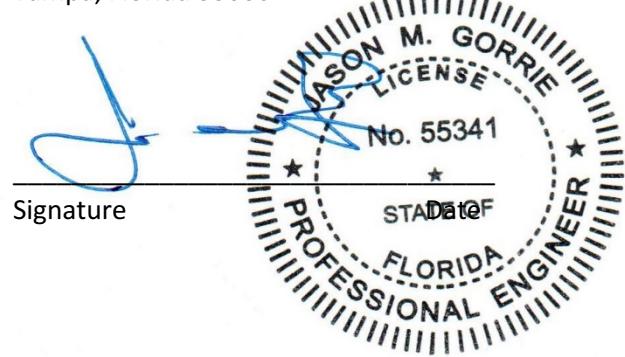
Prepared For:

Pasco County Utilities

Prepared By:

Jason Gorrie, P.E.  
JMG Engineering, Inc.  
238 East Davis Blvd.  
Suite 206  
Tampa, Florida 33606

Signature



## 1.0 Purpose of Report

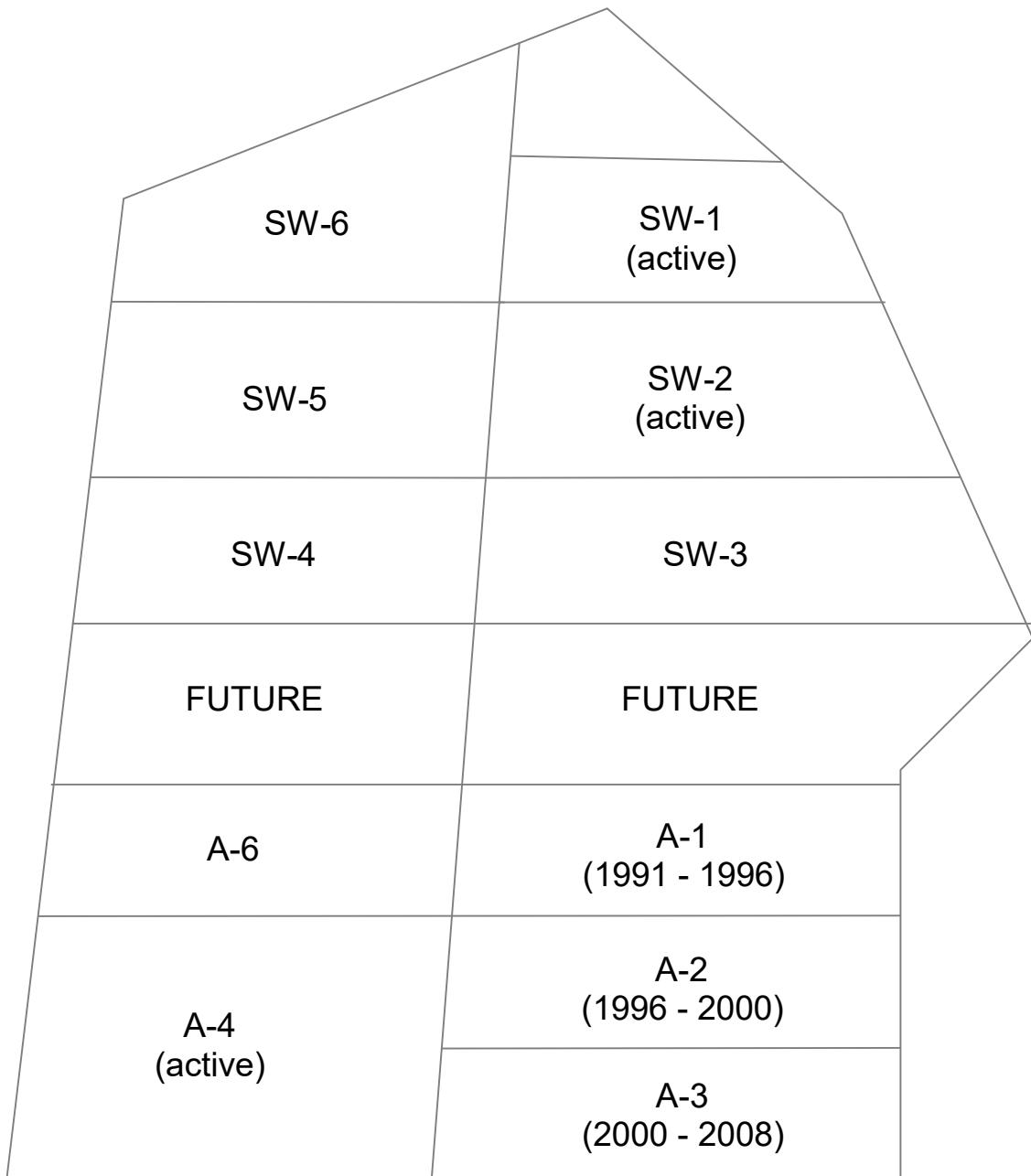
Rule 62-701.500(13)(c) of the Florida Administrative Code (FAC) requires landfill owners and operators to annually prepare an estimate of the remaining life and capacity (in cubic yards) of the existing, constructed landfill and an annual estimate of the life and capacity of other permitted areas not yet constructed. For the purposes of this Report, the “existing, constructed landfill” is considered to be the currently active portions of the site designated as A-4 (for combustion ash) and SW-1/SW-2 (for unprocessed municipal solid waste.) The remaining useful life of disposal cell A-4 is presented in **Section 3.0**. The remaining useful life of disposal cell SW-1/SW-2 is presented in **Section 4.0**. Finally, the remaining useful life of future disposal cells permitted by Power Plant Siting Act Conditions of Certification PA 87-23C are presented in **Section 5**.

