

T E C H N I C A L M E M O R A N D U M

TO: Jerome Cruz—Washington State Department of Ecology

cc: Rob Howie—South Park Property Development, L.L.C.
Robert De La Llata—South Park Property Development, L.L.C.
Sheila Strehle—Seattle Public Utilities
Jeff Neuner—Seattle Public Utilities
Joe Hicker—King County
Clifford T. Schmitt—Farallon Consulting, L.L.C.

FROM: Russell Luiten P.E., Project Engineer
Thaddeus J. Cline, P.E., L.G., L.H.G., Principal Civil Engineer/Hydrogeologist

DATE: April 4, 2017

RE: **LANDFILL CAP
ANNUAL INSPECTION SUMMARY REPORT—2016
SPPD PROPERTY
SOUTH PARK LANDFILL SITE
SEATTLE, WASHINGTON
FARALLON PN: 408-002**

Farallon Consulting, L.L.C. (Farallon) prepared this technical memorandum to describe the results of the landfill cap annual inspections for 2016 on behalf of South Park Property Development, L.L.C. (SPPD) to satisfy the requirements for annual interim action progress reporting for the SPPD landfill cap specified in the *Interim Action Work Plan, South Park Landfill Site, Seattle, Washington* dated February 22, 2013, and the *Interim Action Compliance Monitoring Plan, Appendix C of the Interim Action Work Plan, South Park Landfill Site, Seattle, Washington* dated February 22, 2013, both prepared by Farallon for SPPD (Interim Action Work Plan). The *Operation and Maintenance Plan Landfill Cap, South Park Landfill Site, Seattle, Washington* dated August 24, 2015, prepared by Farallon for SPPD (O&M Plan) provides details for landfill cap operation and maintenance and progress reporting.

BACKGROUND

An interim action, consisting of landfill gas control, surface water control, landfill capping, and institutional controls, was conducted under terms of an amendment to Agreed Order No. 6706 and



the Washington State Model Toxics Control Act Cleanup Regulation as established in Chapter 173-340 of the Washington Administrative Code (WAC 173-340), specifically WAC 173-340-430 (Interim Action). The amendment to Agreed Order No. 6706, with the Interim Action Work Plan attached as Exhibit E, was executed by Seattle Public Utilities, SPPD, and the Washington State Department of Ecology with an effective date of June 6, 2013. The Interim Action was conducted to reduce the threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to hazardous substances at a 19.4-acre portion of the closed 39-acre South Park Landfill in Seattle, Washington (King County Tax Parcel No. 3224049005) (herein referred to as the SPPD Property) (Figures 1 and 2). The area at which the Interim Action is being conducted includes the SPPD Property and those areas contiguous with the SPPD Property where buried mixed municipal solid waste extends beneath City of Seattle rights-of-way along 5th Avenue South and South Sullivan Street to the east and south of the SPPD Property, respectively, as shown in relation to the properties comprising the South Park Landfill in Figure 2.

As documented in the *Interim Action Construction Completion Report, South Park Landfill Site, Seattle, Washington* dated August 14, 2015, prepared by Farallon for SPPD (Construction Completion Report), the landfill cap and stormwater control elements of the Interim Action were constructed between April 2014 and April 2015. The landfill cap consists of asphaltic concrete and low-permeability membrane systems, which are designed to limit potential exposure to subsurface materials and infiltration of stormwater and its subsequent contact with solid waste limiting the creation of leachate. The landfill cap also serves to convey stormwater runoff to catchment structures and ultimately off the SPPD Property and to enhance the efficiency of the landfill gas collection and control system. A more detailed description of the landfill cap is provided in the Construction Completion Report and in the O&M Plan.

2016 OPERATIONS

This technical memorandum summarizes the periodic inspections and repairs of the landfill cap over the course of 2016 and since issuing the Construction Completion Report. As outlined in Section 3, Operation and Maintenance Activities, of the O&M Plan, the O&M Professional, Mr. Robert de la Llata, under the direction of the Project Coordinator, Mr. Robert Howie, conducted routine landfill cap inspections in 2016. Site Visual Inspection and Repair Forms that document inspections and maintenance work conducted by SEACON, LLC (SEACON) for the 2016 quarterly inspections are provided in Attachment A.

The 2016 quarterly inspections were performed on March 11, June 22, October 19, and December 20, 2016. No penetrations of the asphaltic concrete cap or low-permeable cap, erosion of soil on the SPPD Property, or damage to the stormwater management facilities were noted during the 2016 quarterly inspections.



