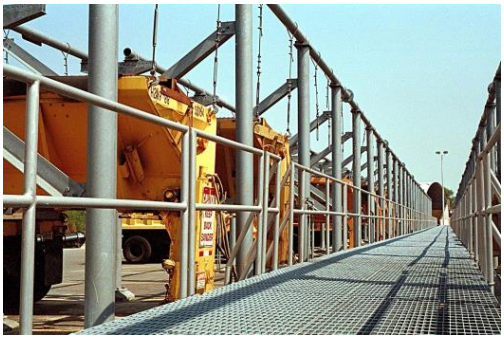
SYOSSET LANDFILL

2015 ANNUAL POST-CLOSURE SUMMARY REPORT

Volume 1 of 2



TOWN OF OYSTER BAY

DEPARTMENT OF PUBLIC WORKS
SYOSSET, NEW YORK 11791

June 2016

LOCKWOOD
KESSLER &
BARTLETT, INC.
SYOSSET, NEW YORK 11791

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VOLUME 1 OF 2

June 2016

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SYOSSET LANDFILL
2015 ANNUAL POST-CLOSURE
SUMMARY REPORT

Volume 1 of 2

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INTRODUCTION

The Post-Closure Monitoring and Maintenance Operations Manual (O&M Manual) for the Syosset Landfill (LKB, 2003) requires the inspection, monitoring and maintenance of the various components of the capping and closure system on a regular basis throughout the post-closure period. The frequency and scope of the monitoring and maintenance tasks are generally based on the post-closure monitoring and maintenance requirements stipulated under 6 NYCRR Part 360. Specifically, the tasks for this site include the following:

- Quarterly inspection of the landfill cover system;
- Quarterly inspection of the landfill drainage system;
- Quarterly inspection and monitoring of the landfill gas venting system;
- Annual inspection, groundwater level monitoring and groundwater quality monitoring at selected groundwater monitoring wells; and
- Annual ground survey at key cross sectional locations throughout the landfill during the first three years of the post-closure period to monitor the landfill surface slope and potential settlement impacts.

The results of the monitoring and maintenance tasks performed each year are to be summarized in an Annual Summary Report that will be submitted to the United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC) in conformance with the provisions of 6 NYCRR Part 360-2.15(k)(4).

During 2015, four rounds of inspections were performed for the landfill cover system, drainage system and landfill gas venting system. The perimeter and property line gas vents were also monitored. The results of the inspection, monitoring, and maintenance tasks completed during 2015 for these three components of the capping and closure system are discussed in the following sections. Summary tables and pictures taken during the inspections are provided in the Appendices to this report.

This 2015 Annual Summary Report represents the eleventh report prepared during the Post-Closure period. The annual inspection and monitoring of the groundwater monitoring system was performed during the final monitoring round of 2015. The results of the annual groundwater monitoring program are discussed in Volume 2 of this Summary Report which is bound separately and incorporated into this report as Appendix D.

1.0 COVER SYSTEM

The cover system was constructed in accordance with 6 NYCRR Part 360 provisions to minimize stormwater infiltration, vent landfill gases passively, provide a permanent barrier between the site's fill material and the land surface, and provide surface cover material compatible with future site uses.

The capping system consists of three types of cap surface treatments over a 60 mil High Density Polyethylene (HDPE) geomembrane and gas venting layer. Specifically, the cap system contains the following layers (from top to bottom).

- 24-inch barrier protection layer
  - 2" asphalt concrete top course
  - 5" asphalt concrete base course
  - 17" clean fill

  Or
  - 6" recycled concrete
  - 18" clean fill

  Or
  - 6" topsoil with a vegetative cover
  - 18" clean fill

- 60 mil HDPE geomembrane
- 12 inch gas venting layer
- Geotextile filter fabric

The three types of surface treatments were designated for use in particular areas of the site based on the anticipated future site uses. The site was divided into five different facilities as shown on Figure 1, Syosset Landfill Cover System Location Plan. The recycled concrete surface treatment was utilized in both the Highway Department's Material Storage Facility and the Miscellaneous Equipment Storage Facility (areas designated A and B, respectively, on Figure 1). The asphalt concrete surface treatment was utilized in the Highway Department's Salt Storage Facility and Vehicle Parking Facility as well as the Sanitation Division Vehicle Parking Facility (areas designated as C, D and E, respectively, on Figure 1). The vegetative cover surface treatment was utilized in a buffer area along the northern property line in Areas A, B and C.

The landfill cover system was inspected for asphalt pavement cracks, surface material erosion, insufficient vegetative cover growth, erosion of vegetative cover and areas of surface settlement. The results of the inspections are discussed in Sections 1.1 through 1.7 of this report. The defect descriptions and observed causes are identified in Appendix A, Tables A1-1 through A4-1, with their locations referenced to the areas designated on Figure 1. Pictures of typical defects are also included in Appendix A following each of the Inspection Report Tables. Where applicable, defects that may remain from the previous year have

been identified and further information can be found in the previous Annual Report.

The following paragraphs discuss the conditions found in 2015.

1.1 Pavement and Surface Cracks

In general, the condition of the concrete and asphalt pavement located in the Highway Department's Salt Storage Facility and Vehicle Parking Facility (Areas C & D) as well as the TOBDPW Sanitation Division's Sanitation Vehicle Parking Facility (Area E) continues to be good. Routine fracturing of pavement cracks occurs at construction joint locations and is likely occurring due to weathering. Some irregularly shaped pavement cracks also exist in Area E and are likely occurring due to a minor amount of settlement in the subsurface material in those areas. Minor cracks are inherent in these types of pavement materials. Their locations have been monitored and maintained throughout the post-closure period and are not necessarily attributable to the landfill.

It is recommended that these areas continue to be repaired on a regular basis as part of routine maintenance. The joints should be cleaned and sealed to prevent further weathering damage in accordance with the New York State Department of Transportation (NYSDOT) Standard Specifications, Construction and Materials dated January 2, 2002, Section 633-3.02, "Cleaning, Sealing and Filling Joints and Cracks". It is recommended that the settlement cracks in the asphalt pavement be cleaned and sealed as per the NYSDOT Pay Item for Cleaning and Sealing Cracks in Hot Mix Asphalt Pavement using Hot Applied Sealant dated August 10, 2004, ITEM 402.7602 08. All settlement cracks in the concrete pavement should be cleaned and sealed as per the NYSDOT Pay Item for Crack Repair by Epoxy Injection (Restoration) dated December 3, 1999, ITEM 01555.8002 M.

Should these areas worsen due to landfill related impacts in the future, they should be discussed in the Inspection Reports.

1.2 Recycled Concrete Aggregate Surface Material Erosion

Areas of surface material erosion (i.e., ruts) in the recycled concrete aggregate (RCA) were noticeable in the Highway Department Material Storage Facility and the Miscellaneous Equipment Storage Facility. This area is designated as Area A and Area B, respectively, on Figure 1. Erosion within Area A and B was evident along the perimeter.

It is recommended that the ruts in the surface be filled with RCA material to prevent further erosion and to re-grade any uneven areas to maintain

designed surface slopes. In addition, it is also recommended that stockpiles be placed in configurations that are perpendicular to the perimeter ditches (i.e., parallel to the surface slope) with sufficient space in between piles so that stormwater can flow unimpeded to the perimeter drainage ditches.

