

Memorandum



Date: December 16, 2014
To: Honorable Dennis C. Moss
Board of County Commissioners-District 9
From: Carlos A. Gimenez
Mayor 
Subject: Notice of Environmental Contamination in Commission District 9

On March 3, 2009, the Board of County Commissioners adopted Resolution No. R-227-09 requiring that when environmental contamination is identified by the Department of Regulatory and Economic Resources Division of Environmental Resources Management (DERM), the Commissioner in whose District the environmental contamination is located shall be notified of such.

Pursuant to R-227-09, please be advised that the attached letter was sent to the Miami-Dade County Department of Parks, Recreation and Open Spaces (PROS), the party responsible for site rehabilitation, on November 13, 2014 because of documented soil contamination. The property is a Miami-Dade County public park. Guidance has been provided to PROS on measures to be implemented to protect the public and prevent direct exposure to the contaminated soils. The site and the surrounding area are served by drinking water provided by public water supply and therefore the drinking water is not at risk from the contamination. The owner/operator/responsible party must perform site rehabilitation action in order to bring the site into compliance with Chapter 24 of the Code of Miami-Dade County.

The summary of this case is noted below:

Subject	Environmental Contamination
Facility Name:	Zoo Miami
DERM File #:	File-11706/ HWR#802
Facility Address:	12400 SW 152 Street, Miami, Florida in Miami-Dade County
Folio Number:	30-5936-000-0050
Description/Nature of Violation:	Environmental contamination requiring site rehabilitation action pursuant to Division 3, Contaminated Site Cleanups, Chapter 24, Code of Miami-Dade County, Florida.

Should you have any questions or require additional information, please contact Mr. Lee N. Hefty, Director, Environmental Resources Management, Department of Regulatory and Economic Resources at (305) 372-6754 or by email at hefty@miamidadegov.

Attachment: Site Rehabilitation Order for Environmental Contamination

c: Jack Osterholt, Deputy Mayor/Director, Department of Regulatory and Economic Resources
Lee Hefty, Director of the Division of Environmental Resources Management - RER

Memorandum



Date: November 13, 2014

To: George Navarrete, Deputy Director
Miami-Dade County Department of Parks, Recreation and Open Spaces (PROS)

From: Wilbur Mayorga, P.E., Chief
Environmental Monitoring & Restoration Division
Miami-Dade County Department of Regulatory & Economic Resources

Subject: Zoo Miami (HWR#802/File-11706) facility, located at, near or in the vicinity of 12400 SW 152 St.,
(Folio # 30-5936-000-0050) Miami, Miami-Dade County, Florida.

The Department of Regulatory and Economic Resources – Division of Environmental Resources Management (DERM) conducted sampling inspections at Zoo Miami on October 3, 2014 and October 9, 2014 as a follow up to comment No.1 of DERM's September 22, 2014 Memorandum (attached). In addition to the areas indicated in the above-referenced DERM memo, DERM's October 3rd and October 9th inspections also documented the presence of surficial and buried solid waste (e.g., apparent melted glass, metal fragments, etc.) in the locations noted below. Inspection reports, maps, analytical results summary tables and GPS coordinate information for the inspections noted above are attached.

- Orangutan Service Road (accessible only to park staff)
- Monkey Meadow Field (accessible to park patrons and park staff)
- Walkway along the Lion Exhibit (accessible to park patrons and park staff)
- Areas across and adjacent to the Camel Exhibit (accessible to park patrons and park staff)
- The gazebo area across the Spotted Hyena Exhibit (accessible to park patrons and park staff)
- The walkway to the south of the Spotted Hyena Exhibit's Gazebo Area (accessible to park patrons and park staff)

Additionally, on October 3, 2014 DERM collected three (3) surficial soil samples (i.e., Sample #1 (N25.60887 W080.40312), Sample #2 (N25.25.60891 W080.40336) and Sample #3 (N25.60755 W080.40192)) for the analysis of Metals and PAHs. With the exception of the copper concentration (643 mg/kg) documented for Sample #3, contaminant concentrations were reported below screening criteria and are consistent with the concentrations for the samples collected on July 29, 2014 and August 22, 2014 at the subject site. Therefore, with the exception of the area represented by Sample #3 the contaminant levels at the referenced facility do not present a human health concern based on current park use.

To address the elevated copper concentration, DERM requires the immediate implementation of access restriction measures in the area represented by Sample #3 (e.g., construction barrier mesh with appropriately worded warning signage, etc.) to prevent exposure to the contaminated soils. Additionally, within fourteen (14) days of receipt of this correspondence, DERM requires targeted source removal in the immediate vicinity of Sample #3. Please note that to assist PROS, DERM will collect confirmation soil samples subsequent to the source removal area to determine if the impacted soil has been adequately removed. Therefore, Didier Camacho of DERM shall be contacted at 305-372-6700 (camacd@miamidade.gov) at least three (3) days before the commencement of the source removal activities to coordinate the sampling event. Please note that the manifest(s) for the disposal of excavated contaminated soil shall be provided to DERM.

Within sixty (60) days of receipt of this correspondence submit a report that addresses comments 2, 3, 3a., 3b., 3c., and 3d. of DERM's September 22, memorandum. The report shall include documentation of the source removal activity required above. Note that DERM will work with PROS, as necessary, in selecting an environmental consultant for the task of preparing and implementing the Corrective Action for the site. Therefore, please contact Julie Balogh of DERM's Airports & Contracts Section at 305-372-6700 to request the use of the DERM-01 contract.

DERM shall be notified in writing a minimum of three (3) working days prior to the implementation of any sampling or field activities. Email notifications shall be directed to DERMPCD@miamidade.gov. Please include the DERM file number on all correspondence.

George Navarrete / Miami-Dade County PROS
HWR#802/File-11706
November 13, 2014
Page 2 of 2

DERM has the option to split any samples deemed necessary with the consultant or laboratory at the subject site. The consultant collecting the samples shall perform field sampling work in accordance with the Standard Operating Procedures provided in Chapter 62-160, Florida Administrative Code (FAC), as amended. The laboratory analyzing the samples shall perform laboratory analyses pursuant to the National Environmental Laboratory Accreditation Program (NELAP) certification requirements. If the data submitted exhibits a substantial variance from DERM split sample analysis, a complete re-sampling using two independent certified laboratories will be required.

If you have any questions regarding this correspondence, please contact me via email at mayorw@miamidade.gov or via telephone 305-372-6700.

dc

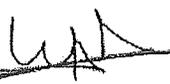
ec: Julie Balogh, DERM, balogj@miamidade.gov
Lorna Bucknor, DERM, bucknl@miamidade.gov
Didier Camacho, DERM, camacd@miamidade.gov
Lee Hefty, Assistant Director, DERM, heftyl@miamidade.gov
George Navarrete, Deputy Director, PROS, GLN@miamidade.gov
Li Gurau, P.E., Senior Professional Engineer, PROS, gurau@miamidade.gov
Jorge Mora, Chief, Capital Programs Division, PROS, jmora@miamidade.gov

Memorandum



Date: September 22, 2014

To: George Navarrete, Deputy Director
Miami-Dade County Department of Parks, Recreation and Open Spaces (PROS)

From: Wilbur Mayorga, P.E., Chief
Environmental Monitoring & Restoration Division
Miami-Dade County Department of Regulatory & Economic Resources 

Subject: Zoo Miami (HWR-802/File-11706) facility, located at, near or in the vicinity of 12400 SW 152 St., Miami, Miami-Dade County, Florida.

The Department of Regulatory and Economic Resources—Division of Environmental Resources Management (DERM) inspected and collected soil samples at the referenced facility on July 29, 2014 and August 22, 2014. The investigation was conducted as part of DERM's efforts to screen all the publicly accessible parks, owned and operated by PROS, for potential environmental concerns. The analytical results from the above-referenced sampling events indicate that contaminant levels do not present a human health concern based on current park use. However, surficial and buried solid waste (e.g., apparent melted glass, metal fragments, etc.) was documented in the Amazon and Beyond Ant Eater Exhibit's Holding Cage Area (accessible only to park staff) and the Hippopotamus Slide/Children Playground Area (accessible to park patrons and park staff). Additionally, surficial medical/laboratory waste (test tubes, glass syringes, etc.) was documented in a remote location (accessible to park staff only) west of the animal crematory area. The attached report provides inspections, maps, analytical results tables and the GPS coordinates of the areas in question.

Based on the aforementioned findings DERM requires the implementation of the corrective action to eliminate any potential for public/staff exposure (physical) to the surficial solid waste and to protect the staff from exposure to the medical/laboratory waste. PROS shall immediately implement appropriate temporary engineering controls (e.g. fence, construction barricades, barrier mesh etc.) until such time as a corrective action plan is developed and implemented to address the impacted areas. The corrective action plan shall provide for the following:

1. Within 14 days conduct a joint walkthrough inspection, with DERM staff, of all pertinent park areas to determine the extent of the surficial solid waste. Didier Camacho of DERM shall be contacted at least three days in advance at (305) 372-6700 or via email at camacd@miamidade.gov to schedule the joint inspection.
2. Surficial (0 to 6 inch) solid waste removal from all public access areas. Subsequent to the source removal, if solid waste is encountered at greater depth (below 0 to 6 inch), an engineering control consisting of a geotextile liner followed by a minimum of ten inches of clean fill and two inches of sod/grass, or a geotextile liner followed by 12 inches of mulch, or an equivalent barrier to prevent direct contact with the underlying waste, shall be installed. Any solid waste removed shall be appropriately disposed.
3. In non public access areas with documented solid waste, for the safety of the staff, DERM recommends that at a minimum these areas be posted with appropriately worded warning signage/cordoned off to restrict access. Access restrictions shall be implemented in the areas with medical/laboratory waste until such time as the material can be removed and appropriately disposed.

Within sixty (60) days of the receipt of this memorandum submit, to DERM for review, a report that shall at a minimum provide the following:

- a. Documentation (pictures, disposal manifest(s), etc.) of surficial solid waste removal in the public access areas.
- b. Documentation of the measures taken, in the non public access areas, to endure protection of the staff.