2017 OPERATIONS

The landfill cap and stormwater elements of the Interim Action will continue to be inspected per the O&M Plan on a quarterly basis in 2017 to monitor conditions of these systems and to make repairs as necessary. These quarterly inspections will be documented on Site Visual Inspection and Repair Forms to be included in the landfill cap annual inspection summary technical memorandum for 2017.

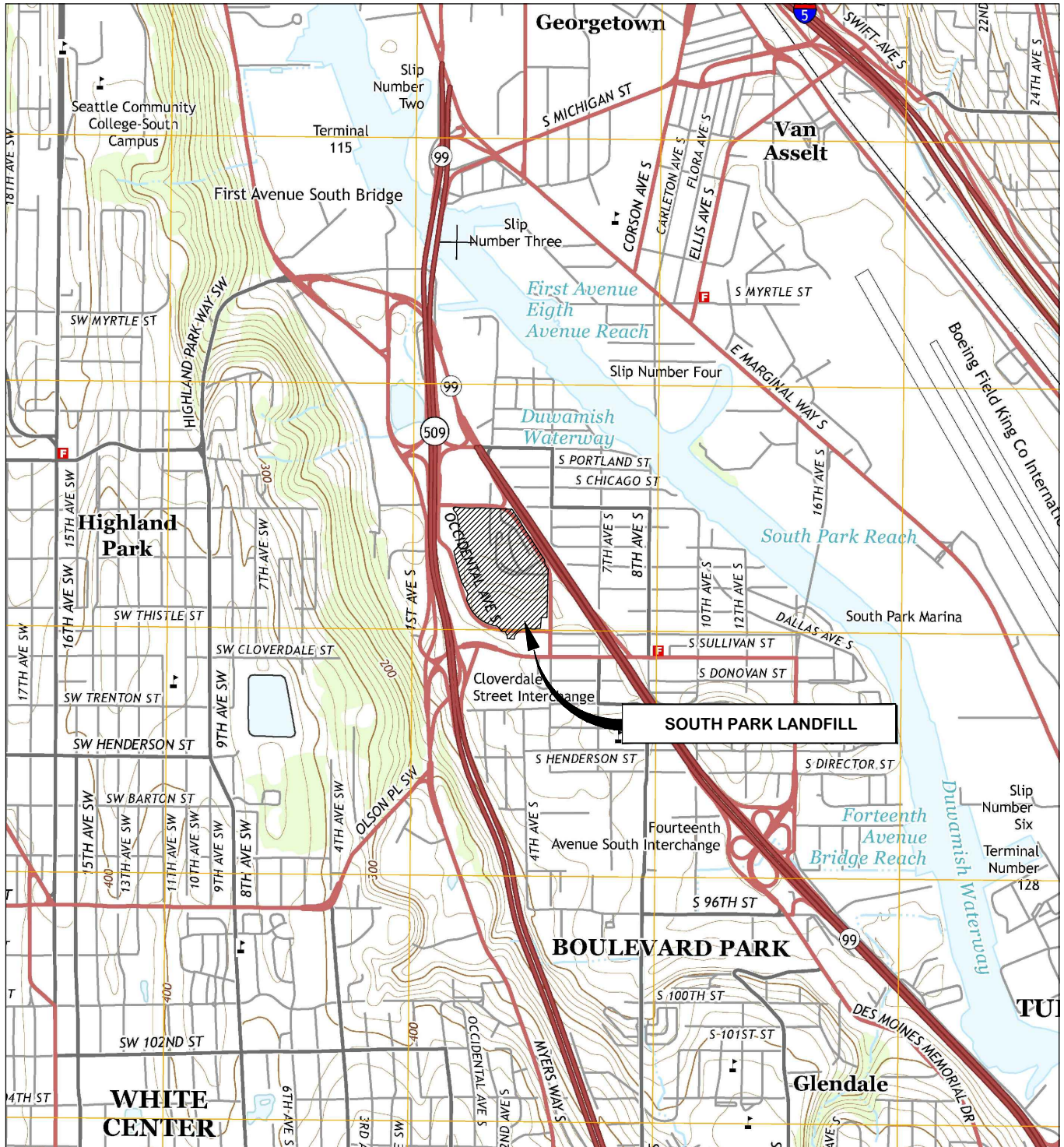
Attachments: Figure 1, *Vicinity Map*
Figure 2, *Landfill Cap*
Attachment A, Site Visual Inspection and Repair Forms