## 2.0 Assumptions Used in Report

- The primary disposal mechanism for municipal solid waste generated within Pasco County is the Pasco County Resource Recovery Facility. The Resource Recovery Facility is permitted to combust approximately 1,050 tons per day of municipal solid waste. Residue from the combustion of the municipal solid waste (hereinafter referred to as “ash”) is disposed in those areas identified in **Figure 1** as “Ash Disposal Cells.” As of the writing of this Report, disposal cells A-1, A-2, and A-3 are temporarily inactive and not receiving ash. While these cells are not currently receiving ash and are temporarily capped with a tarp to minimize leachate generation, they are still available for additional disposal in the future. Disposal cell A-4 is the currently active disposal cell for ash residue and receives all ash generated by the Resource Recovery Facility<sup>1</sup>.
- The actual mass value of waste that can be processed by the Resource Recovery Facility is variable due to the heating value of the waste. Drier waste and waste containing larger amounts of plastics has a higher heating value, resulting in less mass throughput through the Resource Recovery Facility. Wetter waste and waste containing less plastics has a lower heating value, resulting in more mass throughput through the Resource Recovery Facility. The heating value of the waste (measured in British thermal units per pound of waste, or Btu/lb) has been observed to be gradually increasing over the course of several years, resulting in a slightly lower mass throughput capability of the Resource Recovery Facility. For purposes of this Report, it is assumed that the annual solid waste mass throughput capacity of the Resource Recovery Facility will remain at 1,050 tons per day for the foreseeable future. Assuming no changes in facility availability, the Resource Recovery Facility is capable of

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<sup>1</sup> The Florida Department of Environmental Protection has authorized Pasco County to beneficially utilize a significant portion of the ash generated by the Resource Recovery Facility. For purposes of this Report, it is conservatively assumed that all ash will be placed in the Ash Disposal Cells and not beneficially utilized. It should be noted that future beneficial reuse projects undertaken in accordance with the FDEP’s approval could substantially reduce the amount of ash placed in the Ash Disposal Cells in future years.



#### LEGEND

A-x      Ash Disposal Cells  
 SW-x    Solid Waste Disposal Cells



JMG  
ENGINEERING INC

**FIGURE 1**  
Class I Landfill Footprint

2019 Useful Life  
Estimate Pasco County  
Class I Landfill

processing approximately 331,000 tons per years given the 1,050 tons per day design capacity, 90% availability and a standard higher heating value of 4,800 Btu per pound. (CDM Smith, 2015)

- The quantity of ash generated by the combustion process at the Resource Recovery Facility is relatively consistent at 23% (by mass) of the municipal solid waste combusted. (Pasco County Utilities, 2018) Previous studies by Covanta and others have demonstrated that the density of the ash is also relatively consistent over protracted periods at 2,200 pounds per cubic yard. Municipal solid waste that is bypassed from the Resource Recovery Facility and placed in the solid waste disposal cells is assumed to have a compacted density of approximately 1,100 pounds per cubic yard.
- It is widely recognized that the population of Pasco County is growing. Future waste generation rates were estimated in 2015 based on population projections generated by the University of Florida's Bureau of Economic and Business Research. These numbers are relied upon in this Report and presented in Table 1.

## 2.1 Permitted Disposal Capacity

Construction and operation of the disposal cells at the site is governed by Power Plant Siting Act Conditions of Certification PA87-23C. The permitted maximum elevation of the currently active Ash Disposal Cell (A-4) is 120 feet NGVD. In 2015, CDM-Smith estimated the total volume available for disposal in cell A-4 to be 1,254,269 cubic yards (CDM-Smith, 2015).

In February of 2020, the FDEP approved a modification to the Landfill Operations Plan that allows for a new fill sequence that combines existing disposal cells SW-1 and SW-2 into a common disposal cell. The modification also increased the maximum elevation of the combined cell from 101 feet NGVD to 121 feet NGVD. This new fill sequence and maximum permitted height will result in an estimated total volume available for disposal of approximately 1.6 million cubic yards.

## 3.0 Useful Remaining Life of Cell A-4

The currently permitted capacity of Ash Disposal Cell A-4 is considered to be 1,254,269 cubic yards. As of January 2020, all six subcells are considered to be "active", however, only subcells 1, 2, 3, and 4 are receiving ash for disposal. Subcells 5 and 6 are being utilized for ash and metals processing only. In order to estimate the current volume of waste in place in subcells 1, 2, 3, and 4, DC Johnson Surveying conducted a topographic survey of cell A-4 in January 2020. The elevation contours of the A4 disposal cell are depicted at **Attachment 1**.

Using the elevations reported on the topographic survey in conjunction with the known elevations of the liner system, it is possible to estimate the volume of ash in place in cell A-4. Mathematically, the volume under a function is defined by the double integral:

$$\int_{x-min}^{x-max} \int_{y-min}^{y-max} f(x,y) dx dy$$

To determine the function  $f(x, y)$  defining the shape of the landfill surfaces, JMG Engineering relied upon the volume calculation algorithms of the surface mapping software program Surfer® 13. The total volume of ash calculated to be currently in place in A-4 is approximately 500,948 cubic yards.

Given the permitted volumetric capacity of 1,254,269 cubic yards and subtracting the 500,948 cubic yards calculated from the 2020 survey to be currently in place, approximately 753,321 cubic yards of airspace remains available for disposal. Municipal waste combustor ash has an approximate density of 2,200 pounds per cubic yard. Using the assumed density, the 753,321 remaining cubic yards can accommodate approximately 828,000 tons of ash.

**Table 1** below shows the projected ash generation rate as a function of anticipated Resource Recovery Facility capacity. Because the waste-to-energy facility is currently operating at its maximum capacity, no changes in the ash generation rate are expected in the immediate future. However, it is anticipated that the planned Facility expansion will be complete by the year 2026 and will result in an increased ash generation rate of 108,000 cubic yards beginning in Calendar Year 2027. As shown in Table 1, this increased ash generation rate will consume the remaining available airspace of A4 by 2028.