George Navarrete / Miami-Dade County PROS
HWR#/File-11706
September 22, 2014
Page 2 of 2

- c. Access restriction measures implemented in the areas with medical/laboratory waste or disposal manifests for the said medical/laboratory waste.
- d. An engineering control report that documents the engineering controls implemented at the site.

DERM shall be notified in writing a minimum of three (3) working days prior to the implementation of any sampling or field activities. Email notifications shall be directed to DERMPCD@miamidade.gov. Please include the DERM file number on all correspondence.

If you have any questions regarding this correspondence, please contact me via email at mayorw@miamidade.gov or via telephone 305-372-6700.

dc

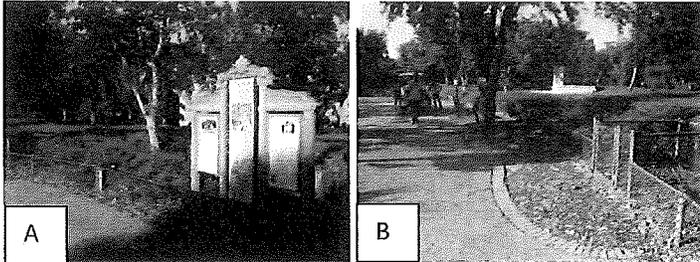
cc: Jorge Mora, PROS, jmora@miamidade.gov
Li Gurau, PROS, gurau@miamidade.gov
Lee Hefty, Director DERM
Lorna Bucknor, DERM,
Didier Camacho, DERM

Zoo Miami
 12400 SW 152 Street
 Inspection Date: 10-3-14
 DERM Staff: Didier Camacho / Eddie Gonzalez / Roosevelt Jean

PROS staff escorted DERM to 15 pertinent areas of Zoo Miami to conduct a walkthrough inspection to determine if surficial solid waste was present. Solid waste (i.e., possible melted glass, tile fragments, metal, etc.) was noted in 4 of the 15 inspected areas. Three grab surficial soil samples were collected for Metal and PAH analysis. Below are details of the findings for each area:

Area A – Tiger Exhibit (GPS: N25.60999 W080.39885)

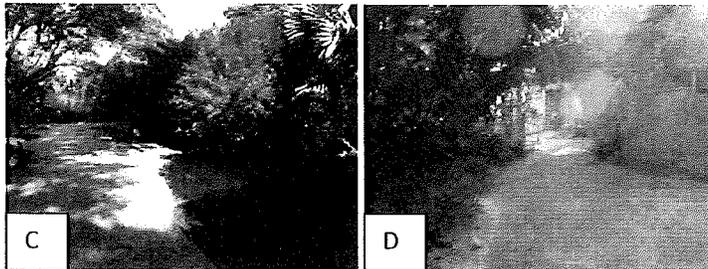
Pursuant to PROS this Exhibit is popular with park patrons. Open ground areas had approximately 4 inches of mulch around the landscaping and benches. No evidence of surficial solid waste was noted.



- A. View of the Tiger Exhibit Area.
- B. View of open ground area along said exhibit.

Area B – Bike Parking Area between Monorail and Amphitheater (GPS: N25.60885 W080.39841)

Pursuant to PROS this area is used by patrons to park bicycles and access the bathrooms along one of the monorail stops. Open ground areas had approximately 4 inches of mulch around the landscaping. No evidence of surficial solid waste was noted.



- C. View of Bicycle parking between monorail and amphitheater.
- D. View of bathroom area under the monorail.

Areas C and D – Oasis Zoo Dining and Playground Areas (GPS: N25.60734 W080.39910) (GPS: N25.68707 W080.39811)

Dining area with picnic tables, benches and playground. Open ground areas had approximately 4 inches of mulch. No evidence of surficial solid waste was noted (only incidental trash apparently from park visitors).

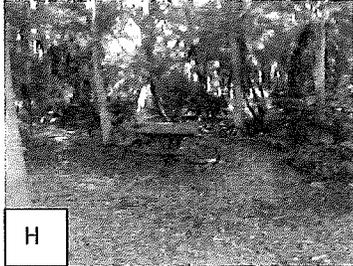


E & F View of mulched picnic bench areas.

G. Mulched playground area in the rear of the Oasis Zoo Dining

Area E – Black Rhino Exhibit Picnic Area (GPS: N25.60347 W080.40012)

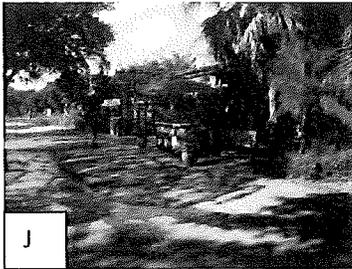
Pursuant to PROS this Exhibit is popular with park patrons. Open ground areas had approximately 4 inches of mulch around the landscaping and benches. No evidence of surficial solid waste was noted.



H. Mulched picnic bench across Black Rhino Exhibit.

Area F – Giraffe Exhibit Picnic Area (GPS: N25.60465 W080.40167)

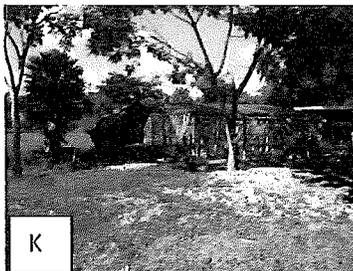
Pursuant to PROS this Exhibit is popular with park patrons. Area almost entirely paved. Small areas that contain open ground had no evidence of surficial solid waste.



I. Small picnic area along Giraffe Exhibit.
J. Giraffe Exhibit Area (mostly concrete).

Area G – Ant Eater Holding Cage Area (GPS: N25.60405 W080.39784)

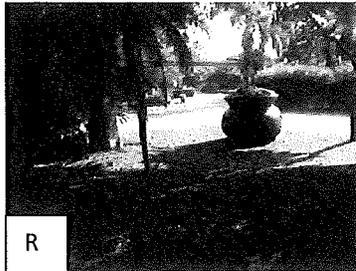
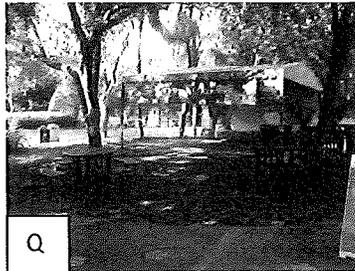
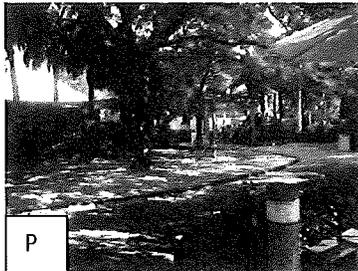
PROS indicated that further construction (expanding the cage area) of this area had taken place. Holding cages have been expanded. Surficial possible melted glass was noted in the same area documented during DERM’s August 8-22-14 inspection. PROS indicated that the park patrons do not have access to this area. DERM to delineate the extent of solid waste during subsequent inspection in this location.



K. Length of the Holding Cage expanded.
L. Open ground area in front of cage where solid waste was noted.

**Areas H and I – Children’s Zoo and Children’s Carousel Area (GPS: N25.61115 W080.40129)
(GPS: N25.2561166 W080.40104)**

Pursuant to PROS this Exhibit is popular with park patrons. Open ground areas had approximately 4 inches of mulch around the landscaping, benches and playground areas/carousel. No evidence of surficial solid waste was noted.

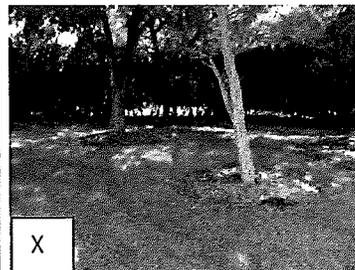
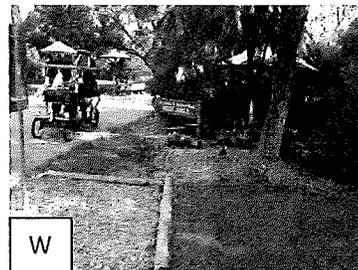
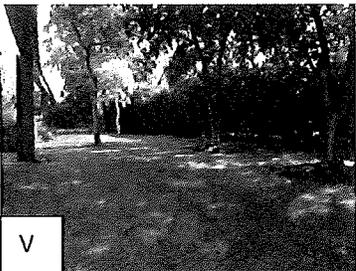
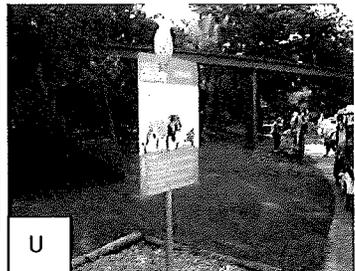


M. Playground Area.
N. Picnic Area.
O. Picnic Area.

P. Carousel playground area.
Q. Mulch playground area.
R. Mulch around golden pot area.

Area J – Lion Exhibit Area (GPS: N25.61087 W080.40229)

Pursuant to PROS this Exhibit is popular with park patrons. Open ground areas had approximately 4 inches of mulch around the landscaping and trees. However, one small piece (0.25 inch) of possible melted glass was noted in the open ground area along the patron walkway at the following GPS coordinate: N25.61049 W080.40296. Said piece of glass was containerized for further inspection by DERM.