1.3 Vegetative Cover Surface Material Erosion

Areas of surface material erosion (i.e., ruts) were found in the vegetative cover buffer area of the Highway Department Material Storage Facility (Area A), the Miscellaneous Equipment Storage Facility (Area B), and the Salt Storage Facility (Area C). The observed cause appears to be stormwater runoff. These Areas are sloped toward the perimeter drainage ditches. The vegetative cover buffer area therefore receives runoff from both RCA and paved areas. Ruts have formed as a result of continued erosion of the surface material from stormwater runoff.

It is recommended that the ruts in the surface material be repaired by removing silt, filling/regrading the surface area to remove the ruts, replacing topsoil that may have eroded away and reseeding this area during the planting season to prevent further erosion problems.

1.4 Vegetative Growth

The areas within the vegetative buffer located along the northeastern property line of Area A, B and C that lack vegetative growth and are experiencing erosion/siltation problems should be repaired as identified in Section 1.3.

It is recommended that perimeter vegetation located around the gas vent wells and along the property line should be trimmed and maintained to a manageable level.

1.5 Settlement

There were two remaining areas where measurable potential settlement has occurred, as reported in the previous Annual Reports. They are located along the west face of the Salt Storage Facility (Area C) and along the northwest corner of the easternmost concrete pad in Area E. The first area remains a minor 2-inch depression in an area where no other potential cause could be identified. The second area appears to be minor settlement of the corner of the concrete pad used for truck parking. There has been no measureable additional settlement of these areas during the past year.

The level of settlement is lower than the amount identified in the O&M Manual which would trigger a major repair (i.e., 16 inches). Therefore, in accordance with the requirements of the O&M Manual, it is recommended that the asphalt surface course in the first area be restored to its original surface slope to promote storm water runoff. Both areas should continue to be monitored for future settlement. The pavement restoration work should be performed in accordance with the details and specifications for the Capping and Closure Program.

1.6 Ponding Areas

Ponding areas were observed during all four rounds of cover system inspections in 2015. The ponding areas observed during this reporting period were due to uneven grading of the RCA (Areas A and B) and potholes (Areas C and E).

The asphalt section in the area experiencing ponding should be restored in accordance with the original Capping Contract specifications as discussed in Section 1.5. The surface grading in the remaining areas should be routinely adjusted to remove low points that occur.

1.7 Burrowing Animals

There was no evidence of burrowing animals on the cap surface.

2.0 DRAINAGE SYSTEM

The stormwater drainage system consists of toe of slope perimeter drainage ditches which collect the site's stormwater runoff and convey it to storm drains that discharge into three Nassau County recharge basins. Two of the recharge basins (RB No. 284 and RB No. 571) are adjacent to the site, while the third basin (RB No. 358) is located approximately one-quarter mile west of the site.

The perimeter drainage ditches are composed of rip-rap lined and asphalt-lined perimeter collection ditches that intercept runoff along the toe of the landfill slopes. The ditches are trapezoidal in shape with a depth of 1.5 feet and an overall width of 10 feet. The majority of the ditches have a base width of four feet with a side slope of 2:1. The remaining ditches have a base width of 5.5 feet with 1-1/2:1 side slopes. The rip-rap lined ditches utilize 2"-4" stone with an overall depth of 6 inches overlying filter fabric. The asphalt-lined ditches have an asphalt top course depth of 3 inches over an asphalt base course depth of 3 inches.

The drainage ditches convey stormwater to catch basins (Nassau County Type IIIC-modified) connected to reinforced concrete storm drains which discharge through headwalls into the Nassau County Recharge Basins Nos. 284, 358 and 571.

The drainage system throughout the landfill was inspected. The ditch sections, catch basins, storm drainage pipes, manholes and recharge basin headwalls were inspected for defects. The defects encountered are identified on Tables B1-1 through B4-1, included in Appendix B and are identified by drainage ditch section number or drainage structure number identified on Figure 2, Drainage System Location Plan. Pictures of the defects follow the tables for each round of inspections.

The following paragraphs discuss the conditions found in 2015.

2.1 Ditch Sections

Varying amounts of siltation and vegetative growth occurs over time in the majority of the rip rap lined drainage ditches onsite. However, the total length of the drainage ditches that are impacted in each designated ditch section also varies. Drainage Ditch Sections #2 through #8 contained moderate silting which gradually worsened during 2015 leading to vegetation growth. Some siltation was noted in the Asphalt Drainage Ditch Section #1 during the first round of inspections, but was subsequently removed.

The drainage ditches should receive routine maintenance to prevent future sediment accumulation and vegetation growth problems.

The apparent cause of most of the ditch siltation seems to be from the erosion of materials stored in stockpiles onsite. Erosion control techniques should be implemented around the material stockpiles to prevent the transport of silt and sediment from the piles to the drainage ditches. The stockpiles that are located in closest proximity to the perimeter drainage ditches should have hay bales placed at the toe of slope on the down slope end of the piles to prevent sediment transport directly into the drainage ditches. Hay bales are also recommended for other stockpiles piles onsite if erosion of the pile material is observed. However, anchoring of the bales onsite is not allowed due to the risk of penetrating the landfill geomembrane cap. Therefore, stakes (or anything that may penetrate the geomembrane cap) must not be used when placing the hay bales. The use of silt fences is also prohibited, unless they can be secured in location without the use of stakes or other devices that would penetrate the landfill surface. Should the erosion control measures down slope of the stockpiles not be sufficient to eliminate sediment transport into the perimeter drainage ditches, then hay bales should also be placed along the length of the perimeter drainage ditch at the top of slope adjacent to the Material Storage Facility.

In 2011, hay bales were placed around the catch basin inlets at the downstream end of the perimeter drainage ditches to prevent sediment transport into the subsurface drainage system. In Ditch Sections #1 through #3 the hay bales have deteriorated and another method of silt protection may be required. These hay bales should be replaced on a regular basis.

2.2 Catch Basins

All of the catch basins onsite were inspected. During 2015, debris and silting was detected at catch basins #3 through #5.

It is recommended that the silt and sediment be removed on a regular basis from the area in the vicinity of the catch basin inlets and drainage ditches. The hay bale erosion control measures recommended in Section 2.1 should be replaced at catch basins #3, #4, and #5.

2.3 Storm Drainage Pipes

The storm drainage pipes were inspected at the drainage structure locations and only minimal sedimentation and heavy vegetative growth was noted at the entrance to the end section located west of the Animal Shelter (ES #1, see Figure 2).

2.4 Recharge Basin Headwalls

All four recharge basin headwalls discharging site storm water runoff to three Nassau County Recharge Basins (#284, #358 and #571) were inspected and are operational. Headwall HW #2 and #3, (see Figure 2) in Nassau County Recharge Basin #284 contains minor siltation and vegetation, while HW #1 and #4 (Nassau County Recharge Basins No. 571 and 358, respectively) also contain vegetation and debris with slightly more siltation.

Although the silt and sediment deposits are not impacting the performance of the headwalls, it is recommended that they be routinely removed to prevent future vegetation growth.

3.0 GAS VENTING SYSTEM

The landfill gas venting system consists of 38 property line gas vent wells, 16 perimeter gas vent wells and 26 landfill ridge gas vent wells as shown on Figure 3. Eight gas monitoring cluster wells and a gas venting trench located along the property line adjacent to the South Grove Elementary School were installed during previous work performed at the site. In addition, four six inch diameter PVC gas vent wells were installed over a gas venting trench during the Preload Program within the landfill limits in an area northeast of the Salt Storage Sheds. The vent wells were installed to allow the trench to continue venting, if necessary, following the placement of the cap and an earthen berm over the trench.

The perimeter gas vent wells are six inch diameter PVC wells extending 52 feet below grade with a screen length of 40 feet. The landfill ridge gas vent wells are six inch diameter PVC wells, extending 32 feet below the landfill cap surface with a screen length of 30 feet.