## 4.0 Useful Remaining Life of Cell SW-2

The calculation procedures used to estimate the remaining useful life for disposal cell SW-1/SW-2 are identical to those described above for disposal cell A-4. Utilizing the surveyed elevations provided by DC Johnson (see **Attachment 2**) in combination with engineering estimates<sup>2</sup>, the Surfer 13® algorithms determined that the volume of solid waste present in SW-1/SW-2 is approximately 630,000 cubic yards (see **Attachment 4**).

The new permitted volumetric capacity of SW-1/SW-2 is assumed to be 1.12 million cubic yards (see **Attachment 6**). Subtracting the 630,000 cubic yards calculated to be currently in place, approximately 490,000 cubic yards of airspace remains available for disposal.

The intent of the solid waste cells (inclusive of SW-1/SW-2) as stated in the original application for Power Plant Siting Certification is to accommodate solid waste deliveries in excess of the Resource Recovery Facility's capacity. As stated previously, the Resource Recovery Facility is operating at capacity. This necessitates periodic (and temporary) diversions during times when the Resource Recovery Facility must operate at reduced capacity to facilitate maintenance activities.

**Table 1** below shows the projected waste diversion volume as a function of anticipated Resource Recovery Facility capacity and future population growth<sup>3</sup>. Using an assumed density of 1,100 pounds per cubic yard for municipal solid waste compacted in-place (USEPA, 2016), and further assuming that daily cover equivalent to 10% (by volume) per year will be utilized, it is estimated that remaining airspace will be consumed at the rate identified in Table 1. Accordingly, **the estimated remaining useful life of cell SW-1/SW-2 (as currently designed and permitted) is approximately 4 years using a combination of exporting waste out-of-county and disposal in SW-1/SW-2.**

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<sup>2</sup> DC Johnson surveyed only the active portion of SW-1/SW-2. Inactive portions of SW-1 have not been surveyed in many years, making it necessary to estimate top of waste elevations in certain areas of the now merged cells. To reconcile these assumptions, it is assumed that the remaining volume available for disposal is 630,000 cubic yards.

<sup>3</sup> The diversion rates listed in Table 1 are conservative. The actual diversion rate is expected to be less than that presented in Table 1 because the Resource Recovery Facility has demonstrated an ability to process waste in excess of the 331,000 tons per year listed in the 2015 Solid Waste Master Plan.

## 5.0 Useful Remaining Life of Future Disposal Cells

As shown in Figure 1, several acres of permitted disposal space remain available for future use by the County. At present, liner and leachate collection systems have been constructed for the following disposal cells: SW-1, SW-2, A-1, A-2, A-3, and A-4. Because these lined cells are adjacent to each other, it is possible to maximize the airspace over existing lined areas by utilizing the interstitial space (or valley) between the existing cells. Such a practice will delay the need for construction of additional liner and leachate collection systems.

Finally, those cells identified in Figure 1 as SW-3, SW-4, SW-5, and SW-6 are sited and permitted as disposal areas but are yet to be constructed. Assuming that the ultimate capacity of these yet-to-be constructed cells will have an approximate capacity of 750,000 cubic yards each<sup>4</sup>, an additional 3 million cubic yards of disposal volume for MSW remains available to Pasco County. This equates to roughly 13 years of disposal capacity at the reasonably foreseeable MSW disposal rates anticipated in the future, as depicted in **Table 2**. Use of these permitted cells for disposal of ash from the Resource Recovery Facility will prolong the remaining useful life even further.

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<sup>4</sup> It is assumed that landfill operators will be able to achieve greater compaction efficiencies and lower daily cover application rates if it becomes necessary to operate the solid waste disposal cells in a permanent (rather than intermittent) fashion, resulting in a larger disposal capacity than is currently achieved in SW-1/SW-2.

**Table 1**  
**Estimated Waste Generation Rates, Waste Disposal Rates, and Remaining Disposal Capacity**

Resource Recovery Facility		A-4 Disposal Cell				SW-1/SW-2 Disposal Cell						Hauled Out-of County		
Year	Projected Total Waste Received <sup>1</sup> (tons)	Estimated Waste Processed <sup>1a</sup> (tons)	Estimated Ash Generation Rate (tons)	Estimated Ash In Place at Beginning of Calendar Year (yds <sup>3</sup> ) <sup>5</sup>	Estimated Waste Placement Rate (yds <sup>3</sup> ) <sup>10</sup>	Estimated Remaining Disposal Capacity at End of Calendar Year <sup>3</sup>	Estimated Waste In Place at Beginning of Calendar Year <sup>9</sup> (yds <sup>3</sup> )	Estimated Daily Waste Placement Rate (tons)	Estimated Daily Waste Placement Rate (yds <sup>3</sup> ) <sup>6</sup>	Cover Application Rate (yds <sup>3</sup> )	Estimated Remaining Disposal Capacity at End of Calendar Year <sup>4</sup> (yds <sup>3</sup> )	Estimated Waste Transferred <sup>8</sup> (tons)	Estimated Waste Transferred <sup>3,2</sup> (yds <sup>3</sup> )	
	Estimated Daily Waste Application Rate (yds <sup>3</sup> ) <sup>2</sup>													
2018 <sup>7</sup>	368,695	349,468	85,875	78,068	346,700	78,068	836,000	219,261	15,093	27,442	4,116	403,000	4,134	27,560
2019 <sup>7a</sup>	390,851	339,461	83,477	75,889	418,000	75,889	760,380	250,819	10,306	18,738	2,811	627,828 <sup>11</sup>	41,084	273,892
2020	440,000	331,000	76,130	69,209	500,948	69,209	684,112	627,282	40,000	72,727	10,909	416,910	69,000	460,000
2021	450,000	331,000	76,130	69,209	570,157	69,209	614,903	710,918	40,000	72,727	10,909	333,273	79,000	526,667
2022	460,000	331,000	76,130	69,209	639,366	69,209	545,694	794,555	40,000	72,727	10,909	249,637	89,000	593,333
2023	475,000	331,000	76,130	69,209	708,575	69,209	476,485	878,191	40,000	72,727	10,909	166,001	104,000	693,333
2024	485,000	331,000	76,130	69,209	777,784	69,209	407,276	961,827	40,000	72,727	10,909	82,364	114,000	760,000
2025	495,000	331,000	76,130	69,209	846,993	69,209	338,066	1,045,464	39,000	70,909	10,636	819	125,000	833,333
2026	505,000	331,000	76,130	69,209	916,203	69,209	268,857	1,127,009	0	0	0	819	174,000	1,160,000
2027 <sup>10</sup>	515,000	515,000	118,450	107,682	985,412	107,682	161,176						0	0
2028	525,000	520,000	119,600	108,727	1,093,093	108,727	52,448						0	0
2029	530,000	520,000	119,600	108,727										
2030	545,000	520,000	119,600	108,727										
2031	550,000	520,000	119,600	108,727										