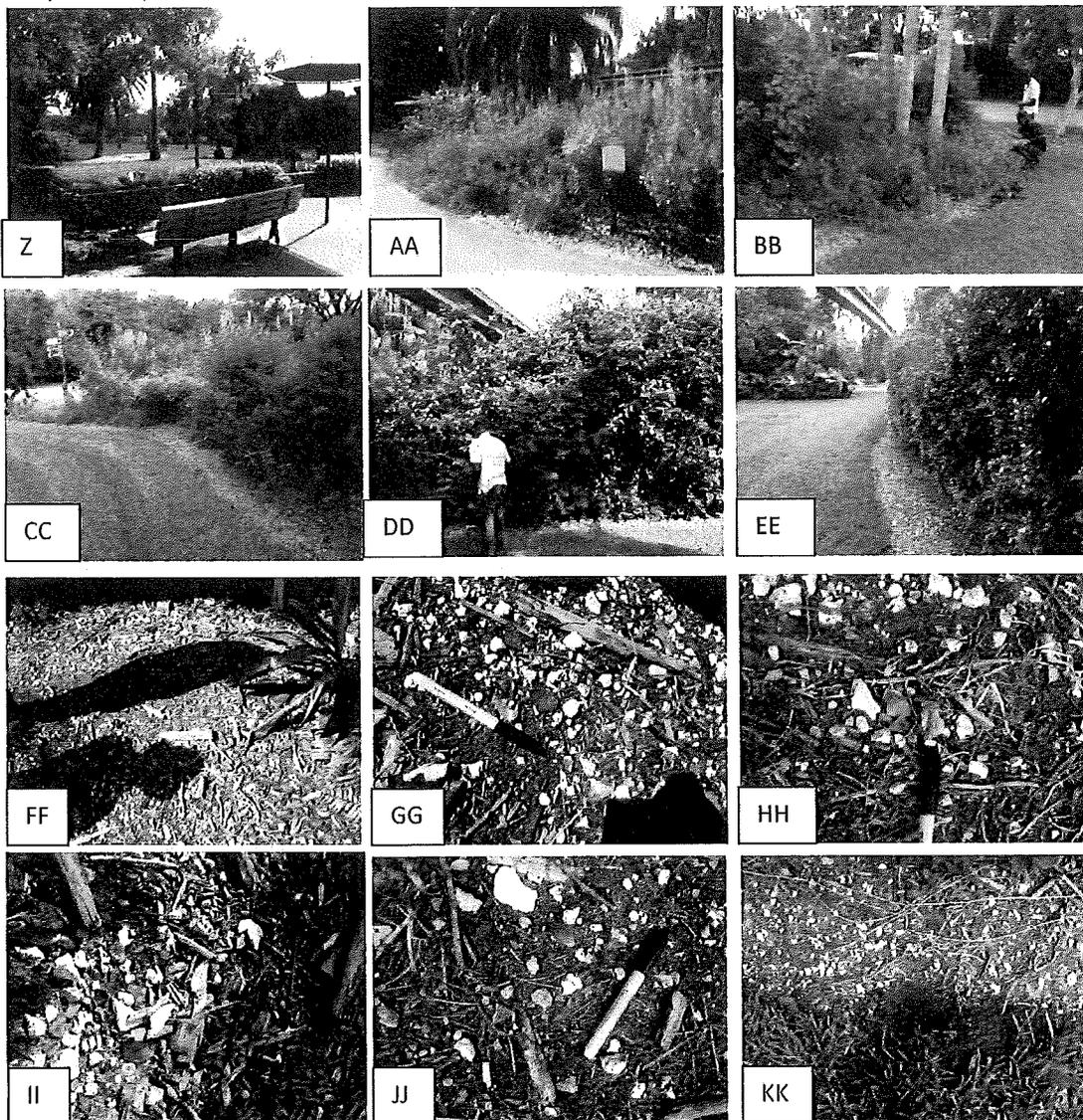
P. Mulch around trees across the Lion Exhibit Area.
U. Open ground along patron walkway.
V. Open ground with trees under the monorail.
W. Mulch and open ground along patron walkway.
X. Another view of the mulched trees.

Areas K and L – Camel Exhibit Area (GPS: N25.60892 W080.40319)

Pursuant to PROS this Exhibit is popular with park patrons. Open ground area along the hedge line and bougainvillea plants had less than 0.25 inches of mulch. The landscaped area immediately along the patron walkway had no mulch. Surficial possible melted glass noted in the open ground along the edge of the walkway and along the hedge across the Camel Exhibit. Pieces of roofing shingles also noted along said hedge line.

Two surficial soil samples were collected in said areas for Metals and PAH analysis. GPS coordinates for the soil samples: N25.60887 W080.40312 (edge of walkway) and N25.60891 W080.40336 (hedge line area). Some of the solid waste pieces were containerized for further inspection by DERM.

The surficial solid waste in said area has been horizontally delineated to the following GPS coordinates (triangular shaped area): N25.60867 W080.40323, N25.60924 W080.40327, and N25.60895 W080.40320.

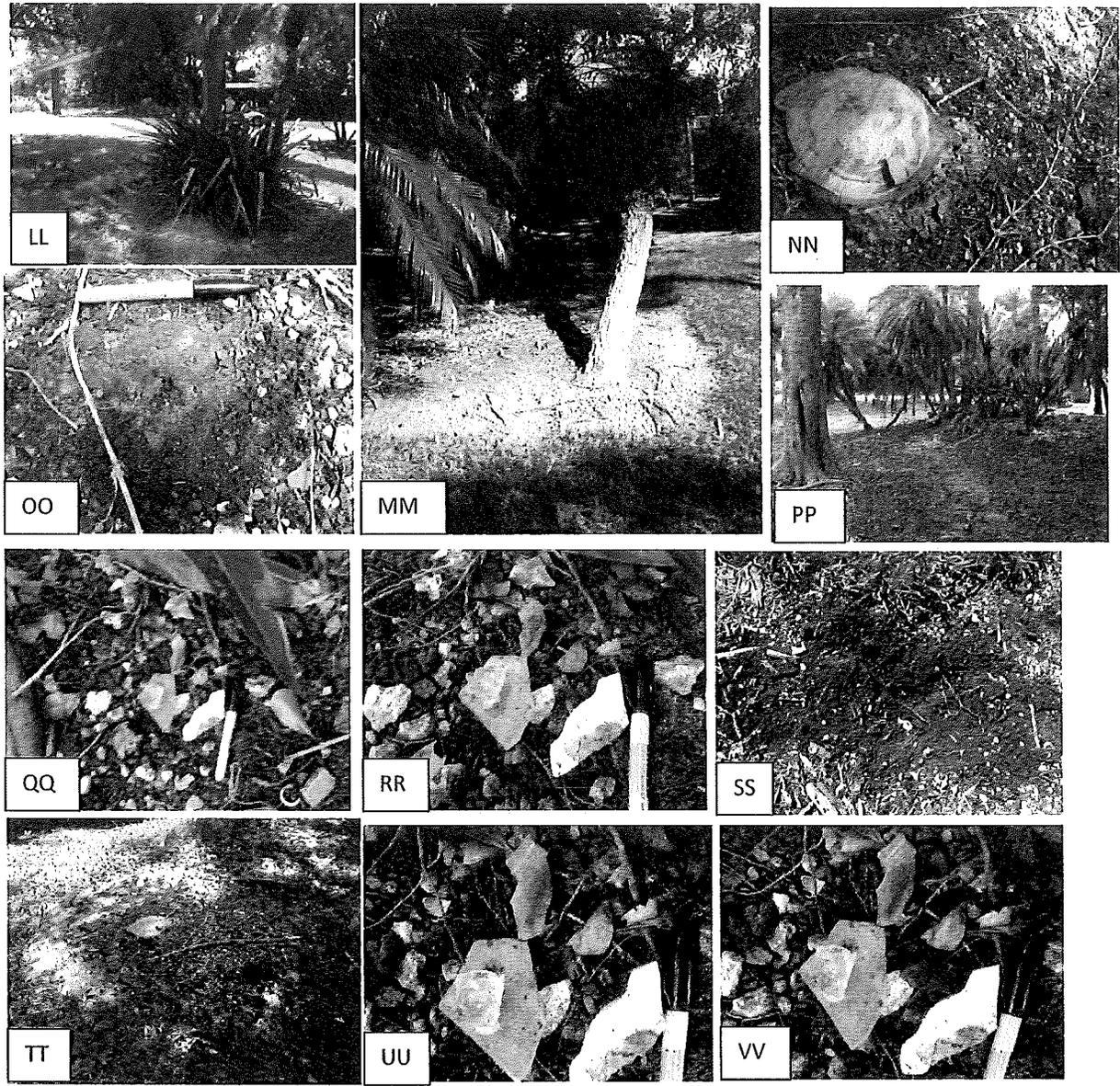


Z. Mulched bench area Camel Exhibit.
AA. Landscaped area along walkway.
BB-EE: Hedge line area containing solid waste.
FF-JJ: Solid waste along hedge line and walkway area
KK: Surficial sample location

Areas M – Open ground across from Areas K and L

Since solid waste was noted in Areas K and L, DERM inspected the open ground area adjacent to the patron walkway across areas K and L. Several trees and landscaped areas have very little to no mulch. Surficial pieces of melted glass, broken tiles, and metal pieces noted around the base of trees and landscaping areas in the locations noted below.

- Plant 1: N25.608465 W080.40301 – glass around base
- Tree 2: N25.60848 W080.40289 – metal, glass and tile around base
- Tree 3: N25.60847 W080.40287 – glass around the base
- Tree 4: N25.60843 W080.40282 – glass around the base
- Tree 5: N25.60848 W080.40294 - glass around the base
- Tree 6: N25.60855 W080.40288 – glass noted around the base
- Tree 7: N25.60855 W080.40287 – glass noted around the base

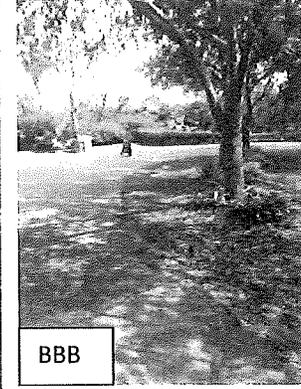
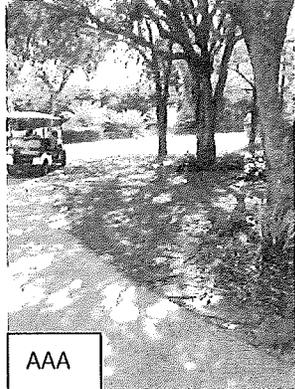
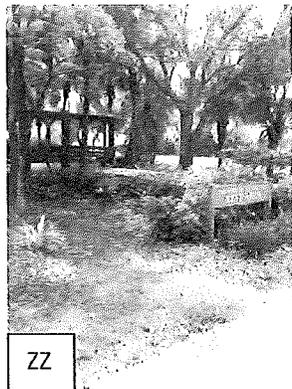
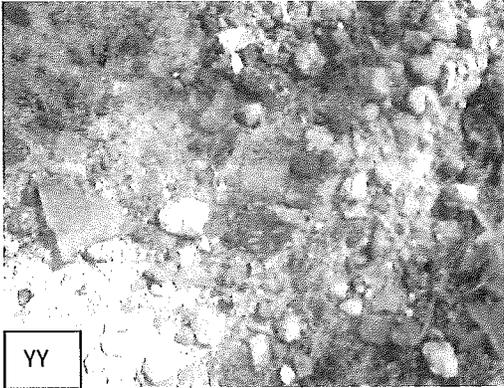
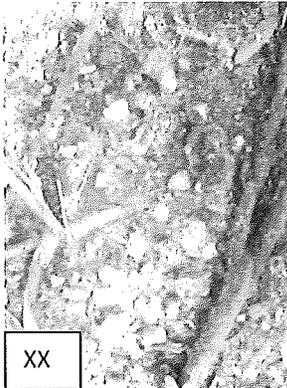
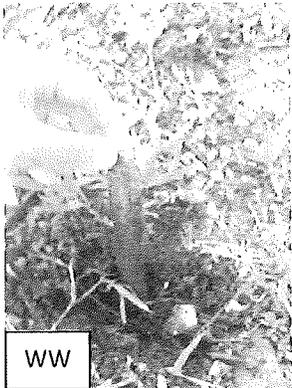


LL: Tree#1, MM: Tree#2, NN: Tree#3, OO: Metal Pieces, PP: Lightly mulched area, QQ-VV: Solid Waste

Area N – Gazebo Area across the Spotted Hyena Exhibit

Open ground area along the patron walkway that contains a small walking path leading to a Gazebo/Shelter. Surficial pieces of metal and possible melted glass was noted in the open ground area along the edge of the walkway.