FIGURES

LANDFILL CAP ANNUAL INSPECTION SUMMARY REPORT—2016

**SPPD Property
South Park Landfill Site
Seattle, Washington**

Farallon PN: 408-002



REFERENCE: 7.5 MINUTE USGS QUADRANGLE SEATTLE SOUTH, WASHINGTON. DATED 2014



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FIGURE 1
VICINITY MAP
SPPD PROPERTY, SOUTH PARK LANDFILL SITE
SEATTLE, WASHINGTON

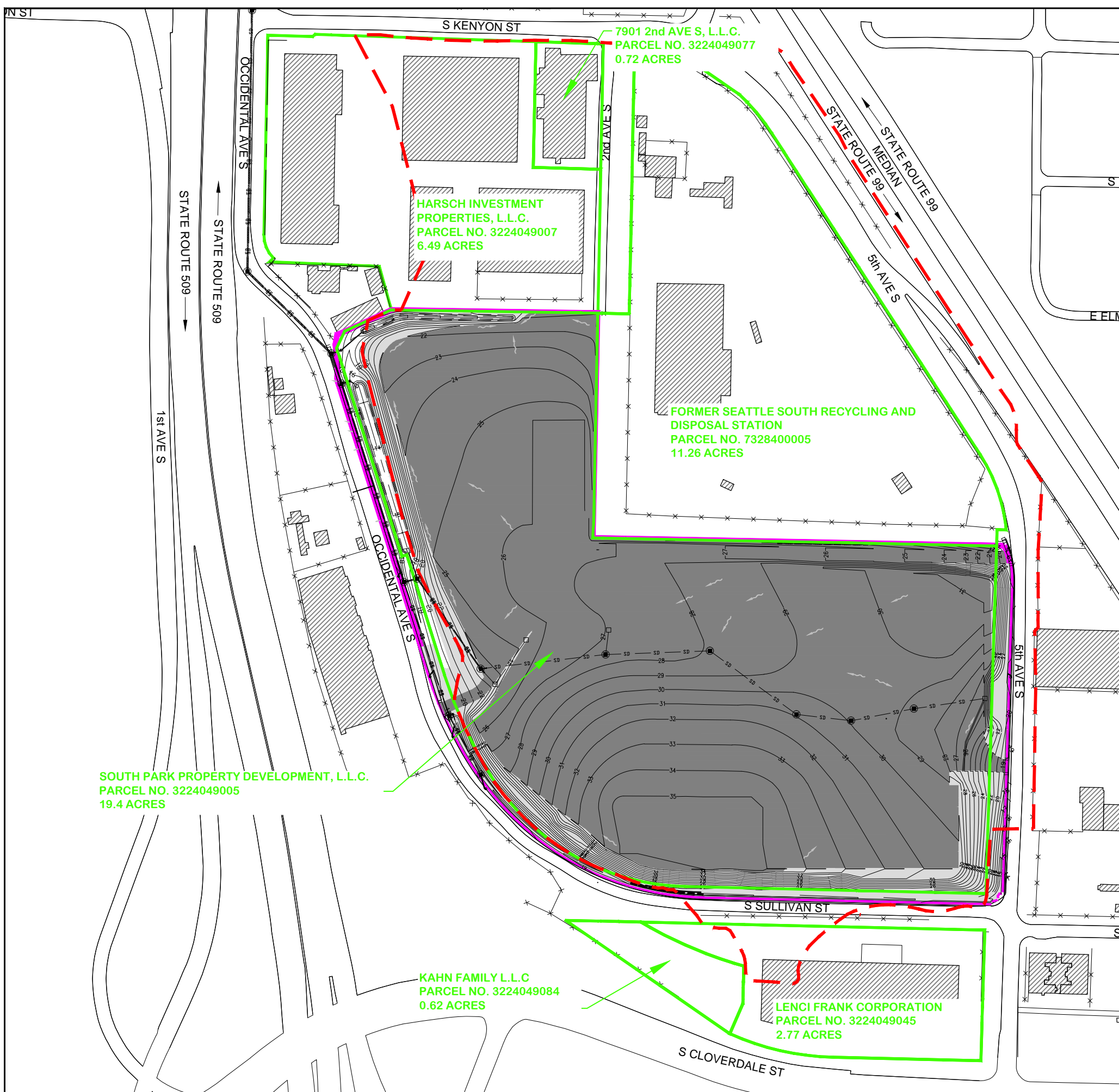
Drawn By: DEW

Checked By: TC

Date: 03/17/2016

Disk Reference: BASEMAPb

FARALLON PN: 408-002



LEGEND

- SOUTH PARK LANDFILL BOUNDARY
- KING COUNTY TAX PARCEL BOUNDARY
- INTERIM ACTION AREA
- x--- FENCE
- EXISTING BUILDING
- APPROXIMATE EXTENT OF LOW PERMEABILITY MEMBRANE CAP
- APPROXIMATE EXTENT OF ASPHALTIC CONCRETE CAP
- 35— DESIGN ELEVATION CONTOUR
- SD— STORMDRAIN LINE
- ~— SURFACE DRAINAGE FLOW LINE
- STORMDRAIN CATCH BASIN
- STORMDRAIN MANHOLE

NOTES:

- FIGURE INCLUDES INFORMATION PRESENTED IN COLOR. PHOTOCOPIES MAY NOT DEPICT ALL INTENDED INFORMATION ON THE ORIGINAL DRAWING.
- ALL LOCATIONS ARE APPROXIMATE



Washington
Issaquah | Bellingham | Seattle

Oregon
Portland | Bend | Baker City

California
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FIGURE 2
LANDFILL CAP
SPPD PROPERTY, SOUTH PARK LANDFILL SITE
SEATTLE, WASHINGTON

ATTACHMENT A
SITE VISUAL INSPECTION AND REPAIR FORMS

LANDFILL CAP ANNUAL INSPECTION SUMMARY REPORT—2016

SPPD Property
South Park Landfill Site
Seattle, Washington

Farallon PN: 408-002

Inspector's Initials RPD
Date 3-11-16

SITE VISUAL INSPECTION AND REPAIR FORM
LANDFILL CAP
South Park Landfill Site Interim Action Area

Date of Inspection: 3-11-16

Name of Inspector: _____

The purpose of periodic site inspections is to identify damage to the landfill cap and stormwater management facilities from operations, differential settlement, slope failure, deterioration of materials, or other factors that could result in potential contact with solid waste, influx of surface water runoff and atmospheric air, or discharge of methane.