<sup>1</sup> Source: Integrated Solid Waste Management System Master Plan Update, Figure 3-2, CDM-Smith,2019, except where noted for actual values

<sup>1a</sup> Source: Integrated Solid Waste Management System Master Plan Update, Section 3, CDM-Smith,2019, except where noted for actual values

<sup>2</sup> assume density of uncompacted mixed MSW to be 300 lbs/cu. yd

<sup>3</sup> assume total capacity of A4 is 1,254,269 cu. yds.

<sup>4</sup> assume total capacity of SW1/SW2 is 900,000 cu. yds. prior to 2020, 1.12 million after 2020 (following FDEP Modification)

<sup>5</sup> assume density of ash to be 2,200 lbs/cu. yd.

<sup>6</sup> assume density of compacted mixed MSW to be 1,100 lbs/cu. yd.

<sup>7</sup> 2018 Values are actual values as reported by Pasco County, 1/17/19 Memorandum from J. Chamberlain to M. Carballa

<sup>7a</sup> 2019 Values are actual values as reported by Pasco County, 1/24/20 Memorandum from T. Treshler to M. Carballa

<sup>8</sup> Assumes that the favorable out-of-county pricing will be utilized through 2022

<sup>9</sup> pre-2020 values are for SW2 only. 2020 values and beyond are combined SW1 and SW2

<sup>10</sup> Assumes that WTE Processing capability will increase to 520,000 tons per year following Unit 4 expansion

<sup>11</sup> Jones Edmunds & Associates estimates 627,828 cu. yds. of remaining disposal capacity following merger of SW-1 and SW-2

**TABLE 2**  
**Future Cells SW-3, SW-4, SW-5, and SW-6**

Year	Projected Total Waste Received <sup>1</sup> (tons)	Estimated Waste Placement Rate <sup>2</sup> (tons)	Estimated Waste Placement Rate (yds <sup>3</sup> )	Estimated Daily Cover Application Rate (yds <sup>3</sup> ) <sup>6</sup>	Estimated Remaining Disposal Capacity at End of Calendar Year <sup>4</sup> (yds <sup>3</sup> )
2026	400,000	69,000	98,571	9,857	2,891,571
2027	410,000	79,000	112,857	11,286	2,767,429
2028	425,000	94,000	134,286	13,429	2,619,714
2029	435,000	104,000	148,571	14,857	2,456,286
2030	450,000	119,000	170,000	17,000	2,269,286
2031	452,000	121,000	172,857	17,286	2,079,143
2032	460,000	129,000	184,286	18,429	1,876,429
2033	475,000	144,000	205,714	20,571	1,650,143
2034	480,000	149,000	212,857	21,286	1,416,000
2035	490,000	159,000	227,143	22,714	1,166,143
2036	500,000	169,000	241,429	24,143	900,571
2037	510,000	179,000	255,714	25,571	619,286
2038	520,000	189,000	270,000	27,000	322,286
2039	530,000	199,000	284,286	28,429	9,571
2040	530,000				
2041	530,000				

<sup>1</sup> Source: Integrated Solid Waste Management System Master Plan, Figure 2-3, CDM-Smith,2015

<sup>2</sup> Projected Total Waste Delivered minus 331,000 tons processed in WTE Facility