The surficial solid waste in said area has been horizontally delineated to the following GPS coordinates (semi-circle shaped area): N25.60792 W080.40153, N25.60806 W080.40153, and N25.60792 W08040178.



WW-YY: Surficial solid waste
ZZ-BBB: Edge of the open ground area along the walkway where solid waste was noted.

Area O – Mound Area south of Area N (GPS N25.60755 W080.40192)

Open ground area along the patron walkway. Mound containing rocks and soil had possible melted glass. Area is lightly mulched.



CCC: Surficial solid waste noted on the mound area

Zoo Miami
12400 SW 152 St.

Inspection Date: 10-9-2014

DERM Staff: Didier Camacho / Eddie Gonzalez / Roosevelt Jean / Stanley Edouard

DERM inspected the Hippo Slide Area, the Orangutan Service Road, the Monkey Meadow Field Area and the Ant Eater Holding Area to delineate solid waste. Below are details of the findings for each area:

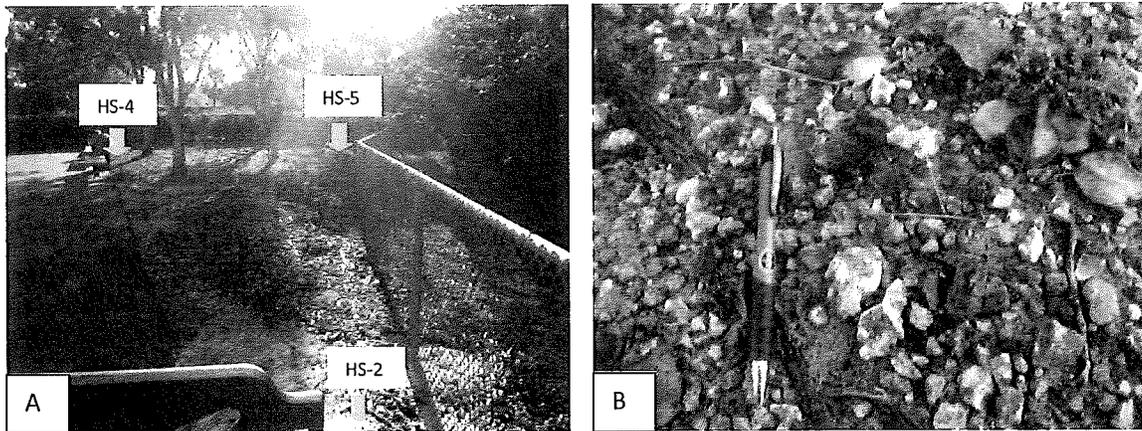
Hippo Slide Area

Surficial solid waste (glass, plastic, metal fragments, etc.) was noted throughout the open ground mulched area to the south of the slide. Said area has several trees, seating benches and is accessible to park patrons. GPS coordinates for the surficial solid waste delineation points were collected:

Surficial Delineation Point: HS-2 N25.60820 W080.39915

Surficial Delineation Point: HS-4 N25.60821 W080.39834

Surficial Delineation Point: HS-5 N25.60809 W080.39897



- A. View of the open ground area south of the Hippo Slide. Approximate locations of the surficial solid waste delineation points noted. Picture taken facing east. Note: Solid waste was discovered in this area from the 6-24" interval from two soil borings advanced during the 7-29-14 inspection. No subsurface delineation conducted.
- B. Example of the surficial solid waste noted in said area.

Sand has been placed beneath and around the Hippo Slide. Buried solid waste (glass, wire) was noted in two soil borings advanced in the sand area: HS Sand1(9") (N25.60821 W080.39928) and HS Sand2(1-7") (N25.60827 W080.39958). The depth of the sand at HS Sand1 was 0-5" followed by dark brown soil. The depth of the sand at HS Sand2 was 0-1" followed by black soil.



C. View of sand area facing west.

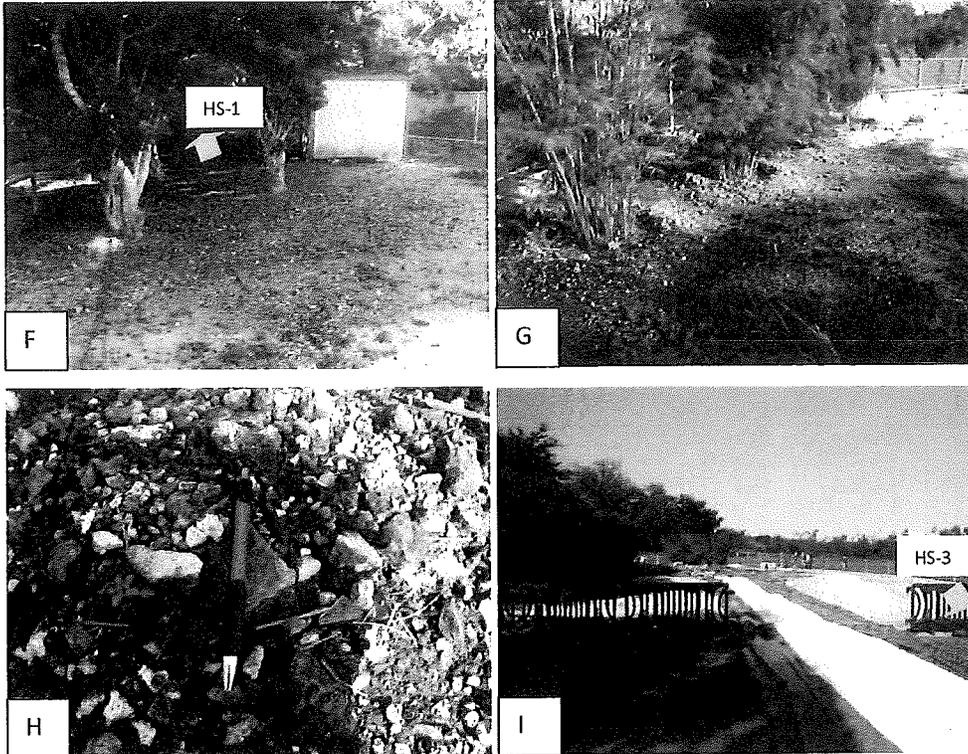
D. View of sand area facing east.

E. Buried solid waste noted in the sand area.

Surficial solid waste was noted in the open ground area and along the bamboo tree line to the west of the Hippo Slide's sandy area. This area appears to have denser amount of surficial solid waste (melted glass, etc.). The area appears to be accessible to park patrons. Subsurface soil borings were not advanced in this area. GPS coordinates for the surficial solid waste delineation points were collected:

Surficial Delineation Point: HS-1 N25.60785 W080.39985

Surficial Delineation Point: HS-3 N25.60834 W080.39916



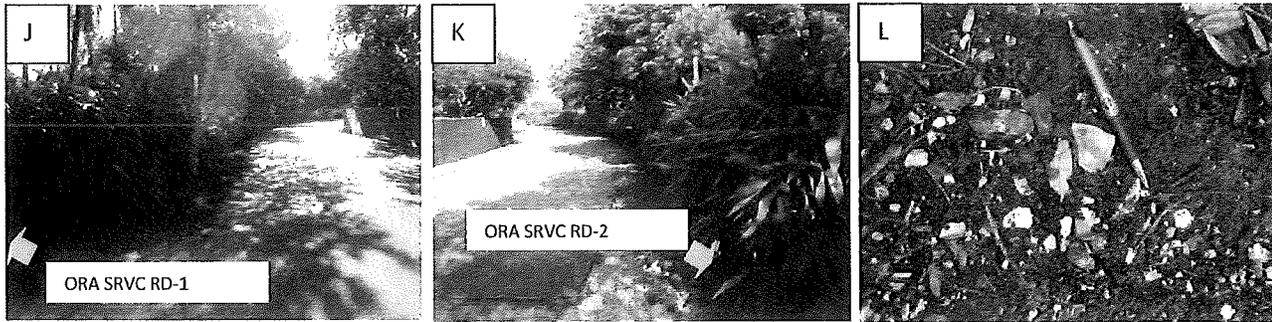
- F. Area west of the sandy the Hippo Slide area. Surficial solid waste noted around the trees and wooden shed. HS-1 is located at the western most point of said area.
- G. Bamboo tree line, surficial solid waste noted.
- H. Example of solid waste noted in the areas referenced above.
- I. View of the Hippo Slide area facing west. Approximate location of HS-3 noted.

Orangutan Service Road

Surficial solid waste (glass, etc.) was noted mixed with the mulch underneath the vegetation along the service road located to the north of the Hippo Slide area. According to Zoo personnel, this road is called the Orangutan Service Road. GPS coordinates collected in the middle of the area that had the surficial solid waste: ORA SRVC RD - N25.60888 W080.39951. The surficial solid waste delineation points collected at the north and south end of the vegetation line are listed below. Subsurface soil borings were not advanced in this area.