VISUAL SURVEY

Using the attached checklist, inspect landfill cap and stormwater management facilities. Summarize the results of the visual inspection below:

EVERYTHING LOOKS GOOD ON SITE.

PROJECT COORDINATOR NOTIFICATION

Notify the Project Coordinator in the space below of penetrations greater than approximately 1 square foot in the landfill cap or stormwater management facilities with observed exposed solid waste (**Type A Penetrations**).

Notify the Project Coordinator in the space below of penetrations greater than approximately 1 square foot in the landfill cap or stormwater management facilities with no observed exposed solid waste but that could result in influx of stormwater or atmospheric air or discharge of methane (**Type B Penetrations**).

Notify the Project Coordinator in the space below of penetrations smaller than approximately 1 square foot (e.g., cracks) in the landfill cap or stormwater management facilities with no observed exposed solid waste but that could result in influx of stormwater or atmospheric air or discharge of methane (**Type C Penetrations**).

Inspector's Initials RPD.
Date 3-11-16

REPAIR RECOMMENDATION

Notify the Project Coordinator in the space below of repair recommendations to prevent potential contact with solid waste, influx of surface water runoff and atmospheric air, or discharge of methane. Indicate the recommended repair schedule (Type A Penetrations: within 2 weeks; Type B Penetrations: within 1 month; Type C Penetrations: within 2 months).

SITE INSPECTION SKETCHES/PHOTOGRAPHS

In the area below, provide an appropriate sketch(s) indicating areas inspected and locations of problem areas with recommended repairs. Include additional pages and photographs of problem areas as appropriate.