## References

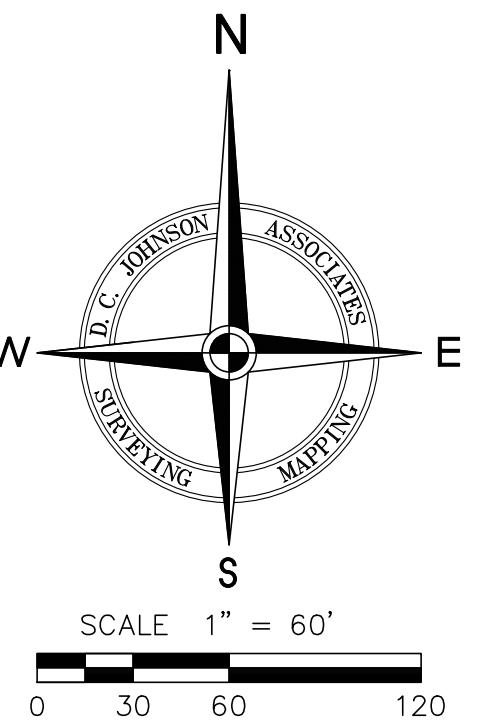
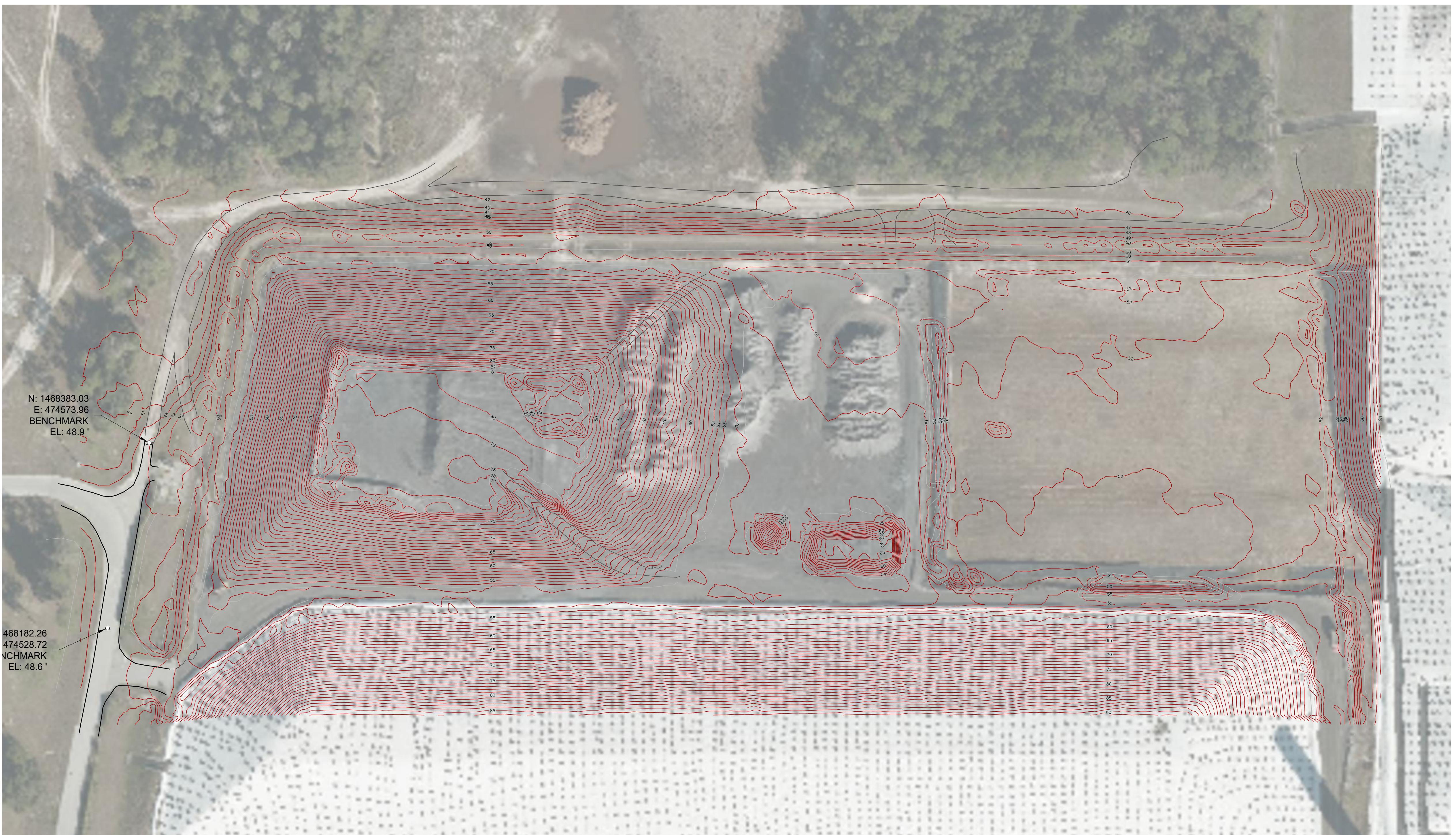
- CDM Smith. (2015). *Integrated Solid Waste Management System Master Plan*.
- CDM-Smith. (2015). *Annual Remaining Disposal Capacity and Site Life Calculations*.
- Pasco County Utilities. (2018). *Waste to Energy Tonnage Report*.
- USEPA. (2016). *Volume to Weight Conversion Factors, Office of Resource Conservation and Recovery*.

## Attachments

- Attachment 1: A-4 Topographic Contours
- Attachment 2: SW-2 Topographic Contours
- Attachment 3: A-4 Grid Volume Computations
- Attachment 4: SW-2 Grid Volume Computations
- Attachment 5: Waste Placement Records
- Attachment 6: SW-1/SW-2 Grid Volume Calculations at Buildout