Surficial Delineation Point ORA SRVC RD 1 N25.60896 W080.39960

Surficial Delineation Point ORA SRVC RD 2 N25.60865 W 080.39917



J. View of vegetation area along the Orangutan Service Rd. facing southeast. App. location of the surficial solid waste delineating point noted in picture.

K. View of the vegetation area along the Orangutan Service Rd. facing northwest. App. location of the surficial solid waste delineating point noted in picture.

L. Surficial solid waste noted in said area.

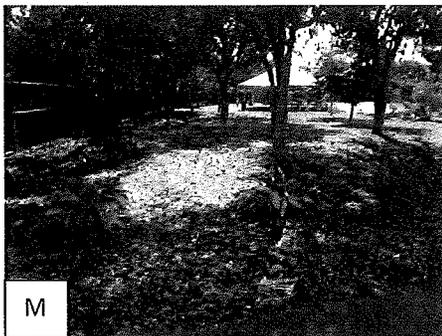
Monkey Meadow Field (Large Picnic Area)

Based on the solid waste findings documented in the Hippo Slide and the Orangutan Service Road areas, DERM asked Zoo personnel if an inspection of the adjacent Monkey Meadow Field picnic area could be conducted (said area is located immediately to the north/west of the Hippo Slide and to the west of the Orangutan Service Road). Zoo personnel granted access to inspect said area and noted that corporate picnics, etc. are done there for the time being based on the on-going construction at the site, and that this area had been filled in the past. There are two picnic shelters located on the northeast corner and three picnic shelters located on the southwestern corner of the Monkey Meadow Field.

Northeast Corner Picnic Shelter Area: Open ground area is covered with app. 2-4 inches of mulch. Sporadic pieces of surficial and buried solid waste (i.e., tile, glass, plastic) were noted throughout the area and along the surface of young trees. A soil boring was advanced in location MMF-1 (N25.60878 W080.39947) and glass was discovered at the 4 to 6 inch interval bls and a rusted nail and glass was noted at 11 inches bls. Refusal encountered at 13.5 inches bls in said boring. Based on these findings GPS coordinates were collected along the edge of the mulch area to delineate the surficial solid waste.

Surficial Delineation Point MMF2 N25.60843 W080.39912
 Surficial Delineation Point MMF3 N25.60854 W080.39937
 Surficial Delineation Point MMF4 N25.60871 W080.39969

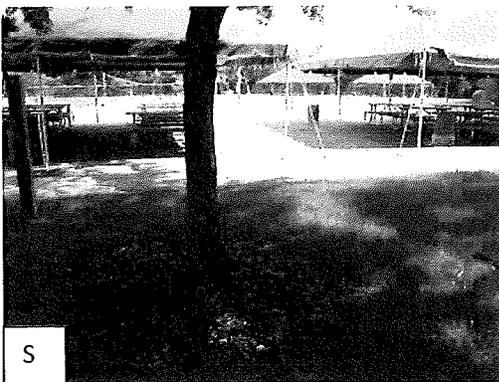
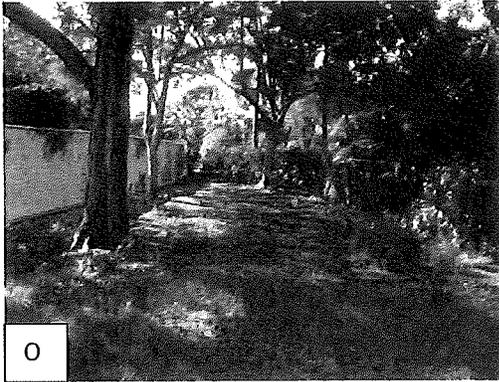
Surficial Delineation Point MMF5 N25.60890 W080.39984
 Surficial Delineation Point MMF6 N25.60879 W080.39945



M. View of the mulched area and picnic shelter on the northeast corner of MMF. Picture taken facing southeast.

N. Solid waste (glass) noted in said area.

Southwest Corner Picnic Shelter Area: Area is surrounded by grass. Dense area of surficial solid waste was noted to the south of the picnic shelters underneath large mature trees with very little mulch covering. Buried solid waste was noted as six step out borings were collected from said area towards the picnic shelters; thus, subsurface delineation of the solid waste was not achieved in this area. One surficial solid waste delineation point was collected in the southern most tip of the area (adjacent to the fence). GPS coordinates were collected of the points that contained solid waste:



- O. View of area with dense surficial solid waste south of the picnic shelters. Picture taken facing south.
- P. Example of surficial solid waste noted in the area seen in picture O.
- Q. Area to the north where step-out borings were advanced in an attempt to delineate the solid waste in the direction of the picnic shelters.
- R. Tree area south of the picnic shelters.
- S. Tree #1 where solid waste was noted at the base. Picture taken facing north.

- MMF7 – Glass noted at 4'' bls. Refusal: 6'' bls. N25.60801 W080.39981
- MMF8 – Metal and Glass noted at 4-5'' bls. Refusal: 9'' bls. N25.60804 W080.39983
- MMF9 – Tile and Glass noted at 4-7 '' bls. N25.60812 W080.39986
- MMF10 – Melted Glass noted at 0-6'' bls (not surficial). N25.60814 W080.39986
- MMF14 – Melted Glass and Charcoal noted at 12'' bls. N25.60818 W080.39992
- MMF15 – Glass noted at 5'' bls. N25.60819 W080.39996
- MMF Tree1 – Glass noted around tree surface. N25.60820 W080.40002

Based on the findings noted in the two picnic shelter locations noted above, two soil borings were advanced towards the center and west of Monkey Meadow Field. MMF-12 was advanced to 7 inches bls and MMF13 was advanced to 17 inches bls. No solid waste was noted at the surface or subsurface of said borings. GSP coordinates were logged:

MMF12 – N25.60833 W080.40034 – No solid waste noted

MMF13 – N25.60863 W080.40006 – No solid waste noted

Ant Eater Holding Area

Surficial and buried solid waste was noted during DERM’s August 22, 2014 inspection of this area in soil borings SB-1A (N25.60397 W080.39796), SB-1B (N25.60404 W080.39788) and SB-Surficial (N25.60404 W080.39790). Additional soil boring (AEH 4 N25.60390 W080.39747) with buried solid waste (13 inches bls) was documented during this inspection. Step out borings were conducted to the north, south, east and west from the impacted soil borings and delineation of the solid waste material was achieved. Note that park patrons do not have access to this area of the site (only Zoo staff has access). GPS coordinates for the delineating locations are noted below

Delineation Point AEH 1 N25.60378 W080.39811

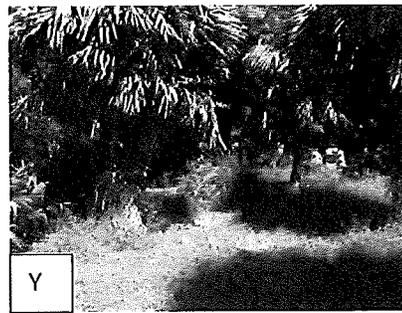
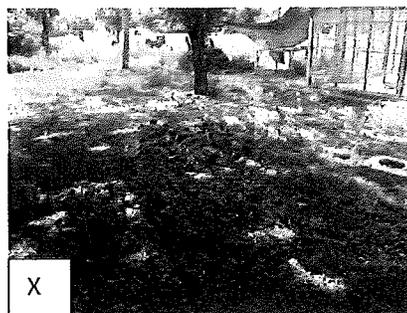
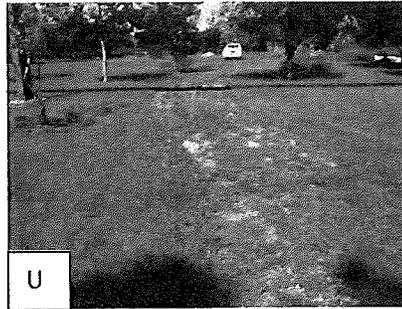
Delineation Point AEH 2 N25.60362 W080.39787

Delineation Point AEH 3 N25.60361 W080.39742

Delineation Point AEH 5 N25.60389 W080.39735

Delineation Point AEH 6 N25.60419 W080.39775

Delineation Point AEH 7 N25.60415 W080.39808



- T. View of the delineated Ant Eater Holding Area facing northeast.
- U. View of the delineated Ant Eater Holding Area facing northwest.
- V. View of the AEH 5 boring location facing northwest.
- X. View of the Ant Eater Holding Area facing southwest.
- Y. View of the AEH 7 boring location facing north.

Zoo Miami : 12400 SW 152 St.
Table 1: Metal Analytical Results

Parameter	Sampling Location	SB-Area 1	SB-Area 1	SB-Area 2	SB-Area 2	SB-Area 3 (DEQU LAB)	SB-Area 3 (DEQU LAB)	SB-Area 3 (PAGE LAB)	SB-Area 3 (PAGE LAB)	Area K Sample 1	Area K Sample 2	Area O Sample 3
	Sample Depth	0-6"	0-24"	0-6"	0-24"	0-6"	0-24"	0-6"	0-24"	Surface	Surface	Surface
	Discrete/Composite	5 pt. composite	5 pt. composite	5 pt. composite	3 pt. composite	2 pt. composite	discrete	2 pt. composite	discrete	discrete	discrete	discrete
	Sample Date	7/29/2014	7/29/2014	7/29/2014	7/29/2014	8/22/2014	8/22/2014	8/22/2014	8/22/2014	10/2/2014	10/2/2014	10/2/2014
	Results Received Date	8/8/2014	8/8/2014	8/8/2014	8/8/2014	8/28/2014	8/28/2014	8/28/2014	8/28/2014	10/9/2014	10/9/2014	10/9/2014
Zinc		16	119	80	19	76	71	898	67.8	424	103	403
Cadmium		0.31	0.4	0.21	0.11	0.31	0.31	0.25	0.14	1.1	0.26	1.5
Lead		61	73.3	22.8	13.6	41.5	31.3	42.3	32.9	148	34.3	379
Nickel		5.3	7	5.8	4	5.6	8	3.9	2.9	12.9	2.8	16.5
Chromium		14.8	21	16.9	16.1	13.8	16.5	10	9.5	21.7	17.1	15.6
Copper		29.2	39.7	11.5	3.5	25.4	20.6	30	16.5	88.7	73.2	64.3
Arsenic		5.2	4.3	4.4	4.1	6.1	5.4	2.1	1.8	9.7	7.3	5.4
Aluminum		3830	6260	3590	4770	4020	4560	1950	2310	2460	1770	2950
Barium		29.5	40.3	8.8	5.8	20.3	16.7	21.3	17.5	41.8	13.1	76.9
Iron		5900	10,050	2,680	3,430	7,700	4,890	4,850	3,310	20,500	3,430	25,600
Manganese		78	101	41	36	n/a	n/a	48	34.4	189	92.5	187
Silver		6.2	4.1	3.8	5.2	1.7	2.5	0.55	0.38	2	0.36	2.9
Selenium		0.5 u	0.5 u	0.43 u	0.42 u	0.48 u	0.49 u	0.41 u				
Antimony		1 u	1 u	1 u	1 u	1 u	1 u	0.681	0.741	1.8	0.541	3.2
Mercury		0.61	0.71	0.61	0.71	0.91	1.81	0.012	0.025	0.059	0.057	0.093