The Landfill Gas Venting System including the property line gas vent wells, the perimeter gas vent wells, the ridge vent wells and the cluster monitoring wells, were inspected and the property line wells, perimeter wells and Animal Shelter building were monitored for methane gas over four rounds in accordance with the requirements of the O&M Manual. The results of the inspections and monitoring are discussed in the following sections for all four rounds of 2015.

Section 3.1 discusses the gas vent well defects found during the four rounds of inspections performed in 2015. The defects are identified by gas vent well number. Gas vent well locations are shown on Figure 3. The defect descriptions and observed causes are identified in Appendix C in the “Gas Venting System Inspection Report” Table’s C1-1, C2-1, C-3-1 and C4-1 for the first, second, third and fourth round inspections, respectively. When defects are noted, pictures are included in Appendix C following the Inspection Report Tables. Where defects are the same as those identified in previous inspection reports, they are so noted. Pictures of these defects can be found in those reports.

Section 3.2 discusses the results of the four rounds of gas monitoring events. Table’s C1-2, C2-2, C3-2 and C4-2 tabulate the percent methane in air detected in the designated post-closure gas monitoring well network and the Animal Shelter building.

The following paragraphs discuss the conditions found in 2015.

3.1 Inspection

Inspection of each gas vent well was performed prior to each round of gas monitoring. Of the 54 property line and perimeter gas vent wells inspected, only SW-3 was damaged. The upper section of the gas vent well was detached from the well casing pipe at grade and the upper portion was lying on the ground. The well has since been secured with a protective cover. Machinery used in this area combined with overgrown vegetation may have been the cause of the damage. During the post-closure period to date, methane has not been detected at this well. While the well is still capable of venting and being monitored in its current condition when necessary, it is recommended that the upper and lower sections of the casing pipe for Gas Vent Well SW-3 be reattached and the well restored to its original configuration during the next well repair contract. Historically gas vent wells have been susceptible to damage; this damage is usually the result of machinery used in this area combined with overgrown vegetation. It is recommended that vegetation near the gas vent wells be maintained on a regular basis to improve visibility and help prevent damage to vent wells in the future.

The twenty-six ridge vent wells onsite were inspected for damage before each of the four gas monitoring rounds. Each ridge vent is protected by either an eight or ten foot diameter concrete leaching ring. Eight foot diameter rings were installed at vent wells R-13 through R-26 located in the Highway Department's Salt Storage Area and Vehicle Storage Area. Ten foot diameter rings were installed at vent wells R-1 through R-12 located in the Highway Department's Material Storage Area. These protective concrete rings were placed last in 2011 and remain intact with the exception of the rings at vent wells R-8 and R-9 which have both been replaced with smaller eight foot diameter rings which were stockpiled onsite.

The 2015 ridge vent well inspections showed only damage to the R-8 well casing and the R-1 well concrete ring. The well casing of Well R-8 has been sheared off at/just below grade. The well has since been secured with a protective cover. It is recommended that the Well R-8 be repaired during the next well repair contract. Historically, the leading cause of damage to the ridge vent well casings and protective concrete rings has been attributed to impact with trucks or other vehicles used onsite. It is recommended that stockpiles not be placed within 25 feet of the ridge vent wells to prevent trucks from damaging the wells in the future.

It should be noted that the site's passive gas venting system continues to operate properly preventing off-site gas migration at the property line as evidenced by the gas monitoring results discussed in under Section 3.2.

3.2 Monitoring

The property line gas vent wells, perimeter vent wells and Animal Shelter building were monitored for methane gas over four rounds during falling barometric conditions in accordance with the requirements of the O&M Manual to determine compliance with 6 NYCRR Part 360 provisions for levels of combustible gas. Monitoring for methane was performed using a Combustible Gas Indicator.

The O&M Manual stipulates that if monitoring indicates the existence of combustible gas in excess of the lower explosive limit (i.e., 5% gas-in-air) within the property line gas vent wells, subsurface bar-hole monitoring for Methane must be conducted at the property line. The bar-hole monitoring should be performed along the adjacent site fence line, perpendicular to the vent well in question. If gas concentrations of 5% or greater are encountered, multiple bar-holes should be employed in order to define the lateral extent of gas detected.

During the 2015 Gas Monitoring Program, property line Gas Vent Wells NE-1 to NE-23, SW-1 to SW-9 and NW-1 to NW-6 and perimeter Gas Vent Wells SE-1 to SE-9 and AS-1 to AS-7 were monitored in accordance with the requirements of the O&M Manual. No methane was detected during the first and fourth monitoring events of 2015. During the second round, methane readings were detected at perimeter Gas Vent Wells AS-2 (0.1%) and AS-4 (0.1%). During the third round methane readings were detected at perimeter well SE-1 (0.1%). The concentrations did not exceed the lower explosive limit.

The Animal Shelter was monitored for methane gas in six separate locations of the building and no methane was detected during the monitoring events performed in all four rounds of 2015. The results are also tabulated on Tables C1-2, C2-2, C3-2 and C4-2 in Appendix C.

In summary, the gas monitoring events conducted in 2015 compared to the results in 2014 indicate that the site is continuing to meet the regulatory requirements for levels of gas at the property line. Therefore, the passive gas venting system is operating successfully to prevent off-site gas migration. During 2005 through 2015, the only levels of methane in excess of the LEL were encountered at one perimeter gas vent well (AS-3) during one monitoring event in 2006, at three perimeter gas vent wells (AS-1, AS-3 & AS-4) during two monitoring events in 2007, at four perimeter gas vent wells (NE-7, AS-2, AS-3 and AS-4) during three

monitoring events in 2008, at two perimeter gas vent wells (AS-2 and AS-4) during one monitoring event in 2009, and at one perimeter gas vent wells (AS-4) during two monitoring events in 2010, and during no monitoring events from 2011 through 2015.

4.0 GROUNDWATER MONITORING SYSTEM

The annual inspection and monitoring of the groundwater monitoring system was performed in December 2015. The results of the annual groundwater monitoring program are discussed in Volume 2 of this Summary Report which is bound separately and incorporated into this report as Appendix D.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The monitoring data collected during 2015 for both landfill gas and groundwater indicate that the implemented remedy at the Syosset Landfill remains protective of public health and the environment.

More Specifically, the post-closure monitoring of landfill gas during 2015 in the perimeter and property line gas vent wells continues to meet the requirements of 6NYCRR Part 360, confirming that the existing site-wide passive gas venting system continues to prevent off-site gas migration. In addition, the 2015 groundwater monitoring data compared to the data collected during the 1993 OU2 RI, and the 2003 and 2005 through 2014 groundwater monitoring events indicate that there have been no significant changes in groundwater flow or groundwater quality attributable to the landfill.

The USEPA conducted the most recent site inspection for a Five-Year Review Report in 2011 which indicated that overall, the remedy remains protective based on the past remedial actions, ongoing monitoring, and maintenance of the landfill Part 360 cap that provides a barrier that interrupts potential ingestion and direct contact with contaminated soil. The report further stated that the implemented remedy for the Syosset Landfill Superfund Site protects human health and the environment.

5.2 Recommendations

Detailed recommendations for continued post-closure maintenance and repairs are provided for each of the landfill capping and closure system elements in the previous sections of this report.