## **ATTACHMENT 1**

### **A-4 Contours**



DATE OF FIELD SURVEY: 01/08/20



Topographic Survey  
Pasco County Solid Waste Department  
Pasco Waste, Area 2

PROJECT NO: 2019-430A01BG00001

SEC: 25

TWP: 24 S

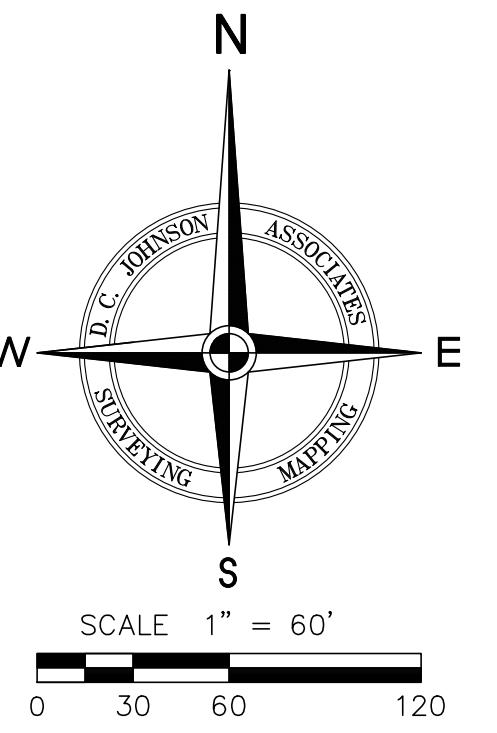
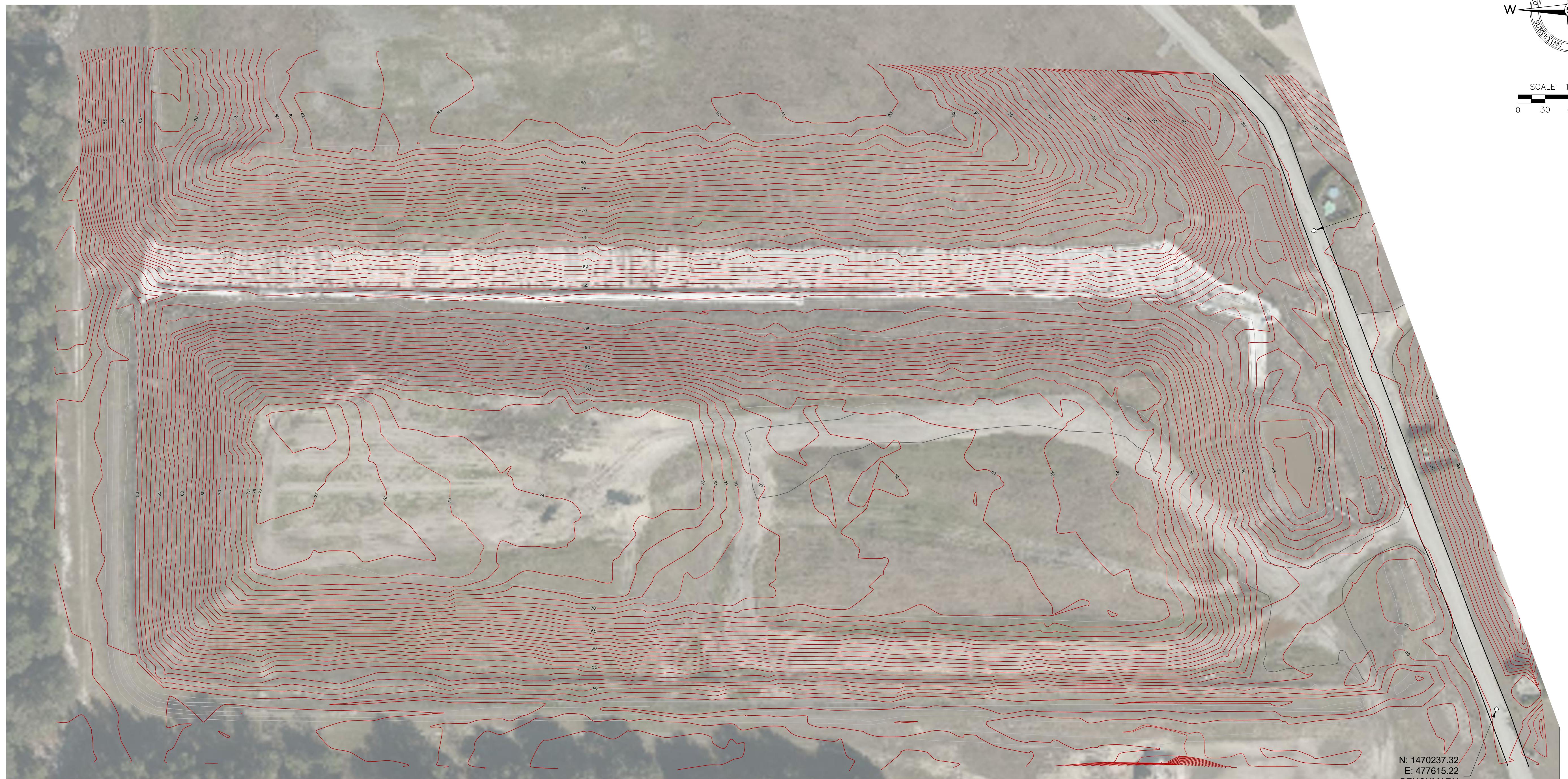
RNG: 17 E

COUNTY: Pasco

SHEET NO:  
2 of 3

SCALE:  
1" = 60'

**ATTACHMENT 2**  
**SW-2 Contours**



Prepared for:  
Pasco County Solid Waste Department  
Pasco Waste, Area 3

Project No: 2019-430A01BG00001

Sec: 25 Twp: 24 S Rng: 17 E County: Pasco



Date of Field Survey: 01/08/20

Scale: 1" = 60'  
Sheet No: 3 of 3

**ATTACHMENT 3**  
**A-4 Grid Volume Calculations**

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# Grid Volume Computations

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Thu Feb 20 14:52:16 2020

## Upper Surface

Grid File Name: C:\Users\jason\OD\Pasco\Solid Waste Facilities Compliance Assistance (TO 2-20)\Remaining Life\A4\A4 points - 2020.grd  
Grid Size: 100 rows x 63 columns

X Minimum: 1467773.842  
X Maximum: 1468681.4  
X Spacing: 14.638032258064

Y Minimum: 474491.46  
Y Maximum: 475942.42  
Y Spacing: 14.656161616161

Z Minimum: 40.78573306449  
Z Maximum: 91.838784405915

## Lower Surface

Level Surface defined by Z = 48

## Volumes

Z Scale Factor: 1

### Total Volumes by:

Trapezoidal Rule: 13240969.807354 (approx. 500,000 cubic yards)  
Simpson's Rule: 13234448.586266  
Simpson's 3/8 Rule: 13235523.188278

### Cut & Fill Volumes

Positive Volume [Cut]: 13525620.862797  
Negative Volume [Fill]: 284651.05544296  
Net Volume [Cut-Fill]: 13240969.807354

## Areas

### Planar Areas

Positive Planar Area [Cut]: 959508.22523797

Negative Planar Area [Fill]: 122296.44542283  
Blanked Planar Area: 235025.68501912  
Total Planar Area: 1316830.3556799

### **Surface Areas**

Positive Surface Area [Cut]: 975977.78060701  
Negative Surface Area [Fill]: 122636.71735856

**ATTACHMENT 4**  
**SW-1/SW-2 Grid Volume Calculations**

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# Grid Volume Computations

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Sat Feb 22 15:45:21 2020

## Upper Surface

Grid File Name: C:\Users\Jason\OneDrive - JMG Engineering\Pasco\Solid Waste Facilities Compliance Assistance (TO 2-20)\Remaining Life\SW1\_2\SW1 part of SW2 with SW1 estimated points added with blanks.grd  
Grid Size: 59 rows x 100 columns