NOTE: Results are below human health screening criteria except Copper for Sample #3

results in mg/g

u - Undetected at the MDL

f - conc. detected between the Lab MDL and PQL

n/a Not Analyzed

Zoo Miami : 12400 SW 152 St.
Table 2: PAH Analytical Results

Parameter	Sampling Location	SB-Area 1	SB-Area 1	SB-Area 2	SB-Area 2	SB-Area 3	SB-Area 3	Area K Sample 1	Area K Sample 2	Area O Sample 3
	Sample Depth	0-6"	0-24"	0-6"	0-24"	0-6"	0-24"	Surface	Surface	Surface
	Discrete/Composite	5 pt. composite	5 pt. composite	5 pt. composite	3 pt. composite	2 pt. composite	discrete	discrete	discrete	discrete
	Sample Date	7/29/2014	7/29/2014	7/29/2014	7/29/2014	8/22/2014	8/22/2014	10/2/2014	10/2/2014	10/2/2014
	Results Received Date	8/8/2014	8/8/2014	8/8/2014	8/8/2014	8/28/2014	8/28/2014	10/9/2014	10/9/2014	10/9/2014
Acenaphthene		0.043 u	0.041 u	0.065 u	0.080 u	0.025 u	0.026 u	0.045 u	0.090 u	0.077 u
Acenaphthylene		0.037 u	0.035 u	0.072 u	0.069 u	0.022 u	0.022 u	0.038 u	0.077 u	0.066 u
Anthracene		0.036 u	0.034 u	0.071 u	0.067 u	0.021 u	0.021 u	0.033 u	0.075 u	0.064 u
Benzo(a)anthracene		0.031	0.035	0.067 u	0.063 u	0.035	0.034	0.075	0.131	0.065
Benzo(a)pyrene		0.031	0.021	0.035	0.026 u	0.032	0.028	0.11	0.11	0.059
Benzo(b)fluoranthene		0.039 u	0.084 u	0.18 u	0.16 u	0.055	0.053 u	0.19	0.019 u	0.16 u
Benzo(k)fluoranthene		0.043 u	0.040 u	0.084 u	0.079 u	0.025 u	0.025 u	0.18	0.068 u	0.078 u
Benzo(e)pyrene		0.026 u	0.024 u	0.050 u	0.047 u	0.015 u	0.022	0.081	0.070	0.048 u
Chrysene		0.042 u	0.040 u	0.083 u	0.078 u	0.034	0.031	0.14	0.13	0.075 u
Dibenz(a,h)anthracene		0.034 u	0.032 u	0.067 u	0.063 u	0.020 u	0.020 u	0.035 u	0.070 u	0.069 u
Fluorene		0.039 u	0.036 u	0.071 u	0.067 u	0.043	0.041	0.12	0.13	0.072
Fluoranthene		0.053 u	0.050 u	0.10 u	0.099 u	0.031 u	0.031 u	0.058 u	0.11 u	0.095 u
2-Methylanthracene		0.048 u	0.045 u	0.094 u	0.089 u	0.028 u	0.028 u	0.050 u	0.10 u	0.088 u
1-Methylanthracene		0.042 u	0.039 u	0.082 u	0.077 u	0.025 u	0.025 u	0.044 u	0.087 u	0.075 u
Naphthalene		0.038 u	0.036 u	0.076 u	0.071 u	0.023 u	0.023 u	0.040 u	0.080 u	0.068 u
Phenanthrene		0.045 u	0.042 u	0.088 u	0.083 u	0.026 u	0.026 u	0.047 u	0.093 u	0.080 u
Pyrene		0.037 u	0.035 u	0.072 u	0.068 u	0.041	0.032	0.12	0.13	0.068
Hexa(1,2,3-cd)Pyrene		0.048 u	0.043 u	0.091 u	0.085 u	0.027 u	0.027 u	0.11	0.098 u	0.082 u
TEQ		0.058	0.047	0.066	n/a	0.052	0.046	0.186	0.173	0.105

NOTE: Results are below human health screening criteria.

results in mg/g

u - Undetected at the MDL

f - conc. detected between the Lab MDL and PQL

n/a Not Analyzed

Zoo Miami DERM GPS Data				
Site	Designation	Lat	Long	Sample Date
Hippo Slide/Children Playground	SB-1	25.60818	-80.398960	7/29/2014
Hippo Slide/Children Playground	SB-2	25.60820	-80.399090	7/29/2014
Hippo Slide/Children Playground	SB-3	25.60731	-80.398820	7/29/2014
Hippo Slide/Children Playground	SB-4	25.60770	-80.399010	7/29/2014
Hippo Slide/Children Playground	SB-5	25.60772	-80.398680	7/29/2014
Permanent Picnic Area (Entrance)	SB-1	25.61252	-80.400000	7/29/2014
Permanent Picnic Area (Entrance)	SB-2	25.61232	-80.400140	7/29/2014
Permanent Picnic Area (Entrance)	SB-3	25.61222	-80.399720	7/29/2014
Permanent Picnic Area (Entrance)	SB-4	25.61220	-80.400150	7/29/2014
Permanent Picnic Area (Entrance)	SB-5	25.61212	-80.399990	7/29/2014
Amazon and Beyond Ant Eater	SB-Surficial	25.60404	-80.397900	8/22/2014
Amazon and Beyond Ant Eater	SB-1A	25.60397	-80.397960	8/22/2014
Amazon and Beyond Ant Eater	SB-1B	25.60404	-80.397880	8/22/2014
Area A - Tiger Exhibit	Area A	25.60999	-80.398850	10/3/2014
Area B - Bicycle Parking for Monorail	Area B	25.60885	-80.398410	10/3/2014
Area C - Oasis Dining and	Area C	25.60734	-80.399100	10/3/2014
Area D - Rear of Oasi Dining Area	Area D	25.68707	-80.398110	10/3/2014
Area E - Picnic Area at Black Rhino	Area E	25.60347	-80.400120	10/3/2014
Area F - Giraffe Exhibit	Area F	25.60465	-80.401670	10/3/2014
Area G - Ant Eater Holding Area	Area G	25.60405	-80.397840	10/3/2014
Area H - Childrens Zoo Area	Area H	25.61115	-80.401290	10/3/2014
Area I - Carousel (Children Zoo Area)	Area I	25.61166	-80.401040	10/3/2014
Area J - Lion Area	Area J	25.61087	-80.402290	10/3/2014
Area J Glass Fragment	Area J Glass	25.61049	-80.402960	10/3/2014
Area K - Camel Exhibit	Area K	25.60892	-80.403190	10/3/2014
Area L - Camel Exhibit	Sample 1	25.60887	-80.403120	10/3/2014
Area L - Camel Exhibit	Sample 2	25.60891	-80.403360	10/3/2014
Area L Delineation - Camel Exhibit	Del-1	25.60897	-80.403230	10/3/2014
Area L Delineation - Camel Exhibit	Del-2	25.60924	-80.403270	10/3/2014
Area L Delineation - Camel Exhibit	Del-3	25.60895	-80.403200	10/3/2014
Area M - Camel Exhibit	Tree 1	25.60846	-80.403010	10/3/2014
Area M - Camel Exhibit	Tree 2	25.60848	-80.402890	10/3/2014
Area M - Camel Exhibit	Tree 3	25.60847	-80.402870	10/3/2014
Area M - Camel Exhibit	Tree 4	25.60843	-80.402820	10/3/2014
Area M - Camel Exhibit	Tree 5	25.60848	-80.402940	10/3/2014
Area M - Camel Exhibit	Tree 6	25.60855	-80.402880	10/3/2014
Area M - Camel Exhibit	Tree 7	25.60855	-80.402870	10/3/2014
Area N Delineation Spotted Hyena	Del-1	25.60792	-80.401530	10/3/2014
Area N Delineation Spotted Hyena	Del-2	25.60806	-80.401530	10/3/2014
Area N Delineation Spotted Hyena	Del-3	25.60792	-80.401780	10/3/2014
Area O Walkway South of Spotted Hyena Gazebo	Sample 3	25.60755	-80.401920	10/3/2014