In general, recommended routine maintenance for each of these systems includes:

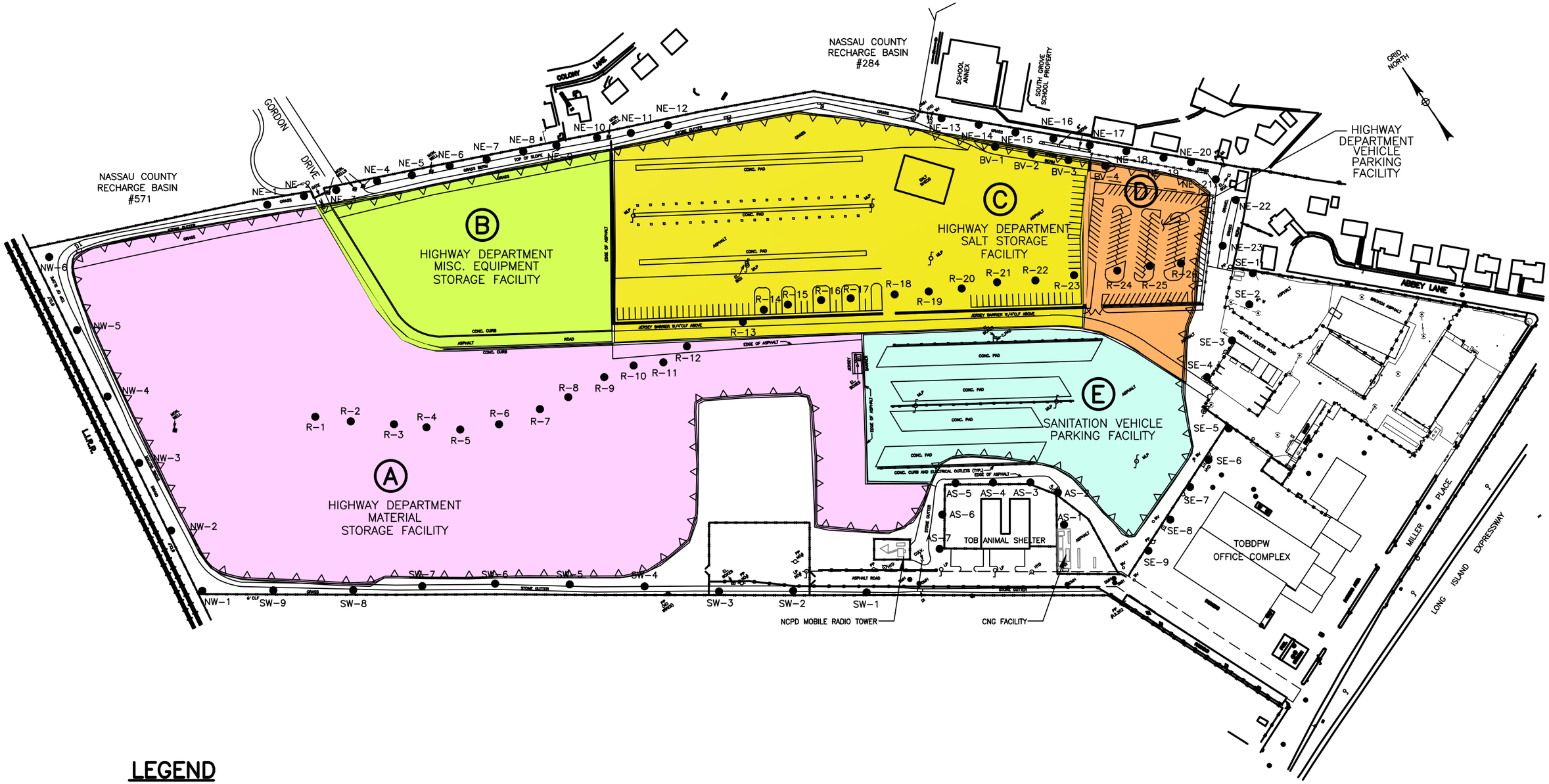
Cover System: Periodically seal pavement cracks, fill ruts caused by erosion, properly orient stockpiles, implement stockpile erosion control features, maintain landfill surface slope to promote storm water runoff.

Drainage System: Periodically remove silt and vegetation that accumulates in drainage ditches and other portions of the drainage system.

Gas Venting System: Recommended that stockpiles not be placed within 25 feet of the ridge vent wells to prevent trucks from damaging the wells in

the future. Wells R-8 and SW-3 should be repaired during the next well repair contract.

Groundwater Monitoring System: Specific recommendations for the Groundwater Monitoring Program are contained in Volume 2 of this Summary Report which is bound separately and incorporated into this report as Appendix D.