X Minimum: 476022.19  
X Maximum: 477670.39  
X Spacing: 16.648484848485

Y Minimum: 1470168.45  
Y Maximum: 1471140  
Y Spacing: 16.750862068966

Z Minimum: 43.426541326678  
Z Maximum: 83.993881777936

## Lower Surface

Level Surface defined by Z = 48

## Volumes

Z Scale Factor: 1

### Total Volumes by:

Trapezoidal Rule: 20751977.268807 (assume 630,000 cubic yards)  
Simpson's Rule: 20742680.221829  
Simpson's 3/8 Rule: 20748812.52127

### Cut & Fill Volumes

Positive Volume [Cut]: 20760875.721707  
Negative Volume [Fill]: 8617.4480576465  
Net Volume [Cut-Fill]: 20752258.273649

## Areas

### Planar Areas

Positive Planar Area [Cut]: 1052954.2673473  
Negative Planar Area [Fill]: 2174.8695885075  
Blanked Planar Area: 546179.57306429  
Total Planar Area: 1601308.7100001

### **Surface Areas**

Positive Surface Area [Cut]: 1063434.0485654  
Negative Surface Area [Fill]: 2203.2769838513

**ATTACHMENT 5**

**Waste Placement Records**



**PUBLIC INFRASTRUCTURE BRANCH**  
Solid Waste and Resource Recovery

**INTEROFFICE  
MEMORANDUM**

DATE: January 24, 2020

TO: Michael J. Carballa, P. E., BCEE, Assistant County Administrator (Public Infrastructure)

THRU: John Power, Public Infrastructure, Solid Waste Director *Power 1/28/2020*

FROM: Tim Treshler, Public Infrastructure, Sr. Project Manager Solid Waste *TR 1/28/2020*

FILE: UTSW20-0230

SUBJECT: Quarterly Tonnage Report, Waste-to-Energy Facility, December, 2019

**REFERENCES:**

Attached are the latest monthly totals for Solid Waste and Ash processed at the Pasco County Waste-To-Energy Facility. This report is provided quarterly, but presented by month, with daily averages.

	Oct.	Nov.	Dec.
Current Quarter's ratio of ash to waste by month:	24%	28%	26%
This Fiscal Year's monthly average ratio ash to waste =			26%
Current Quarter's processable waste by month:	27,090	28,612	30,933 Tons
Current Quarter's Recycling totals by month:	691.25	627.57	582.16 ** Tons

*\*\* as of October 2011, this figure is based on Recycling hauled out*

**FY 2020 WASTE SUMMARY:**      86,635 Tons of MSW delivered to the Waste-to-Energy Facility to date  
    0 Tons Bypassed to SW Cells (Not Included in WTE Report Tonnage)  
    11,711 Tons Hauled Out of County (Not Included in WTE Tonnage)  
    98,346 Total MSW to date for Fiscal Year

**PAST MSW ACTIVITY:**

FY 15	FY 16	FY 17	FY 18	FY 19	
338,197	354,273	364,947	378,733	386,807	Total MSW for Fiscal Year
337,622	342,645	339,615	341,122	342,994	Tons of MSW delivered to the Waste-to-Energy Facility during FY
0	3,156	0	15,093	10,306	Tons of MSW Bypassed to the SW Cells during FY
575	8,472	25,333	22,518	33,507	Tons of MSW Hauled out of the County during FY

cc: Justin G. Grant, Public Infrastructure Fiscal and Business Administration Director  
Joanne Chamberlain, Public Infrastructure Fiscal and Business Administration, Accountant II  
Justin Roessler, P.E., Assistant Solid Waste Director  
Rachelle Dobbs, Recycling Supervisor



