Inspection Certification:

Rob Howe

3-11-16

Project Coordinator

Date

Robert de la Lata Property Manager

3-11-16

O&M Professional

Date

VISUAL INSPECTION CHECKLIST

ASPHALTIC CONCRETE CAPPED AREAS

Open cracks and/or ruts	None <u>✓</u>	Repair Needed _____
Differential settlement	None <u>✓</u>	Repair Needed _____
Spalling of surface	None <u>✓</u>	Repair Needed _____

Observed Cap Penetration Type(s) (A, B, C):

Recommended Repair Type/Location:

LOW-PERMEABILITY MEMBRANE CAPPED AREAS

Erosion of cover soil	None <u>✓</u>	Repair Needed _____
Exposed geotextile barrier	None <u>✓</u>	Repair Needed _____
Holes/signs of unauthorized digging	None <u>✓</u>	Repair Needed _____

Observed Cap Penetration Type(s) (A, B, C):

Recommended Repair Type/Location:

STORMWATER MANAGEMENT FACILITIES

Evidence of facility repair needed	None <u>✓</u>	Repair Needed _____
Signs of water infiltration below structures	None <u>✓</u>	Repair Needed _____
Erosion of soil	None <u>✓</u>	Repair Needed _____
Exposed geotextile or membrane	None <u>✓</u>	Repair Needed _____
Holes/signs of unauthorized digging	None <u>✓</u>	Repair Needed _____

Invasive deep-rooted plants

Recommended Repair Type/Location:

Inspector's Initials RPD
Date 3-11-16

REPAIR RECORD

In the area below, summarize repairs made upon direction of the Project Coordinator. Include the date, personnel, and materials used.

Approval of Repair Completion:

Rob Howie

3-11-16

Project Coordinator

Date

Inspector's Initials RPD.
Date 6/22/16

SITE VISUAL INSPECTION AND REPAIR FORM
LANDFILL CAP
South Park Landfill Site Interim Action Area

Date of Inspection: 6/22/16

Name of Inspector: _____

The purpose of periodic site inspections is to identify damage to the landfill cap and stormwater management facilities from operations, differential settlement, slope failure, deterioration of materials, or other factors that could result in potential contact with solid waste, influx of surface water runoff and atmospheric air, or discharge of methane.

VISUAL SURVEY

Using the attached checklist, inspect landfill cap and stormwater management facilities. Summarize the results of the visual inspection below:

NONE AT THIS TIME

PROJECT COORDINATOR NOTIFICATION

Notify the Project Coordinator in the space below of penetrations greater than approximately 1 square foot in the landfill cap or stormwater management facilities with observed exposed solid waste (**Type A Penetrations**).

Notify the Project Coordinator in the space below of penetrations greater than approximately 1 square foot in the landfill cap or stormwater management facilities with no observed exposed solid waste but that could result in influx of stormwater or atmospheric air or discharge of methane (**Type B Penetrations**).

Notify the Project Coordinator in the space below of penetrations smaller than approximately 1 square foot (e.g., cracks) in the landfill cap or stormwater management facilities with no observed exposed solid waste but that could result in influx of stormwater or atmospheric air or discharge of methane (**Type C Penetrations**).

NONE

Inspector's Initials RPD.

Date 6/22/16

REPAIR RECOMMENDATION

Notify the Project Coordinator in the space below of repair recommendations to prevent potential contact with solid waste, influx of surface water runoff and atmospheric air, or discharge of methane. Indicate the recommended repair schedule (Type A Penetrations: within 2 weeks; Type B Penetrations: within 1 month; Type C Penetrations: within 2 months).

NONE

SITE INSPECTION SKETCHES/PHOTOGRAPHS

In the area below, provide an appropriate sketch(s) indicating areas inspected and locations of problem areas with recommended repairs. Include additional pages and photographs of problem areas as appropriate.

Inspection Certification:

Rob Howse 6/22/16

Project Coordinator

Date

Robert de la Lata 6/22/16

O&M Professional

Date

Inspector's Initials R.F.R.

Date _____

REPAIR RECORD

In the area below, summarize repairs made upon direction of the Project Coordinator. Include the date, personnel, and materials used.