LEGEND

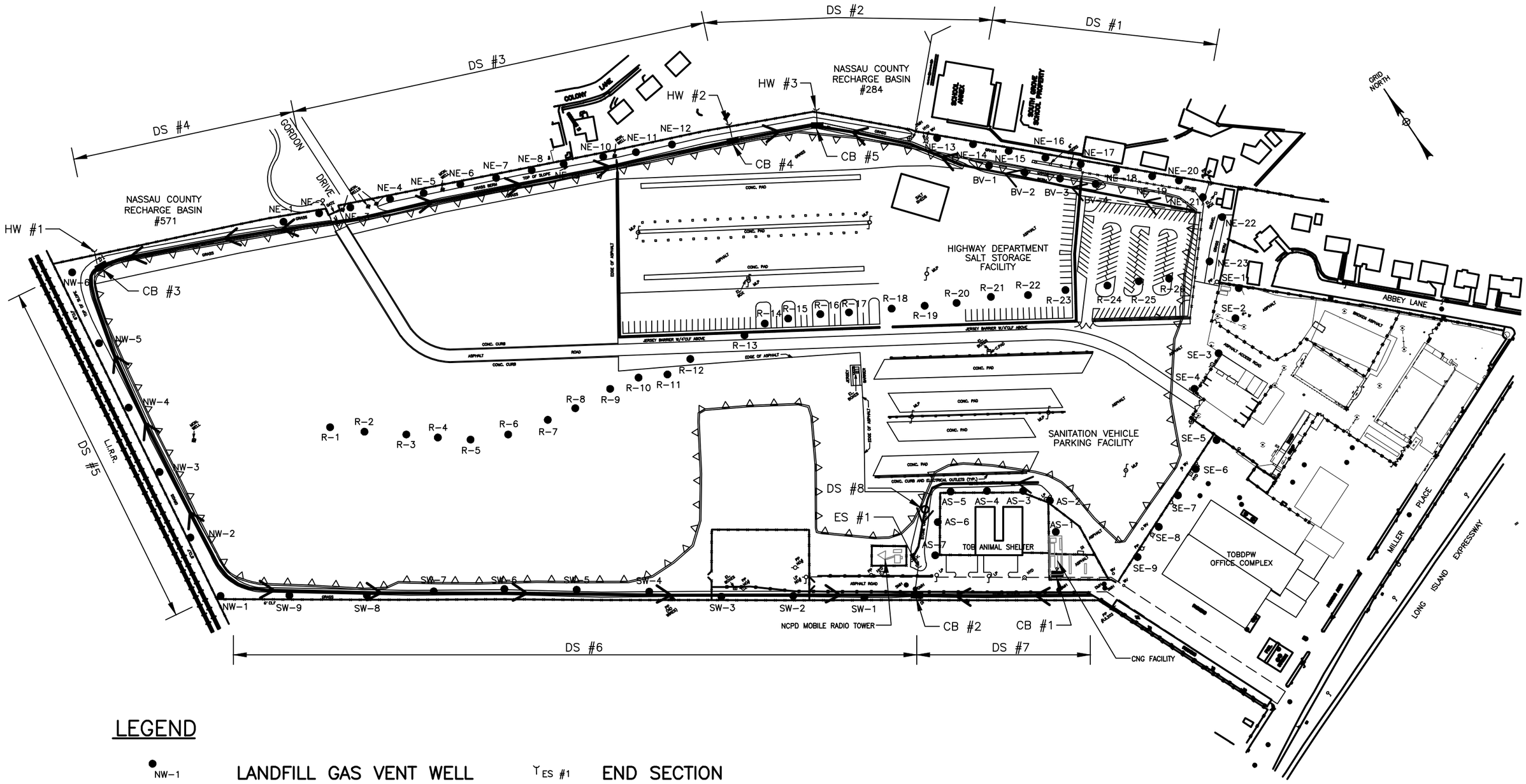
Ⓐ COVER SYSTEM AREA DESIGNATION

LANDFILL CAP LIMIT

FIGURE 1

SYOSSET LANDFILL
COVER SYSTEM LOCATION PLAN

LKB



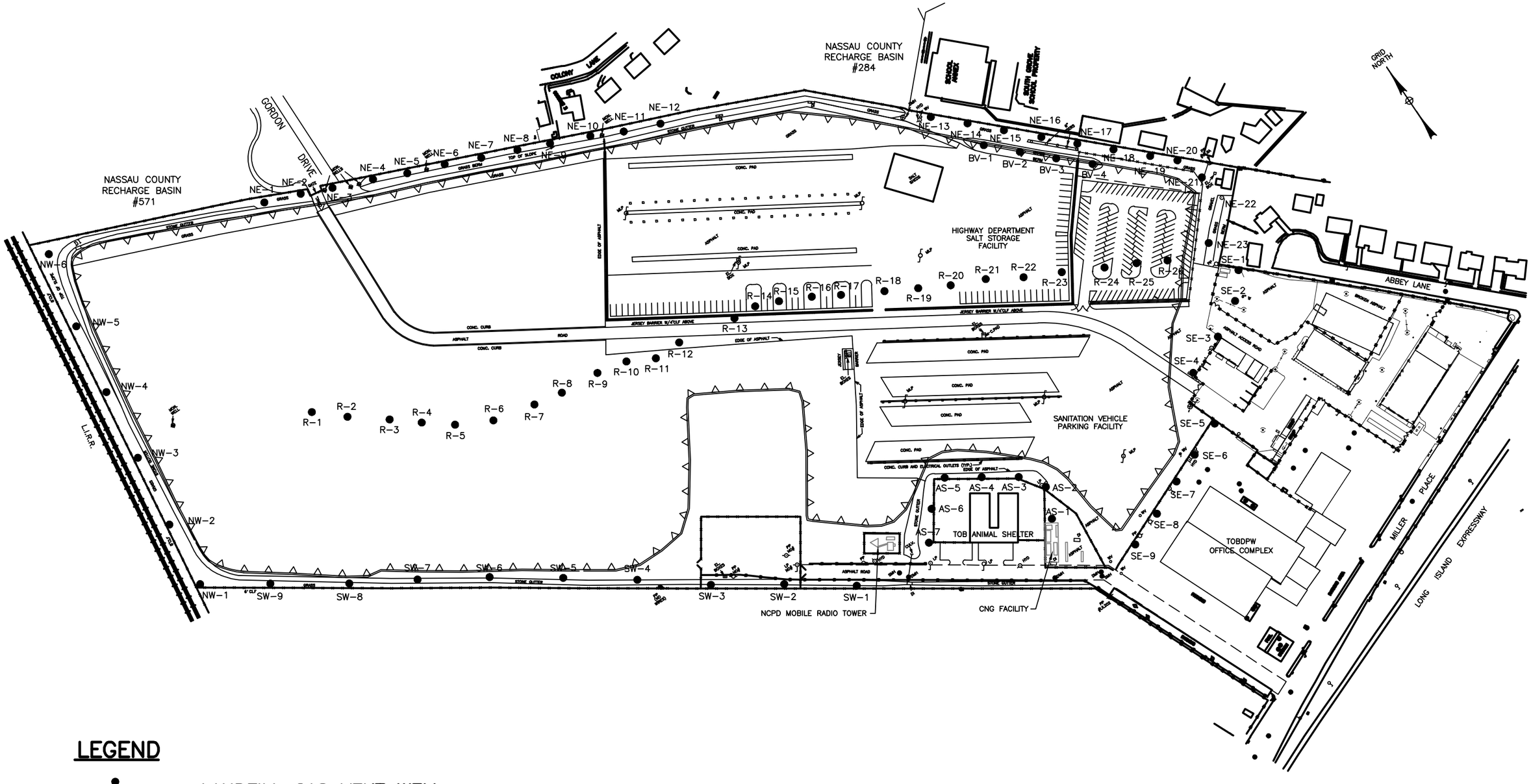
LEGEND

- NW-1 — LANDFILL GAS VENT WELL
- LANDFILL CAP LIMIT
- CB #1 — CATCH BASIN
- HW #1 — HEAD WALL
- ES #1 — END SECTION
- RIP RAP LINED DRAINAGE DITCH
- ASPHALT LINED DRAINAGE DITCH
- DS #1 — DRAINAGE DITCH SECTION DESIGNATION

FIGURE 2

SYOSSET LANDFILL
DRAINAGE SYSTEM LOCATION PLAN

LKB



LEGEND

NW-1 — LANDFILL GAS VENT WELL

LANDFILL CAP LIMIT

0 100 200 400

SCALE IN FEET

FIGURE 3

SYOSSET LANDFILL
GAS VENTING SYSTEM LOCATION PLAN

LKB

APPENDIX A

COVER SYSTEM

- **INSPECTION REPORTS**
- **PICTURES**

TABLE A1-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

COVER SYSTEM INSPECTION REPORT

Inspection Date: 3/26/15
Inspection Frequency:
☒ Quarterly
☐ Following 5-year Rainfall Event

Inspection Personnel:
M Geddish

ITEM	DEFECT INFORMATION[1]		
	LOCATION	DESCRIPTION	OBSERVED CAUSE
1. Surface Cracks (Asphalt/Concrete)	None		
2. Surface Material Erosion (Recycled Concrete)	Area A, B	Along perimeters[2]	Stormwater runoff
3. Surface Material Erosion (Vegetative Cover)	Area B, C	Erosion near gullies adjacent to Swale in Area B and near Salt Shed in Area C	Stormwater runoff
4. Vegetation Growth	Area B, C	Lack of vegetation in eroded areas	Stormwater runoff
5. Settlement	Area C	Minor settlements and low point on west face of salt shed Area C[2]	Differential Settlement
	Area E	N/W corner at easternmost concrete pad Area E[2]	Differential Settlement
6. Ponding Areas	Area A,B,C,E	Ponding in unevenly graded/ paved areas and potholes	Uneven grading/pave-ment/potholes
7. Burrowing Animals	None		

(1) - Defect locations are designated by Cover System Areas A through E identified on Figure 1 (scale: 1"=200'). If no defects are found, list “None” in the Location column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.