### Pasco County Waste - to - Energy Tonnage Report

MONTH/ YEAR	WEST PASCO		EAST PASCO TONNAGE HAULED OUT (Info Only)	EAST PASCO			TOTAL PASCO	DAILY AVG	HERNANDO		PROCESSABLE WASTE		ASH		% ASH/ MSW	RECYCLING		MEGA WATTS	
	DAILY TONS	DAILY AVG		LOADS	TONS	DAILY AVG			WASTE	DAILY AVG	TOTAL TONS	DAILY AVG	DAILY AVG	TOTAL TONS	TOTAL TONS	TOTAL TONS	MONTHLY GEN.	12 MONTH ROLLING AVERAGE	
Oct-18	24,600.84	793.58	3,896.68	145	3,077.07	99.26	27,677.91	892.84	0.00	0.00	27,677.91	892.84	0.00	6,679.64	215.47	0.24	617.46	15.54	21.67
Nov-18	23,792.76	793.09	237.05	326	7,013.06	233.77	30,805.82	1,026.86	0.00	0.00	30,805.82	1,026.86	0.00	7,128.17	237.61	0.23	705.13	23.55	21.75
Dec-18	24,223.27	781.40	0.00	341	7,461.50	240.69	31,684.77	1,022.09	0.00	0.00	31,684.77	1,022.09	0.00	7,299.03	235.45	0.23	731.47	22.85	21.71
Jan-19	25,700.47	829.05	3,473.97	207	4,523.45	145.92	30,223.92	974.97	0.00	0.00	30,223.92	974.97	0.00	7,545.85	243.41	0.25	845.16	23.32	21.74
Feb-19	13,947.11	498.11	6,189.62	45	954.93	34.10	14,902.04	532.22	0.00	0.00	14,902.04	532.22	0.00	5,806.39	207.37	0.39	772.80	17.15	21.32
Mar-19	23,558.92	759.97	3,590.30	195	4,184.45	134.98	27,743.37	894.95	0.00	0.00	27,743.37	894.95	0.00	4,848.22	156.39	0.17	801.16	15.61	21.12
Apr-19	25,790.72	859.69	4,571.55	155	3,379.31	112.64	29,170.03	972.33	0.00	0.00	29,170.03	972.33	0.00	7,467.67	248.92	0.26	746.37	23.51	21.24
May-19	25,337.26	817.33	1,164.82	297	6,385.45	205.98	31,722.71	1,023.31	0.00	0.00	31,722.71	1,023.31	0.00	7,565.51	244.05	0.24	753.53	22.85	21.15
Jun-19	23,179.88	772.66	6,106.18	62	1,307.23	43.57	24,487.11	816.24	0.00	0.00	24,487.11	816.24	0.00	7,232.09	241.07	0.30	657.88	21.38	21.20
Jul-19	26,746.94	862.80	2,620.19	258	5,599.82	180.64	32,346.76	1,043.44	0.00	0.00	32,346.76	1,043.44	0.00	8,233.49	265.60	0.25	630.30	23.10	21.25
Aug-19	25,772.25	831.36	0.00	358	7,866.53	253.76	33,638.78	1,085.12	0.00	0.00	33,638.78	1,085.12	0.00	7,882.45	254.27	0.23	655.80	24.00	21.35
Sep-19	23,118.96	770.63	1,656.47	250	5,471.99	182.40	28,590.95	953.03	0.00	0.00	28,590.95	953.03	0.00	7,424.42	247.48	0.26	594.08	24.00	21.41
Total 19	285,769.38		33,506.83	2,639	57,224.79		342,994.17		0.00	0.00	342,994.17		0.00	85,112.93			8,511.14	256.86	
Average19	23,814.12	780.81	2,792.24	220	4,768.73	155.64	28,582.85	936.45	0.00	0.00	28,582.85	936.45	0.00	7,092.74	233.09	0.25	709.26		21.41
Oct-19	25,083.98	809.16	5,499.96	91	2,006.06	64.71	27,090.04	873.87	0.00	0.00	27,090.04	873.87	0.00	6,368.82	205.45	0.24	691.25	16.19	21.46
Nov-19	23,373.85	779.13	2,083.07	231	5,238.45	174.62	28,612.30	953.74	0.00	0.00	28,612.30	953.74	0.00	7,892.60	263.09	0.28	627.57	23.72	21.47
Dec-19	26,528.40	855.75	4,127.65	201	4,404.19	142.07	30,932.59	997.83	0.00	0.00	30,932.59	997.83	0.00	7,909.93	255.16	0.26	582.16	Not Available Not Available	
Jan-20	0.00	0.00		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Feb-20	0.00	0.00		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Mar-20	0.00	0.00		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Apr-20	0.00	0.00		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
May-20	0.00	0.00		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jun-20	0.00	0.00		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Jul-20	0.00	0.00		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Aug-20	0.00	0.00		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Sep-20	0.00	0.00		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total 20	74,986.23		11,710.68	523	11,648.70		86,634.93		0.00	0.00	86,634.93		0.00	22,171.35			1,900.98	39.92	
Average20	6,248.85	203.67	3,903.56	44	970.73	31.78	7,219.58	235.45	0.00	0.00	7,219.58	235.45	0.00	1,847.61	60.31	0.26	158.42	19.96	

**ATTACHMENT 6**

**Grid Volume Calculations for Merged SW-1 and SW-2**

**Cells**

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# Grid Volume Computations

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Wed Mar 11 10:22:42 2020

## Upper Surface

Grid File Name: C:\Users\jason\OD\Pasco\Solid Waste Facilities Compliance Assistance (TO 2-20)\Remaining Life\SW1\_2\Surfer files\EOW\_NAVD88.grd  
Grid Size: 63 rows x 100 columns

X Minimum: 476118.4316  
X Maximum: 477505.9131  
X Spacing: 14.014964646465

Y Minimum: 1470261.037  
Y Maximum: 1471127.561  
Y Spacing: 13.976193548387

Z Minimum: 18.816575626851  
Z Maximum: 123.75012904486

## Lower Surface

Grid File Name: C:\Users\jason\OD\Pasco\Solid Waste Facilities Compliance Assistance (TO 2-20)\Remaining Life\SW1\_2\Surfer files\bottom contours.grd  
Grid Size: 63 rows x 100 columns

X Minimum: 476118  
X Maximum: 477506  
X Spacing: 14.020202020202

Y Minimum: 1470261  
Y Maximum: 1471125  
Y Spacing: 13.935483870968

Z Minimum: 39.777145648091  
Z Maximum: 62.833828527174

## Volumes

Z Scale Factor: 1

### Total Volumes by:

Trapezoidal Rule: 43518471.911485 (assume 1.12 million cubic yards for consistency w/ JEA)  
Simpson's Rule: 43503308.310076  
Simpson's 3/8 Rule: 43504714.583244

## **Cut & Fill Volumes**

Positive Volume [Cut]: 43683095.964702  
Negative Volume [Fill]: 164624.05321688  
Net Volume [Cut-Fill]: 43518471.911485

## **Areas**

### **Planar Areas**

Positive Planar Area [Cut]: 948819.31100468  
Negative Planar Area [Fill]: 21038.565828165  
Blanked Planar Area: 229374.12316716  
Total Planar Area: 1199232

### **Surface Areas**

Positive Surface Area [Cut]: 983876.49483521  
Negative Surface Area [Fill]: 23847.573102361

Excerpt from JEA application for permit modification

B. Calculate the expected lifespan

Data:

Starting Annual Waste Disposal Rate (FY2018):

Permitted Volume Before Modification:

Slope Modification and Vertical Expansion Volume:

Volume Consumed Since Start of Operations (as of 1/1/2019):

Permitted Disposal Volume Remaining:

$$V_0 = \frac{15,093}{900,000} \text{ Tons CY}$$

$$V_{mod} = \frac{227,828}{500,000} \text{ CY}$$

$$V_{consumed} = \frac{500,000}{627,828} \text{ CY}$$

$$V_{remaining} = (V_0 + V_{mod}) - V_{consumed} = \frac{627,828}{627,828} \text{ CY}$$

(Reference 1)  
(Reference 2)

(Reference 3)  
(Reference 2)