Zoo Miami DERM GPS Data				
Site	SB Designation	Lat.	Long.	Sample Date
Zoo Miami Hippo Slide	HS-1	25.60785	-80.399850	10/9/2014
Zoo Miami Hippo Slide	HS-2	25.60820	-80.399150	10/9/2014
Zoo Miami Hippo Slide	HS-3	25.60834	-80.399160	10/9/2014
Zoo Miami Hippo Slide	HS-4	25.60821	-80.398940	10/9/2014
Zoo Miami Hippo Slide	HS-5	25.60809	-80.398970	10/9/2014
Zoo Miami Hippo Slide	HS Sand 1	25.60821	-80.399280	10/9/2014
Zoo Miami Hippo Slide	HS Sand 2	25.60827	-80.399580	10/9/2014
Zoo Miami Orangutan Service	ORA SRVC RD	25.60880	-80.399510	10/9/2014
Zoo Miami Orangutan Service	ORA SRVC RD 1	25.60896	-80.399600	10/9/2014
Zoo Miami Orangutan Service	ORA SRVC RD 2	25.60865	-80.399170	10/9/2014
Zoo Miami Monkey Meadow Field	MMF1	25.60878	-80.399470	10/9/2014
Zoo Miami Monkey Meadow Field	MMF2	25.60843	-80.399120	10/9/2014
Zoo Miami Monkey Meadow Field	MMF3	25.60854	-80.399370	10/9/2014
Zoo Miami Monkey Meadow Field	MMF4	25.60871	-80.399690	10/9/2014
Zoo Miami Monkey Meadow Field	MMF5	25.60890	-80.399840	10/9/2014
Zoo Miami Monkey Meadow Field	MMF6	25.60879	-80.399450	10/9/2014
Zoo Miami Monkey Meadow Field	MMF7	25.60801	-80.399810	10/9/2014
Zoo Miami Monkey Meadow Field	MMF8	25.60804	-80.399830	10/9/2014
Zoo Miami Monkey Meadow Field	MMF9	25.60812	-80.399860	10/9/2014
Zoo Miami Monkey Meadow Field	MMF10	25.60814	-80.399860	10/9/2014
Zoo Miami Monkey Meadow Field	MM11	25.60788	-80.399770	10/9/2014
Zoo Miami Monkey Meadow Field	MM12	25.60833	-80.400340	10/9/2014
Zoo Miami Monkey Meadow Field	MMF13	25.60863	-80.400060	10/9/2014
Zoo Miami Monkey Meadow Field	MMF14	25.60818	-80.399920	10/9/2014
Zoo Miami Monkey Meadow Field	MMF15	25.60819	-80.399960	10/9/2014
Zoo Miami Monkey Meadow Field	MMF Tree1	25.60820	-80.400020	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH1	25.60378	-80.398110	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH2	25.60362	-80.397870	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH3	25.60361	-80.397420	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH4	25.60390	-80.397470	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH5	25.60389	-80.397350	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH6	25.60419	-80.397750	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH7	25.60415	-80.398080	10/9/2014

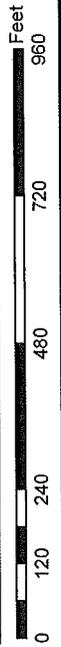
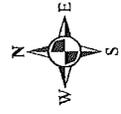
Zoo Miami Area O Incidental Solid Waste Findings Map



Legend

● Surficial Incidental Solid Waste Discovered

Note:
Surficial sample collected.

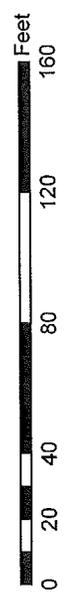
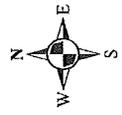


Zoo Miami Ant Eater Holding Area Incidental Solid Waste Findings Map



Legend

- Delineation Points
- Incidental Solid Waste



Zoo Miami DERM GPS Data				
Site	SB Designation	Lat.	Long.	Sample Date
Zoo Miami Hippo Slide	HS-1	25.60785	-80.399850	10/9/2014
Zoo Miami Hippo Slide	HS-2	25.60820	-80.399150	10/9/2014
Zoo Miami Hippo Slide	HS-3	25.60834	-80.399160	10/9/2014
Zoo Miami Hippo Slide	HS-4	25.60821	-80.398940	10/9/2014
Zoo Miami Hippo Slide	HS-5	25.60809	-80.398970	10/9/2014
Zoo Miami Hippo Slide	HS Sand 1	25.60821	-80.399280	10/9/2014
Zoo Miami Hippo Slide	HS Sand 2	25.60827	-80.399580	10/9/2014
Zoo Miami Orangutan Service	ORA SRVC RD	25.60880	-80.399510	10/9/2014
Zoo Miami Orangutan Service	ORA SRVC RD 1	25.60896	-80.399600	10/9/2014
Zoo Miami Orangutan Service	ORA SRVC RD 2	25.60865	-80.399170	10/9/2014
Zoo Miami Monkey Meadow Field	MMF1	25.60878	-80.399470	10/9/2014
Zoo Miami Monkey Meadow Field	MMF2	25.60843	-80.399120	10/9/2014
Zoo Miami Monkey Meadow Field	MMF3	25.60854	-80.399370	10/9/2014
Zoo Miami Monkey Meadow Field	MMF4	25.60871	-80.399690	10/9/2014
Zoo Miami Monkey Meadow Field	MMF5	25.60890	-80.399840	10/9/2014
Zoo Miami Monkey Meadow Field	MMF6	25.60879	-80.399450	10/9/2014
Zoo Miami Monkey Meadow Field	MMF7	25.60801	-80.399810	10/9/2014
Zoo Miami Monkey Meadow Field	MMF8	25.60804	-80.399830	10/9/2014
Zoo Miami Monkey Meadow Field	MMF9	25.60812	-80.399860	10/9/2014
Zoo Miami Monkey Meadow Field	MMF10	25.60814	-80.399860	10/9/2014
Zoo Miami Monkey Meadow Field	MM11	25.60788	-80.399770	10/9/2014
Zoo Miami Monkey Meadow Field	MM12	25.60833	-80.400340	10/9/2014
Zoo Miami Monkey Meadow Field	MMF13	25.60863	-80.400060	10/9/2014
Zoo Miami Monkey Meadow Field	MMF14	25.60818	-80.399920	10/9/2014
Zoo Miami Monkey Meadow Field	MMF15	25.60819	-80.399960	10/9/2014
Zoo Miami Monkey Meadow Field	MMF Tree1	25.60820	-80.400020	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH1	25.60378	-80.398110	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH2	25.60362	-80.397870	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH3	25.60361	-80.397420	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH4	25.60390	-80.397470	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH5	25.60389	-80.397350	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH6	25.60419	-80.397750	10/9/2014
Zoo Miami Ant Eater Holding Area	AEH7	25.60415	-80.398080	10/9/2014

Zoo Miami DERM GPS Data				
Site	Designation	Lat	Long	Sample Date
Hippo Slide/Children Playground	SB-1	25.60818	-80.398960	7/29/2014
Hippo Slide/Children Playground	SB-2	25.60820	-80.399090	7/29/2014
Hippo Slide/Children Playground	SB-3	25.60731	-80.398820	7/29/2014
Hippo Slide/Children Playground	SB-4	25.60770	-80.399010	7/29/2014
Hippo Slide/Children Playground	SB-5	25.60772	-80.398680	7/29/2014
Permanent Picnic Area (Entrance)	SB-1	25.61252	-80.400000	7/29/2014
Permanent Picnic Area (Entrance)	SB-2	25.61232	-80.400140	7/29/2014
Permanent Picnic Area (Entrance)	SB-3	25.61222	-80.399720	7/29/2014
Permanent Picnic Area (Entrance)	SB-4	25.61220	-80.400150	7/29/2014
Permanent Picnic Area (Entrance)	SB-5	25.61212	-80.399990	7/29/2014
Amazon and Beyond Ant Eater	SB-Surficial	25.60404	-80.397900	8/22/2014
Amazon and Beyond Ant Eater	SB-1A	25.60397	-80.397960	8/22/2014
Amazon and Beyond Ant Eater	SB-1B	25.60404	-80.397880	8/22/2014
Area A - Tiger Exhibit	Area A	25.60999	-80.398850	10/3/2014
Area B - Bicycle Parking for Monorail	Area B	25.60885	-80.398410	10/3/2014
Area C - Oasis Dining and	Area C	25.60734	-80.399100	10/3/2014
Area D - Rear of Oasi Dining Area	Area D	25.68707	-80.398110	10/3/2014
Area E - Picnic Area at Black Rhino	Area E	25.60347	-80.400120	10/3/2014
Area F - Giraffe Exhibit	Area F	25.60465	-80.401670	10/3/2014
Area G - Ant Eater Holding Area	Area G	25.60405	-80.397840	10/3/2014
Area H - Childrens Zoo Area	Area H	25.61115	-80.401290	10/3/2014
Area I - Carousel (Children Zoo Area)	Area I	25.61166	-80.401040	10/3/2014
Area J - Lion Area	Area J	25.61087	-80.402290	10/3/2014
Area J Glass Fragment	Area J Glass	25.61049	-80.402960	10/3/2014
Area K - Camel Exhibit	Area K	25.60892	-80.403190	10/3/2014
Area L - Camel Exhibit	Sample 1	25.60887	-80.403120	10/3/2014
Area L - Camel Exhibit	Sample 2	25.60891	-80.403360	10/3/2014
Area L Delineation - Camel Exhibit	Del-1	25.60897	-80.403230	10/3/2014
Area L Delineation - Camel Exhibit	Del-2	25.60924	-80.403270	10/3/2014
Area L Delineation - Camel Exhibit	Del-3	25.60895	-80.403200	10/3/2014
Area M - Camel Exhibit	Tree 1	25.60846	-80.403010	10/3/2014
Area M - Camel Exhibit	Tree 2	25.60848	-80.402890	10/3/2014
Area M - Camel Exhibit	Tree 3	25.60847	-80.402870	10/3/2014
Area M - Camel Exhibit	Tree 4	25.60843	-80.402820	10/3/2014
Area M - Camel Exhibit	Tree 5	25.60848	-80.402940	10/3/2014
Area M - Camel Exhibit	Tree 6	25.60855	-80.402880	10/3/2014
Area M - Camel Exhibit	Tree 7	25.60855	-80.402870	10/3/2014
Area N Delineation Spotted Hyena	Del-1	25.60792	-80.401530	10/3/2014
Area N Delineation Spotted Hyena	Del-2	25.60806	-80.401530	10/3/2014
Area N Delineation Spotted Hyena	Del-3	25.60792	-80.401780	10/3/2014
Area O Walkway South of Spotted Hyena Gazebo	Sample 3	25.60755	-80.401920	10/3/2014

Zoo Miami Hippo Slide Area Incidental Solid Waste Findings



Legend

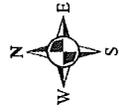
- Surficial Delineation Points
- Incidental Solid Waste

Note:

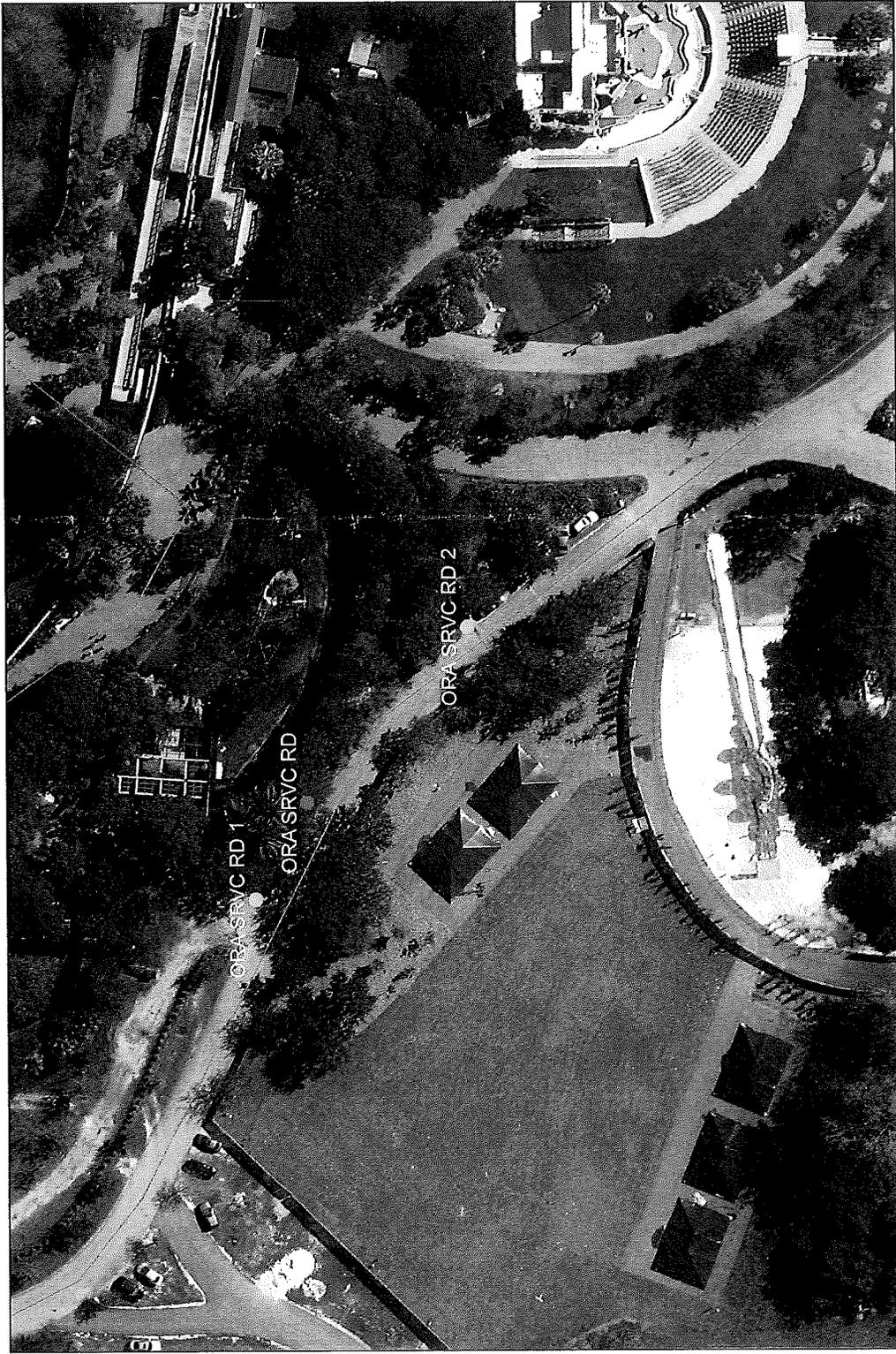
Hand Sand 1 sampling interval from 0-9 inches BLS. Solid waste noted at 9 inches BLS.

Hand Sand 2 sampling interval from 0-7 inches BLS. Solids waste noted from 1-7 inches BLS.

SB-1 and SB-2: Solid waste noted in the 0-6" and 6-24 inches BLS intervals.

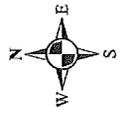


Zoo Miami Orangutan Service Road Incidental Solid Waste Findings Map

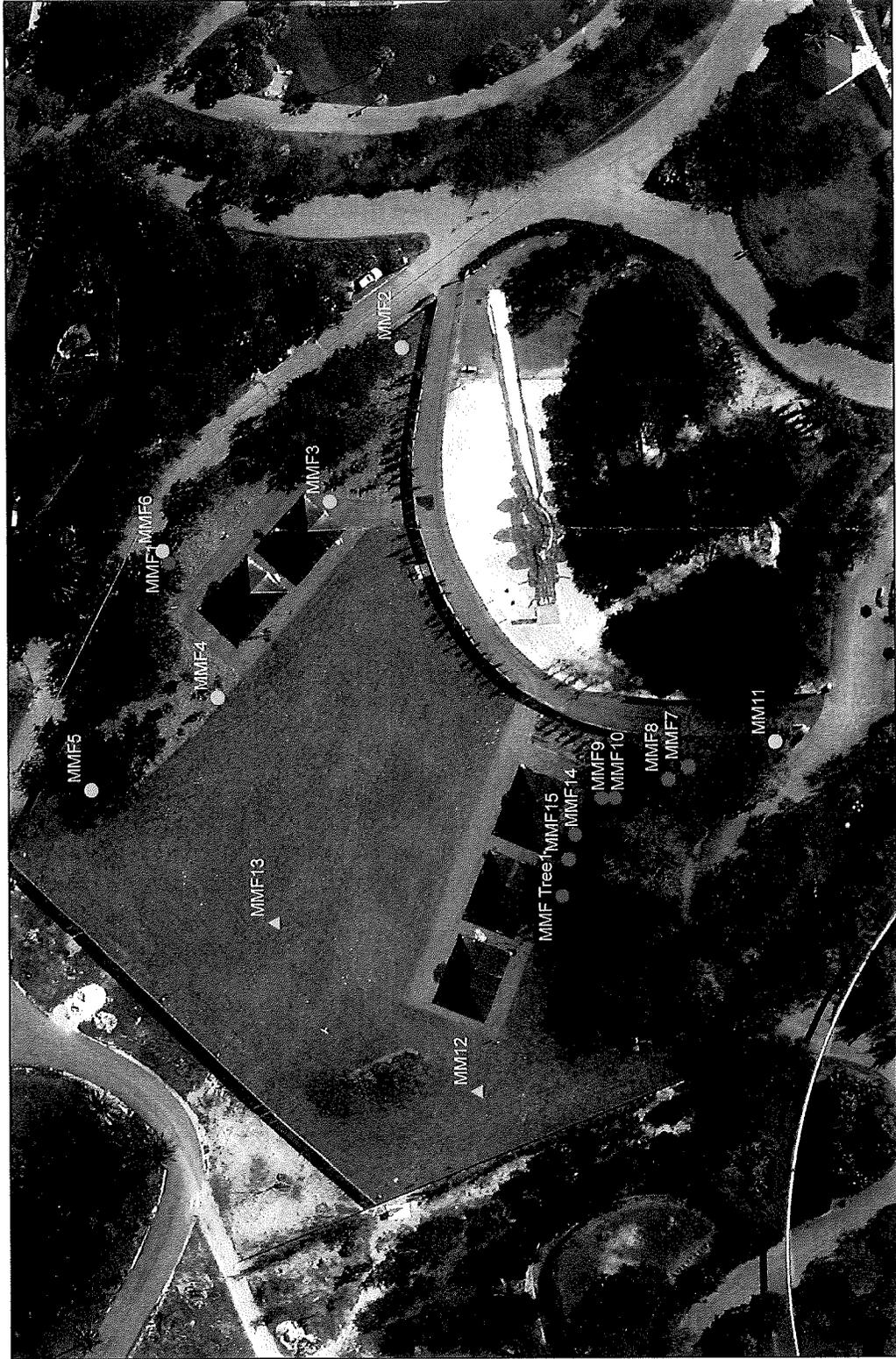


Legend

- Surficial Delineation Points
 - Incidental Solid Waste
- Note:
ORA SRVC RD sampling interval from 0-7 inches BLS.
Glass noted at the surface underneath vegetation between the two delineating points.



Zoo Miami Monkey Meadow Field Incidental Solid Waste Findings Map



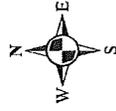
Legend

- Incidental Solid Waste
- ▲ Surficial Delineation Points
- Subsurface Delineation Points

Note:
MMF1 to MMF5: Surficial solid waste noted throughout mulch area and around the trees. Solid waste was noted at interval 4-6 inches BLS and at 11 inches BLS.

The following observations of solid waste were noted:
MMF7 at 4 inches BLS
MMF8 at 4-5 inches BLS
MMF9 at 4-7 inches BLS
MMF10 at 0-6 inches BLS
MMF Tree 1 observed solid waste around base of tree
MMF14 at 12 inches BLS
MMF15 at 5 inches BLS

The following sampling points had no observable solid waste:
MMF12 interval from 0-7 inches BLS (refusal)
MMF13 interval from 0-17 inches BLS (refusal)



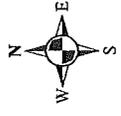
Zoo Miami Area L Incidental Solid Waste Findings Map



Legend

- Surficial Delineation Points
- Incidental Solid Waste Discovered

Note:
At sample points Sample 1 and Sample 2 melted glass was observed on ground surface. A surficial sample was collected.
At sample points DEL-1 through DEL-3, only a surficial inspection was conducted. No samples were collected.
DEL-1 and DEL-2 locations are approximated.



Zoo Miami Area M Incidental Solid Waste Findings Map

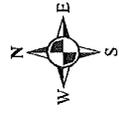


Legend

● Incidental Surficial Solid Waste Discovered

Note:
Surficial solid waste was noted around base of trees.
No samples were collected.

Tree 7 location approximated



Zoo Mimai Area N Incidental Solid Waste Findings Map



Legend

Surficial Delineation Point

Note:

No samples collected.

Area outlined in red indicates approximate area where surficial solid waste was observed.