(2) – See previous report

Cover System Inspection

Erosion/Lack of Vegetation in Area C

Ponding in Area A

TABLE A2-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

COVER SYSTEM INSPECTION REPORT

Inspection Date: 4/29/15
Inspection Frequency:
☒ Quarterly
☐ Following 5-year Rainfall Event

Inspection Personnel:
Joe Maggio, Rex Chen

ITEM	DEFECT INFORMATION[1]		
	LOCATION	DESCRIPTION	OBSERVED CAUSE
1. Surface Cracks (Asphalt/Concrete)	None		
2. Surface Material Erosion (Recycled Concrete)	Area A, B	Along perimeters[2]	Stormwater runoff
3. Surface Material Erosion (Vegetative Cover)	Area B, C	Erosion near gullies adjacent to Swale in Area B and near Salt Shed in Area C[2]	Stormwater runoff
4. Vegetation Growth	Area B, C	Lack of vegetation in eroded areas[2]	Stormwater runoff
5. Settlement	Area C	Minor settlements and low point on west face of salt shed Area C[2]	Differential Settlement
	Area E	N/W corner at easternmost concrete pad Area E[2]	Differential Settlement
6. Ponding Areas	Area A, E	Ponding in unevenly graded/ paved areas and potholes	Uneven grading/pave-ment/potholes
7. Burrowing Animals	None		

(1) - Defect locations are designated by Cover System Areas A through E identified on Figure 1 (scale: 1"=200'). If no defects are found, list “None” in the Location column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.

(2) – See previous report

Cover System Inspection

Pothole in Area E

Ponding in Area A

TABLE A3-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

COVER SYSTEM INSPECTION REPORT

Inspection Date: 8/3/15
Inspection Frequency:
☒ Quarterly
☐ Following 5-year Rainfall Event

Inspection Personnel:
Joe Maggio, Rex Chen

ITEM	DEFECT INFORMATION[1]		
	LOCATION	DESCRIPTION	OBSERVED CAUSE
1. Surface Cracks (Asphalt/Concrete)	None		
2. Surface Material Erosion (Recycled Concrete)	Area A, B	Along perimeters[2]	Stormwater runoff
3. Surface Material Erosion (Vegetative Cover)	Area B, C	Erosion near gullies adjacent to Swale in Area B and near Salt Shed in Area C[2]	Stormwater runoff
4. Vegetation Growth	Area A, B	Some vegetation still missing	Stormwater runoff
	Area C	Lack of vegetation in eroded areas[2]	Stormwater runoff
5. Settlement	Area C	Minor settlement and low point on west face of salt shed Area C[2]	Differential Settlement
	Area E	N/W corner at easternmost concrete pad Area E[2]	Differential Settlement
6. Ponding Areas	Area A	Ponding in unevenly graded areas	Uneven grading
7. Burrowing Animals	None		

(1) - Defect locations are designated by Cover System Areas A through E identified on Figure 1 (scale: 1"=200'). If no defects are found, list “None” in the Location column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.

(2) – See previous report

Pothole in Area E

TABLE A4-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

COVER SYSTEM INSPECTION REPORT

Inspection Date: 11/17/15
Inspection Frequency:
☒ Quarterly
☐ Following 5-year Rainfall Event

Inspection Personnel:
Rex Chen

ITEM	DEFECT INFORMATION[1]		
	LOCATION	DESCRIPTION	OBSERVED CAUSE
1. Surface Cracks (Asphalt/Concrete)	None		
2. Surface Material Erosion (Recycled Concrete)	Area A, C	Along perimeters[2]	Stormwater runoff
	B	Washout along near DS-3	Stormwater runoff
3. Surface Material Erosion (Vegetative Cover)	Area B, C	Erosion near gullies adjacent to Swale in Area B and near Salt Shed in Area C[2]	Stormwater runoff
4. Vegetation Growth	Area A, B	Some vegetation still missing[2]	Erosion
	Area C	Lack of vegetation in eroded areas[2]	Stormwater runoff
5. Settlement	Area C	Minor settlement and low point on west face of salt shed Area C[2]	Differential Settlement
	Area E	N/W corner at easternmost concrete pad Area E[2]	Differential Settlement
6. Ponding Areas	Area A	Ponding in unevenly graded areas[2]	Uneven grading
7. Burrowing Animals	None		

(1) - Defect locations are designated by Cover System Areas A through E identified on Figure 1 (scale: 1"=200'). If no defects are found, list “None” in the Location column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.

(2) – See previous report

Cover System Inspection

Erosion in Area C

Washout in Area B

APPENDIX B

DRAINAGE SYSTEM

- **INSPECTION REPORTS**
- **PICTURES**

TABLE B1-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

DRAINAGE SYSTEM INSPECTION REPORT

Inspection Date 3/26/2015
Inspection Frequency:
☒ Quarterly
☐ Following 5-year Rainfall Event

Inspection Personnel:
M Geddish

ITEM	DEFECT INFORMATION[1]		
	LOCATION	DESCRIPTION	OBSERVED CAUSE
1. Ditch Section	DS #1,2,3,4,5,6, & 7	Siltation at various locations. Erosion evident along the borders of the ditch sections.[2]	Stormwater runoff/ Sedimentation
	DS #2,3,4,5,6,7 & 8	Vegetative growth.[2]	Sedimentation
	DS#2&3	Requires silt protection[2].	Deterioration of hay bales
2. Catch Basins (Indicate Catch Basin #)	CB #3,4,5	Silting and debris[2].	Stormwater runoff/ Sedimentation
	CB#3,4,5	Require silt protection[2].	Siltation and/or Deterioration of hay bales
3. Storm Drainage Pipes	ES #1	Vegetative growth and siltation.[2]	Sedimentation
4. Recharge Basin Headwalls (Indicate Basin #)	RB #284	Siltation and debris.[2]	Sedimentation
	RB # 358	Siltation and debris.[2]	Sedimentation
	RB # 571	Siltation and debris.[2]	Sedimentation

(1) - Defect locations (by Ditch Section #, Catch Basin # and Recharge Basin #) are identified on Figure 2 (scale: 1"=200'). If no defects are found, list “None” in the Location column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.
(2) – See previous report

Siltation – DS#2

Siltation and Vegetative Growth – DS#5

TABLE B2-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

DRAINAGE SYSTEM INSPECTION REPORT

Inspection Date 4/29/2015
Inspection Frequency:
☒ Quarterly
☐ Following 5-year Rainfall Event

Inspection Personnel:
Joe Maggio, Rex Chen

ITEM	DEFECT INFORMATION[1]		
	LOCATION	DESCRIPTION	OBSERVED CAUSE
1. Ditch Section	DS #2,3,4,5,6, & 7	Siltation at various locations. Erosion evident along the borders of the ditch sections.[2]	Stormwater runoff/ Sedimentation
	DS #3,4,6,7 & 8	Vegetative growth.[2]	Sedimentation
	DS #2, 3	Requires silt protection[2].	Deterioration of hay bales
2. Catch Basins (Indicate Catch Basin #)	CB #3,4,5	Silting and debris[2].	Stormwater runoff/ Sedimentation
	CB #3,4,5	Require silt protection[2].	Siltation and/or Deterioration of hay bales
3. Storm Drainage Pipes	ES #1	Vegetative growth and siltation.[2]	Sedimentation
4. Recharge Basin Headwalls (Indicate Basin #)	RB #284	Siltation and vegetative growth.[2]	Sedimentation
	RB # 358	Siltation and debris.[2]	Sedimentation
	RB # 571	Siltation and debris.[2]	Sedimentation

(1) - Defect locations (by Ditch Section #, Catch Basin # and Recharge Basin #) are identified on Figure 2 (scale: 1"=200'). If no defects are found, list “None” in the Location column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.
(2) – See previous report

Drainage System Inspection

Siltation – DS#5

Siltation – CB#3

TABLE B3-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

DRAINAGE SYSTEM INSPECTION REPORT

Inspection Date 8/4/2015
Inspection Frequency:
☒ Quarterly
☐ Following 5-year Rainfall Event

Inspection Personnel:
Joe Maggio, Rex Chen

ITEM	DEFECT INFORMATION[1]		
	LOCATION	DESCRIPTION	OBSERVED CAUSE
1. Ditch Section	DS #2,3,4,5,6, & 7	Siltation at various locations. Erosion evident along the borders of the ditch sections.[2]	Stormwater runoff/ Sedimentation
	DS #2,3,4,5,6,7 & 8	Vegetative growth.[2]	Sedimentation
	DS #3	Requires silt protection[2].	Deterioration of hay bales
2. Catch Basins (Indicate Catch Basin #)	CB #3,4,5	Silting and debris[2].	Stormwater runoff/ Sedimentation
	CB #3,4,5	Require silt protection[2].	Siltation and/or Deterioration of hay bales
3. Storm Drainage Pipes	ES #1	Vegetative growth and siltation.[2]	Sedimentation
4. Recharge Basin Headwalls (Indicate Basin #)	RB #284	Siltation and vegetative growth.[2]	Sedimentation
	RB # 358	Siltation and debris.[2]	Sedimentation
	RB # 571	Siltation and debris.[2]	Sedimentation

(1) - Defect locations (by Ditch Section #, Catch Basin # and Recharge Basin #) are identified on Figure 2 (scale: 1"=200'). If no defects are found, list “None” in the Location column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.
(2) – See previous report

Drainage System Inspection

Siltation – DS#3

Vegetative Growth – DS#5

TABLE B4-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

DRAINAGE SYSTEM INSPECTION REPORT

Inspection Date 11/17/2015 Inspection Personnel:
Inspection Frequency: Rex Chen
☒ Quarterly
☐ Following 5-year Rainfall Event

ITEM	DEFECT INFORMATION[1]		
	LOCATION	DESCRIPTION	OBSERVED CAUSE
1. Ditch Section	DS #2,3,4,5,6, & 7	Siltation at various locations. Erosion evident along the borders of the ditch sections.[2]	Stormwater runoff/ Sedimentation
	DS #2,3,4,5,6,7 & 8	Vegetative growth.[2]	Sedimentation
	DS #3	Requires silt protection[2].	Deterioration of hay bales
2. Catch Basins (Indicate Catch Basin #)	CB #2,4,5	Silting and debris[2].	Stormwater runoff/ Sedimentation
	CB #2,4,5	Require silt protection[2].	Siltation and/or Deterioration of hay bales
3. Storm Drainage Pipes	ES #1	Vegetative growth and siltation.[2]	Sedimentation
4. Recharge Basin Headwalls (Indicate Basin #)	RB #284	Siltation.[2]	Sedimentation
	RB # 358	Siltation.[2]	Sedimentation
	RB # 571	Siltation and vegetative growth.[2]	Sedimentation

(1) - Defect locations (by Ditch Section #, Catch Basin # and Recharge Basin #) are identified on Figure 2 (scale: 1"=200'). If no defects are found, list “None” in the Location column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.
(2) – See previous report

Drainage System Inspection

Siltation – DS#2

Siltation – Catch Basin #5

APPENDIX C

GAS VENTING SYSTEM

- **INSPECTION REPORTS**
- **MONITORING DATA**
- **PICTURES**

TABLE C1-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

GAS VENTING SYSTEM
INSPECTION REPORT

Inspection Date: 3/13/2015
Inspection Frequency

☒ Quarterly
☐ Annually

Inspection Personnel:
M Geddish

ITEM	DEFECT INFORMATION[1]		
	WELL No.	DESCRIPTION	OBSERVED CAUSE
1. Property Line Gas Vent Wells	SW-3	Well casing broken at grade[2]	Possibly hit
2. Perimeter Gas Vent Wells	None		
3. Ridge Gas Vent Wells	None		
4. Cluster Monitoring Wells	None		

(1) - Defect locations (by well number) are identified on Figure 3 (scale: 1"=200'). If no defects are found, shade "None" in the Well No. column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.

(2) – See previous report

TABLE C1-2
SYOSSET LANDFILL QUARTERLY GAS MONITORING DATA

Date: 3/13/2015
Time: 1:00:00 PM to 16:00
Personnel: M. Geddish

Temperature: 38 ^{0}F
Barometric Pressure: 30.58 F
Wind Speed: 9.2 mph
Wind Direction: 5
Humidity: 33 %
Weather Data Measured at: Farmingdale NY

Property Line Gas Monitoring Data

Vent Number	Methane (% gas)	Notes
NE1	0%	
NE2	0%	
NE3	0%	
NE4	0%	
NE5	0%	
NE6	0%	
NE7	0%	
NE8	0%	
NE9	0%	
NE10	0%	
NE11	0%	
NE12	0%	
NE13	0%	
NE14	0%	
NE15	0%	
NE16	0%	
NE17	0%	
NE18	0%	
NE19	0%	

Vent Number	Methane (% gas)	Notes
NE20	0%	
NE21	0%	
NE22	0%	
NE23	0%	
SW1	0%	
SW2	0%	
SW3	N/A	Well casing broken at grade
SW4	0%	
SW5	0%	
SW6	0%	
SW7	0%	
SW8	0%	
SW9	0%	
NW1	0%	
NW2	0%	
NW3	0%	
NW4	0%	
NW5	0%	
NW6	0%	

Perimeter Gas Monitoring Data

Vent Number	Methane (% gas)	Notes
SE1	0%	
SE2	0%	
SE3	0%	
SE4	0%	
SE5	0%	
SE6	0%	
SE7	0%	
SE8	0%	

Vent Number	Methane (% gas)	Notes
SE9	0%	
AS1	N/A	No Access
AS2	0%	
AS3	0%	
AS4	0%	
AS5	0%	
AS6	0%	
AS7	0%	

Animal Shelter Monitoring Data

Bldg. Location	Methane (% gas)	Notes
1	0%	
2	0%	
3	0%	

Bldg. Location	Methane (% gas)	Notes
4	0%	
5	0%	
6	0%	

TABLE C2-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

GAS VENTING SYSTEM
INSPECTION REPORT

Inspection Date: 4/29/2015
Inspection Frequency

☒ Quarterly
☐ Annually

Inspection Personnel:
Joe Maggio, Rex Chen

ITEM	DEFECT INFORMATION[1]		
	WELL No.	DESCRIPTION	OBSERVED CAUSE
1. Property Line Gas Vent Wells	SW-3	Well casing broken at grade[2]	Possibly hit
2. Perimeter Gas Vent Wells	None		
3. Ridge Gas Vent Wells	R8	Well casing broken at/just below grade	Possibly hit
4. Cluster Monitoring Wells	None		

(1) - Defect locations (by well number) are identified on Figure 3 (scale: 1"=200'). If no defects are found, shade "None" in the Well No. column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.

(2) – See previous report

TABLE C2-2
SYOSSET LANDFILL QUARTERLY GAS MONITORING DATA

Date: 6/12/2015
Time: 8:00 AM to 12:00 PM
Personnel: Joe Maggio
Rex Chen

Temperature: 78 ^{0}F
Barometric Pressure: 30 F
Wind Speed: 6 mph
Wind Direction: SSE
Humidity: 68 %
Weather Data Measured at: Farmingdale NY

Property Line Gas Monitoring Data

Vent Number	Methane (% gas)	Notes	Vent Number	Methane (% gas)	Notes
NE1	0%		NE20	0%	
NE2	0%		NE21	0%	
NE3	0%		NE22	0%	
NE4	NA	Inaccessible, vegetation	NE23	0%	
NE5	0%		SW1	0%	
NE6	0%		SW2	0%	
NE7	0%		SW3	0%	Well casing broken at grade
NE8	0%		SW4	0%	
NE9	0%		SW5	0%	
NE10	0%		SW6	0%	
NE11	0%		SW7	0%	
NE12	0%		SW8	0%	
NE13	0%		SW9	0%	
NE14	0%		NW1	0%	
NE15	0%		NW2	0%	
NE16	0%		NW3	0%	
NE17	0%		NW4	0%	
NE18	0%		NW5	0%	
NE19	0%		NW6	0%	

Perimeter Gas Monitoring Data

Vent Number	Methane (% gas)	Notes	Vent Number	Methane (% gas)	Notes
SE1	0%		SE9	0%	
SE2	0%		AS1	NA	No Access
SE3	0%		AS2	0.1%	
SE4	0%		AS3	0%	
SE5	0%		AS4	0.1%	
SE6	0%		AS5	0%	
SE7	0%		AS6	NA	Inaccessible, vegetation
SE8	0%		AS7	0%	

Animal Shelter Monitoring Data

Bldg. Location	Methane (% gas)	Notes	Bldg. Location	Methane (% gas)	Notes
1	0%		4	0%	
2	0%		5	0%	
3	0%		6	0%	

Gas Venting System Repair Inspection

Well casing broken at/just below grade - R-8

TABLE C3-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

GAS VENTING SYSTEM
INSPECTION REPORT

Inspection Date: 8/3/2015
Inspection Frequency

☒ Quarterly
☐ Annually

Inspection Personnel:
Joe Maggio, Rex Chen

ITEM	DEFECT INFORMATION[1]		
	WELL No.	DESCRIPTION	OBSERVED CAUSE
1. Property Line Gas Vent Wells	SW-3	Well casing broken at grade[2]	Possibly hit
2. Perimeter Gas Vent Wells	None		
3. Ridge Gas Vent Wells	R8	Well casing broken at/just below grade[2]	Possibly hit
4. Cluster Monitoring Wells	None		

(1) - Defect locations (by well number) are identified on Figure 3 (scale: 1"=200'). If no defects are found, shade "None" in the Well No. column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.

(2) – See previous report

TABLE C3-2
SYOSSET LANDFILL QUARTERLY GAS MONITORING DATA

Date: 9/28/2015
Time: 12:00 PM to 3:00 PM
Personnel: Joe Maggio
Rex Chen

Temperature: 73 ^{0}F
Barometric Pressure: 30.25 F
Wind Speed: 5 mph
Wind Direction: SE
Humidity: 79 %
Weather Data Measured at: Farmingdale NY

Property Line Gas Monitoring Data

Vent Number	Methane (% gas)	Notes	Vent Number	Methane (% gas)	Notes
NE1	0%		NE20	0%	
NE2	0%		NE21	0%	
NE3	0%		NE22	0%	
NE4	N/A	Inaccessible, vegetation	NE23	0%	
NE5	0%		SW1	0%	
NE6	0%		SW2	0%	
NE7	0%		SW3	N/A	Well casing broken at grade
NE8	0%		SW4	0%	
NE9	0%		SW5	0%	
NE10	0%		SW6	0%	
NE11	0%		SW7	0%	
NE12	0%		SW8	0%	
NE13	0%		SW9	0%	
NE14	0%		NW1	0%	
NE15	0%		NW2	0%	
NE16	0%		NW3	0%	
NE17	0%		NW4	0%	
NE18	0%		NW5	0%	
NE19	0%		NW6	0%	

Perimeter Gas Monitoring Data

Vent Number	Methane (% gas)	Notes	Vent Number	Methane (% gas)	Notes
SE1	0.1%		SE9	0%	
SE2	0%		AS1	N/A	No Access
SE3	0%		AS2	0%	
SE4	0%		AS3	0%	
SE5	0%		AS4	0%	
SE6	0%		AS5	0%	
SE7	0%		AS6	0%	
SE8	0%		AS7	0%	

Animal Shelter Monitoring Data

Bldg. Location	Methane (% gas)	Notes	Bldg. Location	Methane (% gas)	Notes
1	0%		4	0%	
2	0%		5	0%	
3	0%		6	0%	

Gas Venting System Repair Inspection

Well Casing Broken at/just below Grade- R8

Well Casing Broken at/just below Grade- R8

TABLE C4-1

SYOSSET LANDFILL
POST-CLOSURE MONITORING AND MAINTENANCE PROGRAM

GAS VENTING SYSTEM
INSPECTION REPORT

Inspection Date: 11/17/2015
Inspection Frequency

Inspection Personnel:
Rex Chen

☒ Quarterly
☐ Annually

ITEM	DEFECT INFORMATION[1]		
	WELL No.	DESCRIPTION	OBSERVED CAUSE
1. Property Line Gas Vent Wells	SW-3	Well casing broken at grade[2]	Possibly hit
2. Perimeter Gas Vent Wells	None		
3. Ridge Gas Vent Wells	R1	Protective ring damaged	Possibly hit
	R8	Well casing broken at/just below grade[2]	Possibly hit
4. Cluster Monitoring Wells	None		

(1) - Defect locations (by well number) are identified on Figure 3 (scale: 1"=200'). If no defects are found, shade “None” in the Well No. column. Utilize a separate sheet, if necessary, to further describe defects and observations of causes.

(2) – See previous report

TABLE C4-2
SYOSSET LANDFILL QUARTERLY GAS MONITORING DATA

Date: 11/18/2015
Time: 10:00 AM to 1:00 PM
Personnel: Joe Maggio
Rex Chen

Temperature: 56 ^{0}F
Barometric Pressure: 30.52 F
Wind Speed: 12 mph
Wind Direction: S
Humidity: 70 %
Weather Data Measured at: Farmingdale NY

Property Line Gas Monitoring Data

Vent Number	Methane (% gas)	Notes	Vent Number	Methane (% gas)	Notes
NE1	0%		NE20	0%	
NE2	0%		NE21	0%	
NE3	0%		NE22	0%	
NE4	N/A	Inaccessible, vegetation	NE23	0%	
NE5	0%		SW1	0%	
NE6	0%		SW2	0%	
NE7	0%		SW3	N/A	Well casing broken at grade
NE8	0%		SW4	0%	
NE9	0%		SW5	0%	
NE10	0%		SW6	0%	
NE11	0%		SW7	0%	
NE12	0%		SW8	0%	
NE13	0%		SW9	0%	
NE14	0%		NW1	0%	
NE15	0%		NW2	0%	
NE16	0%		NW3	0%	
NE17	0%		NW4	0%	
NE18	0%		NW5	0%	
NE19	0%		NW6	0%	

Perimeter Gas Monitoring Data

Vent Number	Methane (% gas)	Notes	Vent Number	Methane (% gas)	Notes
SE1	0%		SE9	0%	
SE2	0%		AS1	0%	
SE3	0%		AS2	0%	
SE4	0%		AS3	0%	
SE5	0%		AS4	0%	
SE6	0%		AS5	0%	
SE7	0%		AS6	0%	
SE8	0%		AS7	0%	

Animal Shelter Monitoring Data

Bldg. Location	Methane (% gas)	Notes	Bldg. Location	Methane (% gas)	Notes
1	0%		4	0%	
2	0%		5	0%	
3	0%		6	0%	

Gas Venting System Repair Inspection

Well Casing Broken at Grade- SW3

Protective Ring Damaged – R1

APPENDIX D

GROUNDWATER MONITORING PROGRAM

(Report Bound Separately as Volume 2 of 2)

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