None

Approval of Repair Completion:

Rob Howe

6/22/16

Project Coordinator

Date

VISUAL INSPECTION CHECKLIST

ASPHALTIC CONCRETE CAPPED AREAS

Open cracks and/or ruts	None <u> </u>	Repair Needed <u> </u>
Differential settlement	None <u> </u>	Repair Needed <u> </u>
Spalling of surface	None <u> </u>	Repair Needed <u> </u>
Observed Cap Penetration Type(s) (A, B, C):		

Recommended Repair Type/Location:

LOW-PERMEABILITY MEMBRANE CAPPED AREAS

Erosion of cover soil	None <u> </u>	Repair Needed <u> </u>
Exposed geotextile barrier	None <u> </u>	Repair Needed <u> </u>
Holes/signs of unauthorized digging	None <u> </u>	Repair Needed <u> </u>
Observed Cap Penetration Type(s) (A, B, C):		

Recommended Repair Type/Location:

STORMWATER MANAGEMENT FACILITIES

Evidence of facility repair needed	None <u> </u>	Repair Needed <u> </u>
Signs of water infiltration below structures	None <u> </u>	Repair Needed <u> </u>
Erosion of soil	None <u> </u>	Repair Needed <u> </u>
Exposed geotextile or membrane	None <u> </u>	Repair Needed <u> </u>
Holes/signs of unauthorized digging	None <u> </u>	Repair Needed <u> </u>
Invasive deep-rooted plants		

Recommended Repair Type/Location:

SITE VISUAL INSPECTION AND REPAIR FORM
LANDFILL CAP
South Park Landfill Site Interim Action Area

Date of Inspection: 10/19/16
Name of Inspector: Robert de la Lata

The purpose of periodic site inspections is to identify damage to the landfill cap and stormwater management facilities from operations, differential settlement, slope failure, deterioration of materials, or other factors that could result in potential contact with solid waste, influx of surface water runoff and atmospheric air, or discharge of methane.

VISUAL SURVEY

Using the attached checklist, inspect landfill cap and stormwater management facilities. Summarize the results of the visual inspection below:

IT'S all in good shape.
NO problems.

PROJECT COORDINATOR NOTIFICATION

Notify the Project Coordinator in the space below of penetrations greater than approximately 1 square foot in the landfill cap or stormwater management facilities with observed exposed solid waste (**Type A Penetrations**).

Notify the Project Coordinator in the space below of penetrations greater than approximately 1 square foot in the landfill cap or stormwater management facilities with no observed exposed solid waste but that could result in influx of stormwater or atmospheric air or discharge of methane (**Type B Penetrations**).

Notify the Project Coordinator in the space below of penetrations smaller than approximately 1 square foot (e.g., cracks) in the landfill cap or stormwater management facilities with no observed exposed solid waste but that could result in influx of stormwater or atmospheric air or discharge of methane (**Type C Penetrations**).

NONE

Inspector's Initials R.P.D.
Date 10/19/16

REPAIR RECOMMENDATION

Notify the Project Coordinator in the space below of repair recommendations to prevent potential contact with solid waste, influx of surface water runoff and atmospheric air, or discharge of methane. Indicate the recommended repair schedule (Type A Penetrations: within 2 weeks; Type B Penetrations: within 1 month; Type C Penetrations: within 2 months).

NONE

SITE INSPECTION SKETCHES/PHOTOGRAPHS

In the area below, provide an appropriate sketch(s) indicating areas inspected and locations of problem areas with recommended repairs. Include additional pages and photographs of problem areas as appropriate.

Inspection Certification:

Rob Howe

10/19/16

Project Coordinator

Date

Robert de laLlata

10/19/16

O&M Professional

Date

Inspector's Initials R.P.D.
Date 10/19/16

REPAIR RECORD

In the area below, summarize repairs made upon direction of the Project Coordinator. Include the date, personnel, and materials used.

NONE AT THIS TIME

Approval of Repair Completion:

Rob Howe *10/19/16*

Project Coordinator **Date**

VISUAL INSPECTION CHECKLIST

ASPHALTIC CONCRETE CAPPED AREAS

Open cracks and/or ruts	None <u> </u>	Repair Needed <u> </u>
Differential settlement	None <u> </u>	Repair Needed <u> </u>
Spalling of surface	None <u> </u>	Repair Needed <u> </u>

Observed Cap Penetration Type(s) (A, B, C):
 Recommended Repair Type/Location:

LOW-PERMEABILITY MEMBRANE CAPPED AREAS

Erosion of cover soil	None <u> </u>	Repair Needed <u> </u>
Exposed geotextile barrier	None <u> </u>	Repair Needed <u> </u>
Holes/signs of unauthorized digging	None <u> </u>	Repair Needed <u> </u>

Observed Cap Penetration Type(s) (A, B, C):
 Recommended Repair Type/Location:

STORMWATER MANAGEMENT FACILITIES

Evidence of facility repair needed	None <u> </u>	Repair Needed <u> </u>
Signs of water infiltration below structures	None <u> </u>	Repair Needed <u> </u>
Erosion of soil	None <u> </u>	Repair Needed <u> </u>
Exposed geotextile or membrane	None <u> </u>	Repair Needed <u> </u>
Holes/signs of unauthorized digging	None <u> </u>	Repair Needed <u> </u>
Invasive deep-rooted plants		

Recommended Repair Type/Location:

Inspector's Initials R.P.D.
Date 12/20/16

SITE VISUAL INSPECTION AND REPAIR FORM
LANDFILL CAP
South Park Landfill Site Interim Action Area

Date of Inspection: 12/20/16

Name of Inspector: Robert de la Lata

The purpose of periodic site inspections is to identify damage to the landfill cap and stormwater management facilities from operations, differential settlement, slope failure, deterioration of materials, or other factors that could result in potential contact with solid waste, influx of surface water runoff and atmospheric air, or discharge of methane.

VISUAL SURVEY

Using the attached checklist, inspect landfill cap and stormwater management facilities. Summarize the results of the visual inspection below:

I made a visual inspection and everything is in good shape.

PROJECT COORDINATOR NOTIFICATION

Notify the Project Coordinator in the space below of penetrations greater than approximately 1 square foot in the landfill cap or stormwater management facilities with observed exposed solid waste (**Type A Penetrations**).

Notify the Project Coordinator in the space below of penetrations greater than approximately 1 square foot in the landfill cap or stormwater management facilities with no observed exposed solid waste but that could result in influx of stormwater or atmospheric air or discharge of methane (**Type B Penetrations**).

Notify the Project Coordinator in the space below of penetrations smaller than approximately 1 square foot (e.g., cracks) in the landfill cap or stormwater management facilities with no observed exposed solid waste but that could result in influx of stormwater or atmospheric air or discharge of methane (**Type C Penetrations**).

NONE

Inspector's Initials R.P.D.
Date 12/20/16

REPAIR RECOMMENDATION

Notify the Project Coordinator in the space below of repair recommendations to prevent potential contact with solid waste, influx of surface water runoff and atmospheric air, or discharge of methane. Indicate the recommended repair schedule (Type A Penetrations: within 2 weeks; Type B Penetrations: within 1 month; Type C Penetrations: within 2 months).

NONE AT THIS TIME

SITE INSPECTION SKETCHES/PHOTOGRAPHS

In the area below, provide an appropriate sketch(s) indicating areas inspected and locations of problem areas with recommended repairs. Include additional pages and photographs of problem areas as appropriate.

Inspection Certification:

Rob Howie

12/20/16

Project Coordinator

Date

Robert de la Uata

12/20/16

O&M Professional

Date

Inspector's Initials R.P.D.
Date 12/20/16

REPAIR RECORD

In the area below, summarize repairs made upon direction of the Project Coordinator. Include the date, personnel, and materials used.

NONE AT THIS TIME

Approval of Repair Completion:

Rob Howie

12/20/16

Project Coordinator

Date

VISUAL INSPECTION CHECKLIST

ASPHALTIC CONCRETE CAPPED AREAS

Open cracks and/or ruts	None <u> / </u>	Repair Needed <u> </u>
Differential settlement	None <u> / </u>	Repair Needed <u> </u>
Spalling of surface	None <u> / </u>	Repair Needed <u> </u>

Observed Cap Penetration Type(s) (A, B, C):
 Recommended Repair Type/Location:

LOW-PERMEABILITY MEMBRANE CAPPED AREAS

Erosion of cover soil	None <u> / </u>	Repair Needed <u> </u>
Exposed geotextile barrier	None <u> / </u>	Repair Needed <u> </u>
Holes/signs of unauthorized digging	None <u> / </u>	Repair Needed <u> </u>

Observed Cap Penetration Type(s) (A, B, C):
 Recommended Repair Type/Location:

STORMWATER MANAGEMENT FACILITIES

Evidence of facility repair needed	None <u> / </u>	Repair Needed <u> </u>
Signs of water infiltration below structures	None <u> / </u>	Repair Needed <u> </u>
Erosion of soil	None <u> / </u>	Repair Needed <u> </u>
Exposed geotextile or membrane	None <u> / </u>	Repair Needed <u> </u>
Holes/signs of unauthorized digging	None <u> / </u>	Repair Needed <u> </u>
Invasive deep-rooted plants		

Recommended Repair Type/Location: